**The G Word Transcript**

**Martin Mendoza: Director of Health Equity transcript**

Hello, my name is Maxine McIntosh, and I'm a programme lead for Diverse Data at Genomics England, and you're listening to The G Word. Through the conversations we have on this podcast, we hope to bring the benefits of genomic medicine to everyone. Now, genomics is a word that can trigger really strong responses; hope, fear anger, and there is a lot of information out there. It's certainly not always accessible to non-experts. So we want to talk about this word, The G Word: genomics.

**Maxine:** In this episode, we'll be talking about all things equity from one of the world's most exciting precision medicine efforts, all of us. It's a huge delight to have Martin Mendoza, Director of Health Equity, join us from the *All of Us* research programme. Welcome to The G Word, Martin.

**Martin:** Thanks so much, Maxine. It's an absolute pleasure to be with you today. Just thank you so much for the invitation. So excited to have this conversation with you.

**Maxine:** Not at all, not at all. So, Martin and I did have a bit of a kind of pre chat, maybe a couple of months ago. This time, we can capture all the goodness for you all to benefit from it. But before we launch into it, Martin, you've had a pretty incredible and unusual history. You've gone for everything from the Office of Minority Health to the FDA. So, can you just give us a bit of kind of wild tour of your background, and what's led you to this point today, please?

**Martin:** Yeah, glad to Maxine, and thanks for that question. So, when I think about my career, I think about one of the most pivotal experiences I had was actually as a high school student, when I had the opportunity, my senior year of high school, to spend half a day for nine months in the laboratory of Dr. Eric Green, which many of you folks may know, is the director of National Human Genome Research Institute at NIH. And at the time, Dr. Greene's lab was working on the Human Genome Project. And I was presented with this opportunity to map part of human chromosome seven, as part of the Genome Project, and that really got the juices flowing for this love of science and particularly genomics. After having been in their lab as a high school student, and working through my graduate degree, I had the opportunity to work at NIH as part of their extramural programme at the National Institute of Neurological Disorders and Stroke, where I was a very large part of monitoring their clinical inclusion of women and minorities in their experimental clinical trials.

One of the things that really struck me, when I was looking at the data, was just the lack of these populations within the funded studies. I didn't realise at the time, but very quickly learned that this wasn't just a problem at my particular Institute's but it was a really a global problem of not having the populations that need to be there in clinical trials to represent those who actually use the finalised the approved medical product. That really struck me and so after that position, I went on to work at the FDA for just about five and a half-six years. And there I got to focus exclusively on the issue of clinical trial diversity there. At the FDA, I had the chance to author the FDA’s first ever guidance document on clinical trial diversity and why inclusion needed to be at the forefront of when sponsors are designing their clinical trials and eventually submitting them to FDA. One of the coolest experiences I also had at the FDA was the opportunity to testify in front of Congress on the need for diverse representation of clinical trials. That was quite an experience, to be face to face with lawmakers talking about the need for these diverse populations.

After I worked at FDA, I went on to the HHS Office of Minority Health in the office of the secretary. And there, I served as Director of Division of Policy and data, where I was charged with developing programmes and policies to reduce health equity. And this was really a public health focused office as opposed to a research organisation like the NIH. This really gave me a chance to further hone my public health expertise and really look at what comes of research that, you know, places like NIH does, and how those could be implemented in communities. And then, after spending a few years at HHS Office of Minority Health, I then transitioned to my position here at *All of Us* as director of health equity, and I've been here for about a year now. It's just really been a fabulous opportunity to really learn about the programme and try to bring the expertise that I've gained throughout my career to really this tremendous research programme.

**Maxine:** That's awesome. And I must admit that probably testifying on clinical trial diversity must have been quite an experience. So, yeah, we'll save that one for when we meet face to face in a pub one day. So, you know, this is my bread and butter in terms of we're very in tune at Genomics England, and certainly within the diversity programme about precision medicine efforts happening across the world, and certainly ones that have diversity and equity at the core of how they operate like all of our students. But just for listeners who might not be as obsessed with precision medicine as us, can you just give a quick summary of what *All of Us* is, what it's trying to achieve, where it's at?

**Martin:** No, Max, I just don't know how anybody could not be as obsessed with precision medicine as we are.

**Maxine:** I know.

**Martin:** I don't know if these people actually exist. But yes, I'm happy to talk about *All of Us*, exactly what it is. So, *All of Us*, it's really this national effort to enrol 1 million and more people from all walks of life. What the programme is really aiming to do is really to build one of the largest, most diverse databases of health information that researchers can use to study health and disease, illness. And so, researchers, they can analyse the data to understand how different genetic, lifestyle, environmental factors, how that impacts health and disease, and this information can then help to improve the ways to diagnose, prevent, and treat health conditions, and lead to improved health for hopefully generations to come. There is a couple of things that I do want to make clear about the programme, though, and that is that this is a research programme. It's not a clinical study. Our programme is designed to gather data from participants that will obviously be identified for research purposes. While the typical clinical study that you may think about usually focuses on a specific health condition, so testing new treatments, or medications to see if they're effective and safe, at *All of Us,* we collect samples and data to make available for researchers to advance overall health research. To join the programme, you have to be 18 years or older, you have to live in the United States, and not be incarcerated. But other than that, it's really open to everybody. I also want to point out that really a key distinction between *All of Us* and other research programmes is the diversity of the data available to researchers. So, *All of Us*, we're committed to engage in enrolling communities that have historically been left out of research. We call this UBR, underrepresented by biomedical research. Since launching the programme, in 2018, it has really significant diversity. So about 50% of participants who have joined the programme self-identify as racially and ethnically diverse, and more than 75%, fall into this this UBR category that we talked about earlier. So that includes sexual and gender minorities, socio economic status, disability folks, the self-identical with the disability, rural regions of the country, as well as education level. We've been able to achieve this really unprecedented level of diversity within our programme, by prioritising these communities from the very start.

**Maxine:** And that's amazing. And I think that one of the things that I find particularly interesting about *All of Us* is the approach to diversity is that you're considering the proxies or correlates for ancestry. But also, you're looking at the broader social factors, I mean, that today, people have been excluded from many trials and studies. So, much the pandemic, as we all know, and it's a statement of people who work in health actually hear a lot, the pandemic has really highlighted that kind of chasms of inequity in society and has made them bigger and deeper and wider. And I think we are probably all quite tired of hearing that. We've really seen it and recognise it. Were there particular areas of the pandemic that really did impact how *All of Us* was either making decisions or operating, or did it kind of just change the way that *All of Us* was thinking about its work?

**Martin:** COVID had a huge impact on all of us. But before I really talk about exactly how we change to adapt to COVID, I do want to highlight that, even before the pandemic, we knew that inequalities, especially in our healthcare system, that they existed in our country. What COVID really did was it highlighted the need to solve this problem of health disparities. Health disparities was really one of the main drivers why the *All of Us* research programme was created in 2018. The goal is to accelerate research to tackle health disparities. So, with regards to how COVID impacted us, we shifted our work to stay safe, but also stay connected to our community of participants. What the pandemic did early on was to shed light on the fact that many disenfranchised and unrelated communities, they were the ones bearing the brunt of the pandemic. They were our friends, participants, people who work in the community to register potential participants for the programme. That's why really one of the first things we did was to check in with the community we've built, friends. For example, we sent out a survey to see how they were being impacted by the pandemic. We called the survey COPE, or the COVID-19 participant experience survey. And it collected responses from more than 63,000 participants, covering topics that includes stress, mood, discrimination, social distancing, and economic and more changes, among others. What all this information does is it amounts to the biggest infusion of mental health data in the programme so far.

Also, like many organisations, we had to adjust our day-to-day operations to a virtual study, with the understanding that the digital divide that impacts a lot of people in this country. Prior to the pandemic, we had established this network of community partners, healthcare provider organisations, across the country. And we pivoted from trying to enrol people in person to checking in, calling our participants to see if they needed resources information. Our community partners, they actually took the lead in providing information on local food banks. And then when vaccines became available, we provided information and, in some situations, transportation, and then many of our partners, they also offered test kits. Also, earlier this year, we launched something called the *All of Us* journey, which is really a mobile trailer and mobile exhibit that travels to communities across the country, especially to rural countries that don't have access to our enrolment centres. This really allows us to meet people where they are. Bring this back to pandemic, it certainly has brought renewed urgency, the need to resolve the underlying causes of health disparities that exist, the cancer and heart disease, stroke, diabetes, and really so many other diseases. And it's just really highlighted, this is all ongoing.

I just want to highlight one more thing, and that's in the US, in May, we recently surpassed the 1 million mark, that people have died as a result of COVID-19. That, to me, that's really staggering, 1 million. And it's communities of colour, people with pre-existing conditions that have been really disproportionately affected. What the pandemic did is taught us what's at stake here. And I hope it's created this urgency for the medical research that will help all of us. Here at *All of Us*, we're trying to be part of that solution through research. And we firmly believe that innovation, it can only benefit everyone, when research includes everyone, or all of us, really.

**Maxine:** The fact that you've ended on that sort of slightly categorising, maybe want to make that kind of way noise, which was inappropriate, given the nature of what you're talking about. But yeah, I mean, the 1 million is absolutely staggering, and that's only the directly attributable figure. Now, over the next 5-10 years, we'll really see the long-term impacts as well across all the conditions. So, it only raises the prominence of what *All of Us* is doing even more, and having such an engaged community. I mean, the 75%, statistic on underrepresented in biomedical research (UBR) is mind-blowingly impressive, and kudos to you and the team for achieving that. That's an incredibly impressive number.

I kind of had two questions. So one is, and it was on the back of what you've just said, I guess you've got quite a nice tight sounding family, your participants, with the fact that you're able to send out surveys with any additional information you're working with close with your partners. So, one of my questions was, what kind of statistics and figures do you have, or how do you approach those who are digitally excluded? And you've kind of already mentioned those who are in remote parts of the country. But how do you create this dynamic cohort of people, if they are digitally excluded, is my first question? And then, my second question is, just delving into how on earth you have done such an amazing job in achieving such a relatively high diversity within *All of* Us, and tell us a bit more about how you've been engaging with communities and your approaches to that?

**Martin:** One of the things that we've been really intentional about from the inception of the programme is the need to have health equity engagement of a special population, the foundation of the programme. What this means is we've been working, engaging with these populations and made them the highest priorities, and we're really treating them as true partners in the journey and engaging them as trusted voices in their communities, really working with them hand in hand. And, as far as keeping our participants really engaged in the programme, we know that many of our participants, they join for altruistic reasons. And so, we try to make clear that their continued participation helps to further research. So, for example, and I know, most of you readers probably know this, but because of the participation of our participants, we are able to discover, develop better tests to see if people are sick, or at risk of getting sick, better mobile apps and other technologies to encourage healthy habits, how different life circumstances or lifestyles affect health. But we also know folks have other reasons for wanting to join the programme and stay engaged. Participants, they can receive information about themselves, in return, if they elect to join the programme. And this may take a little bit of time. But folks can learn about not only their genetic ancestry, but also, starting in a few months, they also know about genetic risk factors for certain diseases. Knowing your risks may help you and your healthcare providers better prevent, prepare, or treat those conditions. Really providing a multitude of return of value, as we like to say, to our participants, options for them, is one of the ways that we have achieved diversity. The other way that I talked about earlier is really through engaging with the community very intentionally, and going through these trusted voices in the community, and letting them be our guides, to the populations that we want to reach, letting them show us the way and really working with them hand in hand to reach populations. Really, when we think about it, engaging with the community has to be foundational for any programme that is hoping to achieve any levels of significant diversity.

Okay, so as far as your second question, as far as reaching folks that may not have access to technology, we have a number of programmes in place, realising that we won't be able to reach everyone, everywhere, but we would like to be able to reach anyone, anywhere. Here's a couple of things that that we do. One, we have, as I talked about earlier, what we call ‘the journey’, which is internally known as our mobile engagement asset. And what that really does is it travels to communities to let people experience the *All of Us* research programme, so there they can join, if they choose, so they can go through the consent process, with someone standing right next to them. They can donate a biosample there, if they wish, though blood, urine or saliva. They can have their physical measurements taken there. And they can also complete several other surveys, if they choose to. This is a way for us to really reach people where they are. Some of the other ways that we employ are, we have a programme for home visits, where someone can come to a participant’s house and help them with donations of their biosamples. And then we also have something that we call ‘caddy’, where a live human can assist the participant in completing surveys. So, there are a number of solutions that we have to put in place and several others that we are considering to help folks that may be left out of the digital divide.

**Maxine:** That's really interesting. And I really like that statement, we can't reach everyone everywhere, but we'd like to reach anyone, anywhere. Because I think that's one of the things that, I guess, preys on our mind a little bit in Diverse Data, is that, with your case, 1 million is nevertheless a sample, like it's not, it's not the entirety of the US population. And so, whenever you sample any sites, or any kind of small number of people, some people are going to miss out. I guess that brings me on to a kind of slightly tricky question, which is obviously, as Director of Equity you're really there to promote equities, best practice, to make sure that *All of Us* is as fair or equitable as it possibly can be. But some people will still be not engaging in the programme, some people will still fall through the cracks, et cetera. So, can I just get bit of insight about how you think about things like unintended consequences, or how you work through different scenarios about participants that you may miss out on and what the ramifications are of that, because too much of that thinking obviously paralyses you into not doing anything. But it's also important to recognise the outskirts of where some of these initiatives might not reach the people that we'd like to. A bit of an insight into that would probably make me feel better, and also be quite interesting to hear.

**Martin:** We're keenly aware that we're not going to be able to enrol everyone, but that doesn't mean that we can't have some very concerted efforts to enrol a diverse population. Really, the way that we think about unintended consequences of potentially positive one leading efforts, is really a group think process. As Director of Health Equity, that's really one of my remits, to really think about is what we are doing equitable, and if it isn't, then really to work with the team to come up with a solution to really advance health equity throughout the programme. For example, one of the things that we've done in the past year, is we've implemented a definition for disability. Prior to my onboarding, while we were collecting disability information, we weren't reporting it out. And so, folks in the disability community, while they were present in the programme, their data may not have been as highlighted as it needed to be. What we did was we went through a very thorough process of working with various advocacy groups, and others that represent the disability community to craft a definition for the programme. And what that allowed us to do is to then, if you look at our website now, you will see that now, when we report out all the different categories of underrepresented in biomedical research, UBR, we now have a line specifically for disability, which is somewhere around nine or ten percent of our population. You know, that's one of the ways that we have been thinking about how to make our programme more equitable. From the start of the programme, or early on in the programme, we also launched in Spanish. Spanish is, other than English, one of the most spoken languages in the United States. And so, making sure that our materials, our surveys, et cetera, that those were all available, our communications, that that those were available in Spanish as well, so that we can be sure to reach those participants. And communicate to them in a language that they feel comfortable.

**Maxine:** One thing you said that’s really interesting, you said many interesting things. But one of the things I'm going to pull out is getting your team to work on and spot these potential opportunities to improve equity. So, I'm sure that your team is incredibly diverse. But how do you ensure that, within your team, you kind of keep you ear very close to the ground about signals or opportunities to improve the equity in the work that you're doing? How do you kind of keep your team, I guess, not feeling institutionalised from a major research programme in which they exist?

**Martin:** That's a really good point, Maxine. One of the pillars of our programme is something called our participant ambassadors. Our participant ambassadors are participants in the *All of Us* research programme and they have graciously agreed to become, well, participant ambassadors. What they are, are folks that we rely on to give us that ear to the ground perspective. They participate in meetings with us, they're part of governance, a part of advisory committees, part of various scientific committees. We really rely on them to provide us that participant perspective and to help us with issues of equity, and really to let us know, from that participant perspective, what is going on, what are they hearing, what are some potential things in the programme that they are seeing as may not be equitable, or they may feel need our attention, especially as a senior staff. And making sure that they are integrated within the programme, that they have a voice, is something that we've been very intentional about, and have really prioritised from the beginning of the programme.

**Maxine:** I like that approach, and yet tricky, because the more you guys will scale, the more inherent bureaucracy and institutional pressure mounts, keeping strategies to keep fresh, and open id is always important. So, I want to focus a bit more now on you, personally.

**Martin:** Oh, no.

**Maxine:** So, what's your favourite TV show? What’s your favourite food? No, you’ve got quite an unusual job title. And one thing that I've noticed is this role that I'm in at Genomics England was pretty rare, I hadn't really seen anything like it in the UK. And certainly when I'm doing my LinkedIn stalking, there's a few more equity related sort of senior leadership positions in the US, but I would say it feels like a kind of fairly new title to adopt in major initiatives. So, do you know the history to this role? Was it always on the cards for all of us? And then, I guess, how important you think it is to have a dedicated person in that kind of Martin shaped way, owning the equity agenda?

**Martin:** So this is really something that I've been thinking a lot about recently. When I think about if this role has always been on the cards, I think the work has always been on the cards. But I think, as you know, as the programme has evolved, and our awareness and society of equity issues has evolved, the programme was really smart in realising that, okay, we're all kind of doing the equity work, but it'd be really great if we had someone to coordinate it, to lead at all. And so, I think in, in the thought process of our CEO, Dr. Josh, Denny, and others, they realise what a benefit to this, to the programme, would be to have someone to lead the health equity efforts within the programme. Now, what I want to make clear is, that doesn't mean that it's just Martin and/or his team that are leading health equity, and that everyone can just forget about it. That’s not how we operate it at *All of Us*. Health equity is something that is foundational to every aspect of the programme, from our technology, to our communications, to our user experience, to our researchers. While I may be leading the efforts, what our leadership has made clear is that everyone has to play a very significant and sizable role in this process, if we are to achieve health equity within the programme. That's why I think that, not just for *All of Us*, and not just for Genomics England, but for really all major sort of organisations, and even those that may not be major, having someone to be the point person for health equity, I think is absolutely critical. And not just having someone to be that point person, but empowering that person to work at the highest levels and to have a seat at the table, where their input will be valued and acted upon, I think is absolutely critical, if we are going to move this movement forward of equity that we've seen over the past two years or so, since the unfortunate murder of George Floyd. And so, really being intentional about our efforts to promote health equity, I think is something that *All of Us* has really made a priority for the programme.

**Maxine:** So, pulling on that thread a little bit more, so you're just one man and your team, I presume, is not thousands of people big. So, you have to kind of focus your efforts a wee bit. I guess the problem with equity is it touches so many elements, it’s got equality, it’s got safety, it’s got study design, it’s got statistics. I mean, equity pervades everything. So, for you, what’s a personal decision you’ve made, I guess, where you draw the boundaries of what you can realistically achieve in your equity agenda?

**Martin:** So, I have a small a small team right now. And so, having to prioritise is really, it's not an easy job. The way that I've really tried to prioritise our health equity agenda is thinking about what is going to have the most impact for our programme and, specifically, what are the priorities for our programme? And so, two things really come to mind for me, one is our participants, and two is our researchers. It goes without saying why those two pillars, why they're important and why they need to be at the core of everything we do. When I look at my health equity agenda and what gets prioritised, I double, triple check to make sure that this will either have a positive impact with our participants, or our researchers. If it doesn't directly tie to one of those two, then it may not be at the top of the pile. But that's why things like some of the things that I've worked on, like the disability definition, why that touches both our participants and our researchers, why that sort of floated to the top of pile.

**Maxine:** You must spend a lot of the time having very tricky conversations, both in terms of the fact that your work must surface lots of horrible, horrifying, traumatic, unpleasant experiences, and also talking about big issues of racism, exclusion, abuse, eugenics, you name it, is technically all within your purview. So how do you work? What strategies or tactics are used to effectively positively and constructively influence in this space?

**Martin:** Great question. So, one of the things that we recently started just this past summer, is a racial equity consciousness workshop. This is not just a one-hour, one-time thing. This is a series of, I believe it's seven or so meetings of about one to one and a half hours in length each. And so, we have a facilitator that will lead us in discussions of, you know, what is racial equity? Thinking about racial consciousness bias, how can we be more equitable as individuals, as a programme? We offered it for the first time in the summer, and it was really, based on the survey responses we've had, it was really a tremendous success. So, kudos to the leadership of the programme for realising the need for this and really prioritising it and putting the funds to support this forward. Based on the feedback and that experience, we plan to offer it, I believe, two more times, during this upcoming year. Doing activities like that is one way that we've really tried to raise awareness around these very tricky topics in the programme. And so, we're actively thinking about other ways to tackle these tough subjects. But so far, this has been our primary, or one of our primary efforts for talking about racial equity, in particular.

**Maxine:** I look forward to seeing what the format for that is, and/or how that works, and whether that might be relevant or useful at Genomics England. So, before we wrap up, bit like if you go, I was about to say Graham Norton, but I suppose, what's equivalent, Jimmy Fallon? Usually people have a half an hour or an hour-long conversation at the end, they’re like, ‘Okay, so what's the film you're promoting at the moment? Tell the audience about it’. So, I guess I do have a question like that for you. So, A, I want to know, what are some of the, let's say, two of the projects, or activities or things, that you've done that you are most chuffed about, you’re proudest of? And I guess, two things that are on the horizon that you would love listeners of The G Word to know that are coming about?

**Martin:** Okay, so I think some of the things that we are really excited about that are coming up are, one is that we just hired a director of Paediatrics. That means we are absolutely on the way to, hopefully within the next one to two years, enrolling now, I'm sure some of those under 18. I'm sure you can imagine all the sorts of policy and legal and ethical implications with enrolling paediatric patients, participants. And so that's going to take a bit of time to work through those. But we are just super excited that we will get there and to eventually enrol our first paediatric participant in the programme. So that's something that's really huge for us.

The other thing that we are super excited about is something that we've been piloting, and that we anticipate to releasing to our participant partners, is something we're calling ‘calculated return of results’. So right now, *All of Us* offers ancestral return of results, and that's great, but what we will be offering in the coming months, actually later this year, is calculated return of results. So, these are a list of genetic known, genetic pathogenic variants, that folks will be informed if they have such a variant or not, as well as a small list of medications that some may have adverse responses to. We are super excited to offer this to our participants, because we really feel that this will be a really significant piece of return of value to them. And that's one of the things we always try to do, is to make sure that whatever we are doing, we are returning value to our participants and our researchers. Now, you may be wondering, what happens if a participant receives a report that they have one of these potential disease variants? We've thought about this also from an equity and sort of humanistic point of view. And so, one of the things that we do is we make clear that these are just research results, but if someone does have one of those pathogenic variants, we do offer, free of charge, a clinical genetic test, to confirm that variant for the participant. And then we also provide them, again free of cost, a consultation with a genetic counsellor, so we're not just giving them a result, and then saying, ‘here you go, good luck!’. We want to make sure that we do everything we can, within the scope of our programme, to make sure that our participants have follow up resources, to allow them to follow up on whatever report findings that they have, that they may have received. So, those are some of the things that are on our horizon, that we are just extremely excited about, and we think, again, are really going to provide some value to our participants.

**Maxine:** Really, those are very exciting, but before we sign off, I want you to tell me, you told me lots of things you're proud of, and lots of things, even if you haven't said you're proud of, you should be proud of because they're amazing. But if I were to push you hard on one of the bits of work in *All of Us* that you are most proud of, what would it be?

**Martin:** Yeah, I think it would be our commitment to equity, diversity and inclusion and accessibility, and how it really infiltrates in the best way possible. Everything the programme does, you know, that is a commitment from the start to the top. When I look at all of the things we've done from what we talked about, about the disability definition to our upcoming health related return of results, to our commitment to enrolling paediatric, upcoming paediatric participants, all of these things are going to serve, are well served, or are serving to make the programme more equitable for our participants and our researchers. One of the things we didn't get a chance to talk about was we recently released, back in March, 100,000 whole genome sequences into our researcher workbench, where are the *All of Us* data is accessed, and in that release of genomes, of 100,000 genomes, approximately fifty percent are of self-identified racial and ethnic individuals. And, as I'm sure you know, when we're looking at these, you know studies and other genomic databases, you're lucky if you can hit like, four or five percent diversity. And so, we've released something that is fifty percent, approximately. We really think that has the potential to really push research in ways that will make it equitable for everybody. So, again, just bringing them to the top, just the commitment to diversity for everything that we do, is I think the thing that I've been most proud of.

**Maxine:** And I have to say that, when I saw the data being released, I thought that was amazing. So, I’m surprised it hadn't come up in this conversation because I was still very chuffed about that as well. So, I'm glad that you got that one in too. Amazing, thank you, Martin, so much for your time and for the conversation again. I need to find another excuse to have a conversation, maybe we can do a video next time, and then you'll be bored of having every format of chatting with me. But yeah, thank you so much. That's all for this episode. So, thank you so much for listening. And thank you for joining us on this journey to highlight the debate and implications of equity and data and genomics as it all comes together and hits mainstream healthcare. So, you can find out more about the work that Martin and the team does on the *All of Us* website. And their Twitter handle is *@AllofUsResearch*. Martin, you don’t have Twitter, do you?

**Martin:** I don't have Twitter, myself.

**Maxine:** No, you’re too busy doing actual work, so you don’t have Twitter.

**Martin:** But the programme does have Twitter, so please follow us on Twitter.

**Maxine:** Good, exactly. Yeah, but Martin himself will be going now. And remember you can hear more stories about data, diversity and everything in between online on the mindthegap.health website. So that's www.mindthegap.health. If you have any views on these topics, which I really hope you do, because a lot of it has been quite thought-provoking, or even if you have a person in mind that you'd like us to speak to us, you know, please do write us at podcast@genomicsengland.co.uk. And like every SoundCloud that must get plugged, remember to subscribe to The G Word podcast on Apple podcasts, Spotify, or wherever you listen. And if you've enjoyed listening to it, which quite frankly, it'd be an abomination if you didn't, give us a five star review because it really helps us be boosted in the charts. Anyway, thank you so much for your support. And until next time, thank you for listening to The G Word.