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Jonathan Linkous: So all those things I talked about I'm really interested in it now. Thank you for the opportunity. It's really great to be here and good to meet some folks who we've met before but it's been a long time and maybe some new friends as well. Tell you a little bit about telemedicine and where I'm coming from at the American Telemedicine Association. Telemedicine and telerehabilitation have been an area that have been linked but haven't had as long as history as some other things in telemedicine. Usually you think of video conferencing over distances or something, but, or regular clinical care, and there is a lot of applications in telemedicine involved in radiology, intensive care units, mental health therapy, dermatology, a lot of the specialties but telerehabilitation is something we started talking about oh maybe 10 years ago but to show you the interest in it right now, we have a special interest group in telerehabilitation that has about 200 members, an active discussion group and listservs and things. At our upcoming annual meeting we have in Tampa at the end of this month, May 1, there is 20 presentations focused on telerehabilitation and there is a short course that we are doing as well so that gives you an idea about how quickly this thing is picking up in terms of interest. Most of the rehabilitation, the telerehabilitation activities that have been in speech language hearing and some have been in occupational therapy and physical therapy but not as many so there is a kind of back and forth. OSHA has been somewhat involved in telemedicine. They have been part of our interest groups and participating in some of the

things we have done so there is a nice kind of collaborative relationships in this area so it's really kind of a good meeting of where it kind of makes sense just like for the aging it kind of makes sense to go out and reach people who are not necessarily in a hospital environment but need to have access to some kind of health professionals or health information and gosh it sure makes sense to have telecommunications be part of that. So let me, let me talk just a little bit about some of the challenges we have right now and I know you had some folks talking about the telecommunications earlier. Did you have Bob Jarrin, did he come from Qualcomm. Bob's a good friend. And the folks at Qualcomm are really on kind of some. Leading edge of some of these applications, particularly in mobile health, so today, with telemedicine, it's a very broad field. It's not just as I said the video conferencing from a doctor or urban area or somebody in a rural area. There is probably 60 to 70 specialty services, medical specialties that use telemedicine. It's involved in a number of ways. In this country, we have about 200 networks that are telemedicine networks throughout the country to give you an example, University of Virginia down in Charlottesville has a network of about 60 sites that they provide a host of different medical specialty services. The director of the program is a pediatric cardiologist and so she sees a lot of cardiology of patients and a lot of services that they provide. There is as I said about 200 networks around the country. They link to around 3,500 sites but that's only the tip of the iceberg of what's going on in telemedicine. There are outsource services now, a majority of U.S. hospitals, three or four thousand of them use access to radiologists who aren't in the hospital. They are using

teleradiology so one company alone, VRAD has contracts with almost 3,000 facilities around the world and do about seven million reads a year. To show you the size of that so in areas like radiology, that's pretty well established as part of telemedicine. And there is a lot more of those types of services now in Fairfax County just outside of Washington, INOVA Fairfax has an office building that they are in a third floor or fourth floor of the office building where you go in and there is a series of stations, work stations that are sitting there, are intensivists, medical specialists that are looking at patients in intensive care units and from that one office they have intensivists that look in on and help care for patients in ICUs in about eight or 10 hospitals around the Northern Virginia area. So it's very interesting uses of telemed sign. But one of the things that I'm most interested in is using telemedicine to reach out to people who aren't in the hospital, aren't in the clinic that go into what we used to call home telehealth. We actually still have a home telehealth special interest group. That kind of corresponds with the idea of a visiting nurse which was home care and we still tend to call it home care but I think we are on the verge of changing that name because it's not necessarily in the home any more. Just like when the Federal Communications Commission talks about their broadband policy, one of the things we pushed on is you don't talk about broadband to the rural communities any more. Don't talk about broadband to the home. Talk about broadband to the person because we have now gone with the technology so that they are not limited any more to making sure you have a broadband connection in your home. You're using a broadband connection using wireless or any other type of

technology no matter where you are and the same thing is happening with health care so that with health care any more, it's providing health care to the person no matter where you are. And for the person who is formally home bound, that really opens up a lot of options and opportunities that they didn't have any more or before this. It was really a very, very important way of having technology enable people to free themselves of what they couldn't do before. Today somebody with a cardiac condition, somebody with suffering from COPD, people with other types of chronic care conditions need to have monitoring, can stay out of a hospital because they are monitored on a regular basis, don't have to stay necessarily in their homes because their monitors can go with them no matter where they are, including into the workplace which also frees people to go back in the workplace and be employed where they couldn't before in many cases. So it's really an interesting change in technology so you've heard I'm sure about the use of cell phones and telemedicine earlier. There is somewhere around 75,000, maybe 100,000 applications that you can download for your cell phone, your digital cell phone that are related to either health or wellness. Huge. Those are justify the number of applications available. Now a lot of those probably 5,000 at least deal just with helping you lose weight but there is a lot of other things that are very, very serious ones. For example, an on at the time Trish can use their cell phone, look at it and have a live vital signs for a patient in the neonatal intensive care unit live readings of all their vital signs on their cell phone so that when they are out of the hospital when they are located somewhere else, they can have that live on their phone. In cardiology now we have applications that

allow you to do the same thing for any cardiac patients and you can do any number of other things. And for a lot of patients who were having rehabilitation and have been discharged from the hospital for a lot of applications for example looking at a patient who I just ran across a patient who had surgery on their knee and they had to have a regular visits with the doctor to look at their gait, look at the way they were walking. Well you know what they did, they had their spouse go on their cell phone and they videoed them walking back and forth and they sent the video to the physician and that's the way they kept pace with what was going on. As a matter of fact, with the cell phone applications now with face time you can do that live from your video phone so it's really caught up to the point where it's almost gone so fast we don't know what to do with it and that's where we get into the issues with regulation. So let me just take a couple of minutes and talk about that and if we have any questions we can get into there.

Technology has gone so fast it's not an issue of technology any more. It's an issue how we use it, how we work with it, how we pay for it, how we regulate it. Those are all the things that this wonderful place in Washington is just taking a long time dealing with because they are not used to working with things fast. As a matter of fact, the research community is dealing with it too. We have a lot of research on important applications but sometimes the research demonstrations evaluations take two or three years to complete. By that time we have a new technology. We have a research community that's working on new fast PACED ways of evaluating and getting things out quickly to even look at them. It's, that change the thinking that quickly. For Medicare, for reimbursement, for Medicaid,

for private payers, it's real interesting discussions that we are having with folks because that's just you're having to really deal with people who are still getting off the paper, talking about electronic medical records but they are not even there yet. How are they going to deal with using electronic diagnostics and having 24/7 data many coming out of people to do diagnosis and treatment. So you can understand a little bit of that issues and that's probably the limits of my patient with them. From now on here I'm going to talk about how angry I am that they haven't done things faster. Medicare, no one booes, Medicare has been an interesting love-hate relationship with this whole activity. For many years, they had some funding on telemedicine for things like teleradiology, they funded that 30 years ago. There has been no issue. It's fully reimbursable, fully done. If you talk about something with video conferencing, there is a lot of regulations. I don't have to get into all of it but suffice it to say the actual use of it for Medicare funding is relatively low and getting a meeting with somebody over in Medicare to even talk about this has been a real interesting time-consuming task but things have changed. Now I don't know that we are going to have the real solution coming up but at our last meeting in May, I'm sorry, September, in Baltimore, we were inviting someone from Medicare to come and although we didn't invite him, Don BURWICK showed up, the head of Medicare. The number two person in Medicare came from Virginia, who has been a strong advocate in telemedicine. When you deal with people who are three or four levels down they haven't quite got the message yet but I'm really heartened that there is a lot of folks who are really involved in health care reform that are understanding the role of

technology. Yesterday regulations came out on accountable care organizations. I assume most of you are familiar with the whole issue of accountable care. We are moving slowly away from the fee for service issue to bundled payments to empowering local providers to make decisions on how you care for patients and also empowering them to use any technology they want. For the rehabilitation community, that could be a tremendous, tremendous opportunity because you're now have hospitals that have a bundled payment to take care of someone and it's up to them to figure out the most effective and cost effective way to do that. And we would hold great because that means telemedicine, technology applications are going to be front and center because they have been proven to be cost effective. You don't have to go through this red tape to get them authorized and indeed if you look through the accountable care guidelines which are something like 600 pages long, the word telemedicine, telehealth, remote monitoring is all through that. Now that doesn't mean we are going to have it all done right away, but I see as I say, we aren't at the end but I see the beginning of the end or maybe it's the end of the beginning. But at any rate, we are getting there and I'm much more enthused than I was when we were formed in 1993. I really see that interest and there is a number of other areas. In the area of medical homes. I'm sure you've talked about the issues of medical homes where you have essentially care coordination with again someone with a bundled payment, the ability to be able to work with different types of providers and use what technology makes sense for the patient without having to go through other forces to get interested and involved in it. All of this is many coming to the fore.

All of this is a solution. It's not just a solution in the United States. I've been a lot of global travel in the last few years because telemedicine is expanding so much and we are kind of the group that does a lot of it. I was in London and London has a major initiative talking about home care, remote monitoring into the home there in some ways further ahead than us. Canada has been further ahead on the United States for several years, are start to go move rapidly in home health care. In Toronto they started out with a few thousand homes. China is unbelievable and what's going to happen there with telemedicine is going to blow us out of the water. They have one demonstration in one province using home care technology, home telehealth or personal health and they are starting with 100,000 people. That's how they are starting and so I think their applications are amazing. There is a telehealth company that was formed there a few years ago, came into our offices with this kind of idea he would like to do something, this is about four years ago. He came in this year, he had done 700 employees and he has 50,000 positions under contract, all telemedicine, all telehealth applications throughout China, some parts of India, South Africa. The United States is lagging behind the rest of the world in using this technology. So there is a lot of other applications and we can talk about a lot of other regulations. But I want to just come touch on a couple real quickly. I know you got to move on to other things. The FCC, they are endeared to all of our hearts, has a rural health program that is supported telemedicine but it's been really focused on an institution. It has been poorly designed, poorly executed, hasn't spent much money but the folks within the FCC want to make a difference on it. They have a

number of proposals, a number of changes and with their broadband plan they have a few other things moving into place. There is going to be a few small decisions coming out soon but I think major decision on that won't come out in this fall. There may be some glimmer of hope in terms of what that means for this fall. Whether how much of that money will be used for providing telemedicine services for areas like telerehabilitation or providing health care services to a person, we'll wait and see. There is other regulation the Food and Drug Administration came out with some medical regulations on medical devices that is problematic for a lot of folks. It's a hurdle and we are going through this, without getting into the details it's just one more hurdle of trying to understand what this means as we move ahead. FCC -- Federal Trade Commission has some issues with getting health care services over the Internet. There is bad guys, good guys. It's figuring out what's the right thing to do. It's going to take some time. The state medical boards are still in the 1930s in terms of the way they regulate health care. A lot of the people who are heading upstate medical boards have never even seen a telemedicine program and don't know what we mean by home telehealth. There is a lot of work to be done so they understand what's going on. We still have state licensure laws. We have a lot of issues that we have to work on. Interests a whole list of activities. It's a full time employment for me for the next 10 years but on the other hand we have a ways to go before we get there. But I am so enthusiastic because what I've seen in this last year has been so incredible in terms of the innovations. I know you've had some discussions about that earlier, and the way and also what we are really

seeing, this is probably the most important thing. For the first time we are getting people interested in this who aren't an administrator of a health care facility, who aren't an academic and doing research, who are not even a physician but we are talking about patients, consumers, real people who are starting to say this is important and this is what we need and that's what's going to push us over the top is when we can have the real people who are involved in this step up and say this is an important part of where we are going so I really am grateful to be here and I can't express enough how much I'd like to see groups like you really get active in this and really engage as we move ahead so with that, I'll leave it open and if you have any questions, I'll be glad -- I have actually we had developed our group, I only have one copy here. We have something that our interest groups telerehabilitation guidelines that we developed. I only have one copy here but it's on our website. It's free to download. You're welcome to that as kind of the idea of starting to set up guidelines for what we do.