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Mark Masselli: This is Conversations on Health Care. I am Mark Masselli.

Margaret Flinter: And I am Margret Flinter.

Mark Masselli: Well Margaret, it is the season to be shopping, and not only are we in the holiday season we are also several weeks into open enrollment under the Affordable Care Act. We have seen a bit of a reversal from the first open enrollment. The online portals are all working pretty smoothly at the state and federal levels this time around, but not as many Americans are rushing to shop for insurance online.

Margaret Flinter: But people do need to be reminded to re-up their health insurance plans or it will be for them, and it might be a good idea while folks who are doing that to do some comparison shopping, see if there is a better or more appropriate deal for them or more comprehensive coverage.

Mark Masselli: Open enrollment ends on February 15th.

Margaret Flinter: While we are speaking of shopping, somebody else is shopping as well, Mark. VA Secretary Robert McDonald says that he is looking to hire new health care providers across the country, and he estimates that the VA needs to hire about 28,000 more physicians and nurses to meet the needs of their patient population.

Mark Masselli: He says it's an uphill climb to sell the perception, but it's his primary mission and his quest to turn the Veterans Administration around.

Margaret Flinter: And he is offering these clinicians in training a picture of comfortable salaries, long time positions, funded research opportunities, even loan repayments I understand, and also the chance to serve a population that's very much in need and growing.

Mark Masselli: Observers say the VA needs much more than personnel; they need to update antiquated systems, technologies and protocols. That's going to take some time as well.

Margaret Flinter: And our guest today is on the cutting edge of breakthrough technologies that could one day revolutionize the way we deliver and use health care. Dr. Erik Viirre is the Medical and Technical Director of the Qualcomm Tricorder XPRIZE Challenge Competition seeking innovations that can put the power of health diagnostics right in the palm of your hand.

Mark Masselli: That's great. Dr. Viire will beam us all up, and he will tell us about some of the remarkable breakthroughs that have already come out of these competitions.

Margaret Flinter: And Lori Robertson, the Managing Editor of FactCheck.org also stops by. She is always on the hunt for misstatements spoken about health policy in the public domain.

Mark Masselli: But no matter what the topic, you can hear all of our shows by going to CHC Radio. And as always, if you have comments, please find us on Facebook, Twitter, LinkedIn and Google+; we love hearing from you.

Margaret Flinter: We will get to our interview with Dr. Erik Viirre 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 am Marianne O'Hare with these Health Care Headlines. Wall Street has been in some record territory lately and it's bullish on something else, Obamacare. A group of Wall Street analysts recently predicted a higher than expected turnout to sign up for Obamacare during the second round of open enrollment. The analysts site more robust insurance exchange portals operating more efficiently, more young healthy uninsured Americans seeking coverage. Analysts are predicting 11 million people will enroll in individual health plans during the second round of open enrollment.

Meanwhile, another study out shows that yes, more Americans are insured under Obamacare, but that higher deductibles and out of pocket costs are making it difficult for many to afford their medical bills, and a quarter of those uninsured folks polled still felt they couldn't afford to purchase health coverage, still many Americans unaware they qualify for subsidies to offset the cost of buying insurance. And there is still uncertainty about those who are re-upping their insurance after signing up during the first open enrollment. Plans will automatically be renewed but customers may find there is a better more affordable plan that better suits them by shopping around.

Ebola continues to be a problem for several West African nations, and the hunt for a cure continues as well. The FDA has fast tracked and unapproved blood transfusion system for Ebola patients taken from folks who have survived the virus. The idea is to take a convalescent plasma supply that's been through pathogen inactivation as critical to making this therapy readily available as new Ebola patients are diagnosed and urgently require treatment.

And sleep experts have been warning for some time that the early start time for high school students in this country is hampering their learning outcomes. Teens require more sleep than the average person and are chronically sleep deprived. Apparently, the poor resulting performance is not just limited to the classroom; sleep deprivation is now being cited as a major factor in teen car crashes. When a teen whines that they are tired, parents are advised to listen. It could be hazardous to their driving also.

I am Marianne O'Hare with these Health Care Headlines.

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Mark Masselli: We are speaking today with Dr. Erik Viirre, Medical and Technical Director for the Qualcomm Tricorder XPRIZE and the Nokia Sensing XCHALLENGE, ongoing global competition seeking to develop the next generation of health sensors and diagnostic tools that will transform health care. Dr. Viirre is Adjunct Professor in the UC San Diego Departments of Neuroscience, Surgery and Cognitive Science, and is the Scholar-in-Residence at the Arthur C Clarke Center for Human Imagination. Dr. Viirre received his PhD. in Neurophysiology and medical degree at the University of Western Ontario in Canada. He is also in the inaugural class at the International Space University and has done research for the National Institute of Health, the U.S. Navy and NASA. Dr. Viirre, welcome to Conversations on Health Care.

Dr. Erik Viirre: Thanks very much. I am so excited to be able to talk about XPRIZE and our competition.

Mark Masselli: Yeah that was great. And certainly, the Qualcomm Tricorder XPRIZE takes its name from the medical device used by the physician boats on Star Trek as well as the Nokia Sensing XCHALLENGE which is seeking to create a portable health lab that can work in the palm of anyone's hands. But before we get into the particulars of those challenges, tell us a bit of the background of the XPRIZE, and as I understand it was based on competitions in the early 20th Century aimed at spurring innovations in transatlantic aviation. Charles Lindbergh was an early winner. So who are some of the key players behind the modern incarnation of the XPRIZE Foundation, and what are some of the goals and unifying principles of all the XPRIZE competitions currently underway?

Dr. Erik Viirre: Sure. So our founder, Dr. Peter Diamandis, was really inspired by reading a story of The Spirit of St. Louis which was flown across the Atlantic by Charles Lindbergh to win the Orteig Prize to spur aviation which led to hundreds and thousands of flights in just two years after the original flight across the Atlantic. So Peter is our founder and our anchor, but we have so many amazing people that have really helped XPRIZE Foundation along the way, Anousheh Ansari who really took a leap of faith on a crazy guy with a dream of a prize to start space flight, and she and her family funded the original XPRIZE 10

years ago, and Sergey and Larry from Google, and Eric and Wendy Schmidt, (inaudible 07:25), Rob McEwen from Canada, all kinds of really exciting people who totally believed in the mission of XPRIZE.

And so our vision is to fill in the gap. Of course, there are startup companies with the dream, big pharma companies who want to create a blockbuster drug, and then there is the basic research funded by research foundations and of course mostly by government institutions. But there are things in the middle that aren't going to be an immediate investment payoff necessarily but are goals that human society might think are important like non-governmental space flight. Taking people into space is a different goal now, and so our foundation looks at things like the health of the oceans, literacy, even abstruse things like happiness, and of course health and human well-being.

Margaret Flinter: Well Dr. Viirre, perhaps we could take a look first at the Nokia Sensing XCHALLENGE. You recently announced an interim challenge winner, a relatively small startup from Cambridge who produced a pretty revolutionary diagnostic device. What made their product so revolutionary?

Dr. Erik Viirre: The revolution is taking things that are huge devices, that are the size of refrigerators, and making them literally things that can comfortably fit on your body. And so Team DMI from Cambridge headed by Dr. Eugene Chan is our most recent Nokia Sensing XCHALLENGE winner, and his technology is just really cool because he has developed this way of managing tiny amounts of fluids of blood, and analyzing that very carefully and quantitatively and then even taking like the chemical strips that we would use at home for testing the pool and doctors use in the office, and taking them to the nanoscale so that these things are millions of times smaller than the ones that you hold in your hand that are contained in the blood sample and then run through a beautiful microfluidic system. So Eugene and his team has been able to build a thing that is thousands of times smaller to do analysis that now requires a hospital laboratory.

Another one that I would like to bring up is Dr. Esther Rodriguez-Villegas from the U.K, and she has really cool technology that is a small button size sensor that carries both the power and the transmitters and the sensors to analyze the acoustics of breathing. Children with things like crib death or adults with things like obstructive sleep apnea, this small sensor can be placed on your neck so just a cool miniaturization of technologies that now require straps and belts and things stuck all over your body that can be used even on premature babies.

Mark Masselli: I love that you are harnessing the imagination of science fiction, the Tricorder from Star Trek to spur developers to bring that concept to reality in these current times. Tell us about some of the leading contenders in this competition and the ideas they are generating and how you are judging these potential disruptors in the health care technology, and what are some of the key criteria you consider when picking a winner?

Dr. Erik Viirre: So we have 10 finalists now from all over the world. Team DMI, the Nokia Sensing XCHALLENGE winner is one of our contenders in Tricorder, and Eugene is planning a whole integrated system with his health platform. Some of the teams from overseas like Team Danvantri from India which has amazing cost efficiencies in building sensor systems, and Team Dynamical Biosignals from Taiwan, a home team from EB and Canadian CloudDX from Toronto, again putting variety of different sensors into platforms, and another really cool one from here in the United States, Final Frontier, which is really bringing a strong AI approach to the Tricorder competition. So we are seeing this breadth of things like sensors all the way to artificial intelligence technologies in organizing the competition and with the integration of these kinds of technologies that we are really going to enable a team to win our \$10 million competition.

Margaret Flinter: Well Dr. Viirre, certainly as clinicians diagnostic is a key challenge, but an even a more elusive challenge is getting our patients to participate in their own health care. Tell us about the goals of the Qualcomm Tricorder XPRIZE innovations from the perspective of how these innovations might engage or empower everyday patients into this process. Is that on the radar any place?

Dr. Erik Viirre: Absolutely, it's essential, and literally half of the competition criteria is consumer acceptance of the technologies. So not only do the systems have to deliver, they got to work, but people have to like them. And so in fact, we have engaged top level consumer survey experts as well as a world-recognized panel of user experience judges to evaluate first the potential submissions that ultimately led to our finalists. But in the finals what will happen is the testers who will be test-driving these Tricorders around the block will then right after their use of them have formal consumer surveys, and so these surveys were designed to really elucidate how do they like them, is this something that you would use in your regular daily life, and literally half of our competition criteria are from those consumer surveys and this really leverages our whole smartphone lifestyle now where literally on your smartphone you can order a plane ticket, check-in and never have a piece of paper, and the final frontier for that really is professional health care.

Mark Masselli: We are speaking today with Dr. Erik Viirre, Medical and Technical Director for both the Qualcomm Tricorder XPRIZE and the Nokia Sensing XCHALLENGE. Dr. Viirre is Adjunct Professor at the UC San Diego Departments of Neuroscience, Surgery and Cognitive Science. So Dr. Viirre, we are at this fertile intersection of medicine, technology, design and innovation, and so much of modern day innovation has been the result of government-funded research, and we are certainly in a sticky political climate where scientific funding agendas are being challenged. Tell our listeners how the competitions like XPRIZE fill the gap, and what can we take from the sort of moonshot experience that might inform this new wave of innovation?

Dr. Erik Viirre: Well certainly I worry about reductions in funding from foundations and governments, but these grand challenges have a long history of making accomplishments. We talked about Lindbergh, and remember one of the biggest incentive prizes was the Longitude Prize, the development of (inaudible 15:01) funded by the British government. And so there are places. I don't know that incentive prizes are for everything and for every problem, but it's taking that human initiative and that competitiveness that we all have and spurring it towards good.

Margaret Flinter: Well Dr. Viirre, we know that a goal is to have not just an audacious solution but an actionable one. How do you think about helping then move these solutions into action within the health care system? And presumably the things you have described say have tremendous ability to both make health care more fair and equitably distributed around the world. So what's your level of sort of engagement or involvement in seeing these ideas through to actual implementation?

Dr. Erik Viirre: Yeah. In fact that's actually what we are directly about with XPRIZE. And I like to tell a story from one of our other competitions, the Progressive Automotive XPRIZE which was for fuel efficiency, which was seven or eight years ago a crazy goal, a car that could get 100 miles per gallon. So the competition was about can people build competitive vehicles that would be safe and drivable, and through the competition a formulation came called MPGe, miles per gallon equivalent so that they compare different kinds of fuels like hydrogen and electricity as well as conventional hydrocarbons.

And the cool part is that MPGe is now part of the parlance. I have the great fortune of being able to buy an electric car here in California and on the window sticker the big numbers there up in the corner that says MPGe, and my car that I could buy on the lot was the 116 MPGe, and so that's what we do at XPRIZE. We take things that seem crazy and show that they can work, and that's my dream for Tricorder. My real dream is being a total Trekkie myself, having watched Star Trek in high school and met so many of the Star Trek people is that the word Tricorder itself will come to be a term of common parlance that has common meaning, meaning the sensor systems that we hold in the palm of our hand that are not just apps but have all the sensors built into them that can really help us with our health.

Mark Masselli: You know, just as a side note, I wonder what type of excitement you get from the work of people, maybe who didn't come through the XPRIZE, but sort of doing the work that I think would come out of an XPRIZE. Elizabeth Holmes who certainly is pioneering this whole idea of just a single drop of blood where she can do 70 lab tests in her company Theranos.

Dr. Erik Viirre: Yeah, so Theranos is just really exciting. And we see Apple and Google (inaudible 18:00) now and ironically, that's exactly what we want to do with XPRIZE is make these things not just our XPRIZE competitors, although of course they are our babies and we love them all, but as I was saying a moment ago the idea of having the Tricorder, this idea of oh yeah, this is -- and that's what we are really trying to do by showing the way in a public way that will enable these technologists ride that visibility and say yeah we can do these things.

Margaret Flinter: Dr. Viirre, what are the next steps for the XPRIZE competition? We have accrued all these promising technologies and participants. How is the role of the XPRIZE Foundation going to evolve in this next phase, and how does the foundation facilitate next steps for these breakthrough innovations?

Dr. Erik Viirre: So next year in 2015, we are going to be running the actual test program where we will be doing something that has never been done before, a medical device competition. And so I am so proud and excited that UC San Diego has stood up along with XPRIZE to create this test program where people with 20 different conditions will be identified and then they will be enrolled into our competition and the Tricorders will be brought to them. So this is not a paperwork exercise; the Tricorders will really be tested by our human testers, and we will be determining how well the Tricorders pick up the conditions as well as the consumer surveys that I was talking about before. And so what I think is really exciting is that this is going to establish a whole new industry where these technologies will be tested, and in fact, we have established a really productive and collegial cooperation with the FDA who is working closely with us to manage our competition, but also to have a look at what the future of these mobile health technologies are going to look like.

Margaret Flinter: We have speaking today with Dr. Erik Viirre, Medical and Technical Director for both the Qualcomm Tricorder XPRIZE and the Nokia Sensing XCHALLENGE. You can learn more about his work by going to www.xprize.org. Dr. Viirre, thank you so much for joining us on Conversations on Health Care today.

Dr. Erik Viirre: My pleasure.

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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 non-partisan, non-profit consumer advocate for voters that aim to reduce the level of deception in U.S. politics. Lori, what have you got for us this week?

Lori Robertson: We found both democrats and republicans stretching the facts about the role MIT economist Jonathan Gruber played in the creation of the Affordable Care Act after controversial comments by Gruber came to light. At an October 2013 Health Economics Conference Gruber said that “Lack of transparency is a huge political advantage,” and he referred to the stupidity of the American voter in talking about the passage of the law. Once the video began circulating online, Gruber told MSNBC that he basically spoke inappropriately, but the damage was done. Obama called him “some advisor who never worked on our staff.” Yes, he wasn’t on the White House staff but he was a paid consultant on health care earning hundreds of thousands of dollars over the course of a year.

Meanwhile, conservatives including Representative Bill Cassidy of Louisiana have overstated Gruber’s role, claiming he was the architect of the law. Gruber who advised Former Massachusetts Governor Mitt Romney on health care has described himself in the past as one of the architects of the Massachusetts Law but not the federal one. He said that he worked as a technical consultant to the Obama Administration from 2009 to 2010. That mirrors what others who worked closely on the law told us. Gruber was hired by the Department of Health and Human Services for a one year contract to provide technical assistance that involved using his micro-simulation model to determine the impact of health policy. He may not have written the law, but Obama (inaudible 22:10) his comments brushed side the fact that he was a highly paid consultant whose modeling work was instrumental in determining the impact of health care policy. At the same time the claim that Gruber was the architect overstates his role and overlooked the role of many others in the administration and Congress. And that’s my fact check for this week. I am 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, e-mail us at www.chcradio.com. We will have FactCheck.org’s Lori Robertson check it out for you here on Conversations on Health Care.

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Margaret Flinter: Each week, Conversations highlights a bright idea about how to make wellness a part of our communities and everyday lives. An estimated 22 veterans per day are taking their own lives in what’s being described as a post war suicide crisis. With a lack of behavioral health clinicians available for every veteran who is experiencing difficulty, the VA has launched a campaign aimed at all Americans who know veterans who may be struggling to be aware that they can make a difference just by reaching out. It’s called the Power of One campaign, the idea that one person reaching out to one veteran in a caring manner can make a difference.

Dr. Caitlin Thompson: The power of one small action, one conversation or one phone call can make a difference in the life of a veteran going through a difficult time. For free 24x7 confidential support, call the Veterans Crisis Line or the Military Crisis Line.

Margaret Flinter: According to Dr. Caitlin Thompson, Deputy Director of VA's Suicide Prevention Program, the VA has launched a new suicide prevention hotline. It's now collaborating with community groups across the country to prepare them to better address the needs of these veterans, many of whom don't know how to ask for the help they need. Veterans, service members and anyone concerned about them can call the Veterans Crisis Line, 1-800-273-8255. They can chat online at VeteransCrisisLine.net/chat or send a text to 838-255 even if they are not registered with the VA or enrolled in VA health care. A dedicated program aimed at reaching out to veterans across the country, empowering community groups and individuals to find ways of offering support, getting veterans the help they need before it's too late, now that's a bright idea.

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Margaret Flinter: This is Conversations on Health Care. I am Margaret Flinter.

Mark Masselli: And I am Mark Masselli, peace and health.

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