THE USE AND DEVELOPMENT OF TELE-MEDICINE TECHNOLOGIES IN THE DEPARTMENT OF VETERANS AFFAIRS HEALTH CARE SYSTEM

HEARING

BEFORE THE

COMMITTEE ON VETERANS' AFFAIRS

HOUSE OF REPRESENTATIVES

SUBCOMMITTEE ON HEALTH

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OVERSIGHT HEARING ON THE USE AND DEVELOPMENT OF TELEMEDICINE TECHNOLOGIES IN THE DEPARTMENT OF VETERANS AFFAIRS HEALTH CARE SYSTEM

WEDNESDAY, MAY 18, 2005

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HEALTH,
COMMITTEE ON VETERANS' AFFAIRS,
Washington, D.C.

The Subcommittee met, pursuant to notice, at 10:00 a.m., in Room 334, Cannon House Office Building, Hon. Henry Brown
[Chairman of the Subcommittee] presiding.
Present: Representatives Brown and Michaud.

MR. BROWN. Good morning. The Subcommittee will now come to order.

I want to thank all in attendance for joining us this morning in our first Subcommittee hearing of the 109th Congress. I'm honored to have been selected to serve as Chairman of the Subcommittee on Health, and am especially pleased that my friend, Mike Michaud, a man whom I shared a leadership role with for the last two years on the Benefits Subcommittee, was designated by his colleagues as our new Ranking Member on Health. Welcome, Mike.

Telemedicine can be defined in many ways. Some prefer to use the broader term "telehealth." The core meaning of the word "telemedicine" is distance healing. What it does is make it possible for doctors and nurses to deliver care and interact with patients many miles away with the use of specialized video equipment, digital imaging equipment and electronic data transmission.

These new patient-centered technologies have a great deal to offer veteran patients, particularly in the areas of mental health care, rehabilitation, non-institutional long term care, and delivery of care in rural areas.

VA has and continues to substantially invest in telehealth technologies. The success of the use of telemedicine in caring for veteran patients depends on VA's ability to transition individual telemedicine projects into safe, effective, reliable and sustainable health care ser-

vices that veterans can depend on.

At our hearing today we will be hearing from VA and HHS officials, VA field practitioners and representatives from the private sector about the use and development of telemedicine technologies. I'm looking forward to an exceptional discussion to learn more about telemedicine, how it works and what it holds for the future of patient care in VA.

Mr. Michaud, do you have any statement you would like to make?

MR. MICHAUD. Thank you, Mr. Chairman. It is good to be here for our first hearing of the Health Subcommittee for the 109th Congress. I'm also pleased that we have an opportunity to continue to work together as Ranking Member and Chairman of this Subcommittee. We have many areas under the Health Subcommittee's jurisdiction and we share a lot of common interests in those areas. I look forward to tackling those issues with you.

I agree that we must continue to push VA to be as efficient as possible, but there are still times that efficiency reaches its limits and you must add real dollars to the VA. That is why the Democrats on this Committee recommended adding $3.2 billion to our budget request.

Mr. Chairman, I want to thank you for holding the hearing today. I look forward to working with you throughout the Congress and request unanimous consent to extend and revise my remarks.

[The statement of Mr. Michaud appears on p. 35]

MR. BROWN. So noted. Thank you, Mr. Michaud.

We have with us today Dr. Adam Darkins. Dr. Darkins is the Chief Consultant of the Department of Veterans' Affairs Office of Care Coordination. He trained as a neurosurgeon in the United Kingdom, where he established and directed an early telehealth program at the King's Fund in London. Dr. Darkins has published and spoken widely on telehealth issues throughout the world.

Dr. Darkins is accompanied by Dr. Ross Fletcher, Chief of Staff of VA Medical Center in Washington, D.C.

Dr. Carolyn Clancy is the Director of the Agency for Health care Research and Quality at the Department of Health and Human Services. She also holds an academic appointment at George Washington University School of Medicine and is a member of the Institute of Medicine. She has edited and contributed to the publishing of seven books and is widely published in peer review journals.

You may begin.

STATEMENTS OF ADAM DARKINS, CHIEF CONSULTANT, OF-
  FICE OF CARE COORDINATION, DEPARTMENT OF VETER-
  ANS' AFFAIRS; ACCOMPANIED BY ROSS D. FLETCHER,
  CHIEF OF STAFF, VA MEDICAL CENTER, WASHINGTON,
  D.C.; AND CAROLYN M. CLANCY, DIRECTOR, AGENCY FOR
  HEALTH CARE RESEARCH AND QUALITY, DEPARTMENT
  OF HEALTH AND HUMAN SERVICES

STATEMENT OF ADAM DARKINS

Dr. Darkins. Thank you, Mr. Chairman and members of the Subcom-
mittee.

It's an honor to be before the Subcommittee today and address the
members' interest in the VA's use and development of telemedicine. I
want to thank the members of the Committee for raising this impor-
tant area for us to discuss.

In terms of telemedicine the areas I'm going to cover are how we're
using information and telecommunications technologies to deliver
care to veteran patients in situations where practitioner and patient
are separated by time and/or distance. I think it's important just to
say that what I'm--in my testimony I'm going to talk about builds on
the use of the existing health information infrastructure.

The Institute of Medicine has used the VA as an example of how
it's possible to use information technology to change the way health
care is delivered and VA meets each benchmark, disease, prevention
and treatment indices in terms of its ability to deliver care in this
manner.

But very much what I'm going to talk about today is that the tech-
nology is very important. It's obviously a vital part to telemedicine.
But why VA has been successful and the--so the platform on which
VA is developing telemedicine is around the people and how it is de-
livering services to people. It's very much for us about how we deliver
the right care, in the right place, at the right time to veteran patients
who it is our privilege to serve.

In doing so we are building a robust, sustainable infrastructure,
one which is being based very much on patient need.

So as you will hear that I will base what I'm talking about on the
patient need that's driving it and not on the technology.

The need of the veteran population is changing and the care has
to be delivered from finite, physical locations as it does for any health
care organization. In doing so there are trade offs against cost, quali-
ty, access, that are made by individual practitioners. Telemedicine is
not a replacement for delivery of care. It is really an adjunct that al-

lows more flexibility in how that care is delivered and it's a particular applicability in rural areas where there are practitioner shortages. It helps solve what can otherwise be an insoluble equation about how you deliver care to patients.

The way in which telemedicine is moving forward and has moved forward is very much around how it solves issues in the delivery of care and is rooted in the business of delivery of care within the VA, and it's not so much around giving out grant monies that we have done so.

There have been pilots of 32 clinical areas of telemedicine within VA, but in my testimony today I'd like to highlight five which are of particular importance in relation to veteran patient need.

The first area that I'd like to talk about relates to home telehealth, the delivery of care using technologies to reach in the home. The veteran population that VA treats, as with the general population, is growing older. As people grow older, counter to expectations in the past, they're actually healthier and living longer and preferring wherever possible to stay in their own homes. So the focus for VA on the use of this technology is supporting the non-institutional care of patients.

For veterans who fought for their own homes in times of war now to be fighting new adversaries, such as chronic heart failure and diabetes, our approach is really is much to help them stay in their own homes.

So the telemedicine in terms of the home telehealth is addressing high areas of priority need related to diabetes, congestive heart failure, chronic pulmonary disease. It compliments the rest of care across the continuum, so it's able to bring people to care in a more flexible and more timely fashion.

We have a national program which is rolling out for this which is very much centered on patients in terms of delivery of care. The kind of patients we're talking about are the sort of patients with complex care needs who would otherwise be going into institutional care. They are the sort of patients who traditionally, their paper charts may be in several volumes and if the chart is available if they're going from scheduled clinics it is difficult to get through that kind of data.

So the ability to monitor somebody in their home, to assess their health condition in their home, but also to base this on having a clinical health record is extraordinarily important and a vital part of how this has gone forward.

It's possible to pick up the vital signs, pulse, weight and temperature of these patients and institute care before they run into trouble. So somebody with heart failure can be treated when they first become symptomatic rather than when they become very seriously ill and they might have to go into the intensive care unit.

The outcomes from this program has been that we've had reduc-

tions in inpatient stays, we've had reductions in ER visits, and very high levels of patient satisfaction. We are currently treating 5,800 patients throughout the 21 VISNs in the VA and anticipate reaching 12,500 by the end of this financial year. It's about appropriately treating veterans and helping them to live independently in their own homes.

I would say that simply stated the link to the information system is that in order to provide the right care, in the right place, at the right time it's important that the right information is there to be able to do so as well.

The next area I would like to turn, a major area of need, is that of mental health for which our telemental health programs are addressing. It uses real time video conferencing and is able to provide both generalist's and specialist's care to the community based outpatient clinics and save considerable time and inconvenience of travel to veterans to get into care.

In 2004 there were 10,000, approximately 10,000 patients treated nationally, and that represented approximately 20,000 episodes of care. The care is currently taking place in 224 sites of which 120 are community based outpatient clinics, 74 are VA medical centers, 20 are vet centers and 14 are home telehealth programs.

In order to make sure this is robust and sustainable we have a lead clinician for telemental health. We've developed a telemental health toolkit that makes sure that things are systematized with how they're done. It links to the mental health programs in the central office and we anticipate a 20 percent increase in the next financial year of telemental health.

The next area I would like turn to is teleretinal imaging, which is used to treat diabetes and diabetic eye disease. 20 percent of veterans have diabetes and VA is currently outperforming the private sector in terms of doing diabetic eye exams. The rationale of this is to maintain the site by picking up diabetic eye disease.

We had a consensus group that met in 2001 to establish the groundwork for doing teleretinal imaging and will be working with the Department of Defense and the Joslin Vision Network in Boston. We are set to do a widespread implementation of teleretinal imaging and would see initially 75,000 patients being treated in the next year and 150,000 the year after. It uses store-and-forward technology and we're setting up reading centers to be able to do this as we move forward.

The next area I would like to talk about is teledermatology, again another area that uses store-and-forward technology. Dermatology is an area of high morbidity and it's a shortage speciality, especially in rural areas.

One program I'd like just to highlight is in the 1990's Togus, Maine was a pioneer and linked to Providence, Rhode Island. The analyses

of the outcomes have shown that using teledermatology in VA leads to earlier treatment, reduces the need for later face-to-face exams, and is certainly cost effective in getting definitive care.

Again, we have clinical and research leads, a field coordinator, and would see this is going to be growing considerably again in the next financial year.

The next topic I would like to turn to in terms of patient need is telerehabilitation, and it's applicable to particularly spinal cord injury, multiple sclerosis and returning combat wounded veterans from Operations Iraqi and Enduring Freedom.

There are four poly-trauma centers in the VA to which returning combat wounded are being transferred, particularly people with head injury, amputation, eye trauma and post-traumatic stress disorder. The ability to link other centers into this specialist's care as they journey across the continuum to get home is extremely important.

Let me just quickly give you the hypothetical example of a combat wounded veteran who may be an amputee, who may have had a head injury. Such a person, who if they're back near home, they may well find their answer isn't immediate access to some of the specialist's advice that may be necessary in relation to some of the prosthetic devices for example. Neither would such advice be necessarily available in the private sector.

The ability to be able to link back to the specialist centers, get advice from people who've previously cared for the patient, means this could well save the inconvenience both to work and family in travel and also is a benefit to the family, as I mentioned.

So the ability to link these heroes into specialist care is something which VA is working towards in linking these poly-traumas to other sites. We're in the process of the next financial year developing linkages for multiple sclerosis care, for two multiple sclerosis centers on the West Cost and the East Coast to be able to make multiple sclerosis advice and care available to veterans at the local level where that degree of specialist's advice may not be currently available.

I'd next like to turn to telesurgery, and when I mention this it's really about high levels of need in areas of chronic disease. It may seem somewhat strange that I would turn to surgery, but it is very applicable.

One of the things that we've found is that house prices have changed throughout the country. They're changing their homes, and with difficulties in rental accommodations veterans are moving to places which may not necessarily be where the major center of care is. So the ability to be able to do preoperative and post-operative evaluations and obviating the travel for the surgeon sometimes to peripheral clinics is a way in which it makes the surgery very much more easy and efficient in terms of being seen both to patients and practitioners.

Having highlighted these various areas, I'd like to look a little bit, if I may, just in my closing few minutes, to telemedicine and its future in VA. I think from the things which I've mentioned you all have seen that one of the themes that runs across them all is that of changing location of care to really make the care more--to improve ease of access to veterans, particularly in rural locations.

The example of Iron Mountain VA Medical Center in Michigan is really illustrative of the kind of changes this can bring about. In the late 1990's Iron Mountain had particular problems with recruiting a pathologist, a pathologist's service being important as one of the core parts of the medical center.

It was possible to set up a telemedicine service linking back down to Milwaukee, and from that the VA has got a sustainable network in VISN 12, which is probably the largest of its sort in the country, crossing five states and delivering speciality care to rural, the peninsula of Michigan, which is extraordinarily beneficial to the veteran patients there.

The evidence base is growing within VA to use telemedicine. Some 50 peer review publications have emanated from VA since the early 1990's. Typically evidence takes some five years to develop from when practice starts and then some 15 years often to be included, though this is changing and it's happening more rapidly.

VA certainly is in a position to help accumulate the evidence to be able to do this. The evidence I mentioned is that, but also the right pragmatic reasons to deliver care using telemedicine at the moment. In order to develop this evidence VA is linking to the Quality Enhancement Research Initiative within the Veterans Administration to be able to gather the evidence in programs that we are taking forward.

Other things that I would like to mention are the lead practitioners. All the areas of telehealth I've mentioned have lead practitioners. Standardizing the delivery of care so it's done very much in an evidence based fashion, able to make sure that--to use a euphemism, the services plug and play so they fit together in a way that makes sense.

One of the things which is often not raised when it comes to talking about telemedicine is the issue of training. To have a sustainable telemedicine program within VA-- programs rather--the need to have those core competencies within staff so we have a telemedicine competent workforce is particularly important. We established a training center in January of 2004 concentrating on home telehealth. They have trained some 1,500 people face-to-face and some 1,100 people via distance learning technologies. We have training centers we're establishing this financial year in Salt Lake City for general telehealth and also in Boston for store-and-forward.

We work closely with other agencies. Just an example is the recent

Indian Health Service, Veterans Health Administration Steering Group which met in Albuquerque about how we share expertise and particularly Native American patients we both have, it would be very applicable to use some of the distance health technologies.

We participate actually in a joint working group for telehealth which is run by Health and Human Services and work with them on the issues of sustained services. And also in terms of sustainable services what is particularly important is to link into the regulatory and accreditation bodies whom we are working closely with.

So in conclusion, I would just like to finish by saying VA, I think--I'm very privileged to work for VA. VA has used this technology in a way to really enhance the delivery of care, and the areas I've mentioned would be a test to VA's leadership.

It is very--it is and will continue to be about collaborative relationships both within and outside. Of paramount importance this is about the relationship between practitioner and patient to deliver care. We are coordinating care across the continuum and are able to do this and bridging distance and geography. In doing so we're linking to other resources within the organization. This is not creating a new silo.

So I would conclude by saying I'm very grateful for the opportunity to provide testimony. The VA has a noble mission to serve veterans and one of the things that unites all those working to deliver care in telemedicine is how we do that and integrate that into the rest of the delivery of care.

It's my pleasure to introduce Dr. Ross Fletcher now if I may do. Dr. Fletcher is the Chief of Staff at the Washington, D.C. Medical Center. He also is a pioneer in this whole area and is the lead for the nation-wide VA register on pacemaker and defibrillator surveillance center. We would both be very pleased to answer questions afterwards.

[The statement of Dr. Darkins appears on p. 37]

Mr. Brown. Thank you, Doctor. What a great testimony, and I could just see the excitement in your voice as you were going through the process. It is an exciting time to be able to advance health care delivery through telemedicine.

Dr. Fletcher, did you have something you wanted to say? You're on the support team, right? Go ahead.

Dr. Fletcher. I have a presentation to make which actually shows how the care coordination program, the telehealth program, has been working very much hand-in-hand with the computerized system that we have at the VA.

I think I'll just start by opening that system and showing you a few patients that have been benefitting from our telehealth projects.

The first patient I'm going to show you is Mr. McNamara. That

isn't his name and that isn't his social security number, as you might guess, but this is the standard front sheet on the computerized record that we see. It has a cover sheet as you see. It has a lab package which is very easy to open up and display anything that might be present.

The beauty of being able to do this is that I can actually do this in my home as I'm talking to other--to the patient on the telephone. So the ability to display the patient's record and his white count for example, which in this instance was elevated when he first came into our hospital, was very important because he was paralyzed and it turned out he had Lyme disease. We took care of that but then had to take care of the patient for quite some time thereafter.

If you look at the additional tools, which is Vista Imaging which now can be seen--now can be seen at any point in the system including in my home through Comcast Cable. I can see that he has in actual fact a very large plural effusion that is in essence is heart failure. You can see that more clearly if I enlarge it.

But now I am in addition able to follow many other things about him. When he first came to light, if I click on weight you can see that all results show that he has a weight that started very low. He was emaciated when he was in--had his paralysis, but that gradually came up.

And if I wanted to look more carefully at the latter portion of the record, which is obviously more dense, you can see that he had--his weight reached a peak which was typified by heart failure. We actually took the fluid off of his lung inside the hospital, but it rapidly recurred at home and we brought him back and took the fluid off again. This time we saw it coming back but increased his Lasix.

And in this--by this time we had placed him a telehealth program whereby he steps on a scale in his house and that number is immediately transmitted to a server which is transmitted to his electronic record so that this data point of weight was taken inside the hospital, but all of these were taken at home except for a few when he came back to the hospital. I sort of tell how that is because we don't normally take temperatures at home but--so there are fewer of those. But we do take the pulses and we do take the blood pressures as well. As a matter of fact he starts out relatively high and then comes down to a much smoother zone. Very important on the weight scale to notice that he is sitting at 165 and gradually rising to this trigger point of 170. Now at 170 we're afraid that he is going to go back into heart failure, but with the telehealth aspect where we can see exactly when he's getting into trouble we can intervene at this point, and did as a matter of fact add his--increased his diuretic from 80 milligrams to 120 and his weight came back down. Now we changed the drug back to 80, but it gradually went up and obviously he needed another increase in the medication.

Now throughout this time, this is now from April all the way through December, the patient never comes back to the hospital. He never has pulmonary edema. He never has--I got the telephone call on this occasion saying I'm very short of breath and I could hear him--over the telephone you can actually hear how fast someone is breathing--and I knew we had to move in quickly and took him right into the hospital. It was about a 45 minute drive in.

But beyond that point this man never re-accumulated any of the fluid that's in his lungs and he did quite well on the score. He wouldn't have if we weren't following very carefully all of this information.

And once again, the information is not just the weights for--which in congestive heart failure is critical, but it's also the blood pressure which we are able to follow right along. For instance if this man had a very high blood pressure we could easily tell that it had been pulled down to normal, and see that it is normal, and we will see that it rises up.

One of the fascinating things that we have in this system is a trigger point, and in this patient I set it at about 168. So if I set the trigger point to 168 I don't have to know every time he calls in. I know that the minute it reaches that trigger point I will get a note in the medical record, the record I look at everyday, I will get a warning sign that Mr. McNamara has reached that trigger point. I need to get on the phone and change his medication.

So I feel very comfortable about it and a lot of the physicians are worried that they're going to be called too often, but in actual fact as long as he stays down in this zone I can follow him very nicely and I feel very secure. Any time I want to glance at his record I could just pull him up and I actually see all of these values sitting in the chart.

So we were able to manage his heart failure very securely and very well over a long period of time.

MR. BROWN. Thank you, Dr. Fletcher. How much does the at home facilities cost? How expensive is that?

DR. FLETCHER. The instrument that we have in his home happens to cost about $1,000. Some of them cost as low as 600, $500, some of them cost a little more, depending on what's attached to them.

MR. BROWN. But it's transportable. If that patient ceases to need it then it can move--

DR. FLETCHER. Yes.

MR. BROWN.--to the other. Is the connect, is that an expensive process?

DR. FLETCHER. No, it's not an expensive process, and the value of having all these numbers being taken on a daily basis is extremely important. The cost of bringing him in every three months, which we were doing, with bad heart failure is not only costly inside the hospital where the costs are much higher on a daily basis, but it's also costly to the patient. One of these episodes he might not live through,

for example. So it's very, very helpful to preempt the episode by actually following him in this very close way.

MR. BROWN. And how often do you review his file? I notice you said there's some parameters that will set off a signal and how do you receive that signal?

DR. FLETCHER. Well, actually, when I sign on, as I'll show you. If I sign on to a different patient I actually get a warning notification list and on that list will be his name. I will read the note and it will say blood pressure has reached 170 over 60, and then I have to sign it. So now I know--

MR. BROWN. I see.

DR. FLETCHER.--it's established that I have made contact, I've seen it, and I usually then make a call out to the patient and adjust his medication or test to see whether there could be some error in the value.

MR. BROWN. Okay. Let me tell you a little bit about logistics. I think we've got votes around 11:00 or somewhere thereabouts. We've got two other panels to bring testimony and I hate to cut you off, Dr. Fletcher. Do you have any other final summaries that you would like to include in your presentation?

DR. FLETCHER. One minute of final summary.

MR. BROWN. Okay, sure. Go ahead.

DR. FLETCHER. I will just show a slide or two. This is our hospital, which you are all welcome to come to anytime up the street, on North Capitol Street.

We also have been following the patients with pacemakers. This was described. I've done now probably over a million house calls where we receive the electrocardiogram and can see it. The nice thing about the whole metrics is that we use the scales automatically going into CPRS with the trigger messages and our appointments are made just in time to take care of the problems.

We had educational values that go back and forth to them and personal reminders as well. We are able to follow not just the weights and the blood pressure and the pulse which you saw, but also glucose measurements, temperature, oximetry--that's an O2 saturation and it goes on the finger--and the pain score.

We are setting goals for each patient, especially in heart failure. For blood pressure and in diabetes the glucose ceilings trigger the same sort of thing. We are managing the patients in these categories quite well and bringing their numbers down.

We also have in conjunction, we have that site, where we can actually have the patient see his own record. So all of the pressures and vital signs that he records and goes into our record are something he can see in his home.

And that's all I have to say. Thank you very much.

MR. BROWN. No, thank you. It's certainly an exciting time in medi-

cine to be able to have that kind of connectivity.

What do you need at home, just a regular telephone line or do you have to have special communication?

DR. FLETCHER. A regular telephone line works very well and it just automatically--it has a modem and it makes the call out and delivers the information to the central site which then delivers it into the hospital record.

MR. BROWN. Okay. Dr. Clancy, if you could contain your remarks to five minutes and then you can submit the total remarks to us. I apologize just for the time. I think just to give the other two panels an opportunity to give testimony. And then we'll have questions from Mr. Michaud when this is over. Thank you. Thank you, Dr. Clancy.

STATEMENT OF CAROLYN M. CLANCY

DR. CLANCY. Good morning, Mr. Chairman, members of the Subcommittee. I'm very pleased to be here this morning and have submitted a written statement for the record.

The Department of Health of Human Services has a long- standing commitment to understanding and advancing the effective us of health information technologies, including telemedicine, to improve the health of all Americans.

As we use the term, telemedicine is the use of telecommunications technology for medical diagnostic monitoring and therapeutic purposes when distance and/or time separate the participants.

I'd like to note that while there is a great deal of activity and an increasing amount of activity in telehealth, we have a lot to learn about which applications work best for which patients and under what circumstances. We share a common interest with our colleagues at the Department of Veterans' Affairs in attempting to build that evidence base to identify best practices and promising interventions.

I'd like to offer seven observations about telemedicine that are discussed extensively in my written statement.

First, the use of telemedicine in the private sector is relatively small but growing. Second, there's evidence that the technology can work and can be used beneficially from a clinical and economic standpoint. But while there are many promising initiatives underway, there are few mature telemedicine programs and few good scientific evaluations. So we have a lot to learn about what works under what circumstances and so forth.

Third, it's difficult to assess the appropriateness, effectiveness or cost effectiveness of telemedicine in the abstract or at large. It's really much more effective to focus on the specific service that telemedicine is being used to provide. Whether that's a provision of radiology services, specific home health, mental health, other types of applications that Dr. Darkins described.

Fourth and perhaps most important, telemedicine is merely a means to an end. Too many evaluations that we've seen actually focus on the technology, but what we're really wanting to know is whether the telemedicine service results in better patient care and at what cost. And these are the questions I'm hearing you ask, so specific applications should be assessed in those terms.

The fifth point is that the array of obstacles to adoption and the use of this technology in the private sector is different in some ways from those confronted by the Department of Veterans' Affairs in their relatively closed health system. So the questions you were asking about what does it cost to hook up, that's going to be a different kind of equation obviously in the private sector.

Sixth, with some exceptions such as teleradiology, clinicians and system leaders in the private sector have been relatively slow to adopt telemedicine. And it's increasingly clear, as Dr. Darkins said, that a variety of factors need to be in place before clinicians believe that the value gained exceeds the effort required to use it.

Finally, under Secretary Levitt's leadership, HHS is giving the highest priority to fulfilling the President's commitment to promote widespread adoption of interoperable electronic health records. This movement could be a significant enabler for the future adoption of telemedicine.

The possibility of a direct linkage between telemedicine applications and an electronic health record across settings of care will dramatically alter the calculus for evaluating the effectiveness of telemedicine technology. HHS has supported telemedicine research of demonstrations through three decades and established an office for the advancement of telehealth in HRSA as a focal point for coordinating programs within the department.

It's very clear that in a number of rural areas, through the HRSA's program, that many of these communities would have no access to a number of services, including psychiatric services, dermatology, rheumology, specialized wound care and genetic counseling if those telemedicine services had not been available.

The Indian Health Service also has extensive experience with telehealth and is probably the closest HHS parallel to how VA operates. IHS and tribal facilities report experience with over 30 different types of telemedicine, clinical services, and opportunities for expanded service delivery are now under development.

CMS is also working on telehealth issues and we actually at the request of CMS developed a very comprehensive and systematic review of what is known about what works in telemedicine in 2001. The report identified a lot of areas where we simply don't have a good evidence base. We actually began to update that report late last year. It should be ready shortly and we'll make sure that you get a copy.

I'm almost out of time here. We also have another report that was--

there is a report from HHS mandated by the Medicare Modernization Act regarding the possibility of including skilled nursing facilities as a Medicare telehealth originating site for the purpose of reimbursement, and we will make sure that you get a copy of that report as well.

Just in closing, this has long been viewed as a very promising tool for enhanced access to health care services, improved patient safety and timely decision making, and as you've seen from my colleagues here from Veterans, the opportunity to dramatically improve care management I think is self evident. And we've seen terrific examples of how the IHS and the VA can and have continued to collaborate to benefit the populations that we serve.

So with that and in the interest of time, I will stop, and we'd be happy to get questions on the record.

[The statement of Dr. Clancy appears on p. 46]

Mr. Brown. I really do thank you, Dr. Clancy. I apologize for--this is such an interesting topic. We'll have an all day hearing just for you all three. It's absolutely just incredible, you know, the knowledge that we have available and I guess the technology that we have and how we are implementing it.

I would ask if you would, and it's good to have both of you here on this, focused on the same idea, I guess the test projects you're working on, when do you see it being across the whole spectrum in VA, telemedicine?

Dr. Darkins. Dr. Fletcher or--

Mr. Brown. Either one. Either one will be fine.

Dr. Darkins. The main area that is moving forward is very much the area of home telehealth that was described. It fits very much as I said the patient need, the elderly population. People really do want to stay in their own homes. Obviously some of those are appropriate to be in a nursing home, but I think Dr. Fletcher very eloquently and graphically described how this benefits. This is somebody who if ended up going in with heart failure they might not have survived. So VA is concentrating very much on that area and developing both the clinical, the technical and the management of business infrastructure to sustain it.

But having said so, the other major area that's going forward at the moment is telemental health. You'll hear from some of my other colleagues later. Not only is there a large incident of PTSD in the population anyway, but there's also the returning combat wounded to consider as well.

So telemedicine is just part of the general armentarium. I wouldn't for one moment suggest that it can replace the whole of care, but used appropriately as we are doing in the right area, it is absolutely an

adjunct as I think Dr. Fletcher showed.

MR. BROWN. I guess my question was is it being implemented at all the VA hospitals across the country or just concentrated in one or two?

DR. DARKINS. With the home telehealth program it's being developed at the VISN level, Veterans Integrated Service Network. All 21 VISNs now have a program. We'll have a minimal number of 500 patients under care to provide the initial platform to be able to build from, and from that we will be spreading into other hospitals.

So what we're doing is making absolutely sure these are patients for non-institutional care. There's an absolutely robust program in place that we will then build from. So we'll then be able to expand it more rapidly just to begin with, making sure it's nationwide.

MR. BROWN. And I know there was a little bit of concern about the cost justification I guess between the private sector and the VA. How do you sense the return on investment under the VA system? Is it saving us money or--I know it's better for the patients to be able to stay in an environment they're familiar with, but how is the cost association?

DR. DARKINS. Well, I can put my hand on my heart and say it's one of those pleasing situations where it's a win on both sides. I mean, the sense is that it is something which does save money. It's concentrated very much at the moment on patients who would be going very frequently into care. And as Dr. Fletcher showed, there is major inconvenience to those patients. So the cost of using the technology is justified absolutely by the reduction and the necessity to go into care.

Dr. Clancy pointed out, I think, that one of the things which radically transforms the ability to do telemedicine is having the patient record, the computerized record, because to be able to have a patient in one place, the practitioner in another, it's great to be able to see them. But if you don't have the patient's chart, investigations otherwise. So I think there isn't comparability, but I think the fact that VA is an integrated health care system and the fact that it's being used in the way it is, there is absolute cost justifications for why it's being done, and thankfully as well there are very good patient justifications both clinically and in terms of patient satisfaction.

MR. BROWN. Is there any privacy issues you see that would conflict with moving this program forward?

DR. DARKINS. In terms of how this moves forward, this fits into the general IT policy that VA has for both, covering HIPPA, the privacy regulations and cyber security. So it's down within the umbrella, absolutely securely of maintaining privacy and confidentiality for patients.

MR. BROWN. I'm going to sign Dr. Fletcher up. I think I need to be on that monitoring system and--that's a good program.

Mr. Michaud, do you have any questions?

Mr. MICHAUD. Thank you, Mr. Chairman. As the Chairman says, we could probably talk all day about this issue because it is exciting and I think it will save and will help veterans particularly in rural areas. I have several questions, most of them for the record. The one that I would like to ask is, currently the VA budget request spends $1.7 billion for information technology. I know the appropriators are meeting shortly, if they're not already meeting, and they're looking at probably removing about $400 million. My question is what effect will that have?

My second question is with the $1.7 million how many veterans will be taken care of with that amount of money?

Dr. DARKINS. The telemedicine programs I've described today and our strategy for moving telemedicine forward in the short term is predicated on the VA's existing information technology system. So as far as I'm aware we will be able to carry forward all we've currently got planned.

What might be the effects on further developments and enhancements in the future by virtue of any projected budget cut I really wouldn't be able to personally comment upon. Certainly I'm sure that information could be made available but I--in terms of what we're describing we are actually using the current robust system which is in place to deliver what we have.

In terms of the wider figure and how that impacts on care generally, I--again I don't have those figures related to telemedicine, telehealth. I can tell you directly what we're spending on telehealth in terms of central support and otherwise if that's of--

Mr. MICHAUD. Yes, that would be helpful.

Dr. DARKINS. I mean currently the amount spent essentially on telehealth in the VA has increased from some 140,000 in 1997 to 10.24 million currently. That is the central support in terms of office and grant money and other support, but very much the other costs in telehealth within VA come within the delivery of care.

So this is using current physicians who are delivering care in real time situations. So it's an adjunct. Those figures I don't currently have in detail. We are working out--a new coding system is being introduced that--because there isn't this coding in telehealth. Next year we will be able to capture very accurately, after this financial year, the workload expenses associated with telehealth throughout the VA.

Mr. BROWN. I want to ask one final question, Dr. Darkins, if I could. Are we partnering with the private sector in sharing technology to be absolutely sure that we aren't reinventing the wheel?

Dr. DARKINS. Absolutely, we're doing so. The technology we've talked about in terms of telehealth is off the shelf technology which is basically commercially available, exactly as it would be in the pri-

vate sector. We are to some degree at the leading edge of this in terms of where it's moving, so working collaboratively with the vendor community in terms of how we've contracted with them to take this forward we are dependent upon a vibrant vendor community to be able to support this in the future. And this is all using tried, tested technology which is going to be available, and as such I think we're also benefitting the wider private sector's access to that technology in the future.

Mr. Brown. Dr. Clancy, Dr. Darkins, and Dr. Fletcher, I've been in this process for a long time. I don't know if I've ever been so enlightened by a panel. Thank you so very much for coming and sharing your time with us this morning.

Dr. Darkins. Thank you.

Mr. Brown. The second panel, will they come forward, please.

Good morning. The Subcommittee will now welcome our second panel of the day, and included in that panel is Dr. Linda Godleski. She is the Associate Chief of Staff for Education at the VA Connecticut Health Care System and Associate Professor of Psychiatry at Yale School of Medicine. She serves as VA's national lead for telemental health.

Dr. Christopher Frueh is the director of the Post Traumatic Stress Disorder Clinical Team at the Charleston VA Medical Center and a tenured associate professor at the Medical University of South Carolina. Dr. Frueh provides full-time clinical services to veterans suffering from PTSD and serves as a primary clinical supervisor for pre-doctoral clinical psychology interns at the Charleston VA Medical Center in my home state.

Sydney Wertenberger--is that close? I'm sorry, okay--is an Associate Director for Patient Care Services at the VA Medical Center in Poplar Bluff, Missouri. Ms. Wertenberger has expertise in rural health care and home care initiatives.

Patricia Ryan is the Associate Chief Consultant for the Office of Care Coordination, and the Director of VISN 8 Community Care Coordination Services in Bay Pines, Florida.

Welcome, and please proceed. Ms. Godleski, or who will go first?

STATEMENTS OF LINDA GODLESKI, VHA LEAD FOR TELE-
    MENTAL HEALTH, OFFICE OF CARE COORDINATION,
    ASSOCIATE CHIEF OF STAFF FOR EDUCATION, VA
    CONNECTICUT HEALTH CARE SYSTEM; B. CHRISTOPHER
    FRUEH, STAFF PSYCHOLOGIST, VA MEDICAL CENTER,
    CHARLESTON, SOUTH CAROLINA; SYDNEY WERTENBERG-
    ER, ASSOCIATE DIRECTOR, PATIENT CARE SERVICES,
    VA MEDICAL CENTER, POPLAR BLUFF, MISSOURI;
    CHARLES E. LEVY, CHIEF OF PHYSICAL MEDICINE AND
    REHABILITATION SERVICE, NORTH FLORIDA/SOUTH

GEORGIA VETERANS HEALTH SERVICE, GAINESVILLE, FLORIDA; AND PATRICIA RYAN, ASSOCIATE CHIEF CONSULTANT OCC/DIRECTOR VISN 8 CCCS, OFFICE OF CARE COORDINATION, BAY PINES, FLORIDA

STATEMENT OF LINDA GODLESKI

Dr. Godleski. Mr. Chairman and members of the Subcommittee, it is indeed an honor for me to be here before this Subcommittee today to provide you with testimony on the VA's use and development of telemedicine.

I am a psychiatrist who has practiced in a number of health care settings and currently I also serve as the associate chief of staff for education at the VA Connecticut Health care System in West Haven and as the VA's national lead for telemental health. I'm involved in telemedicine in each of these three roles and will provide the Committee with perspectives from each role because I believe they will all help to highlight how VA is using and developing telemedicine.

Like the majority of my colleagues in psychiatry I was trained to care for patients through face-to-face interactions, and it was only when I came to the VA that I first learned about telemental health as a very different way of practicing my profession. Furthermore, after reviewing the relevant health care literature I appreciated how telemental health had a place in the delivery of care and could replicate a face-to-face interaction. Most importantly I was reassured that patients were satisfied with receiving care in this way while providing them with improved access and saving them the cost, inconvenience and time involved in the travel.

My initial exposure to telemental health was in VISN 9, the VA Integrated Service Network 9 which is Kentucky, Tennessee, and part of West Virginia, when I was the mental health service manager there. The Huntington VA Medical Center had been using telemental health successfully since 1997 to provide care to patients in distant Vet Centers and community based outpatient clinics.

I became involved directly in the establishment and running of telemental health services to connect all of the VISN facilities for expert telemental health consultation as well as ongoing treatment. I could see firsthand how our veteran patients were very comfortable with it and how much easier it made it for them to receive their care.

Of course there are always and always will be times when patients will need to be seen face-to-face in a clinic if there's need for in depth physical examination or an imminent need for hospitalization, but in numerous instances telemental health can provide general psychiatry and also specialty psychiatry services such as substance abuse and PTSD treatment.

As the VA lead for telemental health I am what is generally referred to as a clinical champion. A clinical champion is a practitioner who helps introduce and develop new practices in health care and acts as an advocate for these new practices with their colleagues. It is indeed a privilege to help the VA and my colleagues lead the way with a new health care development like telemental health.

I am one of the many clinical leads for telemedicine in VA. There are also leads for telerehabilitation, telesurgery, teleendocrinology, teledermatology and teleretinal imaging. We all receive support from the National Care Coordination Program Office. I believe what makes the VA leads for telemedicine most effective is that we are truly committed to serve veteran patients and our colleagues realize and recognize that we are using telemedicine in ways that truly work for patients and ensure excellence of care.

The clinical leads for telemedicine have established a network of telemedicine clinicians and VISN leaders, and in the VA all of the clinical leads have developed toolkits for our respective areas of telemedicine. The toolkits help new programs get started, allow new programs to learn from the experience of other VA established programs rather than having to reinvent the wheel. These toolkits are also very useful for staff training and the telemental health toolkit formalizes the requirements to develop a telemental health service and educate all the staff involved.

This is where my role as the associate chief of staff for education has a bearing on the development of telemedicine since one of the challenges in sustaining telemedicine is to make sure that there are practitioners with the requisite skills and competencies who are committed to the program. In my own speciality for example, medical schools and residency programs are just beginning to train the next generation of psychiatrists in the use of telemental health.

In the VA we are starting to explore what a telemental health component to a residency program might look like. I believe the ability to recruit newly trained psychiatrists who are familiar with telemental health would be of great benefit to the VA in sustaining telemental health programs and incorporating telehealth into all specialty residency programs in the future may have a catalytic effect in terms of promoting the initiation of telehealth in the wider health care system.

Dr. Darkins mentioned the numbers of programs that involve telemental health, including 74 facilities and 120 community based clinics, but I would like to just finally conclude by leaving you with a specific telemental health example.

Currently I practice in VISN 1, the VA New England Health care System, and the VISN has recently established a telemental health service between Togus and Caribou, Maine. The development of this service was presented at the VA's Care Coordination Telehealth

Leadership Meeting in Salt Lake City in April 2005.

The service was established because of the 240 mile--excuse me--249 mile distance that veteran patients previously had to travel between Caribou and Togus for mental health care. The normal seasonal snowfall I'm told is nine and a half feet, and even if it doesn't snow it's a ten hour round trip, not to mention the cost of gasoline. The telemental health toolkit was established and implemented, and the program connecting Caribou and Togus led to 100 percent satisfaction with patients and a decrease in the no show rate for treatment.

In conclusion I am delighted to be able to advocate for telemental health within the VA and I will now be glad to answer any questions the Subcommittee may have. This concludes my statement, Mr. Chairman.

[The statement of Dr. Godleski appears on p. 57]

Mr. Brown. Thank you, Dr. Godleski.

Dr. Frueh, we welcome you back from the greatest congressional district in the country, and we're glad to have you up here today.

STATEMENT OF B. CHRISTOPHER FRUEH

Dr. Frueh. Thank you, Mr. Chairman. It is an honor to be here and speaking before you, and I am grateful for the opportunity to present my views.

The President's new Freedom Commission on Mental Health highlighted how people who live in rural areas experience significant disparities in health status and access to care, and this includes many veterans. There's currently a significant shortage of qualified mental health service providers in rural and remote areas of the country, including my own state, our state of South Carolina.

Today my testimony will focus on how research evidence that supports the incorporation of telemedicine into clinical practice is being used to guide the development of telemental health services with the specific intent of improving access to care for veterans who are in need of treatment for mental health conditions in the Veterans Integrated Service Network 7.

VISN 7 constitutes VA's southeast network and geographically encompasses the states of South Carolina, Georgia and Alabama. These states have large rural populations. VISN 7's pro-active approach to making services geographically accessible to veterans has included establishing 24 community based outpatient clients or CBOCs as they're known. Unfortunately the recruitment of qualified mental health professionals, particularly specialists to provide care for substance abuse and post traumatic stress disorder in rural

CBOCs, poses a challenge to VISN 7's goal of offering locally based services to meet the mental health care needs of veterans that we are privileged to serve.

I'd like to make a few remarks about what we know scientifically with regard to telemedicine and mental health care drawing on research that has been published from all over the world, including a large number of studies conducted within the VA and including my own.

First, as reported in the President's new Freedom Commission on Mental Health, people who live in rural areas experience significant disparities in health status and access to care. Telemedicine has introduced an affordable means of solving these long-standing workforce shortage problems and improving access to mental health care for people in remote geographical areas.

Second, mental health evaluations, including psychiatric interviews and neuropsychological assessments conducted via telemedicine, appear to be accurate and reliable. This is true for even those patients who are suffering the most severe mental disorders or cognitive impairment.

Third, it is clearly feasible to provide both psychotherapy and pharmacotherapy services via telemedicine.

Fourth, both patients and clinicians report high levels of satisfaction and acceptance with telemedicine interventions. A therapeutic relationship can be established even when the patient and clinician never meet face-to-face.

Finally, telemedicine services have been shown to lead to improved clinical status. In fact there's growing evidence that the quality and effectiveness of telemedicine services service delivery of mental health care is virtually equivalent to traditional face-to-face services and is far superior to the more frequent alternative--no mental health care at all.

Although more research is needed to help delineate the parameters of how to best provide telemedicine services for mental health, I have little doubt that telemedicine offers a safe, acceptable and effective mode of service delivery.

Based upon this evidence VISN 7 is implementing a strategy whereby our VA medical centers will provide support via telemedicine to supplement the mental health care that is currently available in our CBOCs, and in doing so provide much needed specialty services such as treatment of PTSD and substance abuse disorders.

Together with the VISN 7 network mental health director, Dr. Morris Springer, we have developed and implemented a telemedicine training program for mental health clinicians within our network and so far we've conducted the initial rounds of this training with the VA mental health clinicians in Charleston, Birmingham and Huntsville, Alabama. Clinicians at the Atlanta VA will be next to receive

this training.

VISN 7 is planning how at both the local VA medical center and network levels we can build on our telemental health strategy to support the use of telemedicine in providing outreach and educational services to the operations Iraqi and Enduring Freedom veterans who are now returning to South Carolina, Georgia and Alabama.

I believe the evidence based manner in which we are enhancing the mental health care services we provide in VISN 7 using telemedicine will enable us to coordinate care provision between VA medical centers, CBOCs, Department of Defense, and other local community agencies. I and many of my colleagues in VISNs throughout the country who have affiliations and associations with major academic institutions, we can tailor locally to make sure it is appropriate for the needs of our unique veteran population.

We are also undertaking the research required to grow the evidence base necessary to shape how this care continues to evolve in the future. To do so we are working with such agencies as the Agency for Health care Quality and Research, the National Institute of Mental Health, VHA Office of Research and Development, and the National Center for PTSD in Honolulu.

Mr. Chairman and members of the Committee, I thank you.

[The statement of Dr. Frueh appears on p. 61]

Mr. BROWN. Thank you very much.
Ms. Wertenberger, are you ready?
Ms. WERTENBERGER. Okay.
Mr. BROWN. What I'm going to ask you to do, and I know we're going to have votes in just a few minutes, I want to give everybody a chance, at least have a chance to speak. If we could sort of summarize your remarks and try to limit them within three to five minutes we would certainly appreciate it. And I apologize for that inconvenience, but when we go to vote we might not ever come back. It could be 30 minutes or two hours. So it really is kind of crazy.

But, anyway, thank you. I hope you all understand.

STATEMENT OF SYDNEY WERTENBERGER

Ms. WERTENBERGER. Mr. Chairman and members of the Committee, I'm privileged to appear before you today to discuss rural telemedicine and describe the positive impact it's having on our ability to provide care to the veterans we proudly serve. I ask that my written testimony be entered into the record, and I will give you a synopsis of it now.

Although I'm the person testifying before the Committee today I represent a dedicated team of health care professionals who are com-

mitted to improving access to care for veterans who live in the rural setting. My testimony relates to how we care for veterans at the John J. Pershing VA Medical Center in Poplar Bluff, Missouri, and our community based outpatient clinics which are located in Paragould, Arkansas, Cape Girardeau, Farmington, West Plains and Salem, Missouri.

I believe that our success in improving access to care for our veterans is transferable to other rural areas. The commitment and leadership of our facility director, chief of staff, our VISN 15 network director, combined with support and direction from senior management in VA's central office have been key elements in inspiring our teams to refocus and reconfigure the services we provide to incorporate telemedicine and improve access to care for our veterans.

The John J. Pershing VA Medical Center is a small, rural facility located in our nation's heartland. Our mission focus is on the delivery of primary care services. Our remote location means we face very different challenges in providing care to our veteran patients compared to a VA medical center located in a more metropolitan area.

Those of us who choose to live in a rural environment do so because we feel that facing these challenges is well worth the reward we get from living where we do. The cost of living is lower, members of our community value self-reliance and independence. At times this makes convincing veterans to seek health care services early and providing preventative health care true challenges.

For the veterans we treat health and well-being means living where traffic is limited and there is peace and quiet with folks you know. They view being home as worth more than money can ever buy, and that home is not a house, but a place and way of life.

Those of us privileged to be charged with providing health care to veterans living in a rural environment are sensitive to its unique culture. We know that veteran patients living in a rural environment need the same level of professional expertise as those who live anywhere else.

Telemedicine has been a great boon to us in delivering care in a rural community. Instead of the traditional requirement in health care that the patient travels to the care, we can take the care to the patient. It means we can truly practice patient centered care. It offers us opportunity to successfully meet the challenge of providing health care in a rural environment.

I will try not to make telemedicine sound too much like a panacea, but it has opened multiple care options and possibilities for our veterans. Telemedicine is a tool which assists us in addressing the issues of access, quality, patient safety and cost effectiveness. Value is another commodity. Some things are very difficult to be able to put a price tag on.

I'd like to share with you very briefly an experience we had several

years ago with one of our veterans.

We had a gentleman under nursing home care with us, very frail, elderly. His wife was with his son. Unfortunately the wife became acutely ill. He couldn't make the trip to be able to say goodbye. Through telemedicine we could achieve that. They had their last moments, their last opportunity to say goodbye. Imagine what a gift that is.

We currently have 39 telemedicine clinics working with our community based clinics and medical center giving a full range of speciality care. Clinical outcomes have been positive. The technology costs we believe will be recouped within 14 months due to cost avoidance and savings.

Telemedicine technology has offered us a way to put compassion for our patients into action. I am grateful to you for this opportunity. Thank you.

[The statement of Ms. Wertenberger appears on p. 66]

MR. BROWN. Thank you, Ms. Wertenberger. Being from a rural part of South Carolina and a Ranking Member from up in Maine where the travel is a real problem, and the veterans certainly like living in those rural settings and we appreciate your working in that arena.

MS. WERTENBERGER. It is our pleasure and privilege.

MR. BROWN. And ours too. Thank you.

Dr. Levy, we overlooked you in our first announcements there, so let me recognize you.

Dr. Charles Levy is the Chief of Physical Medicine and Rehabilitation Services North Florida, South Georgia Veterans Health Services in Gainesville, Florida. Dr. Levy also serves as an associate professor in the Department of Occupational Therapy at the University of Florida. He is a nationally recognized expert in rural mobility and amputee care and rehabilitation, and I welcome you, Dr. Levy.

STATEMENT OF CHARLES E. LEVY

DR. LEVY. Thank you very much. I'm going to get through this as quickly as I can in respect for you, also. If it seems a little scattered, I apologize.

I'm a physician specializing in physical medicine and rehab and I'm privileged to be serving veterans in the North Florida, South Georgia Veterans Health System. It is particularly pleasing to work for the VA because the modern roots of rehabilitation medicine grew in response to the need to improve the abilities, opportunities and quality of life of injured soldiers during and following World War II.

I feel that we're at a very dramatic moment where health care is changing; telemedicine and telerehabilitation is the key to this great

paradigm shift.

Within rehabilitation medicine there is a great enthusiasm from physicians, therapists and nurses to use the tool of rehabilitation medicine to finally bring care into the home and into the home environments. This is an area that we really haven't been able to get to prior, and Telerehabilitation offers a great solution to actually to get to the home and really make changes.

Telerehabilitation can be described using four models. The first model simply recreates the clinic using telecommunication to bring service to closer to veterans' home. Typically these clinics deliver one time assessments as opposed to ongoing care. Veterans with multiple sclerosis, spinal cord injury, amputations, diabetes, cardiopulmonary and orthopedic problems and other disorders are right now interacting with their clinicians in real time using television screens and telecommunication in Cleveland, Ohio, and Nashville, and Minneapolis, and Denver, and Fresno, in Ann Arbor, Tampa and elsewhere. Patients are being served by telerehabilitation in wheelchair clinics. They're getting their wound care, they're getting neuropsychological care and prosthetic and orthotic assessments.

For an example, a spinal cord injured veteran in Dayton, Ohio with skin breakdown related to his wheelchair seating will be presented by his or her local therapists to an expert panel in Cleveland. The Cleveland team can instantly see the results of pressure mapping and work with the Dayton therapist to come up with the optimal wheelchair cushion and seating solution. A byproduct of this is cross education and elevation of the standard of care throughout the region.

A second model delivers ongoing care to veterans at distant clinics. Examples include speech therapy, occupational and physical therapy, psychological and social services. For example, therapists in Denver assisted a veteran hundreds of miles away using video conferencing units located in the local clinics and in the medical center. They were able to help the veteran with a traumatic brain injury who had difficulties with mobility, self care, bladder management and decision making. Therapists were able to see how the patient functioned and to speak to the patient's wife about problems the veteran was having. From this they were able to determine practical ways they could help the wife care for her husband by providing ongoing education and training to both improve transfers, walking and stair climbing.

While improving the quality and the availability of care in local clinics is critical, if we have our choice most of us would prefer to receive care in our own homes. A third model of telerehabilitation does just that.

A VA study in Raleigh, North Carolina is using remote video links to deliver physiotherapy in the home and comparing the outcomes to traditional physical therapy. The preliminary data looks favorable.

Another project, the Low ADL Monitoring Program, is targeting

frail veterans in north Florida and south Georgia. These veterans at high risk for failure and are visited at home by an occupational therapist and a technician who prescribe and install necessary assistive devices such as grab bars, tub transfer seats, canes, reachers, long handled shoe horns, dressing aids and adapted eating utensils. The patients are then monitored daily either by text messaging, phone, computer or desktop devices. This way pro-active and practical interventions can reach the veteran before problems become disasters.

Data from the first 150 veterans show reduced hospitalization and emergency room use and reduced nursing home bed days of care. A comparison of six months prior to enrollment to the six months post enrollment showed a savings of $1,200,000.

A fourth model links teams at great distances from the medical centers' experts of care. I'll skip that in the interest of time.

I've given you some examples of telerehabilitation today. However, I believe the greater excitement will be seen as telerehabilitation becomes integrated into the standard care for veterans. I envision a day soon when returning war injured veterans needing rehabilitation are embraced by a fully integrated care system that follows the veterans from the DOD to VA centers of excellence, to the local VA medical centers, to their community-based outpatient clinics, and then into their homes.

Thank you very much. I'd be glad to take questions.

[The statement of Dr. Levy appears on p. 70]

Mr. Brown. Thank you, Dr. Levy.
Ms. Ryan?

STATEMENT OF PATRICIA RYAN

Ms. Ryan. Good morning. I want to thank you for this opportunity to meet with you today. VISN 8 began enrolling patients in the care coordination home telehealth program in April of 2000. Most of the veterans that we enroll are the clinically complex, older, adult veterans, and we serve most of the chronic population, the populations that have the chronic health problems that you've heard about already.

Forty-nine percent of the veteran population is over 65 and average three or more chronic health problems. They live in their own communities, they live in their own homes, and frequently when you get to be of a certain age you're really afraid to go to the doctor but you really have problems managing your own health care. What the care coordination program does for them is gives them the ability to manage their own chronic diseases.

Our goal is to improve access to care and to provide the right care

at the right time at the right place. Through the use of the electronic medical record the role of the care coordinator is combined with home telehealth technologies to provide that link to all of the clinical specialists that a veteran may need to see and get data to, as Dr. Fletcher showed you this morning.

Frequently clinic visits are followed up just in case a person declines or to evaluate the type of information that's been going on in the progress of treatment. The ongoing connection through home telehealth provides just in time care that is both based on subjective and objective clinical information.

The VISN 8 care coordination program has served over 3,500 veterans in the last five years with the current census of over 2,400. We have 21 programs across the network that serve many populations, from frail, older adults with multiple chronic medical conditions, veterans with mental health problems, a large of population of veterans with both diabetes and heart failure, and a wound care program that for the very special spinal cord population at the San Juan VA. And some of those veterans would have to travel from St. Thomas to San Juan via air transport if they needed to come there for their wound care. So we're able to do that remotely.

Our success has been outstanding and customer service has been measured annually for the last five years with the results of over 95 percent satisfaction with both the care coordination process, which is really important, as well as with the use of the technology. There are four components to care coordination: care and case management, disease management, self management of chronic disease, and then as we said before the technology to provide all of these.

We've been able to reduce in our heart failure programs, reduce blood pressures on an average from 131 over 70 to 119 over 69. We've had weight reductions that have averaged 5 to 10 pounds. We've had clinically significant improvement in both of our--in all of our diabetics across the network.

Over 80 percent of our veterans use the in home messaging device and we will be able to produce results similar to what Dr. Fletcher has shown you.

One population that we serve is the palliative care population that grew out of a cancer program that we started in conjunction with the National Cancer Institute. We have a chaplain that serves as a care coordinator and the care coordinator is a registered professional that must be a team member with all of the different specialties that we have.

This veteran was near the end of his life and his son, who was a police officer in a distant town, was shot in the face and the veteran could not travel to see his son. Through care coordination programs that we have all over our state we were able to serve with the care coordinators. We were able to set up video conferencing equipment

between the son in the hospital and the veteran at home. During--towards the end of his life he was able to share some precious moments with his father.

Mr. Chairman, my father and all of my uncles--except for one--were World War II veterans. So I grew up knowing what the value of veterans are to this country, and I really value my ability to serve veterans in this manner, and I'm ready to answer any questions that you may have.

[The statement of Ms. Ryan appears on p. 74]

MR. BROWN. And I really do appreciate you all coming and we certainly have a compassion for our veterans on this Committee. We're grateful for the testimony that you've come to bring this morning.

Mr. Michaud, do you have any questions?

MR. MICHAUD. I have several questions, but in the interest of time I'll submit them for the record, Mr. Chairman.

MR. BROWN. Well, let me tell you it was a great, informative few minutes. I apologize for the urgency of moving forward so we can speak to the last panel, but thank you all very much for coming and I thank you every day for what you all are doing for our veterans.

MS. RYAN. Thank you.

MR. MICHAUD. That doesn't mean you're off the hook as far as answering questions.

MR. BROWN. Our third panel is Mr. Jonathan Linkous, Executive Director of American Telemedicine, and Dr. Sandeep Wadhwa, the Vice President of Care Management Services for McKesson Health Solutions and a member of the board of the Disease Management Association of America.

And gentleman, I know you've been hearing my pleas all along. The horn hasn't sounded yet. We certainly welcome you, and Mr. Linkous, if you would begin.

STATEMENTS OF JONATHAN D. LINKOUS, EXECUTIVE DIRECTOR, AMERICAN TELEMEDICINE ASSOCIATION; AND SANDEEP WADHWA, VICE PRESIDENT, CARE MANAGEMENT SERVICES, MCKESSON HEALTH SOLUTIONS AND MEMBER OF THE BOARD, DISEASE MANAGEMENT ASSOCIATION OF AMERICA

STATEMENT OF JONATHAN D. LINKOUS

MR. LINKOUS. I appreciate the opportunity to speak here on behalf of the American Telemedicine Association.

Telemedicine is a very important subject, and the ATA greatly appreciates the Committee's leadership in this area.

I would like to take just a moment to give you a little background on telemedicine from ATA's perspective. You've had some great testimony so far on applications within the VA. Telemedicine has been around for about 30 years in this country in various aspects. Right now there are about 200 active networks in the country, outside of the Veterans Administration, including about 2,000 hospitals that are all involved in telemedicine. About 60 specialties and sub-specialties, medical specialties, have been used in telemedicine. It is a very active and growing area around the country. Certainly one of the most important areas is telemedicine in home care, in areas where the Veterans Administration has done quite a bit of ground-breaking work.

With the aging of the population in this country, home telehealth has probably one of the greatest potentials for growth. In telemedicine today, there is about 15,000 providers of home care services carrying about 7 million individuals nationwide in cases of acute illness, long term care conditions and force forward disease management.

Throughout the past two decades, the home monitoring industry and government, as well as the private sector, have been developing electronic and telecommunications equipment which can do anything from collecting vital signs to allowing you to see a nurse from your own home.

There are a number of challenges that are facing this industry as we move forward. One is moving--taking advantage of the new technologies that are available, both in wireless applications as well as cheaper applications that will make--drive the price down. I understand your comments about the price, and I will tell you that in the last ten years, the prices for telemedicine equipment are probably about 15 percent of what they were when I first started getting involved in telemedicine 10, 12 years ago.

The industry also must be able to meet the diverse demands of home care agencies. One of the things you will see within the Veterans Administration, and elsewhere--is they're not just using one type of telemedicine in the home, they're using a number of different types of technologies, and it depends upon the need of the patient, such as trans-telephonic monitoring of heart signals, for example. If you have an implanted pacemaker, you can have it monitored remotely using a telephone, a fairly simple device active throughout the country--event recorders for people with heart problems, health status monitors that might just ask patients certain question. Certainly the applications we saw, taking weight and vital signs and even pushing a button and seeing the nurse--having that interaction on a daily basis is another thing that we're seeing regularly.

The Veterans Administration has certainly been a leader in this area in the country. With over 5,000 patients enrolled in their home telehealth program alone, the Department is administering one of

the largest arenas--activities, rather, in telemedicine throughout this country. The Department has been working hard to set forth guidelines and the appropriate use and administration of these technologies, including developing appropriate technology standards, and protocols, and initiating specialized training for VHA employees involved in the use of telehealth in the home.

ATA's membership includes many of the staff from the Veterans Administration. We've actually had two members of the VA serve on our board of directors. The chair of our home telehealth task force is from the Veterans Administration and we also have just completed a set of guidelines and tasks--and standards--involving the VA as well as the military, another major player in telemedicine in this country.

The experience and lessons learned from the VA's use of telemedicine in the home can be a valuable resource for others in the medical community outside of the Veterans Administration. At the same time, others outside of the VA also have a lot of experience in this same field. For example, at our recent annual meeting in Denver, Colorado, we had over 2,000 people and 50 presentations just in the field of home telehealth.

ATA applauds the Department of Veterans' Affairs for its efforts to deploy telemedicine. We appreciate the progress they are making in this critical field and stand ready to help them, as well as this Committee, with a cross-fertilization of ideas between the Department and others involved in this very rapidly growing area of health care. I thank you very much.

[The statement of Mr. Linkous appears on p. 78]

Mr. Brown. Thank you very much.
Sandeep Wadhwa.

STATEMENT OF SANDEEP WADHWA

Dr. Wadhwa. That's it. You nailed it.
Mr. Brown. Okay.
Dr. Wadhwa. Chairman Brown, I have the pleasure of returning from Kiawah Island this weekend and can attest to the stunning beauty of your district.

I will summarize my already summarized remarks and get us back on track.

My name is Dr. Sandeep Wadhwa and I'm the Chairman of Government Affairs of the Disease Management Association of America, and I also oversee disease management programs for McKesson Corporation, which is one of the largest providers of disease management services to government health payers. I'm also a practicing geriatri-

cian and am familiar with the long term and chronic care needs of veterans from my five years of practice at the Philadelphia VA Medical Center.

The Disease Management Association of America is a non-profit organization representing all aspects of the disease management community, and disease management emphasizes the prevention or exacerbation of disease and complications by using evidence based medicine and practice guidelines and patient empowerment strategies. We strongly encourage and support the VA's adoption of telehealth initiatives. The VA has done extensive evaluations of telemonitoring devices which have demonstrated their efficacy in improving patient health status and reducing avoidable utilization of VA's acute care resources.

The VA's use of telenursing however is in its early stages. Telenursing leverages the telephone as a no additional cost and nearly universal device to establish a therapeutic relationship between a nurse and a patient for education, counseling and monitoring. Our member organizations have demonstrated the value of using the telephone across a variety of settings to improve the health of vulnerable populations cost effectively. To that end we encourage the VA to leverage the ubiquity and utility of the telephone as well in its telehealth initiatives. Thank you.

[The statement of Dr. Wadhwa appears on p. 82]

Mr. Brown. I do thank both of you for coming and thank you for confirming my assessment of my district.

Mr. Michaud, do you have any questions you want to ask?

Mr. Michaud. First of all, I would like to thank all the panelists that we heard this morning as they all did an enlightening job, and I really appreciate the information.

My concern, being from the rural state of Maine, is whether or not the funding will be there to make sure that the need is met for our veterans throughout the State of Maine and other rural areas.

I guess the assessment that was given earlier about Caribou and Togus is appropriate, but actually you could fit all of New England into the State of Maine. And my big concern is when you look at the number of facilities--well, the hospital and the clinics we have in Maine is equal to the amount that's in New Hampshire. My concern is whether veterans in rural areas are getting that access.

I guess my question is I know VA had done a great job as far as telemedicine, but as far as the standard when you look at the Department of Defense, the VA, as well as the American Hospital Association, is there a standard for all three that everyone is complying with or will there be a mismatch between the technology that is being used particularly among the DOD and the VA?

Mr. LINKOUS. I think that's an excellent question and a very timely question. Within Maine alone, there's a separate telemedicine network that includes over 100 hospitals. It's quite a remarkable network that they have going on and they have a lot of experience.

As the technology improves, as the practice becomes more widespread, certainly one of the challenges that we face right now is adopting standards and clinical protocols that are the same throughout the Veterans Administration, the military, the prison systems that use telemedicine, and of course, into the private sector, as well.

The Veterans Administration has made a lot of progress in developing some standards and some protocols. We have on a couple of occasions, worked with them on developing some standards that are based on some of the work that they've done, and then we move it out further. But I think that is a challenge as we move ahead, to make sure that the protocols are there, that the standards are in place, so that when you have a telemedicine system in Maine, or in South Carolina, or in California, basically, the patient can expect the same level of care and the same types of services, no matter where they are.

Mr. MICHAUD. My second question is for both panelists. Since you're familiar with the VA, do you think the VA should be doing something differently or should they be focusing in certain areas as far as telemedicine goes?

Dr. WADHWA. We're very pleased with the care coordination efforts that are coming out of the VA's office, and I guess from our perspective we're looking for a balance between the use of telemonitoring equipment which, as was discussed earlier does have costs associated with it, as well as using the telephone and the ability to in a very low cost way to establish a relationship has been shown in a lot of peer reviewed studies. So we think that both of those telehealth solutions should be promoted in the system.

Mr. MICHAUD. I guess what my final question if I might, Mr. Chairman? It has been stated that one out of every six servicemen and women will come back from Iraq and Afghanistan is going to need some type of assistance, particularly as it relates to mental health. Do you think that currently there's enough funding within VA to deal with that particular issue? And I guess my second question is how important is one-on-one immediacy going to be? You know, I assume that telemedicine is going to be available during the daylight hours. What's going to happen to the veteran who needs the assistance at nighttime, particularly when we hear about all the people who die over in Iraq and Afghanistan, but we don't hear much about the suicides or attempted suicides that are currently there and my concern is the immediacy of getting assistance.

Mr. LINKOUS. One of the benefits of telemedicine is that you can extend the services provided to the individual beyond just the hours of the clinic, just when a particular practitioner happens to be in the

office. You can link into a network and get those services no matter where they are.

The Veterans Administration has done a lot of work in telemental health, brought a lot of leadership in that area. I am concerned about the funding level. I'm very concerned about what we're hearing, and certainly, the Chair and you are hearing about the appropriations this year for the Veterans Administration. I think it is not a good time to be reducing any money for an agency that is providing services to our veterans when we are involved in conflicts.

DR. WADHWA. And I'll just build on that, that response just ever so briefly, in that many of these services are set up to be available around the clock with immediate access to a telenurse and teleadvice. That is exactly for patients in distress and they may not have a good grasp of judging their own symptom and calling 911, but feel comfortable talking around the clock to a nurse and have that symptom triaged at the appropriate level of care. So that is a concern I think that telehealth does, can be set up to address that, to provide around the clock service.

MR. MICHAUD. And if I might, as I said, there's a lot of questions. You just happen to be the last panel before the bell rings. The last question I have and I promise, Mr. Chairman, is do you think the technology, the system out there, particularly in a rural state like Maine and given the number of veterans that we currently have in Maine, that the use of the system, is it available, the technology in the rural areas?

MR. LINKOUS. Is the technology available currently?

MR. MICHAUD. Yes. Will there be a problem with overload? I mean, if you look at Maine, 16 percent of our population are veterans. We're the highest in the country as far as veterans. We're a rural state. We definitely do need to improve on the technology. You look at Maine's National Guard, we're at the top there as well. If the BRAC process goes through where 7,000 jobs are going to be lost in Maine and it's going to throw more veterans probably onto the system. Will the system be able to withstand the needs?

MR. LINKOUS. Well, I would say there's a problem currently serving those needs, and part of that problem is the fact that we have a system that is still relying very much on individual face-to-face consultations and services. Telemedicine does allow you to actually increase the number of patients that you see, and it increases the efficiency of the system. So hopefully, as we get it deployed further throughout the State of Maine, or South Carolina, or throughout the country, we can increase the number of services and access to those services for all of the patients that are out there.

The technology is--the changes in technology are just phenomenal, even for the last 12 months. So I think we are going to be able to have a technology available that will be able to be deployed in all of the

homes. It's very important, though, that the appropriate technology be selected for the appropriate need.

Dr. WADHWA. And just to very quickly build on that comment, the technology is, as we said earlier, becoming much less expensive and very easy for the veterans to install themselves without a lot of technical guidance or people coming out. And so our strong sense is that the technology is here.

Mr. BROWN. Let me say not just to you two but the whole panel, all three panels that were presenting today, what a real refreshment to the sense of where we're moving in our health care delivery, and I thank you both for being part of, plus the other two panels, and thank you all for coming. And as the mystery of this process moves forward the two--the 11:00 votes did not show, nor did the 11:15, nor did the 11:30 apparently. So we're still--it's still amazing how this process goes.

Mr. MICHAUD. I do not have a question but, Mr. Chairman, this is Susan's last hearing after eight years as Democratic Staff Director for this Subcommittee. She's done an outstanding job. I want to wish her the very best in her future endeavors. Thank you very much.

Mr. BROWN. Well, Susan, thank you for your service, and we will miss you.

[Applause.]

Mr. BROWN. With that, the meeting is adjourned.

[Whereupon, at 11:33 a.m., the Subcommittee was adjourned.]

APPENDIX

Thank you, Mr. Chairman. It is good to be here for our first Health Subcommittee hearing of the 109th Congress. I am also pleased that we have the opportunity to continue working together as Ranking Member and Chairman. We have many areas under the Health Subcommittee's jurisdiction in which we share a strong interest. And I look forward to tackling these issues with you.

Today's hearing on telemedicine examines an area in which VA has already invested a great deal of capital. Telehealth is an increasingly important part of VA's care strategy. It helps by facilitating access to care, increasing patient and provider satisfaction, and enhancing the quality of care. While I don't believe it is an answer to all of the gaps in services in the VA's health care system, it can certainly help VA respond to more veterans' needs within VA's limited resources.

Telemedicine can also help to address the challenges faced by veterans in my state of Maine, especially the difficulty of access. Maine veterans routinely travel more than 2 hours each way to obtain anything beyond the most basic levels of care. Long distances, rural roads, heavy rains and snows do not mix well with the aging veteran population in my state. We need to think of new ways to bring specialized services to rural populations in Maine and elsewhere. Telehealth can help, but as I said, I do not believe it is a cure-all for all these challenges.

We should be increasing the access to scarce medical resources such as mental health services for our returning troops and others. I joined full committee Ranking Member Evans to introduce legislation, H.R. 1588, to address post-deployment mental health. This care relies heavily on telemedicine to increase access to treatment for Post-Traumatic Stress Disorder and other mental health issues commonly experienced by our returning troops. H.R. 1588 would also develop online provider education modules and outreach tools. We know that up to 1 in 6 of the brave men and women fighting for us in Iraq will screen positive for some mental health issue upon their return home. Experts such as Dr. Keane who, unfortunately, was not able to join us because of illness, have made it clear that the more quickly we can provide help to these individuals, the less likely they are to develop chronic mental health problems.

Telehealth offers us one very useful tool in our treatment tool box, but we must remember that even with telecommunications, the reach of our experts' is

limited by time and the tremendous need that is growing for these services. And what about other specialized services? Many of the veterans in Maine who have to travel to Boston for relatively routine care would be happy to have access to a telehealth option in which their MRI scans or blood cultures might be done locally, but reviewed by experts from further afield. Again, it is important to note the limitations, however, since there may be diminishing returns with some of this technology. Many of the specialists needed to do specialized work such as radiology and pathology are already being used to their full capacity and asking them to add remote consultations may not be possible.

What about long-term care? I agree that telemedicine can assist in ensuring that some of our elderly veterans with chronic disease remain in stable condition, but I can't help but believe that at some point these services cannot substitute for the human touch. Telehealth may be able to assist in monitoring vital signs. The provider at the end of the line may even know the veteran and his or her condition, but it cannot help that veteran with preparing meals, bathing, dressing or engaging in other independent living skills. At the end of the day, telehealth initiatives must be supported by people. Both the technology and the people cost money.

I agree that we must continue to push VA to be as efficient as possible, but there are still times that efficiency reaches its limits and you must add real dollars. That's why Democrats on this Committee recommended adding $3.2 billion to our budget request.

Mr. Chairman, thank you for holding this hearing today. I look forward to working with you throughout this Congress. I am also looking forward to hearing from our witnesses about the state of telehealth initiatives inside and outside of VA today.

Statement of
Adam Darkins, MD, MPHM
Chief Consultant for Care Coordination
Veterans Health Administration
Department of Veterans Affairs
Before the
Sub-Committee on Health
Committee on Veterans' Affairs
U.S. House of Representatives

May 18, 2005

Mr. Chairman and Members of the Subcommittee:

It is an honor for me to be here before the Subcommittee today and to address the Subcommittee members' interest in VA's use and development of telemedicine. I would like to personally thank the Subcommittee for focusing attention on this important area.

By definition, telemedicine involves the use of information and telecommunications technologies to deliver care when patient and practitioner are separated by distance and/or time. Analyses of healthcare delivery, such as those by the Institute of Medicine, now cite VA as an exemplar that other healthcare organizations should emulate when using health information technology to improve the quality of care and resolve endemic concerns about patient safety. VA's application of this technology enables more care to be provided to veteran patients with proportionally fewer resources and in doing so helps VA set benchmarks for levels of patient satisfaction and achieve outstanding scores on 18 quality indicators for disease prevention and treatment. VA's telemedicine initiatives build upon this self-same health information technology platform to help provide the right care in the right place at the right time to the veteran patients whom it is VA's privilege to serve.

The rationale for VA's ongoing development of a robust and sustainable technology infrastructure for telemedicine is focused on using this resource to help meet high-priority areas of health care need in the veteran population. Dedicated health care practitioners in VA often find themselves challenged when providing care because the health care needs of a diverse and geographically

distributed veteran population are changing. Increasingly, this population presents practitioners with chronic conditions that need ongoing monitoring and management.

In common with other healthcare organizations, VA has a finite set of physical locations from which it can provide traditional face-to-face encounters to treat veteran patients. This restriction necessitates practitioners having to make trade-offs between access, quality, and cost, especially if patients live in rural areas and if they have problems with mobility.

These challenges are further compounded by difficulties with the recruitment and retention of practitioners in rural areas. Solving what could otherwise become an insoluble equation, in relation to providing timely and appropriate care cost-effectively, is stimulating telemedicine implementation at the local VA Medical Center level and is the reason for the programmatic imperatives VA is placing on supporting telemedicine at the national and Veteran Integrated Service Network (VISN) level. VA has experience of piloting the delivery of care using telemedicine in 32 clinical areas. However, in my testimony today, I would like to highlight five major areas of national telemedicine development that show how telemedicine addresses pressing patient care needs.

Home Tele-health

The first area of need that drives telemedicine in VA that I would like to highlight is home-telehealth. As they age, veteran patients mirror the general Medicare population in that they are living longer, remaining healthier, and choosing, when possible, to continue living in their own homes. The homes and local communities that veterans fought to protect in times of war remain equally dear to them as they age and confront new adversaries in the form of chronic disease such as diabetes and chronic heart failure. In July 2003, VA instituted a national program to enhance and extend care and case management using home-telehealth, thereby providing a flexible and patient-centric approach to the delivery of non-institutional care.

VA currently provides home tele-health to 5,800 patients in 21 VISNs, and these numbers are set to reach 12,500 patients by the end of FY 2005. To support this care, VA has developed a national home-telehealth infrastructure that is being interfaced with VA's computerized patient record system (CPRS). The CPRS complements VA's approach to managing patients with chronic conditions via home-telehealth. Typically, these are patients who previously had several volumes of paper charts. The charts were often difficult to find because these patients have multiple unscheduled clinic visits that took the chart elsewhere. Even if paper records are readily available, the ability of a practitioner to rapidly and accurately obtain this information during an unscheduled clinic visit or emergency room attendance is often compromised by the volume and unwieldy nature of paper-bound information in such complex care patients. With a computerized patient record, the significance of changes in vital sign data such as pulse, weight, blood pressure, and other readily monitored indices such as blood glucose can be rapidly interpreted and the appropriate care instituted. Simply stated, the right information must be in the right place at the right time if the right care is to be provided to the right patient. The outcomes of VA's Care Coordination Home-Telehealth show that these programs enable veterans to remain living independently in their place of residence, reduce the need for hospital admissions and emergency room visits, and are associated with high levels of patient satisfaction.

Tele-mental Health

The next area of I would like to cover is tele-mental health. Clinical studies in VA have confirmed that the use of tele-mental health results in comparable outcomes to receiving care in traditional face-to-face clinic settings. This care is typically provided using real-time video-conferencing to support the clinical interaction between patient and practitioner. Tele-mental health is able to support the delivery of both general and specialist mental health care in VA's community-based outpatient clinics (CBOC). Tele-mental health can assist VA in meeting the challenges presented by the high incidence and prevalence of

mental-health conditions in veteran patients and, in doing so, make this care more accessible to these patients by reducing the need for travel.

Tele-mental health in VA is currently taking place in 228 sites, of which 120 are CBOCs, 74 are VA medical centers (VAMCs), 20 Vet Centers, and 14 home-telehealth programs. In FY 2004, VA provided direct care through telemedicine to over 10,000 patients and this constituted over 20,000 episodes of care. VA has a lead clinician for telemental-health who coordinates these developments in close association with VISN mental health leads and the Mental Health Strategic Healthcare Group in VA Central Office. Tele-mental health activity in VA is anticipated to expand by an estimated 20 percent in FY 2005 to enable greater delivery of specialist mental health care to CBOCs.

Tele-retinal imaging

Next I would like to turn to another crucial area of health need within the veteran population. Twenty percent of the veteran population VA treats has diabetes and a common and avoidable complication of diabetes, visual impairment. VA currently outperforms the commercial managed-care sector in screening for diabetic eye disease. Maintaining and exceeding current rates of screening for diabetic eye disease has been the rationale for VA in exploring the use of tele-retinal imaging to detect diabetic eye disease.

In partnership with the Department of Defense and the Joslin Vision Network in Boston, VA piloted tele-retinal imaging programs in six sites since FY 2000. A consensus meeting in September 2001 helped define the scope for the initial piloting of this technology in routine clinical practice in that it could not replace a comprehensive eye exam and was only suitable to assess for diabetic retinopathy.

The clinical success of these pilots and other tele-retinal imaging programs has provided VA with evidence that tele-retinal imaging can facilitate retinal screenings of VA's growing diabetic population. VA plans to implement the widespread use of tele-retinal imaging to screen for diabetic eye disease in FY 2005 and FY 2006 and anticipates that up to 75,000 veterans with diabetes

may benefit from this program nationally. This program will use store-and-forward technology, whereby digital retinal images are sent to designated reading centers for reporting.

Teledermatology

Another area of telemedicine that uses store-and-forward technology that I would like to briefly consider is teledermatology. Skin disease is a significant case of discomfort and morbidity in both the veteran and general population. Dermatology is a shortage specialty especially in rural areas.

For this reason, the VAMC in Togus, Maine, became a pioneer in the use of teledermatology in the late 1990's. A highly successful teledermatology service was established between Togus VAMC and the VAMC in Providence, Rhode Island, which is an ongoing source of care to veterans in rural Maine. VA has subsequently shown that the use of teledermatology can result in treatment being initiated earlier than for patients receiving usual care, and diminish the need for a subsequent face-to-face dermatology clinic appointment.

Teledermatology is cost-effective in decreasing the time required for patients to reach a point of initial definitive care. VA has identified a clinician lead, a research lead, and a field telehealth coordinator for teledermatology who continues to refine and develop teledermatology services in VA.

Telerehabilitation

A critical area of current telemedicine development in VA is tele-rehabilitation. This new technology is supporting veterans who have had spinal cord injury, veterans suffering from multiple sclerosis, and combat-wounded veterans from Operations Enduring Freedom and Iraqi Freedom. The benefits of telemedicine to these combat-wounded veterans highlights the positive role telemedicine can play.

VA has established four national poly-trauma centers to care for combat-wounded veterans who are transferred to VA after receiving care in specialist military treatment facilities. The poly-trauma centers take these patients, who

often have had head injuries, eye traumas, amputations, and post-traumatic stress disorder, and prepare them to return home.

Let me give you the hypothetical example of a combat-wounded veteran with a complex prosthetic limb that enables a return to an active lifestyle. The challenge presents when this veteran returns home to a remote rural part of the United States. If this veteran has a problem and needs care, it is unlikely that a practitioner in a CBOC or small VAMC will have the expertise to address the constellation of injuries. This expertise will not be available in the private sector locally. The dilemma this presents is that the veteran may be unnecessarily transferred back to a VA poly-trauma center or specialist military treatment facility with all the attendant inconvenience to the patient together with disruptions to work and family, in addition to incurring avoidable cost to VA.

To address this dilemma, in FY 2005, VA is linking current rehabilitation capacity at the local level to the specialist expertise in various areas. Telemedicine is being introduced across the continuum of care to ensure that combat-wounded heroes stay in close touch with specialist care in the Polytrauma Centers as VA works to return them to their homes. Furthermore, VA has been working since 1999 to use telehealth services to enhance the care and home-based rehabilitation of patients with spinal cord injuries. VA is also working towards building a specialist referral network for rehabilitation that will connect its multiple-sclerosis centers of excellence on the West and East coasts with smaller VHA facilities to provide this specialist expertise at a local level.

Telesurgery

Given my earlier emphasis on chronic conditions, VA's development of telesurgery may seem somewhat surprising. However, there are many parts of the United States where rising property prices have meant veterans have sold their homes or have difficulty finding rental accommodation. Consequently, many veterans are moving to other areas of states that are remote from VA's large fixed sites of care where their surgery may be performed.

VA's development of tele-surgery is, therefore, taking place to establish telemedicine links to enable remote evaluation of veteran patients, both prior to surgery and post-operatively. These specialist clinics either save patients from traveling long-distances to specialist centers or specialist surgeons from having to travel to remote clinics, which hinders them from seeing other patients during this period of travel.

Telemedicine – The Future

In all of the five areas of care I have just covered, a consistent theme has been how telemedicine increases access to care for veteran patients who live in rural locations. A specific example of the benefits telemedicine can bring relates to the VAMC in Iron Mountain, Michigan. In the late 1990s, when the pathologist at the Iron Mountain VAMC retired, it was difficult to replace this clinician. This placed at risk those services that required pathology support in Michigan's Upper Peninsula and northeastern Wisconsin. VA resolved this problem using tele-pathology within a five-state telehealth network in VISN 12 that integrates data, voice, video, and imaging systems -- thereby creating one of the largest specialty care telehealth networks in the US. This network enables primary diagnosis and consultation in surgical pathology, interpretation of serum protein electrophoresis and immunofixation gels, provision of support for consolidated microbiology laboratories, review of problematic peripheral blood smears, and distance learning. Telemedicine is able to help prevent the loss of mission critical services, which can pose a threat to the sustainability of services in rural areas.

The evidence-base to support telemedicine in VA is growing. Typically evidence about new health care lags behind clinical practice by five years, and it can take 15 years for established evidence to be introduced into clinical practice. VA is introducing telemedicine where there is evidence that it is safe and effective and is using it to meet areas of high priority need in the veteran population. VA researchers have published more than 50 peer-reviewed articles published in this area since the early 1990's.

VA's Quality Enhancement Research Initiative (QUERI) explicitly looks at the issues of translating important clinical and health research findings into everyday practice. This approach allows VA to accelerate the rate of change in critical areas where research findings could have significant system wide impact. The QUERI is addressing the implementation of telemedicine with a particular emphasis on home-telehealth.

VA has lead practitioners in the areas of home telehealth, telemental health, teledermatology, telesurgery, teleophthalmology, teleoptometry, and telerehabilitation. The role of these practitioners is to develop toolkits that standardize telemedicine practice across VA, and act as clinical champions. The importance of standardizing telemedicine practice to VA is three-fold. First, it facilitates telemedicine development. Second, it enables systematic outcomes analysis and research to take place. Third, it means that veteran patients receive consistent care via telemedicine across the system.

VA established a training center for care coordination home telehealth in Lake City, Florida in January 2004. This center has trained over 1,100 staff since then using distance education technologies, and 1500 through face-to-face teaching methods. In FY 2005, VA expects to establish a general telemedicine training center in Salt Lake City, Utah, and a training center for teleretinal imaging in Boston, Massachusetts. All these centers have connections with academic centers and will produce designated curricula for telemedicine training that will ensure that practitioners receive appropriate training. Training is a key element to sustaining telemedicine in VA. Without a telemedicine-competent workforce, key services to veteran patients in remote areas could be vulnerable.

VA has robust cross-federal partnerships with the Department of Defense and with the Department of Health and Human Services (HSS). A recent meeting of the IHS/VHA steering group in Albuquerque identified a joint-working group between IHS and VA on Care Coordination as a priority. VA is a member of the Joint Working Group on Telehealth, a Federal interagency group that coordinates members' telehealth activities. These partnerships reinforce the finding that robust business processes to code, provide workload credit, and fund

telemedicine from routine operational sources are as vital an ingredient in the successful implementation of telemedicine as are the clinical science and technology infrastructure. VA is implementing systematic coding systems for telemedicine in FY 2005 and FY 2006. VA is working with national accreditation bodies to ensure that telemedicine programs are recognized as part of routine care delivery.

In concluding, I would like to mention that VA is now recognized as a leader in the field of telemedicine as it is in other areas relating to the clinical use of health information technologies. The work that I have highlighted today attests to VA's leadership in this area and is the product of collaborative relationships within and outside VA. The benefits of telemedicine are that it can help coordinate care across the continuum of care and bridge barriers of distance and geography that hinder delivery of care. In accomplishing this, telemedicine connects across parts of the organization in VA to draw upon existing strengths and has not been associated with the creation of a new silo of care. I am proud to be associated with an organization and colleagues with a unique mission to deliver care to veterans.

To complete this first panel session, I would like to introduce Dr. Ross Fletcher who is the Chief of Staff at the Washington DC VA Medical Center. Dr. Fletcher is also the Director of the nationwide Veterans Affairs registry for the Pacemaker and Defibrillator Surveillance Center. Dr. Fletcher was involved in the development of VA's computerized patient record. Dr. Fletcher will provide a practical demonstration of how the use of home-telehealth and care coordination impacts on the care of patients and is truly delivering the right care in the right place at the right time.

Following Dr. Fletcher's demonstration, he and I will be happy to answer any questions the members of the Subcommittee might have.

Testimony
Before the Subcommittee on Health
Committee on Veterans Affairs
United States House of Representatives

Telemedicine Activities at the Department of Health and Human Services

Statement of
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Mr. Chairman and Members of the Subcommittee, I am Dr. Carolyn Clancy, the Director of the Agency for Healthcare Research and Quality (AHRQ), a component of the Department of Health and Human Services (HHS). Today I have the privilege of representing the Department and want to thank you for the opportunity to participate in this discussion of the role of telemedicine in improving the health care of America's veterans.

The Department of Health and Human Services (HHS) has had a long-standing commitment to understanding and advancing the effective use of health information technologies, including telemedicine, to improve the health of all Americans. As we use the term, telemedicine is the use of telecommunications technology for medical, diagnostic, monitoring, and therapeutic purposes when distance and/or time separates the participants. At the outset, we need to acknowledge that a great deal is not known about telemedicine. But we share a common interest with our colleagues at the Department of Veterans Affairs in attempting to identify best practices and promising interventions. So we are delighted to participate in this hearing to provide a brief overview of our Department's telemedicine activities and share our preliminary findings and experience.

Setting the Context

I would like to begin by offering seven observations regarding telemedicine.

First, the use of telemedicine in the private sector is still relatively small but growing.

Second, there is evidence that the technology can work, and can be used beneficially from a clinical and economic standpoint. However, I must add a note of caution. While there are many promising initiatives underway, there are few mature telemedicine programs and few good scientific evaluations. There are, nonetheless, lessons learned that may prove useful to the VA. However, there is an obvious need to work collaboratively to identify best practices.

Third, it is also difficult to assess the appropriateness, effectiveness or cost effectiveness of telemedicine in the abstract. It is best to focus on the service that telemedicine is being used to provide (such as the provision of radiology services or specific home health services), how it is being used for that purpose, and in what types of settings it is being used. Telemedicine may be

effective in one specialty but not in another.

Fourth, as with all technologies, telemedicine is merely a means to an end. Too many evaluations assess aspects of the technology itself. What should be assessed is whether the telemedicine service leads to better patient care and at what cost. Specific applications should always be assessed in terms of how they further our common goal to provide access to clinically effective, safe, and timely care to our patients efficiently.

Fifth, the array of obstacles to adoption and use of telemedicine services in the private sector is different in some ways from those confronted by the Department of Veterans Affairs' relatively "closed" health care system. For example, financial incentives or legal issues such as antitrust, malpractice, and cross-state licensure are more significant issues outside the VA. As a result, some of our Department's work related to use and adoption in the private sector may not always be directly transferable to the context in which the VA operates.

Sixth, with certain exceptions, such as tele-radiology, clinicians and system managers have been slow to adopt telemedicine. It is increasingly clear that a variety of factors need to be in place before clinicians believe that the value gained exceeds the effort required to implement new technology. User operability issues are complex and are important to the adoption of effective telemedicine services. Similarly, the education of users is a critical issue.

Finally, under Secretary Michael Leavitt's leadership, HHS is giving the highest priority to fulfilling the President's commitment to promote widespread adoption of interoperable electronic health records. This movement could be a significant enabler for the adoption of telemedicine in the future. The prospect of direct, immediate, interactive linkage between telemedicine applications and a patient's electronic health record, across settings of care, has the potential to alter the calculus for their evaluation of specific telemedicine applications and ease clinician concerns regarding the effort required to use the technology.

HHS Telemedicine Activities

HHS agencies have supported telemedicine research or demonstration projects for over three decades but the level of activity increased significantly in the last decade. As more agencies became interested in telemedicine, HHS took two steps to increase coordination within the Department and the rest of the Federal Government. The first action, in 1995, was the establishment of a Joint Working Group on Telemedicine to enhance coordination within the Department and other Federal agencies to more systematically identify barriers to telemedicine deployment.

In 1998 the Office for the Advancement of Telehealth (OAT) was established to serve as a focal point for coordinating telehealth programs within the Health Resources and Services Administration (HRSA) and to work with other Federal, State, and private agencies to advance the field. In 2002, Congress formally established the Office in statute.

The overall focus of HHS' telemedicine activities has been to expand access to quality health care through the use of telecommunications and information technologies. It is not solely focused on the technology.

Grant Programs

Since 1988, the Department has awarded at a minimum more than $250 million in telemedicine projects in every state of the Nation, with over 400 communities benefiting from these grants. In 2005, OAT will administer approximately 150 telehealth projects; this number includes 15 new competitive awards in FY05 for $3.9 million. In addition, HRSA, at the direction of Congress in P.L. 108-447, will make approximately 77 awards for a total of $31 million for telehealth projects. These projects include classic telemedicine programs for the delivery of health care, electronic health record/information system development and deployment (including telepharmacy, e-prescribing), and distance education. The majority of these grants serve rural communities.

The data on home care is quite promising. Although the studies are small, experience indicates that major savings and improvements in quality of care can be achieved for chronic care patients.

By more closely monitoring these patients in their home, they were able to prevent acute exacerbations of chronic disease. For example, one grantee study showed that expenses can be cut in half through the use of telemedicine for a cohort of chronically ill patients with congestive heart failure and diabetes, compared to national statistics for a similar population. Similar findings have been shown in studies by Kaiser Permanente and the VA.

Promoting Access in Rural Areas

While there are few programs from which high quality data are available, a baseline analysis by HRSA's Office of Advancement of Telehealth of 19 rural telemedicine program grantees showed that many communities would have no access to adult psychiatric services, pediatric psychiatric services, dermatologist services, neurological services, specialized wound care consultation services, and genetic counseling, if telemedicine services had not been provided by these grantees.

A baseline study of eight rural telemedicine grantees with tele-home care programs found significant potential productivity gains were found for nurses by reducing travel time. During the baseline period (September 2002-August 2003), approximately 2,100 nurse hours were saved through reduced travel for trips that otherwise would have been done in person. These hours translate into approximately $80,000 of salary and travel costs saved during the baseline period. In reality, rather than simply reducing nursing costs, the nurses who spent less time driving were able to care for more patients – stretching the short supply of nurses to improve access for more patients. Homecare agencies that spend less on gas can spend more on other supplies or services.

The Indian Health Service

The Indian Health Service (IHS) is the closest HHS parallel to the context in which the VA operates. IHS and Tribal facilities report experience with over thirty different types of telemedicine clinical service. Similar to national U.S. experience, tele-radiology, tele-retinal screening, tele-dermatology, tele-mental health, and tele-cardiology are leading clinical telemedicine applications in Indian health. Opportunities for expanded service delivery, however, are under development. These opportunities include new clinical telemedicine

applications as well as project development for cost-effective and quality-focused Virtual Centers of Excellence

Many different types of telemedicine have been successfully used by the IHS and Tribal hospitals and clinics. Such telemedicine services have helped address a diverse array of clinical needs, and highlight evolving opportunities for both evidence-based and community-based chronic disease management. For example, at 30 IHS and Tribal facilities, patients with diabetes receive remote diagnosis and management of diabetic eye disease via the IHS-Joslin Vision Network. In Alaska, 800 to 1000 tele-consultations are performed each month via the broadband Alaska Federal Health Care Access Network. Many children with ear problems receive pre and post-operative care from ENT surgeons at the Alaska Native Medical Center in Anchorage via tele-consultation on this network. In southern Arizona, patients with heart failure have access to cardiologist case management services from the Native American Cardiology Program via home telehealth. Tele-cardiology care also supports interpretation of electrocardiograms and echocardiograms performed at rural Indian health facilities.

On the Navajo Nation, women's health services include rapid mammography interpretations through telemedicine links from Navajo Area IHS and Tribal facilities to a specialty Breast Center in Tucson. Similar tele-mammography services will soon be available from a mobile women's health project set to begin in North Dakota and South Dakota.

Tele-mental health service is a growing part of many rural Indian health programs. One program offers confidential and parent-consented tele-mental service to high school students in a school-based clinic. Finally, community outreach via telemedicine extends medication refill service and creative health promotion /nutrition education for patients and families on the Western Navajo Nation.

Non-Clinical Uses

Innovation is also underway for non-clinical telehealth projects. These projects use videoconferencing technology for distance learning, program planning, and administrative meetings. Many Indian health care facilities currently participate in such activities. New

approaches to learning include Virtual Grand Rounds, distance education via the Pathways into Health project for American Indian and Alaska Native students seeking Medical Technologist and other health professional degrees, and multi-media continuing education coursework in a variety of clinical disciplines.

Telemedicine for many IHS and Tribal facilities is made possible by partnerships with state telemedicine networks and regional telecommunications infrastructures. Noteworthy examples of such partnerships include: the Alaska Federal Health Care Access Network, the Navajo Area and Phoenix Area Telehealth Networks; and the Arizona Telemedicine Program. The Alaska Federal Health Care Access Network extends telemedicine services to 200 IHS and Tribal sites in the state of Alaska. The Arizona Telemedicine Program facilitates diverse telemedicine activities at numerous IHS/Tribal facilities in the Southwest United States.

Building and Understanding the Evidence Base for Telemedicine

At the request of the Centers for Medicare and Medicaid Services (CMS), my agency, AHRQ, developed an evidence report in 2001 that reviewed the available evidence on the effectiveness of telemedicine interventions for the Medicare population. The report concluded that the use of telemedicine is small but growing. Active programs demonstrate that the technology can work, and their growing number indicates that telemedicine can be used beneficially from both clinical and economic standpoints. The longevity of these programs, however, is not clear, and many may fail to survive beyond initial funding or enthusiasm.

The report went on to state that the evidence for the efficacy of telemedicine *technology* is less clear. The problem is not that studies have strong evidence against efficacy, but rather that their methodologies preclude definitive statements. Many of them have small sample sizes that decrease the statistical power of the findings, and the settings of others may not be equivalent to real life clinical settings.

2005 Update of the Evidence Report

In 2004, AHRQ began an update of the 2001 evidence report on telemedicine services for the Medicare population and convened a workshop that provided additional input from leaders in the

field regarding pressing issues in telemedicine. The report is now undergoing peer review to ensure its accuracy. We expect a final report next month and we will provide copies to the Committee as soon as it is available.

The report focuses on what types of telemedicine services are more strongly supported by scientific evidence and for which settings. It identifies health care services that could be provided using telemedicine and describes existing programs in three categories of telemedicine:

- store-and-forward;
- home-based; and
- office- and hospital-based services.

The bottom line is that the evidence base for telemedicine is still incomplete but improving.

I should note that we recognize that policymakers and system administrators often do not have the luxury of waiting until an intervention is proven effective beyond a shadow of a doubt. For those who need to make decisions in the absence of perfect information, AHRQ will work with them to better understand and interpret existing evidence. At the same time, it is clear that a major impediment to public and private sector reimbursement has been the absence of more reliable evidence on the effectiveness of specific telemedicine approaches. We all need to work together to try to build that evidence base more quickly using innovative research methodologies. For example, given the growing use of electronic health records, selective data could be extracted on patients with telemedicine interventions to assess them longitudinally. Such studies will be most feasible in large integrated delivery networks with advanced electronic health record systems such as the Veterans Administration and private sector plans with similar capabilities.

Cutting Edge Research

I also wanted to mention two cutting edge research projects that may be of interest to the Subcommittee. Intuitively, it makes sense to support further research into telehealth opportunities for the "visual" specialties that require more than voice or text communication to be most effective. A project funded by the National Library of Medicine (NLM) of the National Institutes of Health that is taking place at the University of North Carolina, Chapel Hill, is

developing and testing 3D telepresence technologies that come close to supporting the illusion of being at a remote location. This experience will allow remote consultations to benefit from the added information gained from a three-dimensional environment. Consultations in such diverse areas as emergency medicine, dermatology and surgical consultations will utilize this important breakthrough.

The second exciting and innovative project, funded by AHRQ, utilizes a combination of telemedicine, cutting edge cancer therapy, and clinical decision support and is pioneered by Dr. Karen Fox at the University of Tennessee Health Science Center in Memphis. The Technology Exchange for Cancer Health Network, or TECH-Net, provides a systematic cancer care program for patients located in rural communities surrounding Memphis. Patients are seen at the University, where initial diagnostic and therapeutic interventions take place. The majority of care is then provided in a patient's home community by a team comprised of the patient's primary care physician supported by University oncology and hematology specialists. These critical specialists communicate via clinical decision support tools and a dedicated telehealth network.

Skilled Nursing Facilities

Finally, there is another report currently under development by the Department in response to Section 418 of the Medicare Modernization Act. The statute required an evaluation regarding the possibility of including skilled nursing facilities (SNFs) as a Medicare telehealth originating site for purposes of Medicare reimbursement. The statute required an evaluation and a report to Congress that includes recommendations on "mechanisms to ensure that permitting a skilled nursing facility to serve as an originating site for the use of telehealth services or any other service delivered via a telecommunications system does not serve as a substitute for in-person visits furnished by a physician, or for in-person visits furnished by a physician assistant, nurse practitioner or clinical nurse specialist, as is otherwise required by the Secretary." Because the findings regarding the use of this technology within nursing home facilities may be of interest to the Subcommittee, we will provide you with copies as soon as it is ready for release.

Indian Health Service – Veterans Health Administration Collaboration

As I noted earlier, the context in which the Indian Health Services operates is the closest to that of the VA system. I am delighted to report that there is an evolving collaboration between the IHS and the Veterans Health Administration (VHA) telemedicine programs that exemplifies the benefit of inter-agency information exchange and sharing. A Memorandum of Understanding between the IHS and the VHA has enabled telemedicine program coordinators from both Departments to identify key areas for cooperation and possible shared resource development. IHS and Tribal participation in the 2005 VHA Care Coordination and Telehealth Forum underscores the commitment of both agencies to facilitate regional and local partnerships that will optimize resources and improve care for American Indian and Alaska Native veterans. In partnership with conference organizers and interested VHA employees, eighteen IHS and Tribal attendees at the April 2005 Forum developed a strategic framework for ongoing telemedicine collaboration. This framework highlights standards-based approaches to telemedicine service delivery that will facilitate local IHS-VHA information sharing, secure operational capacity development, and collaborative clinical service outreach for American Indian and Alaska Native veterans.

The VHA has provided pioneering commitment for improved service delivery via home telehealth. This commitment demonstrates the emerging ability of clinicians and caregivers to reach patients and families at the point of care. Home telehealth, delivered in a care coordination model, offers new opportunity for enhanced access and health care system value. VHA leadership in home telehealth and care coordination establishes a benchmark by which IHS and other health care organizations may integrate the patient's home into the health care delivery network.

Private, confidential telemedicine service to American Indian veterans in rural communities is not only possible – it is already occurring. A unique partnership in South Dakota between the Rosebud Sioux Tribal Veterans Program, the Rosebud IHS Indian Hospital, the Hot Springs Veterans Affairs Medical Center, the Denver VA Medical Center, and the Center for Native American TeleHealth and TeleEducation at the University of Colorado Health Sciences Center

provides weekly tele-mental health treatment and counseling services for Northern Plains American Indian veterans struggling with post-traumatic stress disorder. This partnership evidences the capability of multi-system collaborations to provide culturally sensitive psychiatric care to rural, isolated communities. It has become a model for additional tele-mental health projects currently underway or under development in other American Indian communities in Montana.

Conclusion

Telemedicine has long been viewed as a promising tool for enhanced access to health care services, improved patient safety, and timely medical decision-making. Telemedicine may also enable more effective care management for patients with chronic medical conditions. The barriers to access that telemedicine can overcome -- geographic isolation, functional isolation, economic barriers, a scarcity of health professionals, or a combination of these factors – are clear.

Widespread adoption of individual telemedicine applications in the private sector will continue to grow slowly, however, unless creative ways are found to speed the development of solid, scientifically generalizable findings of their effectiveness. In addition a number of legal issues, including cross-state licensure and antitrust concerns, must be resolved. By moving down that path, the understandable reluctance of payers to reimburse telemedicine applications appropriately will begin to be overcome.

As the Indian Health Service example demonstrates, our two Departments have demonstrated an ability to work collaboratively in ways that benefits the populations we directly serve. The use of telemedicine applications in public programs will increase as we continue to work together to address the common barriers to broader telemedicine use, such as the wariness of clinicians and system managers to embrace telemedicine applications, build the evidence base for effectiveness, and identify best practices.

Mr. Chairman, this concludes my prepared statement. I would be delighted to answer any questions that you or the Members of the Subcommittee may have.

Statement of
Linda Godleski, MD
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VA Connecticut Health Care System
Department of Veterans Affairs
before the
Sub-Committee on Health
Committee on Veterans' Affairs
U.S. House of Representatives

May 18, 2005

Mr. Chairman and Members of the Subcommittee:

It is an honor for me to be here before this Subcommittee today and provide you with testimony on VA's use and development of telemedicine. I am a psychiatrist who has practiced in a number of healthcare settings, and currently, I also serve as the Associate Chief of Staff for Education (ACOS) at the VA Connecticut Health Care System in West Haven, Connecticut, and as the VA's National Lead for Telemental Health. I am involved in telemedicine in each of these three roles and will provide the Committee with perspectives from each role because I believe they all help highlight how VA is using and developing telemedicine. My testimony will focus particularly on what I see as the "people" issues involved in using and developing telemedicine.

Like the majority of my colleagues in psychiatry I was trained to care for patients through face-to-face interactions. It was only when I came to the VA that I first learned about telemental health as a very different way of practicing my profession. Furthermore, after reviewing the relevant healthcare literature, I appreciated how telemental health had a place in the delivery of care and could replicate a face-to-face interaction. Most importantly, I was reassured that patients were satisfied with receiving care in this way while providing them improved access and saving them the cost, inconvenience and time involved in travel.

My initial exposure to telemental health was in Veterans Integrated Service Network (VISN) 9 when I was the Mental Health Services Manager there.

The Huntington VA medical center (VAMC) had been using tele-mental health successfully to provide care to patients in distant Vet Centers and community-based outpatient clinics (CBOC's). I became involved directly in the establishment and running of tele-mental services to connect all VISN facilities for expert tele-mental health consultation and on-going treatment. I could see first hand how our veteran patients were very comfortable with it and how much easier it made it for them to receive care. Of course, there are, and always will be times, when a patient will need to be seen face-to-face in a clinic, but in numerous instances tele-mental health can provide general psychiatry and also specialty psychiatry services such as for substance abuse care and care for post-traumatic stress disorder (PTSD).

As VA's lead for tele-mental health, I am what is generally referred to as a "clinical champion". A clinical champion is a practitioner who helps introduce and develop new practices in healthcare and acts as an advocate for these new practices with their colleagues. It is a privilege to help VA and my colleagues lead the way with a new healthcare development like tele-mental health. I am one of many clinical leads for telemedicine in VA. There are also leads for tele-rehabilitation, tele-surgery, tele-endocrinology, tele-dermatology and for tele-retinal imaging. We all receive support from the national Care Coordination Program Office, and I think it is important to share with you what I feel is a commonality between us all that makes us effective in what we do. I believe it is the fact that VA's leads for telemedicine are committed to serve veteran patients, and that our colleagues know we are using telemedicine in ways that truly work for patients and ensure excellence of care.

The clinical leads for telemedicine have established a network of telemedicine clinicians and VISN leaders. In VA all of the clinical leads for telemedicine have developed "toolkits" for our respective areas of telemedicine. These toolkits help new programs get started and allow new programs to learn from the experience of other VA established programs, rather than having to re-invent the wheel. These toolkits are also very useful for staff training. The tele-mental toolkit formalizes the requirements to develop a tele-mental health service

and educate all staff involved. This is where my role as ACOS for Education has a bearing on the development of telemedicine.

One of the challenges in sustaining telemedicine is to make sure that there are practitioners with the requisite skills and competencies who are committed to the program. If the tele-mental health service depends upon an individual mental health practitioner who is enthusiastic about telemedicine then what happens if this practitioner leaves? There is the risk that the service will cease, and the service will no longer be available to our patients, unless there is another practitioner available to maintain it.

The situation I have just described at the micro-level of the individual clinic also needs to be considered at the macro-level of educating health practitioners of the future. In my own specialty, medical schools and residency programs are just beginning to train the next generation of psychiatrists in the use of tele-mental health. In VA, we are starting to explore what a tele-mental health component to a residency program might look like. I believe that the ability to recruit newly trained psychiatrists who are familiar with tele-mental health would be of great benefit to VA in sustaining tele-mental health programs. Incorporating tele-mental health into residency programs in the future may have a catalytic effect in terms of promoting the initiation of tele-mental health in the wider healthcare system. My reason for making this assertion is as follows. Over recent years, I have regularly seen medical students and residents who have come to train in VA and in doing so have gained experience with VA's electronic patient record. If students and residents then return to a medical center that does not have an electronic record, they appreciate the importance of the electronic record as compared to the paper chart in the delivery of care to the patient, and the students and residents become great advocates for computerized patient records. I predict that there would be this same effect with tele-mental health.

Currently, I practice in VISN 1, the VA New England Healthcare System. The VISN has recently established a tele-mental service between Togus and Caribou, Maine. The development of this service was presented at VA's Care

Coordination Telehealth Leadership Meeting in Salt Lake City in April 2005. The service was established because of the 249-mile distance that veteran patients previously had to travel between Caribou and Togus for mental health care. The normal seasonal snowfall is nine and a half feet. Even if it doesn't snow, it is a 10 hour round trip and there is also the cost of gasoline for the veteran patient. Our tele-mental health toolkit was used to systematically work through the clinical, technical, and business processes necessary to establish this tele-mental health clinic, and it is now up and running. The outcomes after initial evaluation have been one hundred percent patient satisfaction and a no show rate that is lower with telemedicine than it was at the face-to-face clinic.

The success of this clinic means that VISN 1 is preparing to extend the service to other CBOCs in Maine. Other considerations are:

- expanding this to services beyond psychiatry,
- using the link for conferencing and consultation,
- facillitating remote case conferencing,
- conducting family interviews/intervention, and
- providing in-service training.

Installing the necessary telecommunications connection between Togus and Caribou and setting up the equipment at either end made tele-mental health feasible. I hope that in my testimony I have been able to give you a sense of how recognizing and attending to the people processes at both a patient and practitioner level are vital to developing and sustaining telemedicine services. As someone who had no experience with tele-mental health until I began working at VA, I am privileged to help champion telemedicine I would like to conclude with a quote from one of VISN 1's satisfied veteran patients from Caribou who no longer has to drive to Togus for care. He said of the service, "Thank God there's telemedicine."

Mr. Chairman, this concludes my statement. I will now be happy any questions the Subcommittee might have.

Statement of
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&
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Subcommittee on Health
Committee on Veterans' Affairs
United States House of Representatives

May 18, 2005

Mr. Chairman and Members of the Committee, my name is Chris Frueh. It is an honor to be here speaking before you and I am grateful for the opportunity to present my views on the use and development of Telemedicine for providing mental health services within the VA. I am a clinical psychologist by training, and I have been a Staff Psychologist with the PTSD Clinical Team at the VA Medical Center in Charleston, South Carolina since 1992. I am also a tenured Associate Professor and Co-Director of the Division of Public Psychiatry within the Department of Psychiatry and Behavioral Sciences at the Medical University of South Carolina (MUSC).

The President's New Freedom Commission on Mental Health highlighted how people who live in rural areas experience significant disparities in health status and access to care and this includes many veterans. There is currently a significant shortage of qualified mental health service providers in rural and remote areas of the country, including my own state of South Carolina. Today, my testimony will focus on how research evidence that supports the incorporation of telemedicine into clinical practice is being used to guide the development of tele-mental health services, with the specific intent of improving access to care for veterans who are in need of treatment for mental health conditions in Veterans Integrated Service Network (VISN) 7.

VISN 7 constitutes VA's southeast Network and geographically encompasses the states of South Carolina, Georgia, and Alabama. These states have large rural populations. In VISN 7, we face the same challenges VISNs that serve veterans in

predominantly rural states encounter to deliver optimal care to veterans who live in rural areas, and redress the disparities in relation to mental health care that were identified by the President's New Freedom Commission on Mental Health. VISN 7's proactive approach to making services geographically accessible to veterans has included establishing twenty-four community-based outpatient clinics (CBOCs) across the three-state area it serves. The recruitment of qualified mental health professionals, particularly specialist to provide care for substance abuse and post-traumatic stress disorder (PTSD), in rural CBOCs, poses a challenge to VISN 7's strategy of offering locally-based services to meet the mental health care needs of the veterans patients we are privileged to serve.

The opportunities for mental health professionals to hone their clinical skills, receive continuing education, and undertake research upon which their ongoing professional development depends on their desire to continue to provide an excellent level of care that is not currently as readily available in rural locations as it is in more populous areas. A shortage of mental health practitioners in rural areas poses a threat to the long-term strategy of offering comprehensive local access to mental health care in CBOCs throughout our VISN using traditional face-to-face consultations. In 2000 I, and other clinical research colleagues, reviewed the scientific literature to evaluate the evidence in support of using telemedicine to provide mental health clinical services. I have kept abreast of the relevant literature thereafter. In my judgment, the careful application of communications technology has begun to re-shape the conceptual landscape of healthcare. In the mental health field, telemedicine is offering an affordable means of solving longstanding workforce shortage problems and can improve access to care for people in remote geographical areas.

I would like to speak to the dual hypothesis that telemedicine in VHA is relevant to the direct provision of mental health services in rural areas where mental health professionals are in short supply. The same technologies involved in telemedicine can provide distance education and professional development to practitioners who are physically based in these rural areas and thereby offer an incentive for them to remain there. The literature reviews upon which I base my assertions are derived from empirical databases that include Medline, PsycINFO, and Telemedicine Information

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Exchange. These reviews, as well as our own experiences in the VA Southeast Network, support the following conclusions:

First and most important, telemedicine services have been shown to lead to improved clinical status. In fact, there is growing evidence that the quality and effectiveness of telemedicine service delivery of mental health care is virtually equivalent to more traditional face-to-face clinical service delivery, and obviously is far superior to the alternative in many rural communities of no mental health care at all. Although more research is needed to help delineate the parameters of how to best provide telemedicine services for mental health, there is little doubt that telemedicine offers a safe, acceptable, and effective mode of delivering mental health services to geographical areas where it is currently lacking.

Second, mental health evaluations, including psychiatric interviews and neuropsychological assessments conducted via telemedicine appear to be accurate and reliable. In other words, most mental health assessments can be conducted with new and existing patients who are at remote locations via telemedicine links. This may even be true for some patients who are suffering the most severe mental disorders or cognitive impairment.

Third, it is clearly feasible to provide both psychotherapy and pharmacotherapy services via telemedicine. The full range of mental health disciplines has the capability of providing their services via this medium. This includes provision of individual and group interventions, including even highly structured, state-of-the-art cognitive-behavioral psychotherapies.

Finally, both patients and clinicians report high levels of satisfaction and acceptance with telemedicine interventions. A therapeutic relationship can be established, even when the patient and clinician never meet face-to-face. Simply put, patients are willing to accept mental health care delivered via telemedicine if it will reduce their travel times and costs, or otherwise provide improved access to care.

Based upon this evidence, VISN 7 is implementing a strategy whereby our VA Medical Centers (VAMCs) will provide support via telemedicine to supplement the mental health care that is currently available in our CBOCs—and in doing so to provide much-needed specialty services, such as treatment of PTSD and substance use disorders. Together with the VISN 7 Network Mental Health Director, and other

colleagues I am involved in developing and implementing a telemedicine training program for mental health clinicians within our Network. So far, we have conducted the initial rounds of this training with VA mental health clinicians in Charleston, as well as the Birmingham VA Medical Center and the Huntsville CBOC in Alabama. Clinicians at the Atlanta VA Medical Center will be the next to receive this training.

VISN 7 is planning how at both the local VAMC and Network levels we can build on our tele-mental health strategy to support the use of telemedicine in providing outreach and educational services to the Operation Iraqi Freedom and Operation Enduring Freedom (OIF/OEF) veterans who are now returning to South Carolina, Georgia, and Alabama. The evidence-based manner in which we are enhancing the mental healthcare services we provide in VISN 7 using telemedicine enables us to coordinate care provision between VAMCs, CBOCs, the Department of Defense, and other local community agencies and adopt a service delivery model aimed at providing all veterans in our Network with access to the clinical services they need.

I believe that our experience in VISN 7 indicates the unique and sophisticated way in which VHA is able to implement a new technology like telemedicine in an evidence-based manner. We are fortunate to have national resources in the form of experts and toolkits that we can draw upon to ensure that clinical, technical and business processes are standardized and mean that we are a part of an emerging national standards-based network that will be interoperable and can benefit from reaching a critical mass that is optimal for the efficient delivery of routine operational services. I and many of my counterparts in VISNs throughout the country, who have affiliations and associations with major academic institutions, can tailor care locally to make sure it is appropriate to the needs of our unique veteran population. We are also undertaking the research required to grow the evidence-base necessary to shape how this care continues to evolve in the future. To do so we are working with such agencies as the Department of Defense, National Institute of Mental Health, Agency for Healthcare Quality and Research, VHA Office of Research and Development and the National Center for PTSD. We are also developing ways in which continuing education and professional development opportunities can be created that can be delivered to our colleagues who wish to remain in practice in rural and remote areas yet concerned about maintaining their contact with centers of clinical excellence.

Mr. Chairman and Members of the Committee, it has been my privilege to discuss my views here before you today. Again, I thank you for this opportunity. I am proud to be involved in the area of healthcare development I have described to you and excited that it promises to address long-standing problems with the delivery of mental health services to veterans in rural America.

**Statement of
Sydney Wertenberger, RN, MSN, CNAA
Associate Director for Patient Care Services/Nursing
John J. Pershing VAMC
Poplar Bluff, Missouri
Department of Veterans Affairs
Before the
Subcommittee on Health
Committee on Veterans' Affairs
United States House of Representatives**

May 18, 2005

Mr. Chairman and Members of the Committee:

I am privileged to appear before you today to discuss rural tele-medicine and describe the positive impact it is having on our ability to provide care to the veterans we proudly serve. I represent a dedicated team of health care professionals who are committed to improving access to care for veterans who live in rural settings. We care for these veteran patients at the John J. Pershing VA Medical Center (VAMC) in Poplar Bluff, Missouri and its associated community based outpatient clinics (CBOCs) that are located in Paragould, Arkansas, Cape Girardeau, Missouri, Farmington, Missouri, West Plains, Missouri, and Salem, Missouri. However, I believe that our success in improving access to care for the veterans we serve is transferable to other rural areas. Our veteran population includes those who served in past wars and conflicts, as well as those who are now returning from Operation Enduring Freedom and Operation Iraqi Freedom.

The commitment and leadership of our Facility Director, Chief of Staff and the Network Director in Veterans Integrated Service Network (VISN) 15, together with direction and support from senior management in VA Central Office, have been key elements to inspiring our team to focus on re-configuring the services we provide to incorporate telemedicine and improve access to care for veteran patients.

The John J. Pershing VAMC is a small rural medical center located in the center of the nation's heartland that focuses on the delivery of primary care-based services. We are approximately 156 miles south of St. Louis, Missouri, and 156 miles North of Memphis, Tennessee. Our remote location means we face very different challenges in providing care to veteran patients than a VAMC in more populous areas. The general population in rural communities like ours tends to be older, poorer and have greater health needs. Typically, the low density of population, geographic distance, and lack of big city amenities means there are fewer health care resources and support services in rural areas. Proportionately more rural inhabitants pursue military service and for those that do not, or return to rural areas after being in the service, rural occupations have high rates of morbidity and mortality.

Those of us who choose to live in a rural environment usually do so because we feel that facing these challenges is well worth the reward we get from living where we do. The cost of living is usually lower and members of our community usually value self-reliance and independence, although this can make seeking healthcare services early and preventive care more challenging. For many of the veteran patients we treat, health and well-being means living where traffic is limited, and there is peace and quiet shared with folks you know. They view being "home" as worth more than money can ever buy, and that home is not a house, but a place and a way of life.

Those of us who are privileged to be charged with providing health care to veterans who live in this environment are sensitive to the unique culture and needs of veteran patients in the rural communities we serve to the need to provide care at the same high level of professional expertise elsewhere. Tele-medicine has been a tremendous benefit to us in delivering care in a rural community. Instead of the traditional requirement in healthcare for the patient to travel to the care, we can take the care directly to the patient. It means we can truly practice patient-centered care. Access to specialty care is a particular issue for us in a primary care-focused VAMC. Telemedicine has enabled us to improve access to care for veteran patients while decreasing travel for patients

and staff and in doing so reduce costs. I will try not to make telemedicine sound too much like a panacea, but it has helped us deal with the challenges of bad roads, limited numbers of providers, social isolation, coping with the weather and staff education. Telemedicine means local staff is usually available to be with the patients and speak the patient's language. This really assists with effective communication between patients, their families and providers of their health care. It has offered us new opportunities to support caregivers without which many of our veteran patients would need institutional care.

We currently support thirty-nine tele-medicine clinics in our CBOCs and draw on specialty care providers in our medical center from as far away as the Kansas City, VAMC in Missouri which is 500 miles away. We estimate that our telemedicine services have saved the need for over 56,000 miles of patient and staff travel. The range of telemedicine clinics we offer include: tele-dermatology, tele-cardiology, tele-retinal imaging, tele-major medical evaluation, tele-pain management, tele-radiology, tele-speech therapy, tele-physical therapy, tele-mental health services, tele-substance abuse treatment programs, multi-point patient education for diabetes, multi-point patient education for congestive heart failure, tele-smoking cessation, tele-pharmacy education, distant staff education and care coordination/home telehealth. Having these programs means patients can receive prompt effective care within their own home or local community. Access to specialist care clinics from CBOCs via telemedicine is resulting in a 30% lower no show rate in tele-mental health clinic compared to previously when it meant having to travel and see the provider in a face to face clinic. We have seen a doubling of patient attendance at telemedicine-mediated education clinics. Our outcome data indicates that there is a 22-24% reduction blood glucose levels for patients in the tele-education clinics and that 20% of these patients cease smoking. Access to care for our veteran patients is greatly enhanced with appointments in specialty clinics decreasing from six months to less than 30 days. We estimate that we are recouping the cost of the tele-medicine equipment within 14 months of purchase because of the resulting cost savings/cost avoidance.

Cost is something that we are all acutely aware of in health care but there are some things we are able to do that are priceless. To illustrate how telemedicine can bring intangible benefits that statistics cannot describe, I would like to share the story of a veteran patient we cared for several years ago. This elderly gentleman was frail and his clinical condition meant he could not travel to be with his wife who was critically ill in a hospital over 100 miles away. It was possible for us to use telemedicine for this veteran to be with his wife one last time.

Patient satisfaction with care provided utilizing this technology has been high. Staff satisfaction has been high. Clinical outcomes have been positive. We are excited and proud of how our telemedicine programs and the processes that support them are contributing to the health and well being of the rural veterans we are dedicated to serve. Our experience is that this technology represents a major tool we can routinely use in the provision of health care for veterans and in doing so address issues of access to care, quality, patient safety, cost effectiveness, and at the same time put compassion for our patients into action. I am grateful to the committee for the opportunity to describe how we are making this difference in caring for veteran patients.

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Statement of
Charles E. Levy, MD,
Chief of Physical Medicine and Rehabilitation
Director of the Low ADL Monitoring Program
North Florida/South Georgia Veterans Health System
Department of Veterans Affairs
before the
Sub-Committee on Health
Committee on Veterans' Affairs
U.S. House of Representatives

May 18, 2005

Mr. Chairman and members of the Subcommittee: I am privileged to appear before you today to discuss the role of telemedicine in providing rehabilitation care and services to veterans across a broad spectrum of ages and disorders.

I am a physician specializing in physical medicine and rehabilitation privileged to be serving veterans in the North Florida/South Georgia Veterans Health System. It is particularly pleasing to work in VA, because the modern roots of rehabilitation medicine grew in response to the need to improve the abilities, opportunities, and quality of life of injured soldiers during and following World War II. In rehabilitation, the team carefully assesses the patient's strengths, deficits, and ambitions to create a pathway for veterans to regain and maintain self-directed and independent lives. Telerehabilitation is the logical extension of the care rehabilitationists have always strived to deliver to their patients.

VA is committed to delivering the highest standard of care to veterans wherever they live. In order to do this, VA must develop models and methods that allow expert care to extend beyond the bounds of a few medical centers typically located in urban settings. How to accomplish this? The inescapable answer is to use and develop telecommunications technologies for rehabilitation purposes. Usually advances in medicine and science creep along in slow, incremental steps. We are at a rare and exhilarating moment, poised to leap forward by using telecommunication technology to reach veteran patients

regardless of time or distance. I am convinced that we are crossing the threshold to a dramatic shift in quality and dimensions of health care.

I recently had the honor of representing rehabilitation services at the Care Coordination and Home Telehealth Leadership Forum sponsored by the VA Employee Education System and Office of Care Coordination. There I saw first hand the rich variety of emerging telerehabilitation practices, as well as the great interest, passion, and energy of physicians, psychologists, therapists, and nurses eager to deliver the right care at the place and the right time.

There are four models at different stages of development being implemented across the nation. In the first instance, veterans are evaluated by clinicians at distant sites, to allow rehabilitation assessments in clinics close to where patients live. Usually, these are one-time assessments, as opposed to ongoing care. Veterans with multiple sclerosis, spinal cord injury, amputations, diabetes, cardiopulmonary, and orthopedic disorders and other disorders are interacting with their clinicians in real time using television screens in programs originating in Cleveland, Ohio; Nashville, Tennessee; Minneapolis, Minnesota; Denver, Colorado; Fresno, California; Ann Arbor, Michigan; Tampa, Florida and elsewhere for wheelchair, wound, neuropsychological, rehabilitation admission, and prosthetic and orthotics assessments. For example, a spinal cord injured patient in Dayton, Ohio with skin breakdown related to his wheelchair seating, will be served by the team in Cleveland. The Cleveland Team can instantly see the results of pressure mapping, and work with the Dayton therapists to come up with the optimal wheelchair cushion and seating solution.

A second model delivers ongoing care to veterans at distant clinics. Examples include speech therapy, occupational and physical therapy, and psychological and social services. For example, therapists in Denver assisted a veteran hundreds of miles away. Using videoconferencing units located in the local clinic and in the medical center, they were able to help a veteran with a traumatic brain injury who had difficulties with mobility, self-care, bladder management and decision-making. Therapists were able to see how the patient functioned, and to speak to the patient's wife about problems the veteran was

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having. From this, they were to determine practical ways they could help the wife care for her husband, by providing education and training to both to improve transfers, walking, and stair climbing.

While improving the quality and availability of care in local clinics is critical, if we had our choice, most of us would prefer to receive care in our own homes. The third model of telerehabilitation does just that. A VA study in Raleigh, North Carolina is using remote video links, to deliver physiotherapy in the home and comparing the outcomes to traditional physical therapy. The preliminary data look favorable. The low ADL monitoring program is targeting frail veterans in North Florida/South Georgia. These veterans, at high risk for failure receive necessary assistive devices such as grab bars, tub transfer seats, canes, reachers, long-handled shoe horns, dressing aids and adapted eating utensils. These devices are delivered and installed based on a home assessment by an occupational therapist and a technician. The patients are then monitored daily by either a text-messaging phone, computer, or a simple desktop device. This way, proactive and practical interventions can reach the veteran before a problem becomes a disaster. Data from the first 150 veterans show reduced hospitalizations and emergency room use and reduced nursing home bed days of care. A comparison of the six months prior to enrollment to the six months post enrollment shows a total savings of $1,200,000. It is not surprising that these veterans are showing high satisfaction with the program and are maintaining their independence and quality of life.

A fourth model of telerehabilitation links health care professionals at different locations together for education, to discuss or disseminate policy or to enable patient care. An example of this is the care delivered to a veteran with an anoxic brain injury in a small town in Montana. Instead of transporting the patient to Denver, the patient went to his local community-based outpatient clinic with his psychologist, where he was linked with a social worker in another small Montana town, and simultaneously linked with the traumatic brain injury team in Denver.

I have given you some examples of telerehabilitation today. However, I believe that greater excitement will be seen as telerehabilitation becomes

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integrated into the standard care for veterans. An active collaboration is occurring between Rehabilitation Services and the Office of Care Coordination and Home Telehealth that is transforming health care delivery. I envision a day soon in the future when returning war-injured veterans needing rehabilitation are connected to fully integrated care that follows them from DoD, to VA Centers of Excellence, to their local VA medical centers, to their community-based outpatient clinics, and into the home. In this vision, the various levels of care communicate freely, and veterans remain connected to the assistance they need at the time it is needed.

Telerehabilitation is one of the ways we can keep our promise to the veterans who have risked so much to preserve the American way of life. With it, we keep our commitments to those special populations with polytrauma, traumatic brain injuries, amputations, spinal cord injuries, and multiple sclerosis. We hold faith with veterans and their families by reaching them where they live with help to live to their fullest, with self determination and quality of life.

Mr. Chairman, this concludes my statement. I look forward to answering any questions that you or other members of the Committee might have.

Statement of
Patricia Ryan MS RN
VISN 8 Community Care Coordination Service
VHA Office of Care Coordination
Department of Veterans Affairs
Before the
Sub-Committee on Health
Committee on Veterans' Affairs
U.S. House of Representatives

May 18, 2005

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to speak with you today about the role telemedicine plays in the care of veterans in their home. My name is Patricia Ryan; I am the Director of the Community Care Coordination Service in the Sunshine Network, Veterans Integrated Service Network (VISN) 8. I also serve in the capacity of Acting Associate Chief Consultant in the national VA Office of Care Coordination.

The Care Coordination/ Home Telehealth Program began enrolling veterans in April 2000 in VISN 8, which includes north Florida, southern Georgia, Puerto Rico, and the Virgin Islands. The program was established to meet the needs of a frail older adult population who has multiple chronic diseases such as diabetes, hypertension, chronic obstructive pulmonary disease, stroke, mental illness, and heart disease; who live in their own homes and in their own communities, but who, because of both their age and complex health problems are at risk for institutionalization, but may well refuse to give up their independence. The complexity of their health problems have caused not only multiple hospital admissions, but also many clinic and urgent care visits and complex medication regimens. Their health problems have really reduced the ability of this population to self-manage their chronic diseases. With 49 percent of the veteran population over 65 and averaging three or more chronic health problems, the clinical imperative is evident to develop a program that would extend health care services to assist veterans in managing their chronic diseases

after they leave the hospital and clinic. Given the influx of veterans to our Network, there was an imperative to develop ways to deliver care to veterans efficiently and, with the use of telehealth technologies, to provide coordination of complex care remotely. Our primary purpose in VISN 8 was to develop a system that centered clinical care on the needs of veterans in their homes, redefining traditional care management and using home Telehealth technologies to coordinate VA care across the entire continuum of services. In the past, care or case management was defined by an episode of care, either in the clinic or hospital, with maybe a set number of phone calls to follow up with the veteran after discharge. The Care Coordination program combines the role of a care coordinator with home telehealth technologies that allow us to provide the veteran consistent follow up that transcends clinical programs and physical settings. Whether the veteran had a cardiology, primary care, or mental health appointment, the care coordinator is responsible for being a team member with the selected service, providing a clinical thread between specialists and general care, and providing consistent information on the veteran's response to treatment at home. We developed a process of care focusing on veterans' needs, not on the characteristics of a specific clinical service. Our goal was to improve access to care and provide the right care in the right place at the right time. Through the use of the electronic medical record, we are able to provide information on veteran response to care as we receive it, and not wait until the veteran appears at the clinic or hospital. This does not replace or substitute for the patient-provider relationship; rather, it extends the association into the home. Frequently, follow-up clinic visits are scheduled just in case there is the potential for decline in condition or to check on progress of treatment. The ongoing connection through home telehealth provides for just in time care that is based on both subjective and objective clinical information.

The VISN 8 care coordination program has served over 3,500 veterans in the last five years with a current census of over 2,700. We have 21 programs across the Network that serve many populations, from frail older adults with multiple chronic medical conditions, veterans with mental health problems, a

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large population of veterans with diabetes and heart failure, and a wound care program that serves the spinal cord population at the San Juan VA medical Center (VAMC). We have identified and deployed a process that includes technology in the home but is not built around a specific technology. There are four components to care coordination: care/case management, disease management, self-management of chronic disease, and technology that assists in delivering the components. All veterans are not alike, and home telehealth technologies have different levels of features. An algorithm was developed to match the level of technology to clinical need and the veteran's ability to operate the technology. All devices operate on plain old telephone system lines.

Our success has been outstanding, and we have excellent clinical and satisfaction outcomes to validate this. Customer satisfaction is measured annually and has been above 95 percent for the last three years in both the care coordination process as well as ease in use of the technology. For our veterans enrolled in the Heart Failure programs, the average blood pressure reduced from 131/73 to 119/69, and there was documented adherence to clinical treatment. There was a weight reduction of 5-10lbs. Medication adjustments are made based on a range of clinical information that is received daily from the telehealth device, not just on clinic visit information. All of the diabetics enrolled in the program across VISN 8 have shown significant improvement in diabetes control, blood pressure, and weight management. Our wound care program in Puerto Rico manages spinal cord veterans who have both pressure ulcers and diabetes. Over the life of a spinal cord patient, 25 percent of treatment is for pressure ulcers. By keeping veterans in their own homes and providing care remotely, we have reduced the time to heal pressure ulcers in this population, some of whom live on St. Thomas and would need special air transport to the San Juan VAMC. In addition to clinical improvements, we have an average 40 percent reduction in hospital admissions and a 49 percent reduction in beds days of care for those admissions.

Over 80 percent of our veterans are on an in-home messaging device that is twice the size of a caller ID box and is connected to the home telephone. The

care coordinator will select a defined dialogue to load on the machine. The dialogues are developed with the messaging unit company to deliver designated questions daily for 365 days. The questions are based on national practice guidelines and reviewed by VA staff. The questions ask about symptoms, knowledge (patient education), and behaviors (health habits and daily activities). This gives the veteran a daily reminder of what to monitor and also provides education in a format based on how they answer the questions. The messaging device will buzz until the veteran answers the questions. This gives the veteran the tools and information they need to manage their chronic conditions. The veterans also know that if there is a change in their condition or they have a question, the care coordinator can access the appropriate health care team within VA to assist them. As I previously mentioned, we also use a variety of technologies in the care coordination program in addition to the messaging devices, such as telemonitors, videophones, and cameras for our wound care program. I cannot stress enough that technology is used based on the veteran's clinical need.

One of the populations that we serve in VISN 8 is a palliative care population that grew out of a cancer program we started with the National Cancer Institute. We have a chaplain who is one of the care coordinators for this special population. One of our veterans was near the end of his life and able to remain at home. His son was a police officer in a distant town who was shot while on duty and could not travel to Florida after the incident to visit his bedridden father. Through our Care Coordination programs, we were able to issue videophones so these two men could be together remotely via video and voice in a time of crisis and at the end of the father's life.

Mr. Chairman, my father and all my uncles were WWII veterans, so I grew up with the proud knowledge of the importance of veterans to this country. I have worked in VA Care Coordination and Geriatrics since 1984. I cannot stress enough what a privilege and honor it is to serve all veterans. Thank you for your time and attention. I will now be happy to answer any questions you might have.

The American Telemedicine Association

Testimony before the House Committee on Veterans Affairs, Health Subcommittee

Jonathan D. Linkous, Executive Director

May 18, 2005

Mr. Chairman, members of the Committee, my name is Jonathan D. Linkous. I am the executive director of the American Telemedicine Association. I want to thank you for providing ATA the opportunity to submit testimony regarding the development and use of telemedicine technologies in the Department of Veterans Affairs health care system.

The American Telemedicine Association is the leading resource and advocate for telemedicine. ATA is a non-profit association established in 1993 and headquartered in Washington, DC. The Association works closely with medical societies, technology groups, industry leaders, elected officials and others to resolve barriers to the advancement of telemedicine through the professional, ethical and equitable improvement in health care delivery.

ATA is governed by an elected Board of Directors and guided through the active involvement of health professionals, medical institutions and corporate members. Our members include health professionals, institutions and vendors involved in the use of home telehealth. The Association holds scientific and training meetings and expositions focusing exclusively on telemedicine and sponsors a scientific journal. Several years ago the Department of Defense decided to eliminate their own separate meeting and combine their meeting with ATA's in order to increase efficiency as well as take advantage of the opportunity to learn and share with others active in telemedicine outside the military. Today, our annual meeting is held jointly with the U.S. military and serves as a gathering place for many in the field.

In this testimony, I would like explain our definition of telemedicine and telehealth as well as in-home services and provide you with our comments on the VA's approach.

Background on Telemedicine

Telemedicine uses telecommunications technology to transfer medical information for use in diagnosis, treatment and education. The interaction may involve two-way live audio and video visits between patients and medical professionals, sending patient monitoring data from the home to a clinic or transmitting patient images and medical

files from a primary care provider to a specialist. Telemedicine is already widely used in radiology, cardiac monitoring and other forms of remote patient monitoring and in targeted population groups such as correctional institution populations, the military and veterans' health care.

Once confined to expensive demonstrations extending medical care to patients in remote areas, telemedicine is quickly becoming an integral component in the delivery of modern health care regardless of geographic or socioeconomic status. Changes in Medicare, Medicaid and private insurance reimbursement policies are allowing telemedicine to become an integral part of the practice of medicine throughout the U.S. and can lead to expansion of services and reduction in costs.

In the U.S. and many other nations, most of the government-funded demonstration programs have supported the creation of hub and spoke telemedicine systems linking an academic medical center at the hub with primary care clinics at the spokes. These demonstration programs, paralleling the evolution of U.S. health care systems, have been beneficial in proving the efficacy and effectiveness of telemedicine.

Although still new, telemedicine is rapidly changing. Taking advantage of new developments in telecommunications, lowered technology costs and the establishment of the Internet, the growth of telemedicine over the next five to ten years may have a profound and revolutionary effect on the delivery of medical care throughout the world.

New applications are making it practical for direct communications between patient and provider and physician and specialist. In this way, telemedicine can bring medical services directly to the point of need. It can empower consumers to become a primary overseer of their own health and wellness by bringing healthcare to the patient rather than the patient to the provider. By providing direct links between the general practitioner and major medical centers it can also be used for ongoing education of the physician.

Telemedicine in the Home

With the aging of the population in most developing nations, home telehealth has probably one of the greatest potentials for rapid growth worldwide. Today, it is estimated that over 15,000 providers deliver care to over 7 million individuals requiring in-home services because of acute illness and long-term health conditions.

Throughout the past two decades, the home monitoring industry has been developing electronic and telecommunication equipment which enable vital sign and related information to be collected and medical care provided using telemedicine techniques rather than relying on in-person care to patients in their homes.

Increasingly, hospital disease management programs are using telehealth to monitor patients in the home. After decades of research, it is now well documented that home telehealth creates advantages in terms of both cost savings and improved care.

The growth and future demands for home telehealth also presents challenges for providers, device manufacturers, users and patients.

- With more technologies moving into home-care and more and sicker patients being treated outside the hospital, home telehealth applications must rapidly change to take advantage of new technologies and evolving patterns of chronic care and disease management.
- They also must be able to meet the diverse demands of home care agencies, hospitals, government programs and the growing number of independent remote monitoring and disease management organizations including the integration of data coming from home telehealth into the existing patient record.
- In addition, emerging growth in demand for home telehealth exists outside of the United States. Aging patterns across Europe closely resemble the U.S. trend and in Asia, the rapidly changing demographic characteristics and the tradition for caring for elders at home creates both a challenge and a unique opportunity for the implementation of telehomecare.

An array of devices is available for home telehealth. The specific device or application can be used to match the needs of the individual patient. Some of the available applications include:

- Trans-telephonic patient single-purpose monitors have been used to replace holter-monitoring systems used within hospitals. Such applications allow the patient to remain at home and deliver the monitoring data to the health professional through the telephone. The largest use of home monitors is in cardiac monitoring including remote monitoring of implantable pacemakers as well as event monitors and ECG recorders. Increasingly, cardiologists and other physicians have entered into relationships with remote cardiac monitoring services and have started offering such services to their patients. Often, such services are covered under insurance plans. Remote fetal and pulmonary monitoring also starting to be widely deployed.
- Health status monitors are used to collect data about the patient and send it to a monitoring center such as a visiting home care agency or a hospital. Some of these units simply collect patient-entered information about their health status.
- Multi-purpose home telehealth equipment can be used to collect and send vital signs using peripheral devices related to a specific disease such as diabetes, congestive heart failure or chronic obstructive pulmonary disease. Others can collect a variety of information about a patient and include a video monitor that allows the patient and the health provider to see and talk to each other.

Telemedicine in the Veterans Affairs Department

With over 5,000 patients enrolled in the VHA home telehealth program, the Department is administering one of the largest initiatives in this arena. The leadership of the Department is to be congratulated for their efforts to improve the lives of the nation's

veterans by using this technology. This effort should both improve care for veterans and reduce costs for the Department. Recognizing that patients with varying levels of need require different types of technology will enable the Department to tailor care to specific individuals.

The Department has been working hard to set forth guidelines on the appropriate use and administration of these technologies. These include adopting technical standards, developing protocols'and initiating specialized training for VHA employees involved in the use of telehealth in the home.

ATA's membership includes many of the staff from the Department and we have had two staff members from the Department who have served as members of our Board of Directors. For many years ATA and staff from the VA have worked cooperatively on a number of initiatives. Last year ATA worked jointly with the National Institutes of Standards and Technology and with staff from the Department of Defense and the VA to create a set of practice recommendations for the assessment of diabetic retinopathy using telemedicine. A staff member from the VA chairs ATA's Home Telehealth Special Interest Group and many of the VA staff involved in home telehealth have been working with ATA to develop additional training material for those new to the field.

The experience and lessons learned with the VA's use of telemedicine in the home could be a valuable resource for others in the medical community as a whole. At the same time, others outside of the VA also have much experience in this same field. For example, at our recent annual meeting we had over 50 presentations regarding home telehealth and remote disease management, which can have applications within the VA healthcare system.

ATA applauds the Department of Veterans Affairs for its efforts to deploy telemedicine into the home. We appreciate the progress they are making in this critical field and stand ready to help with the cross fertilization of ideas between the Department and others involved in this rapidly growing field of health care.

DMAA
Disease Management Association of America

M**C**KESSON

Empowering Healthcare

House Committee on Veterans' Affairs

Health Subcommittee

"The Use & Development of Telemedicine Technologies in the Care of Veterans in

Department of Veterans Affairs"

Statement of Sandeep Wadhwa, MD, MBA

Chairman, Government Affairs Committee, Disease Management Association of

America

Vice President, Care Management Services, McKesson Health Solutions, McKesson

Corporation

Wednesday, May 18, 2005

Washington, DC

Statement of Sandeep Wadhwa, MD, MBA

Chairman, Government Affairs Committee,

Disease Management Association of America

Vice President, McKesson Health Solutions

I am pleased to submit this statement on behalf of the Disease Management Association of American (DMAA) and McKesson to the House Veterans' Affairs Health Subcommittee. My name is Dr. Sandeep Wadhwa, and I am the Chairman of the Government Affairs Committee of the DMAA. I also oversee disease management programs for McKesson Corporation, the 15th largest company in the US and the nation's largest healthcare services company. McKesson is one of largest providers of disease management (DM) services to government health payers including Medicaid, Medicare, FEHBP, TriCare and the VA. Our company was awarded a pilot heart failure disease management program in VISN 17. I am also a practicing internist and geriatrician, and am intimately familiar with the long term and chronic care needs of veterans from my five years of practice at the Philadelphia VA Medical Center.

The Disease Management Association of America is a non-profit, voluntary membership organization, representing all aspects of the disease management community.

DMAA has established an industry-standard definition for qualified DM programs and entities. This definition, established in consultation with primary care and specialty physicians and representing private practice, health plan, and institutional perspectives, is as follows:

- Disease management is a system of coordinated healthcare interventions and communications for populations with conditions where patient self-care efforts are a significant factor in supporting the physician/patient relationship and their plan of care;

- Disease management emphasizes prevention of exacerbations and complications by utilizing evidence-based practice guidelines and patient empowerment strategies; and

- Disease management evaluates clinical, humanistic and economic outcomes on an ongoing basis with the goal of improving overall health.

- Disease management services provided to an individual must include:

    - Population identification processes;
    - Evidence-based practice guidelines
    - Collaborative practice models to include physician and support-service providers;
    - Patient self-management education (e.g. primary prevention, behavior modification programs, and compliance/surveillance);
    - Process and outcomes measurement, evaluation and management, and routine reporting; and

- A feedback loop (e.g. communication with patient, physician, health plan, and ancillary providers and practice profiling)

Disease management programs have become widely utilized by almost all commercial payers and nearly fifty percent of state Medicaid programs. Through the use of DM programs, public and private payers are seeing improvements in health status and quality of care, as well as, reductions in costs for their vulnerable populations with chronic diseases. Indeed, Medicare is about to launch a landmark set of chronic care improvement projects (e.g. MMA Sec. 721) in the fee-for-service (FFS) population this summer to provide heart failure and diabetes programs for our nation's elderly.

Support for VA disease management and telehealth initiatives

DMAA strongly encourages and supports the Veterans Administration's (VA) adoption of telehealth initiatives. The VA has done extensive evaluations of telemonitoring devices which have demonstrated their efficacy in improving patient health status and reducing avoidable utilization of VA acute care resources. [1] The VA's use of tele-nursing is in an earlier stage. Telenursing leverages the telephone as a no-additional cost and nearly universal device to establish a therapeutic relationship between nurses and patients for education, counseling, and monitoring. Our members have demonstrated the value of using the telephone across a variety of settings to improve the health of vulnerable populations cost-effectively. To that end, we strongly

[1] VISN 8 Community Care Coordination Service – Service Overview.
http://www1.va.gov/visn8/v8/clinical/cccs/service/overview.asp

encourage the VA to leverage the ubiquity and utility of the telephone in its telehealth initiatives. Indeed, the VA is beginning to measure the value of telenursing programs with its population. A pilot cohort study in VISN 17 will begin in the fall of 2005 to compare heart failure patients in the South Texas Veterans Health Care System who receive a DM intervention to those in the Central System who are not receiving the intervention.

Rural health

A recent study showed that the health of veterans who live in rural areas is worse than those who live elsewhere, even after adjusting for socioeconomic factors.[2] Telehealth improves access to care for rural veterans with chronic conditions. It is also a valuable service for impoverished veterans who live in urban areas and are unable to travel easily to clinics. Telehealth overcomes many of these geographic barriers to care by employing telenursing, telemonitoring, and clinical decision support tools to educate and monitor veterans where they reside. As a result of increased experience in providing these services, increased scale and technological advances, the cost of providing telehealth services has lessened considerably. Expensive home visits by nurses can be reserved for those who are unstable.

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[2] Weeks WB, Kazis LE et al. Differences in health-related quality of life in rural and urban veterans. **American Journal of Public Health**. 94(10), October, 2004: 1762-1767.

<u>Long term care</u>

Telehealth initiatives, including disease management programs, have also been shown to decrease over-utilization, particularly nursing home admissions and stays.[3] As an "aging in place" solution, telenursing, both separately and as a vital part of disease management programs have shown tremendous value in Medicare managed care settings. Caregivers of seniors, in particular, benefit not only from better understanding symptoms and the treatment plan, but also from the emotional and social support and reinforcement that telenurses provide. We recommend further research and pilots in the VHA setting.

<u>Mental Health</u>

In 2003, seventeen percent of veterans sought specialized mental health services from a VA facility. Estimates of substance abuse range from 22 to 29 percent of veterans. Rates of depression, anxiety, and psychotic disorders are much higher than the general population.[4] Telehealth services can play a critical role in two domains pertaining to mental health. For patients with common chronic diseases such as heart failure or diabetes, mental health disorders, particularly depression, occur at alarming rates – ranging from 24 to 42 percent in a recent review article.[5] In our experience, telenurses

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[3] Berg GB, Wadhwa, S and A Johnson. <u>A matched-cohort study of health services utilization and financial outcomes for a heart failure disease-management program in elderly patients</u>. **Journal of the American Geriatrics Society**. 52(10) October, 2004: 1655-1661.
[4] US Medicine Institute for Health Studies. <u>The Changing Face of Mental Health Services in the Veterans Health Administration</u>. October, 2004. <u>http://www.usminstitute.org/MHExecSummaryOct04.pdf</u>
[5] Guck TP, Elasasser GN et al. <u>Depression and congestive heart failure</u>. **Congestive Heart Failure**. 9(3). May-June, 2003:163-169.

provide relief from social isolation and anxiety, thus decreasing the need for mental health services. Telehealth solutions can also promote medication adherence; preliminary results of medication reminder systems with telemonitoring capabilities have demonstrated success in improving adherence to therapy in patients with. schizophrenia.

Summary

In conclusion, disease management, care coordination and telehealth solutions already play an important role in the treatment of veterans, and, with appropriate fostering, they can play an even greater role. We strongly encourage the VA to promote and evaluate telenursing as well as telemonitoring interventions. DMAA commends the leadership shown by this Subcommittee and the Administration to promote the value of all of these initiatives and welcomes the opportunity to share our members' experiences.

Again, Mr. Chairman and Ranking Member of the Subcommittee, thank you for the opportunity to present testimony today. We look forward to working with you and your staff to realize our shared vision of better care for our nation's veterans. At this time, I would be happy to answer any questions from you or the other Members of the Subcommittee.

Questions for the Record
Honorable Michael Michaud
Committee on Veterans' Affairs
May 18, 2005

Hearing on the Use and Development of Telemedicine Technologies
in the Department of Veterans Affairs Health Care System

Dr. Darkins

Question 1: Has VA's increased use of telehealth outpaced the capacity of the VANTS lines? Is there a need to increase capacity to allow providers greater access to these lines?

Response: Tele-health activity in VHA is not dependent upon the Veterans Affairs nationwide teleconferencing system (VANTs) lines and therefore is not outpacing this capacity. There is no need to increase VANTS line capacity to provide tele-health at this juncture.

Question 2: Does the use of telehealth diminish the need for people? Telehealth is obviously being looked at as a means of expanding access to scarce medical expertise, particularly specialty care to areas that would be unlikely to be able to attract specialists such as psychiatrists, ophthalmologists, dermatologists, and radiologists. Unfortunately these specialists' expertise is already in short supply at some of the medical centers. Should telehealth initiatives be looked at as a means of reducing the need for some high-cost specialists?

Response: The veteran population's need for specialist consultations is growing as veterans age and are affected by an increasing burden of chronic disease. Department of Veterans Affairs (VA) medical centers (VAMCs) are choosing to implement tele-health programs to improve access to care for veteran patients and make specialty care available to veteran patients in community-based outpatient clinics (CBOCs). The effect of any individual tele-health program on specialty consultation depends upon the particular circumstances of that program, the veteran patient need it serves and how it uses the technology to optimize the delivery of care to veteran patients. In general, tele-health reduces the need for travel by both veteran patients and high-cost specialists. Data is accumulating that tele-health reduces the "no show" rates in psychiatric specialty clinics. Therefore, tele-health does not reduce the need for high-cost specialists; rather it increases the efficiency of care and maximizes the availability of these scarce resources.

Question 3: How does VA's electronic medical record assist its use of telehealth technologies?

Response: Tele-health enables decisions about the care of patients with both acute and chronic conditions to be made expeditiously and conveniently. Video-conferencing, remote imaging and remote monitoring technologies make it possible to assess, diagnose and make treatment recommendations in circumstances in which patient and practitioner are separated by distance and/or time. The ability for Veterans Health Administration (VHA) practitioners, in separate facilities, to have contemporaneous access to the patient's chart, past history, laboratory tests, investigations, radiology and other clinical images is vital to making the correct assessment, diagnosis or treatment recommendation. VA's electronic medical record is therefore a vital adjunct to the implementation of tele-health in VA.

Question 4: There used to be an expression that all health care delivery must be local. VA seems to be saying just the opposite at this hearing. Why is standardization so important to telehealth initiatives?

Response: In its implementation of tele-health VA believes that all health care is local. Tele-health is enabling veteran patients to receive care in their own communities and remain living in these communities, when appropriate, instead of having to go into long-term institutional care. VA's vision in using tele-health in this way is that care can be tailored to veterans and their local needs. VA's standardization of tele-health is to ensure that the clinical care it supports is evidence-based, the technology operates efficiently and tele-health systems are interoperable.

Question 5: What are the initial operational costs involved in beginning a tele-home health program? How do the per-patient costs compare to seeing that patient in traditional clinics?

Response: VA is implementing home tele-health programs as routine sustainable services to meet the health care needs of veterans with chronic conditions such as diabetes and heart failure and not as grant-funded pilot programs. This distinction is important because each approach has different cost implications. The initial operational costs incurred by VA in establishing routine sustainable home tele-health services include: home tele-health technology, clinical staff, staff training, information technology architecture, patient/caregiver education and program support. VA is using home tele-health to care for patients who previously had multiple hospital admissions and clinic visits. These patients typically cost VA in excess of $25,000 per year. VA data have shown that in appropriately selected patients home tele-health reduces the costs of care by 30 percent per annum.

Question 6: What steps is VA taking to ensure that telehealth systems it creates are compatible or inter-operable with those created for the Department of Defense and the private sector? Many veterans in Maine have to travel a great distance to get care, is it possible to establish a pilot program where rural Maine veterans could go to local providers that have telemedicine capabilities and have them connected with the VA physicians they need?

Response: VA has worked closely with the Department of Defense (DoD), other federal partners and the private sector in developing tele-health for many years. Congressionally supported programs such as the Alaska Federal Health Care Access Network (AFHCAN), the Tele-health Hui between VA and DoD in Hawaii and the Islands, and the work between VA and the DoD on tele-retinal imaging to detect diabetic retinopathy are notable programs that have fostered such compatibility and interoperability.

VA has experience working with local providers in rural areas to connect veteran patients with VA physicians using tele-health to reduce the cost and inconvenience of travel to veteran patients. These programs have been most successful and sustainable in situations that involve VA working with contract CBOCs. This is attributed to the fact that the heterogeneity of programs in the private sector and lack of standardized processes for data collection and payment constrain the private sector in working with VA in exactly the same way as the private sector is itself constrained. Providing tele-health through contract CBOCs obviates many of these issues.

Dr. Godleski

Question 7: I am certainly interested in the continued expansion of the telepsychiatry program you developed between Togus and Caribou. At which other Maine clinics are you considering expanding?

Response: Health care services to veterans in Maine are provided by Veterans Integrated Service Network (VISN) 1. The Mental Health Services Plan for VISN 1 involves working systematically over the next three years to establish tele-mental health capabilities to all CBOCs in this VISN (there are currently over 35 of them).

Specifically in Maine, it is anticipated that the Togus VAMROC will connect to the Bangor CBOC, Calais CBOC, Rumford CBOC, Saco CBOC, and Portland Mental Health Clinic. .

Currently, VISN 1 is refining its care delivery model for tele-mental health to CBOC's in the following four health sites prior to wider implementation:
1. Togus VAMROC to Caribou Community Based Outpatient Clinic (CBOC)
2. White River Junction VAMROC to Bennington CBOC
3. Providence VAMC to Hyannis VAMC
4. VA Connecticut Health Care System to Winsted CBOC

Dr. Frueh

Question 8: Can you detail some of the initiatives under way in your network to support returning troops?

Response: I am not in a position to speak of all of the VISN-wide initiatives underway that support returning troops, but I can speak to what our VISN is doing in the area of mental health telemedicine. Recently, the VA Southeast Network (VISN 7) has begun a VISN-wide training program in telemedicine applications for the provision of mental health services. Dr. Maurice Sprenger, the VISN 7 Mental Health Director, Dr. Rachael Rossman, a psychiatrist at the VA Medical Center in Columbia, South Carolina, and I have helped developed and implemented a telemedicine training program for mental health clinicians within the Southeast Network. So far, we have conducted the initial rounds of this training with VA mental health clinicians in Charleston, as well as the Birmingham VA Medical Center and the Huntsville CBOC in Alabama. Clinicians at the Atlanta VA Medical Center will be the next to receive this training.

In strategic planning activities at both the local and network levels, we have begun to plan and implement strategies to use telemedicine to provide outreach and educational services to Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF) veterans returning to South Carolina, Georgia, and Alabama. We are anticipating high levels of mental health needs in our warriors who have recently returned from overseas deployments. These needs will require careful coordination between VA medical centers, CBOCs, DoD, and other local community agencies. Although we are not currently offering any formal telemedicine programs to support returning troops through the Charleston VA Medical Center, we anticipate in the next 6-8 months we will be providing a range of direct services, including:

1. Training regarding post traumatic stress disorder (PTSD) and post-deployment adjustment difficulties to primary care and mental health clinicians.
2. Clinical supervision and consultation regarding PTSD and post-deployment adjustment difficulties, bringing specialty expertise to remote clinicians.
3. Direct care mental health services and outreach efforts to veterans at CBOCs, vet centers, and possibly even military bases, including:
   a. Educational seminars regarding PTSD and post-deployment adjustment difficulties;
   b. Specialty individual and group therapy for PTSD, substance abuse; and
   c. Medication management for veterans in clinics that do not have psychiatric coverage.
4. In-home mental health care services to veterans that will improve access to care for rural veterans.

Question 9: What are some concrete ways in which telehealth can be used to assist clinicians sited in remote locations?

Response: Hospital-based experts can use telemedicine to assist both primary care and mental health clinicians at remote sites in the following ways, by providing:

1. General and specific training directly to these clinicians, clinical supervision, and consultation; bringing specialty expertise to remote clinicians, who tend to be generalists.

2. Direct care mental health services to veterans at CBOCs, including:
   a. Specialty individual and group therapy for PTSD, substance abuse, and
   b. Medication management for veterans in clinics that do not have psychiatric coverage.

3. In-home mental health care services to veterans that may reduce the heavy clinical burden carried by many rural clinicians, and improve access to care for rural veterans.

Dr. Levy

Question 10: Tele-Rehabilitation seems like a great option when there is a stable and competent care giver in the home. Are there some instances in which it might not be such a great option?

Response: This is an important question and very pertinent to tele-rehabilitation in the home. A caregiver in the home, when one exists, is a key partner in providing care into the home via tele-rehabilitation. Although very beneficial, it is not mandatory to have a caregiver in the home to provide tele-rehabilitation. In some instances, we are linking caregivers in the home with therapists to directly assist in the delivery of care. This only takes place if both the patient and caregiver are agreeable and the caregiver is able and competent to do so. In some instances lack of a caregiver to assist in the use of the technology makes tele-rehabilitation impractical. Other reasons why tele-rehabilitation is not appropriate include: patient disinterest, the patient's inability to participate due to cognitive or psychiatric reasons, inability of patients to use the technology, and significant visual impairment or other sensory/motor impairment of sufficient severity to preclude actual use of the technology.

Ms. Ryan

Question 11: Explain the different levels of technology you employ in your programs and which you attempt to match to the veteran's ability to operate the technology.

Response: We use five levels of technology for our care coordination/home tele-health programs:

a. The <u>tele-monitor</u> device has video, audio, stethoscope and the ability to measure blood pressure, pulse and glucometer readings (vital sign measurements). This technology is the original device used in the home, but is now used only when a veteran is in need of continuous video and vital sign monitoring due to complexity of health problems. These devices are frequently used in group homes such as assisted living facilities and State VA domiciliaries and can serve more than one veteran since the encounter always has a video component. This device is used in individual homes for those veterans who have severe chronic illnesses requiring video connection and frequent measure of vital signs as was demonstrated at the congressional hearing. If a veteran has a visual impairment, this technology maybe used as well to accommodate such a disability.

b. <u>Videophone</u> provides audio-video communication without the ability to measure any type of vital signs. This device is used for such populations as mental health, palliative care and for medication management. If there is a reading or visual impairment, the videophone is frequently used as an alternate to messaging. The videophone can be used as a regular phone and the veteran has the option to turn off the video component at any time. Because the video can identify the individual, this device may be used in congregate living sites as well.

c. <u>Computer</u> is used in a limited format for a mental health/PTSD population for the veterans that have completed mental health intensive case management (MHICM). This is a small program that is being reviewed for national rollout.

d. <u>In-Home messaging</u> devices are the majority of the technology deployed. This device uses dialogues which are questions based on a specific chronic disease management that downloads questions to the unit in the veteran's home on a daily basis. The questions are based on national and VA practice standards using branching logic that will ask a question based on the veteran's previous response. The veteran answers the questions that are then sent to a computer server behind the VA firewall. The care coordinator then signs into the website where the answers and trends are triaged and can be reviewed. The care coordinator can then monitor many more patients and

know quickly who needs immediate contact and telephone follow-up. The veteran and/or their caregiver must be able to read to answer the questions. Vital sign measurement can also be collected and sent to the website. No video is available. Veterans are able to self manage themselves with the daily reminders/ disease management tools that the messaging device provides.

'e. Camera with grid film is the technology used for our wound care patients. The cameras have a focus mechanism and the veteran can take pictures of their wounds and mail them back to the care coordinator who can judge the depth and size of the wound as well as the healing progress with the use of the grid film. It reduces the trips made to a medical center for a population who may have their condition decline with a car ride to the medical center.

Question 12: What are the technological barriers for implementation in a rural state like Maine?

Response: All of the technologies used in the care coordination/home tele-health program use POTS (plain old telephone system) lines. They are basic "plug and play" units that do not interfere with normal telephone lines. In rural areas, the age of the telephone system is sometimes a factor, as well as whether an analog or digital phone line is available at the home. All devices use analog lines to accommodate the current home systems.

Question 13: The 109th Congress is slated to take up the Telecom bill, are there any provisions that can be included to help the VA Telehealth program expand in rural states like Maine?

Response: VHA has a dedicated IT infrastructure and Network. I am not aware of any specifics outlined in the Telecom Bill that would influence current practice.

Dr. Godleski, Dr. Frueh, Ms. Wertenberger, Dr. Levy, & Ms. Ryan The following reflects a consolidated response:

Question 14: What do those promoting Telehealth need to do to document its success and ensure that programs continue?

Response: We believe that the success of a health care program such as tele-health is judged from the positive health outcomes, high levels of patient satisfaction, provider acceptance and its relative costs compared to other ways in which care can be delivered. Therefore the program functions/goals, processes and outcomes (both clinical and administrative) need to be developed, and articulated clearly for tele-health programs to enable these data to be derived. In some instances pragmatic necessities related to providing services favor implementing tele-health for self-evident reasons. Ultimately it is favorable data from hypothesis-driven outcomes analyses and research studies in terms of the

effectiveness and cost outcomes of tele-health that are published in peer-reviewed scientific journals that promote the success of tele-health. Tele-health programs that demonstrate empirically that they meet quality assurance performance measures, fulfill the needs of patients, provide high levels of patient satisfaction and show clinical improvements are those that will continue.

Question 15: You are drawing some exciting conclusions about quality outcomes and cost savings that maybe attributable to the telehealth initiatives you are operating. It seems worthwhile to document these accomplishments.

A. Do you have any plans to publish your findings?

Response: Manuscript preparation is underway to document the benefits of the Low ADL Monitoring Program (LAMP) in Gainesville, FL. Other studies are gearing up for data collection and publication.

Poplar Bluff VAMC is planning to publish their most significant, verifiable findings having published internally within VA and having had three telehealth projects in the Nursing Innovations International Data base launched in May of 2005.

Results from Dr. Frueh's work were summarized before the Subcommittee on May 18, 2005 his recent publications in the area of telehealth include:

1. **Cluver, J. S., Schuyler, D., Frueh, B. C., Brescia, F., & Arana, G. W.** (2005). Remote psychotherapy for terminally ill cancer patients. Journal of Telemedicine and Telecare, 11, 157-159.
2. **Deitsch, S. E., Frueh, B. C., & Santos, A. B. (2000).** Telepsychiatry for post-traumatic stress disorder. Journal of Telemedicine and Telecare, 6, 184-186.
3. **Frueh, B. C., Deitsch, S. E., Santos, A. B., Gold P. B., Johnson, M. R., Meisler, N., Magruder, K. M., & Ballenger, J.C.** (2000). Procedural and methodological issues in telepsychiatry research and program development. Psychiatric Services, 51, 1522-1527.
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6. **Monnier, J., Knapp, R. G., & Frueh, B. C.** (2003). Recent advances in telepsychiatry: An updated review. Psychiatric Services, 54, 1604-1609.
7. **Morland, L. A., Frueh, C., Pierce, K., Miyahira, S.** (2003). PTSD and telemental health: Updates and future directions. National Center for PTSD Clinical Quarterly, 12, 1, 3-5.

Publications associated with Care Coordination/Home Telehealth include:

1. **Pellegrino, L & Kobb, R.** "Home Telehealth and Personality: Connecting the Dots." Home Health Care Nurse Journal. In Press. Spring 2005.
2. **Chumbler, N., Neugaard, B., Kobb, R., Ryan, P., Qin, H. & Joo, H.** 2005. "Assessment of Health Services Utilization and Health-Related Quality of Life in Veterans with Diabetes Enrolled in a Community Care Coordination Service Program." Journal of Evaluation and the Health Professions. In Press.
3. **Chumbler, N., Richardson, L., Harris, L., Ryan, P., Kobb, R., Darkins, A., Mkanta, W. & McCarthy, C.** 2005. "Cancer Care Dialogues: Empirical support for complex adaptive systems research and practice. *The Search for an Interdisciplinary Understanding of Online Cancer Services.* Edited by Pam Whitten and Gary Kreps. Cresskill, NJ: Hampton Press.
4. **Kobb, R et al.** "Home Telehealth Special Interest Group Survey." Telehealth Practice Report. Vol. 10(1), March/April 2005.
5. **Kobb, R. et al.** "A Patient Classification System for Home Telehealth." Telehealth Practice Report. Vol. 10(1), March/April 2005.
6. **Pellegrino, L & Kobb, R.** "Skill Sets for the Home Telehealth Practitioner: A Recipe for Success." Journal of Telemedicine and e-Health. Vol. 11(2), April 2005.
7. **Schofield, R. S. et al.** Early Outcomes of a Care Coordination-Enhanced Telehome Care Program for Elderly Veterans with Chronic Heart Failure. Journal of Telemedicine and e-Health. Vol. 11(1), February 2005. 20-27.
8. **Chumbler, N., Neugaard, B., Kobb, R., Ryan, P., Qin, H. & Yongsung, J.** "An Observational Study of Veterans with Diabetes Receiving Weekly or Daily Home Telehealth Monitoring." Journal of Telemedicine and Telecare. Vol. 11 2005, 150-156.
9. **Huddleston, M. & Kobb, R.** (2004) Emerging Technology for At Risk Chronically Ill Veterans. Journal of Healthcare Quality. Fall/Winter 2004 Vol. 26(6).
10. **Kobb, R. & Pellegrino, L.** "Selecting Home Telehealth Staff: 10 Ingredients for Predicting Success." Home Health Care Nurse Journal. Vol.(22), 10, October 2004 pp. 732.
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12. **Subramanian, F. et al.** 2004 Research in Home-Care Telemedicine: Challenges in Patient Recruitment. Journal of Telemedicine and e-Health. Summer Vol. 10(2):155-161.
13. **Noel, H. C. et al.** 2004 Home Telehealth Reduces Costs. Journal of Telemedicine and e-Health. Summer Vol. 10(2):170-183.

14. **Harris, L., Kobb, R., Ryan, P., Darkins, A. & Kreps, G.** Research as Dialogue: Health Communication and Behavior Change in Patients' Natural Habitat. Chapter Three, <u>Understanding Health Communication Technologies.</u> John Wiley & Sons Inc. San Francisco, CA. 2004.

15. **Kobb, R.** "Home Telehealth Special Interest Group Leads the Way." <u>Home Health Care Technology Report.</u> Guest Editorial. Vol. 1 (5), July/August 2004.

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19. **Irvine, B., Kobb, R., Lehmann, C., Schramm, C. & Walker, J.** <u>Public Policy & Aging Report. Computer-based Technology and Caregiving for Older Adults.</u> Winter 2004. Vol. 14(1).

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21. **Cherry, J., Dryden, K., Kobb, R., Hilsen, P. & Nedd, N.** (2003) Opening a Window of Opportunity through Technology and Coordination: A Multi-site Case Study. <u>Journal of Telemedicine and e-Health.</u> Vol. 9. Fall 2003.

22. **Kobb, R., Hilsen, P. & Ryan, P.** (2003) Technology and the elderly: Finding the perfect match for home. <u>Home Healthcare Nurse Journal.</u> Vol. 9 (1) 2003.

23. **Meyer, M, Ryan, P., Kobb, R. & Roswell, R.** "Identifying Veterans' Needs for Home Telehealth." <u>Federal Practitioner.</u> Vol. 20 (8): 24-41. 2003.

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25. **Ryan, P., Kobb, R. & Hilsen, P.** "Making the Right Connection: Matching Patients to Technology." <u>Journal of Telemedicine and e-Health. Vol. 9(1) spring 2003.</u>

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27. **Kobb, R., Hoffman, & Lodge, R.** "Technology Offers Heart-Smart Care for Veterans with Heart Failure." Remington Report. January/February 2003.
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B. Is VA using QUERI to assess the success of your programs?

Response: We are aware that VA is working closely with VA's Quality Enhancement Research Initiative and VA's Health Service Research and Development Service to assess the success of VA tele-health programs. Notable such activities to assess tele-health programs in VA include:

Currently Funded Projects

- Telemedicine Treatment for Veterans with Gulf War Illness
- Telemedicine Intervention to Improve Depression Care in Rural CBOCs
- Effectiveness of a Telecommunications System in Asthma Management
- Evaluation of Store-Forward Tele-dermatology for Skin Neoplasms
- Telephone Disease Management At-Risk Drinking (TDM 11)
- A Tele-health Education Program for Caregivers of Veterans with Dementia
- Telephone Care Coordination to Improve Smoking Cessation Counseling
- Effectiveness of Care Coordination in Managing Medically Complex Patients
- Telephone Care as a Substitute for Routine Psychiatric Medication Management
- Internet-based Diabetes Education and Case Management
- Effect of Telemedicine on Physician-Patient Communication

Recently Completed Projects

- Randomized Trial of a Telephone Intervention in Heart Failure Patients
- Improving Diabetes Care via Telephone Assessment and Patient Education
- Effectiveness and Cost Impact of a Telecommunications System in COPD
- Health Services Implications of a Tele-dermatology Consult System
- Implementing Telemedicine-Based Collaborative Care for MDD in Rural CBOCs
- Online Family Education to Promote Treatment Compliance in Schizophrenia
- Evaluating Tele-health Home Care for Elderly Veterans with Congestive Heart Failure
- Can Interactive Voice Response Improve Patient-Centered Outcomes?
- Centralized Telephone Outreach to Assist Smoking Cessation Among Veterans
- Assessment of Sight-Threatening Diabetic Retinopathy Status via Telemedicine
- An Evaluation of Home-Based Telemedicine Services

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Rehabilitation Research and Development Service

Currently Funded Projects
- Virtual Therapy: Using Tele-rehabilitation to Support PT and OT Services
- Home-Based Exercise via a Telecommunications System
- Tele-rehabilitation for Veterans with a Lower-limb Amputation or Ulcer (Part 2)
- Validation of Telemedicine for Assessment of Secondary Condition of SCI

Recently Completed Projects
- Clinical Efficacy and Limits of Tele-rehabilitation Used for Wheelchair and other Clinical Assessments
- Home-Based Pulmonary Rehabilitation via a Telecommunications System
- Tele-rehabilitation for Veterans with a Lower-limb Amputation or Ulcer (Part 1)

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Question 16: What Sort of Resources and Personnel need to be committed to ensure the long term viability of your efforts?

Response: We believe that VA currently has excellent information technical support personnel and good tele-health capabilities that many programs can draw upon. Systems are in place for program support of tele-health and clinical staff training. VA's approach to implementing tele-health has been to consider it on its merits as part of the routine approach to the delivery of care and not as a separate entity. Therefore long-term the requirements for resources and personnel for tele-health fall within the general medical care requirement of VA and the processes whereby such staff and resources are committed. In the short-term specific resources and personnel are sometimes required to facilitate the clinical process re-engineering necessary to embed tele-health into the routine care delivery process in order to provide care for veteran patients and meet particular areas of need. In such instances the resources and personnel have been appropriately identified.

Question 17: How can the VA serve as a telehealth model for the rest of the heath care world?

Response: We believe that the VA is already a model for the rest of the health care world in many areas of care. VA is already recognized as a national/international leader in tele-health implementation and development and utilization. VA has the flexibility, size, and vision to demonstrate the benefits of telehealth whereas private industry appears unlikely to take the leap associated with its widespread use without the VA's precedence. The VHA is a large integrated health care system that covers the spectrum of clinical care and

locations into which it is provided. As VA continues to develop its tele-health and care coordination programs, it offers the rest of the health care world the opportunity to see the planning, program design, resources requirements, verifiable outcomes, and cost-economics related to this transformational endeavor. VA is developing the critical mass of tele-health services upon which the data needed to establish the system-wide benefits of tele-health and other health information technologies on the delivery of care will be based. Experience within VA and the recommendations of the Institute of Medicine suggests that the benefits of health information technologies associated with tele-health lie in how they bring about a "systems" approach to the delivery of care in place of the way in which care has been fragmented in the past. VA can therefore best serve as a tele-health model for the rest of the world by continuing to implement tele-health in the context of the VA's current information technology, quality and performance, patient safety and research and development environment, an environment in which the delivery of care is focused on the needs of the patient population VA is privileged to serve.

Jonathan D. Linkous
Executive Director
American Telemedicine Association
202-223-3333

U.S. House of Representatives
Committee on Veterans Affairs, Subcommittee on Health

Response to post-hearing question

What are some distinguishing features of the Department of Veterans Affairs that might make it a good laboratory for telehealth initiatives?

The Department of Veterans Affairs has a long history of innovation regarding the use of new technology and applications in medicine. Part of this lies in the fact that the VA is exempt from some of the requirements that face civilian medicine. State medical licensure laws, unpredictable economic market forces, competing service providers and liability insurance premiums are but a few of the challenges that do not face the VA. Nevertheless, many of the experiences and lessons learned within the Veterans Administration can have great applicability to civilian medicine.

Since the agency is free of these barriers it has a greater ability to deploy telemedicine services and develop regional and even national networks for the delivery of care and coordination of services. This can be especially valuable in understanding how to maintain services for patients that might move or regularly travel over long distances such as older Americans spending winters in warm climates. This situation provides critical challenges in maintaining the same level of care since non-governmental health providers cannot practice medicine in states in which they are not licensed. It is also valuable in looking at how one organization can use telemedicine to help coordinate patient care as they move from the hospital to home and between different specialists in medicine, rehabilitation and other health services.

The sheer volume of medical services that have been provided over the past 10 years by the VA using telecommunications technology provides a valuable resource for others. I would hope that medical directors and staff within each of the VISNs that have extensive experience with telemedicine are encouraged to publish the results of their work in recognized peer-reviewed journals and speak at various professional meetings. Four specific areas where the VA has had a substantial amount of experience providing services using telemedicine include home monitoring, mental health, pathology and ocular medicine.

Although there has been interaction between ATA and staff members inside the VA in these areas we would like to see the agency develop a greater effort to transfer the knowledge it has gained to organizations and professionals outside of the agency. We also believe that the experience and knowledge in telemedicine gained by others outside

of the VA can provide valuable insight to the VA staff as they seek to improve the care provided to our nation's veterans.

Within the U.S. military, ATA has teamed up with both the Army and Air Force to join forces in our annual meeting and other venues to provide an integrated and shared learning experience between the armed forces other federal agencies and civilian medicine. We also have worked with the military to help coordinate their efforts to form alliances with industry in developing new solutions to meeting the health care needs of the armed forces. We would be delighted to work with the VA in a similar capacity.

M<u>C</u>KESSON

Empowering Healthcare

June 14, 2005

The Honorable Lane Evans
U.S. House of Representatives
Attn. Leah Booth
333 Cannon House Office Building
Washington, DC 20515

Dear Congressman Evans:

Thank you for the opportunity to respond to your questions, following my May 18 testimony before the Committee on Veterans' Affairs Subcommittee on Health on the use and development of telemedicine technologies in the Department of Veterans' Affairs health care system.

Just as my original testimony was delivered on behalf of both my company, McKesson Corp., and our trade association, the Disease Management Association of America, I would appreciate it if my responses to your questions could be considered in that same manner. With this in mind, my responses are as follows:

1. I think we typically think of some state-of-the-art technological applications when we're talking about telemedicine, but some of the telehealth initiatives you're discussing might be as simple as a phone monitoring system, is that correct? What might be some of the obstacles in using this simple, widespread technology more often?

Response: Yes, we are suggesting that the telephone be considered a core "device" in telehealth initiatives. Telenursing, for example, allows nurses to educate, counsel, and monitor patients. The veteran requires nothing more than a telephone. Telenurses, typically, use clinical decision support tools and automated workflow software to offer structured and evidence based guidance to patients. In particular, caregivers of the patients appreciate telephonic support. The nurse is able to answer questions and reduce the anxiety of caring for a complex patient.
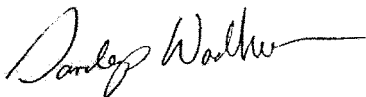
The two most common obstacles to using this simple and widespread technology are the (1) absence of an accurate phone number and (2) inability of the veteran to easily use the phone, due to health conditions such as a stroke or similar impairment.

2) What investments need to be made in VA and other health systems to proliferate the use of telehealth? Are there specific investments that would help rural states like Maine?

Response: The Disease Management Association of America supports the efforts of the Office of Care Coordination in the Department of Veterans Affairs to test and evaluate telehealth programs to improve the health of veterans. Investments that promote both the use of telephonic-based telehealth as well as more sophisticated devices are encouraged. For example, rural dwelling heart failure patients could benefit from low cost electronic weight scales that track patients' daily weights and notify the doctor when slow weight gain occurs; these remote monitoring devices coupled with telephonic nurse support offer a cost effective solution to improve the health status of vulnerable patients. Rural states, such as Maine, have the most to gain from telehealth solutions which can assist in overcoming distance barriers to care. We are very supportive of efforts to launch telehealth demonstration projects in rural settings, and we look forward to working with Members of the Committee as well as other Members of Congress to meet this need.

In the meantime, I am happy to answer any additional questions that you or other Members of the Committee may have.

Sincerely,

Sandeep Wadhwa, MD, MBA
Chair, Government Affairs
Disease Management Association of America

Vice President, Care Management Services
McKesson Health Solutions

STATEMENT BY

RONALD K. POROPATICH, MD
COLONEL, UNITED STATES ARMY
U. S. ARMY MEDICAL RESEARCH & MATERIEL COMMAND
FORT DETRICK, MD

COMMITTEE ON VETERANS' AFFAIRS
SUBCOMMITTEE ON HEALTH
UNITED STATES HOUSE OF REPRESENTATIVES

FIRST SESSION, 109TH CONGRESS

OVERSIGHT HEARING ON THE USE AND DEVELOPMENT OF TELEMEDICINE
TECHNOLOGIES IN DEPARTMENT OF VETERANS AFFAIRS HEALTH CARE
SYSTEM.

23 JUNE 2005

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
COMMITTEE ON VETERANS' AFFAIRS

Mr. Chairman, members of the Committee, my name is Colonel Ronald K. Poropatich. I am a U. S. Army Pulmonary/Critical Care Medicine physician and Telemedicine Consultant to the U. S. Army Surgeon General. I want to thank you for providing me the opportunity to submit written testimony regarding the development and use of telemedicine technologies in the U. S. Army Medical Department. I regret that I was unable to testify in person on May 18, 2005 due to overseas travel demands on my schedule.

For decades, military health care providers who are forward-deployed to support war, low intensity conflicts or humanitarian missions have strived to communicate with intra-theater or extra-theater medical specialists in efforts to provide better patient care. Often, specialists were nearby and communications and coordination was possible. Modern battle plans now call for speed and agility on the battlefield and smaller more mobile fighting units. This has resulted in the need to share just-in-time medical information and bridge the knowledge gap that can occur between deployed providers and rear echelon medical specialists.

Army Medical Department Organization

The AMEDD today operates eight Army medical centers, 26 medical department activities, and numerous clinics in the United States, Europe and Japan which are grouped under six major subordinate commands called regional medical commands. Together, these organizations are manned with 27,000 soldiers and 28,000 civilian employees. Another 20,000 active-duty medical soldiers are in field units. The National

Guard and Army Reserve have over 30,000 medical soldiers. The AMEDD's corporate

budget of $9.7 billion provides care for more than 5 million beneficiaries – active duty

members of all services, retirees and their families. To address the health care needs

of this geographically diverse beneficiary population, the U. S. Army adopted

"telemedicine" in 1992 to meet the health needs of deployed soldiers.

Definitions

Telehealth is an organizational business practice using a combination of clinical,

technical, and business practices supported by policy, which enables a health care

system to dynamically exchange electronic health information from a health care

provider to another provider, or health care provider to patient, to facilitate the delivery

of health care services. Telehealth is not a technology.

Telemedicine, a subset of telehealth business practice, is focused on the transfer of a

patient's medical information, between physicians or physician extenders, for the

purpose of consultation or diagnostic support. Telemedicine is an enabling technology

which impacts across the health care continuum: health care delivery, graduate medical

education, operational medicine and research and development. Desirable

characteristics of successful telemedicine programs include focused regional

applications, defined outcome metrics, self-sustaining, and technically feasible.

Tele-consultation is the electronic exchange of patient demographic, medical history

and physical examination data, between a military medical provider (physician, nurse or

medic) and a medical specialist for the purpose of obtaining an expert opinion and/or advice and diagnostic support regarding the treatment of a patient. A tele-consultation can be conducted real-time using video-teleconferencing or telephone technologies, or more commonly using asynchronous means such as secure file transfer electronic mail with attached digital images, referred to a "store and forward" consultation.

Background on U. S. Army Telemedicine

The U. S. Army Medical Department (AMEDD) Telemedicine program began in 1992 with deployment of a tele-consultation reach-back capability from Somalia to the AMEDD. The technologies used included a satellite transceiver dish, laptop computers and digital cameras. The system was simple to use and showed value in augmenting care to remote providers in austere environments. From this initial experience, numerous follow on deployments of telemedicine capabilities included Croatia (1994), Germany (1994), Haiti (1995), Bosnia (1995), Kosovo (1996), Kenya (1998), Afghanistan (2002), Kuwait (2004) and Iraq (2004). Again noted at each of these sites was improvement in clinical care to deployed soldiers with improved access to specialty care and avoidance in unnecessary medical evacuations for conditions that can be resolved in theater with tele-consultation (dermatology and radiology).

Concurrent with the deployment of Telemedicine capabilities to deployed U. S. Army forces from 1992 to 1995, there was the establishment of regional telemedicine offices at the U.S. Army medical centers situated in the continental United States. The program strategic direction in establishing these regional telemedicine offices was to

bridge the continuum of care from sustaining bases in the United States to deployed forces requiring sub-specialty care, such as dermatology, that is often lacking in a deployed environment. In 1994, the primary U. S. Army telemedicine office was established to set the AMEDD vision, research and development, and deployment capability for telemedicine. This office is the Telemedicine and Advanced Technology Research Center (TATRC), located at the U. S. Army Medical Research and Materiel Command (USAMRMC), Fort Detrick, MD. The TATRC has been the lead AMEDD office to sustain and expand the U. S. Army telemedicine program world-wide since 1994.

This testimony will address both the peacetime telemedicine uses in the AMEDD as well as the critical telemedicine applications benefiting deployed providers and soldiers in both Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF).

Peacetime telemedicine clinical applications

Since 1992, the AMEDD investment in telehealth has become worldwide and includes over 70 deployed tele-radiology systems, 22 tele-pathology systems that are linked to the Armed Forces Institute for Pathology, tele-ophthalmology, and tele-dermatology.

Regional expertise includes the Landstuhl Regional Medical Command in Germany as the tele-radiology hub for Europe and Southwest Asia (thousands of radiology images interpreted and archived each month); Brooke Army Medical Center in San Antonio, TX for tele-dermatology (500 consults/month) and tele-cardiac echocardiography (300

consults/month); Tripler Army Medical Center in Honolulu, HI for tele-pediatrics (30

consults/month) and the electronic Intensive Care Unit (eICU) support to the Guam

Naval medical facility; and the Walter Reed Army Medical Center in Washington, DC for

tele-psychiatry (140 consults/month) and tele-neurosurgery (30 consults/month).

Telemedicine measures of effectiveness demonstrated from these state-side

telemedicine programs includes improved access to specialty care (demonstrated by all

tele-consult specialties), avoided or facilitated medical evacuations due to second

opinion consults (especially dermatology), cost savings by avoiding out-sourcing to the

civilian care sector (demonstrated with tele-cardiac echocardiography, tele-psychiatry

and tele-neurosurgery), and improved continuity of care by providing longitudinal

medical imagery collected at remote medical sites and transmitted to medical centers

for interpretation and archiving (tele-radiology).

Since 2002, the Tele-cardiology program at Brooke Army Medical Center (BAMC) in

San Antonio, TX has done over 6000 tele-cardiac echocardiograms from outlying Army

medical clinics in Oklahoma, Missouri and Louisiana which would have cost over $2.5M

if provided by local civilian purchased care networks. Similar cost avoidance savings

were realized for the Teledermatology program at BAMC where over 12,000 consults

from over 25 referring tri-service military medical facilities were completed in the Feb

2002 to Apr 2005 time frame saving nearly $900K in costs to the military care network.

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In addition, the U. S. Army Medical Department (Tripler Army Medical Center, Honolulu, HI and Walter Reed Army Medical Center, Washington, DC) has participated since 1999 with the Joslin Diabetes Center in Boston, MA and numerous VA medical centers (Togus, ME, Boston, MA and Honolulu, HI) in a congressionally funded research initiative looking at the use of tele-retinal imaging, in hopes of avoiding one of the most preventable causes of blindness – diabetic retinopathy. The major goals of this program are the establishment of a telemedicine system for comprehensive diabetes management and the assessment of diabetic retinopathy that 1) provides increased access for diabetic patients to appropriate care, 2) centralizes the patients in the care process, 3) empowers the patient to better manage their disease, 4) that can be performed in a cost effective manner and 5) maintains the high standard of care required for the appropriate management of diabetic patients. Since inception of this program, 52 Joslin remote retinal screening systems have been deployed to 42 different sites nationally with 6 different reading center sites established within the DOD, VA, Joslin and the Indian Health Services. The use of the Joslin eye care system is now "standard of care" at the Joslin Diabetes Center and the Tripler Army Medical Center in Hawaii. At Joslin, providers are accessing (annually) in excess of 3,000 new patients into the Joslin system and a total of 33,420 diabetic patients have been accessed into the Joslin program. Prospective studies are planned and aimed at characterizing the cost effectiveness and clinical efficacy of providing remote eye care across different federal health care systems using adjunct technology and comparing to a complete dilated eye examination. With successful validation, a single instrument will be established that can perform an eye examination that would have required a face-to-

face appointment with an ophthalmologist. This will result in a significant cost savings to the health care system as previous data from the Joslin system showed that 60% of diabetic patients scheduled for a complete eye examination with an ophthalmologist did not need to see the ophthalmologist at that time.

Deployment Telemedicine

Operational telemedicine support for forward deployed Army Combat Support Hospitals in Iraq was conducted in June/July 2004. Measures of clinical effectiveness observed since inception include the number of avoided aero medical evacuations, decreased lost duty time, and intra-theater medical management of complex cases. Clinical reach-back consultation for a range of medical specialties included radiology, pathology, dermatology, ophthalmology, and dentistry. Over 1500 pounds of medical equipment ($400,000 value) was initially deployed to four sites in Iraq. Tele-consultations was accomplished using satellite connectivity over the military Internet network using both e-mail with digital image attachments and secure server file transfers.

Tele-consultation Services Using Electronic Mail and Digital image Attachments

In April 2004, the U. S. Army Medical Department approved the use of the U. S. Army electronic mail (e-mail) system known as Army Knowledge On-line (AKO) for teledermatology consultations from deployed providers in Iraq, Kuwait and Afghanistan. Through AKO, this teleconsultation service provides a centralized business practice to manage consultation requests in a secure, timely, and consistent manner between deployed medical providers and rear-based consultants. To obtain a consult, the

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deployed health care provider initiates an e-mail and enters an adequate description of the patient's condition and attaches digital images necessary to illustrate the patient's condition. Upon transmission, the e-mail is sent to an on-duty clinical specialist (i. e. dermatologist) who will respond to the deployed provider within 6 hours for urgent requests and 24 hours for routine requests. The AKO teleconsultation is not encrypted, therefore to insure compliance with patient privacy, consults do not include Protected Health Information (PHI). To date, the system has expanded beyond teledermatology and includes 7 clinical specialty services available: dermatology, infectious disease, ocular health, burn, trauma, nephrology, and pediatric intensive care.

As of May 2005, over 600 dermatology, 40 ophthalmology, 50 infectious disease, approximately 760 dentistry, and 14 pathology tele-consults were completed. The average response time for all specialties was less than 6 hours. Teledermatology referrals resulted in 30 avoided aero medical evacuations (potential cost savings of $640K), and 7 cases where evacuation was facilitated by tele-consultation. Over 190 deployed providers have used the US Army Teledermatology system with over 15% of the consults coming from US Air Force and US Navy deployed providers. Deployment problems encountered included frequent interruption of electrical power, initial bandwidth constraints, and frequent marketing campaigns to inform newly arrived deployed personnel in theater of the AKO tele-consultation capability.

Deployable Teleradiology System (DTRS):

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Teleradiology services include medical information systems designed for acquiring,

managing, interpreting, reviewing, transmitting and storing digitized diagnostic images

and related patient information on a DoD secure open systems platform. The lack of

Secure DTRS Web servers early in the Iraqi theater of operations, had led to the loss of

patient healthcare information in theater, the inability to move critical diagnostic images

throughout the hospital (to include the operating room and the emergency room), deny

greater clinical collaboration with higher echelons of health care, and provide a means

to electronically transmit and archive patient health care data/imagery under Federal

law - Health Insurance Portability and Accountability Act (HIPAA),

With the introduction of computerized radiology devices at Troop Clinics and Combat

Support Hospitals (CSH), there is a need to transmit these images to radiologists for

diagnosis, consultation, or validation of initial reading, as well as sending radiology

images for archiving and as part of a clinical consultation. The Deployable

Teleradiology System (DTRS), a commercial off-the shelf product, is a web-based

teleradiology product with unusually robust and secure communications capabilities.

The DTRS also provides the capability for immediate local distribution of digital medical

images throughout a fixed or mobile medical facility, provides historical archiving of

images, and secure transmission of images between medical facilities for interpretation

and/or subspecialty consultation. The DTRS servers provide the physical hardware hub

and information processing center for all radiology systems and services within the

Combat Support Hospitals. Residing on the CSHs Local Area Networks (LAN), medical

diagnostic images and patient information will be stored locally and then securely

transmitted to higher echelons of care as patients' transition from the theater hospital to sustaining base Medical Centers.

Since 2001, the Army's Picture Archive and Communication System (PACS) Program Management Office (APPMO), Fort Detrick, MD began deploying Teleradiology systems to approximately 35 sites throughout Europe to support the regional radiology service needs and improved turnaround times for interpretation and reporting from 21 days to overnight completion. Since that time, over 70 systems have been deployed successfully around the world at Army sites, including all major medical centers, force protection platforms, and South Korea.

In late 2002, US Army Europe (USAREUR) purchased DTRS for Kosovo and Bosnia. The Landstuhl Regional Medical Center (LRMC) in Germany conducted prototype testing of this functionality, providing radiology subspecialty support to those remote sites and more fully utilized deployed radiologists by sending overflow workload from Europe to Kosovo or Bosnia when the operational tempo was slow. Based on LRMC's success in Bosnia and Kosovo and in consultation with the APPMO, the Telemedicine and Advanced Technology Research Center (TATRC), Fort Detrick, MD deployed DTRS to Afghanistan in October 2002 as part of Operation Enduring Freedom in support of the 339th Combat Support Hospital (CSH). Since 2002, the Bagram military medical facility has been transmitting on average, 50 studies per month to LRMC for clinical continuity of care for airevac'ed soldiers. An additional 3 DTRS's are planned for deployment to Afghanistan in July 2005.

In June 2004, the Commander, 2nd MEDCOM, requested that DTRS systems be deployed to Baghdad and Balad, Iraq. The request was approved by the Army and the installation, testing, and training of the equipment to the split 31st CSH in Balad and Baghdad was completed in July 2004. During this trip, the Deputy Commander for Clinical Services, 8th Medical Brigade in Kuwait, requested tele-radiology capabilities for three medical treatment facilities in Kuwait. Soon after this request, the 67th CSH requested a DTRS for Mosul, and the Air Force began a separate procurement of a system for their hospital in Ali Al Salaam, Kuwait. Based on these requests, systems were procured by the US Army Medical Materiel Agency (USAMMA) and sent to Camp Arifjan, Camp Beuhring, and Ali Al Salaam in January 2005.

In January 2005, the 44th Medical Command in Iraq, requested expansion of the teleradiology storage and distribution functionality for deployed hospitals in Iraq. This request was completed in March 2005 with the deployment of a DTRS to the Mosul military hospital. An Operational Needs Statement (ONS) for further DTRS deployment in Iraq at the Abu Ghraib and the Buca prison medical facilities has been approved in May 2005 by the 44th MEDCOM and scheduled for implementation in the Fall 2005 time period.

Radiology image transfers were confined to thousands of intra-facility use while inter-facility file transfer to the referring medical facility in Germany began in November 2004. The workload for CY2004 for exams sent from Bosnia, Kosovo and Afghanistan to the

LRMC in Germany exceeded 5200 patients. From the 3 DTRS sites in Kuwait (deployed in Jan 2005), the weekly average for image transmission to the LRMC is 150 patient studies and for the 3 DTRS sites in Iraq, the weekly average is 1300 exams per week.

In addition to moving imagery from one point to another within the hospital, the DTRS servers provide a means of storing medical imagery and patient information for long-term retrieval and forwarding diagnostic information on patients evacuated to higher echelons of health care outside theater, providing a more complete medical record of injury and subsequent care. Beneficial to the long term care of soldiers, the DTRS servers inherently support the Army Medical Departments goal in providing an electronic medical record that remains with the soldier long after leaving the battlefield.

Deployment Telemedicine – Lessons Learned

From the initial 14 months of teleconsultation capability in Iraq and Kuwait, the email with digital image attachments system works well, is easy to use and is well received by deployed providers. Bandwidth availability is the rate-limiting resource in theater for teleconsultation, especially during the early stages of the military conflict.

O