THE BROOKINGS-TSINGHUA CENTER FOR PUBLIC POLICY

MODERNIZING PUBLIC HEALTH CARE

Beijing, P.R. China

Tuesday, May 20, 2014

Moderator:

THE BROOKINGS INSTITUTION

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PROCEEDINGS

MR. WEST: Thank you very much for the introduction, I will try to speak slowly for the benefit of our translator. But it's a pleasure to be here, this is my fourth visit to China over the last few years and it's always fun to come here and see the changes year to year, and the progress that you're making. As Mr. Yu just mentioned, I direct the Center for Technology Innovation at the Brookings Institution in Washington, D.C. And there, we focus on how technology can offer benefits both in the areas of health care and education. We have research projects on health information technology as well as education technology and our goal is to try to bring the benefits of technology to each of those policy areas. As was just mentioned, for those of you interested to follow our work, we have launched a new blog at Brookings called Tech Tank, you can access it on our website www.brookings.edu under blogs. We have posts everyday that reviews the aspects on our work everyday [inaudible] of technology. The project I'm going to talk about today is based on a collaboration that we undertook with some experts at the Chinese academy of telecommunications of research. I think at your desk you have two versions of our paper we put out, an English version we released in the United States and this week we are releasing the Chinese version. So we figure our readership should grow by at least ten times now that we have a Chinese version of our work. But the topic of modernizing health care is a big challenge in every country around the world. Because modernizing health care involves making changes at several different levels. The operations of medical care in terms of hospitals, physicians, nurse and how they operate. The public policy surrounding health care and how we need to develop pro-innovation policies, the regulatory aspects, how governments regulate medical devices, what constitutes a medical device, and the technology angle that we're interested in just because of the potential in those areas. In looking at those potential areas, we are seeing a lot of growth taking place in the way in which mobile devices are starting to transform the delivery of health care. In terms of doctors in the US, we are seeing physicians

relying on smart phones so they could access the most up-to-date information on medical care. We see tablets being used to record medical information and to check on drug interactions, that's a big problem in the US, people take a lot of drugs and end up having interactions across different medicines they are taking. We are starting to see the introduction of remote monitoring devices in heath care. Last year I visited Beijing and I went to a medical clinic that focused on patients suffering form various types of heart diseases. Their physicians had deployed remote monitoring devices for those patients, and the patients' vital signs were sent to the physicians offices and they told us that in about 25% of the cases, they found abnormal ratings for the patients. So in those situations, they were able to reach out to the patients and tell them that there was something wrong and to encourage them to seek medical care. So this is an example of how mobile technology can help our doctors become more proactive in the delivery of health care. Consumers are also using mobile devices to access various types of applications. We have applications to count calories, to record the exercise that you do and how many calories you are burning off. I recently joined a gym in DC and as I'm exercising the machine is keeping tab of miles that I run, the speed at which I operate and my favorite, the calories that I'm burning in the process. So I can literally see the calories that I burn go from 50 to 100 to 200 and that helps motivate me to do the exercises. Overall the global mobile economy now totals about 1.6 trillion dollars. That is due to rise over 2 trillion dollars by 2017 so we're really seeing the growth of many different aspects of mobile health applications. There are a number of different benefits of mobile health that we're finding. One is in terms of access and affordability, every country both China, the US and other countries around the world suffer from a rural urban divide in which typically persons living in urban areas have greater access to physicians and medical facilities than people in rural areas. Mobile devices video conferencing and different forms of tele-medicine can bridge those types of geographical divides by bringing in high quality medical care

to people who might live some distance from medical facilities. We also are seeing in health starting to boost administrative efficiency, physicians can keep better records, helping us keep better track of what is going on in the health care system. Patients love the mobile experience because they can get real time information around the clock, not just when their doctors' offices are open. And as Mr Jin mentioned earlier, mobile health can enable health data collection and analysis through big data. We are moving towards an evidence based medical [inaudible] we need to find out what works and what doesn't work, and mobile technology can help us answer those types of questions in terms of comparative effectiveness. We're already starting to see evaluation studies that find benefits for physicians who use mobile devices, physicians responding more properly to reading medical test results. We're also finding they make fewer errors in their medication prescriptions and in their hospital decisions, for example how they discharge patients. We're also seeing improved data management and record keeping practices, so there are lots of ways in which mobile devices can help make a difference. Health care costs are rising very dramatically in the US, this year the US is expected to spend 3.1 trillion dollars on health care that's 18% of our growth domestic product. By the year 2021, our health care costs in the US are expected to rise to 4.8 trillion dollars. That'll be almost 20% of our gross domestic product. In conjunction with the Chinese [inaudible] of Telecommunications research, they compiled theses data on rising health care costs in China. You see a similar story. That in the last five years, health care costs in China have more than doubles. The problem of the quality of the care and the cost of the health care is a problem in both countries. The aging population is an issue in many countries, they are experiencing it to rise. Right now, about 16% of our population is over the age of 65, by 2040 in the US that number to grow by about 20%. In China, by 2050, about 33% of your population is expected to be over 65 years old. This is going to present a lot of challenges for the health care systems in both countries in terms of the access of care, the quality

of the care and certainly in terms of the cost of the care. Here's a chart that shows the affordability challenges facing the US. This shows the average health insurance premiums. From 2000 up to 2012, and you can see that the insurance premiums have tripled during this time period. That health insurance costs for a family totaled about $5,700 dollars in 2000. That has not risen to 15,000 dollars during this time period. In china, the perception about medical costs that people are having to pay out of their pockets has dropped from 49% in 2006 to 35% in 2011 but it still means people have to pay roughly a third of their costs according to our colleagues at the Chinese academy. We see in the US some major disparities in health care insurance by income levels, the top line shows the percent of Americans of high income that have health insurance and that is about 95% virtually all the people who make money have health insurance. When you go down to the bottom layers, the people who have low incomes, only about 70% of those people have health insurance so virtually one third of our low-income recipients in the US don't have health insurance. So this obviously is a big problem. So the question is to what extent does mobile technology help us with some of the problems we've just talked about? We've talked about some of the problems in terms of the access to medical care in rural areas. We've talked about affordability challenges, the cost issues, and the issues of quality of care. And so here I'm going to talk about a pilot project on the use of mobile health that was undertaken in the US. It was a project that was undertaken at the flagstoff medical center in Arizona. This is a medical facility focused on heart patients, those suffering from heart failures of various kinds. This is part of the country where there are a lot of Native Americans, many of them members of the Navaho Indian tribe. So it's a very poor population. This is a group of people who suffer poor access to medical care. Many of them live 20, 30 or 40 kilometers from medical facilities. So it's hard for them to get the medical care that they need. So in this particular project, the project partnered with some health care providers as well as some [inaudible] with technology companies to

provide remote monitoring devices for each of the patients. So each of the patients were given a device, they took it home and the device recorded their vital signs, various aspects of their medical condition and it electronically transmitted that information to the physicians at the medical center. And we already have seen some positive results out of this type of situation. First of all, patients were found to be much more engaged in their medical care. In the US, one of the best predictors of the effectiveness of medical care is how the patient responds. If the patient is very engaged in the medical care, takes the medical advice seriously, watched their diet, engages in exercise, does the various things to promote health care, that goes a long way towards improving the quality of the medical care. Just by giving them the remote monitoring devices, and they knew their vital signs were being sent to their physicians everyday, that encouraged them to pay more attention to the medical care and to take better care of themselves. We also found in terms of the degree of hospitalizations, there was a dramatic improvement just in the number of hospitalizations. The average number of patients enrolled in this program prior to the remote use of the monitoring devices had an average of 3.26 hospitalizations per patient, after enrollment this dropped to 1.82 hospitalizations. We saw that the number of days that each patient was hospitalized changed from almost 14 days to 5 days. So there's a dramatic reduction in the number of days they spend in the hospital. And because of that, the total cost of the hospitalization dropped dramatically, from over 136 dollars per patient to about 43,000 dollars per patient. In a lot of respects, we found that from this pilot project, we saw very promising results in terms of the use of the mobile technology. Our colleagues at the Chinese academy undertook similar research on the wireless heart health program that has been implemented in a few places in China. They also have found some positive results. They found that 96 community doctors who were using the system, they found over 11,000 patients benefited from the wireless heart health program. And they found that about 10% of their patients ended up having abnormal

[inaudible] that led to them being referred to as [inaudible] for additional medical care. We know that in many cases of illnesses and diseases, early intervention matters. So if you can get help early, it makes a big difference and you end up with better results. So in both the US and in China, we're seeing some positive developments that are encouraging us to continue the experimentation and try to figure out the ways to get the benefits of mobile technology. In both countries, I would conclude by saying that mobile health is still in its infancy, there's still many opportunities for growth, but there are also challenges that need to be overcome. The market remains small, global services are not widely accepted in either places. The percentage of hospitals using them, the percentage of physicians using them, and the percentage of consumers using them are still relatively low. But the usage levels are starting to grow and we're expecting them to grow substantially in the future. What we need to overcome are some of the policy or legal barriers to the adoption of mobile technology. Physicians for example in the US still don't get reimbursed through insurance programs for treating patients through mobile devices. So it's hard for usage levels to rise when physicians don't get paid for delivering health care through this system. There's a certainty about regulation and to what degree our mobile applications considered medical devices, and therefore subject to federal regulation. Or are they consumer applications that need not be regulated. The last challenge is really the impact of Obama's health care reform and how that's going to affect the future of mobile health. Obama is trying to encourage more people to get health insurance, we're expecting the percent of Americans having health insurance to rise from what is now 82% to well over 90%. We're expecting much greater use of technology in the US, and we also are putting much greater emphasis on preventive health care in hopes that it would help slow the growth of health care costs in the US. So thank you very much and I look forward to hearing the other speakers who are going to speak about other aspects of health care. Thank you.