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

Margaret Flinter: I'm Margaret Flinter.

Mark Masselli: Well, Margaret we're in the month of February already and surely spring isn't too far around the corner.

Margaret Flinter: Hope springs return, well Mark but it is February the month that we celebrate Valentine's Day and we want to remind folks this is a month where we like to promote all matters of the heart including healthy hearts.

Mark Masselli: Heart disease remains the leading cause of death for men and women in America, 610,000 deaths per year Margaret. We have to do better.

Margaret Flinter: It comes down to a few basic rules, what we eat, our diet and how we move our exercise are the best weapons in battling and preventing heart disease.

Mark Masselli: Also smoking remains the number one cause of preventable illness and premature death from heart disease. It just go to the American Heart Association's website heart.org lots of great information there.

Margaret Flinter: Well you know Mark there's a new weapon we can leverage in the war against heart disease and that's the explosion of wearables. That brings us to our guest today.

Mark Masselli: Dr. Lloyd Minor is the Dean of the Stanford School of Medicine that is overseeing a long term strategy to advance what he calls the biomedical revolution in precision health.

Margaret Flinter: Dr. Minor has earned a lot of attention for a recently announced partnership with Apple and the telemedicine company American Well to launch the Apple Heart Study to track Atrial fibrillation in thousands of participants.

Mark Masselli: Lori Robertson also checks in. She's the managing editor of FactCheck.org.

Margaret Flinter: No matter what the topic you can hear all of our shows by going to chcradio.com.

Mark Masselli: As always if you have comments please email us at chcradio@chc1.com or find us on Facebook or Twitter we love hearing from you.

Margaret Flinter: Well get to our interview with Dr. Lloyd Minor in just a moment.

Mark Masselli: 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. Indiana gets the green light from HHS to be approved for a work requirement for those receiving Medicaid coverage in their state. This on the heels of Kentucky's recent approval for a similar Medicaid coverage rule, the measure approved by newly sworn in Health and Human Services Secretary Alex Azar will require a so called able-bodied Medicaid recipients to be required to work towards earning their health benefits. Recipients must pay a monthly premium to gain benefits and if they miss a payment they're kicked off health coverage for at least six months. Since 2015 roughly 90,000 Indiana Medicaid recipients were kicked off coverage for either not paying their premium or not filling out their proper paperwork at one time or another.

It's not longer just hide this year's flu season is officially the worst in a decade according to statistics from the CDC. Officials of the Centers for Disease Control and Prevention say that in the week ending January 27th one in 14 visits to providers offices was flu related, straining resources at many of the nation's hospitals who must bring in extra staff to treat the influx of flu cases. At the time when the current administration is considering big cuts to the CDC democratic Massachusetts Senator Ed Markey is calling for a billion dollar fund dedicated to finding a universal flu vaccine. This year's flu vaccine has had a very limited efficacy against the prevalent strain of the flu.

Speaking of the CDC now that Brenda Fitzgerald is out resigning last week as director due to her post-appointment investment in a large tobacco company. Investigation published in Stat News have revealed a few more law makers with questionable investments in similar entities. Two ranking members of the senate health committee have been found to have tobacco company investments in their portfolios. Utah Senator Orrin Hatch had investments in Philip Morris International, while the husband of democratic senator Patty Murray had invested in Reynolds America. Tobacco consumption is the leading cause of preventable death in this country and worldwide. I'm Marianne O'Hare with these health care headlines.

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Mark Masselli: We're speaking today with Dr. Lloyd Minor the Carl and Elizabeth Naumann Dean at the Stanford School of Medicine where he established a strategic vision to lead the biomedical revolution in precision health. He's also Professor of Otolaryngology and Head and Neck Surgery as well as Professor of Bioengineering at Neurobiology at Stanford University. Before coming to Stanford Dr. Minor was provost and Senior Vice President for Academic Affairs at the Johns Hopkins University where

he served as Chair of the Department of Head and Neck Surgery at the Johns Hopkins University School of Medicine. Dr. Minor earned his bachelor's and medical degree from Brown University and completed his residencies at Duke University's Medical Center and the University of Chicago Medical Center. Dr. Minor welcome to Conversations on Health Care.

Dr. Lloyd Minor: Thank you very much Mark it's great to be here.

Mark Masselli: Yeah as you know Stanford School of Medicine is one of the most recognized medical teaching institutions in the world which is also supported by some of the best scientist at Stanford University across a number of disciplines. You've launched a very bold strategic vision at Stanford to break down the barriers between all of these disciplines to accelerate the pace of biomedical discovery to bring us closer to the promise of true precision medicine. I'm wondering if you could share with our listeners more about the 21st century strategic vision and your goals in this endeavor.

Dr. Lloyd Minor: For years we've been treating disease after the fact making diagnoses far too late to achieve the outcomes that we would really like to achieve. Certainly, when we have a severe acute disease like cancer we want precision medicine. We can think of precision health as encompassing precision medicine but very importantly focusing on health. There are really three components to our vision of leading the biomedical revolution in precision health. First is to predict and then prevent and then to cure disease precisely. Using the same levers of genomic medicine, big data science, regenerative medicine, but applying those in a predictive, preventive and proactive way. The way we know we will have succeed it say a decades from now precision health is that the instance of those diseases requiring precision medicine will be far less. I mean isn't that what we all seek is to have healthy lives? When disease does come up to either diagnose it much earlier so we can treat it more effectively or prevent it all together.

Margaret Flintner: Well, Dr. Minor it reminds me that we had one of your colleagues on with us a few years ago Dr. William Newsome who's head of the Stanford Neurosciences Institute and as you know he's co-chair of President Obama's brain initiative. He said to us then, that in order to unlock the secrets of the human brain that long siloed scientific disciplines would have to come together and start working collaboratively, computer science, neurology, biomedical engineering, physics, advanced mathematics, everybody had to work together to tackle this enormous challenge. Talk with us if you will about how the academic landscape is being fundamentally restructured to facilitate this new approach that will help you realize that grand vision?

Dr. Lloyd Minor: This is the century of biomedicine and we're seeing so many disciplines from science and technology converge on biomedical problems. Biology is a discipline it's grown up, it's now firmly a quantitatively rooted discipline and therefore the techniques from the physical sciences from engineering, the techniques has been so successful and other areas can now be applied in biology and medicine. At Stanford we do have the advantage of everyone being on the same campus, our academic medical center with the school of medicine and Stanford Hospital and Lucile Packard Children's Hospital. We're on the campus at Stanford University, my office sits literally across the street from the chemistry department, a biology department and the engineering school. There's a very fluid interchange of faculty and students between and among the various different disciplines at the university.

Also I think Stanford and our peer institutions as well are moving towards a more collaborative interdisciplinary culture, how do you do that? Well, we provide incentives like seed grants. In some of our seed grant programs we require that faculty from different disciplines collaborate in preparing the grant proposal. Often times the catalyst that brings laboratory groups together is the student who has expertise and is gaining expertise in related the complimentary field, it really brings the faculty together. All those are mechanisms that are being used to encourage and promote interdisciplinary scholarship and research.

Mark Masselli: Dr. Minor the notion of precision medicine and certainly taking hold across the health care landscape. We have the National Institute of Health all of us precision medicine initiative, but we're also seeing this explosion of targeted drug development in the world of pharmaceuticals. For the first time we're harnessing personal health data from wearables to gain better understanding of population health. I wonder if you could tell us what are you most excited about?

Dr. Lloyd Minor: Several things, there's explosion in terms of basic biological biomedical discovery. Our knowledge of receptors on the surface of cells our knowledge of the ligands interact with those receptors, that knowledge is increasing at a prodigious pace. In the past a scientist makes a discovery, and that scientist thinks, you know that might be a drugable target. Then there's a big gap between that fundamental discovery of high biological significance and answering the question whether or not this is a target, and if it is a target then making the compounds that interact with it as a target, that's been a big gap.

Classically what people would do, would file for the intellectual property then at the appropriate time they might seek to get commercial funding and work it up from there. That's easy to say in two or three sentences, it turns out it take a lot of time and effort and years. We're trying to shorten that lag time in a number of different ways through partnerships with industry to bring the benefit of medicinal chemist on campus to

provide incentive funds that will help a faculty member to cross that first valley of death and really determine if that receptor or ligand is indeed a target. Another area relates to this rapid development of the field that's known as digital health. I think of digital health as having two components, a consumer facing components wearables and other devices, and second an analytical artificial intelligence, machine learning enabled component which is extracting information from the treasure troves of data. Data that are locked in our electronic medical record systems, but being able to decipher relationships and therefore develop better care delivery pathways based upon this enormous amount of data, so getting from basic discovery to therapeutics. Second, being able to more meaningfully gather data about health and then extract information from those vast quantities of data.

Margaret Flinter: Well, I'm thinking listening to you it's change everywhere, but it's change in the way we train our next generation of health care professionals too if we're going to be successful. You're certainly one of the most renowned campuses for training of health professionals, a physicians specifically they need to work with other health care professionals as well. What are you seeing in the changes in the education and training of future physicians and other health care professionals at Stanford?

Dr. Lloyd Minor: One of my friends in the venture capital world will usually turn to me on the penal and say, you know we're going to put you out of business and your medical school out of business in the next decade. There won't be a need for physicians, everything will be handled by data scientist. Now I worry about a lot of things in life, that's not one thing that I tend to worry about. The need for physicians and other health professionals to understand what can be accomplished through data science, that need is increasing prodigiously. During the first two years of medical school we basically follow the same calendar as the rest of the university, so we have first and second year medical students taking courses in computer science and engineering as well as in the humanities and social sciences. Medical students get combine degrees in law or in business as well as in more traditional scientific disciplines.

Today more than ever the need to train physicians to be valuable members of teams, we also want to have physicians graduate from our medical school that have competencies in other areas as well. I like to think of what we're moving into and health care as being high tech enabling high touch I don't believe that health care professionals are going to be put out of business by high tech. When we ask people in our health care delivery system, do you want to receive all of your care virtually or do you want to have a primary care health provider and be able to access others virtually? No one elects to eliminate a primary care provider, but they also want the immediacy that virtual interactions and digital health provide today. Those of us who are responsible for training the health care workforce of the future, that's what I think we want to focus on.

Mark Masselli: We're speaking today with Dr. Lloyd Minor dean of the Stanford School of Medicine where he has established a strategic vision to lead biomedical revolution and precision health. We have Apple's Chief Operating Officer Jeff Williams on the show who talked about their plans for entering in the health care space. Now Stanford is partnering with Apple in the telemedicine company American Well on the Apple Heart Study to accelerate research in population health. I'm wondering if you could talk to our listeners about this collaboration, how might it inform the future of population health research?

Dr. Lloyd Minor: One of the things that excites me the most about the Apple Heart Study is it's starting to put information about health into the hands of each of us as a health care consumer. Technology has transformed every other aspect of our lives and our economy except for health care. You and I can use our ATM card pretty much at any ATM on the planet, the way we order essential goods and services has changed dramatically, but the way we access information about our health has undergone very little change. We still walk into doctor's offices and we see fax machines that in other sectors have gone out of business a long time ago. One essential next step is to make information about our health more accessible to us, and that's exactly what the Apple Heart Study is intended to do, it's looking for the arrhythmia of Atrial fibrillation, we know it's the most common arrhythmia. We really don't know today the true incidence and prevalence of Atrial fibrillation, and we have designed a study to look for Atrial fibrillation working with American Well to be able to when the watch kicks up that there may be an arrhythmia for the consumer to contact American Well to screen further for the possibility of Atrial fibrillation. This will first of all give us a treasure trove of data about the true instance and prevalence of Atrial fibrillation, and it's an essential first step towards ultimately designing a monitoring system that will enable people to know if they have the arrhythmia, and enable physicians to make a much more informed judgment about when it needs to be treated or when it can simply be observed.

Margaret Flinter: Dr. Minor I'd like to ask you if we can maybe focus for a minute on prevention. You talk about the next big thing in health being precision health and you believe it will be a game changer to population health in the future. Talk about this precision health system that you have it at Stanford and what would you like our listeners to know about it?

Dr. Lloyd Minor: There are several components addressing the social environmental and behavioral determinants of health. We look at health and health care as a pie. Our traditional health care delivery system only addresses maybe a quarter of that pie, social environmental and behavioral determinants account for 75% of the pie. One project we're doing here, obesity among Latino American children is very high in the United States, prevalence is about 39%. We know that children who have obesity go on to develop a very high instance of diabetes, heart disease, kidney failure, a host of

complications associated and triggered by obesity. How do we combat that obesity epidemic? We have a group of our faculty who receive funding for a project called SPHERE Stanford Precision Health for Ethnic and Racial Equity.

One component of that project looks at obesity among Latino American Children in Santa Clara County. Yes, we're doing the traditional scientific medical analysis of genomics and other biological indicators and markers, but we're also looking at how we can encourage and enable activity. We're doing very practical types of interventions like offering to replace all of the cooking and serving utensils in a house hold, replacing them with smaller utensils hopefully leading the smaller portions. We're studying all of these interventions to see what's effective in specific patients according to their social environmental and behavioral determinants, that's a first step. I also think this revolution in digital health, this revolution will help as well because each of us as consumers is going to have a lot more information about our health than we've been able to garner in the past.

Mark Masselli: Well, Dr. Minor we have tens of millions of Americans who don't have access to health insurance and yet on the other hand we're talking today about this 21st century innovations and we're facing this much larger concern about how do we bend the cost curve. Then we have these announcements most recently by the collaboration between Amazon, Berkshire Hathaway, and JP Morgan vowing to reduce the health care cost burden to make health care more affordable using technology. There's seems to be still lots of skepticism, so in your vision of the future where is the opportunity to bring this desperate groups together to form a sort of a more perfect union for the health care delivery system?

Dr. Lloyd Minor: Let me offer few thoughts, to the extent that we can simply and make more efficient the supply chain in health care delivery that will lower cost and conceivably improve outcomes making what is today a rather fragmented supply chain more cohesive and coherent. Also one can imagine that 10 years from now the way we will access health care delivery services can similarly be dramatically different in a way that adds value, lowers cost, improves outcomes and makes the entire system more efficient for us to engage in healthy behaviors. For example, if we're able to get healthier sources of food in an accessible and affordable way that will promote health. You can imagine it across the board with multiple aspects of economy relate to health making those more accessible, more affordable will help us to achieve a healthier society.

Margaret Flinter: We've been speaking today with Dr. Lloyd Minor Dean of the Stanford School of Medicine. You can learn more about his work by going to Medicine.stanford.edu or follow on Twitter @Stanford Med. Dr. Minor thank you so

much for the pioneering work that you are doing and for joining us on Conversations on Health Care today.

Dr. Lloyd Minor: Thank you Margaret it's been a pleasure talking to you and to Mark.

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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, nonprofit 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: The new GOP tax law abolishes the Affordable Care Act's individual mandate in 2019. The president mention this in his state of the union address saying, quote, "We eliminated an especially cruel tax that fell mostly on Americans making less than 50,000 dollars a year." That may sound surprising but the IRS statistics backup the claim that the mandate fell mostly on those with less than 50,000 dollars in adjusted gross income. In 2015 IRS data show that 6.7 million tax filers paid the mandate penalty, of those 6.7 million people who paid it 5.3 million or 79% had adjusted gross income of less than 50,000 dollars. 27,000 of them had AGI less than 10,000 dollars and about 3700 had AGI of less than one dollar.

Why would some people with so little taxable income pay the tax? The IRS has reported in the past that some people appear to be mistakenly paying the tax. Back in 2014, eight million people paid the tax and the IRS commissioner said that an estimated 313,000 low income filers likely should have filed an exemption. He said the IRS had sent letters to those tax payers about the apparent mistake. Exemptions are available for those with short gaps in coverage, citizens living abroad, those with personal hardship, those who would have qualified for the Medicaid expansion but their state didn't expand it, and those for whom available insurance is unaffordable. Some low income tax payers are automatically exempt because their income is below the tax filing threshold. About 10,000 dollars for a single person and 20,000 dollars a couple. 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'd like checked, email us at CHCradio.com we'll have FactCheck.org's, Lori Robertson check it out for you, here on Conversations on Healthcare.

Mark Masselli: Each week Conversations highlights a bright idea about how to make wellness a part of our communities and everyday lives. Tinnitus is vaccine condition

that afflicts millions of Americans, a condition for which there is really no viable treatment to date. A University of Michigan researcher may have found a solution, Dr. Susan Shore says tinnitus mark by a constant ringing in the ears is really the results of misfiring brain signals. Her team has developed a device aimed at getting to the root cause of tinnitus neurons in the region of the brain stem. When those cells become hyperactive they create a signal that is transmitted to the part of the brain where hearing perception occurs and the constant ringing can wreak havoc on sufferer's lives. The device works on two fronts, it uses weak electrical impulses target to the brain's region responsible for the problem and also sense time sound to interrupt the auditory sensation cause by the tinnitus.

Dr. Susan Shore: We develop this treatment for a particular class of tinnitus in which the person who has the tinnitus is able to modulate either the pitch or the loudness of the tinnitus by pushing on their face.

Mark Masselli: The study group has been relatively small so far but the results had been quite promising. Dr. Shore says that the severity of the tinnitus was greatly reduced in most of the participants and some got to the point where they no longer interfered with their daily lives. A relatively simple targeted device that could potentially help millions of tinnitus sufferers from the worst affects of their condition. Now that's a bright idea.

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Margaret Flinter: This is Conversations on Health Care I'm Margaret Flinter.

Mark Masselli: I'm Mark Masselli, peace and health.

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