Ivor (00:00):

Here we are with Dr. Malcolm Kendrick and Dr. Scott Murray, cardiologist. And we're going to get into the nitty gritty of coronary artery calcification, scanning CAC should one get one or not. And I think we agreed guys that we're going to start off today with one of the questions we didn't get to before and it's around whether a randomized control trial (RCT) is needed to prove that a high score, high risk patient getting the score and then actions are taking that the actions will actually lead to better outcomes. And that RCT question will also tie in with screening. In general, how effective is screening and the, has it always been proven to be effective in getting actual outcomes improved or is sometimes, is that a paper tiger? So I think Malcolm, if you could kick off first for your thoughts on screening and the need for potentially an RCT or randomized control trial?

Malcolm (00:56):

Thanks. Yeah, I think this is where it kind of, it's where my concerns lie if you like - about it. I think that, um, the CAC screening is, it's very good identifying people at risk much better than any other mechanisms that we have, blood tests, et cetera, et cetera. But I've always, I've looked at screening a lot of times I've studied one or analysed it and even read books on it, but I've seen that a lot of interventions that people have thought are going to be good, not just screening. I think we talked about this earlier. I was...one of the very first interventions in cardiovascular medicine was, was after having a heart attack, Herrick identified the first ever non-fatal MI in 1913 then immediately said, what you should do, is six weeks of strict bed-rest, the patient should lie in bed, not move a muscle and should, if they need a poo, they have a poo in bed. If they need a pee, they have a pee in bed. They lie flat. They can't even sit up at the end of the bed. This was standard medical treatment following a heart attack until 1960's. So it went on for 50 years - there's no evidence whatsoever that this was a good thing to do. But it sounded like a good thing to do. You've had a heart attack - you muscle's been damaged - you must rest it six weeks. That's the sort of time it takes for a bone to heal. So probably about the time it takes for our heart to heal. You know, I did a vague analysis of this and at one point millions, millions of people lying flat in bed for six weeks. You're almost bound to get a DVT, that goes to your lungs. You die of a pulmonary embolism. Also your heart muscle degenerate very rapidly.

Malcolm (02:27):

It was only in the 1960's when they actually did the astronaut trials. If I'm putting fit young 18 year olds in bed for six weeks just to see what would happen if nobody moved for six weeks with damaging their hearts, suddenly no more did we have strict bed-rest and in fact one chap who looked at this, Bernard Lown, in the 1950's said "I really don't think people should be lying in bed." He [Bernard] tried to sit them up at the end of the bed only - and other doctors got medical students to come to his war with coffins on their shoulders with the word "murderer" on the side. So certain were they, this was really absolutely the thing that should be done. And Bernard Lown in the 60's when coronary artery bypass grafting came in and he was worried, he was concerned that people were getting angiograms or showing a blockage in the left anterior descending and they were calling it a "Widowmaker", which is where this comes from. The whole Widowmaker thing. And then there were being said, "what would you like us to do something about your Widowmaker, or would you like to still leave it alone?" And of course everyone had the operation. So the immediate activity was people went straight into it. He was finding people had angiograms, the angiograms are causing them harm. And he tried to do a clinical study. At the end of his clinical study, which he did manage to do, which took him four years to even get published. He showed that in many cases just using standard medical treatment was as effective, is having a coronary artery bypass. This is in the non-acute situation. So I've seen examples going on and you said we discussed screening and on the first day the screening program was just Chest X-rays to find

out if people had lung cancer. They had to abandon us very quickly because first of all they saw all sorts of things and they didn't know where they were, and then by the time they actually were able to see a cancer, it's too late to do anything. So that had very, very poor outcomes. So we see the weaknesses of screening. The weaknesses of scanning, there was a study in the BMJ showing all the Cardiovascular Risk Factor study analysis and intervention programs studied over the last 50 years. The net effect had been 0.0 so perfectly around around the one. As I say, in the knowledge ratio that actually the confidence intervals were 0.98 to 1.02 which may not mean anything to most people. It just means really absolutely no effect. So I'm always concerned that when you start doing screening, when you start scanning people that you must do the next thing, which is to show that it really, really works. Because if you don't do that, people like me are always going to say, I know all of a sudden it's like, it makes sense.

Malcolm (04:57):

I know everything sounds like it makes sense. But the quote, one of the Huxley's, I don't think it was Aldose Huxley is "the tragedy of science, is the slaying of a beautiful hypothesis by an ugly fact." And unless you do the RCT examination, you might think you've got everything sorted out. And then the final problem I think is that yes, you can show somebody they're at risk because you've got high calcium score in their arteries, but unfortunately I also feel is you're then sending them off into a world where potentially they might be told - I think it was your comment - Yeah. They'll all be put on a low fat diet and a statin and then turned into vegans. And really this is probably not going to give them any benefits. So that's me trying to summarize my, my concerns. I think. Attack me at your will!

Ivor (05:48):

Well yeah, Malcolm and in fairness, so if you parse that out, we've got kind of poor screening programs in the past and I know Mammograms is another, there are many examples where actually they presumed by finding cancers supposedly early that they would do treatments more early and that they would get better outcomes and it didn't quite pan out so much, because there was over-diagnosis and over-intervention. So there's various screening programs where assumptions were made and they weren't good assumptions. And then on the bad interventions? Yeah, I mean the sleeping one is a classic example or not sleeping, but the lying down and resting after an MI. And we've got lots of other examples as well. I guess for me what's really different though is that, the RCT I don't think would ever be required for the calcium scanning because the specificity and the sensitivity is so strong and we know there's an enormous relationship with future risk, right? So we know it will identify the at-risk people. So there's no question about that. That's locked in. Now, the second deductive or inductive step is to say that we can go in when we have the at-risk patient and we can help slow their progression, or change their outcome. So it's, it's not really like, you know: A causes B, and B causes C - therefore A causes C; and all these logical mistakes that were made in the past. This is pretty Bulletproof. For me the whole question is: when you identify a high scoring person - who the day before thought they were low risk and was sleep-walking along, can you go in and actually help resolve that progressive, modern chronic disease - and take away the risk?

Malcolm (07:34):

Yes I think that's what I mean by outcomes is that is the outcome is the reduction , the actual real reduction in risk. We did an analysis of the American, um, CV risk score where they went back through the records and then said, well, how accurately did this predict what actually happened? And what they found was the prediction was rubbish. I think that's not true with CAC scanning. So the question then is, well, if you find your high risk, are the things that we then do for you beneficial? Is it like finding breast cancer and then um, taking it out but finding that it then reappears one day later somewhere else and

you've actually achieved nothing. So it's, it's, it's the, it's the do you, can you then stop it going forward for sure in sufficient number of people that you're doing an overall benefit study - that's the outcomes done.

Ivor (08:22):

That's the outcome. The outcome is demonstrating that you can take positive action based on finding out the risk app. So we acknowledge that the calcium scan will tell you the risk to an incredible degree. It does that bit perfectly. The question is, can we actually fix the problem then? Now I think cancer is a poor example in some ways because, I don't want to get into the cancer discussion, but the reality is, you know, there has not been a whole lot of progress as much as was expected in the last 40 years. So it might be a case where you can't change the outcome as much as you'd like. For me the difference with heart disease is we now have people all over the world, hundreds of emails/messages I've got with people slowing and stopping the progression a year, a year and a half apart. We know from Raggi study that the risk collapses in that case and it makes all the mechanistic sense. If the progression is slowed down and stopped, then the risk will collapse and the calcium, even for a high score will just remain as a leftover scar of a prior progressive disease. So I think we feel with magnesium, with K2 with low-carb diets, glucometers, with people actually taking action - the correct action - there's no question but that we'd make a massive difference to certain people's outcomes. But the problem or the sticking point is I think what yourself, Malcolm, is the generic Orthodox interventions. If they're applied, you're not going to see so much difference. You know, for people who are identified,

Malcolm (10:01):

Well, none of that is absolutely the fundamental question of that outcome. I mean, that's what we haven't, you haven't, we haven't. "One hasn't" got the clinical trial evidence. You'd have to randomize people. You do a scan, 500 people in each arm, however many people you feel you need,

Scott (10:21):

You'd need 30,000 in each arm.

Malcolm (10:25):

Well hopefully if you think your invention is going to be more beneficial, you need less people. People always say to me, well the study was too small to show major effects. I say, no, the study was too large to show an effect, you have to have 10,000 people in either arm - then the effect you're studying must be so small. It's almost not worthwhile. If you could do a study on 500 people and get statistical significance now you really have something that was important.

Scott (10:48):

I think the problem is the actual amount of events that you're likely to see with the modern treatment of coronary artery disease. I mean there was the Mass trial which was trying to um, show the benefit of abdominal aortic aneurysm screening and they needed 60,000 patients. And the studies, the RCT's that have been done in area have been relatively small. Like there was Eisner, which was about two and a half thousand people randomized. And they showed that if you put them through a calcium scan or not, that you don't increase downstream testing, you don't increase costs over and above the no-scan. So that sort of was a randomized trial in 2011 that showed or sort of tried to help with that aspect of the concern i.e. that you're, you're doing the wrong thing and you're going to be spending more, lot's of cash. Now there have been a few other randomized controlled trials in this area, but again, all suffering

because the actual rate of coronary events at the end of the day was, you know, in the calcium score of zero people - less than 1% and the other people somewhere between 2%. So in order to have the correct power to detect a statistically significant difference at the end, you're going to need at least 30,000 inpatients and you're going to need to follow them up for more than five years at least because there was another randomized control trial called Factor 64 which used CTCA, or noCTCA in patients. And the issue was that after five years, the curves had diverged for future cardiovascular MACE [i.e. events lowered for people tested]. So I think that you're looking at having to fund a big, big trial which follows people up for a long, long time to really prove what you, what you need Malcolm and in order to sort of get that point across.

Ivor (12:51):

And is it not the case though, Scott or Malcolm? To be honest, this whole RC T T thing to me is almost, it's a distraction. Well to an engineering mind and professor Harvey Hecht wrote about this in a paper called "The Deadly Double Standard" and he made the point that we need the best methods to identify the patients at risk and obviously then we have to do the best interventions. But he said that the this requirement for proving outcome, has not been applied to any previous technology like the stress test or the Framingham etc. So all the weaker ways of identifying the vulnerable at-risk people all got a pass - and then the best one, which at least fulfills your first thing, Malcolm, that you actually do identify the right people - that one is being held to a much higher standard. And the reality is that really for me it all comes down to: "are we confident that we can intervene with someone and greatly reduce their risk once they're identified?" And an RCT, if one is done, even Scott as you say, if you do 30,000 people in each arm, so you get enough high scorers so you can see enough people where there's a reduction in events - like the previous RCTs were beginning to point towards - they're only going to do generic interventions like statin or whatever, or some blood pressure meds.

Ivor (14:19):

So for me the much more important thing is by kind of a million miles is that the world emerges in the coming 10 years to acknowledge everything in your blog. Malcolm, everything I say about root causes - or you do Scott - or think about the EUROASPIRE study - where we know that 76% or much more of cardiac victims across Europe are essentially diabetic, and we know we can fix that. You know the non-Orthodox fixes for this modern chronic progressive disease? It's a disease of modernity essentially. We talked about the Masai people before. They didn't have calcification, they didn't have events. This Tsimane likewise. We know it's a modern chronic disease driven by environmental factors. We largely know what they are - and just because Orthodox medicine ignores them - does that mean that people can't have the technology to identify they're at risk and to search, take responsibility and discover what the real causes are?

Malcolm (15:18):

I think you're conjoining a couple of things together that actually don't fit for me. But the problem is that you're up against conventional thinking, conventional thinking in the sense of RCT. Now you don't have to do randomization in a way that the, that is standard. You can use what they call the Bayesian approach, which is the...you can use each person that comes through as a study in and of itself and I think you can also now use historical record if the patient would be for what we know the general outcomes for these are, we should have enough data on this. We know that the scoring of calcium scoring is accurate enough that we know what's going to happen to people over a five-year period. So to an extent we have our comparator group. Now I know a lot of people won't accept that in the conventional world, but I do.

Malcolm (16:09):

And you're right. You know, antibiotics were never subjected to randomized control studies. In fact, I worked with the European society of cardiology at one point, set up an educational website for them at one point. And uh, we discovered that around about 86% of interventions were not based on any evidence whatsoever. So yes, to an extent it's like one rule for one lot, one for another. And yeah, the thing is we're trapped in a paradigm whereby if you don't do a 10,000, 10,000, 20,000, 20,000 RCT, people go, well, you haven't proved it. And the only people that can realistically afford to do such studies are pharmaceutical companies with hundreds of millions of patents. Your average person, they cannot get the resources required to do this. Equally, if you suggest that some of the conventional interventions are not valuable - ethically, you're not going to be allowed to carry out your study because you're going to be told, you must, you know, do X, Y and Z. So the problems are extremely big. There's no question on that, but I think you could do a kind of, you could still get the data on enough people using it, as we have the historical evidence and patients as their own control if you like - and Bayesian analysis so that every single person that comes through can be added to the database. I think that you could go along those, that line if you like. I don't know if you agree with that.

Scott (17:37):

I think you know, I know for a fact the SCOT-HEART2 trial is about to start and give a chance to Mohamad Mia, who's a former trainee of mine, and professor David Nuvi in Edinburgh. Because David Nuvi ran the original SCOT-HEART trial, which was an open-label, parallel group randomization of patients coming into a random chest pain clinic in Scotland, and they got either no CT scan or a CT scan and it was 2000 approx patients in it. And after four years of the data, they found that they - by seeing the actual disease - by showing the people their disease, by starting guideline-based intervention (which you may agree with or not agree with). They were actually seeing curves diverging after three months - event curves. And that was, that was put down as being the patients actually grasping what , with the followup and having guideline based treatment. That's what it was put down to. You'd say, well you know Statins and aspirin in people who have a certain level of disease was, was improving that. So I think you've got to take that. And then all that SCOT-HEART2 is coming, which is going to be again randomized, but will be asymptomatic and we're gonna show them again whether or not they have disease. And following them up in terms of the behavior transformation. Now we know from previous randomized control trials in this area that if you show people their disease, then the Risk Scores, whatever you want to say about them being rubbish, - can show a statistical improvement in the risk scores or statistical improvement in the cholesterol, the triglycerides, the diabetic control. And there was a recent randomized control trial in the Lancet called FIT-VISA, which was looking at carotid plaque and they showed people a very simple diagram of the carotid plaque and again they showed that it can improve patient's adherence to medication to lifestyle.

Scott (19:39):

So I think it's it's important, if we're gonna burrow down into what constitutes this test being appropriate. Then it boils down to gnostic efficiency, which I think you can say is great for Calcium scanning because it's very predictive, and it gives you incremental prognostic information often and beyond the standard crappy Framingham Risk Scores, DVS, whatever - that only give you a bit of a sniff. The big question is does it give you therapeutic efficiency, which is what Malcolm was talking about in terms of reducing adverse events. And I think we CAN get to that point now. Because we know from Raggi and Heinz-Nixdorf and these other trials showing we can reduce the risk factors that cause atherosclerosis in the first place. We can stall the scores, we can reduce the outcomes and it's

incrementally cost efficient. We know from Eisner a randomized controlled trial that you don't spend more money after a CAC score.

Scott (20:42):

And that is across the board because if you you are in the 50% with CAC zero, you get your medication stopped, you get no more testing or you shouldn't get any more tests driving more costs. If you are a CAC Score of more than 400 then you might spend more, something like £9000 instead of the people that didn't get a scan at all being about £3,500, but that's only 8% of the population who will have that score. And you could see that those costs are justified, because they've got significant disease, and we need to look into that more. Now. I take the point that they shouldn't be in a cath lab getting a stent. But they should certainly be getting ischemia ruled out. And they should certainly be getting the right information. So I think between the three of us, I think we can come to an agreement that: yes it is the right time to go forward with this. We have randomized control data, we have prognostic efficiency and therapeutic efficiency, and we should you start making more of us as my, so I'd love to do with the Malcolm, but then the both of us would be wrong! [All laugh]

Malcolm (21:46):

Well, you know the change in when you're doing scanning and screening and intervention, sometimes you know you're moving things, you're never getting black and white, you're moving things in in turn directions. My little calculation, at £400 for a CAC scan, 30 million adults in the UK, that's four, that's £12B quid. So, but the other, the other alternative is, is if you can rule out a number of people and say, well actually these 92% of people we don't need to do anything for. Yeah. That is a major benefit in and of itself. Clearly. And I think that, no, we're not, we're not....we're discussing this - we're not arguing with each other, we're passing comments. And I think that the reality is, when it comes down to is my concern is, are people going to get the CAC scan and then go off and be told to do things which I would consider are not going to do them any good - by the conventional medical world. And that is the thing that I'd be, is what I'm concerned about if you like, majorly because then your outcomes are just not going to be any better - necessarily. Although you were saying from the...was it the SCOT-HEART study?

Malcolm (23:01):

Well if you can show there that even using conventional guidelines, the paradigms - that you can get benefit, which then is a good thing. Um, and, and then I suppose you're going to balance that off against, well, what else yo could do with the money...

Ivor (23:15):

so yeah, on the point Malcolm about screening, you know, if you just screened everyone, that would add up to a lot of money. Now you could argue that 45% of people currently on the Statin roll, will get zeros, and they can go off the statin. And I suppose it's important to remember CAC has been rejected by the orthodoxy for a reason. So I always thought "it's my enemy's enemy, which is my friend." They rejected it for a reason - because they knew that more people would be taken off drugs than would be put on them. And we've seen the number needed to treat [NNT] in some studies showing a zero score is like NNT=500, or NNT infinite. In other words with a CAC=zero they shouldn't get anything. And then you see sometimes numbers needed to treat as low as 20 or 30 for people with very high scores. So you can actually put the Statins where they do some good.

Ivor (24:06):

But I don't think CAC though, we're talking about mass screening - to your point about the £12B. For me or certainly my whole ethos around this is - it's for people, it's to have everyone knowing about CAC. People need to know there's a test that can give them a 20X, you know, risk multiplier, high versus low. And they know they can go in and find out if they have a problem, and then take the responsibility to deal with it. So I always think of it as something we need to get the message out on for people to choose to put the power back in the patient's hands. So the whole argument about mass screening - I almost don't get into that too much. Yes as Scott says, if they do a lot of screening and the orthodoxy actually starts doing it, there's benefits as well, like taking people off meds and all that stuff. But I'm not thinking so much about that. I'm thinking about more the personal question. Like in your blog for instance, should you get a scan. You the individual, should you get a scan? So maybe we could talk about that question. Should YOUget a scan - and does it depend on the type of individual you are?

Malcolm (25:20):

Yeah, well I think, sorry, jumping in. I think that, I mean I've had enough emails from people who've had a high CAC score who, it's turned them a bit into obsessively worried about their health and anxious and worried and then wondering want to do? And, and I think some people like, as I said - Ivor you're both Irish and an engineer, so you don't give a damn about anything...! [All laugh]

Ivor (25:46):

I'll take that as a as a compliment Malcolm! But you know, it's a great point because those people who are worried - is the discussion then, that they are people who really ought not to have got a test in the first place? Because were they people who just went hoping for a zero - and then when they didn't get one (when they knew that the whole point of the scan is it would tell you the truth) - then why did they get one? If when CAC does its job and tells them they've got a problem to manage and deal with, that they then get wound up? Do people need to be counseled before they go - Is it really at that level?!

Malcolm (26:25):

I think I'll let Scott talk cause he's done a lot more scanning than I've done, and dealt with a lot more people, although I get the kind of fallout from it. But it's, um, it is this thing of - I have said to people in surgery, mmm, you know, if I'm doing this test, we may be looking for cancer. If you've got cancer and you want to know? And if they say "no", I say, well, I'm not doing the test then. Now I know that's considered an extremely outrageous statement but I say I'm not going to....there's some people say, "Oh well if I've got cancer, I don't want to do anything about it." There are people like this, so there's no point in going, that's the most extreme end of it. But if someone says, well, if it's, if it's score's 3000, do you want to do anything about it? So I'm not gonna change my lifestyle? Well then don't have the scan. Well I know that's sitting at one extreme. But I just thought these people do exist.

Scott (27:12):

This comes back right into what we talked about at the start with the life stage segmentation model. Like, I mean, I don't know where you sit on it, but as I said, I'm probably a balanced compensator with a bit of healthy realism, but the majority of people are there are un-confident fatalists, live for tomorrows, hedonistic immortals, EIY health-deniers. So they all just got their own little way that they see health. And it's not until it's there, that there's a clear problem that you can change themout of that paradigm. And some people can't change because they don't have the literacy or the ability to say "I'm a fighter" or a "I'm a thriver" to move themselves from being an un-confident fatalist to suddenly becoming a health-conscious realist. It just doesn't happen. And I think ultimately you're gonna potentially see a lot of

health-concious realists and maybe some balanced-compensators coming for a scan - because they want to know, and they want to be able to take action or find for themselves a way forward, with help. But you've got a whole other swath, possibly even 50% of the population who, don't wanna know. Or if they did know, probably wouldn't want to take action. Or if they did know, they would just be exceptionally anxious and it would probably make them worse. So I think it is about, Malcolm has a point about teasing out what that potential person wants, and where they are in their world view of, of health. Um, so yeah, I think that's really important.

Ivor (28:57):

So...to that Scott - and I guess we always knew that was the case and I may take it for granted or as Malcolm says, I'm Irish and all the rest. I'm an engineer. But the thing is the people who are getting the information on the scan, if they understand what it is - and when I give talks on it, I show these enormous risk multipliers. I mean I actually kind of emphasize how scary it is, in order to get the message across. So people know, wow, I could go in there and get a huge score. So who will go in, who maybe should not go in? I mean the people who are talking about will only get worried, or the people who are not going to take action anyway - they're not the people who we're targeting, like people to give them the knowledge to take control of their own health. Where we're worried about the people who will drop dead at 55 with three kids - who had no idea they had the disease inside. The first they found out they were dead - and they'd like to go back in time and have an opportunity to at least find out - should they wish to. And take action. Is that not what it's all about? Like actually giving people a chance to save their own life? Should they choose to take it?

Malcolm (30:14):

I agree with that. First of all, you've got to demonstrate you definitely can save their life. Um, which is, which is..

Ivor (30:20):

Ah Malcolm - honestly! You know from your blog, we know the root causes! [and can address them]

Malcolm (30:24):

...and then the other, the other issue, I mean, yes it is this - I was unaware of this classification of people coming in and I like them actually, I'm gonna use this in future. Because I do see this with people and I think, I suppose when someone is saying the screening test, I'm thinking "screening test, that means everybody". However a modified screening test for people who would be motivated to do the right things. Well then we're, we're getting rid of a lot of the concerns I have, which is you're going to worry people who are then just going to go off, fatalists, go off down to the pub and drink themselves to death. That's an extreme, but that we see, you can see this happening with some people, but I think yes, I would say that if screening can be, if we can work out a way of ensuring that that - almost like a bit of pre-counseling. If we found this, do this, if we find this, do this and etc. That would that would change the, that would change the cost, the benefit, the harm ratio around and in a significant way. That's absolutely true.

Scott (31:28):

So I'll give you a story on this one because I want to try and make it a bit more upbeat. There was a guy came to see me who was 37 and the reason he came, he had an argument with his ex-partner on the phone and felt a bit of a twinge in the center of his chest and his dad died of a Heart Attack at age of 50 -

so that's why he came to my clinic. I said, you're going in the scanner and we'll do an echo and it, to be fair, his ECG didn't look normal. You went in the scanner aged 37 and got a 2000 CAC score, calcium score of 2000 in all three vessels including the Left Main and later that day well the next day we admitted them, he went to the cath lab and we found that he had a a blocked Left Main into his LAD (Left Anterior Descending Artery) - and everything was shot down and he was running on sluggish flow - and actually his anterior wall was starting to become hypo-kinetic. So the main front wall of his pumping chamber was going down the tubes. Then immediately he went across for an in-patient coronary artery bypass graft and he had a six way bypass done, and he know plays Five-A-Side football every week and he's much, much healthier. He never ever had an actual Heart Attack, so his anterior wall was hibernating. So now he's less than Left Ventricular function is completely normal and he's been completely re-plumbed. Now I put it to you that that guy didn't have much left, much longer left on collaterals (backup vessels). He may have collateralized everything, and lived roughly to the same age as his father - maybe even less, you know, given how bad his coronaries were. But he was a bit of a drinker, a bit of a smoker. He doesn't do that now - he obviously completely sees the error of his ways. And obviously that was just lying there waiting depends on him. So I've got multiple examples of that. And I think that when you say that intervention is possibly not the right thing to do, and leave people alone and don't do those things. I think it's really important that people know that intervention can do amazing things for people in the right circumstances. It's just making sure that someone doesn't get a calcium score - and ends up in a cath lab getting a stent! You know, without going through the proper channels and getting the right information. So I can see it from both sides of the fence here. But there are so many stories to tell - I could go on and on and probably bore you...!

Malcolm (34:02):

Well, absolutely. I mean, I, I'm not, you know, the trouble is when you get stories like this and then you get people who say, I mean, when they got screened and it was picked up and they said, "Oh, thank God it was picked up." But I do get contrary stories the other way round. Yeah, no, we shouldn't end on a negative note I think. I think the important thing I think for this discussion is, is I hope that if anyone listens into it - that they can take some of the concerns maybe they didn't, hadn't understood before. Some of the things you've said about the benefits which may not have been known before. And I think some of the hopefully, can go and discuss things with their own health provider in a more knowledgeable way, which is what it's all about in the end, isn't it? It doesn't really to an extent - it doesn't really matter what I think. I can say to people what I think, you can say to people what you think. What matters is that you're getting a balanced view from different people and then they can come to their own decisions. You know, speaking personally, a great screening test is one, that's got a good sensitivity and specificity, and at the end of it you can intervene based on those results and definitely show the outcomes are positive. I think that there are positive outcomes, that you've seen your own positive outcomes. They can be negative outcomes, there's cost issues, there's all sorts of issues of the wrong people getting scanned. But I think hopefully from this, it's opened up the thinking in people's minds a little more and hopefully by...I hope that by challenging you guys a bit, that it'll strengthen, strengthen your thinking and your arguments as well, because that's how these things work. And I'm not here to destroy [laughing] screening as a concept! I want to, if it's going to happen, I want it to be as good as it possibly can and that it does... and any of the potential harms are reduced down as much as it possibly can. Because I don't criticize things I don't care about. I criticize things that I want to get better. That's my kind of philosophy on things. Uh, if I didn't care about Coronary Artery Calcium I wouldn't have done a blog on it, I wouldn't care! You know...

Scott (36:08):

Ultimately it could mean that we need to think about, uh, a clinic in the future is set up. The basically deals with these issues, about very positive coronary calcium scores. And so that we can, you know, we can make something is cutting edge that is trying to do the best. And, and obviously that's how you potentially do research, but that's a whole other, you know, bureaucratic sort of wasteland is, is research in the UK. I mean, it's just taken my PhD fellow three years to get over the line and recruit his first patient, with the amount of bureaucracy in a randomized clinical trial he's doing. So it's just, um, I think your point's been made Malcolm that we need to make sure that people who have a positive CAC get the right information going forward - but I don't think that should take away from the fact that they should get the scan...

Ivor (37:07):

Yeah. And that's fair enough. Scott and I see both your points there and absolutely Malcolm, I mean, misuse of any technology - and in a sense, giving a very poor intervention that doesn't really change much, you know, and not treating a screening-type phenomenon properly. Well, that's just bad and there's always going to be bad in medicine. Scott, you're focusing kind of primarily there when you're talking about the actual interventions of a medical nature, and we don't want Stents and we don't want useless Stents. We want proper interventions as you described, I suppose from my..

Scott (37:44):

Actually I would say you do want, you potentially do want to Stents, you do want revascularization - if you've got severe ischemia and really bad coronaries that ain't going to last you much longer. You know...

Ivor (37:58):

...for sure, Scott - but what I meant there was - you don't want the unnecessary Stents as per the Widowmaker movie, you know that are just thrown in there...

Scott (38:08):

No. You don't want someone "banging a stent" into a 30% lesion, that they think looks bad on an angiogram. You don't want that. You need an FFR, you need the whole shootin' match to prove that it's going to be something worth doing.

Ivor (38:17):

Exactly. I mean that's basically just plumbing and it's misguided plumbing to do that. So we all know the problems with some of the business, but you're talking about getting proper medical intervention, surgical interventions and all that. And that's, that's fine. Calcium scanning / CAC can deliver an enormous amount of life-saving when that happens. But again, I just say as we come to a close, for me, it's not even so much about the medical intervention. It's about all the people I'm seeing out there who are dropping their glucose, dropping their HbA1c, who are all over what they eat. I mean, if we think about it, a modern chronic disease of cardiovascular disease and there's lots more. Western Price in the 1920's said sugar, refined carbs and vegetable fats. In the 70's Mann et Al, the same trio, and they didn't know about Weston Price. What's the top of our pyramid of causes? Sugar, refined carb, vegetable oils - processed foods. And then you add in a series of other mineral and vitamin deficiencies or you know, toxic stuff from the environment. You've largely got what's driving the progression of vascular disease - broadly. So when you find out you have big disease, you can intervene yourself and probably do way more to stop your heart attack. Than even the medical system can offer. Is that a sense of a hope that

we could get there in the coming years - that everyone becomes aware [of the addressable primary root causes]?

Scott (39:49):

Yeah, because the, it's a pan-vascular process in the coronary arteries, as we talked about before. And if you, if you start settling down all those inflamed plaques, by you know, knocking or as I say, getting all your ducks in a row - and making everything as best as you possibly can do. Then all you're left with is the other underlying stuff that Malcolm talks about in his blogs. The, you know, the stuff that is under the radar. That isn't yet in conventional "RiskFactor Bingo". We know from the 90% of cardiovascular disease is preventable anyway, when you look across 9 different but basic Risk Factors. So I think that even just doing it on that scale it should provide a massive amount of preventative benefit to, you know, people once they wake up and they realize that this is something that they can, they can own and they can do quite simply and that's where we at I think...

Malcolm (40:49):

I may be out of a job then!

Scott (40:51):

You can start researching CAC then...!

Malcolm (40:52):

but you know, yes, we need to, well what we're dancing around here ,a little bit cause we don't want to sound too controversial - is there's a lot of the conventional thinking here which is off-beam. Which is another of my major concerns is the average person getting a scan, is not going to be seen by someone who's thought about it as intensively as yourself Ivor or yourself Scott who is doing these things, what I would consider to be doing the right thing, right. The problem is we're pinging them off into, into a system, which in my opinion is to do as much harm to people as good in many cases. And that's really where my major concerns lie I suppose - we're firing people off, anxious to do something and you come along to be turned into, into Vegans or something..

Ivor (41:52):

...or are they fall into the jaws of a greedy interventionalist who just wants to throw in six unnecessary stents. But for sure Malcolm, I mean this is, this is a problem. Just to give an anecdote like yours Scott from the other side, I have a 29 year old in America, father died at 39, massive Heart Attack - and they said he's not having a calcium scan. But he felt he lived a pretty rough life and he wanted to get one and eventually he got one and it was 600! Yeah Scott, for 29 year old. But, but that guy is all over it - after that score. And I mean we, we corresponded a lot. There's no medical advice from me - I just go to the science, I send the talks with all the root causes. And he came back to me later with his blood glucose right down, you know, his lipid ratios were now beautiful looking. So you know that for me is the big thing - people who want to take ownership, find out they've got a problem and then they actually take the action. And maybe as we wrap up though, Malcolm, and I agree with a lot of what you said, the Orthodox medical system has a long way to go and I think we need to break out of it a little and go straight to the people, like you kind of are anyway. And I am. But how long do you think it'll be before a large proportion of Western people, let's say, are pretty well aware that: glycemia. The sugar refined carb, the vegetable oil are the problems. It's not the fat, it's not vegan. How long do you think it will be

with the freedom of the internet before a large proportion of people will know broadly what the root causes are, and how to do a targeted program to resolve?

Malcolm (43:32):

It's a difficult question to answer because, because, um, I've seen the history of medicine and stupid ideas carried on for an awful long time. Interestingly, the, I think the American Diabetes Association, the new chairman or person in charge of organization - that person, whatever that term they use for them has recently come out and said that hse's got onto a basically a low carb, high fat diet and has lost weight and her diabetes is now under control. We have the chairman or president, whatever it is that she is in the ADA is now saying this. We have the work done by David Unwin who I know well who I used to go to talks with, and his job is to say you should cut out the carbohydrates. And then everyone would say, Oh my God, if I eat fat I'm going to die of heart disease - my job was to say, "don't be so stupid. There's no evidence for that whatsoever. Don't worry about it." And I think that we are seeing - when these things, they will change just like that. There will be no sort of gradual change. Suddenly everybody in the American Diabetes Association and all these people who have been telling people to eat carbohydrates and avoid fat. Will suddenly begin to say: "no, I never said that." The new direction the world will move in very fast. Where's the tipping point? Tipping points happen unexpectedly, quickly and at times you don't expect them. I feel I maybe that's just, let's just hope that we're reaching that tipping point. We are closing in on it and then I, when it changes, it will be just suddenly overnight. And I think within the next two to three years, at some point - it could be tomorrow, it could be three years time.

Malcolm (45:13):

This will be changed. Now that may be a naturally optimistic, but I've tried to look at the signs if you like, like some ancient Inuit kinda guy. He can tell the spring is coming. You know, I see the signs of the spring and the summer coming. I might be completely wrong and it might be, there's a big backlash from the likes of Willet and Hu and all that from Harvard - supported entirely by gigantic pharmaceutical company money plus the food industry money. But I do think it's changing. So I think it's going to change.

Ivor (45:51):

Yeah. And I agree, Malcolm, I think it's really beginning to move now and you know, and another great thing with regard to the scan? In a study with 20 human trials with LDL and calcium scan results in them, there was no correlation across all 20 between LDL and severity of vascular disease. So I think the calcium scan is going to have another benefit. We're going to see super-high LDL people with zero scores. We're going to see people with low LDL with massive scores.

Scott (46:20):

Yeah, yeah, yeah. I'm already seeing that....

New Speaker (46:23):

I'm hearing it all the time. People are coming back to me from all over...

Malcolm (46:28):

My favorite case is a guy wrote to me in the States, 72 years old, average LDL level for the last 30 years, 18.5mmol/L ! (LDL ~700mg/dL !). But he had no discernible cardiovascular disease in any artery in his body. Um, I didn't believe it at first. Well I wasn't sure I believed him as people write to me with stuff all

the time. But actually he turned into being a case history and so it's, that is true then. So I mean, yes, that would be a lovely thing to happen as well.

Ivor (46:54):

And, and saving people from Statins where they are unnecessary - because we're going to get a ton of people off them - high LDL and medium LDL people - just because we actually take the trouble to look to see if they have disease or not, instead of guessing. So yeah, all to play for I think. Well, anyway, any wrap-up comments from "the pair of ya" as we say in Ireland?

Malcolm (47:16):

The pair of ye's"! As we say in Scotland, you choose a window there - you're leaving! Wrap up commentis: I think it's been a really interesting discussion. I have learned a very, the most important thing I've learned is this definition of different types of people because ....I mean, I know it intuitively, but I'm very interested in that actually people have separated people into this thing, which I think would be very valuable for acting on medical interventions and how we deal with these things personally speaking personally. So that's something I'm very, very happy to learn. And also just, you know, I think we're all reading pretty much the same page, same concerns. We want to get this better. We want to do this better. Yeah,

Scott (48:04):

I would, I would echo that. I think we moved it along a little bit. We've moved the needle a bit further and you know, we can appreciate the nuances in all of us in that you know, what's right for one person in some circumstances might not be right for another. But broadly if you've got a strong family history of cardiovascular disease or heart attacks, brothers and sisters with stents and bypasses, familial hyperlipidemia, all these other things where people kinda know are in the family history and they just bury their head in the sand and say "oh, that's not going to be me." But then there is something you can do to actually know, you know, look under the hood and do the dip-stick test and see whether you have got this developing - and then take action in the hope that you can reduce future events. So I would say I think it's been really useful and thanks Ivor for inviting us on.

Ivor (49:00):

No, not at all guys. And I really enjoyed it because I love an argument anyway, as you well know! But I've certainly been reminded too Malcolm. I'd probably become complacent about the shortfalls and shortcomings of the medical industry. So it's been a good reminder for me on focusing in on, on exactly that. That what we're really about is personal responsibility, finding out what's under the hood - should you wish to find out and take action before you keel over. But that will depend on the individual taking responsibility and thinking about what they're doing, and not just Willy-nilly wandering in to the test center because it's a new fad, uh, that, that doesn't really serve so well. So excellent. It's freezing cold in my office here. I'm almost shaking...with excitement... But that's great. Really appreciate your time guys. And I have the other whole chunk of material from when we were chatting the other day on the various different points. So I'll splice them all together into a kind of a "Friday night special" for people to watch. How's that sound?

Scott Malcolm Ivor (50:05):

Okay, thanks very much. Good stuff. Bye. Bye.