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SAVING DOLLARS, SAVING LIVES: THE IMPORTANCE OF PREVENTION IN CURING MEDICARE

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THURSDAY, JUNE 30, 2005

U.S. SENATE,
SPECIAL COMMITTEE ON AGING,
Washington, DC

The committee met, pursuant to notice, at 10:03 a.m., in room SH–216, Hart Senate Office Building, Hon. Herb Kohl, presiding.
Present: Senators Smith, Talent, Kohl, Wyden, and Lincoln.

OPENING STATEMENT OF SENATOR HERB KOHL

Senator KOHL [presiding]. This hearing will come to order, and we welcome you all here today, where we will explore ways to contain growth in Medicare spending by helping seniors lead healthier lives.

As always, we thank our Chairman, Senator Gordon Smith, for working with us in a bipartisan manner to examine issues affecting seniors. It is not secret that the Federal Government will face fiscal challenges as the Baby Boomers begin to retire and become eligible for Medicare.

From the year 2000 to 2030, the number of people on Medicare will nearly double from 40 million to 78 million. In fact, in the next 25 years, Federal spending on Medicare, Medicaid, and Social Security will almost equal what we now spend on the entire Federal Government.

So we know these costs are looming and yet our nation remains woefully unprepared. Net Federal spending on Medicare was more than $300 billion in 2004. But what many people don't know is that a small share of Medicare beneficiaries account for a very large share of total Medicare spending.

Just 10 million of the 40 million Medicare beneficiaries account for 85 to 90 percent of the program's costs every year.

As we will hear today, much of this spending is for patients suffering from multiple chronic diseases. Studies show that Medicare spends 2 out of every 3 dollars on people with five or more chronic conditions, such as diabetes, emphysema, heart disease, arthritis, or osteoporosis.

These chronic conditions are largely preventable, treatable, and their onset can often be delayed through proper nutrition and exercise. At a time when our nation is growing older, it is clear that the successes we have in preventing chronic diseases will directly affect our ability to contain future growth in Medicare spending.

We need to get the word out that prevention is not something that only children and younger adults can benefit from. Seniors need to understand that it is never too late to benefit from a healthier lifestyle.

It is also important to note that this not just a challenge for the Federal Government. Rising health care costs will continue to be an issue for all American families and businesses, and so we need more prevention, nutrition, and exercise by younger generations also.

Today, we will hear from Bill Herman from Highsmith, Incorporated, a company in Fort Atkinson, WI, on their award-winning prevention programs to keep their employees healthy and their insurance costs low.

This makes sense for businesses, but also for our country, for, after all, unless we find a way to prevent and treat chronic diseases early on, Medicare will inherit even more costly problems as more people join the program.

I am pleased to have the director of the Congressional Budget Office here today to present CBO's recent report on Medicare High-Cost Beneficiaries.

We also look forward to hearing from our second panel of witnesses who will discuss ways to successfully prevent and affordably treat chronic diseases.

In particular, we need to find ways to educate seniors and boomers that it is never too late to change their lifestyle and improve their health and improve Medicare's finances at the same time.

We need to make sure that seniors know about the preventive benefits that Medicare offers and why they are so important to take advantage of.

We should look for ways to use technology to give seniors and health providers more tools to take control of their health.

We know that many of the Senators on this committee share this concern for skyrocketing costs of health care, particularly Medicare. We know that we will all take away some good recommendations from today's hearing, and continue working together to stem this growing problem.

So, again, we thank everyone for their participation here today, and now turn to our Chairman, Gordon Smith, for his opening remarks.

OPENING STATEMENT OF SENATOR GORDON H. SMITH, CHAIRMAN

The CHAIRMAN. Thank you, Senator Kohl, and thank you for arranging this hearing on such a vital topic. Today's hearing is, as he has stated very well on the importance of prevention in helping to slow the growth of Medicare spending. We have two excellent panels of witnesses today, and I will look forward to a productive discussion.

Over 40 million elderly and disabled Americans rely on Medicare for their health care coverage. In 2004, total Medicare spending exceeded $300 billion and is expected to grow significantly in the coming decades as the Boomer Generation approaches retirement.

With this impending challenge, we must find ways to control the growth of Medicare spending if we are to preserve this critically important part of our health care safety net for our seniors and the disabled.

It is vital that we identify where spending is the greatest under Medicare and develop comprehensive strategies in which to lower expenditures in these areas. A May 2005 Congressional Budget Office report, which this hearing will examine, may have identified one such area. According to the report, a relatively small group of high-cost Medicare beneficiaries account for a large share of the program spending.

According to CBO, only 10 million of the 40 million Medicare beneficiaries account for 90 percent of the program's cost.

Further, three-quarters of these 10 million high-cost beneficiaries suffer from multiple chronic diseases, such as diabetes, emphysema, heart disease and stroke, arthritis, and osteoporosis.

Such diseases require extensive care and often serve as the catalyst for many other conditions and ailments. Many of these chronic conditions are preventable through a regimen of proper nutrition and exercise.

Additionally, the cost of treating these conditions can be significantly reduced by the implementation of chronic disease management programs.

That is why this hearing will also examine some innovative technologies currently being used by institutional health care providers, such as the Veterans' Administration, to monitor and manage high cost patients more efficiently. Our ability to prevent and affordable treat chronic disease is key to our ability to contain the anticipated growth in Medicare spending.

So I thank all of our witnesses for coming today to discuss this issue, and look forward to the testimonies. Thank you.

Senator KOHL. Thank you very much. Senator Smith, we also have with us the other Senator from Oregon, Ron Wyden.

OPENING STATEMENT OF SENATOR RON WYDEN

Senator WYDEN. Thank you very much. I want to commend both of you. I think this is an excellent topic, and I thank you, both, for your leadership.

What I think is so striking about this is that for all practical purposes the Federal Government doesn't run health care programs. What the Federal Government does is run sick care programs, and probably nothing shows it more graphically than the topic that we are going to examine today under the leadership of my two friends and colleagues.

The Federal Government is going to spend a boatload of money for what is essentially a chronic care program. That is what Medicare has become today, and that is what Mr. Holtz-Eakin and his capable folks document, you know, once more.

What is so striking is that if you look at the two parts of Medicare, Part A of Medicare will pay an astounding sum for essentially institutional care. What Senator Smith and I see in our state is essentially the insurance carrier that runs Medicare for our state will write out a check for $40,000, $50,000, some prodigious sum of money, for a seniors hospital coverage under Part A, and then there will be very little spent on prevention under the outpatient portion of Medicare Part B.

Senator Kohl is absolutely right. There is a little bit of coverage. We got to do a better job of getting the word out about those preventive benefits under Part B. I really hope that as we work together on a bipartisan basis and have the very valuable assistance, Mr. Holtz-Eakin, that we can essentially revamp this program. Let us do a better job of targeting the resources where they are most needed, which is essentially what Senator Kohl and Senator Smith have said in terms of chronic care, and then let us do a better job of prevention so that we are not always playing catch-up ball under Part A when somebody is flat on their back in the hospital.

I want my two colleagues to know that as part of the bipartisan legislation that Orrin Hatch and I have written, the Health Care that Works for All Americans Act, which, in effect, will kick in this October when the information about health care spending goes online, and we start walking the country through the choices, that I really want to see that law follow up on the good work that you have done, Senator Kohl and .Senator Smith. It is an important hearing. Thank you, both, Senators. Mr. Holtz-Eakin has worked with my office on a variety of issues, and we appreciate all his cooperation as well, and I look forward to the testimony.

Senator KOHL. Thank you very much, Senator Wyden.

We are pleased to welcome our first witness, Dr. Douglas Holtz-Eakin, director of the Congressional Budget Office.

Dr. Holtz-Eakin was appointed to a 4-year term in 2003; previously served for 18 months as chief economist for the President's Council on Economic Advisors, where he also served as the senior staff economist in 1989 and 1990.

So we are very pleased that you are here, and we welcome your testimony.

STATEMENT OF MR. DOUGLAS HOLTZ-EAKIN, DIRECTOR, CONGRESSIONAL BUDGET OFFICE, WASHINGTON, DC

Mr. HOLTZ-EAKIN. Well, thank you, Senator Kohl. Thank you, Chairman Smith, Senator Wyden.

I am pleased that the CBO could be here to talk about our report, and this important issue. The starting point, as has already been mentioned by both the Chairman and Senator Kohl is the concentration of Medicare spending among a very few beneficiaries.

In 2001, the data in the report show that 25 percent of the beneficiaries accounted for 85 percent of Medicare spending. It is useful to note that this is not unique to Medicare. National health spending has the same character, actually a bit more concentrated. This is the kind of pattern one would expect in an insurance program, where a relatively small number of claimants in any year would account for the bulk of the spending.

But it does raise some questions and possibilities. First, of course, is, "Can we save some Medicare costs in examining this?" Is it possible that these are always the same people? I mean, we use 2001, but could it be the same people every year; and if so, is there a way to address their health so that they are either less expensive to begin with or are less expensive to Medicare in the future in some way.

The report tries to take a look at this. The second figure that we look at examines the question of whether these are, in fact, the same people put differently, is there some persistence in these expenditures from year to year?

What we do is try to track the high cost Medicare beneficiaries, those in the top 25 percent, over time. The graph that we have in front of you and is on the screens shows the high-cost folks in 1997, and then looks back a few years to what they were costing before that, and then follows them for years after 1997 up to 2001 to see what the expenditure looks like.

The dark bar represents this group, and what you can see is that it ramps up prior to 1997. They were high cost in 1997, but they were accelerating in their costs prior to that, and then ramping down past 1997. This is consistent with a pattern that you would expect—one in which there are some acute care expenses. Someone breaks a leg and has an episode of high costs, but it goes away. Another part of the mixture is chronic, ongoing expenditures for the kinds of chronic care they might require. It is also important to note a key feature of the post–97 experience, which is the large fraction of these beneficiaries who are close to death, and indeed die in the years thereafter. That pattern is consistent with about 25 percent of the spending each year that goes to those in the last year of life.

Now, where are these costs coming from? If we go to the third figure, they are coming from the fact that, while these high-cost beneficiaries do the same things that other people do—they go to the doctor, for example—they are much more likely to do other things—go to the emergency room, have a hospital admission, or be in a skilled nursing facility. Regardless of which of those things they are involved in, they tend to use more services at the same time. So they have a greater propensity to have all those events than in the population as a whole.

This raises the question, could we identify these individuals and prevent in some way, either their entry into these expensive episodes or lower the utilization given that you might have an entry.

One issue we addressed in our report—and I won't go into it—is sort of whether you could just look at them on the basis of their demography and say these are likely to be the high cost folks. The answer is pretty much no. Although they are a bit older, they don't stand out in any other particular way.

If you look at their health, however, a key feature is the presence of chronic conditions, particularly multiple chronic conditions, where compared to the typical population, 75 percent have one or more chronic conditions versus about 40 percent in the rest of the population. About half of them have two or more for sure.

So that does stand out. So that becomes one of a series of illustrative strategies that we used in the report to see if we could identify high-cost Medicare beneficiaries. That is the final slide, where we took three that we thought of as stylized strategies that one might undertake to pick out who is going to be expensive in the future. Take a person who has multiple chronic conditions and then see how they turn out. Look at someone who has had a hospital admission and then track them. Or look at someone who is simply very expensive in the beginning year and see if they continue to be expensive in the years thereafter.

What the slide shows is a comparison of those groups versus a random sample of Medicare beneficiaries. We look at them in initial year, 1997; identify them using one of these strategies; and then see if we could predict that they would be more costly in the years to come on the basis of that identification.

Indeed, to some extent, this appears to be the case. It is suggestive that this kind of strategy might be successful in identifying high-cost beneficiaries.

Compared to the control group, each has greater spending certainly in the base year, but also in subsequent years. For those who get admitted to the hospital or who are expensive, you see a bigger drop off. For those who have the chronic conditions, their spending drops off less. It tends to stay elevated in the years thereafter.

Now, the final question, of course, is whether this would allow the Medicare program to somehow control their costs in the future, and there it raises the hope that something like a disease management program might be successful in reducing overall costs. We can come back to this in the discussion later, but I think that the things that I would note at this point are that disease management means different things to different people. There is a variety of different elements of either education or patient monitoring and, thus, practice, or care coordination, or case management. So exactly what goes into disease management is not always the same. It is worth investigating that.

Asking whether it works is really a question of first comprehensively measuring costs over the entire future of a patient's experience and comparing that to a comparable patient without the disease management. That is a high scientific standard. None of the work that we have examined to date meets exactly that standard

and at each point stepping down the standards, you have to ask whether we have got the evidence we need.

Then finally, even if this strategy works, the important issue for this committee is a tradeoff in costs. It may be the case that some sort of preventive disease management program will work for Medicare beneficiaries—in the sense that it will lower costs other than what they would have been—but it will be costly to identify the people who enter into such a program out of large population of seniors. The question is whether it is cost effective in both senses. You may spend so much finding the folks that will ultimately benefit from disease management that you overwhelm any cost saving you would get from putting them in the program.

Those are the two elements of the decision, and that is the difficult design issue that would face someone trying to put this into place in the Medicare population as a whole.

So we are pleased to be here. That is the high speed overview of the report. I will be happy to answer your questions and pursue it any way you like. Thank you.

Senator KOHL. Well, thank you. I am curious with respect to your opinion on the following thought: are there people who have some chronic conditions who use the system—and we are talking about them now—and to a great extent those are the ones who—the 25 percent who cost us 85 to 90 percent of Medicare, but others who are seniors who have similar conditions who just do not check in that often, use the system that much, manage to deal with these problems in a way that doesn't require them to be so involved with Medicare?

Mr. HOLTZ-EAKIN. There are certainly those who would have one of our list of seven chronic conditions. Diabetes stands out. Among the high cost beneficiaries are those with diabetes. However, if you look in the low-cost population, there are lots of folks with diabetes as well, three times as many, in fact. So it is not the case that if you are diabetic, you are automatically high cost, and it is not the case that if you have one of our chronic conditions, you always—you inevitably—end up there. They are in both populations. This goes to the last point I made, which is that you have to be able to find the diabetic who will benefit from some sort of intervention to lower costs.

Senator KOHL. But is it true that there may be two similar people who are seniors who have conditions that are not entirely dissimilar?

Mr. HOLTZ-EAKIN. Oh, yes.

Senator KOHL. One will access the system an awful lot and prove costly in a dollar and sense way. The other one will access the system an awful lot less and be less costly, just because they are a different kind of individuals.

Mr. HOLTZ-EAKIN. Certainly, and we could probably go into the data that we used for this report and find people with chronic conditions and show you the averages on both sides of that observation.

Senator KOHL. All right. Thank you. Senator Smith.

The CHAIRMAN. Doug, I am interested in whether or not you all have factored in the impact of Part D, and what it might do to Part A expenditures?

Mr. HOLTZ-EAKIN. It is not the first time this has come up, which is not surprising. We certainly have tried to look very closely at the degree to which additional therapies in the form of pharmaceuticals might lower costs elsewhere. But it is hard to get that out of the data for a variety of reasons.

No. 1, the Part D really covered the costs of pharmaceuticals. People were taking the drugs they needed anyway in many cases, so you haven't really changed their therapy in any deep way. So you wouldn't expect a change in the costs. So that is sort of the major reason.

The CHAIRMAN. OK. I understood in your testimony that where there is simply private coverage and Medicare is not involved, these same populations are still using those kind of resources?

Mr. HOLTZ-EAKIN. Yes.

The CHAIRMAN. So probably not the savings we might hope for?

Mr. HOLTZ-EAKIN. No.

The CHAIRMAN. OK. Do you believe there is any benefit to comparing data from Medicare managed care plans that employ chronic disease management programs with the data you have compiled for the fee-for-service programs? Are the Mr. Holtz-Eakin. It is hard to imagine that it wouldn't be valuable to compare them as long as you were careful about the comparisons. You know the key issue is what constitutes the same kind of group going in, and given that the people who chose to go into the managed care versus the fee-for-service do so voluntarily, they are, by definition, not identical. They have chosen differently, and so you have to somehow get a handle on that before you start doing comparisons across the groups.

Senator KOHL. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman, and I want to thank Dr. Holtz-Eakin for excellent testimony.

I am curious what CBO has in terms of numbers as it relates to spending on health care in the last 6 months of an individual's life. You know there are constantly studies, you know, thrown around on this point, and I am wondering, you know, what, if anything, CBO uses as statistical documentation on that point?

Mr. HOLTZ-EAKIN. We rely on the Medicare claims data, so it would be among those folks. For the numbers I have for this hearing, we can try to see if there is more detail in the last 6 months or for the last year. Twenty-five percent of Medicare spending is in the last year of life ballpark. So it is a fairly substantial sum.

It is, of course, one of those backward looking computations in that you don't know when the last year of life will be necessarily. But looking back, those are the facts.

Senator WYDEN. That will be an area I want to follow up with you on as well for the Citizens' Health Care Working Group because those issues, of course, were tough before the Terry Schiavo case. They are now infinitely harder and my hope is that we can find some common ground. Senator Smith and I have introduced bipartisan legislation, the Conquering Pain Act, to try to create some options for folks, but we will be anxious to work with you on that.

I wanted to also explore with you a topic you and I have talked about. Senator Sununu and I have been concerned about the fact

that public programs, programs like Medicaid, the Public Health Service, the VA, are paying for prescription costs, you know, advertising. In effect, those programs end up getting shellacked, you know, twice. There are tax breaks for the pharmaceutical folks to advertise on TV. Nobody is quarreling with that, trying to take it away. But after that expenditure is made with taxpayer money, then more money gets spent for in effect like Medicaid to pay for all those purple pills, you know, dancing across everybody's television set. So we are trying to address this issue and obviously advertising increases utilization of prescription drugs and, of course, the program.

Let me ask it this way: The official sources on drug advertising seems to be that the country spends between $3 billion and $5 billion a year on prescription drug advertising. According to the bipartisan experts, after the Medicare drug benefit kicks in, Medicaid is expected to be about 10 percent of the prescription drug market. That seems to be a kind of consensus recommendation.

So Senator Sununu and I are interested and working on the language of this and would very much like your counsel so as to focus on utilization and focus on market share. It is our sense that if we do that, the government could save about $300 million to $500 million a year on Medicaid, in effect over a billion dollars over a 5-year period.

Do you feel that that is essentially a reasonable kind of analysis?

Mr. HOLTZ-EAKIN. Yes, given that the language was tight enough, that it could find a way to actually recoup the costs, and that we can, you know, get a sense that the numbers are on the mark. They certainly seem reasonable. Yes.

Senator WYDEN. Well, I appreciate that, and I would like to work with you on the language because I know that the way it is framed so as to focus on utilization and market share is really, really key, and if we could follow up with your technical folks. They have been very helpful to us already. This is a bipartisan bill, and I just point it out because we have Chairman Smith here, and he has done excellent work on the Medicaid program. He is trying to get $10 billion worth of savings without hurting people on Medicaid, and I would just like to make it clear for the record that Dr. Holtz-Eakin has said we could get more than a 10 percent of the savings in the target that Chairman Smith is looking at by the advertising provisions along the lines of what Senator Sununu and I have been talking about. So we will be anxious to follow up with you, and we got to figure out how to save $10 billion on Medicaid, and we all want to do it without hurting people. We just on the record a way to in the ballpark to get 10 percent of the money. That is what we ought to be trying to do is sharpen our pencils.

Chairman Kohl, I thank you for this, and Dr. Holtz-Eakin for all his analysis.

Mr. HOLTZ-EAKIN. Thank you.

Senator KOHL. Thank you, Senator Wyden. We also have with us this morning Senator Blanche Lincoln from Arkansas. Senator Lincoln.

Senator LINCOLN. Thank you. A special thanks to Senator Smith and Senator Kohl. They have been tremendous leaders in the Aging Committee, helping us focus on the important issues that

face this country, both financially as well as for all us emotionally because one of these days we are all going to be old. We are all aging, and we are grateful to both of you.

Mr. Holtz-Eakin, we should have you as an honorary member of the committee. We have heard from you a great deal, and we certainly appreciate all the work that you at CBO have done in helping us realize that we can do a better job in administering these programs, particularly for these high-cost beneficiaries.

I would urge you to take a look at legislation I have been working on as well, S. 40, and would appreciate getting any help with scoring it. I would love to work with CBO on a way to ensure that a new Medicare benefit for geriatric assessment and chronic care management of individuals with multiple chronic conditions would save money to the program. I know in my own personal experience with my father who went through a long period with Alzheimer's, Disease with other diagnoses, I saw how important it was to have coordination of all the medical professionals, in treating his multiple chronic diseases. Fortunately for us in Arkansas, we have the Don Reynolds Center on Aging, which focuses on patients with multiple chronic conditions and management of chronic illnesses, which makes all the difference in the world. My constituents see a difference when they go from visiting six or seven different health care providers to a care team that manages all of these chronic diseases together.

You said in your report that reducing spending among the high-cost beneficiaries would ultimately rest on the ability to devise and implement effective intervention strategies, clinical or otherwise, to change beneficiary use of medical services. I think that by giving an individual a geriatric assessment, which assesses a person's medical condition, functional and cognitive capacity, primary caregiver needs, and environmental and psycho-social needs would go really a long way toward reducing some of the unnecessary and expensive medical services.

I just wanted to see what you thought about that in terms of the research that you have done. Would that assessment be beneficial and could it be helpful to us in saving financial resources?

Mr. HOLTZ-EAKIN. It is on the list of appealing strategies that comes up all the time, and in that regard it always falls to me to throw a little cold water on some of the hopes. The first is that in many cases you could not see lower costs, but it would still be worth it. You know, you are paying more and people have better health for longer periods and function better in their lives. That is not a cost saving issue, but it is still a good step.

Then the second caveat I am compelled to offer is that there isn't any systematic evidence to date that we can, in any broad way, get a lot of savings out of the Medicare population from this. That doesn't mean that it isn't true. It means that, to the extent that researchers have gone and looked at to the best of their ability groups with and without these kinds of checkups or other services, you can't find a compelling scientific case that the costs are lower for the group where you have undertaken the new treatments. There are lots of reasons why that might be the case, and I would be happy to work with you on that.

But it is largely the difficulty in setting a high scientific bar in a very difficult area. Most of the studies just really aren't conclusive enough to feel confident that I could say to you, "Yes, this is a great idea and you will save a lot of money."

Senator LINCOLN. Mm hmm. Well, I am not necessarily saying that we have got to save all the money in that category, but if we can do something that actually does help us in terms of better use of our resources and providing better care, it seems to me it is a no brainer that it is something we should certainly be looking at.

So you are saying that there is no conclusive studies that show that not only assessments but also the new medical physical in the Medicare program, are cost effective. Is that what you are saying?

Mr. HOLTZ-EAKIN. Yes.

Senator LINCOLN. You don't feel like those produce some cost benefit?

Mr. HOLTZ-EAKIN. There are two levels to it, and I will give you a longer answer than you deserve for that reason.

The first is just at the level of the economics. Does it save money? That is the kind of question where the research is inconclusive at this point because it is difficult to actually do the experiment you would like, which is give some people the checkup, exactly identical people don't get the checkup, and then track their health care costs from that point forward to the end of their lives. Then just compare the two. That is just not doable.

So there are a whole series of halfway houses in which the scientists live that are short of that. They try to extrapolate from their experience to that experiment that we can't do, and that is just simply hard to do.

So the research, which we tried to survey pretty carefully in a letter we wrote to then Senator Don Nickles, was really about how difficult this is—to conclusively decide whether it will save money. So that is No. 1.

No. 2 is, Will it show up on the Federal budget? If this is really a good thing and it is saving money, it could be that people are doing it already. If you then put it into the Medicare Modernization Act, all you do is then cover the cost of it. You put the cost on the Federal books, but you don't get any of the savings because they were doing it anyway. So the answer is a mixture of those two things. One, would it really lower total economic costs in the health system? Two, would those costs show up in lower Federal outlays?

That is why it is difficult to give really definitive answers in this area for things that are otherwise very appealing ideas.

Senator LINCOLN. Thank you, Mr. Chairman.

Senator KOHL. Thank you, Senator Lincoln. Dr. Holtz-Eakin, before we let you go, you are the director of CBO, so would you place this into context versus Social Security, the costs for which we do not have any sources of revenue over the next 50 years, one versus the other. It is our understanding that there is no comparison in terms of Medicare versus Social Security. Would you put that into context?

Mr. HOLTZ-EAKIN. Certainly. There is no comparison, and I have told many people that it is my job to say apocalyptic things about our fiscal outlook in public, and this is really how it sizes up. Right now we spend about four cents on a national dollar on Social Secu-

rity, a bit above. We spend about four cents on our national dollar on Medicare and the Federal share of Medicaid. So they are about even right now. If we repeat the experience of the past 3 decades, over the next 50 years, and we layer in the demographics, Social Security will rise from 4 to about 6½ cents. Medicare and Medicaid will rise from 4 to 20 cents or the current size of the Federal Government. It is not even close. The great spending pressures are in the health programs.

Senator KOHL. So of all the problems fiscally that we are facing in terms of Medicare, Medicaid, Social Security, this Medicare-Medicaid is clearly the big elephant, the 800-pound gorilla?

Mr. HOLTZ-EAKIN. They are certainly the big Federal dollars and they reflect the underlying growth of health care costs in the United States. It is not just the programs. It is the underlying health care system as a whole.

Senator KOHL. That is dramatic. Well, we thank you so much for being here. You have been really important to this Committee, and your experience and knowledge is invaluable, and we look forward to continue to work with you.

The CHAIRMAN. Mr. Chairman?

Senator KOHL. Yes.

The CHAIRMAN. May I ask one other question. In light of that and as we try to wrestle with how we get additional revenues or how we find a way to meet this obligation, the population that is using so much of the resources currently are any of these chronic conditions the result of personal choices that lead them to this, that would warrant that they bear some greater portion of their own co-pay or something like that? I mean

Mr. HOLTZ-EAKIN. The seven we looked at, I will just run down.

The CHAIRMAN. OK.

Mr. HOLTZ-EAKIN. You know, they are asthma, obstructive pulmonary disease, renal failure, congestive heart failure, coronary artery disease, diabetes, and senility.

The CHAIRMAN. I am thinking of smoking. I am thinking of you know some people would say alcoholism is not a choice. It is a disease in itself. But a lot of these conditions, not all of them, are taken on by people's individual choices and that is not fair to everyone else who is making the right kind of health choices.

Mr. HOLTZ-EAKIN. Certainly, lifestyle figures in many of these chronic conditions. I think that is clear. It is not the sole determinant. But it certainly figures in that, and the degree to which those lifestyles are altered as a matter of choice would alter these outcomes.

The CHAIRMAN. Well, it seems to me people do respond to incentives, and if there is an additional incentive to lifestyle choices that like smoking, I would just I find it repulsive to say to everyone else who is making the right choices, you have got to pay for everybody making the wrong choices, and I don't know. I am just thinking out loud.

Senator LINCOLN. Can I add something to that?

The CHAIRMAN. Yeah.

Senator LINCOLN. That is why I think the screening is so important, because if it is something like alcoholism, the earlier the screening and the earlier the diagnoses, the treatment is less cost-

ly. So it would seem that the screening and the other things that I think are so important, you are saying that there is not a scientific ability to be able to figure out what the cost savings would be for that, but I mean just commonsense tells you that if you can treat an ailment earlier, you can diagnose and treat it earlier, then the long-term costs are not going to be as much.

But I understand your side. I am married to a research physician, so I know there are scientific things that you have to use, but, still, I think commonsense plays a little bit in what we decide.

Mr. HOLTZ-EAKIN. I am economist by training. I left commonsense behind. I am an incentives guy.

Senator KOHL. Again, just to put this thing it its context, would you agree that looking ahead at our fiscal condition, as the director of CBO, perhaps the single most important challenge we face is Medicare and trying to contain its projected cost?

Mr. HOLTZ-EAKIN. Yes. I think that the rising cost of health care is the single most important domestic challenge the United States has today. It is very simple.

Senator KOHL. Thank you very much.

Mr. HOLTZ-EAKIN. Thank you.

[The report follows:]

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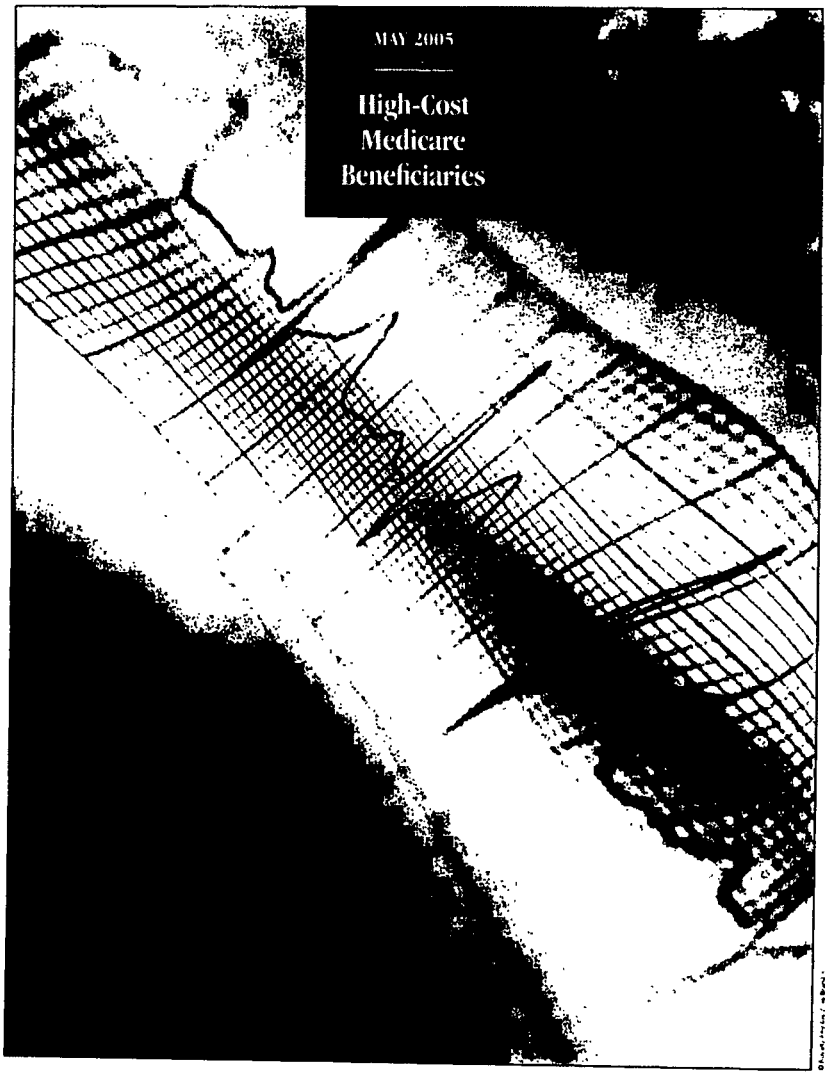

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High-Cost Medicare Beneficiaries

May 2005

The Congress of the United States ■ Congressional Budget Office

Notes

All years referred to in this paper are calendar years.

Numbers in the text and tables may not add up to totals because of rounding.

All dollar amounts are expressed in 2005 dollars (having been converted using the GDP price deflator).

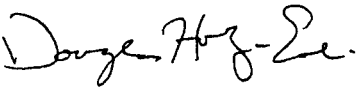
Preface

Total Medicare spending exceeded $300 billion in 2004 and is expected to grow significantly in the coming decades. In response to those financial pressures, policymakers have considered a number of strategies for slowing the growth of Medicare spending, including increasing the share of spending paid by beneficiaries and enhancing competition in the provision of services.

This Congressional Budget Office (CBO) paper, prepared at the request of the Senate Majority Leader, explores an additional approach: focusing on the small group of beneficiaries that accounts for a large share of the program's spending. Possible intervention strategies would aim to reduce that spending. The paper analyzes the concentration of Medicare spending in a given year and over time using data from Medicare claims and considers illustrative methods for identifying beneficiaries who are likely to incur high future costs. In keeping with CBO's mandate to provide objective, nonpartisan analysis, this paper makes no recommendations.

Julie Lee and Todd Anderson of CBO's Health and Human Resources Division prepared the paper under the supervision of Bruce Vavrichek, James Baumgardner, Steve Lieberman, and Mark Miller. (Todd Anderson, Steve Lieberman, and Mark Miller have since left CBO). Susan Labovich provided computer programming support and coordinated CBO's access to the data used in this analysis. Tom Bradley, Philip Ellis, and Allison Percy, also of CBO, provided thoughtful comments on drafts, as did Amber Barnato of the University of Pittsburgh and Jeffrey Kelman of the Centers for Medicare and Medicaid Services. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.) Dr. Barnato and Jennifer Bowman, formerly of CBO, helped to draft portions of an earlier version of the paper.

Christine Bogusz edited the paper, and Loretta Lettner proofread it. Maureen Costantino prepared the paper for publication and designed the cover. Lenny Skutnik printed copies of the paper, and Annette Kalicki produced the electronic version for CBO's Web site (www.cbo.gov).



Douglas Holtz-Eakin
Director

May 2005

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Summary and Introduction

Medicare's rising demand for budgetary resources has been well documented, with spending for the program projected to grow significantly in the coming decades.[1] In response, policymakers are exploring ways to reduce that potential growth in spending, perhaps by increasing beneficiaries' cost sharing or promoting competition among service providers. Options that would constrain the program's costs without reducing the quality or availability of care, however, are limited.

One potential avenue for reducing Medicare spending stems from the observation that a small fraction of Medicare beneficiaries accounts for a large share of the program's spending in a given year. That concentration of expenditures is characteristic of insurance programs in general. However, it also suggests the possibility of a policy alternative: identify the relatively small group of potentially high-cost beneficiaries and find effective intervention strategies to reduce their spending. If that approach was successful, even a small percentage reduction in the spending of that group of beneficiaries could lead to large savings for the Medicare program.

The feasibility of using such a strategy depends on the answers to three key questions. First, how concentrated is health care spending among Medicare beneficiaries? Second, can individuals who will have high costs be identified before those costs are incurred (or at least before a large enough share of those costs has been incurred to still warrant targeting the remaining spending)? And third, assuming that future high-cost beneficiaries can be identified, can effective strategies be devised to avert the anticipated high costs?

This paper explores the first two questions in order to gauge the potential effectiveness of focusing on high-cost Medicare beneficiaries as a way to reduce the program's costs. To begin with, it documents the extent to which Medicare expenditures are concentrated among relatively few beneficiaries. Analysts observe a significant degree of concentration in the spending of Medicare beneficiaries, both in a given year and over time. For example, high-cost beneficiaries (those in the top 25 percent in terms of their spending) accounted for 85 percent of annual expenditures in 2001 and for 68 percent of five-year cumulative expenditures from 1997 to 2001. In addition, those high-cost beneficiaries, compared with beneficiaries in the bottom 75 percent in terms of their spending, were slightly older, more likely to suffer from chronic conditions, such as coronary artery disease and diabetes, and more likely to die in a given year.

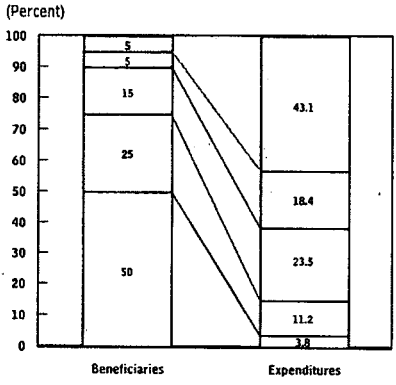
Finally, to determine whether beneficiaries with high future costs can be identified before those costs are incurred, the paper explores three simple observational methods for prospectively identifying beneficiaries who will incur extended periods of expensive medical care. The methods look at beneficiaries who were high cost in a certain year (in this case, 1997), who were admitted to a hospital that year, or who had multiple chronic conditions that year. The costs for all three groups are compared with those for a random sample of Medicare beneficiaries.

Spending in 1997 for all three groups was more than twice as high as spending for the reference group, and it was four times as high for the group with a hospital admission. The next year, however, the previously hospitalized group had the largest decline in its share of spending, whereas the share of spending by beneficiaries with multiple chronic conditions barely fell at all. Over the next

1. See Congressional Budget Office, *The Long-Term Budget Outlook* (December 2003). CBO projects that, under current law, Medicare spending will increase from 2.6 percent of gross domestic product (GDP) in 2004 to 8.3 percent or more in 2050. See also *The 2005 Annual Report of the Board of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (March 2005). The Medicare trustees estimate that Medicare spending will equal 9.3 percent of GDP in 2050 and 13.6 percent in 2079.

Figure 1.

Concentration of Total Annual Medicare Expenditures Among Beneficiaries, 2001



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

four years (through 2001), all three groups spent nearly twice as much on Medicare-covered services as beneficiaries in the reference group.

Those methods are highly stylized and conceptual illustrations. In practice, which groups to identify and which methods to use would depend on the actual intervention strategies that might be implemented. Moreover, the extent to which those targeted beneficiaries reduced their spending would ultimately rest on the ability to devise and implement effective intervention strategies, clinical or otherwise, to change beneficiaries' use of medical services.

The Concentration of Medicare Expenditures

Medicare spending is highly concentrated, with a small number of beneficiaries accounting for a large proportion of the program's annual expenditures. In 2001, the costliest 5 percent of beneficiaries enrolled in Medicare's fee-for-service (FFS) sector accounted for 43 percent of total spending, while the costliest 25 percent (defined as the high-cost group in this paper) accounted for fully 85 percent of spending (see Figure 1). In this context, spending includes expenditures paid for by all parties—including the Medicare program itself, beneficiaries, and third-party payers such as medigap insurers—for all services covered by the Medicare program.[2] (For a description and discussion of the Medicare data used in this analysis, see Box 1.) Real (inflation-adjusted) spending among the most expensive 5 percent of beneficiaries averaged about $63,000 per person in 2001, with the least expensive person in that group spending more than $35,400 (see Table 1). Among the most expensive 25 percent of beneficiaries, spending averaged about $24,800, with the least expensive beneficiary in that group spending over $6,200 in 2001. By contrast, the least expensive 50 percent of Medicare beneficiaries accounted for only 4 percent of total spending, with costs in 2001 averaging about $550 per person.

The concentration of Medicare spending has lessened slightly since the early 1990s. From 1991 to 2001, there was a large increase in the level of Medicare spending, with total annual Medicare expenditures per FFS beneficiary growing by more than 40 percent in inflation-adjusted terms, from $5,080 to $7,310.[3] However, the rate of increase in spending was larger among low-cost beneficiaries than among high-cost ones. On average, real per capita spending among the bottom 75 percent of beneficiaries grew at 6.8 percent per year over that 10-year period, whereas spending among the top 25 percent

2. Spending by the Medicare program itself is more concentrated. For example, the most expensive 5 percent of Medicare FFS beneficiaries accounted for 48 percent of annual Medicare FFS spending in 2002, and the most expensive 25 percent accounted for 88 percent. See Medicare Payment Advisory Commission, *Report to the Congress: New Approaches in Medicare* (June 2004), Figure 2-1.

3. The increase in national health expenditures during that period was even larger, with an average annual growth rate of inflation-adjusted spending per person of over 5 percent between 1990 and 2001. See www.cms.hhs.gov/statistics/nhe/historical/t1.asp. Part of the difference in the rates of spending growth is attributable to the fact that Medicare did not cover outpatient prescription drugs—a fast-growing component of national health expenditures—during that period. In addition, the Balanced Budget Act of 1997 reduced payments for various Medicare-covered services.

Box 1.

Methodology of This Analysis

The Congressional Budget Office's (CBO's) analysis of Medicare expenditures presented in this paper is based on longitudinal data of Medicare claims from 1989 through 2001 for a 5 percent sample of Medicare beneficiaries enrolled in the fee-for-service sector of the Medicare program. The sample was derived from claims records maintained by the Centers for Medicare and Medicaid Services.

The data contain information on the enrollment and entitlement status of each beneficiary, his or her demographic characteristics, and monthly expenditures for all Medicare-covered services (short-term hospital, other hospital, skilled nursing facility, outpatient, physician, home health, hospice, and durable medical equipment). In this paper, total expenditures for Medicare-covered services include third-party payments and beneficiaries' share of payments through deductibles and copayments, as well as the amounts paid by the Medicare program. CBO converted all expenditures into 2005 dollars using the GDP deflator. (Those constant-dollar expenditures can be interpreted as the opportunity cost of health care.) Although the data contain some diagnostic information reported in claims files (such as beneficiaries' diagnosis-related group, or DRG), they generally lack detailed clinical information. Moreover, because outpatient prescription drugs were not covered by Medicare during the years of the sample, the database also does not include spending for prescription drugs.

To be included in a given year of data, a beneficiary had to have at least one month of enrollment in both Part A (Hospital Insurance) and Part B (Supplementary Medical Insurance) of the Medicare program. Beneficiaries enrolled in managed care were excluded from the analysis because their expenditure information was not available. The resulting sample contains approximately 1.6 million beneficiaries per year.

The number of admissions to hospitals and skilled nursing facilities was constructed from inpatient and skilled nursing claims. The number of visits to physicians' offices and emergency departments was constructed from codes (according to the Healthcare Common Procedure Coding System, or HCPCS) reported in physicians' claims.

Seven chronic conditions were considered in the analysis: asthma, chronic obstructive pulmonary disease, chronic renal failure, congestive heart failure, coronary artery disease, diabetes, and senility. A beneficiary was defined as having a chronic condition if he or she had the diagnosis reported in physicians' claims data (as the primary or secondary diagnosis) for at least one month in a given year. Detailed diagnosis codes were grouped into general categories using the Clinical Classification Software developed by the Agency for Healthcare Research and Quality.

of beneficiaries grew at 3.3 percent per year.[4] As a result, the share of Medicare spending by the top one-quarter of beneficiaries decreased from 88.8 percent in 1991 to 85.0 percent in 2001 (see Table 1).

Factors Affecting the Degree of Concentration

A high degree of concentration of expenditures is not unique to the Medicare population. Health care expenditures in the general population show similar patterns.[5] In fact, they are even more concentrated: in 1996, for example, the costliest 5 percent of the U.S. population accounted for 55 percent of total health care spending.

4. Those trends are consistent with the fact that medical spending for physician-provided care (used by both low-cost and high-cost Medicare beneficiaries) grew faster during that period than did spending for hospital-provided care (used largely by high-cost beneficiaries).

5. See Marc L. Berk and Alan C. Monheit, "The Concentration of Health Care Expenditures, Revisited," *Health Affairs*, vol. 20, no. 2 (March/April 2001), pp. 9-18.

Table 1.

Expenditure Levels and Thresholds for Medicare Beneficiaries, by Spending Group, 2001 and 1991

Spending Group	2001 Percentage of Total Spending	2001 Average Spending in Group (Dollars)	2001 Threshold for Group (Dollars)	1991 Percentage of Total Spending	1991 Average Spending in Group (Dollars)	1991 Threshold for Group (Dollars)
Percentage of Beneficiaries						
Top 5 percent	43.1	63,030	35,420	45.8	46,530	25,470
6 percent to 10 percent	18.4	26,900	20,470	19.0	19,260	14,560
11 percent to 25 percent	23.5	11,430	6,210	24.0	8,140	4,240
26 percent to 50 percent	11.2	3,290	1,620	9.1	1,840	760
51 percent to 100 percent	3.8	550	0	2.2	220	0
Memorandum:						
Medicare Expenditures per Beneficiary	n.a.	7,310	n.a.	n.a.	5,080	n.a.

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Notes: Spending is reported in 2005 dollars.

n.a. = not applicable.

That skewed distribution of medical spending is rooted in the fundamental reason that people value insurance. Events that people typically insure against, like flood or fire, involve a small probability of a very expensive outcome. Similarly, in health care, although individuals may know about their need for medical services to some degree, their exact amount of spending on medical care is variable and unpredictable. For instance, most people do not know whether they will have a heart attack, even if they are fully aware of their relative risk factors. Health insurance spreads the financial risks of adverse health outcomes across the insured population, so that the small fraction of people who incur very high expenses of severe illness are financially protected. Both the probability of adverse health outcomes and the expense of medical care to treat them affect the degree of concentration of spending.

To the extent that the probability and the nature of ill health vary across subgroups of the Medicare population, one would expect to see varying degrees of concentration in spending across those groups. A striking example is the very small group of beneficiaries with end-stage renal disease (ESRD), who have chronic kidney failure and require dialysis or kidney transplantation.[6] Most people with that condition have very high medical spending. As a result, that group has a much more even distribution of expenditures across its members than does the larger Medicare population. For example, the most expensive 5 percent of ESRD patients accounted for only 17.4 percent of spending by all ESRD patients in 2001; in comparison, the most expensive 5 percent of all Medicare FFS beneficiaries accounted for 43 percent of spending by all Medicare beneficiaries (see Table 2). Similarly, beneficiaries with chronic medical conditions have high average annual medical spending, but it is also more evenly spread across that group than is spending for the overall Medicare population.[7]

Characteristics of High-Cost Medicare Beneficiaries

Although high-cost beneficiaries tend to be older than low-cost ones, the two groups are not so distinct in terms of other demographic characteristics (see Table 3). At over 74 years, the average age of high-cost beneficiaries exceeded that of low-cost ones by more than three years

6. People with ESRD, like people receiving Social Security benefits on the basis of a disability, are entitled to Medicare benefits regardless of age.

7. See Box 1 for the definition of chronic conditions used in this paper.

Table 2.

Concentration of Expenditures Among Subgroups of Medicare Beneficiaries, by Spending Group, 2001

(Percent)

Spending Group	ESRD Beneficiaries	Elderly Beneficiaries	Beneficiaries with Chronic Conditions	All Beneficiaries
Percentage of Beneficiaries				
Top 5 percent	17.4	41.9	34.2	43.1
6 percent to 10 percent	11.2	18.4	16.9	18.4
11 percent to 25 percent	24.1	23.9	26.9	23.5
26 percent to 50 percent	26.6	11.7	15.7	11.2
51 percent to 100 percent	20.8	4.1	6.3	3.8
Total	100.0	100.0	100.0	100.0
Memorandum:				
Subgroups as a Percentage of All Beneficiaries	1	85	48	100
Average Spending per Beneficiary (Dollars)	54,370	7,270	12,130	7,310

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Notes: Spending is reported in 2005 dollars.

ESRD = end-stage renal disease.

Elderly beneficiaries are defined as those 65 years of age or older. As an example of how to read the information in this table, the top 5 percent of elderly Medicare beneficiaries accounted for 41.9 percent of all spending by elderly beneficiaries.

in 2001. Nearly 20 percent of high-cost beneficiaries were age 85 or older, compared with 10 percent of other beneficiaries, and about 14 percent died during the year. The gender and racial compositions of the two groups were very similar.

The prevalence of chronic conditions, which typically require ongoing care and treatment to maintain health and functional status and to slow the progression of the disease, was also strongly linked to high expenditures and the use of medical resources. More than 75 percent of high-cost beneficiaries were diagnosed with one or more of seven major chronic conditions in 2001. More than 40 percent of high-cost beneficiaries had coronary artery disease, and about 30 percent had each of three other conditions—diabetes, congestive heart failure, and chronic obstructive pulmonary disease. All of those conditions were much less prevalent among low-cost beneficiaries.

In terms of the medical services they received, the high- and low-cost groups were similar in that they both visited physicians regularly (see Table 4). The vast majority of Medicare beneficiaries in both groups saw a physician in 2001; however, among high-cost beneficiaries who visited a physician, the average number of visits during the year was 11, compared with six visits among low-cost beneficiaries who visited a physician at least once. High-cost beneficiaries were also much more likely to have been admitted to a hospital or a skilled nursing facility than were members of the low-cost group and to have been treated in a hospital emergency room during the year.

The Persistence of Medicare Expenditures

If the goal of policymakers is to ultimately direct intervention strategies toward high-cost beneficiaries and change their use of Medicare services, it is important to consider patterns in Medicare spending over relatively long periods of time, not just over one year. Do individuals who make heavy demands on the Medicare program one year continue to do so in subsequent years? Or are

Table 3.

Characteristics of Medicare Beneficiaries in High- and Low-Cost Spending Groups, 2001

(Percent)

	High Cost (Top 25 Percent)	Low Cost (Bottom 75 Percent)
Demographic Characteristics		
Average age (Years)	74.4	71.1
Under age 65	13	15
Age 85 and over	19	10
Female	57	57
Black	10	9
Mortality	14	2
Presence of Chronic Conditions		
Asthma	8	4
Chronic obstructive pulmonary disease	29	10
Chronic renal failure	9	1
Congestive heart failure	30	5
Coronary artery disease	42	15
Diabetes	30	16
Senility	14	4
Beneficiaries with One or More Chronic Conditions	78	38
Beneficiaries with More than One Chronic Condition	48	12

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Note: Beneficiaries under age 65 include those who are entitled to Medicare benefits on the basis of a disability or end-stage renal disease.

the high-cost beneficiaries changing each year? If there is high turnover among high-cost beneficiaries, intervention strategies designed to change their use of Medicare services could be difficult to implement successfully because the time available to affect their spending may be limited.

Expenditure Patterns Over Time

The transition of Medicare beneficiaries between high- and low-cost status in two successive years is illustrated in Table 5. For Medicare beneficiaries who were high cost in 1997, nearly half (44 percent) were also in the high-cost category the next year, compared with one in six (17 percent) of low-cost beneficiaries. If the transition between cost categories was purely random, 25 percent of the survivors in each group would have been expected to be high cost in the second year.

A look at the longer expenditure history of high-cost beneficiaries in 1997 provides additional insight into the persistence of their high-cost status (see Figure 2). As discussed above (and indicated by the darkest bars in Figure 2), 44 percent of high-cost beneficiaries in 1997 had large Medicare spending again in 1998. That fraction dropped off in subsequent years, nearly reaching 25 percent four years later, in 2001. A similar spending pattern preceded high-cost beneficiaries' 1997 experience: nearly half of those who would be high cost in 1997 were high cost in 1996, and about one-quarter were high cost four years prior to 1997.

That pattern of spending makes intuitive sense. Although the presence of serious chronic illness is common among high spenders, many types of adverse health shocks that result in very high spending (such as a heart attack and the subsequent bypass operation) are episodic and largely random. It is less likely that a person would have a series

Table 4.

Use of Medicare Services by High- and Low-Cost Spending Groups, 2001

	High Cost (Top 25 Percent)		Low Cost (Bottom 75 Percent)	
Type of Service	Percentage with Service Type	Average Use Conditional on Service	Percentage with Service Type	Average Use Conditional on Service
Short-Term Hospital Admission	74.8	1.7	2.4	1.0
Other Hospital Admission	12.1	1.4	0.3	1.1
Skilled Nursing Facility Admission	16.5	1.4	0.1	1.1
Emergency Department Visit	62.6	2.2	14.0	1.4
Physician's Office Visit	86.0	11.3	73.6	6.0

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Note: As an example of how to read the information in this table, among the 74.8 percent of high-cost beneficiaries who had a short-term hospital admission, the mean number of admissions was 1.7.

of acute health shocks several years in a row than have an episode or two in a given year and then recover. Therefore, high expenditures in one year are likely to decrease over time as expenditures regress to the mean in subsequent years.

An examination of the spending patterns of Medicare beneficiaries reveals a second pattern: the quantitative importance of the subsequent death of high-cost beneficiaries. About 14 percent of beneficiaries with high Medicare expenses in a given year die during that year (see Figure 2). Within four years, that fraction accumulates to 40 percent.

In general, impending mortality greatly increases the probability of an individual's incurring high costs regardless of his or her prior spending. Studies show that about one-quarter of total Medicare payments are for the typically expensive and intensive treatment received in a patient's last year of life, which often postpones death for only a short time.[8] Indeed, the high mortality rate among high-cost beneficiaries reported in Figure 2 confirms that a sizable fraction of spending by high-cost beneficiaries is for people near death. But not all deaths result in high spending, nor do all high-cost beneficiaries die soon thereafter.[9] Different trajectories of functional decline at the end of life imply different spending patterns prior to death. Whereas people dying from organ failure experience gradually diminishing functional status with periodic exacerbations of their illness, thus incurring very high spending before death, other people who die suddenly often incur little health care spending in their last year of life.[10]

Although patients who die incur no further medical costs, they also offer little potential for cost savings if they had been targeted for an intervention strategy. Taking subsequent mortality into account, however, strengthens the empirical correlation of high spending over time. For high-cost beneficiaries in 1997 who did not die over the next four years, nearly one-half—instead of one-quarter—were high cost at the end of 2001. In Figure 2, the numbers of living high-cost and low-cost beneficiaries were roughly equal in each year from 1998 through 2001. Had there been no persistence in high medical expenses, only one-quarter of those beneficiaries would have been expected to be high cost during those years.

8. See Christopher Hogan and others, "Medicare Beneficiaries' Costs of Care in the Last Year of Life," *Health Affairs*, vol. 20, no. 4 (July/August 2001), pp. 188-195; and James D. Lubitz and Gerald F. Riley, "Trends in Medicare Payments in the Last Year of Life," *New England Journal of Medicine*, vol. 328, no. 15 (April 15, 1993), pp. 1092-1096.

9. Moreover, because a patient's time of death is unpredictable (except perhaps in cases such as advanced cancer), it is only in hindsight that researchers can estimate which costs were associated with care at the end of the patient's life and which costs were associated with attempts to save the patient's life.

10. See June R. Lunney, Joanne Lynn, and Christopher Hogan, "Profiles of Older Medicare Decedents," *Journal of the American Geriatrics Society*, vol. 50, no. 6 (June 2002), pp. 1108-1112; and June R. Lunney and others, "Patterns of Functional Decline at the End of Life," *Journal of the American Medical Association*, vol. 289, no. 18 (May 14, 2003), pp. 2387-2392.

Table 5.

Transition of Medicare Beneficiaries Between High- and Low-Cost Spending Groups, 1997 to 1998

(Percent)

Cost Status in 1997	Cost Status in 1998	
	High Cost	Low Cost
High Cost	44	56
Low Cost	17	83

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Note: The low-cost (or not high-cost) spending group in 1998 also includes beneficiaries who died or became disenrolled between 1997 and 1998.

The Concentration of Spending Over a Five-Year Period

Given the presence of high end-of-life expenditures and the regression to the mean following a high-cost year, one might expect Medicare expenditures over a longer period to be less concentrated than annual expenditures tend to be. For the entire 1997 cohort of Medicare beneficiaries, that is indeed the case (see Figure 3).[11] Compared with the distribution of annual expenditures reported in Figure 1, that cohort's five-year inflation-adjusted cumulative expenditures are somewhat less concentrated: the top 5 percent of beneficiaries, when ranked by five-year cumulative spending, accounted for 27 percent of total five-year Medicare spending from 1997 to 2001, compared with 43 percent for annual spending. Furthermore, the top 25 percent of beneficiaries accounted for 68 percent of total five-year spending, compared with 85 percent for annual spending.

There is still a great deal of concentration of expenditures over five years, however, in part because a significant group of Medicare beneficiaries incurs high spending over an extended period. For beneficiaries whose cumulative 1997-2001 spending put them in the top 25 percent of all beneficiaries for that 60-month period, Figure 4 displays the distribution of the number of months in which they were in the top 25 percent of beneficiaries in terms of spending in that month. The median number of months is 22. In other words, about half of cumulatively high-cost beneficiaries had high monthly costs during 22 months or more of the 60-month period. That result could indicate that there may be time and opportunity to intervene to affect the use of Medicare services for a significant number of high-cost beneficiaries because they remain persistently high cost over an extended period.

11. That cohort is defined as beneficiaries who enrolled in the Medicare program as of January 1997 and who either remained enrolled for five years (until December 2001) or died. Beneficiaries who subsequently enrolled in a Medicare managed care plan were excluded. There were about 1.4 million beneficiaries in CBO's random sample of that cohort.

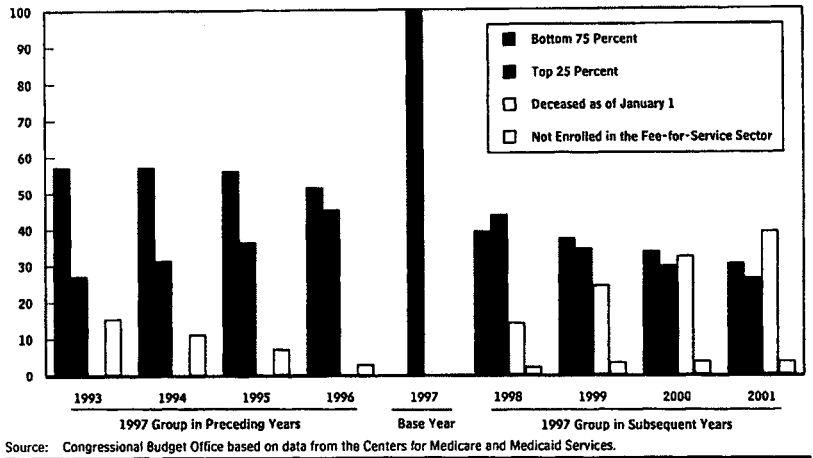
Prospectively Identifying Future High-Cost Beneficiaries

Whether a strategy of focusing on high-cost beneficiaries could lead to significant reductions in overall Medicare spending would depend on two factors: the ability to identify individuals who will have high costs in the future, and the ability to mitigate those high costs. The existence of Medicare beneficiaries whose high spending persists over an extended period presents potential opportunities for intervention strategies. However, prospectively identifying such individuals could be difficult.

A basic problem is that although researchers can identify characteristics or conditions that are prevalent among high-cost beneficiaries, many low-cost beneficiaries may also share the same characteristics. For instance, a number of chronic conditions were found to be highly prevalent among high-cost beneficiaries, and considerably less prevalent among low-cost beneficiaries. However, because the number of low-cost beneficiaries in this illustration is three times as large as the number of high-cost beneficiaries, the *numbers* of high-cost and low-cost beneficiaries with those conditions are much more similar (see Table 6). So while diabetes is nearly twice as prevalent among high-cost beneficiaries as it is among low-cost ones, the actual number of low-cost beneficiaries with diabetes greatly exceeds the number of high-cost beneficiaries with that condition. Therefore, any intervention strategy that focuses simply on beneficiaries with diabetes will include a large number of people who will not incur significant medical expenditures (at least soon thereafter). Even the most successful strategies for identifying high-cost individuals will probably include some who will not turn out to be expensive.

Figure 2.

Expenditure History of Medicare Beneficiaries Who Constituted the Top 25 Percent in 1997



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Illustrative Strategies for Identifying High-Cost Beneficiaries

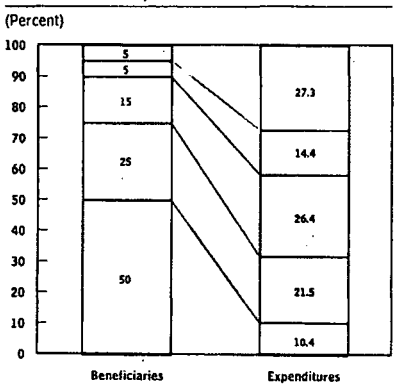
This section briefly considers three simple strategies for prospectively identifying high-cost beneficiaries on the basis of the characteristics of those beneficiaries discussed above. The first strategy is to select beneficiaries who were high cost in the previous year. The spending history shown in Figure 2 demonstrates that expenditures in the previous year are correlated with expenditures in the following year. The second strategy is to select beneficiaries who were hospitalized in the previous year based on the correlation between hospital admission and continued high spending. Both the first and second strategies would delay providing interventions until the disease had progressed and some substantial costs had already been incurred. The third strategy is to select beneficiaries who were diagnosed with two or more of seven chronic conditions: asthma, chronic obstructive pulmonary disease, chronic renal failure, congestive heart failure, coronary artery disease, diabetes, and senility. The resulting samples from the three strategies were compared with a sample of randomly selected Medicare beneficiaries. (The selection criteria for all of those strategies also required that the beneficiaries still be alive in January 1998.)[12]

How the strategies fared is displayed in Table 7 on page 12. The share of the Medicare population included in each of the three selected groups ranged from 17 percent to 22 percent. To make the subsequent shares of spending by the groups more comparable, CBO adjusted the size of each group (by random assignment) to match the size of the smallest original group, or 17 percent of the overall Medicare FFS population. The group with a hospital admission had the largest average spending in 1997 (at $24,900), followed by the high-cost group (at $23,000) and the group with multiple chronic conditions (at $16,900). The reference group had $6,200 in average spending. The previously hospitalized group also had the

12. The selection criteria further required that beneficiaries be enrolled in Medicare's fee-for-service sector from 1997 to 2001, enabling analysts to track their spending over the entire five-year period

Figure 3.

Concentration of Total Cumulative Medicare Expenditures Among Beneficiaries, 1997 to 2001



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

largest decline in spending from 1997 (the year of the hospitalization) to 1998, with its share of total Medicare spending falling by over 20 percentage points, or by more than one-third. In contrast, the share of spending by beneficiaries with chronic conditions, as with those in the reference group, barely fell at all.

In terms of subsequent spending, beneficiaries in each of the three selection groups used more than $46,000 in Medicare-covered services over the next four years, compared with $27,000 for beneficiaries in the reference group. The previously high-cost group accounted for 29 percent of total Medicare spending over those four years, compared with 28 percent for beneficiaries with a prior hospitalization and 28 percent for those diagnosed with multiple chronic conditions. Those levels of aggregate spending occurred despite the fact that nearly half of the members in each group died before the end of the four-year period.

Approaches to Managing Care for High-Cost Beneficiaries

The three selection strategies considered above are highly stylized and conceptual illustrations, and they do not address the challenges of designing and implementing workable programs to reduce costs. However, they broadly reflect some of the approaches currently being developed and tested by various organizations. For example, the selection strategy focusing on people diagnosed with chronic conditions is similar to the approach taken by some private disease management programs.

Over the past decade, many private health plans and organizations have begun to offer disease management as a model of care for chronically ill patients, in an attempt both to improve the quality of care that enrollees receive and to slow the growth of their health care costs. Disease management programs vary widely in the specific techniques and tools they use, but they share some common components that are designed to address several perceived shortcomings of current medical practice. One component is to educate patients about their disease and how they can better manage it. The goal is to encourage patients to use medication properly, to understand and monitor their symptoms more effectively, and possibly to change their behavior. A second component is to actively monitor patients' clinical symptoms and treatment plans, following evidence-based guidelines. A third component is to coordinate care among providers, including physicians, hospitals, laboratories, and pharmacies. A disease management program can provide feedback and support to physicians about patients' status between office visits as well as up-to-date information on best practices as they apply to the specific patient. Although disease management is a term sometimes used as a catchall that addresses any and all limitations of fee-for-service care, it does not encompass general care coordination or general preventive services, such as flu shots.[13]

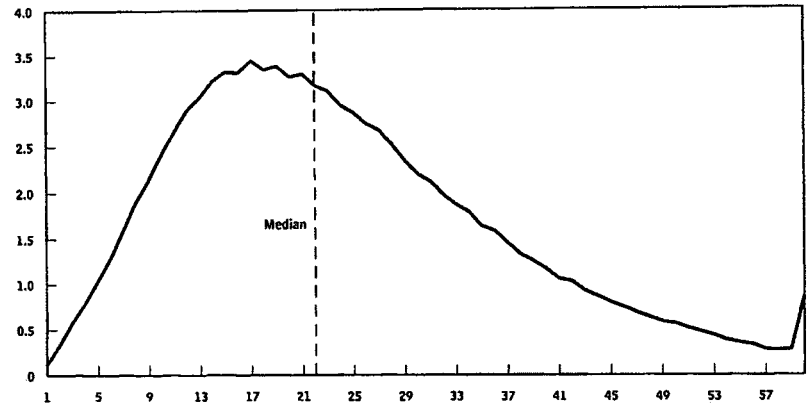
Various demonstration projects and initiatives by the Centers for Medicare and Medicaid Services also focus on strategies to improve care for beneficiaries who account for large amounts of Medicare spending. For example, the Chronic Care Improvement Program was created by the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 to improve clinical care for

13. See Congressional Budget Office, *An Analysis of the Literature on Disease Management Programs* (October 2004).

Figure 4.

Distribution of High-Cost Months Over the 1997-2001 Period

(Percentage of beneficiaries in the top 25 percent)



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

beneficiaries with advanced congestive heart failure and/or diabetes with significant comorbidities.[14] The more recent Care Management for High-Cost Beneficiaries Demonstration is designed to develop and test strategies to improve the coordination of Medicare services for high-cost FFS beneficiaries.

Identifying individuals likely to be responsible for a large share of Medicare spending merely points out the possibility of focusing on high-cost beneficiaries as a way to reduce the program's costs. Realizing those reductions in spending would ultimately rest on the ability to devise and implement effective intervention strategies, clinical or otherwise, to change beneficiaries' use of medical services.

Initial results from disease management programs and other efforts indicate the difficulty of reducing the use of care. In certain cases, the health conditions underlying high spending may not be amenable to effective interventions. Moreover, although interventions may improve health outcomes for high-cost beneficiaries, they may lead to increases in the use of medical care. It is important to note that improving the care received by high-cost beneficiaries in itself may be a worthwhile objective, even if it fails to reduce costs.

14. Nine sites have been selected for the pilot phase of the program.

Table 6.

Percentage and Number of Medicare Beneficiaries in High- and Low-Cost Spending Groups with Selected Chronic Conditions, 2001

Chronic Condition	High Cost (Top 25 Percent)		Low Cost (Bottom 75 Percent)	
	Percentage	Number (Millions)	Percentage	Number (Millions)
Chronic Obstructive Pulmonary Disease	29	2.3	10	2.4
Chronic Renal Failure	9	0.7	1	0.2
Congestive Heart Failure	30	2.4	5	1.2
Coronary Artery Disease	42	3.4	15	3.6
Diabetes	30	2.4	16	3.9

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Table 7.

Illustrative Criteria for Targeting Future Medicare Beneficiaries in High-Cost Spending Groups

	Selection Criteria Based on the 1997 Cohort			Random Sample of Medicare Beneficiaries
	High Cost in 1997	Hospital Admission in 1997	Multiple Chronic Conditions in 1997	
Original Percentage of 1997 Cohort	25	20	19	n.a.
Percentage Alive in January 1998	22	17	17	n.a.
Adjusted Sample Size (Percent)	17	17	17	17
Spending				
Average spending in 1997 (Dollars)	22,990	24,890	16,940	6,180
Share of total 1997 spending	54.1	58.6	39.9	16.7
Share of total 1998 spending	38.1	36.9	36.1	15.9
Share of total 1999 spending	29.6	28.3	29.6	14.9
Share of total 2000 spending	25.1	24.0	25.3	13.9
Share of total 2001 spending	21.7	20.8	21.9	12.9
Average four-year cumulative spending, 1998 to 2001 (Dollars)	48,150	46,180	47,420	27,480
Average share of total Medicare spending, 1998 to 2001	28.6	27.5	28.2	14.4
Percentage of Beneficiaries Deceased as of December 2001	46	46	49	23

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Notes: A chronic condition is a diagnosis of asthma, chronic obstructive pulmonary disease, chronic renal failure, congestive heart failure, coronary artery disease, diabetes, or senility in at least one month. Multiple chronic conditions comprise two or more of those seven conditions. Spending is reported in 2005 dollars.

n.a. = not applicable.

Senator KOHL. We will now call our second panel. The first witness on the second panel is from Arkansas, and so we would like to recognize Senator Lincoln to introduce her constituent.

Senator LINCOLN. Well, thank you, Mr. Chairman, and as our panelists are taking their seats, I have a real pleasure today to introduce Dr. William J. Evans, who is director of the Nutrition, Metabolism, and Exercise Laboratory in the Donald W. Reynolds Institute on Aging at the University of Arkansas for Medical Sciences, UAMS, where he is also a professor of geriatric medicine, physiology, and nutrition.

Dr. Evans, I just have to say I routinely bring up the Don Reynolds Institute on Aging and UAMS in this Committee and in the Finance Committee, so I am so pleased that I now have a representative from there who can speak to the tremendous work that's going on in terms of the dealings with multiple disease diagnosis and coordination of care.

Dr. Evans is also a research scientist in the Geriatric Research, Education, and Clinical Center in the Central Arkansas Veterans' Health Care System. He is author or co-author of more than 190 publications and scientific journals. His research has examined the powerful interaction between diet and exercise in elderly people. Along with Dr. Erwin Rosenberg, Evans is the author of Biomarkers: The Ten Determinants of Aging That You Can Control, and the author of Astrofit.

His work has been featured in numerous newspapers, including the New York Times, the Boston Globe, the Chicago Tribune, as well as the CBS Evening News, CBS Morning Show, 20/20, CNN, and the PBS Series, the Infinite Voyage.

His landmark studies have demonstrated the ability of older men and women to improve strength, fitness, and health through exercise, which we all want information for, even into the 10th decade of life. I am not sure that he has met my husband's grandmother, who is 108 this year, living out in Parkway Village, Dr. Evans, so she is a great one to consult.

Dr. Evans receives grant support from the National Institute of Health, the Veterans Administration, NASA, private industry, and other sources. He is a fellow of the American College of Sports Medicine, and the American College of Nutrition, and an honorary member of the American Dietetic Association.

I am enormously proud to be here to introduce you to Dr. Evans and to share your wealth of knowledge with this Committee and I thank the Chairman and the two Senators here, Chairman Smith and Chairman Kohl.

Dr. Evans. Thank you Senator Lincoln. It is a real honor and pleasure Senator Kohl. Thank you, and we will just go through it, and then we will get to your testimony.

Senator LINCOLN. Oh, good.

Senator KOHL. Our next will be Bill Herman who is vice president of Human Resources at High Smith in Fort Atkins in Wisconsin.

Highsmith has been nationally recognized for its innovative employee wellness programs, and so we are pleased that Mr. Herman is here today to share the keys to the success of his company. Thank you so much for being here.

Senator Smith, would you like to welcome your guest?

The CHAIRMAN. Thank you, Mr. Chairman. It is my privilege to welcome our next witness as well, Mr. Stephen J. Brown, president and CEO of Health Hero Network, founded in 1988. His company is a recognized leader in the development and implementation of innovative technologies used to monitor or manage traditionally high-cost patients.

Their technology is currently being used by a number of institutional health care providers, including the Veterans' Administration, to more efficiently manage patients with heart failure, pulmonary cardiovascular disease, diabetes, asthma, post acute care, mental health, and many other chronic conditions.

Additionally, Health Hero Network and Bend Memorial Clinic in Bend, OR, are partnering to see how this technology can be used to coach and monitor Medicare patients with severe chronic illness and prevent them from going to the hospital and developing further complications.

So we thank you, Stephen for being here, and I look forward to hearing more about your technologies.

Senator KOHL. Our final witness on this panel will be Dr. Steven Woolf, professor of the Departments of Family Medicine, Epidemiology, and Community Health at Virginia Commonwealth University.

Dr. Woolf's career has focused on preventive medicine, and he is a senior advisor to the Partnership for Prevention.

We welcome you all, and Mr. Evans we will start with your testimony.

STATEMENT OF DR. WILLIAM EVANS, DIRECTOR OF NUTRITION, METABOLISM, AND EXERCISE LABORATORY, DONALD W. REYNOLDS INSTITUTE ON AGING, UNIVERSITY OF ARKANSAS FOR MEDICAL SERVICES, LITTLE ROCK, AR

Dr. EVANS. Thank you very much. It is a real honor to be here.

I am in only the second department of geriatrics in the United States, which is an indication of the relative lack of attention toward geriatrics in this country, and it is only now changing, and so we are very fortunate to be in this wonderful new center.

As we know, attitudes toward aging have been around a very long time. As Shakespeare describes the ages of man, he says the second childishness and mere oblivion, sans teeth, sans eyes, sans tastes, sans everything.

This attitude toward aging I think is now beginning to change. I think we are at the beginning of a revolution in how we think about aging, because for the first time, we can actually separate what is biological aging from how we go about living our lives, as we have just talked about.

One of the features of aging we know is a loss of muscle. We think that that is critical. These are data from the Baltimore Longitudinal Study on Aging. The yellow line happens to be loss of muscle. This is a lifelong process. We have coined a term for it. We call it sarcopenia, and that simply means the age-related loss of skeletal muscle mass.

We think that this is an enormous problem. It leads to reduced protein reserves, the decreased ability of elderly people to respond

to stress, decrease strength and functional capacity, leading to frailty and falls, reduced aerobic capacity, and reduced needs for calories.

Recently, health care costs directly attributed to sarcopenia have been estimated. There is enormous prevalence of this problem: greater than 20 percent of people over the age of 65 suffer from sarcopenia. In the year 2000, sarcopenia could be attributed to more than $18.5 billion, which is 15 percent of total health care expenditures. That translates to an excess of $860 for each sarcopenic man and $933 for each sarcopenic woman.

A 10 percent reduction in sarcopenia prevalence would save $1.1 billion (dollars adjusted to 2000 rates) per year in U.S. healthcare costs.

This is what sacropenia looks like. These are the cross sections of the thighs of two women, a 21-year-old woman and 63-year-old woman. You can see the astonishing and remarkable change in body composition, with an impressive decrease in muscle and an equally as impressive increase in fatness.

Do elderly people respond to exercise? This is a study we did some time ago where we asked the question. We trained young and old people with bike exercise. Our older subjects gained more than 20 percent of their aerobic capacity in 12 weeks. They had regained in 12 weeks what they had lost in 15 years. But the biggest problem we think in older people is weakness. These are data from the Framingham Study showing that for women between 75 and 85, 65 percent report that they cannot lift 10 pounds, and 35 percent of men. That translates directly into reduced independence, decreased dependence on social services and other issues.

So can we get older people stronger? The answer to the question is yes. The first study we did was in older men, doing just weightlifting 12 weeks. We were able to triple their muscle strength in just 12 weeks so that many of these men who were in their mid–60's were not only stronger than most men of their age, they were stronger than they had ever been in their lives.

We were able to show the size of their muscle increased dramatically, at 15 percent. We next looked at the ability of older women to respond to this type of exercise. We know that one in two women and one in eight men aged 50 and over will have an osteoporotic-related fracture in their lifetime. The costs of osteoporosis are tremendous and rising.

We did a simple study, again funded by the National Institutes of Health. We took post-menopausal women. We randomized them to an exercise group two days a week of weight lifting exercise versus a control group. This is what their bone density looked like. So the exercising women showed no age-related loss in bone in that year; in fact, an increase in bone density. The control group lost bone. If you look at the evidence of the new generation of anti-osteoporosis drugs that are so expensive, none of them have an effect like this. They don't affect other factors related to falls related to fracture. So this one simple intervention increased strength, increased muscle, improved balance, and increased their levels of physical activity. In totality, this simple exercise program has far greater effects of reducing risk of above fracture than any medication.

Then the final studies I wanted to show you was the ability of very, very old people to respond to exercise. The first study that we did we reported in JAMA and we got a lot of press. This is a cartoon that appeared in Sports Illustrated of all places when they did a report on our study.

We did that. In another study we published in the New England Journal of Medicine that I am going to highlight. In this study, our subjects range in age between 72 and 98; 69 percent were over the age of 85. This is a population with multiple chronic disease. These were nursing home patients.

At least half of them were somewhat demented. Half of them had arthritis. Forty-four percent had pulmonary disease. Forty-four percent had a previous osteporotic fracture. Thirty-five percent were hypertensive. Twenty-four percent had a diagnosis of cancer. Sixteen percent were diabetic, and 13 percent had a myocardial infarction. They were all allowed into the study. We showed that we could triple their strength. We improved their balance, decreased the risk of falling. Their walking speed improved. Their ability to climb stairs improved. They were able to get up and move around a lot more. They told us that they didn't need to ring for a nurse in the middle of the night anymore to use the toilet. They told us that they could get up and move around and get their meals. So not only can we improve their independence, but we can improve the quality and dignity of their life.

Importantly, there was a significant decrease in depression in the group that exercised.

So it is possible. They are quite responsive. We have a number of different very, very positive effects of this type of exercise that is enormously important and powerful. I just wanted to show a couple of statewide exercise programs that I designed. One was in Massachusetts, where I was a faculty member at Tufts University for 15 years. I designed a program for the state called Keep Moving, and every year we had an event called the Governor's Cup for Seniors, and this was the line for two of the races; lots of grey hair in there. They love these programs. We also designed a program at—when I was at Penn State, called PEPPI, Peer Exercise Program Promotes Independence, which we are now implementing in Arkansas. It says we trained community-based peer leaders using the Triple A's in Pennsylvania—very inexpensive, very effective. This is one of the groups in Altoona, PA. This is a newspaper that somebody sent me with all of the PEPPI programs that are in their community. Currently, there are 250 groups, with a total participation of more than 5,000.

A recent survey of this program showed that 82 percent say they can walk better. Ninety-five percent are better able just to get up from a seated position. Seventy-eight percent say they can climb stairs more easily. Many of them have improved balance.

Even more importantly, 99 percent of the participants state that their health has improved and 87 percent say they are more independent.

So we hope that this will be the future of nursing homes. Finally, I was privileged to be at a joint press conference with Senator Glenn after his space flight to talk about similarities between space flight and aging and found a wonderful quotation that described

the Senator perfectly well and also revealed that Shakespeare was probably a geriatrician. We know that these things can prevent debility and though I look old, yet I am strong and lusty, for in my youth, I never did apply hot and rebellious liquors in my blood, nor did not with unbashful forehead woo the means of weakness and debility. Therefore, my age is as a lusty winter, frosty, but kindly. Let me go with you. I'll do the service of a younger man in all your business and necessities.

So Senator Glen certainly is the epitome of successful aging. Thank you very much.

[The prepared statement of Dr. Evans follows:]

Strategies to prevent late life dysfunction and chronic disease in elderly people

William J. Evans PhD,
Professor of Geriatric Medicine, Nutrition, and Physiology
Donald W. Reynolds Institute on Aging
University of Arkansas for Medical Sciences
Central Arkansas Veterans Healthcare System
Little Rock, Arkansas

The sixth age shifts
Into the lean and slippered pantaloon
With spectacles on nose and pouch on side,
His youthful hose, well sav'd, a world too wide
For his shrunk shank, and his big manly voice
Turning again toward childish treble, pipes
And whistles in his sound. Last scene of all,
That ends this strange and eventful history,
Is second childishness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything
As You Like It, Act II, Scene VII, lines 157-166

While attitudes towards aging as an inevitable decline towards oblivion have been with us for thousands of years, for the first time in human history these attitudes and notions are changing. New research has altered our ideas of what aging is. For the first time in history, we can begin to separate what may be inevitable consequences of aging from how we live our lives. One of the most universal features of aging is a change in body composition. This change involves an increase in body fatness (with an increase in visceral or belly fat) and a substantial loss of muscle. This loss of muscle mass has been termed sarcopenia (2). Sarcopenia, like osteopenia, appears to be a life-long process with a many causes. Sarcopenia results in weakness, frailty, reduced Calorie needs, reduced functional capacity (1) and a greatly increased risk of disability in older people (6). The prevalence of sarcopenia among men and women above the age of 65 is greater than 20%

The estimated direct healthcare cost attributable to sarcopenia in the United States in 2000 was $18.5 billion ($10.8 billion in men, $7.7 billion in women), which represented about 1.5% of total healthcare expenditures for that year. A sensitivity analysis indicated that the costs could be as low as $11.8 billion and as high as $26.2 billion. The excess healthcare expenditures were $860 for every sarcopenic man and $933 for every sarcopenic woman. A 10% reduction in sarcopenia prevalence would result in savings of $1.1 billion (dollars adjusted to 2000 rate) per year in U.S. healthcare costs (7). In addition, body fatness is a powerful predictor of late-life disability (9). As the obesity level of the US population continues to increase, the lethal combination of decreased muscle and increased fat threatens to overwhelm health services for elderly people and costs for caring for an increasingly frail elderly population.

The good news is that older people are remarkably responsive to dietary and exercise interventions. At one time, it was thought that age diminishes the capacity to respond appropriately to exercise. We lose fitness at the rate of about 1% every year between the ages of 20 and 70 years. After 70, the rate of decline increases. My laboratory and those of many others have demonstrated the extraordinary capacity of elderly people to grow stronger, fitter, and healthier through exercise and diet. We have demonstrated that seniors can regain more that 15 years of loss in their aerobic capacity (fitness) in only 12 weeks. However, activities such as walking, riding a bike, or even swimming cannot restore lost muscle. Perhaps the most important functional deficit among elderly people is weakness. Our initial research was in health, but inactive, older men. In 10 weeks, we demonstrated that resistance exercise training tripled the strength of these men and substantially increased the size of their muscles (5). We were also able to demonstrate that one year of strength training (two days per week) stopped the loss of bone and increased bone density of the spine in a group of older, post-menopausal women. This effect was as great as any seen with anti-osteoporosis drugs that are currently in use. However powerful the effects on

bone, the exercise intervention affected other factors that are know to be associated with a risk of falling. The women in this study got stronger, increased their muscle mass, improved their balance, and showed an increase in levels of physical activity (8).

Our research has also shown that strength training is safe and effective even in the most frail of seniors in their 10th decade of life. We recruited a group of 100 nursing home residents - many with cognitive disorder and multiple chronic diseases. Ten weeks of strength training tripled their strength, improved their balance, their ability to stand from chair, their ability to walk and climb stairs. This simple intervention increased their activity level and decreased their symptoms of depression. Many told us that they no longer needed to ring for a nurse to use the toilet. Many told use that they could get up and get their meals rather than having it delivered to them.

Strength training is very safe and has a powerful effect in older people. In fact the gains that elderly people make from this exercise are greater than those seen in young men and women. These effects include: improved strength and fitness, increased levels of physical activity, decreased risk of osteoporosis, improved retention of dietary protein (older individuals need more protein than do young people - and this exercise increases the ability of older people to retain protein even on a marginal intake), improved glucose tolerance and decreased risk of type 2 diabetes (and the long-term consequences of this disease), improved balance, and increased Calorie needs (so that the overweight elderly can lose weight safely) (4). Because older people are more frail and have a much higher incidence of chronic disease, there is no single segment of our society that can benefit more from a regularly performed exercise program. Exercise and increased physical activity should be the standard of care for every elderly person (3). The greatest cost savings of good nutrition and exercise will be seen in this population because the effects are seen so quickly.

Finally, it goes without saying that this research could not have been accomplished without support of the Veterans Administration and the National Institutes of Health. These two agencies have been at the forefront of efforts in understanding the physiological and metabolic consequences of aging and how exercise and diet can allow seniors to live and active, productive, vigorous life with dignity.

Although Shakespeare reflected on growing disability with age, he must have also been a specialist in geriatric, because he understood that is was possible to prevent late-life disability through good habits:

Though I look old, yet I am strong and lusty;

For in my youth I never did apply

Hot and rebellious liquors in my blood

Nor did not with unbashful forehead woo

The means of weakness and debility:

Therefore my age is as a lusty winter,

Frosty, but kindly. Let me go with you;

I'll do the service of a young man

In all your business and necessitites.

As You Like It, Act II, Scene III, lines 46-55.

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Senator KOHL. Thank you, Mr. Evans. Mr. Herman, tell us about your company.

STATEMENT OF MR. BILL HERMAN, VICE PRESIDENT OF HUMAN RESOURCES, HIGHSMITH, INC., FORT ATKINSON, WI

Mr. HERMAN. I am happy to, Senator. Good morning.

It is a pleasure to be here.

Like most businesses in our country, Highsmith is a small business. We are a family owned distribution company located in rural Wisconsin, halfway between Milwaukee and Madison.

We have approximately 220 employees. Our customers are libraries and schools.

Over the last 10 years, we have received a remarkable number of awards and a flood of national publicity for our wellness and employee development initiatives. We earned that recognition by managing our health care costs; at the same time, we improved the quality and productivity of our workforce. In fact, those two things are closely linked. But we really set out to accomplish much more.

We set out to ensure the long-term vitality and viability of a growing business.

Our response to the crisis in health care costs and health risk management has always served that goal. In fact, my point today is that wellness and employee development have been successful at Highsmith because we have made them a part of our business plan.

We have learned the value of a well thought out strategic approach to implementing and sustaining health and wellness concepts within our organization, concepts that continue to influence and effect the lives of employees after they retire. Our culture is supportive of health lifestyle choices and encourages good nutrition and lifestyle activity.

At Highsmith, wellness is not viewed as just a program, but rather as a strategic initiative to nurture the human capital necessary to meet corporate goals and objectives.

Over time, we found that traditional definitions of wellness and health promotion often fell short of encouraging personal responsibility for health and wellbeing.

Highsmith undertook a fundamental transformation in our view of wellness. We think the terms wellness and employee development are interchangeable. Engaging employees in their jobs, emphasizing learning and development, providing tools to balance work life responsibilities, along with health and wellness have all been integrated at Highsmith.

This initiative encompasses a carefully managed blend of seven components: job-career development, work life enrichment, personal wellbeing, self-care, physical wellbeing, monetary incentives as applied to health insurance premiums, and a comprehensive array of benefits.

A key piece is the monetary incentives. If an employee and spouse qualify for the incentive, Highsmith pays 75 percent of their single or family health insurance premium. If one doesn't participate, we pay only 60 percent. The voluntary eligibility requirements to qualify for the incentive are enrollment in our health insurance plan, to be a non-user of all tobacco products, participation

in our annual health screening, plus age and gender specific physical exams.

Eighty-three percent of our employees on our health plan do participate.

The annual health screening for employees and spouses measures height and weight, blood pressure, a carbon monoxide screen to determine if one smokes, a full blood lipid panel, glucose, and a treadmill fitness test.

Participants also complete a coronary risk profile. The most critical part of the health screening is delivering immediate feedback and helping people understand it.

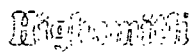
There are four distinct feedback stations as part of the health screening. One of the stations is a focus on emotional wellbeing. Some of the results that we have been able to measure in the period 2000 through 2004 are we have had a 53 percent decrease in total participants with high-risk cholesterol levels. We have had a 52 percent decrease in total participants with high blood pressure; a 72 percent decrease in total participants whose VO2 submax was high risk—how healthy your heart is. We have normal blood glucose levels in 84 percent of all participants.

We have experienced an average increase in health insurance premiums of only 5.4 percent over the last 4 years. Employee turnover is single digit, and our average tenure is 14 years.

Utilization of our employee assistance program was 22.8 percent for 2004. The national average hovers between 4 and 6 percent.

So in conclusion, I would like to reiterate that wellness and health promotion is not a program at Highsmith. It is not a stand alone. It is really a strategy initiative to have the human capital necessary to meet our corporate goals and objectives. Thank you.

[The prepared statement of Mr. Herman follows:]



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Senate Special Committee on Aging
June 30, 2005 Hearing Testimony

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Highsmith Inc. is a distributor of supplies, furniture and equipment to public, academic and special libraries, as well as schools and school libraries throughout the U.S. and abroad. Headquartered in Fort Atkinson, WI, Highsmith employs 220 people and markets over 25,000 products through more than a dozen specialty catalogs and a direct sales force located strategically throughout the country.

The company has a reputation as an innovator in organization design, employee development, health risk management & wellness programming. Highsmith received one of the 2004 Secretary's Innovation in Prevention Awards from the Department of Health & Human Services and is a two-time recipient of the Wellness Council of America's Gold Well Workplace Award and the inaugural recipient of the Platinum Well Workplace Award. In 2003, Highsmith was recognized by the State of Wisconsin with a Corporate Culture Award for our focus on employee retention, motivation and our unique learning and development model. And most recently, we were recognized with the Wisconsin Psychologically Healthy Workplace Award. Highsmith has also been featured in *The New York Times*, *Business & Health magazine*, MSN.com and on NBC, The Nightly News with Tom Brokaw.

We have been active in health promotion and wellness initiatives since 1990. At that time, there was very little research that indicated there would be a return on investment for wellness dollar expenditures. We intuitively believed if we promoted healthy lifestyles, we could have an impact on healthcare cost and productivity. We knew this couldn't happen overnight. We needed to slowly raise the awareness of our employees on health, and shift our corporate culture to be more in alignment with supporting healthy lifestyle behaviors. We began to target dollars for services to nudge and encourage employees to make healthy lifestyle decisions.

Fifteen years later, Highsmith's commitment to health and wellness is stronger than ever as evidenced by our successes with employee development, and has allowed us to achieve an average of only a 5.4% increase in our healthcare premiums over the last four years.

We've learned the value of a well thought out strategic approach to implementing and sustaining health and wellness concepts in our organization. Concepts that continue to influence and affect the lives of employees after they retire. Our culture is supportive of healthy lifestyle choices and encourages good nutrition and lifestyle activity. At Highsmith, wellness is not viewed as just a program, but rather as a strategic initiative to nurture the human capital necessary to meet corporate goals and objectives.

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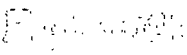

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Over time, we found that traditional definitions of wellness and health promotion often fell short of encouraging personal responsibility for health and well-being. Highsmith undertook a fundamental transformation in our view of wellness. We think the terms wellness and employee development are interchangeable. Engaging employees in their jobs, emphasizing learning and development, providing tools to balance work/life responsibilities along with health and wellness must all be integrated.

We are integrating these areas through an initiative called T.A.G.

- Total commitment to developing human potential.
- Access to learning opportunities.
- Growth as an individual and as a company.

T.A.G. extends beyond the traditional aspects of job/career development. We view job/career development as just one aspect of learning and development. Personal and physical well-being, self-care, and work/life enrichment all contribute to an individual's overall well-being. Our vision is to create an environment of positive choices where employees can make actionable decisions about their development in support of company goals and objectives.

Within T.A.G., we offer a comprehensive menu of health promotion, disease prevention activities and programs, mental health education and resources, and traditional job/career development opportunities – some of which are listed below.

- Monetary Incentive Approach for Health Insurance (See Exhibit 1)
- Annual Health Screening with one-on-one feedback for Employee/Spouse (See Exhibit 2)
- Individual Health and Disease Management Consultations with On-site Health Educator
- Intranet with Comprehensive E-Health Resources, Company Information, and Career Development Information
- New employee orientation includes meetings with a learning and development professional and a health educator to learn about the T.A.G. initiative.
- Wellness Resource Collection in Corporate Library
- Employee Assistance Program
- Work/Life Services
- Financial Services
- Legal Services
- Flexible Spending for Health Care and Dependent Care
- Educational Assistance
- On-site Chair Massage
- Blood Pressure Screenings
- On-site Exercise Classes
- Annual Course Catalog offering over 50 educational opportunities for employees and families in all five T.A.G. components
- Ergonomics and Workstation Audits
- Stretching Programs in Warehouse and Office
- Mental and Emotional Health Programming and Screenings
- Menopause Programming
- Asthma and Allergy Education
- Domestic Abuse Outreach and Education
- Diabetes Awareness and Education
- Alternative Medicine Programming

- Additional Awareness Campaigns and Educational Opportunities Focusing on Self-Care, Women's Health, Men's Health, Depression, Domestic Abuse, Cancer (Breast, Prostate, Skin and Cervical), Safety and Ergonomics
- Pre- and Postnatal Education and Consultations
- Employee Lifestyle Challenges/Incentive Programs
- Weight Management Programs
- Weight Management Support Groups
- Healthy Cooking Classes
- Tobacco Cessation Programs
- Self Care Programming
- On-site First Aid/CPR Training
- On-site Walking Trail and Walking Programs
- Stress Reduction and Time Management Programs
- Healthy Snack Days
- Citrus Program
- On-site Flu and Pneumonia Vaccine Clinic
- On-site Tetanus Shots
- Healthy Vending Options

The Highsmith approach is non-traditional and on the forefront of taking wellness and health promotion to a new level. Highsmith has achieved a high level of employee participation in the T.A.G. initiative. All employees (100%) are involved in some aspect of T.A.G.:

- 83% participate in Highsmith's monetary incentive approach to health insurance
- 50-85% of employees are active participants in challenges/ongoing wellness programming
- 81% of employees enroll in classes offered through the T.A.G. course catalog
- 72% of employees participate in the onsite comprehensive health screening and complete annual Health Risk Assessments
- 2004 utilization of our Employee Assistance Program was 22.8%

Highsmith has been investing in the health, wellness and development of our workforce for over a decade. That investment has been paying off in many different ways.

Reduction in Health Risk Factors 2000-2004:

- 53% decrease in number of health screening participants whose total cholesterol was "high risk" (High risk=240 and over)
- 52% decrease in number of health screening participants whose blood pressure was "high" (High=140/90 or above)
- 72% decrease in number of health screening participants whose VO_2 submax was "high risk" (High risk=age/gender specific)
- Average of 84% of total participants had a "normal" blood glucose level (Normal=Under 100)

Other examples:

- At a time when health insurance premiums are increasing at double-digit rates, our premiums have held steady. Over the last four years (2002-2005), Highsmith's healthcare premiums have risen an average of only 5.4%.

Senator KOHL. Thank you very much, Mr. Herman.
Mr. Brown.

STATEMENT OF MR. STEPHEN J. BROWN, PRESIDENT AND CEO, HEALTH HERO NETWORK, INC., MOUNTAIN VIEW, CA

Mr. BROWN. Mr. Chairman and Committee members, I am Steve Brown, and I am the CEO of Health Hero Network, a technology company in Mountain View, CA.

We serve people struggling with chronic illness. Our technologies are designed to enable caregivers to coach and monitor patients at home. I am going to talk about some of the commonsense things that Senator Lincoln talked about, and I am also going to talk about some of the programs we are involved with, which hopefully will make the CBO happy about the results as well.

My view is that health care does not start when we are wheeled into the emergency room, and it does not start at the doctor's office.

Health care starts at home, with our own behavior and with prevention.

Most people in Medicare have a chronic illness. For them, prevention means reducing the complications of chronic illness and living independently longer. From our work with the Veterans' Administration, we have seen that when caregivers and patients work together on daily management and prevention, they can improve the quality of life and reduce costs.

To illustrate this point, I am going to introduce Wally Browning from Huntington, WV, who recently was interviewed in his local paper. I included this in the written testimony.

Wally Browning is a Vietnam veteran. He served our country in Vietnam, and now he is being served by the VA and by Health Hero Network.

Wally has congestive heart failure, one of those high-cost, high-risk conditions that require very close attention and management. It is also one of the leading causes of hospital admissions for Medicare.

Every day a nurse at the VA checks in on how well Wally is doing, remotely, by sending message to a device installed in Wally's home, called Health Buddy, and I brought that for you to see too.

With simple push buttons, Wally is able to answer questions that appear on the screen and tell his nurse how he is doing; tell his nurse about new symptoms transmit data about his blood pressure and his weight and also get feedback and coaching from his nurse about his condition and about his health program and about healthy choices that he needs to make.

A VA nurse uses a computer with a secure Internet application to analyze Wally's data every day and flag potential problems before they become worse. The result has been fewer emergencies, fewer stays in the hospital, greater piece of mind, and cost savings for the VA. As Wally puts it, after he checks in with his Health Buddy, he feels like he is good for another day.

Wally is like 20 million Americans with complex chronic illnesses who are at risk of going to the hospital any day. Many of these hospital admissions can be prevented if we coach and monitor patients at home.

The reason our health care system is in trouble, even though we spend nearly $2 trillion a year on it, is that we are not paying for the right model of chronic care. For 40 years, Medicare payment has been based on episodic, face-to-face encounters with a doctor, usually in reaction to a crisis.

But chronic illness is not episodic. It is long-term, and it needs to be managed every day.

If we want to prevent hospitalizations, we need to coach and monitor patients at home before a crisis occurs.

We know it is possible because we are doing this every day across America for thousands of veterans. According to the VA, hospital admissions for patients in the program were 63 percent lower than for a comparison group with similar high-risk conditions.

Last year, we worked with the Information Technology Association of America to look at the question. What if Medicare could achieve similar results to the VA with similar patients? The answer published by the ITAA—and that report is also in the written testimony—is that we would save over $30 billion a year.

As a result of your leadership and that of your colleagues, the Medicare Modernization Act starts to recognize that people with complex chronic illness need continuity of care and prevention rather than more episodic crisis management. That is a major step forward for Medicare, and now the challenge is execution. We are participating in two large-scale chronic care improvement pilots authorized by the Medicare Modernization Act. We are also working with the American Medical Group Association and its physician groups, like the one in Bend, OR, to create a chronic care model based on coaching and monitoring patients at home, under the supervision of their primary physician.

Part of the wisdom of the recent Medicare initiatives is in recognizing how technology can play a vital role in transforming the model of care for chronic illness.

Information technologies can extend care into the home and coach patients to improve their own lives and change their own behavior. Caregivers can detect early and deliver the right care at the right time before there is a crisis.

Health care and prevention starts at home, and the right technology can help people struggling with chronic illness and connect them to better care. I thank you for inviting me to testify today.

[The prepared statement of Mr. Brown follows:]

Testimony of Stephen J. Brown
President and CEO, Health Hero Network
before
Senate Special Committee on Aging
Thursday, June 30, 2005

Mr. Chairman and Committee Members:

My name is Steve Brown, and I am the CEO of Health Hero Network, a technology company in Mountain View, California. We serve people struggling with chronic illness by developing technologies that enable caregivers to coach and monitor patients at home.

We have been working with care coordination programs of the Veterans Health Administration for five years. We are participants in two of the nine Medicare Health Support Programs recently awarded under the Medicare Modernization Act of 2003.

My view is that health care does not start when you are wheeled through the emergency room door. Health care does not start at the doctor's office.

Health care starts at home.

Health care starts at home with our own behavior: The little things we do for ourselves every day, and the things that we notice and can do something about while they are still small problems, rather than waiting until they become a crisis.

Most of today's Medicare beneficiaries already have one or more chronic diseases – particularly hypertension, lung disease, diabetes, heart failure, and depression. Today, the concept and practice of prevention in Medicare is really about ensuring that people with chronic illness develop fewer complications and live independent longer – and stay out of the emergency room and hospital, the health care system's most expensive settings.

From our work with patients at the VA, we have seen that when health care providers and patients with chronic illness work together and focus on daily management and prevention, they can have a huge impact on patients' quality of life while reducing the cost of their care.

I would like to show you an article from The Herald-Dispatch, a local newspaper of Huntington, West Virginia, from May 17, 2005. It is about a man named Wally Browning who served our country in Vietnam, and who now is being served by the VA and by Health Hero Network.

Every day, Wally's nurse at the VA remotely checks on how Wally is doing by automatically sending personalized text questions and messages to a device called Health Buddy installed in Wally's home. With simple pushbuttons, Wally answers questions that appear on the screen, telling his nurse how he is feeling and whether he has any new symptoms. Then Wally might connect his blood pressure cuff or weight scale and transmit the latest readings. The system also gives Wally feedback and coaches him to stick with his care program and make healthy choices.

The nurse at the VA opens a secure Internet page to track Wally and other patients. The page flags potential problems according to rules set by the VA and their standard practice guidelines.

The result is fewer emergencies, fewer stays in the hospital, and greater peace of mind for Wally – and tremendous cost savings for the VA. His nurses help him stay on track with his prevention-oriented chronic care program rather than letting him fall through the cracks. As Wally puts it, after he checks in with Health Buddy, he feels like he is "good for another day."[1]

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[1] "Daily monitoring helps patients keep control," *The Herald Dispatch*, May 17, 2005

Why is this important for Wally? Because Wally has congestive heart failure, a chronic condition that can send him to the hospital if his heart gets out of balance and his lungs start to fill up with fluid. With careful management, however, Wally may be able to keep things under control and live independently at home much longer.

There are 5 million people with congestive heart failure, and it has become a leading cause of hospital admissions for Medicare. There are also millions of people with other high risk chronic conditions that should be managed at home rather than in the hospital, such as diabetes, hypertension, and heart disease, and respiratory disease.

In fact, you will find at least 20 million Americans like Wally, most of them seniors, who have multiple complex chronic diseases, and who are at risk of going to the hospital. But effective prevention is possible, through coaching and monitoring at home as evidenced by the numerous published studies of our simple Health Buddy system. The cost of these programs is minimal, especially compared to the savings from prevented ER visits and hospital admissions.

According to many experts and studies, chronic illnesses account for a majority of total US health care spending, which is now nearing $2 trillion per year. Why is our health care system in so much trouble, even though we spend nearly $2 trillion a year on it?

The federal government is the biggest payer for health care, and the only one big enough to change the practice of medicine. Yet for 40 years, the federal government through Medicare has primarily paid for episodic, face-to-face encounters with a doctor – usually in reaction to a crisis. Medicare has specifically excluded most care that is continuous and long-term, and with rare exceptions, anything outside the doctor's office or hospital.

But chronic illnesses aren't episodic. They are long term and they need to be managed every day. If you want to prevent hospitalizations, you need to coach people about preventive behavior and interact with them at home to spot problems early.

In short, you need to coach and monitor patients at home.

We know it is possible because we are doing it every day across the country for thousands patients cared for by the VA. According to the VA, hospital admissions for patients in the prevention-focused care coordination program were 63% lower than for a comparison group of similar patients with high-risk chronic conditions.[2]

Last year, we worked with the Information Technology Association of America to answer the question: "What if Medicare could achieve similar results with similar patients?" The result published by the ITAA said that if we could achieve, through coaching and monitoring patients at home, results in Medicare similar to those of the VA, we'd save over $30 billion a year.[3] That savings would grow as the huge swell of Baby Boomers hit retirement.

Most analysts agree that there are currently 6 million Medicare patients, most with severe chronic illness, and typically multiple severe and complex chronic conditions, who account for 75 percent of Medicare spending. Prevention-oriented, technology-based health coaching and monitoring of those patients at home will yield substantial improvements in quality of life while making a big dent in the costs of their care.

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[2] "Virtually Healthy: Chronic Disease Management in the Home," Disease Management, Volume 5, Number 2, 2002, pp. 85-94.

[3] "Chronic Care Improvement: How Medicare Transformation Can Save Lives, Save Money, and Stimulate an Emerging Technology Industry," Information Technology Association of America, May 2004.

As a result of your leadership and that of your colleagues, the Medicare Modernization Act of 2003 asks CMS to find ways to improve chronic care and mandates several large-scale pilots that could become permanent programs if successful. "Chronic Care Improvement" is defined in the Medicare Modernization Act as a service in which care coordinators coach and monitor patients at home and use monitoring technologies, decision support tools, and clinical information databases to ensure better results for patients, higher quality care, and best practices.

The recognition that people with chronic conditions require continuous care rather than episodic crisis management is a major step forward for Medicare.

Now the challenge is execution. How can prevention and chronic care be implemented to best reach the people who need it and to become embedded in our health care delivery system? How can we keep these new services accountable and ensure we are getting the results we hope for?

As I said earlier, we are participating in two of the nine Medicare Health Support Programs that the MMA authorized. We are also working with the American Medical Group Association and its large multi-specialty physician practices to replicate a consistent care management program that assists patients in taking more control of their chronic illnesses through coaching and monitoring, under the care of their primary physician.

Part of the wisdom of the Medicare Health Support Program and similar CMS initiatives is the recognition of the key role that information technologies can play in transforming the delivery of chronic care. Information technologies are a critical part of the success of this program, because they allow best practices to be repeated and scaled. Information technologies also enable data to be collected to ensure that services are accountable and that guidelines are followed.

Most importantly, information technologies can extend care into the home, helping patients improve their own lives and change their own behavior. Care providers can better support patients with the right care at the right time, before there's a crisis.

Health care—and prevention—starts at home. The right technology can help empower patients struggling with chronic conditions and connect them to better care.

In closing, I again want to thank the Committee for inviting me to testify today and commend you, Mr. Chairman, for holding this hearing. While the Medicare Modernization Act is now in its implementation phase, I believe that Congress must continue to support CMS in its effort to transform Medicare into a program that is focused on prevention and keeping people healthy. Technology and care management for coaching and monitoring at home can transform how Medicare serves patients and make a tremendous impact on the economics of the program.

I am happy to answer any questions you may have.

DISEASE MANAGEMENT
Volume 5, Number 2, 2002

Virtually Healthy: Chronic Disease Management in the Home

MARLIS MEYER, M.A.,[1] RITA KOBB, M.N., ARNP,[2] and PATRICIA RYAN, R.N., M.S.[3]

ABSTRACT

Beginning in April 2000, eight clinical demonstration projects were funded for 2 years within the Sunshine Network of the Veterans Health Administration (VHA) to test disease management principles, the care coordinator role, and the effective use of technology to maintain veterans in their homes. Five of these projects focused on complex medical/chronic disease populations. Seven hundred and ninety-one veterans were recruited in these five projects and enrolled in the Community Care Coordination Service (CCCS). The program was conceptualized around and designed by network field staff as an "aging in place" model. The purpose behind the integration of the care coordinator role with technology was to improve health status, increase program efficiency, and decrease resource utilization. Evaluation results to date have shown a 40% reduction in emergency room visits, 63% reduction in hospital admissions, 60% reduction in hospital bed days of care, 64% reduction in VHA nursing home admissions, and 88% reduction in nursing home bed days of care. All Performance Improvement outcomes reached or exceeded the targeted goals, and a functional assessment revealed five significant improvements out of 10 domains of the SF 36V.

INTRODUCTION

TWO OUT OF THREE Americans—at least 150 million people—have one or more chronic health conditions that reduce the quality of their lives.[1] These conditions may account for two-thirds of the annual $1 trillion in health care costs.[2] It is no wonder that healthcare systems all over the country are looking for solutions to the burgeoning costs of chronic care. Obstacles like upfront costs continue to confound health care organizations in their search for ways to incorporate disease management in the care of their chronically ill adults.[3] Private sector managed-care programs control costs and cap services. Stories of the treatments they withhold or deny continue to make headlines.

The Veterans Health Administration (VHA) in Florida also faces these cost and treatment issues, made even more of a challenge by increased enrollment of older veterans with very complex health problems due to expanded veteran entitlement. Funding has not kept pace with the rate of enrollment. Community Care Coordination Service (CCCS) leaders sought a different solution to bridge this gap—a solution that is a break from traditional VHA care.

[1]Community Care Coordination Service, Department of Veterans Affairs, Lake City, Florida.
[2]Rural Home Care Project, Department of Veterans Affairs, Lake City, Florida.
[3]Community Care Coordination Service, Department of Veterans Affairs, Bay Pines, Florida.

Background

The VA Florida–Puerto Rico Veterans Integrated Service Network (VISN 8) is an integrated system of seven hospitals, 10 multispecialty outpatient clinics, and 28 community-based primary care clinics. The defined service area for VISN 8 includes 60 of 67 Florida counties, 19 rural counties of southern Georgia, Puerto Rico, and the Virgin Islands. Currently, over a million and a half veterans reside in the VISN 8 service area, and, of those, 45% are age 65 and older.[4]

In 1998, VISN 8 was moving in a number of new directions. These included implementation of new technologies that would drive improvements in business practices, patient safety, noninstitutional care, expansion into the home health sector, and development of new alliances with the community to jointly expand healthcare delivery. These new directions were implemented to help the VISN 8 meet key strategic priorities such as improving access to care, reducing costs, increasing the number of home care programs, increasing partnerships with the community, and utilizing noninstitutional alternatives for long-term care.

In looking at populations that might benefit from care coordination and technology across the continuum of care, it was noted that 4% of all veterans in the VISN 8 service area, a group defined as high risk, high use, high cost, were consuming over 40% of the network's resources.[4] To better care for these patients and utilize resources more efficiently, a new care model was developed. From this strategic model, the CCCS was formed. The CCCS developed both clinical and business models, and structured a care coordination system that combines the professional role of the care coordinator with innovative technologies.

To stimulate innovation in delivering care and to meet identified strategic priorities, especially the "aging in place" concept, a network-wide call for proposals resulted in the funding of eight clinical demonstration projects. Five of these projects focused on complex medical/chronic disease populations. CCCS leaders charged these projects with testing disease management principles, through the role of care coordinator, using innovative technology effectively in the home. The goal was to ensure patients were treated in the most appropriate care setting and given the right amount of care at the right time. High-risk, high-use, high-cost veterans were targeted. Several common chronic conditions such as hypertension (HTN), heart failure (CHF), lung disease (COPD), and diabetes (DM) were managed in the population.

Care coordination

When CCCS leaders first presented the concept of care coordination to staff members, care was taken to clearly define key concepts and identify variations from the current practice of case management. In VHA, case management usually pertains to one episode of care and takes place within a hospital setting. Veterans are assigned a case manager upon admission. This individual follows the patient's progress and works with family and healthcare team members to establish a discharge plan. Once the patient has been discharged, the contact is discontinued unless the patient returns for another admission.

In the CCCS model, disease management is conducted throughout the continuum of care. Care coordinators monitor patient problems and help resolve them whenever and wherever they arise. The current healthcare system in America is fragmented, and VHA is similar to the private sector in this regard. The role of the care coordinator is a key factor in ensuring appropriate, timely patient data—which constitutes the most vital part of clinical decision-making—is communicated to the healthcare provider. The professional backgrounds of the care coordinators vary and include social workers, nurse practitioners, and registered nurses. All of these individuals are empowered to assess and make decisions across departments to enhance access to care and to eliminate bureaucratic barriers that sometimes prevent timely symptom management. The technology serves as a tool to help the care coordinator stay efficient and productive in meeting the needs of many patients.

MATERIALS AND METHODS

Technology

Choosing appropriate technology to enhance the care coordinator role was paramount to the

success of the care coordination model. At the start of the program, equipment fairs were conducted to familiarize staff with the technology. Care coordinators from each project selected technology to meet the needs of their own patient populations. Multiple technologies were reviewed for use in the home or other residential settings and those selected included traditional telehealth (telemonitors and videophones) with and without peripheral attachments, an in-home messaging device with chronic disease management dialogues, and instamatic cameras for diabetic wound care management.

These technologies were chosen with residential use in mind, and often were placed in areas where the phone infrastructure was limited. Both telehealth units used POTS (plain old telephone service) instead of the higher speed ISDN (integrated services digital network) technology. The in-home messaging device is a web-based, store-and-forward application that connects to the Internet from the patient's home daily via a toll-free number. Dialogues were developed for this device in collaboration with care coordinators and included DM, HTN, COPD, CHF, coronary artery disease, and angina, and dual dialogues such as DM/HTN, CHF/DM, and COPD/HTN. The dialogues, a series of questions and answers, include symptom management, self-management behaviors, and disease knowledge areas. Symptom parameters were adjusted to comply with VHA clinical guidelines. Care coordinators were able to access the answers over a secured website on a daily basis. Finally, an Instamatic camera was selected for diabetic patients to use for weekly photographs of their diabetic wounds. The camera was extremely easy to operate and to train patients and caregivers on. The camera has two lights that come together at the picture perfect distance. It uses special grid-lined film that aids the care coordinator in assessing the healing process.

The CCCS Clinical Program Director and care coordinators developed a technology algorithm to guide in the selection of technology for all patients. Some of the factors the algorithm looked at in determining the technology used was the clinical stability of the patient, their functional ability to manage the technology, and place of residence (private versus congregate). The algorithm continues to be honed for best practices. All technology used complied with the Joint Commission on Accreditation of Hospital Organizations (JCAHO) for durable medical equipment and infection control standards. Most of the equipment was purchased outright with only one device in a leasing arrangement.

Performance improvement

A standardized performance improvement (PI) plan was implemented across all projects in the CCCS. The PI plan was based upon VHA national clinical guidelines. It addressed HTN medication compliance. Many of the diabetics enrolled had HTN as a comorbidity, and blood pressure control plays an important role in the diabetic patient's risk for heart attack and stroke. Influenza and pneumoccocal pneumonia vaccination rates also were targeted. A provider communication survey was done to determine the adequacy and appropriateness of communication between the primary care provider and the care coordinator.

Methodology

The evaluation methodology is a prospective, quasiexperimental design. It was theorized that, when compared to themselves as well as to non-intervened veterans with similar comorbidities, clinical outcomes and VHA health care resource consumption would show improvement over time. Quarterly intervals were the unit of measure. A database with an Intranet interface was developed so that project staff could input demographic and survey tool data for each patient enrolled. The SF 36V, a standardized, scientifically validated questionnaire specifically designed for veterans, was administered to patients at baseline and 6-month intervals from enrollment in the program. This instrument is generally regarded as a reliable measure of quality of life and functional ability. In addition to this, data was extracted from several other VHA sources, including VISTA (a VHA computerized information system) and the computerized patient record system (CPRS). An odds ratio (OR) was used as a measure of association to approximate the likelihood for nursing home admissions.

TABLE 1. INTERVENED AND COMPARISON GROUP QUARTERLY AVERAGE RATE, USA

	Intervened group	Comparison group
Clinic visit	6.5	4
ER stops	0.53	0.14
Hospital admission	1.3	1.3
Hospital BDOC	996	772
NH admission	1.1	1
NH BDOC	288	443

ER, emergency room; BDOC, bed days of care; NH, nursing home

Population selection was from a network pool of 8,704 veterans identified as high cost in the prior year (≥$25,000), stratified by VA medical centers, and identified with chronic conditions such as CHF, COPD, HTN, and DM. Each care coordinator reviewed the list for appropriateness, made contact to establish willingness of veterans to participate and enrolled those who were willing and appropriate candidates. Seven hundred and ninety-one veterans were enrolled. The drop-out rate was very low (<10%); however, the lists used for enrollment had many exclusions due to death, inability to make contact, or institutionalization.

A comparison population with clinically similar but nonenrolled veterans was also assembled. This group was randomly selected from a stratified sample similar in diagnosis, age, and gender. A comparison of their 1-year average health care utilization rate compared to the intervened group is attached (Table 1). It is important to remember, however, that the intent behind selection of the intervened group was to target a high use, high risk, and high cost population. The intervened group is therefore the group most likely to be biased towards having more adverse events, which will make the comparison a conservative estimate.

RESULTS

Utilization outcomes

In an effort to determine the impact of the CCCS program on the targeted population, the following utilization measures were analyzed (Table 2):

- Clinic visits
- Emergency room (ER) visits
- Hospital admissions
- Hospital bed days of care (BDOC)
- Nursing home (NH) admissions
- NH BDOC

TABLE 2. INTERVENED GROUP: FIRST-YEAR COMMUNITY CARE COORDINATION SERVICE EVALUATION OUTCOME DATA FOR RESOURCE UTILIZATION OF n = 791 ENROLLED PATIENTS

Months	*Clinic visits*	*ER stops*	*Hospital admission*	*Hospital BDOC*	*NH admission*	*NH BDOC*
Preenrollment data						
Pre 12	4,065	346	95	1,144	5	406
Pre 9	4,262	281	93	930	3	35
Pre 6	4,987	429	131	1,028	12	593
Pre 3	5,433	528	119	880	4	116
Postenrollment data						
Post 3	8,830	340	70	765	2	14
Post 6	5,859	276	54	459	5	80
Post 9	4,119	207	29	273	3	27
Post 12	2,606	126	8	77	1	12

ER, emergency room; BDOC, bed days of care; NH, nursing home.

TABLE 3. COMPARISON GROUP: DATA ON RESOURCE UTILIZATION FOR SAME TIME FRAME AS INTERVENED GROUP

Months	*Clinic visits*	*ER stops*	*Hospital admission*	*Hospital BDOC*	*NH admission*	*NH BDOC*
Preenrollment data						
Pre 12	4,250	761	87	813	4	246
Pre 9	4,181	624	79	822	3	519
Pre 6	4,437	627	76	896	8	892
Pre 3	4,420	492	61	557	3	114
Posterenrollment data						
Post 3	4,644	527	68	701	12	443
Post 6	4,815	563	75	1,068	7	342
Post 9	4,810	492	70	433	9	469
Post 12	4,333	656	65	652	9	168

ER, emergency room; BDOC, bed days of care; NH, nursing home.

The intervened group comprised 791 veterans enrolled in the CCCS program for 1 year. A comparison group of veterans were also analyzed (Table 3). The comparison group received usual care with no care coordination or technology. Results for the intervened group from the change in first year to second year data analysis showed a reduction in ER visits by 40%, hospital admissions by 63%, and hospital BDOC by 60% (Table 4).

Clinic visits went up 14% in the first quarter posterenrollment for the intervened group (Fig. 1). This trend was reviewed, and it was noted that care coordinators who had been empowered to make assessments had scheduled clinic appointments during the first few months of enrollment to ensure all clinical needs were met in a timely fashion. After the first 3 months, the number of clinic visits steadily declined. It is also noted that, although this group went up in clinic visits overall, the comparison group went up even more (40%).

In addition to these outcomes, nursing home admissions and bed days of care were evaluated. It was believed by CCCS program leaders that the veteran population targeted by the program was at high-risk for premature institutionalization and thus could be impacted by the care coordination process. Nursing home admissions declined by 64% and nursing home BDOC were reduced by 88%. In the comparison group, nursing home admissions increased by 106% (Table 4). An Odds Ratio analysis revealed that patients enrolled in the program were 77.7% less likely to be admitted to a nursing home care unit than those not enrolled in the program (Table 5).

Quality of life and functional ability as measured by the SF 36V indicated significant improvements in the Role Physical ($p < 0.003$), Bodily Pain ($p < 0.000$), Social Functioning ($p < 0.004$), Role Emotional ($p < 0.000$), and the Mental Composite ($p < 0.011$) scores. The other five domains remained the same, which is also significant in a frail elderly population with complex medical/chronic disease conditions.

Overall, when comparing the intervened group findings to the comparison group, it was found that the intervened group showed con-

TABLE 4. INTERVENED AND COMPARISON GROUPS: PERCENT CHANGE FROM YEAR 1 TO YEAR 2

Percentage change	*Clinic visits*	*ER stops*	*Hospital admission*	*Hospital BDOC*	*NH admission*	*NH BDOC*
Intervened	+14%	−40%	−63%	−60%	−64%	−88%
Comparison	+40%	−11%	−8%	−8%	+106%	−20%

ER, emergency room; BDOC, bed days of care; NH, nursing home.

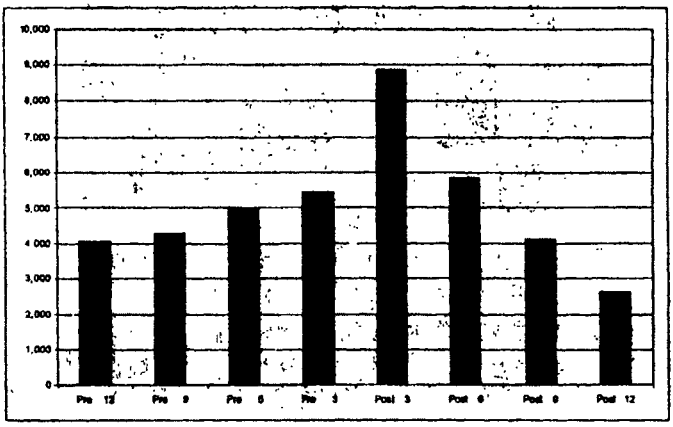

FIG. 1. Intervened group: clinic visits.

siderably greater improvements on all measures.

Performance improvement

Performance improvement data was evaluated on the intervened group. All eight clinical demonstration sites participated in the data collection. Measures identified were immunization rates for influenza (flu) and pneumococcal pneumonia, compliance with antihypertensive medication, and appropriate, timely communication between the primary care provider and the care coordinator. Data for the five complex medical/chronic disease projects is included here. The immunization measures were in line with VHA performance standards. Other measures were developed by CCCS staff based on identified problem areas. VHA immunizations target goals were 78% for both influenza and pneumococcal measures. Eighty-three percent of the CCCS veterans had a current flu shot, and 90% had a current pneumococcal vaccine. Medication compliance, which was chosen as a measure because it is often an issue with the chronically ill population, was 93%. The target goal was also 78%. Primary care providers responded positively to the role of the care coordinator, with an 85% outcome measure for appropriate and timely communication. Eighty-five percent was also the target goal for this measure.

TABLE 5. INTERVENED AND COMPARISON GROUPS: ODDS RATIO ANALYSIS OF NURSING HOME ADMISSION RISK

Intervention	*Cases*	*Controls*	*Total*
Post	11	37	42
Pre	24	18	48
Total	35	55	90

Odd ratio (OR) ad/bc = (11)(18)(24)(37) = 198/888 = 0.223 = OR.

DISCUSSION

Many aspects of chronic disease management must be carefully coordinated and monitored. CCCS leaders therefore believe that the model does improve clinical outcomes and reduces healthcare utilization. One of the core principles behind successful chronic disease management is effective self-management.[5]

The chronic disease dialogues used by the in-home messaging device not only provided daily, repetitive education on self-management principles, but also monitored a variety of symptom parameters including blood sugar, weight, blood pressure, and chest pain.

Leider and Krizan postulated that, for a disease management model to be effective, it must employ three basic strategies: improving patient compliance and self-management behaviors, strong physician leadership, and rigorous monitoring of patients so that clinical outcomes can be improved.[6] The CCCS model embodied these strategies, and staff members were able to effectively operationalize them in practice. Technologies were chosen that supported patient compliance and provided educational opportunities to enhance self-management. Special emphasis was put on keeping the technology simple and user friendly to allow for the broadest use regardless of the patient's technological expertise. The CCCS leaders strongly relied upon the collaboration of physician providers with care coordinators. Physician champions were sought to provide leadership at local project sites and to work directly with CCCS leaders to promote acceptance of the care coordinator role. Care coordinators themselves were chosen for their judgment skills and their effectiveness in managing patient needs across the healthcare continuum.

CONCLUSION

Based on the first-year findings, it is evident that the CCCS model has benefited many frail elderly, medically complex patients. It has helped them to maintain their independence, improved their functional status and deterred from costly hospitalizations and institutionalizations. It is strongly believed that the key to this success has been the carefully constructed role of the care coordinator, with clinical expertise to properly assess patient needs. This role in tandem with the right tools and the technology most adaptable to the needs of the patient and clinician have provided the means for early detection of patients at risk for further deterioration. Through the use of technology, efficiencies in process and practice, previously not possible, are achieved. This approach has given the patients a safer and more secure environment in their most preferred setting, the home.

The first step in the process of inventing a proactive healthcare model that facilitates patient-oriented and cost-effective delivery of services is improving health and information access. The primary concept of integrating technology into care coordination has gone beyond that first step. The model has successfully evolved into an effective approach for managing patients with multiple chronic diseases. The CCCS is in the initial phase of identifying best practices for the strategic model. The intent is to draw upon the lessons learned and develop standards that can serve as the basic foundation for any population management program.

The early successes have warranted expansion of the program to other populations. In 2001, two new demonstration programs were added. There will be a second request for proposals in 2002 to explore the effect of the concepts on other populations and new technologies not yet tested in this environment. In addition, VISN 8 is exploring accreditation opportunities in disease management to further validate and strengthen both the clinical and business applications of the concepts. The aging in place model has been the most notable success of this program. It is readily apparent that more veterans are stable, satisfied and able to manage their chronic health problems in their home environment.

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Chronic Care Improvement

How Medicare Transformation Can Save Lives, Save Money, and Stimulate an Emerging Technology Industry

An ITAA E-Health White paper:
A Product of the ITAA E-Health Committee

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Policy makers have a once-in-a-generation chance to remake the U.S. health care system to meet the needs of an aging population while saving billions of dollars in Medicare spending and keeping the program solvent.

The Medicare Modernization Act of 2003 includes provisions that begin to transform the program's approach to chronic conditions, which are the biggest drivers of health care spending. Properly implemented, chronic care improvement programs can improve the health and quality of life of Medicare beneficiaries with chronic illness – particularly high-risk patients such as 8 million Medicare beneficiaries with five or more chronic conditions who account for over two-thirds of the program's $302 billion in 2004 spending.[1] Many of these patients are hospitalized at a huge cost and suffer because their conditions are allowed to deteriorate to the point where they reach a crisis.

Chronic care improvement programs orient doctors and hospitals to working proactively with patients to maintain their health and keep them out of the hospital. For example, the Department of Veterans Affairs has instituted a model of chronic care that integrates care coordination services with daily in-home monitoring and clinical information tools, and has reported a 60 percent reduction in hospital admissions.[2] If Medicare could achieve similar results with similar patients, the program could save over $30 billion a year. The federal government would also fuel technological innovation for chronic care improvement that would serve a growing need globally.

The Need for Chronic Care Improvement

The nation's most costly chronic conditions include coronary artery disease, heart failure, chronic obstructive pulmonary disease, mental-health disorders, diabetes mellitus, hypertension, and asthma. Chronic illness touches nearly every American, either directly or through loved ones and friends. At least 45 percent of the U.S. population – nearly 132 million people – suffers from one or more chronic diseases.[3] Chronic illnesses afflict a growing number of children and teens through conditions such as asthma and diabetes.

The prevalence of chronic illness will only increase amid the aging of the population and rising levels of obesity, which can lead to diabetes and heart disease. Many chronic conditions such as heart failure and chronic obstructive pulmonary disease disproportionately affect Medicare beneficiaries age 65 and older, whose numbers are projected to double by 2030. At the same time, public health officials are becoming increasingly concerned about the rising numbers of obese and overweight Americans. The federal Centers for Disease Control recently released figures indicating that poor diet and physical inactivity in 2000 caused 16.6 percent of all deaths, up from 14 percent in 1990. Obesity is poised to pass smoking as the leading preventable cause of death.[4] "Obesity has got to be job No. 1 for us in terms of chronic diseases," Dr. Julie Gerberding, CDC's director, told the Associated Press.[5]

The costs of chronic illness to the U.S. are enormous, accounting for at least 78 percent of all health care spending, or well over a trillion dollars per year.[6] The following table outlines the prevalence and inpatient costs to Medicare, the government's insurance program for the elderly and disabled, of seven of the most costly chronic conditions:

[1] Dr. Gerard Anderson, Partnership for Solutions, "Medicare and Medicaid Are Programs for People with Chronic Illness ... But Do Not Know It," presentation to General Accounting Office, February 5, 2004; Partnership for Solutions, *Chronic Conditions: Making the Case for Ongoing Care*, December 2002; Medicare spending data from U.S. Department of Health and Human Services.
[2] M. Meyer, R. Kobb, P. Ryan, "Virtually Healthy: Chronic Disease Management in the Home," *Disease Management*, 2002;5(2):87-94.

[3] Wu, Shin-Yi, and Green, Anthony, "Projection of Chronic Illness Prevalence and Cost Inflation," RAND Corporation, October 2000.
[4] Centers for Disease Control, "Fact Sheet: Actual Causes of Death in the United States, 2000."
[5] Associated Press, "CDC: Obesity gains on tobacco as top death factor," March 10, 2004.
[6] Partnership for Solutions, op. cit.

U.S. hospital discharges and spending on major chronic illnesses

	2004 U.S. afflicted	2004 U.S. discharges	2004 U.S. in-patient cost	2004 Medicare discharges	2004 Medicare cost per discharge	2004 Medicare in-patient cost
Coronary artery disease	13 million	1.6 million	$39.6 billion	.9 million	$29,000	$25.6 billion
Heart failure	5.2 million	1.2 million	$19.8 billion	.8 million	$19,000	$15.2 billion
Chronic obstructive pulmonary disease	8.6 million	.6 million	$8.2 billion	.4 million	$16,000	$6.2 billion
Mental health disorders	20.4 million	1.0 million	$11.4 billion	.2 million	$16,000	$3.9 billion
Diabetes	17.6 million	.5 million	$7.4 billion	.2 million	$20,000	$3.8 billion
Hypertension	51.1 million	.2 million	$4.6 billion	.1 million	$22,000	$3.2 billion
Asthma	20.7 million	.4 million	$3.3 billion	.07 million	$13,000	$1 billion
TOTAL	(a)	5.5 million(b)	$94.3 billion(b)	2.8 million(b)	$21,000(b)	$58.8 billion(b)
Percentage of 2004 Medicare spending						19%

Source: estimates based on 2001 hospital discharge and cost data from the Agency for Health Quality Research, Healthcare Cost and Utilization Project[1] (a) Number of afflicted does not total due to co-morbid conditions. (b) May not total due to rounding.

What the statistics mask is the amount of human suffering that chronic illness causes – particularly under the nation's current model of episodic, crisis-driven care. The health care system is currently geared toward attempting to "fix" patients when they develop a problem. This works well when people have car accidents or other kinds of traumatic episodes, or come down with a severe case of the flu. The system is not well optimized for the huge and growing burden of chronic illness.

Chronic diseases are often preventable through proper health management, such as maintaining a healthy weight and avoiding smoking or excessive alcohol consumption. Once they develop, chronic illnesses represent ongoing conditions that require daily self-care and management, as well as coordination of and collaboration among health care providers.

Without such daily management or reinforcement of self-care behaviors, such as taking medicine or learning to identify early warning signs of trouble, patients' conditions can deteriorate to a point of crisis, landing them in an emergency room or a hospital bed with heart failure, a severe asthma attack, a heart attack, or severe depression. Many of these crises end in death. A poorly managed chronic condition can also lead to a range of other illnesses and complications. Diabetes patients, for instance, are at risk of peripheral vascular disease that can lead to amputations and disability.

The concept of chronic care improvement begins with the recognition that patients with chronic conditions can lead healthier, happier lives under a model of care based on coordinated and proactive daily monitoring, education, guidance, and management by health care providers. Diet, exercise, and medication adherence are well known factors that influence how chronic conditions progress. A key, often overlooked factor is whether doctors and patients identify and effectively deal with problems early, before they result in emergency room visits or hospital admissions, with the associated pain and expense. Proactive monitoring and management can also prevent a patient with one chronic disease from contracting additional conditions. The result: Saving lives and saving money.

The Center for Medicare and Medicaid Services – the world's largest payer for health care services – is beginning to recognize the need to reorient the health care system to deal successfully with chronic illness. The agency recently released a summary of chronic care improvement provisions in the Medicare Modernization Act of 2003 that said, "Treating chronic illness is different from treating acute

episodes. The existing medical delivery system is not designed to effectively treat chronically ill patients despite the best efforts and intentions by providers." CMS has consistently referred to the Institute of Medicine's landmark 2001 report, *Crossing the Quality Chasm*, which noted the impact of the fragmented nature of the health care delivery system on the cost and quality of care for people with chronic conditions. "(T)here remains a dearth of clinical programs with the infrastructure required to provide the full complement of services needed by people with heart disease, diabetes, asthma, and other common chronic conditions," states the report's executive summary.[7]

Many health care experts agree that current Medicare expenditure patterns are a portrait of chronic illness managed unsuccessfully.

Many health care experts agree that current Medicare expenditure patterns are a portrait of chronic illness managed unsuccessfully, which in turn is helping drive the Medicare Hospital Insurance Trust Fund to insolvency as soon as 2019.[8] The federal government's Healthcare Cost and Utilization Project 2001 data shows that Medicare patients afflicted with one or more of seven major chronic conditions account for about one quarter of Medicare-related hospital discharges and costs – an estimated 2.8 million hospitalizations in 2004 at a projected cost of $59 billion, 19 percent of program spending.[9]

The VA and other entities have demonstrated the effectiveness and savings that flow from a systematic approach to chronic care that integrates clinical information tools, monitoring technologies, and care management. In one published study, the VA reported that patients in its chronic care improvement program had 60 percent fewer hospitalizations than patients in the control group.[10] PacifiCare Behavioral Health, a division of a large HMO, showed a 50 percent drop in hospitalizations, a 73 reduction in emergency room visits, and a 51 percent reduction in inpatient costs in a published study reviewing the results of a technology-based chronic care improvement program for heart failure patients that incorporated a similar model of daily communication with patients.[11]

While recognizing that the VA and Medicare delivery systems are different, if CMS were to implement a similar chronic care improvement program that integrates in-home monitoring technologies and care coordination for its highest risk 4 million patients who are similar to those patients enrolled in the VA chronic care program, Medicare could prevent 1.7 million hospitalizations and produce net savings of over $30 billion in 2004. Other studies have indicated that chronic care improvement programs produce net savings of up to 30 percent of all costs of caring for the chronically ill, including hospital, out-patient, and drug expenses.[12]

Medicare Reform and Chronic Care Improvement

The Medicare Modernization Act of 2003 commits the federal Centers for Medicare and Medicaid Services to improving chronic care for senior citizens and other Medicare beneficiaries:

- Section 721, "Voluntary Chronic Care Improvement Under Traditional Fee-for-Service," mandates that chronic care improvement programs be offered as a benefit in the program's fee-for-service system, which covers 88 percent of Medicare recipients.

[7] Center for Medicare and Medicaid Services, "Chronic Care Improvement in the new Medicare Modernization Act (MMA)", March 10, 2004; Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, National Academies Press, 2001:4.
[8] 2004 Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds
[9] Estimates for 2004 based on 2001 data from the Agency for Healthcare Research and Quality, Hospital Cost Utilization Project.

[10] M. Meyer, R. Kobb, P. Ryan, "Virtually Healthy: Chronic Disease Management in the Home," op. cit.
[11] J. Vaccaro, J. Cherry, et al, "Utilization Reduction, Cost Savings, and Return on Investment for the PacifiCare Chronic Heart Failure Program, 'Taking Charge of Your Heart Health,'" *Disease Management*, 2001;4(3):131-142.
[12] Alan Adomeit, Axel Baur, Rainer Saufeld, "A New Model for Disease Management," *McKinsey Quarterly*, 2001

- Section 722, "Medicare Advantage Quality Improvement Programs," requires that chronic care improvement programs be offered in Medicare Advantage, Medicare's newly redesigned managed-care program.
- Section 723, "Chronically Ill Medicare Beneficiary Research, Data, Demonstration Strategy," commits the Secretary of Health and Human Services to developing and implementing a plan for improving the quality and lowering the cost of care for Medicare enrollees with chronic conditions. "The plan will utilize existing data and identify data gaps, develop research initiatives, and propose intervention demonstration programs to provide better health care for chronically ill Medicare beneficiaries," the legislation states.
- Section 649, "Medicare Care Management Performance Demonstration," authorizes a demonstration of technology-based chronic care improvement programs targeting small and medium-sized medical practices, with physicians to be paid for their performance in using information technology to achieve quality and cost-savings goals in chronic care.
- Section 101, "Prescription Drug Benefit," establishes a medication-management program embracing chronic care improvement principles for every Medicare beneficiary with multiple prescriptions for multiple chronic conditions, starting in 2006.

Medicare reform recognizes that the chronically ill need monitoring, education, and care management to become empowered consumers of health care services. "Chronic care improvement programs are generally a set of interventions designed to improve the health of individuals who live with chronic illness by working more directly with them and their physicians to help them adhere to evidence-based treatment plans regarding diet, medicine schedules, and other self-management techniques," CMS said in its recent summary of the chronic care improvement provisions of the Medicare reform bill.[13]

Medicare's initiatives would help beneficiaries with chronic conditions and their providers understand, monitor, and manage their conditions, and guide patients in seeking appropriate services that can keep their illnesses stable. Patients with multiple chronic illnesses would receive care coordination services that would prevent redundant testing, other duplication of services, and over-prescribing of medications.

Under Section 721, the Centers for Medicare and Medicaid Services would roll out chronic care improvement programs for Medicare fee-for-service beneficiaries in geographic areas that contain 10 percent of the Medicare population. Chronic care improvement programs would be expanded to the rest of the U.S. and become a permanent benefit if goals are met for quality improvement, patient satisfaction, and cost savings.

Organizations carrying out chronic care improvement programs can include disease management companies, insurers, integrated delivery systems, medical groups, or consortia of such entities. In conducting chronic care improvement programs, Section 721 requires these organizations to:

- "(G)uide the participant in managing the participant's health (including all co-morbidities, relevant health care services, and pharmaceutical needs) and in performing activities as specified under the elements of the care management plan of the participant;
- "use decision-support tools such as evidence-based practice guidelines or criteria as determined by the Secretary (of Health and Human Services); and
- "develop a clinical information database to track and monitor each participant across settings and to evaluate outcomes."

The law requires that a care-management plan be created for each Medicare beneficiary who enrolls in a chronic care improvement

[13] CMS, op. cit.

program. Section 721 (3) (e) (2) of the law requires that care-management plans include the following elements, "to the extent appropriate":

> "(A) A designated point of contact responsible for communications with the beneficiary and for facilitating communications with other providers under the plan.
> "(B) Self-care education for the beneficiary (through approaches such as disease management or medical nutrition therapy) and education for primary caregivers and family members.
> "(C) Education for physicians and other providers and collaboration to enhance communication of relevant clinical information.
> "(D) The use of monitoring technologies that enable patient guidance through the exchange of pertinent clinical information, such as vital signs, symptomatic information, and health self-assessment.
> "(E) The provision of information about hospice care, pain and palliative care, and end-of-life care."

Technology's Role In Transforming Chronic Care

The success of chronic care improvement programs in Medicare fee-for-service rests on the interpretation and application of the words "to the extent appropriate". This is particularly true with respect to promoting a systematic approach to chronic care that integrates required elements, including monitoring and communication systems that enable patient guidance and education, clinical information databases, and decision-support tools. This systematic approach is certainly appropriate and necessary for Medicare beneficiaries who have been hospitalized or are at risk of being hospitalized for an acute exacerbation of a chronic illness. This includes many of the 8 million Medicare beneficiaries with five or more chronic illnesses.[14] Defining an integrated technology solution as appropriate, particularly for high-risk patients with chronic conditions, will ensure the success of Section 721 chronic care improvement programs.

What are the characteristics of a transformational, technology-based chronic care improvement program?

- Communication. Frequent communication for individuals living with chronic disease is vital. For patients at high risk of hospitalization, whose health status can change from one day to the next, or whose daily behavior has an impact on the outcome, "the extent appropriate" should be daily communication. This includes all patients with chronic heart failure and chronic obstructive pulmonary disease, and any diabetes patient with emerging complications or poor glucose control. The communication should be able to provide the disease management professional with information about the health of the Medicare beneficiary and provide a vehicle for the professional to give feedback to that beneficiary. An integrated technology solution that relies on modern electronic or Internet-based tools will enable frequent and reliable communication between caregiver and patient.
- Personalized patient guidance and education. Transformational chronic care improvement programs have an effective, personalized, and timely education component. Technologies exist that can easily guide patients and enable self-assessment, and self-care education. For example, in-home communication devices or Internet-based applications can be integrated with the mandated clinical information databases to allow for personalization of patient guidance and self-care education to further enhance patient compliance with chronic care improvement programs and therefore outcomes.
- Coordination of care. Coordinating care for individuals living with chronic diseases is complex. The level of complexity for individuals living with five or more chronic conditions, as 8 million Medicare beneficiaries are, is

[14] Estimates based on data provided by Partnership for Solutions, op. cit.

exponentially greater. It is vital that chronic care improvement programs employ electronic or Internet-based technologies integrated with clinical information tools, to easily provide a flow of relevant clinical information that designated care coordinators can use to facilitate collaboration among a patient's health care providers.

- Quality improvement. An integrated system of electronic communication devices, decision-support tools, and clinical information databases is the best way to ensure and monitor the implementation of evidence-based practice guidelines to increase quality and reduce medical errors.
- Accountability. Electronic systems that guide and educate patients and decision-support tools should be integrated with clinical information databases to ensure that CMS can measure chronic care improvement program outcomes and the performance of chronic care improvement organizations.

Section 649 of the Medicare bill makes explicit the connection between deploying information technology and successfully managing care of chronic illness, and between monitoring patients and evaluating outcomes. This section of the law allows physicians in the demonstration areas to participate if they agree to "the use of health information technology to manage the clinical care of eligible beneficiaries ..." and "the electronic reporting of clinical quality and outcomes measures ..." Summarizing what Section 649 hopes to accomplish, CMS recently stated, "This demonstration aims to promote continuity of care, to help stabilize medical conditions, to prevent or minimize acute exacerbations of chronic conditions, and to reduce adverse health outcomes, such as adverse drug interactions."[15]

Medicare reform's chronic care improvement provisions underline how information and communications technologies can revolutionize health care in the same way that they have transformed other sectors of the U.S. economy.

Medicare reform's chronic care improvement provisions underline how information and communications technologies can revolutionize health care in the same way that they have transformed other sectors of the U.S. economy. The health care sector lags every other major service industry in its investment in information technology. For instance, financial-services companies invest 11 percent of their revenues in information technology to improve the quality of their services, the diversity of their products, and efficiency by moving the point of service closer to the consumer. The health care industry invests 2 percent.[16] The vicious cycle of health care cost increases is one reason for this underinvestment, as it diverts funds from strategic information-technology investments to providing current services in a continuous crisis mode. Technology investment in health care has focused on high-tech diagnostic devices that reinforce an acute care model. The more routine, day-to-day management of chronic conditions calls for a different breed of information and communications technologies that facilitate ongoing monitoring, patient education, and care coordination to improve outcomes and reduce costs.

Proven Models of Technology-Based Chronic Care Improvement

The VA is a model of technology-based chronic care improvement in action, and shows the impact of such programs in improving quality and patient satisfaction and lowering the utilization of expensive in-patient hospital services. The VA is directly responsible for the health care of 6 million veterans. That number has grown rapidly in recent years because of eligibility expansion that has outpaced the agency's budget.[17] The mismatch between responsibilities and resources has forced the VA to transform its model of care, with an emphasis on reducing spending associated

[15] CMS, ibid.

[16] eHealth Initiative data.

[17] Robert Roswell, M.D., *Transforming VA Healthcare*, *U.S. Medicine*, January 2003.

with the highest cost beneficiaries – typically patients with chronic diseases.

Technology-based chronic care improvement has been a linchpin of the VA's transformation effort. Patients with chronic conditions who are at risk of hospitalization receive in-home monitoring devices – which require no computer skills and hook up to an ordinary phone line – upon being discharged from the hospital. The devices enable those veterans to manage their own illnesses, providing guidance and feedback based on the information they provide, while keeping them connected on to care providers at a VA hospital or clinic. Each day, these patients and their devices engage in what amounts to a conversation – an automated program of scripted communications that is personalized to their needs. The device advises patients to contact the VA if one or more of their responses indicate that their conditions are deteriorating. The dialogue varies each day based on a patient's progress in the educational program and to ensure that the interaction stays fresh and interesting.

Through technology, we can provide care on an 'as needed,' 'just in time" basis.'

VA nurse care managers review patient responses each day to identify and respond to potential problems. Care managers log on to a Web-based application that tracks the data generated by patients using their in-home monitoring devices. Responses from patients are assigned color codes – green, yellow, and red – associated with a risk level that reflects their health status, based on the information the patient provided. They follow up by phone with patients whose conditions have been flagged as red for high risk or yellow for medium risk, and who may not have called in upon being prompted by the device.

"We no longer have the resources to see a patient multiple times a year, 'just in case' they may have a complication developing," Dr. Robert Roswell, who at the time was Department of Veterans Affairs' Under Secretary for Health, wrote last year. "We must find new ways to manage our patients' disease processes continuously on a 24-7 basis and see the patient 'just in time' when a complication or need starts to develop. ... There will be a need for increased communication with the patient through the use of technology. With that also comes an increase in the patient's involvement in their health status. Through technology, we can provide care on an 'as needed,' 'just in time" basis.'[18]

In April 2000, the Veterans Integrated Services Network in Florida started programs to maintain veterans with high-risk chronic conditions in their homes under a technology-based model. The VA in 2002 released an analysis of these programs that showed a 40 percent reduction in emergency room visits, a 63 percent decrease in hospital admissions, a 60 percent drop in bed days of care, a 64 percent decrease in nursing home admissions, and an 88 percent reduction in nursing home bed days of care. Patient satisfaction rates topped 90 percent.[19] The VA has achieved similar results in expanding the programs to 10 other states and territories.[20]

Building on its success with technology-based chronic care improvement programs, the VA in 2003 established the Office of Care Coordination (OCC) to oversee the roll-out of such programs nationally. The OCC is operating under a set of core principles that include implementing a patient-centric model of care and "(m)aking the home the preferred place of care whenever appropriate." The OCC's ultimate goal is to expand care coordination to 1.2 million veterans by 2008.[21]

The chronic care improvement model is also spreading to Medicaid. Driven by the continuing squeeze on budgets, 31 states between 2002 and 2004 will have established or expanded chronic care improvement

[18] Ibid.
[19] M. Meyer, R. Kobb, P. Ryan, "Virtually Healthy: Chronic Disease Management in the Home," op. cit.
[20] J. Cherry, K. Dryden, R. Kobb, P. Hilsen, N. Nedd, "Opening a Window of Opportunity through Technology and Coordination: A Multisite Case Study," Telemedicine Journal and e-Health, 2003;9(3):265-271.
[21] Department of Veterans Affairs Office of Care Coordination, Office of Care Coordination Outline for Strategic Direction, 2004-2008.

programs.[22] The Centers for Medicare and Medicaid Services in February 2004 sent a letter to state Medicaid directors urging further adoption of chronic care improvement initiatives, with the incentive of federal matching funds.[23] The letter specifically defines chronic care improvement as a covered medical service that can be provided by nurses, pharmacists, or physicians. While chronic care improvement programs have realized their earliest successes primarily in integrated delivery systems such as the VA, the letter notes that a variety of approaches are now being developed for implementing such programs in a fee-for-service environment, including contracting with disease-management organizations or individual fee-for-service physicians.

Government and private efforts to shift the model of care from a 20th century acute care system to a 21st century chronic care system can help turn the tide.

Examples of success at the VA and private organizations such as PacifiCare demonstrate that a chronic care improvement program built on an integrated technology solution is appropriate and necessary to provide high quality chronic care at home that also saves money by preventing hospitalizations. These programs incorporate the major elements and requirements of chronic care improvement that the new Medicare law prescribes, including:

- In-home monitoring devices that guide high-risk patients in the daily exchange of relevant clinical information, including health self-assessment, symptoms and vital signs;
- Personalized guidance and support through the vehicle of the in-home communication devices that also facilitate patient education about self-care behaviors;
- Nurse care managers who serve as the point of communication with patients, and who provide a conduit for education of and collaboration between physicians;
- Decision-support tools that enable care providers to identify and respond to problems based on evidence-based practice guidelines; and
- Clinical information databases for evaluation of outcomes and monitoring the performance of the program.

Realizing the Promise Of Technology-Based Chronic Care Improvement

The recent Medicare Trustees' report proves that continuing with the current crisis-driven model of Medicare is not sustainable, and that, without changes, the system will be bankrupt by 2019. Despite the fact that anything unsustainable must eventually change, and the widespread recognition that improving chronic care for an aging population is essential, many obstacles remain to implementing the chronic care improvement model. These include:

- A lack of awareness of the existence and proven effectiveness of a model of chronic care improvement that employs an integrated technology solution for monitoring and patient education, decision-support, and evaluation of outcomes and program performance.
- Systemic incentives that remain aligned toward providing care when patients get sick, as opposed to keeping them well.

Government and private efforts to shift the model of care from a 20th century acute care system to a 21st century chronic care system can help turn the tide. Policy makers can take these steps to speed the shift by ensuring that the promise of the Medicare reform bill is realized:

- Ensuring that Section 721 of the Medicare Modernization Act is a success by requiring that Medicare chronic care improvement programs, particularly for patients with chronic conditions at risk of hospitalization

[22] Kaiser Family Foundation, "States Respond to Fiscal Pressure: State Medicaid Growth and Cost Containment," September 2003.
[23] CMS press release, "CMS urges states to adopt disease management programs, agency will match state costs," February 26, 2004.

and/or developing complications, embrace proven approaches that integrate in-home monitoring and communication devices, decision-support tools, and clinical information databases for evaluation of outcomes and program performance.

- Using the authority granted by the Medicare bill to push for faster, more wide-ranging roll-outs of proven chronic care improvement strategies.
- Using CMS' power as the world's largest payer for health care services to push the U.S. health care delivery system to adopt the chronic care improvement model, through increased education for physicians, and hospitals, and patients about chronic care improvement approaches with proven effectiveness.

Chronic care improvement programs that save lives and save money offer the U.S. a non-zero-sum solution to one of its biggest policy conundrums – providing quality health care to Americans at a cost the nation can afford amid the aging of the population. In the absence of that understanding, the policy debate continues to focus on the zero-sum game of shifting costs; raising taxes, premiums, and co-payments; and cutting benefits.

Federal Reserve Chairman Alan Greenspan reflected that strain of thinking in recently recommending that Congress consider steps, such as raising the retirement age for Baby Boomers, to decrease pressure on Medicare and avert a crippling increase in taxes. "In view of this upward ratchet in government programs and the enormous uncertainty about the upper bounds of future demands for medical care, I believe that a thorough review of our spending commitments – and at least some adjustment in those commitments – is necessary for prudent policy," Greenspan told the House Budget Committee in February.[24]

The aging of the population – with the attendant increases in chronic illnesses that most typically afflict the elderly – is an issue that confronts governments in advanced post-industrial societies around the world. The Japanese government and European Union increasingly are looking at technology-based chronic care improvement programs as a non-zero-sum proposition that can improve the lives of citizens and keep health care budgets under control.

Japan and the European Union also see chronic care improvement technologies as a promising direction for economic growth. A September 2002 European Commission report noted, "On the economic side, the health telematics market is expected to grow from less than 1 percent of the health expenditure in Europe to some 5 percent by 2005. This would make it a major industrial sector comparable to the pharmaceutical industry. More significantly, this will be achieved while containing the total cost of health."[25]

The U.S. government has identified the opportunity for American leadership in technologies for chronic care improvement. The Department of Commerce in late February released a report on what it called the telehealth industry, calling it a huge potential market whose growth is currently impeded by domestic regulatory barriers, such as Medicare reimbursement practices and state licensing requirements.[26] At a Capitol Hill briefing accompanying the release of the report, Commerce Undersecretary Phil Bond called telehealth a "global opportunity," adding, "It's the ultimate export opportunity with the expanding markets overseas."[27]

Technology-based chronic care improvement programs give policy makers the rarest of opportunities – to manage a potentially dire problem while turning it into an engine of economic growth.

Technology-based chronic care improvement programs give policy makers the rarest of opportunities – to manage a potentially dire problem while turning it into an engine of

[24] Testimony before the U.S. House of Representatives Budget Committee, February 25, 2004.

[25] European Commission, "Resource Book of IST Projects relating to Health," September 2002.
[26] U.S. Department of Commerce Office of Technology Policy, *Innovation, Demand and Investment in Telehealth*, February 2004.
[27] *National Journal*, Technology Daily PM Edition, February 26, 2004.

economic growth. The chronic care improvement model shifts our thinking from raising taxes and cutting services to transforming health care to keep people healthier at a lower cost. Medicare is the world's largest payer for chronic disease – and has been paying dearly for the complications of unmanaged chronic illness. Medicare now has the chance to become the world's largest payer for chronic care improvement services and enabling technologies. In doing so, it can lead in creating a sustainable U.S. health care system for the 21st century, while spurring innovation in the information-technology industry answering the global need to improve the lives of aging populations.

About ITAA

With 380 member companies, the Information Technology Association of America (ITAA) is the leading trade association serving the information technology industry. Founded as the Association of Data Processing Service Organizations (ADAPSO) in 1961, ITAA has expanded its constituency over the years to include companies in every facet of the IT industry, including computer hardware, software, telecommunications, Internet, e-business, e-education, outsourcing, computer services and more.

ITAA seeks to foster an environment that is conducive to the health, prosperity and competitive nature of the information technology industry and to help its members succeed in delivering the benefits of IT to their customers. The Association's industry development programs include advocacy on legislative and regulatory issues, studies and statistics, domestic and international market development and industry promotion. ITAA also provides extensive opportunities for business development, particularly for firms seeking to build market credibility, brand awareness, customer access and strategic partnerships.

ITAA's E-Health Committee engages in marketplace development and education and encourages the healthcare community, information technology providers, employee groups, employers, payers, and government institutions to make better use of information technology resources.

Daily monitoring helps patients keep control

herald-dispatch

Daily monitoring helps patients keep control

By SCOTT WARTMAN - The Herald-Dispatch

HUNTINGTON -- If Wally Browning gains three pounds or his blood pressure rises, the Huntington Veterans Affairs Medical Center will know about the change without a phone call or a doctor's visit.

The Huntington VA began daily monitoring Browning's health statistics in February when he became the first local patient on the CareCoordination/Home Telehealth service offered through VA.

The program allows VA staff to monitor patients' health daily and will likely lead to more home monitoring efforts for a variety of chronic ailments, VA medical staff say.

The program has expanded to more than 20 patients with congestive heart failure or diabetes who are monitored through the local VA.

Randy Snyder/The Herald-Dispatch

Vietnam veteran Wally Browning, 62, of Huntington discusses a Healthy Buddy appliance he uses to monitor various vital signs on a daily basis to help treat his congestive heart failure.

Through the use of a small computer, blood pressure, blood sugar levels and weight are recorded and sent to the local VA hospital so health professionals can keep track of a patient's health on a daily basis and cut down on the number of doctor's visits.

Every morning, Browning, 63, of Huntington, inputs his vital information into a small machine with a monitor that sits quietly by his bedside.

The morning ritual reduces his doctor's visits in half to treat his congestive heart failure, a condition he has battled for two years, he said. It also provides peace of mind, he said.

"It is the best thing to come down the pike, in my opinion," Browning said. "When I get up in the morning, I feel more confident I am good for another day."

Daily monitoring helps patients keep control

Randy Snyder/The Herald-Dispatch

Vietnam veteran Wally Browning, 62, of Huntington demonstrates how he uses a Healthy Buddy appliance to monitor various vital signs on a daily basis to help treat his congestive heart failure. The appliance records items like his weight and blood pressure. The information is then sent to a database in Arizona. It is then directed to his health care worker at the VA Hospital in Huntington.

As a congestive heart failure patient, Browning constantly battles the threat of his body filling with fluid, causing the need to monitor weight.

The program currently applies to only diabetes and congestive heart failure patients but will soon expand to monitor patients with other chronic health problems, said nurse Lillian Chaffin, care manager for the program. The home monitoring program has taken hold at other VA areas in the country and became available locally through a $1 million VA grant endowed to the local VA district in 2004.

The monitoring device asks the patient daily questions ranging from health trivia to their health signs, such as weight and blood pressure.

The information travels into the VA system, where staff will keep tabs on the patient's well being and call the patient if any problems arise.

The monitoring system doesn't replace doctor's visits, but does help medical staff better gauge the effect of treatments and any burgeoning health problems, Chaffin said.

"It is looking over the patient's shoulder to see if there is anything to add to their treatment," Chaffin said.

The program will transfer the patient's information into a monthly medical chart for all health care providers to access.

It can give insight into the lifestyles of the patients and help medical staff make better recommendations, Chaffin said. The system showed one of the VA's diabetic patients had something to eat that he shouldn't have, she said.

"Yesterday, a patient called in since his blood sugar was up," Chaffin said. "He had to go to the emergency room. It turned out he had ice cream."

Browning hasn't experienced any medical emergencies since he started on the home monitoring program, but said he is now more mindful of his health.

Before he had the glowing contraption by his bedside asking about his health, Browning said he would check his weight and blood pressure infrequently. Now he doesn't miss a day without keeping tabs on his health, he said.

"I was in bad shape," Browning said. "If you have this, you have more of an urge to watch your weight and see if your weight goes up."

In the future, the VA will distribute video telephones to patients with certain problems so the doctor can visually see the person from home, Chaffin said.

By August, the local VA districts hopes to have 500 patients on the program with 85 patients per hospital in the local VA district, which includes 11 Kentucky counties, two Ohio counties and 13 West Virginia counties, Chaffin said.

Daily monitoring helps patients keep control

There are currently about 100 patients districtwide.

The monitors send the information via a telephone connection, making it necessary for the patient to have a touchtone phone. Patients are screened by the VA for their eligibility in the program.

For more information about the program, call Chaffin at (800) 827-8244 ext. 3262.

Senator KOHL. Thank you for being here, Mr. Brown. Mr. Woolf?

STATEMENT OF MR. STEVEN H. WOOLF, PROFESSOR, DEPARTMENTS OF FAMILY MEDICINE, EPIDEMIOLOGY AND COMMUNITY HEALTH, VIRGINIA COMMONWEALTH UNIVERSITY, FAIRFAX, VA

Dr. WOOLF. Thank you, Senator Kohl, Senator Smith, other members of the Committee.

My name is Steven Woolf. I am a family physician and a specialist in preventive medicine and public health. I serve as professor of Family Medicine, Epidemiology and Community Health at Virginia Commonwealth University.

I am pleased to talk with you this morning about prevention and seniors.

The prevention of disease is the cornerstone of healthy aging. The underlying logic is obvious. The major diseases that claim the lives of seniors and account for the rising cost of health care are caused largely by our health habits, such as smoking, lack of exercise, and poor diet. These behaviors account for one out of three deaths in the United States.

We spend great sums on treating the complications of disease, and far too little on helping the public avoid getting sick in the first place. As Arkansas Governor Mike Huckabee has said, rather than building a fence at the top of a cliff, our health care system keeps sending ambulances to the bottom. Paying for prevention is a smarter use of scarce resources.

Many seniors wrongly believe they are too old to benefit from a change in health habits, but the facts are that seniors live longer and live healthier if they abandon unhealthy behaviors, obtain recommended vaccines and receive certain screening tests that catch diseases early. Prevention can improve function and postpone disabilities, as we have just heard.

Healthy again ought to begin early in life when it is more effective, but reducing risks for disease pays off at any age.

Prevention has always been important, but is taking on greater urgency now when more Americans are growing older and the costs of health care loom large.

At a time when we worry about how Medicare will afford these costs, it is a mistake to ignore the business case for prevention.

In the face of these benefits, it is concerning that so many older adults in our country engage in health habits that increase their risk. In an average group of 100 Americans who are age 65 and older, 25 of the 100 are obese; 25 get no exercise; and 10 smoke cigarettes.

Altogether, five million seniors in this country smoke cigarettes. Obesity rates are climbing, and the averages I am quoting for America's seniors obscure higher rates of risk factors among subgroups, such as African Americans, Hispanics, and Native Americans.

Millions of seniors have not received recommended vaccines. For example, one out of three have not received the pneumococcal vaccine, which helps prevent deaths from pneumonia. Congress has worked for many years now to expand coverage for preventive serv-

ices under Medicare, thereby, removing a major barrier to access. The Medicare Modernization Act in 2003 introduced the Welcome to Medicare visit and expanded coverage for cardiovascular and diabetes screening. Yet, we see that Medicare coverage by itself does not make it happen.

The GAO found that only 10 percent of beneficiaries had received five cancer tests and immunizations that are covered under Medicare.

The problem is worse among beneficiaries who are poor or among minorities. For example, whereas the proportion of Medicare beneficiaries who have received a recent flu shot is 67 percent for Whites, it is 53 percent for Hispanics, and 43 percent for African Americans. This is among Medicare beneficiaries.

This Committee already knows that life expectancy is lower among minorities, but the scope of the problem is less well known.

People aged 65 to 74 are almost 50 percent more likely to die in the next year if they are African American than if they are white.

We spend billions of dollars in this country to make better drugs and medical devices, thinking this will save lives, and indeed it does. But far more lives could be saved by correcting health disparities. For every life saved by medical advances, five would be saved if African Americans had the same death rate as Whites.

Congress has enacted legislation to address disparities, but that investment is actually a small fraction of the billions we spend on research. Most of those billions are in the pursuit of medical advances, a worthy aim, but if correcting disparities saves more lives than medical advances, do we have our proportions right?

Certainly, we must continue to invest heavily in new drugs and technology, but perhaps we should tip the scales a bit and make more substantive investment in removing barriers to receiving those treatments.

Enabling all Americans to enjoy aging is not only ethical, it will save more lives and will go further to control the costs of medical care.

With that background, let me devote my remaining minutes to some policy options for promoting prevention among seniors.

I offer seven examples, but I urge the Committee to gather broader input from other experts, assemble a longer list of policy options, and choose from the best.

We owe it to America's seniors to pursue the most innovative and effective strategies to promote healthy aging. My written testimony elaborates on the following seven suggestions.

No. 1, Congress should use its visibility with the public and the media to launch a public education campaign aimed at America's seniors to emphasize prevention. Getting the message out that prevention is important to the health of seniors is the first step toward changing public attitudes and creating a new culture for healthy aging.

No. 2, Congress should encourage the Centers for Medicare and Medicaid Services, CMS, to become more proactive in encouraging Medicare beneficiaries to adopt healthy lifestyles. My written testimony explains that existing CMS initiatives concentrate on making beneficiaries aware of expanded coverage benefits, but they tread lightly on giving health advice. Congress should encourage CMS to

adopt a new role in which health advice is disseminated by CMS to serve beneficiaries, to lower disease burden, and to save money through prevention. CMS need not develop this health advice from scratch. Prevention guidelines for seniors and health education messages have already been developed by other HHS agencies, but are less familiar to CMS due to stovepiping.

No. 3, looking ahead to the future, the Committee should consider how to redesign communities to support lifestyle change. It does little good to advise a senior to do light gardening or take a daily walk when he or she is surrounded by highways or has no safe place to walk.

Seniors living in poor urban neighborhoods are often miles from a supermarket that offers healthy food choices. Fast food chains predominate, as do billboards that promote cigarettes and alcohol.

Congress should work with the food industry and retailers to explore ways to promote profits and healthy customers.

Ultimately, creating a community that fosters healthy aging requires a partnership across community sectors involving churches, restaurants, park authorities, senior centers, and urban planners.

No. 4, cigarette smoking remains the leading cause of death and cannot be overlooked in any serious discussion of healthy aging. The Committee should look again at the 10 recommendations issued in 2003 by the Department of Health and Human Services' Interagency Committee on Smoking and Health. Setting aside the recommendation on excise taxes, which received a cool reception, the plan includes nine other excellent recommendations that would substantially reduce the death toll from smoking-related illness among seniors.

One example is telephone quit line programs, which give seniors access to high quality assistance in quitting smoking.

No. 5, the failure of so many seniors to receive recommended preventive services is a symptom of a larger problem with the nation's health care delivery system. Experts have warned for years that the quality of health care in America is in jeopardy unless bold system redesigns are undertaken. Mapping the human genome, robotic surgery, and other sensational breakthroughs make the evening news, but Congress could save more lives by directing its attention elsewhere.

Take reminder systems, for example, which alert people when screening tests or vaccinations are due. Such systems are not glamorous, but are among the most effective ways to close the gaps in the delivery of health care. Yet, they are rare in our health care system. You are more likely to get a notice from your car dealership that it is time to change your oil than you are to be notified by your doctor that your mammogram is overdue.

Our research team has shown that making such systems routine would save far more lives than the advances in drug therapies on which billions of dollars are now spent.

I urge Congress to confront the political challenges and to press for modernizing the health care system to deliver consistent high-quality care.

No. 6, information technology is an important tool for healthy aging. Congress is already promoting electronic health records to improve record keeping and reduce medical errors, but information

technology and web sites for seniors can do far more by empowering consumers with information to make healthy lifestyle choices, learn more about the tests they need, and obtain e-mail reminders when they are due.

Congress should steer the health IT movement beyond its basic role, serving providers as a tool for patient care, to a broader role in helping the public maintain good health.

Finally, No. 7, given the urgency of the problems I have discussed, Congress should increase the funding for AHRQ, the Agency for Healthcare Research and Quality, which receives one penny for every dollar given to NIH. Yet, it is AHRQ that has lead responsibility for all that we have discussed—prevention guidelines, improving the quality of health care, tracking racial disparities, developing information technology, and so on.

Solving these problems is not a luxury on the margins of NIH. Without the answers, the cutting edge advances made at NIH cannot reach Americans.

Doubling the budget of AHRQ sounds extravagant at this time of belt tightening. But the extra penny taken from the NIH dollar could go much farther in saving lives. The threat to the nation's health and economy posed by the struggling health care system makes it risky public policy to not invest generously in tackling these problems. Thank you.

[The prepared statement of Dr. Woolf follows:]

Written Statement

Steven H. Woolf, M.D., M.P.H.
Professor of Family Medicine, Epidemiology and Community Health
Virginia Commonwealth University

before the

U.S. Senate Special Committee on Aging
June 30, 2005

The inherent logic behind prevention is obvious. The major diseases that claim the lives of Americans and that account so greatly for the rising costs of health care are caused largely by health habits, such as smoking, physical inactivity, and poor diet. Fully 35% of deaths in the United States are caused by three behaviors: tobacco use, poor diet, and physical inactivity. The major diseases of our time can often be detected early and either prevented or made less severe.

Our society spends far too much on treating the end stages of disease and far too little on helping the public avoid getting sick in the first place. As the Governor of Arkansas, Mike Huckabee, has said, rather than building a fence at the top of the cliff, our health care systems keeps sending one ambulance after another to the bottom. Paying for prevention is far more effective than paying for chronic disease care. Whereas treatments for cardiovascular disease can save 4,000-10,000 lives per year, helping Americans to stop smoking would prevent more than 400,000 deaths per year.

This is true for adults and children and it is true for seniors, who are not too old to benefit from prevention. Seniors live longer and live healthier if they abandon unhealthy behaviors, obtain recommended vaccines, and receive certain screening tests to catch diseases in their early stages. For example, lifelong smokers who stop smoking at age 50 live an average of 6 years longer than those who continue smoking beyond that age. Prevention can improve function, postpone chronic disease and disability, and avoid premature death. Recent evidence even suggests that physical activity may delay the onset of Alzheimer's disease. Prevention is an obvious answer to the escalating costs of healthcare. Promoting prevention among seniors should be a major public policy priority.

This was always true but is especially pertinent now, a time when Americans are growing older in greater numbers. The aging of the baby boom population, combined with advances in medical care, is carving out a future in which a larger number of seniors will suffer the health complications associated with chronic diseases, such as heart failure, diabetes, and cancer. Promoting prevention is intelligent planning for the future.

Primary versus secondary prevention

Two forms of prevention deserve emphasis among seniors: primary prevention and secondary prevention. Primary prevention refers to actions by asymptomatic persons to prevent disease from occurring in the first place. Examples include *good health habits*, such as regular physical activity, eating wisely, and stopping cigarette smoking. As already noted, one out of three deaths in the United States is caused by these habits. The rising rate of obesity further threatens to cut short the life expectancy of Americans.

Another example of primary prevention is *immunizations*, such as influenza (flu) vaccine and pneumococcal vaccine, which prevent seniors from getting infections such as pneumonia, a leading causes of death.

Secondary prevention refers to *screening tests* and other strategies to detect diseases in their early stages. Examples include mammograms, screening for colon cancer, and measurement of bone density to detect osteoporosis. Some of these tests can reduce death rates from diseases by 20-30%. Although screening tests can be beneficial in reducing morbidity and mortality from diseases, the benefits of early detection are limited because, by definition, the disease process is already underway.

Clinical preventive services refer to efforts at primary and second prevention that are undertaken by doctors and other healthcare providers in clinical settings, such as doctors' offices. Efforts by Congress to expand coverage of clinical preventive services under Medicare have gone a long way to improving seniors' access to immunizations and screening tests.

Prevention is an undertaking that extends beyond the clinical setting, however. To be effective communities must provide a web of integrated services to help citizens sustain healthy behaviors. Ideally, a person who chooses to become physically active should find a community working together to support the effort. The individual's physician might recommend exercise, but local media and advertising can reinforce the message, employers can offer incentives, and the "built environment" (e.g., neighborhood walkways) can be redesigned to foster outdoor activity. A diverse collaboration is required to give citizens a seamless support system for healthy diet, physical activity, smoking cessation, and alcohol moderation. It includes not only local health systems but also school boards, park authorities, worksites, churches, bars, restaurants, theaters, sports centers, grocers and other retail outlets, voluntary organizations, senior centers, news media, advertisers, urban planners, and the leaders who set direction for these sectors.

Gaps in prevention among seniors

Both primary and secondary prevention among today's seniors falls short of the ideal, claiming lives in the process. Unhealthy behaviors are prevalent among older adults. Primary prevention, among the most effective strategies to reduce the burden of chronic

disease, is practiced by a minority of seniors. For every 100 adults age 65 and older, 25 are obese, 25 engage in no leisure-time physical activity, and 10 smoke cigarettes. Fully 4.5 million seniors smoke cigarettes.

Gaps in immunizations are substantial. One out of three seniors has never received pneumococcal vaccine, which can significantly reduce the incidence of pneumonia and pneumococcal infections and is therefore recommended for all adults age 65 and older. In 2003, 30% of older adults had not received a flu shot in the prior year.

Efforts by Congress to expand coverage for preventive services under Medicare have gone a long way to remove a major barrier that has limited the ability of seniors to receive recommended immunizations and screening tests. Many of the preventive services recommended for seniors by the U.S. Preventive Services Task Force are now covered under Medicare. The Medicare Modernization Act (MMA) of 2003 introduced the "Welcome to Medicare" visit for new beneficiaries and expanded coverage for cardiovascular and diabetes screening.

But coverage alone does not ensure the delivery of clinical preventive services. The General Accountability Office reports that only 10% of Medicare beneficiaries have been screened for cervical, breast, and colon cancer and also immunized against influenza and pneumonia. Insurance is not the only barrier to receiving clinical preventive services.

Health disparities among seniors

Some seniors are more apt than others to enjoy good health habits and obtain clinical preventive services. For example, a recent study by Dr. Clark Denny and colleagues, in the May issue of the *American Journal of Public Health*, reported that Native Americans age 55 and older are 1.5-2 times more likely than whites of the same age to be obese, to be inactive, and to smoke cigarettes. Similar disparities in unfavorable risk factors exist among African American, Hispanic, and other seniors in minority groups.

According to a recent study by Dr Paul Hebert and colleagues in the April issue of *Health Services Research*, 67% of white beneficiaries have received a recent flu shot but only 53% of Hispanic and 43% of African American beneficiaries had been vaccinated. Other investigators reported that, whereas pneumococcal vaccine is received by 66% of white Medicare beneficiaries above age 65, only 51% of African Americans in the same age group have been vaccinated. In 2001, 30% of Medicare beneficiaries had received a home stool test for colon cancer, but the same was true of only 20% of Medicare beneficiaries without a high school education.

Death rates are higher and life expectancy lower among seniors who are members of racial and ethnic minority groups or who are of low socioeconomic status. Americans age 65-74 are almost 50% more likely to die in the next year if they are African American than if they are white. Medical advances, the research enterprise in which our society invests billions of dollars per year, do save lives. But more lives could be saved by solving the causes of these disparities. In a study published by our team at Virginia

Commonwealth University in the December 2004 issue of the *American Journal of Public Health*, we showed that, for every life saved by medical advances, five would be saved by correcting the disparity in death rates between African Americans and whites. Compared to gene mapping and stem cell research, fixing the causes of disparities is less glamorous and less likely to make the evening news, but it is far more likely to save lives. Congress should support research to understand and correct disparities in the health status and healthcare of disadvantaged persons and minorities.

Policy Solutions

Healthy aging—with its tremendous promise to save lives and reduce the costs of healthcare—cannot become a reality for America's seniors unless our leaders confront the underlying conditions that account for gaps and disparities in primary and secondary prevention. Confronting—and fixing—these conditions will come at some cost, both economic and political, but the resulting savings in lives and dollars are enormous. What follows are examples of potential policy solutions, but Congress should assemble a more comprehensive list by collecting the best minds and best ideas on this topic. Constraints on today's resources are recognized, but the toll in lives and in escalating healthcare costs compels the nation's leaders to not invest timidly in healthy aging. Congress should see the wisdom of drawing off its enormous investments in disease treatments to spend more on the prevention of disease. Following are examples of specific policy approaches that might be taken:

Public education

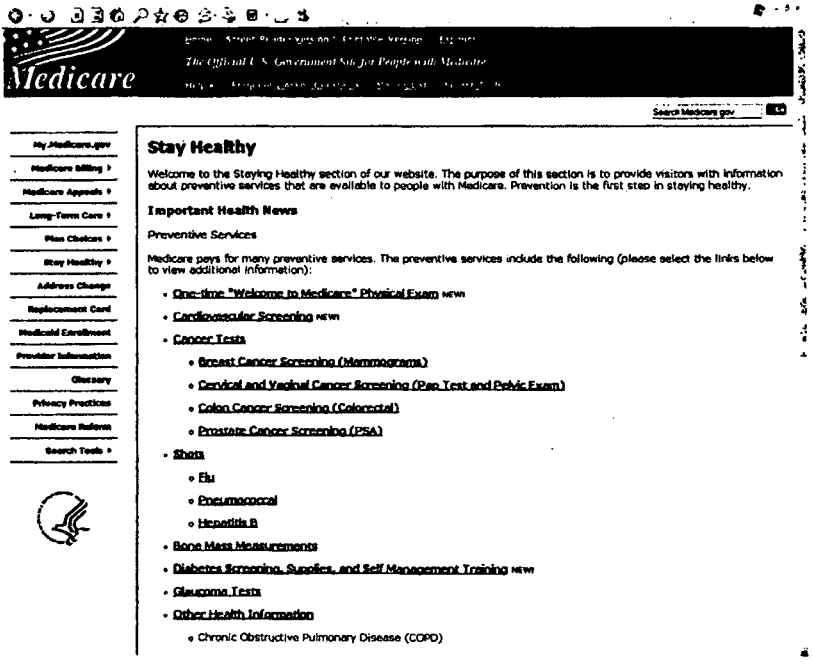
The first step in shifting the dynamics toward healthy aging is to convince decision-makers, including seniors, about the importance of prevention. Studies have shown consistently that mass communication is an effective strategy to promote prevention and change health behaviors.

The visibility of Congress gives it tremendous leverage to convey the message that prevention matters. An initiative with press events, legislative action, and the resulting media attention, led by Senators and Representatives with a commitment to prevention, could urge American seniors to pursue good health habits and obtain recommended vaccines and screening tests. Wise use of social marketing techniques and experts could markedly amplify the effectiveness of a public education campaign. The campaign should be designed to employ the optimal media channels to reach seniors and the best ways to package a persuasive message, especially for seniors who face language or literacy barriers.

On a similar note, the Centers for Medicare and Medicaid Services (CMS) could do more to promote prevention among seniors. In the past year CMS has taken several important steps to make beneficiaries aware of the new preventive benefits authorized under the MMA. In addition to press events, many of them hosted by Dr. McClellan and conducted jointly with leaders of major health organizations, new publications and website

resources for beneficiaries have been disseminated to describe the new preventive benefits.

But a closer look reveals much more that could be done to educate seniors about the importance of prevention. For example, a senior visiting the Medicare website (Medicare.gov) currently finds a prominent link, "Preventive Services Start Now!" Clicking on that link yields the following webpage, under the banner "Stay Healthy."



Medicare

The Official U.S. Government Site for People with Medicare

Search Medicare.gov

- My Medicare.gov
- Medicare Billing
- Medicare Appeals
- Long-Term Care
- Plan Choices
- Stay Healthy
- Address Change
- Replacement Card
- Medicaid Enrollment
- Provider Information
- Glossary
- Privacy Practices
- Medicare Reform
- Search Tools

Stay Healthy

Welcome to the Staying Healthy section of our website. The purpose of this section is to provide visitors with information about preventive services that are available to people with Medicare. Prevention is the first step in staying healthy.

Important Health News

Preventive Services

Medicare pays for many preventive services. The preventive services include the following (please select the links below to view additional information):

- One-time "Welcome to Medicare" Physical Exam NEW!
- Cardiovascular Screening NEW!
- Cancer Tests
  - Breast Cancer Screening (Mammograms)
  - Cervical and Vaginal Cancer Screening (Pap Test and Pelvic Exam)
  - Colon Cancer Screening (Colorectal)
  - Prostate Cancer Screening (PSA)
- Shots
  - Flu
  - Pneumococcal
  - Hepatitis B
- Bone Mass Measurements
- Diabetes Screening, Supplies, and Self Management Training NEW!
- Glaucoma Tests
- Other Health Information
  - Chronic Obstructive Pulmonary Disease (COPD)

The page does a good job of listing the full complement of preventive services covered by Medicare, a credit to the good work of Congress, but says very little about how to "stay healthy." The page is silent about primary prevention. Beneficiaries need information and encouragement to live healthy lifestyles, with messages that remind them about the importance of stopping smoking, staying active, eating well, and controlling their weight.

Nor does the page explain the meaning of a "preventive service" or its importance to seniors. To be motivated to take full advantage of the preventive services covered under Medicare, beneficiaries first need to know why prevention matters. They need to understand why preventive services from their clinician are important, which ones are

recommended, and the importance of being "activated consumers" who know what to ask and expect of their doctors.

An important reason for the gap in the delivery of covered preventive services is that many seniors are unaware that the services are recommended or are skeptical about their effectiveness and safety. These gaps in knowledge are a major factor in the low uptake of colon cancer screening, a covered benefit under Medicare that could reduce deaths from the disease by 15-25%. The "Colon Cancer Screening" link above does little to address this knowledge deficit. It provides details about coverage benefits but provides no information about current recommendations for colon cancer screening, other than the sentence, "Treatment works best when colorectal cancer is found early."

Deficiencies noted on the Medicare.gov website recur in print materials mailed to beneficiaries. Collaborating with advisors such as Partnership for Prevention, CMS staff worked last year to correct these problems. The 16-page *Guide to Medicare's Preventive Services*, which beneficiaries receive, contains the following insert (see box):

Congress could encourage CMS to do more to disseminate such messages to beneficiaries. Investing in a targeted campaign—a prevention "initiative"—to emphasize the importance of healthy lifestyle and good preventive care would cost millions of dollars but save lives and dollars.

Why Prevention Is Important

You can stay healthy, live longer, and delay or prevent many diseases by...

- exercising—Do any physical activity you enjoy for 20–30 minutes 5 or 6 days a week.
- eating well—Eat a healthy diet of different foods like fruit, vegetables, protein (like meat, fish, or beans), and grains (like rice), and limit the amount of saturated fat you eat.
- keeping a healthy weight—Watch your portions, and try to balance the number of calories you eat with the number you burn by exercising.
- not smoking—Talk with your doctor about getting help to quit smoking.
- getting preventive services—Delay or lessen the effects of diseases by getting preventive services like shots to keep you from getting dangerous infections and screening tests to find diseases early.

Note: Talk to your doctor about the right exercise program for you.

The content and materials for such a campaign need not be developed from scratch. Taxpayer dollars have already gone to DHHS for excellent lay resources produced by the Agency for Healthcare Research and Quality (AHRQ), the National Cancer Institute (NCI), and the Centers for Disease Control and Prevention (CDC). Years of work (and federal expenditures) have produced high-quality, consumer-tested, materials (in English and Spanish) that summarize recommended preventive services for seniors, provide background information and answer questions to make patients more knowledgeable. These materials employ social marketing techniques and attractive graphics to inform and convince patients about the importance of prevention.

The greater need is thus not the production of the material but the coordination of the message. Unfortunately, "stove-piping" within DHHS has provided little opportunity for CMS to be aware of, let alone use, many of these materials. Although Dr. McClellan has worked arduously to transform CMS into a public health agency, its history as a payer leaves its staff unfamiliar with the role of disseminating health education messages.

Encouraging seniors to pursue healthy behaviors makes perfect sense as a strategy to control health complications and costs for CMS, but giving advice that is not directly related to covered benefits is new terrain for its staff.

Congress has the leverage to encourage CMS to promote a shift in culture to view health education as a legitimate agency strategy to reduce outlays and alleviate disease burden among beneficiaries. In crafting the message CMS need only turn to its sister agencies. Congress should encourage CMS and other DHHS entities to work together in a coordinated fashion to advocate prevention, wellness, and healthy aging. A consistent prevention theme should be promoted across DHHS. The messages that NCI, CDC, or the Surgeon General's office have crafted to promote physical activity, smoking cessation, immunizations, or cancer screening should appear regularly in materials from CMS. CMS should disseminate coordinated content that encompasses health advice, recommended services to obtain, as well as the details of coverage policy. Today's CMS materials are dominated by the latter.

Creating an environment for healthy diet and physical activity

Beyond promoting the message that seniors should be active, eat well, and watch their weight, Congress should explore more long-term challenges in creating an environment that facilitates such a lifestyle. It does little good to tell a senior to do light gardening or take a daily walk when he or she is surrounded by highways or lacks access to a safe or attractive pedestrian walkway. Studies document that minorities and other disadvantaged residents of urban areas must travel greater distances to reach supermarkets that offer healthy food choices, are more likely to be surrounded by fast food chains, and are less likely to have access to public spaces for physical activity and exercise. Billboards and other advertising, often targeting such communities, promote unhealthy food choices. The "built environment" is not conducive to healthy living. Congress should engage urban planners, public health experts, and community leaders to devise realistic plans for redesigning American communities to support healthy aging. Leaders should sit down with the food industry and retailers to explore strategies to achieve the dual aims of promoting profits and healthy customers, rather than strategies that pursue one aim at the expense of the other.

Smoking cessation

Tobacco use is the leading cause of death in the United States and cannot be overlooked in any serious Congressional discussion of healthy aging. Once seniors get over the misconception that it is too late to benefit from smoking cessation, their next obstacle is receiving necessary information, counseling, and medications to make quit attempts successful. The recent action by CMS to cover tobacco cessation counseling under Medicare is a welcome advance. But, as already noted, coverage alone does not make it happen.

Extensive evidence documents that most primary care clinicians lack the time and skills to consistently identify smokers and offer effective behavioral counseling. An important

advance is the proliferation of tobacco quit lines in most states, where counselors have the time and skills to work at length with smokers and to provide follow-up with patients and coordination with primary care clinicians. Although many such programs received initial funding under the Master Settlement Agreement of the late 1990s, state support for many is now more tenuous.

Congress should institutionalize funding for the national quit line. This is one of the 10 components of the National Action Plan for Tobacco Cessation issued in 2003 by the DHHS Interagency Committee on Smoking and Health. Lukewarm reaction to one component of the plan—increasing excise taxes—should not distract Congress from the enormous public health importance of implementing the nine remaining NAP recommendations. Moreover, Congress should ensure adequate funding for the Office on Smoking and Health (OSH) at CDC, which has primary responsibility for supporting states in their efforts to maintain quit lines and offer other tobacco control efforts.

Access to clinical preventive services

The disturbing gaps in the receipt of recommended preventive services among Medicare beneficiaries cannot be solved without addressing fundamental barriers that health plans and practices face in the delivery of services, a problem that extends beyond prevention to encompass all domains of healthcare. For some years, experts have been raising the alarm that fundamental redesign of delivery systems is vital to prevent a catastrophic collapse in the American healthcare system. The common claim by politicians that ours is the "best healthcare system in the world" is not only inaccurate—the data suggesting otherwise is overwhelming—but it dangerously ignores the impending catastrophe. A serious commitment to healthy aging cannot be entertained without an equally serious commitment to system redesign and a commensurate investment of resources.

The system solutions that could improve the delivery of preventive services to seniors are well known. They include standing orders, financial incentives, first-dollar coverage for patients, and feedback reports to providers. Impediments to delivery must be removed, or else reminders will accomplish little in improving care. Obstacles that patients and providers face in obtaining tests, counseling, and referrals must be addressed. Creative strategies, such as using health coaches, social support, and other non-physician outreach workers, can facilitate the delivery of preventive care. Mechanisms must be in place to connect patients with resources in the community and to reinforce the initial steps taken during the visit with follow-up visits over time. Seniors are especially in need of advocates to help them navigate the complex maze of referrals and appointments that characterize our fragmented healthcare system.

Reminder systems, both those designed for doctors and reminders sent to patients, are among the most effective ways to improve the delivery of preventive care, but they are uncommon in our healthcare system. Only a small proportion of seniors get reminders from their doctor or healthcare system that they are due for a screening test or vaccination. Seniors are more likely to get a notice from the car dealership that it's time

for an oil change or from the veterinary clinic that the pet's shots are due than they are to receive a reminder about their health needs.

A major infrastructure investment would be required to make reminders routine, but an investment in the simplest of reminder systems would probably go farther in saving lives than our current vast outlays on developing new drugs and technologies. Consider the example of the cholesterol-lowering drugs known as statins. Studies a decade ago, involving the first generation of statins, showed that taking these drugs reduced death rates from heart disease. But only two-thirds of patients who would benefit receive statins because of gaps in care, including the absence of reminders. Over the past decade industry has spent hundreds of millions of dollars to develop new-generation statins that are more potent than the older drugs and that probably save more lives. But the incremental gain from better drugs pales in comparison to the benefits we would realize by removing the obstacles to receiving the drugs. In a forthcoming study to be published by our team at Virginia Commonwealth University, we show that instituting a simple reminder system, involving colorful stickers on the front of charts, would avert seven deaths for every life saved by the newer statins.

Information technology

Information technology creates a powerful tool for instituting reminders and other innovations to promote preventive care and health aging. An obvious application is electronic medical records, which can issue prompts to doctors when seniors are due for screening tests and immunizations or transmit letters or email reminders to patients. Systems that allow patients to access the health record enable consumers to take greater control over their health and use test results and feedback as incentives for health promotion.

Although seniors, compared to younger individuals, are less likely to use computers, the situation is changing. Surveys show that computer and Internet use by seniors is rising dramatically. Tomorrow's seniors are today's middle-aged adults, who are accustomed to using computers for personal affairs ranging from banking to air travel. Plans for healthy aging in America are outdated if they do not include a role for information technology to link seniors and their caregivers with needed information and resources.

Consider, for example, a website that is being developed by Dr. Alex Krist and colleagues at Virginia Commonwealth University. The website enables seniors to complete a health risk appraisal, receive recommendations on healthy aging and preventive services, use hyperlinks to web pages that explain the meaning of medical terms (e.g., what is a "colonoscopy"?), review decision aids to help with complex choices, and print summaries to bring to their doctor. Patients will receive email reminders when preventive services are due and to assess progress with lifestyle change. The website links seniors with high-quality information from NCI, the American Cancer Society, and other prominent bodies, rather than having to rely on the brochure that might be handy at the doctor's office or an article in *Parade* magazine. The same website that gives seniors access to national resources also provides direct linkage to local community

information for healthy aging, such as local walking paths and smoking cessation classes, and to the website of the patient's practice. Future versions will interface with the electronic health records used by doctors.

Congress already understands the importance of electronic health records and integrated information technology and has introduced importance legislation in recent months. The push for this technology is driven by fundamental concerns about patient safety and quality improvement and by the ability of electronic tools to erase the inefficiency and hazards associated with paper-based recordkeeping. These concerns will likely shape the outcomes of the initiative, resulting in systems that reduce errors and make documentation more efficient. The same tools can also promote healthy aging and preventive care, but they will do so only if Congress and IT developers make prevention and wellness a priority for IT products. Congress should steer the health IT movement beyond the basic goals of improved efficiency and safety to a broader vision for IT systems that enhance quality and preventive care and support patients' efforts to change their health habits.

Funding for AHRQ

The dichotomy posed above—between improving drugs and technology and fixing the systems that delivers them—raises questions about how Congress allocates resources for research. NIH, the agency with lead responsibility for the first category of research, receives $29 billion per year. AHRQ, the agency with lead responsibility for the second category of research, receives $300 million per year. In effect, for every dollar spent on developing new treatments, we spend only a penny on fixing the system so that the treatments can be received.

The penny for AHRQ funds most of the research themes discussed in this testimony. AHRQ supports the nation's premiere body for issuing guidelines for doctors on how to deliver preventive care: the U.S. Preventive Services Task Force. AHRQ is responsible for devising solutions to gaps in the quality of care. AHRQ is responsible for research in primary care settings, where half of Americans receive their care. AHRQ is responsible for tracking and solving the problem of racial and ethnic disparities. AHRQ is the lead agency for the federal health IT initiative. And researchers rely on AHRQ to learn the best social marketing techniques to convince patients and providers to change behavior. Why is only one penny on the NIH dollar spent on these urgent priorities? Without solving these problems, the advances made at NIH cannot reach Americans.

Congress should strongly consider doubling the budget of AHRQ—spending two pennies for every NIH dollar—given the gravity of today's problems with healthcare and the importance of the issue with Americans, including seniors. As the precipice comes into view it is risky public policy to give so little resource to the agency responsible for tackling these problems. An expanded investment in AHRQ would send a public message that it is important to Congress not only to develop cutting-edge treatments but also to ensure that Americans receive them. In an era of belt-tightening in which agency budgets are being cut or held constant, doubling the AHRQ budget might seem too

extravagant to consider. But the threat to the nation's health and economy posed by the imploding healthcare system makes it imperative to invest substantively in the agency responsible for finding an answer. It is an investment our country cannot afford to give forego.

Senator KOHL. Thank you, Mr. Woolf.

Dr. Evans, in your testimony you describe some of the benefits that seniors receive through fitness and strength training, which includes a decreased likelihood of depression and also the ability to do things without the assistance of a health aid.

Through your research were you also able to see a reduction in the need for prescription drugs or costly medical and surgical procedures?

Dr. EVANS. Senator, in our studies now we see, for example, one of the great epidemics of aging is chronic renal failure. We have just completed a study, funded by the Veterans' Administration, that demonstrates that we can, for example, delay or postpone or completely eliminate the need for dialysis through a good exercise and diet program.

So while my studies are relatively small in nature, the preponderance of the evidence now, through epidemiologic studies, show a tremendous decrease in disability with exercise, cutting across the barriers.

We know, for example, that obese older people who exercise regularly don't have the same complications of even leaner older people who don't do any physical activity. So it is a tremendous effect.

Senator KOHL. There is a decreased use of prescription drugs?

Dr. EVANS. Decreased use of prescription drugs. For example, many of our subjects come into the study diabetic, and over the course of an 18-month study that we have done, many of them don't need insulin anymore; don't need the anti-hyperglycemic agents, and that is, for example, the evidence of our Governor, who was diagnosed with Type II Diabetes, and this past year ran the Little Rock Marathon.

So it is quite possible, and I think the important point—and maybe the most important point to say—is that we stand to gain the most from intervening in older people right now. If we want to save the most money, clearly, prevention programs in children and young people is absolutely important. But the real central message is that any older person, no matter how many chronic diseases they have, can benefit tremendously and reduce their need for both drugs and for social services.

Senator KOHL. Mr. Herman, we certainly want to commend you for the great job that your company, Highsmith, has done——

Mr. HERMAN. Thank you.

Senator KOHL [continuing]. In keeping health care costs down. It is dramatic that Highsmith's ability to keep health care cost premiums to only 5.4 percent increase, when premiums have typically been increasing in the double digits year after year for most other business, your 5.4 percent is certainly outstanding.

How was your company able to get your employees excited about changing their nutrition and physical activity? How long did it take before you started to see real results after the program began?

Mr. HERMAN. Well, thank you for the question, Senator. It doesn't happen overnight. It takes years, and it starts in developing a culture and environment that is conducive to healthy lifestyle choices—the little touches, from eliminating donuts and cookies at meetings, and instead serving fruit and fruit juices.

We put into place something we call a Twinkie Tax, where we increase the cost of high fat food items in the vending machines, and use the incremental amount to subsidize the cost of the lower fat items.

So just spending time and time encouraging and nudging healthy lifestyle choices and creating a culture that is supportive of that.

Senator KOHL. Why are you self-insured?

Mr. HERMAN. Why are we or are we not?

Senator KOHL. You are self-insured?

Mr. HERMAN. No we are not self-insured. We are in managed care environment, but we have a self-insured variation with our HMO.

Senator KOHL. I am still not fully aware of how you are able to keep your increases down to 5.4 percent. It must require tremendous involvement and participation from your employees.

Mr. HERMAN. Very much.

Senator KOHL. Say a little bit more about what you do to get that result?

Mr. HERMAN. I certainly will.

Our premise, if you will, is if you feel good about yourself, if you feel good about what you do, we believe you are going to be healthier and more productive. You are going to be safer in the work environment, and you are going to stay.

So there is a lot of influencers that come into play as to whether one feels good about one's self, and there is a lot of influencers that come into play as to whether one feels good about what you do.

So we try to provide resources, tools, and an environment to assist employees in feeling good about themselves. We work very hard in engaging employees in their jobs to get them a part of what they are doing.

So we think that all comes together in promoting and helping employees have less health care utilization. So we have a full array of programming at Highsmith. We focus in from job career development, personal wellbeing, self-care, work life enrichment, and physical wellbeing. Over the years, we have just been able to make such significant strides that it has finally paid off for us.

Senator KOHL. How did this program originate?

Mr. HERMAN. Well, it originated because we had a 53 percent increase in our health insurance premiums in about 1990. So that certainly got our attention. It became one of our fastest rising costs of doing business. So we began some wellness initiatives. We started introducing monetary incentives and just over time it started evolving and developing.

Senator KOHL. Did it evolve at the very top of your company?

Mr. HERMAN. That is where it started, at the top of our company. Really it is the leadership by example that makes the difference I think in any environment. It takes that role modeling to effect change.

Senator KOHL. Is there any reason why what you have accomplished cannot be duplicated throughout our economy?

Mr. HERMAN. Oh, I think what we are doing can very easily be replicated. I don't think necessarily the same types of initiatives, but variations. Yes, Senator, I do.

Senator KOHL. Thank you.

Mr. HERMAN. You are welcome.

Senator KOHL. Mr. Brown, Mr. Woolf, prevention is the most cost effective way to stem the tide of chronic disease for the future as we all know. But we already have 10 million Medicare beneficiaries who are suffering from one or more chronic diseases.

What more can we be doing within Medicare and other government programs to stem the skyrocketing costs associated with providing treatment for people with chronic conditions?

Mr. BROWN. I think you need to look at those high-cost beneficiaries—as the first place where you have an immediate impact. One way to look at it is to imagine standing at the door of your hospital and watching people coming in being admitted to the hospital and saying how many of these hospital admissions could have been prevented if we had just known about these problems a little bit sooner and maybe changed behavior. I think you will find that probably a majority of hospital admissions certainly for chronic illness could have been prevented if they were managed and problems had been caught earlier.

If you then go to the Health Care Utilization Project of AHRQ, which keeps a database of every hospital admission in this country, and you look through the data base sort it by disease and say who is admitted for what, and if you say who is admitted for a complication of a chronic condition, like heart failure, or a complication of diabetes or of emphysema or asthma, and you say who is actually paying the bills for those admissions, you will find that half of the hospital admissions for chronic illness are in Medicare. You find another 20 percent of the hospital admissions are Medicaid. You find a few uninsured in some other programs and then a scattering of health plans and other programs. You see that 50 percent is actually paid for by Medicare.

So what Medicare does is critical in solving this problem. Medicare has traditionally not paid for anything long term. The statutes and the way that Medicare has been implemented, it has been based on paying for face-to-face encounters and episodic, not long term care. If you don't pay for anything long term, how can you truly manage chronic illness? Because chronic illness is not episodic. It is long term.

If you only pay for a face-to-face encounter at the hospital or a doctor's office, then you are not going to be able to prevent crisis because you need to get to people at home before you get to the doctor's office. So you have to find a way to pay for care that is remote, if you are going to prevent hospital admissions, and you have to find a way to pay for care that is long term and continuous, not episodic, if you want to manage chronic illness.

Senator KOHL. Mr. Woolf.

Dr. WOOLF. Thank you, Senator. I think I can use the same answer to respond to your question and the one you asked earlier to the gentleman from CBO about whether there is a difference between two seniors with the same disease and why one ends up in the pool of costing so much and the other doesn't. As a physician, I think I have a different perspective than he might as an economist.

We talk about primary prevention, secondary prevention, and tertiary prevention. I think all three represent strategies for reducing the burden of those 10 million beneficiaries.

No. 1, primary prevention is cutting off the number of people who enter that chronic disease pool, so encouraging Americans to live healthy lifestyles, as we have discussed, reduces the incidence of chronic disease. It prevents the diseases from occurring in the first place.

Secondary prevention is detecting the disease at an early stage, when its outcomes can be treated more effectively and complications can be prevented. So many of the examples that have been given—cancer screening tests and many other modalities—are very important and explain part of the reason why some diabetics end up in that pool of 10 million and some diabetics don't. In other words, studies show that people with diabetes who have good glycemic control and their conditions are detected early have lower complications from diabetes than their counterparts.

Then the third, which I think is very important is tertiary prevention. As Dr. Evans pointed out, people with existing diseases can have better outcomes and lower complications through pursuing healthy behaviors and good management of their diseases. For example, again, using diabetes as an illustration, complications or the progression of diabetes is cut by 50 percent through regular physical activity. The No. 1 killer in the United States is coronary artery disease. People who have had heart attacks can markedly reduce their risk of a recurrence or second heart attack through the use of certain medications, but also through healthy behaviors such as smoking cessation and physical activity.

So through all three arms—primary, secondary, and tertiary prevention—we can make the difference.

Senator KOHL. Thank you. Senator Lincoln? She is not here. Senator Talent?

Senator TALENT. Thank you, Mr. Chairman. I really appreciate your putting this hearing together. You are touching on what to me is the essential issue regarding Medicare and I would say health care as a whole, both from the standpoint of relieving human suffering, which is No. 1, but also for disability. I think all the witnesses have touched on that.

Let me ask them to address this issue, and I will have a statement for the record, Mr. Chairman.

I think we see where you all are going and the techniques, tactics that each of you have used in your own settings, and I can certainly see why they have been effective or would be effective.

Now, the question always for me is how do we get from here in the Congress to on the ground replicating in so many different settings the kind of successes or maybe, Mr. Herman, that you have had in an employee-employer setting, or Mr. Brown, that you have had in a VA setting or Dr. Woolf, in your arena.

How do we get from here to there? I want to just suggest that kind of a tactic that I am more and more excited about and get your view on it.

I agree about removing barriers and the rest of it. Then the question is, OK, the barrier is removed. How do you still get people to access the care? I am a big believer in the clinic model of commu-

nity health centers, which are empowering, mediating-type of institutions that work with people face to face. You have done that as the employer. In other words, you have initiated this and so it has worked.

Do you have any suggestions along those lines? How might we accomplish that as we change Medicare policy, not just saying this is where we want to go and this is the funding we are providing or the barriers we are removing, but how do we still ensure that somebody is getting in contact with these patients and doing these things? Can we rely on hospitals, who are organized also along the traditional medical model, for example, to do that? Do we need to do more than just change reimbursement incentives for them? Do any of you have any ideas along these lines?

Dr. EVANS. I just might say that in most states there already is a well developed infrastructure for dealing with seniors. I am really talking about Medicare beneficiaries and those are typically senior centers and Triple A's. Triple A's are often the line that supplies nutrition services to older people, but often not many other services.

We have attempted to deliver exercise programs through Triple A's, and what we do is we go in and we train peer leaders, and they can be—just people from the community or Triple A employees—and in every place that we have done that the Triple A's say well not too many people are interested in this. They get five or six times more older people joining these programs than they ever anticipated. So I think that there is a great desire of older people to improve their health. They know what is looming. You know, they don't want to access health care dollars as much as we don't want them to. They want to improve their health. They just don't have access to it.

So I think that there is an already developed infrastructure that we can develop delivery these programs through at a relatively low cost, but we need some I think political will to be able to deliver these types of programs.

Senator TALENT. So you are suggesting working through Older American Act institutions, which would seem to be a commonsense first step.

Dr. EVANS. I believe so. The infrastructure is already there. They have access to millions of elderly people right now. They are trusted and then working through the state agencies. Most state agencies, like Arkansas, has a Department of Health that now is interested in senior health. They have a Department of Aging that usually interacts more with the Triple A's. So I think that instead of creating a new infrastructure, there is one already available.

Senator TALENT. Anybody else have comments?

Dr. WOOLF. I agree, although I——

Senator TALENT. If you disagree with my premise, by all means, say so.

Dr. WOOLF. I don't disagree, Senator. In fact, I think you are heading in the right direction. I think that we definitely need to provide those social support systems in order to help seniors navigate the system. The problem is that there is tremendous fragmentation in our system currently. Although Area Agencies on aging and other senior centers that exist in most communities are

there for that purpose, as a primary care physician, I can tell you that there is a big divide and wall sometimes in between their world and the medical care delivery system, not that either one doesn't want to reach out to the other, but the infrastructure for those connections is not well developed.

What we really need is an infrastructure that integrates the different components of the community that need to support the senior in promoting healthy behaviors and in getting health care services. All the pieces are there, it is tying them together that is necessary. My practical suggestion: there is already work that CDC is doing through the STEPS Program that was initiated in recent years, where communities and regions around the country are testing these models for integration. Continuing to support that kind of innovation and creativity in communities and then extrapolating and generalizing those models out more broadly I think has real promise to tap the resources that are available in the community.

Senator TALENT. Yes. We have been supporting through grants the naturally occurring retirement community program that our local Jewish community has been doing within its community. I think it is largely what you are talking about, an attempt to integrate services and service providers in these institutions that deal with seniors or with whom seniors interact, so that we can collect what is out there and send consistent and healthy messages to seniors that way. It is just so difficult to get it from our minds here into legislation that will then produce the right results.

I think we are going to have to figure out some way to get the traditional medical providers on board and enthusiastic about this, and then it may naturally happen. I don't know whether it is reimbursement changes or pilots as with the Medicare Modernization Act but I think it is the key to getting this idea in the community. Mr. Brown, it is your turn.

Mr. BROWN. The market forces for the traditional health care provider world are not in the direction of prevention and reducing hospital admissions. They are really in the opposite direction, and that is one of the problems. If we go to a hospital administrator and say we have a program that can help you reduce hospital admissions by 50 percent, most hospital administrators look at that and say I am not sure that is a good idea for my business.

We actually have worked with hospitals linked to community health centers and have worked with case management programs where nurses and case managers and social workers tried to coach and monitor patients at home to prevent hospital admissions, and those programs were at least for uninsured patients and were seen as cost effective for the hospital.

But when you get to the sort of bread and butter business of a hospital, the business model is around the existing DRGs and codes and how they get paid. This isn't in there. Prevention is not in there. In fact, there are a lot of disincentives for it from an economic perspective.

If you look at the DRG and now they have designed so, you know, if you are readmitted within 30 days, the hospital pays the bill still. If you have got somebody who gets admitted to the hospital three times in a year, that is 3 months out of the year that the hospital worries about that patient from an economic perspec-

tive, and 9 months out of the year where the hospital has really no interest economically in that patient.

That is a lot of discontinuity, and that gap needs to be bridged. There may be ways to do this through reimbursement mechanisms or through tweaks of the existing way things are coded. But somehow that gap has to be filled.

Senator TALENT. People have talked about paying for performance type, which, if you could define the outcomes that you wanted in the proper way so it didn't have negative side effects, has potential because it creates an impetus within the system to produce a healthier result for seniors. But defining that, I think, would be difficult so that you don't get a negative.

Well, Mr. Chairman, I am not—I have probably trespassed on my time already. Thank you for calling the hearing.

Senator KOHL. Thank you, Senator Talent.

Senator TALENT. Thank you all for your work.

Senator KOHL. Gentlemen, we thank you very much for your participation here today and thank you very much for your expertise.

We appreciate very much what you have said as we continue to look forward to find ways to contain the growth in Medicare, primarily by helping seniors and people throughout our society lead healthier lifestyles.

Thank you so much, and this hearing is adjourned.

[Whereupon, at 11:35 a.m., the committee was adjourned].

APPENDIX

PREPARED STATEMENT OF SENATOR JAMES TALENT

Thank you, Mr. Chairman, for convening this important hearing to examine the role of prevention in the Medicare program.

I cannot over emphasize the importance of disease management services to help seniors live longer, more productive lives with the additional benefit of saving Medicare dollars. I have traveled all around my home state of Missouri visiting with seniors on Medicare, and discussing the beneficial disease management provisions in the Medicare Modernization Act, which I supported.

Nearly half of all Americans live with chronic illnesses such as hypertension, asthma, diabetes, and heart disease. Approximately 78 percent of Medicare beneficiaries have at least one chronic disease, while 32 percent have four or more chronic conditions. Individuals with multiple chronic conditions are more likely to be hospitalized, fill more prescriptions, and have more physician and home health visits. Nearly two-thirds of all Medicare spending is for beneficiaries with five or more chronic conditions.

We know that approximately five percent of the costliest Medicare beneficiaries consume about half of total Medicare spending. That is why I advocated for Senate provisions in the Medicare Modernization Act to create demonstration projects to examine disease management and care coordination for our nation's seniors and the disabled. I continue to support this legislation, and look forward to next year when the full Medicare benefit goes into effect as I believe it will help millions of seniors in Missouri and across our country lead healthier lives.

QUESTIONS FROM SENATOR BLANCHE LINCOLN FOR MR. EVANS

Question. Do adequate performance measures exist that cross multiple aspects of disease, such as function?

Answer. Yes, functional capacity in elderly people is a very powerful predictor of mortality, morbidity, and risk of admission to a nursing home. Dr. Jack Guralnik at the National Institute on Aging has developed what he terms the short physical performance battery (SPPB) (3) that is easy to perform, even in a doctors office and should be used by physicians in examining their geriatric patients. The test consists of a 6-meter walk time, chair stand time (how long it takes to stand up from a seated position) and a balance test. Guralnik and his co-workers (2) have demonstrated that among nondisabled older people living in the community, objective measures of lower-extremity function were highly predictive of subsequent disability. Disability among elderly people is associated with increased hospitalization and a greatly increased cost to Medicare. These studies reveal that early identification of functional problems and treatment has the potential of preventing disability. The SPPB should be a standard component of a geriatric assessment.

Question. How would one identify those who might benefit most from nutrition and exercise interventions in terms of health and cost-savings, such as certain frail elderly persons? And should we target these interventions to those with multiple chronic illnesses (including diabetes and chronic Heart Failure) to obtain the "biggest Bang for the buck" in our "high cost" Medicare beneficiaries? This secondary prevention approach might be easier and cheaper to implement in a smaller group of chronically ill seniors. If so, do you think legislation allowing for a new Medicare care coordination benefit, such as the Geriatric and Chronic Care Management Act I have introduced, achieves this goal?

Answer. It is clear that there are a number of geriatric problems that may be identified before they develop into serious of life-threatening issues. There is only one way of identifying the potential problems in a comprehensive way and that with a geriatric assessment. In this way correctible nutritional problems, functional limitations, infections, over prescription of medication, and other problems may be iden-

tified and treated. For example, one of the untreated diseases that occurs in elderly people in epidemic levels is chronic renal failure that, if left untreated, will progress to kidney death and dialysis. Use of certain medications and nutritional interventions can prevent kidney death and the extremely high cost and decreased quality of life of dialysis. Early identification and treatment of loss of appetite, eating or swallowing problems, or involuntary weight loss can have a powerful effect on improving life expectancy and quality of life. However, left untreated, these issues can have a devastating effect on the lives of elderly people. Muscle weakness and poor balance must be identified and treated before it leads to a devastating fall or loss of independence. All of these issues (and many more) would be considered secondary treatment. This treatment, even in those with multiple chronic diseases, can have a powerful effect on decreasing the cost of treatment and improving quality of life. The Geriatric and Chronic Care Management Act will go a long way towards implementing a comprehensive geriatric assessment that will be critical in the identification of treatable problems and the prevention of late-life disability. Ferucci et al (1) found that in the year when they become severely disabled, a large proportion of older persons are hospitalized for a small group of diseases. They concluded that hospital-based interventions aimed at reducing the severity and functional consequences of these diseases could have a large impact on reduction on severe disability. Thus the potential for large savings in Medicare expenses may be seen in the most "at risk" population of older people.

Question. On symptom or consequence of sarcopenia is osteoporosis and increased falls, especially in women. Recent clinical trials have shown improved quality and decreased costs from greater falls assessment and treatment in frail elderly populations, including increase in activities as you have highlighted in your testimony. However, Medicare coverage of falls assessment and treatment is minimal. Perhaps changes to Medicare, such as the enactment of my legislation the Geriatric and Chronic Care Management Act, a Medicare care coordination benefit, could allow for better coverage of services such as these. What do you think?

Answer. Clearly the early identification of those at greatest risk of falling and of developing osteoporosis is critical in preventing a devastating bone fracture. Part of a comprehensive geriatric assessment should be measure of functional status and bone density. These two simple and inexpensive assessment tools can be used to begin a treatment plan that is appropriate for the elderly person. For those "at risk" individuals, change in diet to emphasize increased calcium and vitamin D intake as well as a structured exercise program can mitigate this risk. For those identified with osteoporosis, a more aggressive treatment including a new generation of drugs to treat low bone density along with diet and exercise can prevent a bone fracture. We know that one of the most important nutritional factors that increases muscle weakness and accelerates loss of bone is vitamin D deficiency, a problem that is found in far to many elderly people (5) due to inadequate time in the sun (sunlight is used to make vitamin D by the skin) nor do they drink much milk (fortified with vitamin D). Balance training, including participation in Tai Chi exercises can prevent falls in elderly people Coordination of all these interventions begins with a geriatric assessment described in the Geriatric and Chronic Care Management Act.

Question. This week, the Senate Finance Committee is working on "pay for performance" legislation which would allow for the development and implementation of reporting and quality based measures for greater accountability and reliance on quality-based health care for providers. Do adequate measures exist in the area of falls? Would a frail elderly/geriatric population with multiple chronic conditions benefit from some unique measures, such as a falls measure, when compared to the "regular" elderly population who may be evaluated under more general measures having to do with one chronic disease, i.e. diabetes or heart disease?

Answer. Adequate measures do exist in the area of falls. The short physical performance battery (described, above) is easily performed and identifies those at greatest risk of falling and suffering a bone fracture. This use of this simple tool in a geriatric assessment can be the first step in a treatment plan to prevent a devastating fall. This plan might include identification of medications that may cause balance problems, nutritional deficiencies, muscle weakness due to low muscle mass, obesity, and other potential causes. In fact lower extremity physical performance (gait speed and chair stand time) has been shown to be highly predictive of hospitalization for a number of geriatric conditions (such as dementia, decubitus ulcer, hip fractures, other fractures, pneumonia, dehydration, and acute infections even among people who are not currently disabled (4).

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