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Medicine's Love/Hate Relationship With Science

You're listening to ReachMD, the channel for medical professionals. Welcome to Inspired to Act featuring international leaders in the field of medicine. Here is your host, founding chair, Department of Neurology, Brigham and Women's Hospital, Professor of Neurology at Harvard Medical School, Dr. Martin A. Samuels.

Dr. Martin Samuels:

Whatever happened to the bond between doctor and patient? Joining us to discuss rebuilding the primary relationship in medicine, the relationship between patient and physician is Director of Clinical Research, Assistant Professor of Medicine, and Emergency Department Physician at St Luke's-Roosevelt Hospital Center, New York City, Dr. David H. Newman. David, welcome to Inspired to Act.

Dr. David Newman:

It's a pleasure to be here, Marty. Thanks for having me.

Dr. Martin Samuels:

I just finished, actually, reading your very provocative book entitled Hippocrates' Shadow and one of the main themes of that book involves what you call the love/hate relationship between medicine and science. I wonder if you could start by telling us a little bit, about what your thoughts are on that regard.

Dr. David Newman:

You're exactly right. I mean a lot of the book is about this almost ironic relationship we have with science, the way we love science, and sort of cling to science and when I say 'we' I mean doctors and patients. We all want science to be sort of nearly perfect and we want it to fix what ails us and doctors want that as much as anybody and as doctors we tend to cling to that science and at the same time we sort of hate that science. We hate the fact that reading numbers all day and looking at lab tests pulls us away from our patients and human contact that we have.

Dr. Martin Samuels:

At the beginning of your book, one of the first examples you give us actually is about MS and of course, it caught my attention because I'm a neurologist. You said that MS is a prime example of medicine's rudimentary understanding of disease. Could you tell us what you mean by that, rudimentary understanding?

Dr. David Newman:

Yeah. You know, I mean as you know Marty, obviously, you're far more familiar with this than I am but MS is such a fascinating disorder for so many reasons but one of them is that there is this sort of X-file like nature to the epidemiology of MS where we have discovered that in many parts of the world, the farther you go north latitude up towards about 40 degrees latitude, the higher the incidence of MS gets at birth and then the closer you get to the equator, the lower the incidence gets and then at the same time, if you're 20 years old and you move from 40 degrees latitude say in Vermont somewhere and move down towards the equator, well you're probably still just as likely to develop MS but if you move at the age of five or ten, before adolescence, it would appear that you pretty much become just like one of the locals once you move down towards the equator and you all of sudden have a much lower incidence of MS and all these facts of MS which are really fascinating are complete mysteries to us. I like to use the example because we don't know that much about MS or about medicine in general. We are still sitting on the verge of leaping into just an ocean of the unknown right now and maybe a hundred years, couple hundred years down the line, we will have tackled a lot more of that, but right now, our understanding of science is definitely limited.

Dr. Martin Samuels:

Yeah, of course. People have always been on the cutting edge, haven't they? I mean you quote Hippocrates extensively and he obviously was a great role model for all of us but he was also on the cutting edge, wasn't he? There was a point in which they knew nothing. He learned a little something. We're also on the cutting edge. We don't know everything about MS but we know a lot more than he knew. Do you agree or not.

Dr. David Newman:

Yeah, no doubt. I mean before Hippocrates, medicine was...it was mysticism really. I mean it was this sort of _____ (3:24) model of medicine where people went up into a temple high up in a mountain where the air was clean and they took a little sedative that they'd been given by one of the priests up there and the priest whispered something in their ear while they were sleeping and made them think that they were having a dream and then they were supposed to sort of heal themselves with the dream and whatever the dream message was, was supposed to be their healing message.

So that was a really mystical way of practicing medicine. Hippocrates turned it into something much more empirical. He was all about objectively observing, gathering data, and then trying at the same time to use that objective data to heal patients, and learning from patterns of disease. So he was really on the cutting edge and he brought the mystical together with the scientific. He was able to straddle the line between what's philosophical about healing, and what's body/mind connection, and what is scientific and objective and that's something that we're still struggling with today.

Dr. Martin Samuels:

If you're just tuning in, you're listening to Inspired to Act on ReachMD Radio, the channel for medical professionals. I'm your host Dr. Martin Samuels and joining me to discuss rebuilding the bond between patient and physician is Director of Clinical Research, Assistant Professor of Medicine, and Emergency Physician at St Luke's-Roosevelt Hospital Center in New York City, Dr. David Newman.

David, you made a big point in one of the chapters of your book which was entitled We Don't Agree about the fact that doctors disagree with each other a lot and you've described these events on rounds where the senior doctors are all disagreeing and the junior doctors are sort of sitting there rocking back and forth on their heels, scribbling notes in sort of a mindless fashion. I wonder if you think disagreement among doctors is a good thing or bad thing. I couldn't tell reading by your book what you thought about that.

Dr. David Newman:

Well, you know, so it is not just and I think this'll largely answer your question, it's not just that we disagree with each other. One of the studies that I talk about in the book which is one of my favorite studies ever is the study where they take three of the most highly trained radiologists in the country. One of them who I think was the head of the American Thoracic Society at the time and then another one who was sort of leading chairman at a radiology department and a third who was just like these two and they gave them each 30 X-rays and they had them read the X-rays and then they compared the diagnoses from the chest X-rays, the 30 chest X-rays, and asked each of them for the diagnosis and looked at what the agreement was and they agreed seldom. I mean it was like a 30 percent agreement rate, 40 percent agreement rate, but what they didn't tell the doctors is when they were doing that study what they were actually doing was handing each doctor instead of 30 X-rays, it was ten X-rays three times, and so each one of these physicians was reading the same ten X-rays three times and they looked at not only whether they agreed with each other but whether they agreed with themselves and it turned out that they agreed with themselves about 30 or 40 percent of the time as well.

So they didn't really agree with each other anymore than they agreed with themselves and the point I was making about that and the point I want to make about agreement in medicine is that there are elements of disagreement that are totally natural, totally normal, and that we should embrace. What they are, are places where our science has a lot to learn. Anytime we were trained in the same science and we disagree completely on a particular element of that science, it's an element where we don't have the evidence yet to tell us the definitive answer and what we haven't really been great at in medicine is being upfront about where it's really opinion. That's our guiding principle and where it is really good evidence and agreement is a reflection of that.

Dr. Martin Samuels:

I often thought to myself that disagreement was a healthy thing. That it was a sign a progress. Almost the same thing as mistakes, that mistakes allow us to rethink the way we've been doing things and if we analyze them properly, might get us going forward. If we all agreed with each other, don't you think we'd just stay in the same place?

Dr. David Newman:

Yeah. I mean agreements great but disagreements even better in a way. I agree. You need the disagreement to really foment a good intellectual debate, but you only need it where you don't have great evidence to tell you the answer and we have so many areas of medicine where we don't have great medicine to tell us the answer. When you're disagreeing about things that are based on opinion,

that's great, that's what we should be doing. That's how you make progress, but what we shouldn't be doing is disagreeing a whole lot when there is great evidence behind a particular practice or a guideline or a recommendation.

Dr. Martin Samuels:

It seems to me at that point you actually are in a way falling into your own trap that is you're using science as sort of the end point which sort of ends discussion. Isn't that what you just said that once we know with good studies then we don't have to disagree any longer?

Dr. David Newman:

That's exactly right. When you invoke science as the final answer, you better be doing it with evidence. In medical school, I think we're taught a lot of things. We're given this sort of impression that things are scientific that aren't. That are really more opinion based and so a lot of times we've had trouble differentiating it, the difference between what's essentially an opinion based model of practice and what's really great evidence that we have to guide our practice and it's made us really frustrated.

I mean I know I as a physician was really frustrated to learn some of the things that I learned doing the research for the book about various practices that we engage in really aren't evidence based at all but I was taught as if they were pure fact and when I found out they weren't pure fact, that's tough, and I think it makes physicians feel disaffected. If we could separate the difference between evidence and opinion, we'd be a lot happier, and our patients would trust us a lot more, and we'd really be using the science in a way that maximizes what's fact and what is really based on our best guess.

Dr. Martin Samuels:

You had a section about the number needed to treat which is one way of looking at the value of a particular procedure or test or way of approaching patients, but I wonder if one should depend that much on it. For example, if I told you that you had a 74-year-old patient, who's a smoker, hypertensive, and he had an episode of hemiplegia and aphasia lasted for about 15 minutes and went completely away. What would you actually do with that patient?

Dr. David Newman:

Yeah. Well, I mean what you're asking is what kind of benefit can we offer that patient, what kind of interventions do we have that we can offer that patient, and how effective are those interventions. So the number needed to treat is a way of converting how many people like that you and I would need to identify and treat in order to have saved one of them from either having a stroke or dying prematurely or having some kind of a bad outcome, and you know, I think the thing that I want to embrace and sort of convey about not only the number needed to treat but almost any statistical concept is that it needs to be rooted in what the patient wants and what the patient needs and our advocacy for what they want and need.

So while you and I want the person who's a diabetic, hypertensive, you know, coronary artery disease patient, we want them desperately to be on medicines to get whatever they need, maybe a corroded Doppler, maybe an MR to try and figure out what interventions we can offer them that would stave off strokes and bad outcomes. Some patients are going to say to us oh, you mean you have to do this for 20 people before one of them is affected and there's only a one in 20 chance it's going to affect me. Well, that person gets to be involved in that decision.

You and I have those tools and we want to use them, but we need people to understand how to prioritize our interventions and all of the things we offer because when we paternalize for them, when we choose for them, when we make somebody think there's a 99 percent chance they're going to die without an anti-hypertensive medicine when in fact it's usually more like a one percent chance they're going to die without it. While we may have a public health impact overall, for the individual human, we're becoming a little bit disaffected in our patient/doctor bond there because we're not really advocating for them on an individual scale and so part of what the NNT chapter is about is a way of getting back to what Hippocrates did which is to really sit down with the human and figure out what their priorities are and how to best serve them and advocate for them, allowing them and the doctor to really understand what the statistical affect is going to be, what the likelihood of really benefitting somebody is when they give an intervention.

Dr. Martin Samuels:

Your last chapter was called A New/Old Paradigm and you quoted Bays and Heisenberg and _____ (11:18) and so on. I wonder if you could tell us what you think the cure is. I mean what should the doctors listening to this program actually do to reverse some of these problems that you've outlined in your book.

Dr. David Newman:

Well, I mean ultimately I think the book is very much trying to get at the fact that what we need more than anything in medicine is we need to change our minds. We need a new mindset. We need a way of looking at medicine that's different than the way we've been looking at it. We were taught to believe in medicine as a certain paradigm and we need to get back to sort of an older paradigm, a Hippocratic paradigm of advocacy and I think that's going to make us happier. I really feel like a lot of physicians are disaffected right

now because they feel like all the machinations, the science, and the pills, and the procedures we do.

We know that the impact for those things is frequently very small and yet the impact that we have with human contact with really talking and understanding people and being understood. That's what we craved. That's why we went into medicine and if we got back to that, the pills and the procedures work better and we have a better effect. We have a bigger impact and so I think what we need more than anything is a way to approach medicine differently than we've approached it by understanding where the science is powerful and understanding where it's weaker and where we can just as humans interacting with humans really facilitate the best parts of our science.

Dr. Martin Samuels:

I'd like to thank my guest Director of Clinical Research, Assistant Professor of Medicine, and Emergency Department Physician at St Luke's-Roosevelt Hospital Center in New York City, Dr. David Newman. Thanks so much for spending time with us this week on Inspired to Act.

Dr. David Newman:

Thanks, Marty.

You've been listening to Inspired to Act on ReachMD, the channel for medical professionals featuring international leaders in the field of medicine hosted by Dr. Martin A. Samuels.