Michael Dimmitt: —Research Bureau, and we are having a lot of sophisticated equipment here, as we are going to be recording this and providing everybody a DVD of the seminar, and we will do likewise for the second and third seminars, and then we will have a final report which will include a DVD which combines everything into one, trying to do it thematically, so it'll be pretty good for you.

This is the first of three seminars. The California Health Care Foundation is providing the funding for these seminars. Terry is from the Health Care Foundation, so I'd like to acknowledge the foundation for its support of this series. I'd quickly like to just go through some things here, and then turn it over to Jonah. He's going to be our moderator.

We have Annie Riesmann, Cliff Goodman, and Dick Hillestad, who will be our speakers today, and Jonah will be introducing them. First of all, there are a lot of people who helped put this thing together. John Remilson, Emily Resada, Katie Sarger, Jennie Lai, quite a number of people. But most importantly, we'll start off with the report, which was prepared by Elushun Wilson and Alan Doherty, here over against the wall; they're from the Insured and Uninsured Project.

And then more formally, with respect to my colleagues at the California Research Bureau, I'd like to acknowledge Charlene Simmons, who's the acting director of the bureau now. We also

have, she was unable to be here, Jennie [unintelligible] was, there she is over there. Charlie Cooley is not here.

Jennie Lai was the young lady out at the registration desk, and I don't know if she's in here yet. As I said, this is going to be recorded, and it's going to be made available. We have, if you have business cards, we would encourage you to drop off your business card, because we don't have… When I suggested this thing, I didn't think about distributing it, I thought it was going to be automatic, and so that's why we need to have you drop your business cards into the receptacle out there.

And if you don't have a business card, we have a list so you can write your name and address down, so we can get you that. If that doesn't work, you can always [unintelligible] the Research Bureau and we can get it to you that way. So there's three vehicles that you can use to get a hold of this DVD for this particular seminar.

The next thing is on your left side of your agenda, you have the agenda, and if you take a look on the backside of the agenda, you have brief bios of each of the panelists, and there will be, there's a more complete bio at the end of each of the presentations, so that you will be able to have a degree of knowledge of who these gentlemen are, and what they're working in and what the work is.

Then, the last item on… Oh, then we have the evaluation form, and which really ... I would really like it if you filled it out. It'd be very

interesting to see what your responses are to this [unintelligible] quite good. Finally, on the left-hand side we have the report which was authored by Lucian and Evan for everybody to take a look at through.

And then on the right side we have the PowerPoint presentations by the presenters. Then finally, we have an annotated bibliography, which was prepared by our intern, Jennie Lai. I'm trying to speed up because we lost a few minutes here, and I want to give the speakers a good time to address their issues.

We're asking them to take a half an hour or so to go through in great detail the work they've done. Today our moderator is Jonah Frohlich from the California Health Care Foundation. He's the senior program officer at the foundation's better chronic disease care program. He's also been involved in the foundation's work on the development of [unintelligible] standards for the support of electronic health information exchange.

With that, I'd like to turn it over to Jonah, and we'll begin with our seminar.

Jonah Frohlich: Thank you. I'm Jonah Frohlich from the California Health Foundation. We are a not for profit private philanthropy based on Oakland, California, and I have the privilege today of presenting the three very distinguished guests, who are nationally renowned for their work in health information technology.

Before I turn it over to them, I just want to give us a very high-level overview of what we're going to be discussing with you today. The topic today is around electronic medical records and [unintelligible] information technology. Very generally, health IT or HIT is hardware and software that's used to store, send, retrieve and use clinical information to effectively provide care.

It's not a panacea, you may have heard a lot about what it can do to solve a lot of the problems in health care. It by itself can't do that. But what it can do is play a significant role in improving health care delivery when it's sort of fully enabled, and help improve patient safety, efficiency and quality of health care delivery.

So when we talk about health IT, there are many different components of it. At a personal level, there's something called personal health records. It's a tool that can be used by individuals like you and me to help store, retrieve and use our own information. There's something called an electronic health record which we're going to talk about today which can be used in both a private practice, a public health clinic, or even a hospital.

There's something called e-prescribing, electronic prescribing, allows point-to-point connectivity between providers and hospitals and dispensaries, so that messages and prescriptions can be filled [unintelligible]. There's something called electronic [unintelligible] ordering, this is also imaging and other kinds of diagnostics.

It allows electronic messaging for many different points along the system, so that providers can actually see the kind of lab tests and results electronically from the lab and get them back in their offices or their hospitals. And then there's a hospital side, the electronic medical records, there's bar-coding. There are many different kinds of tools that can be used in those settings.

What we're really going to focus today on is electronic medical records. Health information exchange, tele-health, these are all very important capabilities, but what we really want to focus on is EMRs or electronic medical records for our purpose[?]. One definition here, we're going to hear other definitions today, is that it's an electronic record of patient health information, used to store and retrieve information around problem lists, notes, medications, lab tests, radiology reports, and it has the ability to generate an encounter electronically of a patient visit.

EHRs could significantly improve the way health care is delivered, it could improve efficiency and it could improve safety with fully enabled, this is very important with things like prompts and reminders, so that clinicians have support if a bad test result comes back or other indicators that something might be wrong.

These fully enabled [unintelligible] electronic health records can really support providers in a variety of different settings. When we look at electronic health records across other developed,

industrialized countries, what we find is that there's a broad spectrum of adoption. So all the way from 98 percent in places like the Netherlands and New Zealand, New Zealand's been using electronic medical records for over a decade.

So the United States, in one case, in one study, only about a quarter of electronic medical record adoption by providers. We do currently, in Canada, although that's going to change. Canada [unintelligible] in the federal government is investing about $1.5 billion to deploy electronic medical records.

If you take a closer look at this number and break it down, it gets even a little bit more complicated. So there was a landmark study that was released in the New England Journal of Medicine very recently, and it surveyed physicians out in the field, and it asked them how we were using their electronic medical record.

And we drilled down a little bit into some of the kinds of tools that were used along with EMRs, things like electronically ordering prescriptions or electronically ordering lab tests. That number actually dropped, and what they found is only about 13 percent of doctors are using some of these capabilities.

And when they further defined it and asked more detailed questions about some of the issues I talked about, alerts and reminders, so that if a lab test came back that was abnormal, the physician would be prompted to do something, or if they're about

to electronically prescribe medication, and that medication could interfere with the patient or harm them in some way, when they asked those questions and asked physicians if they were using an EMR to do that, only about four percent of clinicians actually said they were doing it.

So it's very important when we're thinking about policies around EMR adoption and paying for EMRs, to think about how exactly those EMRs are being used. Because if we're not thinking about those components that really improve safety, quality and efficiency, and we're not reimbursing for that, we may not be getting the results that we want.

Being in California, part of our role as the California Health Care Foundation is we commission a lot of research. We published this in January, and we asked physicians across California whether or not they were using electronic medical records, and we just defined it very loosely.

What we found is that there was a discrepancy. Larger practices and Kaiser physicians were by and large, in fact the majority of the time, using electronic medical records in some form. But when we asked small to private practices, those who practiced, in a practice of ten or fewer doctors or solo docs, that number dropped significantly.

Most care in California is provided in those settings. So the majority of Californians still don't have a provider that uses an electronic medical record. We ask the same question of hospitals, and we ask them if they're using electronic medical records as well, and about 13 percent said they [unintelligible].

And there are other tools, like I mentioned earlier, in the hospital setting, we ask them as well, "Are you using bar-coding?" Bar-coding has been used in supermarkets for two and a half decades, but it's still a relatively new phenomenon in hospitals, and what we found is this very limited, it's used in a limited capacity in hospitals.

Bar-coding can be used in a very important way to improve safety and to track pharmaceuticals, labs and orders across the whole hospital system. So this is really an important indicator of potential quality [unintelligible] improvement in hospital settings. Just to demonstrate that point, looking at things like hospital-related medical errors, whether or not this is by tracking [unintelligible] reported, the number of medication errors in hospitals is significantly trending upwards, to the fact that about 15,000, by one estimate, patients died as the result of a hospital-related medical error in 2005.

One of the questions is: is there a role for government? Our government is a significant payer and player in the health care

system. When we looked, again, in a national comparison, one report, this is from Health Affairs, I believe, there's a wide variety of spending by governments and countries, to the point where in the UK they're spending at least $200—or almost $200—per person to deploy health information technology across their entire delivery network.

In the US, the federal government is significantly below that. So there's a significant room for improvement. When you look at health care expenditures, we make the argument that these were the single payer systems, they're publicly funded, and it's true, although they're not all single payer.

If you look at countries like Germany, they have a mixed model. But basically, in the United States we have about a $2 trillion spending habit per year in health care, and about $1.1 trillion of that is private. About $900 billion is public. So, almost half of the health care dollars spent in the United States are spent by public organizations, institutions, the federal government, state government, counties.

And we're going to hear about this today. Payers have a significant role to play, and they're ultimately a significant beneficiary of the adoption and use of health IT. What does that say about us and the role of the government in helping to pay for health IT across the spectrum?

When we look at other countries, finally, in terms of health care costs and increasing pressures, everybody's going up. Over the last 25 years or so, in fact we've seen a threefold increase in per capita spending on health care in most industrialized countries, and the United States started off in the same place, but we're trending considerably upwards.

So at this point we're now over $7,000 per capita, per person that's being spent on health care. And if we forecast this out a few years, in fact this is just six years out, and we're looking at the trends, and it continues to go up at the current pace, we're going to be spending over $11,000 per person.

That's one in five dollars spent in the US economy, 20 percent of gross domestic product. So I think the bottom line is that it's not that we aren't spending money on health care to improve quality, it's how we spend it and what we spend it on. So what we're going to talk about today and what you're going to hear from, from some of the speakers, we're going to first hear from Richard Hillestad.

He's a principal researcher at RAND, and Richard did a landmark study about [unintelligible] of HIT, and he's going to go through some of the results and findings with you. After that we're going to hear from Clifford Goodman. Clifford Goodman is the senior vice president of Lewin, and he's going to look also at some of those results from RAND and figure out what is true and actualized in

terms of potential costs, safety and quality implications, and the use of health IT.

Finally, we're going to hear from Andy Wiesenthal. Andy Wiesenthal is at Kaiser. He's the associate executive director at [unintelligible] federation. He's going to talk about Kaiser's Health Connect product, the whole electronic medical record rollout program, and some of the benefits of HRT that they've actually already witnessed from their implementation.

With that, I'm going to turn it over to Richard.

Richard Hillestad: Good morning. I'd like to thank the California Research Bureau for the invitation to present this RAND research. Information technology has transformed much of our lives, and much of what we do, and it's changed the way we communicate, the way we shop, it's changed the way we book our travel, the way businesses have operated.

Yet it's had very little effect on the health care system. This study was basically asking the question, if health care adopted health information technology, could that adoption transform health care? That's what this research was about. What I'm going to talk about, for a little background, is a two-year RAND study; we actually completed it in 2005.

The results are well-published, there's about five RAND reports now that, by the way, you can order, get for free off the handout over at the website. There were a couple articles printed in Health Affairs that summarized it. The study was funded by a consortium of, RAND put in some of its own money, as well as a consortium of information technology and health information technology vendors.

The oversight of the project, however, was by a 14-member prominent medical expert steering group headed by Dr. David Morgenstern from Kaiser, former CEO of Kaiser. I'm going to go over [unintelligible] real quickly because Lewis[?] has already gone into some of that. The [unintelligible] health care system is an information enterprise.

It may be one of the largest information enterprises in the world. Yet it's amazing that a central database looks like that. That's led to inefficiencies in the system. Despite the spending of 1.8 or $2.0 trillion nationally per year, we don't deliver the best health care, and in fact, in our own RAND studies, we've shown that the recommended care is only given about 55 percent of the time.

And if you compare with other countries, we don't provide the best health care. You can see our per capita spending is over double what the OECD[?] average is, and yet our life expectancy at birth is

at about the OECD average, and we certainly don't motivate healthy behavior through our system.

In fact, if you believe that obesity is the harbinger of medical problems to come, we have double the morbid obesity rates of the OECD countries. We asked the question for the study, "How much could electronic medical record systems help?" We've already seen some of the definition of more [unintelligible].

I'm going to talk about the electronic medical record system as we defined it. First of all, it includes the electronic health record, which is basically a digital health record that you're all familiar with. But the importance of getting digitized is that we can now then add some more functions, like clinical decision report.

"What should this patient get given what he's presented?" Patient tracking and reminders for preventive medicine. Personal health records to get the patient more involved in his health care. Computerized physician [unintelligible] all those errors that [unintelligible] talked about, and connectivity, to allow health care to be continuous wherever the patient happens to go and seek that health care.

I'm going to give you a real quick summary of the findings now, [unintelligible] through some of these. I want to remind you that this is a US-based; this is not a California basis. The first thing they showed is that the potential, if the system gets to a 90 percent

adoption level, was a potential savings, just efficiency savings alone in the system could reach $80 billion a year.

Now, I'll remind you that those savings are not necessarily to the provider that bought the records or the hospital or the patient, [unintelligible] all over the place. A lot of them would payors[?], but they're not necessarily costs saved by the US government. The cost to get to this level would be about $8 billion, we would estimate, yearly, estimated cost of what it would take to get 90 percent of the possible physicians using electronic medical records.

I also want to remind you that what we're projecting here is 90 percent adoption in 15 years. This is from 2005. But it's not immediate, and during the adoption period it would take more money initially for you to eventually get those potential savings. There are important safety benefits that Rich[?] talked about, estimated at this 90 percent level, avoiding 2.2 million adverse [unintelligible] per year.

And there's also important benefits in prevention and management of chronic illness, and I'm going to touch on that a little bit later, but even productivity benefits are part of that. But the system is not generally getting [unintelligible] really fast. I'm not even sure it's going to make it in 15 years.

What we suggest is that it really is the role for government action because the market in this place is broken. So we have our adoption

estimates. These were the adoption estimates back in 2005. They're not, surprisingly, all that different from even some internal [unintelligible].

Now, it depends what we call an electronic medical record, and what functions are being adopted, as we've just seen. Now, our problem was to say, "What would happen, and what it cost to get to this 90 percent level, get up to the top of the end of that curve?" And that curve is a curve that was derived in our study based on the historical adoption of complex information technology in other sectors. It takes a while.

So what was the RAND study? Basically, there was relatively limited evidence at the time of the study, and actually there still is, some of the savings and health benefits of information technology. So we took those cases, the [unintelligible] cases that have relatively validated benefits. And so what would happen if everybody did as well as these places?

What would happen if you had widespread adoption of significant interoperability, and that the process change that occurred. Now, remember, information technology by itself doesn't do anything, you really have to see that the process changes. A good example is the PAC system that the [unintelligible] inpatient system, which moves, allows you to digitize x-rays and other kinds of imaging.

That's led to whole new business models in health care. You now have the nighttime [unintelligible] operating out of Australia, so that the hospital doesn't have to have a nighttime radiologist. So it's those kind of changes that [unintelligible] as well. So, what we did is we [unintelligible] relatively limited evidence.

The efficiency benefits were reduced waste, reduced [unintelligible] of tests, because you know you quickly could access what tests had already been done. Change processes, improved workflow, improved scheduling. Fewer resources, reduce administration, list of paper records is a savings.

I should remind you that you don't get these savings until some of these resources are removed from the system. If you do this and you're still employing those people, then you don't see that savings. And then lower cost substitution[?], for example. And what we showed in that $80 billion, that 75 percent of that would be related to the inpatient aspect of health care, and about 25 percent to the outpatient aspect.

This is our reminder that, we talked about what would happen after a 90 percent adoption, that's going to take some time, and there's also lots of uncertainty in [unintelligible] reflect, try to reflect the uncertainty of the savings we projected. What it costs, first of all I'll remind you that the cost of putting in an electronic

medical record system is not just the cost of the software and the hardware and the maintenance.

It includes the significant planning, training and implementation that has to occur. At hospitals it could take years. A physician group, it can take a year. And then there's the significant potential drop in revenue, or at least disruption of provider [unintelligible] during the implementation process.

So all of those are [unintelligible]. When we estimated the costs, we actually had real examples of physician adoption and hospital adoption, so we did have a good example of what it was costing for different sizes of provider organizations. These are estimates of costs, I think it's about, I can't quite read the chart, it's about $17 billion over a 15-year period for physician offices, and about $97 billion for hospitals to get to that 90 percent level.

That's a significant cost, $120 billion to get to 90 percent level of adoption for the United States. But even along the way, there are potential efficiency savings, and if we count those savings, I think the figure is about $620 billion during the adoption period, 620 versus 120 in terms of money[?].

But it's not all about the money. Let me talk a little bit about the safety benefits. What are the safety benefits? The most immediate benefits is reduced errors from [unintelligible] errors. But there's lots of other things you can do once you have that digitized record

connected into the system. You can get allergy monitors, you can do drug-drug interactions, and you can get dosage warnings and the like.

We use some estimates or some data that was available at the time of the study, to estimate sort of if we got into this 90 percent level, what would be the reduction in adverse drug events? And there's a couple things I'd like to point out in this picture. One is there is a dollar number associated with it because it does cost [health care] to deal with these adverse drug events. That's about $4 billion.

Most of it occurs at physician offices because that's where most of the prescribing goes. And a very significant portion of it occurs with the over 65 population. So, Medicare, Medicaid are probably very interested in this effect. The other thing to point out is that the little guy with [unintelligible] on the left has to do with solo physician offices.

It may be surprising to you how big a proportion of the offices, solo physician offices are. And that means you have to get penetration [unintelligible] electronic medical records down to the single and small physician offices to really get this kind of an effect.

What about health benefits? There's a number of things that, once you have the electronic digitized health record, and better communication and better connection of the system, you can get a boost in [plans] with prevention activities, you can do better

management and prevention of disease, and I'm going to talk in just a few minutes about these.

You get coordination of care, and more patient involvement in the care, just because of the communication, and getting family involved in the care. We made some estimates of, if you were able to do a better job with prevention activities, various kinds of screening or vaccination, what would be the effect, and this table summarizes, they're showing it right now what you have, only about 66 percent of the population is now compliant with the colorectal cancer screening.

So you have a lot of room to improve that. You may not get all of this benefit; you should be able to get some of this benefit if you improve that. Now, let me turn to chronic disease, because chronic illness is a significant leverage factor in terms of trying to improve, reducing chronic illness is a very significant leverage area for reducing health care costs.

About 75 percent of the health care dollar is associated with people who have chronic illness [unintelligible]. And this is the perfect, the electronic health record and connected are sort of the perfect thing to help deal with that, because it permits better communication between multiple providers that are involved in dealing with chronic illness, it provides better potential communication with the

patient, and more patient involvement, and getting the family involvement, the patient is monitored.

And you can see some of the regional demonstration projects that have connected up health information technology, [a certain library] to dealing with chronic illness. There's one in Minnesota and one in the State of Washington. Because, again, it is a sort of high-leverage area. We made some estimates of, if you did a much better job in some of these.

We took four chronic illnesses, what if we did a really good job in [unintelligible] these systems and dealing with that? And you can see with significant… This is a reduction of 12 percent overall of the inpatient days, and I think about seven percent of emergency department visits, very, very significant.

And that's what you want to do with chronic illness; you want to reduce these acute episodes, to keep people out of the hospital. We looked at various levels of participation and lifestyle changes associated with it, we showed various effects. But in any event, it has a very, potentially a very significant effect on dealing with chronic illness.

So, given all of this, why isn't it happening? One part of our study looked at other businesses, other sectors and their adoption of IT, and compared health care with that. Here's an interesting little slide. We have the other industries, and we have the health care

industry. First of all, many of the other industries have these large champion firms, like Target or Wal-mart, that other places attempt to emulate.

In health care, there's at [unintelligible] champion firms that a lot of people are rushing to emulate. The way that some of the [unintelligible] became efficient is by integration. In the health care system you have a cottage industry, you have a very, very [disaggregated] system. The standards, like barcode standards, were important in getting the other industries going, some of the changes to occur.

Those are the [unintelligible] intention of HIT standards at this point. Relatively high IT investment, in fact health care sort of lags behind much of the rest of the industries. There's a lot of investment in IT in health care, but they're still certainly well behind much of the rest of the industry in their investment in IT.

And there's a lot of market forces driving other industries. Basically, the health care market is essentially broken. You don't have, because of the payer system that we have. And you have, part of the market is the consumer involvement. We essentially have no consumer involvement in some of these, in many of these choices about health care.

What is the most significant barrier? I would say it's probably that the people at the top, the physicians in the hospitals do not see

those savings that we talked about. In fact, this picture illustrates that, that the purchasers of the [unintelligible] system basically lose patients. They lose revenue as a result of the [healthier indicator] of the patient.

So, the bio [unintelligible] losing customers. So we suggest that there's sufficient reasons that the government ought to intervene. The market's not working well. And because it was [unintelligible]. And what we're seeing now in terms of adoption is what may be the start of a two-tier adoption.

There's the larger providers, the large hospitals are moving towards an electronic medical records system. But the disadvantaged enterprise is, often serving disadvantaged people, are not able to afford the electronic health records. And hopefully, some of the cities could sustain this unsustainable health care cost [unintelligible].

So, we suggested a number of actions, everything from promoting standards in certain [unintelligible] this is happening now, to implementation support. One of the things that physicians, providers need, is information about how to [unintelligible] how do I choose a system? And there's good information with respect to that, is important.

One thing we didn't talk about is the value of these large digital, clinical databases, in terms of [unintelligible] health care research,

and how [unintelligible] do things better, and what's going [unintelligible] more efficiency. Another thing is the promotion of the continuity of care and connectivity for large-scale emergencies [unintelligible] [DHS] to get involved.

Because, I don't know how many of you are aware, when Katrina hit New Orleans, most people who came back did not have their medical records, they lost their paper medical records. And people who were right in the middle of a cancer treatment [unintelligible] treatment, so they lost that continuity of care.

It turns out that the Veterans Administration does have an electronic health records system, and they were able to restore the records for those evacuated patients [unintelligible]. So, again, this is another reason to move to digital health records. We briefly looked at some incentives.

It turns out you don't have to, for incentives, this is for providers, not for physicians. You don't have to buy the electronic medical records for all the physicians. You just need to buy a little bit. This was in, we simulated a [unintelligible] payment of $1.50 for these physicians that have an electronic medical records system, and the cost of that, and we offered that for three years, and then we simulated what might happen.

The cost of the incentive for those three years was about $2 billion, but the return is all the area under the curve after that, because

you've kicked up the adoption, and from then on people were getting some of these benefits. And that's a leverage of about $16.2 billion for that two billion.

So in terms of the original question, can information technology transform health care, yes, but not without widespread adoption. That's one of the caveats; you have to get the adoption up. You have to have some standards of interoperability, to get the connectivity. And you have to motivate the process change to go along with the technology, to get many of these changes.

And I would argue that you don't get this process change unless you actually get in and start measuring the system. These things allow you to do some of that measuring. And it's probably going to take some government intervention. That concludes my—

Jonah Frohlich: We're actually doing questions and answers after our three presenters. So please keep that in mind. We'll try to get enough time so we have that.

Male Voice: If I might add, to that point, we're not constrained by 1:30, so if you want to hang around and ask further questions, please do.

Jonah Frohlich: Thank you.

Clifford Goodman: Thanks, very glad to be here. I was asked by the Journal of Health Affairs to do a commentary on the RAND study. My presentations going to draw largely from that comment, but I will stray a bit from

it towards the end. My punch line is in my title. I was asked to comment on the study about savings and electronic medical record systems, and my answer was [unintelligible].

What about potential savings is a strong position? Here in California, and around the country, and indeed industrialized nations, policymakers are considering whether to make major long-term investments in EMRs. The prospect for an EMR system to decrease costs is a potential selling point.

It is mentioned in the halls of Congress. Policymakers may seem to be attracted to a cost-neutral or maybe even a cost-reducing solution. This would get policymakers' attention, and it could hospital and health systems' CEOs' attention as well. So, the question here is [unintelligible] our projected cost savings realistic?

And if they're realistic, are they meaningful? We took at the RAND study, and Dick and his team started their study initially with a top-down approach. They described something that I'm going to call top-down [unintelligible] they concentrated on what we're going to call the bottom-up approach.

The top-down approach really applied. Productivity [gain rates] [unintelligible] industries that adopted IT during the 1990s, and the top-down approach applies those productivity gains to the health sector and says, "What happens if you do that?" And the bottom-up approach starts with stuff, individual studies of institutions in the

literature, and builds that up, scales it up to a national model for health care savings.

Let's look at the top-down approach first. They looked at telecommunication, securities trading, retail merchandising. These industries invested heavily in information technology, and the experience of those industries was pretty inspiring, that they saw six to eight percent annual productivity growth.

And research has attributed anywhere from a third to a fourth of that to the contribution that is of IT. So there's some optimism there. Now, what do you see when you apply this to the health care sector? Well, for that period, 2002 to 17, what happens if you take the estimate of what happened in the retail wholesale business, which is a percent and a half?

If you apply that to the health care system, it was estimated that it would generate $346 billion, average annual health care savings. Not bad. In 2002 that would be 11 percent of projected national health expenditures. The NHE[?] is generated every by the Centers for Medicare and Medicaid Services. They project out [unintelligible] through 2017.

So, gosh, 100 percent of NHE, doesn't sound too bad to me. Now, if you took telecom, which reported an eight percent gain of productivity, just took half of that and said, "Well, four percent," that would generate $813 billion in average annual health care

savings, and by 2002 that would be, wow, 26 percent of national health expenditures.

That would get policymakers' attention. "Did you know if you invested in this system nationally, you could reduce national health care expenditures by a fourth?" You would get attention with that. That would be [a deal]. There are a few caveats to this, and [unintelligible] the literature.

The kind of [unintelligible] responds, really interestingly enough, no correlation to an IT [unintelligible] productivity growth during 1973 to 1989, which is before the 1990 figures cited by RAND. So there's really a slow increase before 1990. Now, the exception was the telephone industry, which had huge numbers of employees doing a number of [unintelligible] highly recognized tests.

To me that doesn't sound like the health care system. Furthermore, Walker pointed out that the complexity of health care makes it unlikely that it will achieve wide productivity gains more quickly than other industries have. And frankly, that's optimistic. To say that health care will do better than other industries, we're saying good luck having to do as well as.

Well, that was the top-down approach, and again, if those estimates are good, that would be real money. And I've got to check myself, my part in doing that, to contribute to a national study. Let's look at [unintelligible]. It starts with electronic medical record experiences

reported in the peer review literature, and what it does is it takes this study, this study, this study and this, and it scales up… [unintelligible]'s calling.

It scales those up with the single issue of health IT adoption. The savings are based on several main things, and one is greater efficiency in patient care, outpatient care and safe [unintelligible], that's greater efficiency. Some gains perhaps in the short-term with Medicare, near-term chronic disease management, and long-term prevention of chronic disease.

So, EMR implemented as intended would have savings [unintelligible]. As Dick's team pointed out, short-term preventive care actually is a net cost increase. You're not going to make money, especially in short-term Medicare. Okay. Now, let's get to the numbers. Mind you, since this RAND study came out, a lot of folks have been, policymakers and other stakeholders have been quoting these numbers.

And as I think all our panelists would agree, RAND can put together a stack of stuff, they can back up a truck to the halls of Congress with copies of their great [unintelligible]. But what you're going to hear on the floor is the stuff in the billions; it's going to be the money argument. That's going to be what folks look at.

So the estimate was $82 billion per year in health care efficiencies saving, and that comprises $77.5 billion on inpatient and outpatient

efficiency, assuming the eventual 90 percent adoption, an average of $42 billion a year over that period, about a billion for the patient adverse drug event prevention, savings there, and $3.5 billion [unintelligible].

So, again, $82 billion per year would be achieved by year 15. Now, what about cumulative savings? Roll the stuff up across all the 15 years, and it comes to $628 billion. $470 is inpatient, over $150 million, 160 in outpatient, cumulative, rolled up savings over that 15-year period. Now, $82 billion sounds like real money to me, and so does $628 billion.

Now, of course there are implementation costs, and the RAND folks did a very good job of outlining those. So it would be $115 billion cumulative implementation cost, [nine-day bill] for the hospitals, about $17.2 billion physicians, inpatient and outpatient. And this assumes some front-end loaded implementation costs, so early on you've got to spend money to get over the hump, get things [unintelligible] cost of 20 percent in outpatient settings, and up to 30 percent in inpatient settings.

So these are the assumptions made. Now, the cumulative net savings over 15 years, what's that going to come to? Remember, it was $628 billion cumulative savings, minus the 115 in implementation costs, leaves $513 billion cumulative net savings

over the 15 years. Still, that's not chump change, okay? That's a half a trillion dollars.

Is it real money, though? Well, as we said before, national policymakers do weigh the potential costs and benefits of making a substantial financial commitment, and as we said before, the prospect of realizing dramatic reductions in national spending could be persuasive, it might not be decisive.

It is viable? Let's look at the 15-year period as the [unintelligible] starting in 2004, 72,000 going to 2019. Well, $82 billion is saved by 2019. By the way, that's when the baby boom, midpoint Baby Boomers hit 65, and step right into Medicare. By then, by 2019 national health expenditures currently projected will approach $5 trillion. They're a quarter trillion this year, 2008.

So in that year it'll be five trillion. So if you took $82 billion in savings, and by the way, we're not including implementation costs there, it would maybe approach 1.7 percent of national health expenditures in 2019. So I ask you, could you sell a bill, could you sell national legislation or the California chunk of this at the state level, on the presumption that you'd known down national health expenditures by less than 2 percent, by maybe 1.7 percent?

How good a sell is that? You could answer that yourselves. What about the projected cumulative savings? Remember $513 billion in cumulative savings? And this does take account of implementation

costs. Well, by the year 2019, over that 15-year period ending in 2019, cumulative national health expenditures will be approximately $48-50 trillion, and that $513 billion will comprise one percent of that.

Again, it's real money, but are you going to sell this on a one percent net savings? Not so sure. Well, doing this exercise does provide a rough idea for the [unintelligible] magnitude of potential impact, and the gradual effect of the, even in optimistic scenarios… But usefulness of this approach is limited.

Ask yourself some questions. In the bottom-up approach, projected savings are scaled up [unintelligible] facts reported in the literature. Put your skeptics hat on and ask yourself, "Does the literature truly reflect the failures?" You know and we know that there's a publication [unintelligible]. When stuff doesn't work well, investigators have a hard time wanting to publish it and getting it published.

So, the literature upon which these estimates are based or from which they were built up may be biased, and even if there have been successes reported in the literature, are they still going on? [unintelligible] the literature based on how things are going pretty well, well, they aren't.

Furthermore, just because they were in one place, and [unintelligible] still work in one place, are they generalizable? Does

the Kaiser experience work elsewhere? Does the VA experience work elsewhere? And finally, can they be scaled up? Not so sure. Let's say you thought you were going to improve productivity by that much.

Now, the RAND team showed these savings, they showed very well the projected curve of national health expenditures, and they said that these savings would basically push down the curve a little bit. You'll see that in the Health Affairs article. And it was, again, well documented. But you've got to wonder what that will mean.

And as I would say, it is unrealistic to hold out effective widespread adoption of HITs, and the net cost saver, okay, what's going on there? This stuff almost never hits the bottom line. We'll go back. The health care system is not one in which demand is being satisfied. Is everybody happy with the health care they're getting? Is everybody insured, is everybody getting what they need? Is there full access?

If that were the case [unintelligible] maybe total expenditures would go down. But this is a system whose demand is not met. So, [unintelligible] transform, this system that we live in is going to find ways. We save some money here, it's always going to find some way to spend it. So I don’t know that you can take the curve from here to here.

And indeed, the RAND team have not just said, "Look, it's possible the efficiencies will be used to improve health care quality rather than to reduce cost." Now, there's some good stuff here. The extraordinary IT-enabled productivity improvements experienced in these other great leading industries, they did not result either in less net spending, but they well exemplified the creation of previously unimaginable forms of benefit for [emerging markets].

Those IT changes in those industries did indeed ultimately transform the markets. They're not spending less, but they're doing a lot more neat things. So I'm wondering what they might suggest for the health care sector. Well, let's go back. They might do some fantastic things for the health care sector. They may be transformations, but they won't get a lot of savings.

Before I go on, I want to call your attention to a study done by the Congressional Budget Office, and these are some pretty curmudgeonly folks, some of them. They look at the RAND study, and there was another statement by the Center for Information Technology Leadership, and they had some things that you may want to keep in mind.

They said that by itself, the adoption of more health IT is generally not sufficient to reduce significant costs, I think I'll [unintelligible] that. They thought that both studies overestimated the savings for the health care system as a whole. They said that the RAND study

was based on a subset of the literature on positive effects, it ignored some studies that didn't find [unintelligible] results and so forth.

So they were somewhat skeptical of the study, and that's what the CBO people have to do. That's what their job is, to score things and tell people in Congress what they think an actual effect might be. I did notice elsewhere in the literature that Dick and his team have some very good comebacks to the CBO, by the way, which I thought was very good.

Well, I think I have a more realistic question for you. We don't have a lot of time today, but let's think about this one. Will HIT improve health care at an acceptable cost? If you don't buy, as I don't buy, that this is going to generate net savings in the health care system, maybe you could buy this:

It's going to do some good for additional money. Is it worth it to you? What's the cost per quality [unintelligible] here? Anytime we add a new technology to the system, it does something more, and usually costs a lot more to do it. You've got to ask yourself, what's the cost effectiveness of that? That's a fair question.

I do say that the [medium will enable any messages]. This transformation that RAND has talked about and others have talked about, it's not just connecting the systems that will do the same things faster. It's more than that. This is going to require content [unintelligible] software. We're going to need some things like this,

here's one example: We need to develop predictive modeling algorithms, that's new software, to pharmaco-genetic databases, link those and other emerging resources identifying optimally managed patients with particular conditions.

So the ability to collect through EMRs reams of data that just don't stay in a manila folder, but can be studied across, will yield new information. Now, to do that, I would say here we need some pretty smart software cookies handling the stuff. And our new emergent tools will have to not just upgrade [unintelligible].

Dick talked about the CPOE, and the CPOE is a great tool, but rather than just being a tool that a doctor would use for you as a patient, when integrated into the larger system, and then assist a national system of systems, it's going to yield more information both upstream and downstream.

It's not just going to be a tool to make sure that you don't get a counterindicated drug. It's going to be mean that we learn from the whole system about the epidemiology of drug treatment, and larger patterns of adverse effects. This will, indeed, require extending and creating new algorithms and software, whose applications will be enabled by the widespread adoption of HITs.

So we're getting to a higher order set of capabilities, not just linking bits and pieces here and there. Well, I say do it for the quality. The savings to me doesn't hold together, I think it's a little impractical ...

it is impractical. The potential of HIT [unintelligible] does offer direct [unintelligible] the truly inexcusable quality deficit in the US, which RAND have described very well.

There are potential efficiencies and improvements described by [unintelligible] that are within reach with current technology, and would require a major [unintelligible] by the federal government acting to support the private sector, it's needed to resolve short-term disincentives in market [unintelligible] you've heard about those.

It's not an easy barrier to overcome. This capacity for transformation realized from the system enables what? New forms, not old forms, but new forms, high-speed, broadly integrated data collection, analysis of the data, development of knowledge, and transfer of that new knowledge into the value-based health care market.

So the knowledge [unintelligible] is worth paying for covering the [unintelligible] at a proper level. Now, I know that a lot of you are working with policymakers. If I were you and I saw policy proposals like this, I would ask questions like these: [unintelligible] demonstration, our [unintelligible] is demonstration projects and other studies on a drive, first of all, for rigorous inquiry to research questions and give incentives.

That is, was the study itself valid in the study in which it was conducted? We call that internal [unintelligible], was it a solid study? Then if it is a solid study, is it general [unintelligible] studies? Is the Kaiser experience generalizable to anybody else? Fair questions. What works in one place doesn't necessarily work elsewhere. That's external validity.

Now, are your systems homegrown one-offs? Where everybody's got to re-create their own? Or are they now or can they be put into some commercially available form? What were the disruptive effects? Don't tell me just how well it worked when you put it in there, and then a few years later it's working well.

There was a lot of [unintelligible] going on, a lot of people [unintelligible] disrupting other systems. Furthermore, aside from the horrible [unintelligible] capital costs about which you're more likely to hear, our costs accounted for a work process analysis, how is this going to change workflow?

Software configured [unintelligible], testing the system, retesting, user training, all the IT staff and support you're going to need along the way, the cost of transition, which often involved dual systems, the old system working in parallel to the new one for a while. Maintenance and upgrades. Oftentimes [unintelligible].

What's the institutional commitment capacity for transformation? And they look at [unintelligible], well, what about [unintelligible]

of the hospital, of the health care network and so forth? Of the state. Who's really [unintelligible] on it, who are the champions? What incentives will [unintelligible] put in place?

And do projections of impact, whether it's [unintelligible] new systems account for current trends. This is a key thing if you're in policymaking. So, somebody's going to tell you that a new EMR system is going to have the following effects over let's say a ten or 15-year period of time. And everything [unintelligible] the health system is 15 years from now compared to what it is today.

There's a trap in there, and the trap is these studies often don't account for the cross-trend, okay? So the change of [unintelligible] policy isn't the difference between where you are today and where you're going to be 15 years later on. It's the difference between where you would have been over the 15 years given current trends at the time the study's initiated, to where you will have, where it will be in 15 years.

So, the net impact attributed to a policy prevention may be overestimated if you don't watch out for that. So those are the questions I would certainly want to ask. Many of the things I've said are in the commentary a company, the RAND study in 2005, September/October issue of Health Affairs, [unintelligible]. So, I'll leave it at that.

Jonah Frohlich: Thank you very much, Clifford. So, finally we're going to hear from Andy Wiesenthal, he's from Kaiser Healthnet, he's going to talk a little bit about the implementation, and then we'll have some questions and answers.

Andy Wiesenthal: So the first thing I want to do, and thank you very much for the opportunity to say I could reformulate the whole talk based on listening to these two gentlemen. There's a great deal of meat and material there, and I actually will take advantage of the fact that I'm last, and give you some reactions, and to say, and this is not unique to me, this is a quote from somebody else, "The future is here now, it's just uniformly distributed." [Laughter] So, think about that.

What I want to do first, though, is a put a new face on this. This is a video, it's a short clip of a real patient, and it speaks to the power of an electronic system in place in an integrated delivery system like Kaiser Permanente. So, why don't you go ahead and just play that?

Video: [unintelligible]

Andy Wiesenthal: Can any of you hear this? Let's stop it for a second. I'll set the context in case you can't hear it. It's a real lady, she's in her middle 50s, she has bad allergies, and she went to the allergy department. She made an appointment to see her allergist. And this is [a reenactment], that's her and that's the real receptionist, and what happened was the receptionist, given the tools that we had put at the receptionist's fingertips, quite literally, as she was checking this

patient in to be seen by the allergist, the receptionist is reminded that this lady needs a mammogram.

She's overdue for a mammogram. Now, think about that [unintelligible] a doctor acting, this is not anybody acting, this is a receptionist with information at her fingertips because the system is providing her with a prompt that isn't possible in a paper environment, and quite frankly is impossible in a disaggregated environment.

So, you have to have everything, all the information together for this to work. So that's what she's doing, and she's making this lady pay attention to the fact that she needs a mammogram. So, listen real carefully and we'll stop—

Video: [unintelligible] two years that I haven't done it [unintelligible] and she goes, "I'm not [unintelligible] until you make your appointment," so I told her get me something after 2:00, and she was going to give me one at 2:30 [unintelligible] after. [unintelligible] On the 18th, I got a call from the surgeons, and the following Thursday I went to see the surgeon. They were very, very thorough.

And I talked to one of my friends, she goes, "Wow, I didn't [unintelligible] that." I go, "Well, I have Kaiser, I don't know what you have." [Laughter] Because I probably would've waited until

December. Like I say, it might've been too late. [unintelligible] one of the lucky ones. [unintelligible]

Andy Wiesenthal: Now, she views herself as owing a lot to Susan, and she does, because Susan didn't have to actually, as a person, do the things that she did. But Susan is given the opportunity [unintelligible] to, in fact, act as a health care [unintelligible] in a way that isn't possible without an electronic system, and Mary believes that's why she's alive.

And I think it's possible to have, I don't know whether it is or not, it might have been that she would've detected her lump in some other way, and she might still be alive, and you can accuse me of shamelessly promoting Kaiser, and I'm going to be shamelessly promoting Kaiser in a number of places in the next 15 minutes. [Laughter]

But it's a real story. I'm here to tell you it really works. If you want to do it for the quality, that's the real benefit for that person, and everybody else like her. I'm a physician; I'm a pediatric infectious disease doctor, for what it's worth. I am not a trained engineer, but through almost 30 years as a permanent [day doctor], most of it not here in California, I gained experience at actually running large implementation projects for information technology, successfully putting in electronic health record in my original home region in Colorado.

So as punishment for that success, I got asked to do it all over again for all of Kaiser Permanente, which looks like this. So, in case you thought it was all in California, it's certainly mostly in California, but it's in lots of other places. You'll have to excuse me, I'm colorblind, so I can't see the red dots. I'm moving it around in the general direction. [Laughter]

We are the nation's largest not-for-profit health plan, it's an integrated delivery system, and that's not just words. What does that mean? That means we are the physicians, we are the nurses, we are the medical offices, it's our pharmacies. We're, by the way, the largest non-governmental purchaser of pharmaceuticals in the world, the big system.

We have 14,000 doctors. To react to one of the statistics that Jonah gave you, if you think that approximately five percent of physicians, he said four percent, have really fully adopted electronic health records, if you think that five percent of physicians in the United States, roughly 25,000 doctors, all 14,000 of our doctors fully utilize electronic health records.

79 percent, the [unintelligible] was from 2007. We're finished. So, for all intents and purposes. There are some hospitals in Northern California that aren't completely done. But ambulatory, we're done, Southern California, all the hospitals, all the ambulatory

[unintelligible] we're done. So all 14,000 doctors, and we add in the other 10,000 from [unintelligible] that's it for the United States.

The California adoption rate, take us out because there are around 10,000 of those 14,000 physicians here in California, and as my grandmother used to say, you've got bubkus in California. We're a big part of the adoption rate right now, and lots, and all those employees use the system as well.

I want to talk a little bit about definitions; I don't think we should get into a big argument about it. A personal health record, there's a lot of fantasy about personal health records. How many of you are Kaiser members? Keep your hands up if you've used the personal health record. Okay, great, all of you should.

It's a place where you can go to get your laboratory results, to see your medical problems, look at your meds, refill medications, make appointments, and there'll be more functionality as the year goes by. Anyway, it provides a comprehensive set of information [unintelligible] going to be adding to that, [unintelligible] will be doing the same thing, [unintelligible] immunizations were.

If you're a young mom here, and you've got kids in school, we're going to make it possible for you to print those immunization records [unintelligible] send it to the doctor's office to get them. Transactions that you should do, this is the kind of thing that was

just being talked about. You couldn't do this before, it doesn't actually save money, but it adds value.

People find it valuable, the health system performing better for them. And really important, and people really like this, besides the lab results, which everybody adores, and I like myself as a person, sending emails to doctors, not spending a lot of time waiting on the telephone is a very valuable thing to be able to do, and we're finding that patients [unintelligible].

And hours is tied to the medical records, so the data is in there, you come inside our firewall, and you don't risk exposure by sending non-secure emails across the web. An electronic medical record is just what was described. All the stuff that you used to see in that paper thing are now in the electronic thing. The difference is you can read it, which is a great value, actually, and it's sortable and manageable, so you can actually find things in it, since you can read it, you can actually locate information from past encounters.

You can array laboratory information as trend lines rather than having to abstract from piece of paper after piece of paper after piece of paper. Now, you can see this in isolated doctor offices in non-integrated delivery systems like ours, what you'll see is that [unintelligible] doctor might have one, and a specialist might have one, a cardiologist, a dermatologist, but they don't connect.

So you might be a patient who isn't a Kaiser member, and you might have an electronic medical record in a whole series of places, but you don't have it all pulled together, you don't have an electronic health record with everything together. And it's really a longitudinal store of all of the health information about you.

And the personal health record part really ought to be the view into that, so that you can see everything yourself, make sure that it's correct, add things that you think are important, fill out forms and questionnaires, and add to the value of the information for everybody that you authorize to use that health record.

And so that's what the web-based capabilities are, and we characterized what we call our Health Connect project as an electronic health record. So, people have already talked about this, I'm not going to belabor it, but basically electronic health systems in the United States are characterized by their general absence, and their rates of noteworthy failures.

If any of you are from Southern California, or are associated with legislators [unintelligible] California, the Cedars Sinai failure is a big one, lots of money spent for an individual hospital with very little to show for it day-to-day, they're facing a result by the physicians. Penetration in California is higher because of us, because of the few other very noteworthy examples, but it's still low, and it's less than half of all Californians, that's for sure.

President Bush committed the country to assuring that all health records would be electronic by 2014. That is not going to happen unless there's some kind of miracle. And based on the performance of the legislators here, the national budget, we're already bailing out lots of other things, but we're not going to be spending money on this, because we have to have [unintelligible] first that stuff, the bottom line of hierarchy of needs is in food and shelter, so we'll take care of health care electronic health records after we pay off all the foreclosures.

So there's a lot of political activity, but I may sound like a cynic, I actually don't think very much is going to happen here or anywhere else, although it ought to. So, what have we got? Talked about it. It's a very sophisticated information management system. It integrates not just the clinical information, but appointments information, registration, and we have to do some billing in Kaiser Permanente more and more, like for service [doctors], although we don't like it, because it's breaking our goal [unintelligible].

But the payers have been [unintelligible] that, so we do it. And we believe it enhances the quality of the care. You'll see this in your handout [unintelligible] through it later, but we had a set of goals when we decided to do this at Kaiser Permanente. And by the way, I'll digress for a second: We did estimate the complete end-to-end cost of doing this over a ten-year period.

So, not just the acquisition of the software, licensing from the vendor, this is not going [unintelligible] this is not one-off, this is software that anybody in the United States can license if they have the wherewithal to do it. So it's not just that cost, it's not just the computers and the network costs and the hardware, it's the cost training, it's the cost of disruption, it's the cost of lost productivity, because people get slow and inefficient while they're learning a new system.

We factored all of that in, and by the way, we estimate that approximately 50 percent of the overall cost is in fact due to training requirements and loss of productivity while people are learning the new system. So think of the number five, $5 billion is the total cost of ownership for us of this system from the day we kicked off the project in 200[?], for the subsequent ten years.

That includes maintenance, all of the upgrades in the software that we're entitled to that the vendor produces. It includes our IT support costs. It's everything, $5 billion. That may sound like a lot of money, except when you put it into the context of the fact that our annual revenues for each of those ten years are approximately $40 billion.

So it's $5 billion in the context of $400 billion, and this is nationally in Kaiser, not just California—to take care of all of our eight and a half million members that we have now, and project it onto the

future. So it represents a 1.3 percent piece of our budget. It doesn't seem like a lot when you put it in that context.

These are our goals. You'll notice here that affordable is a part of it. We want to be efficient, but the big goals are high quality and making care personal and convenient. We tried to do something when we started this to really help ourselves create and build the system in a way that could be useful for the future, not just for the present.

How many of you know who Wayne Gretzky is? Everyone knows him. You know the famous quote? It's kind of like Sutton's Law for hockey. "Why are you such a prolific scorer, Wayne?" "I try to skate to where the puck is going to be." Not going to go to where it is now, I'm going to go to where it's going to be, I'll be there before anybody else is, and I'll score, and he was the most prolific scorer, and that's what he said.

So we decided approximately 13 years ago, when we began to architect this project, to figure out where is health care going to be in this very magical year of 2015? I don't know how we picked it, because it's the same year that the RAND study picked, but we did. I won't spend a lot of time on this, except we see the consumer, the person who uses health care not just in the middle of it with a lot of stuff aimed at them, but it controlled a lot of things, just like all of

you probably prefer to make airline reservations yourselves now, and do that on the web.

Right away that costs the airlines a whole lot less money than maintaining relationships with travel agents or with their own reservationists. But just as a digression, can you imagine what happened to the first guy who stood up in a room [unintelligible] airlines, and said, "You know, I'd like to turn over the reservation process to the flying public?"

They would've booted him out of the room. [unintelligible] all the criticisms. They'll get it wrong, they'll go to the wrong airport, they're going to go to the wrong place, the right meal won't be on board, the bags will be in one place and they'll be in another. The airlines think they're all just fine by themselves without us intervening, and they thought we'd get it [wound up].

The same kind of things happen when you talk to doctors and nurses about turning over appointment making to the patients. "They'll be in the wrong clinic, they'll make the wrong kind of appointment." Well, we've conquered all those barriers, and those of you who are Northern California members and use the website know you can make an appointment.

And guess what? None of our doctors and nurses [unintelligible]. So it's a big success. We want to turn transactions over to the consumer that they need to have control over, and that we don't

really need to have control over. We think [unintelligible] is going to be an important [unintelligible] lots of testing stuff going on in your house, not in our offices, with machines that are just becoming available that you can use.

Now, we have to find a way of getting that information into your record. We think the transitions between levels of care, hospital, nursing facility, home, have to be made seamless. Your information has to flow right along with the person. It doesn't do that. And transitions between caregivers are not seamless.

If any of you have ever had a consultation, you know you show up at the consultant's office, and in the absence of this system [unintelligible], you show up, but the reason why you're there doesn't show up along with you. You have to explain yourself all over again and fill out that thing on that damn clipboard, right, why you're here and health.

Okay, and then you have to repeat a bunch of things that you had before, because they don't have the advantage of knowing that you had that stress test at your primary care doctor's office, that set of x-rays and that CAT scan before in the emergency room. Customization is really interesting because people think of computers as a way to depersonalize stuff.

We think of it as a way of personalizing it. So, again, raise your hands if you use Amazon. Okay, so what happens when you buy

the book? You get a little message, and it says, "People just like you who just did that, who bought that very same book, also bought this, this and this," or, "Were interested in the following thing."

That's a form of mass customization, that's purely marketing in the case of Amazon. What we want to do is help people understand that patients, individuals like you took advantage of the following health care resources to their betterment, and here are the things you might want to read, places in Kaiser you might want to come, the things that you might want to do.

We can do that now with the information we have. By the way, talking about mass quantities of information, currently our system is accumulating between two and three terabytes per month of data. Per month. That's a lot of data, and we're just beginning to sift through it. And finally, integration [unintelligible] means the right kind of health care provider is doing the right thing at the right time.

Doctors aren't being clerks, nurses aren't being clerks. They're delivering care, doing what they know how to do, and the clerks are being clerks, or the patients, God bless all of you, are doing all the clerical work for us. [Laughter] This is just a diagram of the system, I'm not going to go into it, it just tells you how, this is the highest level diagram we have, it's quite complicated, there's a lot that goes into it, and you can see that on the handout.

Some statistics about our personal health care. Thus far it's been ongoing for about two years. So, it's available to everybody, we're approaching two and a half million of our eight and a half million members, that's active users. We enroll another 80,000 people a month because it's popular.

People hear about it, they get it, they like it, they go back. We have more than half a million of those secure emails exchanged with doctors every month. Think of all those as telephone calls that didn't have to happen, or visits that didn't have to happen necessarily. In some cases, [unintelligible] visits happen that should've happened.

We have released more than 50 million laboratory results online. 50 million. Phone calls [unintelligible] results that didn't have to happen. [unintelligible] producer of efficiency. And we know, and we can tell, and this is important because we don't know what happens to the letters we mail to people, they can be thrown away, we know that people actually looked at those lab results, and we know if they didn't, which is even more important, and we can react to that if we need to.

So what is happening now? Well, [unintelligible] we believe that data has to be able to get out of our system and be used by our members if they happen to leave Kaiser Permanente, God forbid, or conversely, if they come to us from somewhere else, there has to be

a way to make this data interconnectable and portable between places.

We can do some of that by using standards. We do do that. We will, next week, demonstrate the ability to pass detailed health information between ourselves and the Veteran's Administration using standard messaging techniques, the two biggest electronic health record systems currently in the real world exchanging detailed data, a pretty good thing, but it isn't good enough.

And so people need to be able to control it, to move it. And places like Microsoft and Google are going to be places which will make that possible. I don’t know if they're going to do it right, but we think it's the responsible thing to do to experiment with them, again with our members having say-so about what happens.

We aren't just going to give Microsoft or Google data. We're offering the possibility to our members, and they can try it if they want. And we're starting with a very tiny experiment with Microsoft. Google got a little jealous and said, "Well, geez, why don't you come play with us too?" We'll do that next, but that's what we're going to do, is try it on for size under member control.

What have we done so far? What's been beneficial about this? And I agree, I'm very sanguine about the possibility of actually saving money. I think that's [unintelligible] the rise of health care costs in

the United States. As I said at the outset, I'm a pediatrician, a pediatric infectious disease doctor.

There is only one intervention that's ever been done in health care in the United States, in health care that has saved money. Does anybody know what that is? You got it. [unintelligible] physicians, save money. Nothing else you do saves money. Nothing. But it's good, it's valuable, it produces additional quality adjusted life years, and we in America make a judgment, is it worth it?

How much is it worth to get that better quality? So, here are some things we think are good: First of all, we have a lot of [unintelligible] get rid of that, so we're taking some costs out as a condition that we add this cost and keep this in. We're getting rid of a lot of systems that are no longer necessary. We have seen, because of the access to information that doctors and nurses have now in our emergency departments, consultants, everywhere, information about you is available 24-7.

And we don't have to make decisions in the absence of that information. Because of that, when you can talk about more details and I want to ask questions about this, it's reduced the rate of visits by 11 percent. This is not good news if you are a fee for service doctor. This gets at one of the barriers that Dick was talking about.

It will drop the visit rate like a stone if people use the system wisely, because they don't have to repeat things, including

[unintelligible]. But that's not a great thing if the way you eat is to have more business. For us, that's a wonderful thing, because by and large we're prepaid, but we can use that to create capacity for other things that are valuable, and we do do that.

So, again, primary care visit reduction, [unintelligible] utilization both on the laboratory side, testing side. We are also very efficient utilization of pharmacy resources, which I won't get into here, very much abetted by this, because not only can you produce those little pop-up reminders that say, "Don't prescribe this drug," right at the moment the doctor is trying to, because this patient's allergic to it, "Don't do it," or, "Don't prescribe this drug because this interacts with another drug that the patient is taking. Don't do it, that would be dangerous."

It's not just that. We can also pop up a reminder that says, "You know, you're prescribing for this purpose, and actually this other drug is better. You can use the one that you're doing, but we would rather you use this other drug." We can do that for economic reasons because they're equally effective in terms of the quality, but it's cheaper to use the other one, or we can do that for quality reasons, saying, "This is all right, but this one's better."

Because we know what the medical problem, and the doctors are doing [unintelligible]. So, satisfaction increases. How many of you have been to the office if you're Kaiser members, and gotten that

piece of paper that summarizes what you have? Have you gotten that yet? We'll do better there. That's something that doctors have to get used to doing.

What you may not know is that it's also stored online. This is an important thing for all the men in the audience, because when you lose the little piece of paper and forget what the doctor said, and you go home, and the wife says, "Honey, what did the doctor say?" [unintelligible] [Laughter] right there, okay?

So, [unintelligible], we have information, [unintelligible] is only in one place, and we haven't described this yet, but we hope to, where he looked sort of downstream and said, "All these people with diabetes are sitting out there [unintelligible] control, my medical center, and X number of them haven't had a proper screening test for kidney disease."

So I'm a kidney specialist, I don't want to see him for dialysis, I don't want them to go unscreened, untreated, and progress to diabetic nephropathy. So I'm going to intervene way upstream, get them tested, and we can show that he actually delayed the onset of nephropathy and the need for dialysis in those patients, pushed off nephropathy.

Does that make them less expensive? No, because they live for a longer period of time, they have health care costs every year, and eventually they might get nephropathy. But is it better for them,

would they vote for it, would they write that check that you were talking about? I think they would. Improved pharmacologic intervention in coronary disease. This is really cool.

We have now ten years of follow-up from that system that I told you about in Colorado, the predecessor system to this, ten years of follow-up. If you're admitted to the hospital, and you have a heart attack, and you survive to be discharged, and if you follow all those patients out for a period of a decade, over that ten year period of time, if you don't do anything special, somewhere around 90 percent of those people die of a second coronary event.

If you use registries and electronic systems and ways to follow patients that we do, we use a team of pharmacists and nurses to do this follow-up, if you engage with those patients on discharge and make sure they have simple things, they stop smoking if they can, control their blood pressure, take aspirin, take a beta blocker, and control their lipids, take medicine to control their lipids, none of this is science that has [unintelligible] it's real simple stuff, if you do the real simple stuff and you have a team of people using their records to make sure that it happens, 90 percent of them are alive at ten years.

You think they would vote for this? If they were the constituents of your policymaker, legislator, employer, would they be interested? I think they would. So, standardization of care is something else.

Have any of you had the misfortune of either having a child or knowing a child who has had cancer of some sort, leukemia or cancer, anybody know? Yes.

What you may also know is that the cancer care for children in the United States has been absolutely standardized for the last 60 years. Nobody varies from the protocols. All the pediatric oncologists follow the protocols; there are only two groups that make these protocols. And so that when I started as a pediatrician in 1975, when we admitted a child to the hospital with leukemia when I was an intern, it was a death sentence, it was lethal. They were dead in six to eight weeks.

Today, because of the constant use of those protocols and [unintelligible] on them, just gradually refining them quarter after quarter, gathering the data, keeping [their findings], 100 percent of those kids basically live, it's a fully curable disease because they standardized, only because they standardized and just sort of kept after the problem using the data.

That is not true, and has never been true in the care of adult cancer. It's a crapshoot, though progress has been made, but nowhere near as effectively as in pediatrics. Well, oncologists have decided that enough is enough, and so they have standardized the protocols for 150 of the common malignancies that afflict adults, and using our system we can embed those protocols into the system, and we can

gather the kind of information that was being talked about, and constantly improve the results, and that's what we're going to do.

I can't show you results because we've just begun, and it's going to take us 20 years, but I can guarantee you that cancer care for adults will be better inside the system like ours, [unintelligible] because we'll make it better, and we'll publish those results so that everybody knows what the protocols ought to be. But we can't help it if they can't execute.

So, why should you listen to me? [Laughter] I took the train all the way from Oakland. [unintelligible] I'm a pediatrician, and this is [unintelligible] doctors behave like children. Our budget exceeds the GDP of several countries, and so on and so forth. Or, I've been a witness to or party to all of the serious mistakes that can be made when developing or depending an MHR, and I've survived to tell you.

The Americans, as Winston Churchill said, can always be relied upon to do the right thing after they have exhausted all the [unintelligible]. That's where we are. Thank you. [Applause]

Jonah Frohlich: We do have some questions. I want to launch into one question I have for the panelists, and then go into the audience, and reflect on a few things that were said today. One of the things that we heard, and I think this was directly from Clifford, was to do it for quality. And it was based on some of the research he did in [unintelligible].

This prompted me to think about what we heard today. And for Andrew, I suppose the question is when you see the $5 billion price tag, was that brought to Kaiser executives, and the question raised, "Well, let's do $5 billion for quality," and [unintelligible] the discussion, were there other inputs to it.

For Clifford I think the question is around there's $120 billion in cost for the entire country to implement health IT. Would policymakers and others say, "Let's just do it for quality," be the kind of thing that would be good enough for legislators, and execution of that strategy, or is there something else needed?

And I think for Dick, the question is really around the savings aspect of it. I think this is probably true, if the hospitals and doctors themselves who use this technology are the ones who ultimately benefit financially, how can we make this argument convincing for them, the end users? I'd like to ask that question and hear your responses, and see whether or not we can have a discussion about this and some other topics.

Andy Wiesenthal: You asked me first. We did make a very detailed business case. If you're going to take a large sum of money in an organization like ours and make a big investment, you have to make a case that it's worth it to make that investment as opposed to all of the other things that you could apply that money to.

We don’t have a large margin in health care anywhere, and Kaiser Permanente's no different, it's like running a supermarket. You get somewhere between two and four percent margin every year for reinvesting in health care in Kaiser, if you're lucky. So we had to do that. And, although I didn't spend any time on it at all, we were able to make the case that on a pure dollar basis, not even accounting for the quality benefits, which we think are the most important reasons to do this, but on a pure dollar basis, we could figure it out that this system paid for itself with about an 11 percent [unintelligible] rate, and it turns the corner from being costly to cost-beneficial at about eight years out of the first ten.

So the answer is we had a business case, we believed it, we found savings where we could, a lot of it from retiring other systems that were even more costly to maintain, improvements in hospital efficiency. By the way, it was mentioned that, I think Vicky mentioned looking at improvements in ambulatory scheduling as one of the things, we actually believe improvements in hospital scheduling will be even more cost saving.

We think that at least half a day, in some cases a full day [unintelligible] in the hospitals because of people waiting around always for stuff to happen to them, because you can't schedule [unintelligible]. So, yes, we made a very clear business case, and we have identified the things that we said we were going to accomplish in that business case as important goals for every one of

our operating regions, so we're going after the money while we go after the quality.

Clifford Goodman: With regard to spending $120 billion to implement this, the environment has changed. When the federal government was talking about this several years ago, David Brerwood, who's a California, was sort of leading the way, and the idea was can the federal government make this happen?

And I think actually at this point, fortunately, the people being asked to spend $120 billion I think are going to see that they're going to be spending that to catch up with some of the successes. So, now we can point to Kaiser, we can point to [unintelligible] and point to some other large systems that are doing this, and if Medicare and Medicaid and the Department of Defense want to be there, they've got good examples for it, and they're going to have do it just to stay up with some of the market leaders, so that's a persuasive argument.

Again, it's not going to be net cost savings, I just don't think that's going to fly. What else can make it fly which has not come together yet, is oftentimes in Washington, you've got to get the stakeholders and the power brokers aligned. In this case we're going to need for the physician community, the organized physician community to back it, patients, patient advocates to back it, federal agencies such as the National Institutes of Health and the FDA, because

biomedical research and regulation of health care products can benefit from this, these efforts, so they've got to be behind it, and then industry's going to have to be behind it, even the pharmaceutical biotechnology community, that industry has benefits that can accrue from this from post-market surveys, from learning about how drugs work in the real world of patients, hooking that up with pharmaco-genomics, as I mentioned.

So, these big stakeholders and power brokers will see combined things. Catch up with market leaders, so as not to run behind, and having their own self interest at heart, to try to push Congress to actually put some real money behind this.

Richard Hillestad: First of all, I want to say that I basically agree that we should do it for quality improvement in health care, and not necessarily expect the savings. I want to point out that there's a big difference between the savings at other hospitals and the kind of thing that Kaiser can do, because Kaiser being an HMO or a closed system retains much of the savings, whereas another type of hospital, many of the savings go to the payers, and somebody else said it's much higher…

And I've seen some of the business cases that other hospitals have put together for these systems, and you certainly look at it and say I'm not really sure it's going to work out [that way]. So it's much

better for them, and they can make a business case, than it is for a Kaiser type of [unintelligible].

Jonah Frohlich: We do have a bunch of questions. I'm going to try to do this in as orderly a fashion as possible. If you could please speak loudly and say your name and where you're from, then we can get a bit of a sense… We have a microphone too; even better. We have a question here up front.

Paul: My name is Paul [unintelligible] I work with the Department of Public Health. In the interest of disclosure, I'm also a Kaiser member, 40 years [unintelligible]. There is a problem that I see that nobody has addressed in [unintelligible] health care system [unintelligible] service and have a prior health problem, and at an age where I [unintelligible], what do you propose me to do?

[unintelligible] situation where a whole lot of cancer [unintelligible] receive everything that [unintelligible] seems to be a great need.

Andy Wiesenthal: I think [unintelligible] because it's an incredibly important concern. And if the concerns that individuals and more organized consumer organizations about privacy and the downstream use of health data, those concerns are not addressed, then none of the other barriers that Dick Hillestad put up will even hold a candle to that barrier.

Because in fact, in Britain today, one of the significant obstacles to the National Health Service implementing and deploying their version of an electronic health record system for the country is the fact that in the form of a plebiscite, actually, the balance of the country voted to say they didn't want their data included because they were afraid about what would happen to it.

So if I can be permitted, I'd like to move to what I think are the root causes of the anxiety. There are two, I believe, and certainly I'm educable, or at least [try]. Anyway, the root causes are that someone inappropriate will see that data and misuse it in one of two ways: One, it will be misused in a social context, so that I can't get work, or something happens to me in my family that is undesirable, but mostly I can't get work.

Or it will be misused in a health care access way, meaning I can't get insurance, now they know something about me, and I can't be, I'm not longer insured because I have a disorder and they found out about this. The true answer is if you want to deliver a message to your bosses and your colleagues. We have to actually address those root causes, we can't address that through technology, although I will tell you what we're doing to address it in technology.

Number one is if we turned the whole country into an even playing field and said, "You know what? There's no such thing as

underwriting health insurance on the barrier of preexisting conditions," [unintelligible] take it out of the equation, I'd be very happy, first of all. It's the way I started out in life at Kaiser Permanente, not having to think about that or worry about that as a doctor.

Secondly, if you look at what the "big insurers" and payers are doing today, more than 60 percent of their business is not insurance business at all. They're [unintelligible] for self-payment plans. So, they fight it, but if the legislators took that off the table, then you can't lose your health insurance for a preexisting condition, that's [unintelligible] number one.

Number two, policy around making it absolutely verboten to get rid of you from your place of employment because of your health or a health-related issue. A large part of that comes from the fact that the payers for the insurance are the employers, so they're interested in your health conditions because they don't want to have a bad risk pool, and they want to find a way to get rid of all those bad risks.

Now, having said all that, since that's me being Don Quixote here, that's not going to happen next year, or maybe ever. What do we do? Well, first of all, I think that in many ways, the electronic environment is more secure than the paper environment. I've

witnessed lots of situations in the hospital and in my offices when we look at the charts, they're lying around.

They're not locked up; anybody can go look at them. If somebody were to really want to go look at them, they could, on a one by one basis. So the mass crime is what people are afraid of in the electronic world. How do we prevent that? By having top-flight security. None of our data is transmitted across the web, and I think that's one of the real risks that we have to understand and experiment with Microsoft and Google solutions, is it's going to sit out there and be accessible directly across the web.

Right now all of our data is inside the firewall, every bit of it, and no transactions occur across that firewall, it's all within the firewall. So we can protect it. We have role-based logon so that only doctors can do certain things and see certain things, nurses can do other things. The system knows who you are. I'm giving too long of an answer here, but we can protect the data using the best technology available, and we're trying all the time.

I think within the next 24 months you'll see us migrate to biometrics, to thumbprints or something like that as a means of logging onto the system so we really know who you are. But all that notwithstanding, if we don't take the basic risks out of losing the data to the public, we haven't addressed the problem.

Male Voice: This is actually a follow-up to the topic you've just been discussing [unintelligible] Dave Jones. I appreciate your answer on the privacy question, and I think it was [unintelligible] that it wasn't really thoroughly discussed or even really discussed at all until we got to Q&A, and yet you admit that it's one of the fundamental barriers that need to be crossed before there's sufficient confidence to build the kind of coalition that you're talking about needs to be built on the Hill.

So, just an example that I think would maybe demonstrate something you've got to go over, when we're talking about private data in the retail context, which is obviously a little bit different, there's industry standards that retailers are contractually obligated to follow about data security, data protection, etc.

They are not. That is why we keep seeing information about data breaches at major retailers. The feds just had a big investigation of the largest ID theft ring ever, and many of the retailers found out about a breach into their own system that had occurred for up to a couple of years by the feds the day before the charges were filed.

That doesn't exactly instill confidence in consumers that when they pay by credit or debit card, their information will be protected. And there are existing standards that are quite specific that they're all supposed to be [moving] right now. So if you translate this over into the medical area, into health care, I think there is a legitimate

fear that if these standards exist in the private sector, but they're not being followed, and there isn't sufficient enforcement to make sure that they do get followed, what confidence will be had that, as wonderful a system as you might have put together with Kaiser, that those will be followed, that those firewalls will be respected, that hackers and others wouldn't be able to get into it, or sloppiness, the stolen laptop, etc., couldn't lead to, as you mentioned, the sort of mass breach, which is what people are really afraid of?

Andy Wiesenthal: There are a number of things you can do at the end of the day. There are rules and policies that are in HIPAA, which is not a female hippo, it's not H-I-P-P-A, it's H-I-P-A-A, the Health Insurance Portability and Accountability Act. We live in mortal fear of that, appropriate use of data, and we're constantly paying attention to that.

That doesn't at the end of the day prevent the hacker from coming in and doing stuff. What would the hacker want with our data? I realize that our health data for each one of us as a person is actually quite important, but it's less, other than the triumph of getting in, which is a big deal for some of the more unusual people who do hacking, it doesn't actually have a great deal of value, it's not marketable in the way that credit card numbers are very marketable, PINs for your bank accounts are, you can drain 1,000

bank accounts and have a lot of money in your Swiss account very quickly, can't do much about that.

So, I think as a target, in some ways, I think we're just not the same kind of target. Having said that, we have an obligation to do everything we can to live by the law and the rules and protect the data.

Male Voice: One of the things you're going to watch, by the way, in addition to HIPAA there was a recent passage of GINA, which is the Genetic Information Nondiscrimination Act, which provides sanctions to employers or insurers that would misuse these data. So I agree that personal health data is not as target-rich an environment.

We may as individuals think that it is, but there's not a whole lot of money to be made there, even an extortion element… They want to know when I had the measles? Fine, [unintelligible] know my diseases.

Male Voice: They might know when you got syphilis, though. [Laughter]

Male Voice: Right. But I think that there is going to be further technological solutions as well. If you look at the industries that you mentioned, they roll into their cost of doing business those mistakes. They made an explicit tradeoff about how much money they were willing to spend every year to cover themselves against those losses.

The question in health care is going to be what does Kaiser Permanente want to spend or what does a patient want to risk with that loss? Hackers will hack. The question is how much do patients and health care systems want to spend to protect against that? And that is not going to be an infinite amount of money.

Jonah Frohlich: Question in the very back here.

Jeff Newman: My name is Jeff Newman; I'm with the Business Transportation and Housing Agency, hi Dr. [unintelligible] good to see you again. Dr. Wiesenthal, you said that you didn't think that President Bush's target of 2014 was going to met unless a miracle happened. My question is very simple, it's one of, when do each of you think, approximately, we'll get to the 80 or 90 or 100 percent of usage that allows for all the whats and the great outcomes to occur in usage of the MRs?

At what point in time does, well, through whatever mechanisms, does the country get to that point?

Male Voice: I have a trick answer to that question. It's impossible until at least 90 percent of the people are in the health care system in the first place. Right now that's not true.

Jeff Newman: What year would that be met?

Male Voice: That's going to happen before, to give you your denominator—

Jeff Newman: I understand, but what year would 90 percent be in the health, in your estimation… 2050, 2040?

Male Voice: You can't forecast policy.

Jeff Newman: Because those kinds of questions [unintelligible].

Male Voice: Here's part B of my answer to your question. We don't need 90 percent. I think 60 or 80 percent [unintelligible] through the inflection of the [sigmoid?] curve, and you're going to get the economies of scale at that point, so I'll take 60 or 80 percent, and I'll throw out 20, 25.

Male Voice: I'll give a different answer, and that is two years after CMS decides that in order to submit a bill, you have to electronically submit documentation, health care information that essentially presupposes that you have an electronic health record.

Jeff Newman: And to be fair to you, you would have to guess which century that would be.

Male Voice: I actually think they're quite close, I do. And one of the ways of addressing some of their administrative costs, which are pretty substantial, is to make more electronic data interchange and more documentation flow [unintelligible] more data flow to them so they can do actuarial calculations and the kind of predictive modeling about costs that they need to do.

As I'm approaching 65, I want them to succeed. So I think that within the next five years, whichever administration we have, you're going to see them make steps toward that kind of requirement, and typically that kind of federal rule has a 24 to 36-month target date after it.

Clifford Goodman: I have to contest that. I hope it does happen. The thing is that when CMS has tried to do things like this before, that may work for large industries, large employer groups, large providers. What does crop up, and you see it in the current election campaign, these things are expressed, and that is there are small, vocal groups of opposition that are saying it may be good for the 80 percent of you all in the country, but it's going to put us 20 percent out of business, it will put the rural physician out of business, you will hear things like that, and the rural health centers will be shut down and so forth, and community health centers will have a hard time.

So these small, highly vocal constituencies can make it very, very hard for CMS to do that. Now, that said, that said, the federal government has potential leverage, and it's not just CMS, by the way. We held a meeting a few years ago with Fortune 100 CEOs and CFOs and asked them about the role of industry, and the CEO of Federal Express asked of attendees, turned to me and said, "Cliff, how much of health care is owned by the federal government or run by the federal government?"

And I thought it might be about 40 percent. We went back, and 46-48 percent of all health care, personal health care spending is managed by Medicare, federal portion of Medicaid, DOD, the VA, federal employee health benefits plan. And what Fred Smith said at the time was, "If I had that kind of market leverage, I'd make good use of it."

Now, that's a little bit pie in the sky. CMS, remember, is only part of this, CMS is not, CMS is the single largest health care payer, not only in the country, in the world, but is not a [unintelligible], so it may take CMS plus the other federal parts of health care to pull this off.

Male Voice: I was present in Cambridge when the boss of Kaiser did his presentation, George Halverson came, and George literally blew away the audience, which was sprinkled with National Health Service people, about this [unintelligible]. He went into details about the percentage savings across 16 different conditions based in Colorado.

That being said, here in California we not only have Kaiser, we have some [unintelligible] emulate [unintelligible] $700 million, we have the University of California addressing and implementing this across its system. We have the VA, and so on and so forth. I would suggest that perhaps California is both not only a good testing

ground, but a state that could develop a model that could be emulated across the country.

Also [unintelligible] the governor with his 2005 Health Information Technology plan would basically call for this as well. Comment?

Male Voice: I think it's a good point. We've got real innovation, if we can call electronic medical records innovation in this state. I challenge that. But we do have the right people and institutions here to lead the way, as we've seen, but what we still see is we still see about two-thirds of health care delivery happening in small and solo practices.

Those practices are not associated or affiliated with large institutions. So what we need is we need not only to learn the lessons, in my view, of Kaiser and the VA, [unintelligible] 20 years, but we need to apply that lesson and learn how we can do this in small and solo practices. And rural health conditions are different, urban settings are different, but we need to understand how we can apply those rules and do it so it's sustainable and improves quality to the same extent that we're seeing in Kaiser.

Jonah Frohlich: One more question.

Michelle Peterson: I'm Michelle Peterson with the Center for Health Improvement, and I really wanted to ask about efficiency, actually. I think what you were saying is that you demonstrated that the EHRs increase efficiency with the hospitals, and I was also wondering about the

physician groups and whether or not you've demonstrated that through research [unintelligible] or do you have a patient being able to access their physician at multiple points through not only the phone and trying to get a needed appointment, but also emailing them? It seems like [unintelligible].

Male Voice: There are several questions embedded there. The answer to your first question, have we demonstrated efficiency in the ambulatory setting? The answer is no, and there's a very important reason why not. Just a few of you left, but I'm assuming all those of you who left use email. You use email, right?

And you probably use Outlook or something like it. And I would guess that you've never been to a class to train you about all the functionality, features available in Outlook. So what you know is you know how to delete, most importantly, you know how to write, in essence, you know how to read one. You can forward things and reply to things, but you don't know anything else about the software.

All of our doctors and nurses are at that level right now of use of the rather ample functionality of the software package. They've been at it for about two years, give or take, depending on who they are and when we got the rollout to them. What we have to do now, the second wave, is to get them to be really good at it.

That's where we start to expect to see two things happening. Number one, they'll get better at the workflows they already have, they'll do them more effectively. The doctor [unintelligible] efficiently, and they'll be more effective even if they change nothing, and then they'll start to change things.

They're already doing some of that, but we'll see a lot more themselves. So they will realize they can allocate to different people to do different things, they can take some work completely off the table. And so the second part of your question had to do with emails. Emails don't add to phone calls.

Emails delete phone calls, and in some cases they delete several because—

Michelle Peterson: That's under the assumption that the patient doesn't send an email to call.

Male Voice: They don't. Why would you do more than… Some of them do, people do everything, but the fact is if you have decided that you don't need immediate contact with somebody, you want an answer to a question and you're willing to wait for four hours or a day, that's what you do. You don't also follow it by telephone call, unless you don't get the answer.

So if we're good about, we have policies around how fast those things have to be answered and what people do, we're finding that

the volume of calls has fallen. Now, what's happening, though, is that because the system can do so much more, we're adding a lot of tasks that didn't even exist before to the everyday work and burden of the doctors and nurses in ambulatory care.

So they will tell you right now that life is pretty painful, but they're doing it because they understand that they have to get through that kind of set of barriers so they can really support them with better training in the second wave to help them be more effective users of the system. But we're not having lots of phone calls that [unintelligible] plus emails, it's not true, there are fewer.

Jonah Frohlich: Thank you. Michael, anything you want to add?

Michael Dimmitt: Yes, a couple of things. First I'd like to thank the California Health Care Foundation for providing the resources for this seminar, and I'd really like to thank Dick, Cliff, Andy and Jonah. This has been a really, really good, I think it's probably one of the, in my judgment, I think it's been one of the better forums we've had in a long time on [unintelligible], and it provides a lot of perspective for us as we move hopefully next year into a new legislature with new energy to work towards some sort of a universal health care coverage package in the State of California.

And then I was a little derelict, a lot derelict, I left my two colleagues who have been keeping the sound of this thing going,

John Kerneelitson and Pamela Resada out, and please fill out your evaluations, I'd really appreciate it. Thank you very much.

[End of transcript]