

Hematology with Dr. Brian Durie Ologies Podcast January 11, 2018

Heyyyy, Ologites! Alie Ward here.

So, blood. It's important. It's kind of scary and you, yourself, are a pulsing, barely-contained leather sac of it.

But what is it? In this episode, we'll talk to a hematologist/oncologist about what blood does, and why he works with it, and what can go wrong, and how to fix it.

And before we dive in, I want to say, thank you so much for the 500-review mark we hit on iTunes. You guuyyyys! I appreciate it so, so much. I read every review, like a total creep, and it really keeps me going.

So, I'm going to read you my favorite review this week. Do you wanna hear it? Okay. Cmagnes [ph.] said:

I'm afraid of death, birds, and the universe, and the episodes about these topics were so interesting and engaging that I forgot these things terrified me while I listened.

YAAAYYY! She said:

Alie is a great host...

Thanks!

...who really knows how to keep a podcast flowing in an entertaining way. Very impressed she records her parts from a closet.

I am in a closet right now, recording this. Life! Also, AnJelloZ [ph.] said:

I want Alie as a friend.

Done. Dunzo. We're pals now. They say:

Great podcast. I even enjoyed ologies that I thought I was not very interested in. Can't wait for more.

I always love hearing that when someone's, like, "I didn't think I'd care about this, but, good episode!" I'm, like, YESSSS! We did it!

Thank you so much for leaving those reviews. They help so much and they really help the show get seen and heard.

So, this episode. 'Hematology' comes from the Greek for blood. Pretty simple. And I learned about this particular ologist through a blood relative, my Pop.

A few months ago, my dad forwarded me an announcement for a charity function in L.A. that was a comedy show with some comics that I'm, like, familiar with like Kumail Nanjiani, and Hannibal Buress, Marc Maron, Ray Romano, Nikki Glaser, all of these people and I was, like, "Whoa! How did they all get involved in this?" Well, there's a blood cancer called multiple myeloma, and Peter Boyle, who played the dad on *Everybody Loves Raymond* battled it for a number of years. And every year, in partnership with The International Myeloma Foundation, his amazing family puts on this comedy benefit to raise money for research.

Now, my dad also has multiple myeloma, so I reached out to IMF to see if they needed some volunteers and I got involved with the benefit that way, and was really lucky to be able to take some time of one of the lead researchers in this field before the event, and get him in a conference room and pepper him with questions about what he does. He was so nice!

Usually I have listener questions from Patreon supporters, but today all the questions are furnished courtesy of Mr. Ward, my dad, who is kicking the ass of this particular blood cancer.

So, when my dad was first diagnosed in 2013, I didn't know anything about blood diseases, even though 30,000 people a year will be diagnosed with multiple myeloma, and my uncle also had it. Now, when my parents found out - I'm not sure if anyone else who has been affected by any kind of illnesses has done this, but - the words 'multiple myeloma' were written on a Post-It note and given to them by, like, a nurse to go home and Google. The prognosis at the time was 2 years, and I, myself, curled up in a ball, honestly, like, hoarsely cried for a few days.

Now it's 5 years later. My dad is still doing well, and they have this now-faded, pink Post-It note and it's taped to their computer desk as a reminder of those first really terrifying months and also of a lot of hope. And at this comedy benefit, a lot of the comedians that I talked to had to Google the disease, some on the car ride over. They were, like, "Umm. I didn't know what it was." Which is totally fine. For my family, personally, these words are on our minds every day and the people who are getting up and going to work to find cures, for this and other diseases, are, like, celebrities. They're amazing.

So, here's the deal. When you work in a coffee shop, you probably get good discounts for coffee. With my work, I have access to so many science heroes and getting to sit down and interview someone who's at the front lines of this is a pretty big perk of the job, but I struggled with whether or not this episode would be relatable, and some of the nitty-gritty about treatments, I cut. So, if anyone, especially if you've been affected by multiple myeloma, wants a copy of the uncut version, email me at helloalieward@gmail.com. I can also post it on the Patreon page and I'll just give you the full version with all the nitty-gritty.

So, I've shaped this episode to be all about: What is blood? What's the healthiest, most scientifically chill way to live? What is cancer? How can we make ourselves less vulnerable to cancer? What therapies are being developed? How many people attend Coachella? What brought the ologist to this field? And the etymology of some Cantonese slang involving fish.

I can say I walked away from this interview feeling sooo hopeful about my dad's prognosis, and also more empowered to take care of myself while I can. It's so easy - ugggghhh! - to treat your body like garbage and be like, "Eh, I'll get healthy later," or, "I don't, like, deserve to rest, I gotta hustle!" But, once you find out how much my dad's chemotherapy costs each month you will take a nap so hard and you will only eat, like, spinach and walnut smoothies. Also, this ologist has the best Scottish accent ever.

So, settle in, get your blood *pumped* to learn all about hematology with Dr. Brian Durie.

Alie Ward: If you could tell me, what is your specific title? Are you an oncologist, are you a myeloma specialist? What do you call yourself?

Dr. Durie: Okay, so, so, I'm a hematologist, and I'm an oncologist. I'm both. So, I'm qualified in both and I'm an internist, internal medicine specialist.

Alie: So the sight of blood does not freak you out?!

Dr. Durie: Well, strangely enough, the sight of blood is... When I got into hematology, you know the specialty of blood diseases, I got interested because it was something that I could study under the microscope.

So, when you're learning, and you're a scientist, and then you can make a slide, and then you can look at it under the microscope, I was fascinated because I could see all these different blood cells. And that was very exciting for me where I could distinguish the different kinds. And so that's actually looking at the blood, and researching the blood, that's how I became interested in the first place.

Alie: Did you ever get a microscope when you were a kid as a gift or something? Or, when did it start?

Dr. Durie: It started when I went to medical school. So, in medical school you're studying all kinds of things but then when we started the part where we were using the microscope, that's where I got especially fascinated.

Alie: Did you ever put your own blood under the microscope to see what was going on?

Dr. Durie: Oh, yes. You have to do that as a student.

Alie: Really?

Dr. Durie: Oh, yes! You check your own blood and then you compare it with all these other different things which you're given for comparison, you know.

Alie: WOW! So, did you ever, like, eat a hamburger and then see what it looked like then?

Dr. Durie: *[laughs]* No, I didn't do that. Those things are not so obvious on your blood, when you're just looking at it. Now, if you do chemical testing, obviously, you could see something but not just looking at it.

Alie: When did you start studying oncology? Were you a hematologist first and then you started getting interested in blood diseases and cancers?

Dr. Durie: Yes, basically that was it. So, I did hematology training at the Mayo Clinic in Rochester, Minnesota.

Alie: Heard of it! Good place!

Aside: Side note... I have some friends who have been treated at the Mayo Clinic and they say it was the best medical care they've ever gotten. Next level! Like, Mayo Clinic is like those lie-flat, first-class airline cabin seats with the beds, and the free wine, and the salmon, and the cheese when you're used to a middle row seat in coach next to the toilet sitting near someone with sausage burps. It's just so much better.

Back to the training of one of the world's leading cancer researchers who trained at the Mayo Clinic.

Dr. Durie: So, I started off with that, and then during my training, since I come from Scotland... So, I'm an immigrant, I'm a foreign medical graduate. They actually assign you a mentor, or kind of like a coach. In that process my mentor turned out to be a doctor called Dr. Robert Kyle, who is actually very, very famous in the field of multiple myeloma. So by chance, he turned out to be my mentor and we became good friends because we had both run Boy Scout troops.

Alie: Really!

Dr. Durie: He ran the Boy Scout troop in Rochester, Minnesota, and I used to run the Boy Scout troop in my hometown in Scotland.

Alie: So you guys bonded and then started working together?

Dr. Durie: Yes. His interest was myeloma and more into the blood cancer area, and so I became more interested in that and then ended up doing both blood and cancer.

Aside: So, let's get right into it. What is blood?

If you are walking around in an adult body, it contains roughly 5 liters of blood. That's a little over a gallon slosh-sloshing around. So squishy!

So, what is it? What is blood? Well, stem cells in your bone marrow mature and they change into three types of blood cells: red blood cells, white blood cells, or platelets.

Red blood cells carry oxygen around the body, so you need that a bunch. Red blood cells also contain this protein, it's called hemoglobin, and it has iron, and that combines with oxygen to give hemoglobin, and our blood, the awesome, terrifying red color that it has.

Crabs, by the way, have blue blood. And earthworms and leeches have green blood. And there are some invertebrates, like starfish, that have clear blood! So, unless you're one of those, or a plant, or a robot, yours is red.

Red blood cells, let's be honest, life of the party. Party would be so dead without them.

Now, white blood cells, aka leukocytes, those are cells of the immune system, and they protect the body against infectious diseases and invaders. They're like your friend who talks smack to creeps when they hit on you. And you're like "Ugh, thank you, I didn't even see them. Ugh."

Finally, platelets, also called thrombocytes, it's a cool name, and they're part of the blood. Their purpose is to stop bleeding. They do this by clumping and clotting. So, when you're, like, "Ugh, c'mon let's leave," they're your friend who convinces you to stay at the party and you're so, so glad that they did, if leaving the party was the same as bleeding out to death, which it's not, but I needed an analogy.

These blood cells float in this salty, straw-colored liquid called blood plasma. And blood plasma, it's made of about 90% water, and it also contains nutrients and electrolytes, gases, proteins, hormones, all kinds of stuff.

So, you are just this opaque Ziploc full of complex tomato soup, which is great, but what is blood cancer? It's not so great.

When someone talks about cancer it's usually preceded by a body part. So, someone has throat cancer, liver cancer, you're like "okay, I'm not a surgeon, but I can picture the general area of this cancer because my brain is not made of turnips." But blood cancer is confusing because it's everywhere but it's nowhere all at once.

So, you're about to get cocktail-party literate on hematology. If you're ever introduced to a hematologist at a dinner party and you're able to impress them, I have done my job.

Okay, here's a quick rundown of blood cancers that may confuse you if you see one of them listed on a flyer for a charity. I'm gonna break it down so that you get the difference.

Leukemia is caused by this really rapid production of messed-up white blood cells. They screw up the ability of the bone marrow to make red blood cells and platelets. That's leukemia: white blood cells.

Lymphoma is when these other white blood cells, called lymphocytes, become abnormal, they turn into lymphoma cells, they multiply, and they collect in your lymph nodes. That messes up your immune system as well.

Now, myeloma is cancer of the plasma cells. So, Dr. Durie sums it up...

Dr. Durie: The bone marrow is where you make your blood, okay? When you have a cancer of the blood, actually it's a cancer of the bone marrow, because what has happened is that the bone marrow has been damaged by something, and so then it's not making blood like it should, and maybe even has turned into a cancer of the bone marrow.

Now, in the case of leukemia, that means that you stop making the normal blood cells and make the leukemia cells.

In the case of myeloma, it means that you have a problem with the plasma cells, which is a particular kind of a cell in the bone marrow, which is the cell which is part of your immune system. So, it's actually a cancer of the immune system, and in your bone marrow you make the antibodies to fight infection.

Aside: Why would your bone marrow do you like that? What happened?

Alie: And what happens to make the bone marrow turn in blood cancers, or what happens in general with cancer to suddenly...?

Dr. Durie: So, what causes it?

Alie: Yeah.

Dr. Durie: Well, I think that there's been a lot of controversy over the years as specifically about myeloma, because it seems like more than one kind of toxic exposure can cause myeloma.

Alie: Really?

Dr. Durie: So, for lung cancer, there's a strong connection to cigarette smoking, and the carcinogens, the cancer-causing chemicals, which are in cigarette smoke.

For myeloma, there's been a connection with many different kinds of chemicals. As long as 100 years ago it was noticed that people who work with benzene, which is a solvent in paints and in factories where they do all kinds of manufacturing with solvents and glues, people who worked with benzene would get myeloma.

Alie: Really?

Dr. Durie: Yes, so there is a linkage, which is called, a 'proof of principle,' where if you're exposed to a cancer-causing chemical, in this case, it can sometimes cause myeloma.

Aside: Let's lay down a few more basics.

So, first off: Yes, cancer was named after a crab, because of the way veins branched off from a tumor, which sounds gross and very moist. Also, cancer doesn't have to be a tumor or a lump that you can, like, poke with a stick. Cancer just means when abnormal cells divide in an uncontrolled way.

So, some cells get a little wonky and they just keep making more wonky cells.

According to the American Cancer Society, it's caused by changes in the cell's DNA, so that's the genetic blueprint. And, some of these changes can be inherited, others can be caused by environmental factors such as, for example, these things... ready? I'm going to list these off. There's a long list but I'm going to read you some that I can pronounce: Alcoholic beverages, benzenes, tanning beds, sawdust, a bunch of chemical compounds I can't pronounce, the virus that causes mono, diesel exhaust, estrogen therapy,

processed meat, aluminum production, tobacco, asbestos, and quote “salted fish comma Chinese style.”

I saw that last one and I was like “Damn, that is specific.” So, what is up with “salted fish, Chinese style”? Well, turns out, Cantonese salted fish is a dish common in southern China where fish are gutted and they're hung in a heap of salt to preserve it. Apparently, studies since the 1960s have shown that the Southern Chinese fishing populations who consume it as a staple are at a higher risk for cancer. This also led me down a hole of Chinese slang surrounding salted fish, and in Cantonese, dead bodies are referred to as “salted fish,” and a salted fish coming back to life means a person is making a comeback after their career looks belly up. And the phrase, “Those who eat salted fish must put up with thirst,” is essentially “Check thyself before thou dost wreck thineself.”

So, there are a lot of things already identified as things that will mess up your DNA. But there are soooo many environmental factors that we have no idea about yet.

Alie: Do you think that there is a ton of substances that we are in exposure too that we will find out later we really shouldn't have been exposing ourselves to?

Dr. Durie: This is so absolutely true, it's one of the very, very big concerns that I have.

Since the Industrial and Chemical Revolutions, since the 2nd World War, over 100,000 chemicals have been introduced into the environment that we are exposed to.

Alie: Wow.

Dr. Durie: 100,000, and of those only a handful have been carefully studied and have proper regulations with regard to use, and cautions, and things like that.

Aside: Okay, one second, I'm just going to bury my face in my arm and groan for, like, an hour.

Dr. Durie: I really do have a deep concern that we will discover many, many cancer-causing chemicals have been out there and we've not been paying attention.

Now, we've learned a little bit about this. So, for example, with the 9/11 event in New York, all these chemicals were released with the fire, with the combustion. And then there was a big development of myeloma in people after the 9/11 event because they were being exposed to fire retardants, and solvents, and all kinds of different chemicals that were suddenly at high levels and really causing a problem.

Alie: Wow, so we're still having to look at cases and try to find correlations between exposure.

Dr. Durie: That is correct. So, we're at this point of checking, correlating...

Alie: As a scientist, do you like getting the data and trying to crunch the data, or are you more interested in, kind of, the care aspects of being a doctor? How do you approach getting all that data?

Aside: Quick question, Ologites. Do you say “day-tah” or “dah-tah”? This messes with me every time I say it, and so I usually say it both ways in a conversation and that way I am guaranteed to be wrong every time.

I looked into it, and it seems to be a matter of regional dialect, although I landed on this webpage of a woman named Susan Ryan. She's an American dialect coach who insists that it's “day-tah.” And for some reason I found her helpful recording very soothing and then I went down some holes and listened to her say a bunch of other words..

[*Susan Ryan saying “day-tah... day-tah... daytahbase... daytahbase... day-tah... daytahbase”*]

And Susan, according to her bio, is also, “A former Alcatraz Park Ranger, avid birdwatcher, and a linguaphile who makes a mean scrambled egg à la Julia Child.” I would roll in her posse for sure if she wanted to be friends.

Okay, so, does Dr. Durie prefer crunching the “day-tah” or being bedside?

Dr. Durie: Right, so, over the years I've done both types of things, which I would say is quite challenging and became increasingly challenging over the years.

I've always seen patients in the clinic, I had a myeloma clinic, so one or two days a week I would always just see myeloma patients. But in addition to that, for most of my life I ran a lab where I was studying myeloma and crunching numbers from cell cultures, from statistics and all kinds of things like that. So, I've done both kinds of things mostly my whole career.

Alie: Oh, wow! So, you've gotten both of them.

Dr. Durie: Yes.

Alie: And then, what are you working on now? Tell me, like, a little bit about gene editing or CRISPR. How does that factor into your work?

Aside: CRISPR, but the way is spelled with no “e” and at first glance it looks like an app that disrupts the lettuce industry. But CRISPR is a DNA sequence. It stands for “Clustered Regularly Interspaced Short Palindromic Repeats.” You're fine. You don't have to memorize that.

And CRISPR technology lets geneticists edit parts of the genome. It's craaaazy, and exciting, and Dr. Durie (I feel weird calling him just Brian so I'm just keep calling him Dr. Durie I don't know)... Anyway, Dr. Durie is working on a bunch of things for something called the Black Swan Research Initiative.

The name has a cool weird origin. It kind of surprised me.

Alie: Why is it called Black Swan?

Dr. Durie: Because you are looking for something that is hard to find and you may not recognize it right away.

In the Western world, everybody thought swans were white. So you have this idea: swans are white. But then the first ships went to Australia and over by Perth, on the

West coast, and they sailed up the Swanee River and Lo and Behold! The swans were black.

So they realized that you have to open up your mind and look at things a little differently and say, "okay there are swans, usually they're white but actually in Australia they're black, and in other parts of the world they're brown and maybe slightly different colors."

It's a project where you have to open your mind and be open to different strategies to solve your problem.

Alie: Are you seeing a lot of scientists and oncologists finding the genes that could make one more susceptible to cancer? Are those getting identified?

Dr. Durie: Absolutely, this is a very active area of research. Through the Black Swan project we have a couple of groups doing just this. In Germany we have a group looking at family myelomas. They're looking at families where there are 2 or more individuals within the family that develop myeloma and we're collecting a whole series of these families to figure out what is it that's causing this susceptibility. We're studying them at the genetic level, and what I can tell you already is that there are several types of genetic predispositions.

Aside: So, side note, my uncle Joe also had myeloma. He did not make it, which is another reason why I love to interview ologists like Dr. Durie. It's so crazy to me that people are doing this and just walking among us, like, buying a phone case at Target. You might never know that this person behind you in line is working on something that could save your life or a family member's life. It's nuts.

Alie: So, how long before you can see things like gene editing like CRISPR being used in the treatment of oncology? How far away is that?

Dr. Durie: It's happening now.

Alie: Oh!

Dr. Durie: It's happening now.

Alie: How?

Dr. Durie: What you can do is you can edit the immune cells. You maybe have heard about a very active type of therapy called immune therapy and one type is called "CAR T-cells." And this is a situation where you take the immune cells, the T-cells, from the patient, and then you engineer them, and then you give them back.

Aside: So, "CAR T" stands for Chimeric Antigen Receptor T-Cell therapy. CAR T. So, if you hear this, the essential deal is that CAR T-cell therapy is a way to get immune cells called T-cells, which is a type of white blood cell, to fight cancer by changing them in the lab so that they can find and destroy cancer cells.

Pretty awesome.

Dr. Durie: With the gene editing approach, you can really edit and tweak those T-cells to really recognize and attack, in a very specific way, the cancer that you're interested in.

In China, they are already doing this. They have a trial where they're treating lung cancer using these edited T-Cells and we're starting to look at doing it in myeloma.

It's like science fiction that we're moving so quickly.

Alie: Yeah! When you're doing your research, are you splitting your time between chemical therapies and also these genetic therapies that can, kind of, prevent or treat it?

Dr. Durie: Yes, so the way that this, kind of, slots into the day-to-day activity is that most patients, when they start out, we have these therapies that we know can work well. But then we know that those will produce remissions for a few years but then when that impact is starting to wear off then they need new therapies, and so this is the perfect situation and opportunity to say, "Okay, what are the new therapies that can rescue and treat at this point?" And then, from those, like the CAR T-cells look very promising, and so we're thinking, "My God, they're really rescuing pretty well in the relapse situation. Maybe we should be using even earlier."

Alie: Are we 5 or 10 years off from this happening in the US, do you think?

Dr. Durie: No, it's happening. This is a very rapidly changing field.

CAR T-cells have been improved not using the CRISPR, but just in general, they've been approved for leukemia and lymphoma in the US.

This is being described as, like, a new space race. Sputnik 2! Where the Chinese are working on it and the US are working on it. It's really competitive.

Alie: Are y'all friends, or is it a little bit, like, "Oh, what are you working on?" Is it like watching cooks on a cooking competition?

Dr. Durie: There is quite a bit of that. They're all cooking up their own brew and there's a little bit of competition that what you're cooking could be the best and... It's good.

Alie: I welcome this competition. I'm, like, whatever gets you guys working fastest. I'm into it.

Dr. Durie: Right.

Alie: My dad had some questions he wanted me to ask you. As a patient and also as a former journalist who loves to research things, he's on it. He's on all the blogs.

He wants to know why cancer drugs are so expensive. How much of the cost is research related and how much is related to protection against lawsuits?

Aside: Okay, once again, the listener questions, they're all from my dad this week because this is a spesh ep of *Ologies* and this question is about the cost of pharmaceuticals. His chemotherapy comes in a pill form he takes every day at 4pm and it's called Revlimid. It's saving his life and it's thankfully covered by a program called Veteran's Choice, but the retail price, if it weren't covered, would be over \$16,000... per month.

Alie: Why does it cost so much?

Dr. Durie: Right, so this is really... It's a lot of reasons why. The main reason that's put forward why, certainly on behalf of the pharma companies, is that they have development costs. Y'know, they're testing this drug, testing that drug, and then they've got to do all these trials which are very expensive, cost millions of dollars to test and make sure it's safe and things like that

Aside: This drug did cost several million dollars to research and develop, but it's made 20 billion dollars for its parent company since its release in 2004 and the price keeps going up.

Now, on the other side, it's hard not to be grateful that people are even working on this. Also, the makers are being sued class-action lawsuit because they failed to share some information that would get a cheaper generic out there.

C'mon, guys!

Dr. Durie: But then ultimately, there is this question that, for example, Revlimid has been on the market for quite a number of years now, and so you'd say, y'know, absolutely there were development costs but this is 10 years later, 15 years later, so maybe this would be the time to have a more reasonable cost.

Alie: Right.

Dr. Durie: This is something that is really prominent at the political level right now. I mean, what are reasonable drug costs? That has become a complicated process where the companies they extend their patents, they...

Alie: Aaughhh!

Dr. Durie: ... and then even the generic folks, when they come in, they don't reduce the costs so much. So, everyone's in it to make a buck. This is, in my opinion, very tragic and difficult because this is not like selling cars or watches where you say, "Oh, well, this is a beautiful watch you could have a mark-up." That's fine, but this is drugs that are to save people's lives, and so I'm not so happy about mark-ups in that environment.

Aside: If you want to know why watches can be so expensive, by the way, and you deeply enjoy some Jay-Z watch puns, listen to the Horology episode of *Ologies*. Just gonna... just sayin'.

Alie: What you could buy for \$16,000 a month instead of 28 pills or 30 pills! Oh my gosh!

Dr. Durie: Right. I know. And so you see, in other areas it's been easier to work around it. For example, in the area of surgery so people say, "Well you know, I could get my knee replaced in Nevada or maybe I could fly to Thailand and get it replaced and it would be half the price. Even including the cost of the flight!"

Alie: So crazy. It's so crazy. We joke that my dad's \$500 pills are Kim Kardashian-level. If you spent that amount of money on Champagne and caviar you'd be rollin'!

Dr. Durie: Exactly!

Aside: So, instead of taking that one \$500 pill a day that's saving his life my dad could be, every day, getting bottle service, which starts at around \$400 at LA's douchiest nightclubs. Or he could be buying, every day, one pair of Yeezy clear PVC stiletto pumps. Dad, a PVC pump isn't a plumbing thing. It's like a clear plastic high heel designed by Kanye West.

Dr. Durie: I think I do see that this has to be addressed. It is unsustainable.

Aside: So, do oncologists collab? Do they work together? Do they play nice?

Dr. Durie: I would have to say though that outside of the US we've been really, really excited and have the opportunity to work with some great teams outside of the US who are doing amazing things. One of the coolest projects that we're doing in Iceland.

Alie: What?

Dr. Durie: So we're studying everybody in Iceland.

Alie: Everyone?

Dr. Durie: Everyone.

Alie: How many people are in Iceland?!

Dr. Durie: 340,000.

Alie: That's it?

Dr. Durie: Yes.

Alie: Oh, gosh, that's like... that's like Studio City in LA. That's like Los Feliz, or something.

Dr. Durie: Right.

Aside: Okay, I was way off. The population of the LA suburb Studio City is 37,000. Los Feliz, just about the same. So, I was wrong. But 340,000 is less than the population of Staten Island, and it's about equal to the total attendance of one Coachella weekend. Which is a very bone-chilling statistic. Coachella's so crowded, you guys.

Dr. Durie: But it's a whole country, and so there are so many opportunities where you could test and then offer therapies to a whole country where you're not excluding anyone. They're all part of the same electronic medical record system so you know what's happening to everyone from the time they're born all the way through until they're getting diseases and having issues.

So, the other thing that happened is that there's a big genetic company in Iceland called Decode Genetics that actually did DNA sequencing of all the people.

Alie: Everyone?

Dr. Durie: Yes.

Alie: Wow!

Dr. Durie: Mind-boggling. In real money it would have cost billions of dollars but they did it in a different way where it didn't cost them quite so much, and so this is incredibly powerful. Incredibly powerful.

We will learn what are called the 'driving mutations,' the ones that are leading us forward. And this will be a huge opportunity for CRISPR. So, once we say "Oh, my God! This is the gene!" well, we would be able to edit it.

Alie: Wow!

Dr. Durie: And prevent, and to treat. So, it's going to lead into all these new molecular opportunities.

Alie: Thanks, Iceland!

Aside: I asked if eating walnuts helps because we read that eating walnuts helps. And, you guys, my dad eats walnuts every day. Maybe walnuts are magic? Maybe walnuts are the brains of aliens from another dimension and they fix everything? Maybe they just have a lot of antioxidants.

Dr. Durie: You do need to have your body and your immune system in the best shape to accept all these kinds of therapies. It's clear that having your best diet, your best vitamin combination is absolutely helpful, but you shouldn't have too high of an expectation.

Aside: Walnuts are not a reliable cure. But, duh! But, this next part rules. Totally blew my mind!

Dr. Durie: I've been most interested to study places where people live to be over 100. Where they're apparently pretty healthy. And the question is, "What are they eating?"

Alie: Yeah, exactly! *[laughs]* Probably not as much Jack in the Box as we do.

Dr. Durie: That is the summary. That is the exact summary! So, the first place...They're called 'Blue Zones' and the first one is a Greek island close to Turkey, called Icaria, and so they have a Mediterranean diet, as you might expect.

Alie: Right.

Dr. Durie: They have also very low stress, they have no clocks on the islands so they're not concerned about time.

Alie: Are you kidding me?!

Dr. Durie: So, they have low stress, they have no clocks, no mortgage. See, these are families that have lived there for hundreds of years, and so they're just living there!

Alie: Wow.

Dr. Durie: And they have chickens, they can go fish in the ocean, they grow some grapes, have some nice red wine, and they have a Mediterranean diet. This combination seems to be rather healthy. There is no Jack in the Box, and they don't eat junk food, they don't have diet drinks. They do drink wine; they do drink teas. They put honey in as a sweetener. So, they do a lot of healthy things, and so it is possible to come up with a healthy diet.

Aside: So, all you have to do is move to an island utopia! And you're fine!

Now, if you're not into Greek isles, some of the other Blue Zones are Okinawa, Japan – island – Sardinia, Italy – island - Nikoya in Costa Rica, which is a peninsula. Imma blow your mind right, but 'peninsula' comes from 'paene insula,' which means "almost an island." Case in point.

And finally, okay, what's the last island you think it's gonna be? Uh, Loma Linda, California! Which is not an island, it's this weird outskirts suburb of Los Angeles, there's a group of Seventh Day Adventists that live a life so chill that this one little area counts as a Blue Zone. Very shocking.

So, some commonalities that lead to these long relatively disease-free lives are family, putting it ahead of other concerns, less smoking, semi-vegetarianism, the majority of food consumed derived from plants, moderate physical activity, social engagement and, finally, beans. Commonly consumed are legumes. So, it's part diet, part behavior.

Dr. Durie: And also a healthy pattern of behavior which is to... we can't ignore the time but we can certainly try to reduce that time-stress factor.

Alie: Right. I am doing everything the opposite of everything you just described.

Dr. Durie: *[laughs]*

Alie: And also, scare me out of diet drinks. Should I... we shouldn't be drinking diet drinks, right?

Dr. Durie: You should not.

Alie: Okay. Good to know. How do they kill us?

Dr. Durie: Things like Coke, they do have... That brown color of the Coke, that caramel is not so healthy, in fact. So the dyes are not so healthy, and then the things like aspartame, the sweeteners, those are not good either.

Aside: I just started down a rabbit hole about diet sodas and the links to various diseases, and increased weight gain, and a higher incidence of depression and, man, go research it if you want to be scared off. I have to do another episode just all about that.

It reminds me of the days when our parent's generations smoked, like, indoors and on airplanes and in, like, neo-natal ICUs, and in offices and they were, like, "Yeah, everyone knew it was bad, but it's just what people did," and now we find it horrifying.

Dr. Durie: There's a number of different things about those drinks that can be negative. So, juices, water, wine, teas, those are all good but diet drinks, no.

Alie: Okay. Good to know. That cements my position on that! I may have had one yesterday. Guiltily, I've been, like, "What am I doing to myself?"

So, what are, in terms of other... Actually, this is a personal question, but being a doctor, and a hematologist, and oncologist, how often do you notice symptoms in yourself like

back pain, or does my shoulder hurt, or do I have this, or are you pretty much not a hypochondriac because you know so much about medicine?

'Cause I feel the rest of the population walks around every day being like, "Do I have cancer??" As an oncologist, do you think about that?

Dr. Durie: I do. I think that I'm not a hypochondriac. And I think it does help to understand that we all might tweak our back one day. You get up the wrong way, or you walk the wrong way, but it's not cancer, and you know it'll be gone in a few days. So, you don't need to rush to get scans and blood tests and things. You'll get over it.

I think there's a tendency to think that if you come down with a really bad cold or something that it's going to be the start of something really bad.

Alie: Right

Dr. Durie: Now, we don't want to ignore those things, but certainly, individually, maybe less immediately worried.

Alie: Right, so you at least know what to look for.

Dr. Durie: Yes.

Alie: Okay! That's good!

Aside: So okay, doctors aren't usually paranoid hypochondriacs. I will say, there is a hugely studied reluctance, particularly in men, to go to the doctor when they feel a little off.

Men also have shorter life expectancy.

So, if you're feeling off, and you can't catch your breath, your bones hurt, your vision gets weird, whatever your symptoms, for whatever, go to a doctor.

My dad ignored feeling awful for months and my mom finally forced him to go, and by that point they just legit admitted him to the hospital for blood transfusions. She saved his life. Way to go, Nancy!

So, dudes, go to doctors! Dad, go to the doctor next time Mom tells you to!

Alie: Do you have a lot of people in your family that call you or text you to say, "Dr. Durie, what's goin' on?"

Dr. Durie: Yes, quite a few. Although I would say that within my family and friends they're not so hypochondriac.

Alie: Oh! That's good, maybe it's a Scottish thing!

Dr. Durie: It's a Scottish thing! Yes, yes. So, my mother lived to be close to 100 and my sister's pretty old, so we were not, like... We're fortunate, we're not an unhealthy group of people.

Alie: Good. You probably stayed away from Diet Coke and hamburgers!

Now, last couple of questions, last 2 questions: What is something that is the part of your job, part of your work that is the most challenging? That is maybe the thing that's more of a slog, or something that is difficult? Then I'll ask you what your favorite thing is.

Dr. Durie: Right.

Alie: What is something, anything, from parking to...?

Dr. Durie: Yeah, well I think that the saddest and the most difficult thing has been the way that medicine has changed over the years that I've been practicing medicine, where I, for many years practiced it on an individual basis where I would have *my* patients and I would take care of them. If they went into the hospital I would see them and when they came out I would take care of them.

But now medicine's become a business. I take care of them. If I'm not there on a Saturday somebody else takes care of them, they end up in the hospital, and then this happens, and that happens, and then it's a whole bureaucratic nightmare where the individuality of the patient care has really lost that personal possibility.

The paperwork is enormous, and then there are so many challenges when you see your patient, and I would say that the biggest one is something that we touched on already, I want to give this cocktail, this medicine, will my patient be able to get it and to afford it? This is just so difficult, and as I travel around the world obviously there are issues here in the US, but outside of the US...

Aside: So, once again as much as the price of some therapies are infuriating, we are lucky to have them.

Dr. Durie: I mean, there are whole countries that don't have Revlimid, so that that means that they don't have access to anything beyond therapies that we had in the year 2000. This is a really... a sad and difficult thing for me to see, that there's so many patients that don't have the treatment that they deserve and they need.

Alie: I imagine also your... the work that you do you, have such an interest in seeing how each of these patients does and getting to follow through is probably pretty gratifying.

Dr. Durie: Right, right. So now, you know, I have patients that I see 20 years later.

Alie: Ahhh! That's great!

Aside: I tried really hard not to cry at this point in the interview.

Dr. Durie: Which is fantastic! And, they'll remind me that when I first met them I said that my expectation was three or four years.

Alie: Wow!

Dr. Durie: I had a patient recently, she and her husband, they reminded me that I'd said that but it was 20 years now.

Alie: That's great! I love it when doctors are wrong in that fashion! That must be the best!

Dr. Durie: That's the best.

Alie: What is your favorite thing about hematology, or blood, or what you do? What is the thing that just really gets you excited about starting your week?

Dr. Durie: Well, I think the most exciting thing is that we're starting to make so much progress; that we have these new drugs; that patients are living longer.

And so, that when I see a new patient now, it's not, "Oh, my God, it's going to be 2,3,4 years." Now I can say, "we're expecting you to live at *least* 7-10 years and during those 7-10 years we'll probably have something even better."

Alie: That's great!

Dr. Durie: So, it's really more of a joy. It's still a lot of hard work, but it's a much more positive situation than it was before.

Aside: Trying not to cry while editing this, but still crying a little bit.

Alie: That's great! That's gotta be... That has to give you so much motivation for doing your best on the job.

Dr. Durie: Exactly! Yeah.

Alie: Well, this has been so informative. Thank you so much for sitting down with me. I can't believe it all started with blood under a microscope.

Dr. Durie: Right. Well, thank you for your very insightful questions, which, very good to have a chance to talk to you about these things.

Alie: Of course! Some of them come directly from Larry Ward!

Dr. Durie: Alright! Well tell Larry Ward that I am very happy to give these answers and many more as the questions pop in his head, okay?

Alie: Oh, good! Thank you so much, doctor! This was great!

So, in summary, let's all move to tiny islands and live to be 100, or at least stop eating garbage and go to the doctor when we're sick.

So, I want to say a huge thanks to the Peter Boyle family and Lorraine Boyle for their work in raising millions of dollars to find a cure for multiple myeloma, and to Peter Anton and Randy Lovitt and everyone at the International Myeloma Foundation for access to Dr. Durie. Thank you to him!

More info is at myeloma.org

Also, side note, my mom has MS, so if there's a neurologist out there. Holler at my face!

Thanks to Steven Ray Morris for editing this down to the wire because I'm so behind after getting stuck in the Northeast bomb-cyclone storm this past week. I'm so behind. He's editing this, like, hours before it goes up. Thank you, Steven, I owe you a million dinners.

Thanks to Hannah and Erin for running the [Ologies Facebook group](#), which you can totally join. Thank you for being great friends also.

All kinds of *Ologies* merch is available at [ologiesmerch.com](#). There's t-shirts and hats and pins and the sales help make this podcast possible, so thank you Shannon Feltus and Boni Dutch for that. They do awesome design work and I heart them.

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And for your end of the episode secret: okay... once... ugh... I didn't want to pick up the phone when somebody called me so I didn't answer, but while it was ringing I fully-clothed got in the shower, walked into my shower without the water on, stood there for just a few seconds while the phone rang and then I stepped out so that I could technically say later, "I'm so sorry I was in the shower when you called," and not be lying, which is insane. It would be better just to lie, or say I didn't feel like talking to you, but lying seemed to evil so... I dunno, I don't know, I'm working it out. So, that's your end of the show secret.

Okay, that's it for this week, thanks for listening. I like you so much, very honestly.

Go ask smart people dumb questions 'cause curiosity is never not cool.

Berbye.

Transcribed by Jude Kenny, who had to force himself to not type all the words out in a Scottish accent.

Here are some other links which may be helpful:

[Signs and symptoms of myeloma](#)

[What is blood?](#)

[Revlimid](#)

[Black Swan Research Initiative](#)

[Yeezy Clear PVC pumps](#)

[Blue Zones](#)

[Diet sodas and depression](#)

[How much does bottle service cost?](#)

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