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Mark Masselli: This is Conversations on Health Care, I'm Mark Masselli.

Margaret Flinter: And I'm Margaret Flinter.

Mark Masselli: Well Margaret I find myself thinking a lot about equality and equity lately. You know, there was a recent report in the Washington Post which revealed a very alarming statistic, more than half of America's school children now live in poverty.

Margaret Flinter: Well alarming Mark and I have to say I found it shocking, what a telling report more than 50% of America's children pre K through 12 grad require some kind of food assistance every day, that's a important benchmark as it allows us to understand the challenges that so many of these young learners and their families face that go far beyond the classroom but really have a direct impact on what happens in the classroom, outside the classroom and on their future opportunities down the road.

Mark Masselli: We've seen in our own communities and we've learned how much we can do to improve the situation at a local level with our full service school based health centers for children that we serve this is the first real interaction with primary care behavioral health and dental services.

Margaret Flinter: It is so exciting to see these children become more health literate. Being little consumers of health care in a really wise way, the Affordable Care Act has helped to close the gap but it just doesn't address all of these threats to overall health including chronic hunger and poverty.

Mark Masselli: As a nation we must do more to protect our nation's greatest asset, the future generation, equal access to health care nutritious food, safe drinking water all imperatives if we're to succeed.

Margaret Flinter: But our guest today is somebody who's also concerned with equity and equal access. Dr. C. Michael Gibson is a Harvard based cardiologist and he's also Founder and Chairman of the Board of the WikiDoc Foundation, his goal make all the world's medical textbooks available for free online so that everyone in pursuit of higher medical learning can have access to the knowledge that's out there, very ambitious project.

Mark Masselli: We're looking forward to that conversation Margaret. Lori Robertson, Managing Editor of FactCheck.org also stops by but no matter what the topic is you can hear all of our shows by going to CHCRadio.com.

Margaret Flinter: And as always if you have comments please email us at chcradio@chc1.com or find us on Facebook or Twitter @CHC Radio, we love to hear

from you. Now we'll get to our interview with Dr. C. Michael Gibson the Founder of the WikiDoc Foundation in just a moment.

Mark Masselli: But first here is our producer Marianne O'Hare with this week's headline news.

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Marianne O'Hare: I'm Marianne O'Hare with these Health Care Headlines. After almost a year of waiting the Senate has finally confirmed the President's nominee to run the Food and Drug Administration Dr. Robert Califf a cardiologist and long term researcher at Duke University join the FDA a year ago and was selected to replace outgoing FDA Chief Margaret Hamburg. Opposition came from both sides of the aisle including Senator Bernie Sanders who felt his ties to the pharmaceutical companies who funded Duke Research would keep him from being impartial. Dr. Califf has vowed to support good science and drugs and devices that work.

The announcement came on the heels of the President's Precision Medicine Summit at the White House, representatives from the NIH and research institutions, patient entities from around the country joining forces to accelerate the pace of precision medicine utilizing the power of personal genomics. The precision medicine initiative seeks to have at least 80,000 participants sign on by the end of 2016 to make their genomic information, their health status and other personalized information available for bio banking and broader research.

The Centers for Disease Control and Prevention, the World Health Organization and National Institutes of Health all join forces on the expanding Zika pandemic now listed in over 30 countries in South and Central America and the Caribbean. Recent data on pregnant American women who became infected with Zika while traveling to the region of the nine known cases two had miscarriages and one baby was born with microcephaly the birth defect linked to the Zika virus.

A Florida court has upheld the state's waiting period for women seeking to have an abortion the appellate court upheld the state's contested 24 hour waiting period before a women would be allowed to end the pregnancy. Law passed by the republican controlled legislature last spring require women seeking abortions in Florida to make two visits to a clinic with a mandatory 24 hour waiting period between and the Cleveland Clinic is just successfully performed the first uterine transplant in the US. The nine hour surgery done a 26 year old patient a Swedish women gave birth earlier last year after being the first successful recipient of a donated uterus. I'm Marianne O'Hare with these Health Care Headlines.

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Mark Masselli: We're speaking today with Dr. C. Michael Gibson, Founder and Chairman of the Board of the nonprofit WikiDoc Foundation and the world's largest open source textbook of medicine. Dr. Gibson is an Interventional Cardiologist and researcher who served as Director of the Coronary Care Unit at Beth Israel Hospital at Harvard Medical School where he's also a professor. He's also earned numerous awards and distinctions including being named one of America's top doctors by US news and world report. He received his BS, MS and MD from the University of Chicago. Dr. Gibson welcome to Conversations on Health Care.

Dr. C. Michael Gibson: Very well thanks for having me on the show today.

Mark Masselli: Yeah, you know, we have a saying at our organization that health care raise a right and not a privilege and as founder of WikiDoc you seem to be saying that access to medical education is a right and not a privilege and can you tell our listeners about the origin of this idea?

Dr. C. Michael Gibson: I think you're right that really access to up-to-date medical education and content should also be a right, but unfortunately so much of that information is cloistered away or hidden away behind pay wall so that only those who can pay can access the information. This, you have something that could help someone with a life threatening condition, why wouldn't you be willing to share it for free? In the United States I think we have the perception that many health care providers are very well paid, that's certainly not the case around the world because there are countries where physician makes maybe a $100 a month and the cost of access on the computer let's say $500 a year so they're really locked out of getting up-to-date medical information. So we do serve an international audience and one of our goals is to assure that not just the US but developing countries also have access to the same kinds of information. Many young people who want to become doctors have to pay $1500 for a few months of access to questions to help them prepare for those test that allow them to qualify to become a doctor and we are about to release 18,000 free questions that they can all use to prepare to take those examinations. So we want to make sure both patient and doctors and trainees all of them have unfettered access to critical information.

Margaret Flinter: Well Dr. Gibson it seems inevitable almost that you'll come up against some powerful forces and companies that have proprietary control over medical textbooks and research articles and the like and wonder if you could share with us a little bit about what you've called your copy left approach to gathering and disseminating all this information written by others to counter the copyright infringement or potential infringement issues.

Dr. C. Michael Gibson: Copyright began when we have the printing press. Suddenly you can make many thousands of copies of something and became -- it became very nervous that oh my gosh what if someone says something bad about the team, now they have a way to distribute it very rapidly and they decided they needed to give people the right to copy that's why it's called copyright and still until recently the people who owned the printing press owned the content. Well now that we're in the internet age and the cost to distribution is negligible we now have very easy ways to distribute to content to millions of people very simply and freely. In the copy left doctrine it says this, you're able to share that content as long as you give attribution. So seeing how angry I'm making everyone I think I must [overlap]

Mark Masselli: You're doing a great job.

Margaret Flinter: It's a good measure.

Mark Masselli: You know, Margaret mentioned that the -- they're rapidly changing medical knowledge I think, you know, obviously you have an enormous task at WikiDoc to keep timely information up and -- you know, I'm wondering if you could tell our listeners how you manage to do this open source editing on over a 160,000 pages that you have on WikiDoc, illuminate us on how old this gets managed on issues that are obviously vital importance to them.

Dr. C. Michael Gibson: Wikipedia is more of a general information source. Sometimes it’s a little too complicated for patients and that's why branched out to have wiki patient which is written at an eighth grade level for patient and then we have WikiDoc which is for doctors which is written at least is it to level of a generalist if not a specialist but for instance with one disease it may have, I don’t know, 15 to 20 chapters. So, you know, we talked about the pathophysiology as a chapter, the diagnosis, the treatment, you see how one disease can get multiplied into 15 to 20 micro chapters and what we've done is we've assembled a team of 20 people who just wrapped up the project of going to the FDA labels creating the content straight from verified credible information. We also have content from the National Library Medicine written at the eighth grade level for patients and drugs are one of the most widely looked up things and so we've made a lot of efforts to make sure we have very credible drug content. On the disease side I kind of divide the world into two phases, the first phase is kind of building the Eifel Tower and the second phase is painting it repeatedly and we're getting to the point where we've created the Eifel Tower, world experts and those around them to keep the content green or updated. So we're about to complete the base content, it's taken 10 years. We've had a 100 full time, they do nothing but work on this full time volunteers working with me here in Boston. People making a million edits for the content over those 10 years. We review everything that every single person is working on so, you know, that's how we do all that we can to assure that the content is accurate.

Margaret Flinter: You've talked about the democratization of the medical information and the democratization of access or the next I guess area of democratization is medical education. Can you share your vision for WikiDoc and its role on this larger picture and how you think this might disrupt in an innovative way the status quo for both medical education and also even the continuing medical education unison all health care professionals are required to maintain overtime.

Dr. C. Michael Gibson: Doctors learn by looking things up but I think the main way you learn is when you have a problem you go and you search and you look up everything related to that problem. We want to give doctors credit for the time that they're spending researching and learning and what we call micro CME or micro medical education, why not give someone one minute and 13 seconds of unbelievably intense, you know, time that they're looking something up and learning as credit, and you build the bank where you say, you know, Dr. Smith got one hour and 13 seconds today, three minutes 43 seconds tomorrow looking up topics and that's how you major a doctor's engagement in the continuing education process. So we hope to shift away from CME to micro CME. Obviously on the larger issue of education kind of massive online educational efforts are gaining a lot of momentum and both my sons attended MIT I know a lot of the content you can get for free at MIT. I also wondered that either of them ever go to class, watch online. I think you'll see a growing movement in that regards but I do think what you'll end up paying for in the future is more the piece of paper the certificate whereas hopefully the true content itself will hopefully be free.

Mark Masselli: We're speaking today with Dr. C. Michael Gibson Founder and Chairman of the Board of the nonprofit WikiDoc Foundation. Dr. Gibson served as the Director of the Coronary Care Unit at Beth Israel Hospital at Harvard Medical School where he's also a professor. Let's just take a look at some of the research being conducted in new ways and across the spectrum we're seeing the rises in things like Patients Like Me and the Apple new research kit and you've been conducting longitudinal studies on cardiac protocol in multiple countries around the world, what kind of potential do you see from this increase in patient engagement in new and improve data sharing technologies?

Dr. C. Michael Gibson: Well I think the potential is massive. Sadly, every time when we do -- we do one of these trials that I lead that's a 800 centers around the world, we have to redesign the whole thing, we have to start all over again, we have to create a database and, you know, that cost $10,000 for every question that you want to ask and it's millions of dollars just to design the study. The idea that we would be able to use the same infrastructure over and over and over again is very, very appealing because it's much more economical and we do have these registries in different societies where the data's already being entered so we can tap into it. All we need to do is then randomize someone to one treatment or the other. I think the problem comes in where you begin

to have issue surrounding governance, you know, who owns this data, what's the role of the patient and deciding who's going to get randomized to what. So it's going to be an interesting conversation, and then Big Data sounds very attractive but unless you do research in a way where you're asking a question where you're randomizing people by chance to one strategy or the other it becomes very hard to make causal inferences about what's going on. So Big Data doesn't mean that you get the right answer, you can have unbelievable certainty because of the numbers of people and reach the wrong conclusion. You know, my son works in genetic, quantitative genetics in the P value or the number of zeros that proceeds that final number has to be 50 digits before they reach a statistical conclusion because they're doing so many test. So, great tool but it's like a Ferrari you got to know how to drive it.

Margaret Flinter: Well, Dr. Gibson you've been able to conduct hundreds of global studies certainly with the support of the research community at Harvard, cardiovascular disease is a leading killer in this country and around the world. What in your estimation were some of the most exciting potential breakthroughs for treating cardiovascular disease?

Dr. C. Michael Gibson: I've been really lucky to participate in some of the trials related to stents, you know, the things that pop the arteries open and keep them open and the blood thinners things that make your blood not clot and that's been very rewarding over the past 20 to 30 years, we've improve mortality by about 30% with all that we do now compare to just 10 years ago. However, putting a stent in or going on a blood thinner is a little bit like putting your seat belt on after you've had the car accident. There's already a problem when you're having a stent put in, there are some new class of drugs called the PCSK9 Inhibitors which dramatically lower your cholesterol levels down to the gosh 30 to 50 range, you know. Bringing us back to where we were as hunter gatherers. So lower bad cholesterol will be more and more achievable, on the other hand I'm running a trial where we're actually going to be infusing real true human good cholesterol. The good cholesterols like the dump trucks that take away all the fat in your arteries, we're going to be giving people good cholesterol, good garbage trucks and see, you know, if we can improve -- improve the outcomes dramatically, and then heart failure that's another big area we need to work on.

Mark Masselli: Dr. Gibson let's talk about a word that seems to come up quite a bit in your world and that's collaboration in -- you say in the old days the credo with medicine was to publish or perish and the new mantra is to collaborate or perish, but tell our listeners how this new paradigm is altering the landscape in medical education, the practice of medicine in general and perhaps most especially in accelerating the pace of research.

Dr. C. Michael Gibson: Well it wasn't too long ago that things work like this, you know, someone made an interesting observation then they worked with industry to say what if we made this mousetrap, what if we make this innovation and the industry said yes let's do that and at a single hospital they would deploy that innovation like a stent and the guy at the single hospital would publish his experience with that new technology. That is so 1990s you know, we've move from single center observation and trials now to multicenter and multinational trials because the numbers of patients that are required to really show benefits at this point are very large 10 to 20,000 of patients. So in order to make, you know, bold claims it requires a lot of bold data and a lot of big data as we've just been talking about from around the world and, you know, if you're going to try and enroll 20,000 patients in a trial to answer a question it takes a lot of collaboration.

Margaret Flinter: We've been speaking today with Dr. C. Michael Gibson, Interventional Cardiologist, Founder and Chairman of WikiDoc the world's largest open source textbook of medicine. You can learn more about his work by following him on Twitter @ C. Michael Gibson or going to WikiDoc.org. Dr. Gibson thank you so much for joining us on Conversations on Health Care today.

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Mark Masselli: At Conversations on Health Care, we want our audience to be truly in the know when it comes to the facts about health care reform and policy. Lori Robertson is an award-winning journalist and managing editor of FactCheck.org, a nonpartisan, nonprofit consumer advocate for voters that aim to reduce the level of deception in US politics. Lori what have you got for us this week?

Lori Robertson: The genetically modified mosquitoes cause the Zika virus outbreak in Brazil, no, despite those rumors GM mosquitoes may actually be able to help control the viruses spread. The Zika virus likely spread to Brazil around August 2014 and Brazilian authorities have estimated between a 500,000 and about 1.5 million cases of Zika infection have occurred since then. The disease is spread by the Aedes mosquito which also spreads dengue. To reduce Aedes mosquito populations and combat such viruses a British biotech company called Oxytec genetically engineered Aedes mosquito male Aedes mosquitoes to produce offspring that die before they reach adulthood. This technique has been shown to reduce mosquito populations by 95% in some areas where Oxytec release the GM mosquitoes. So where does the rumor come from that GM mosquitoes caused the Zika outbreak? It started with a Reddit contributor who posted to a subreddit geared towards conspiracies. The contributor claimed that the GM mosquitoes were released in the same area as Zika's epicenter, that's not true. Oxytec released its GM mosquitoes 400 miles away from Zika's epicenter and the Aedes mosquito has a lifetime flight range of only a quarter of a mile. The Reddit contributor also claim that some GM mosquito offspring will survive and pass on their genes but

only a small percentage survive roughly 4% in the laboratory setting. It's unlikely that rate would hold in field conditions cross only female mosquitoes bite people transmitting the virus. The Reddit contributor then claimed that GM mosquito and Zika genes will mix resulting in a super virus that causes microcephaly a sign of abnormal brain development but there are no known ways for mosquito gene to infiltrate those of Zika and that's my fact check for this week I'm Lori Robertson Managing Editor of FactCheck.org.

Margaret Flinter: FactCheck.org is committed to factual accuracy from the country's major political players and is a project of the Annenberg Public Policy Center at the University of Pennsylvania. If you have a fact, that you would like checked, email us at www.chcradio.com we'll have FactCheck.org's Lori Robertson check it out for you here on Conversations on Health Care.

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Mark Masselli: Each week Conversations highlights a bright idea about how to make wellness a part of our community and everyday lives. Falling is a common experience among the elderly and that is not good news.

Drew Lakatos: If you're over 65 and you fallen and broken your head, 25% of them will die within 12 months, another 25% will never be able to live independently and a full 75% will never regain full mobility.

Mark Masselli: That statistic got former airbag executive Drew Lakatos thinking what if you could apply the technology used in airbags to create wearable devices that protect a person from the impact of falling.

Drew Lakatos: So similar to the auto industry what I'm suggesting is we make that same strategic shift that the auto industry did and we begin focusing on intelligent protection of our elderly.

Mark Masselli: So they did their research and found a combination of accelerometers and other sensors on the band worn around the waist could deploy within six milliseconds of sensing an imminent fall and protective bags unfold around the hip joints before impact with the floor.

Drew Lakatos: We can assure that these people that need that inevitable and movable object which is the floor cannot only survive the accident, they can walk away.

Mark Masselli: He found that active protect technologies and while his initial focus was providing a significant barrier to devastating injury in adults, he has additional potential markets as well.

Drew Lakatos: We can protect against concussions, we can now protect Coumadin patients, we can protect our military soldiers from IEDs.

Mark Masselli: A simple, retooling of airbag technology in a wearable device that could greatly reduce the devastation of hit fractures leading to better health outcomes and better quality of life, now that's a bright idea.

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Margaret Flinter: This is Conversations on Healthcare, I am Margaret Flinter.

Mark Masselli: And I am Mark Masselli, Peace and Health.

Conversations on Healthcare, broadcast from the campus of WESU at Wesleyan University, streaming live at www.wesufm.org and brought to you by the Community Health Center.