

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation

November 2, 2007

PD: Welcome, everybody. My name is Prashila Dullabh. I'm the Health IT Program Manager at NORC, and I co-manage the National Resource Center for Health IT. I have great pleasure today of being part of this tele-conference. I actually participated in the e-prescribing evaluation in 2006 and 2007. I'm glad that you could join us this afternoon for part three of the e-prescribing teleconferences. Today the panelists, who all play key roles in the different e-prescribing pilots, will share with you the results from their projects on the impact and outcome of e-prescribing use in different care settings.

We have a fully packed agenda for today and are joined by a number panel of experts, whose cumulative experience in this area spans many, many years. To briefly introduce each of our panelists, we have Ken Majkowski on the line, who's currently VP of Clinical Affairs and Product Strategy at RxHub. He has over 30 years of experience in health care and has held a number of senior positions at RxHub. Ken was also involved in a number of the 2006 e-rx pilots.

We also have on the line Doug Bell, a general internist and researcher, currently Assistant Professor of Medicine at UCLA and a research scientist at RAND. Doug's primary areas of research have been in e-prescribing and online physician education. Doug was a PI of the RAND e-prescribing pilot.

We also have on the line Kate Lapane. Kate is an Associate Professor of Medical Science in the Department of Community Health within the Brown Medical School and served as the Program Director for Health Services research. Kate has focused her work on looking at the beneficial and unintended effects of medication in long-term care populations, as well as describing the role of medications. Kate was PI for the SureScripts pilot.

We also have on the line Bob Elson, who is a board certified family physician, and he's currently Chief Medical Officer at Eclipsys Corporation. Dr. Elson has a long history of working with a prescription claims history, and medication reconciliation, and was VP of Medical Affairs at RxHub. Bob Elson also led the large CMS-funded e-prescribing pilot in Cleveland in 2006.

As a small note, we will hold the Q&A for this teleconference until the end, and with that said, without further ado, I would like to hand over the teleconference to Ken to get us started.

KM: Great. Thank you, Prashila. I'm going to talk a little bit about our experience at RxHub with the pilot transactions over the five, five and a half years that we have been transacting and e-prescribing, and take some of the findings that came out of the pilot and try to correlate that to our everyday experience over the last five years, as to how we've seen these transactions work some of the outcomes we've seen in our day-to-day business, and where we see some of this stuff going in the future.

Next slide gives you an overview of RxHub, and I think many of you know a lot about it. We were founded back in 2001, and we're a payer-based organization, founded by pharmacy benefit managers. We are an open utility open to all stakeholders. We have a model, utilizing open standard transactions that we utilize and have worked on to develop, and basically we deliver real-time information to clinicians' applications at the time of prescribing for pharmacy eligibility, formulary and benefit information, medication history from claims databases, and then again the ability to transport a prescription from a physician to a pharmacy of the patient's choice.

Our success factors, again, are related to the products and services that we deliver, and I'm just going to focus on three of our services -- our master patient index, our PBM service which is eligibility formulary and benefits, and sig, the new Rx refill/renewal/change/cancel/fill status sections of our products, because those are the ones we have the most experience with and what were tested in the pilot.

Our master person index basically has membership information from the 12 or 13 payers that we are connected to. Right now it's upwards of 170 million, approaching 180 million lives, with about 200-plus million lives under contract. Our patient eligibility uses the X-12 transaction for doing pharmacy eligibility through our Xhub to the PBM sources. Medication history provides up to two years worth of medication history from claims databases at the point of care, and then the bi-directional type of prescription to pharmacies and replies from pharmacies.

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

Just to give you an overall view of RxHub, who we're all connected to and who's transacting today, this gives you a basic idea. In the upper boxes you will see that, to date, we've had upwards of 115 million eligibility requests in our time, and probably half of those have come just this year. We see a good 30 to 50 percent growth rate in our transactions on a year-by-year basis. Give you an idea from Q1 2004 to today, how we see quarterly increases in the blue line of not only our eligibility requests, but also in the medication histories that are being requested as well in the ambulatory space. So we see continuous growth on a quarter-by-quarter basis. I'll relay it a little bit later, why the medication history lags a little bit behind eligibility.

We see the same thing in script volume. Our delivery of prescriptions is basically to mail-order pharmacies. We do have connection to one of the retail networks and starting to do some work in long-term care as well. To give you some idea of growth, this year we will send about a million prescriptions to pharmacies. Last year it was 300,000, the year before, 30,000, and the year before, 3,000. So we see good growth in uptake of electronic prescribing. Put that in perspective, though, even that's a very, very small percentage of the overall number of prescriptions that are filled in the United States -- close to 3.4 billion.

We participated in four of the five e-prescribing pilots. I have to give our project manager some credit for helping me get this presentation together and being able to utilize some slides that she's helped with. And what I'd like to do is discuss specifically some of the outcomes about the use of formulary and formulary information and the increase in generic prescribing, as well as the increase in preferred brand versus non-preferred brand, medication history utilization, and refer some of our experience that we've had with some focus groups that we ran this spring on medication history, and then some inappropriate prescribing adverse drug reaction issues that came out of the outcome.

Again, the standards that I'm going to discuss mainly are formulary and benefits, medication history, eligibility, and scripts. The formulary findings -- the analysis showed, obviously, that the standard is technically capable to convey the information needed to support this function to part D. One of the issues during the implementation, however, was that the number of health plans that were participating in some of the pilots -- and that really amounts to a good critical mass so that physicians were not receiving this information on the majority of their patients.

This is due to two things: the number of payers who are participating and have their patients in our master patient index for us to access, and the ability then to have the business relationship between payers and technology vendors to access that information. And since the pilot, both of those things are starting to increase dramatically. We've added a number of payers, and you can see as time goes on, the number of states where we have significance of increasing as the Wellpoint gets added to our Master Person Index later this year. We are also working with the New Mexico Medicaid Department on an e-prescribing project there. So we continue to see increase in critical mass, so that a higher majority of the patients that physicians will see will have this information available to them at the point of care.

One other part, and I think that's important, about the formulary and benefit information that's conveyed, is what impact it actually has on electronic prescribing. And probably two of the more familiar e-prescribing initiatives that are out there are the Southeastern Michigan Initiative, where Ford, GM, and Chrysler have worked with Henry Ford, and other technology vendors in the area to increase adoption, and the AETNA e-prescribing experience with Zix in New Jersey. In both of those cases, relatively large increases in generic prescribing has taken place, based not only on the ability of the transaction to deliver the information, but then on the information being appropriately displayed in the application within physician workflow, to allow the physician to know what the most economically appropriate and medically appropriate drug is to prescribe at that time.

So in the first two million, 2.1 million prescriptions, some of the impact to that was delivered by the eligibility formulary and benefit information, as well then as some medication history, because it shows is that over 80,000 prescriptions were changed due to formulary messages. Ten percent of the prescriptions were changed due to some interaction warning, and 15,000 prescriptions were changed due to some

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

drug allergy warning. Generic usage increased within Henry Ford from 57 percent to 70, 70.5 percent. Now I will say that Henry Ford had other programs in place to increase generic prescribing. So I don't think that we can relate the full 13 or 14 percent increase in generic prescribing just due to electronic prescribing, but if you talk to the people at Henry Ford, they will give relatively high importance increasing generic prescribing. And recently AETNA and Zix released some of their statistics, and they saw a five to seven percent increase in generic prescribing due to e-prescribing.

Now one of the areas that's near and dear to my heart is medication history. One of the things about medication history is that its utilization -- the pilot findings show that it's a functional standard, and it's a widely accepted and mature standard, but it is under-utilized by physicians. It's just not getting utilized to the point that many people think it can be utilized. Whether the medication history is coming from a claims database, or whether it's coming from a pharmacy database, it just is under-utilized. Part of the reason is that there is no one single direct source for medication history. That's the whole piece of the pie. You have to go to various sources, including the patients themselves, to get a complete medication history. But, nonetheless, it is still relatively under-utilized.

We did a series of focus groups in the spring of this year in four cities across the country, specifically asking physicians about the use of external medication history during the e-prescribing process. These were physicians all who were using e-prescribing applications. And some of the findings we found were fairly interesting. Medication history is under-used, mainly because physicians were unaware that external medication history was available to them. They didn't know that the function actually existed, and they had to do additional clicks in order to get it. Physicians recognize that medication history does provide them with useful information, and could increase efficiency and increase quality.

In general, though, physicians want a basic medication history presented to them at the point of prescribing, with the ability to drill down deeper if they need to. Specifically, for example, to see if patients were on various classes of medications previous in their treatment, failed that or had side effects or adverse reactions to some of those therapeutic classes, see what the next level of prescribing might be. Physicians like to be able to tailor functions. One thing we noticed was there was no consensus on where medication history should take place in workflow. Some physicians wanted it presented on their screens to them during prescribing, some wanted it printed out for their nurses or medical assistants to help use during the interview process and the triage process for the patient; there seemed to be no clear consensus to when they wanted it.

There was also no clear consensus as to how long a physician wanted medication history to exist. Yes, they want to see what the patient is on now, but many physicians agree that true medication history is truly a lifetime medication history, and they need to see as much as possible. The last thing is that physicians thought that pharmacy claims history had a latency of six to 12 weeks, very similar to medical claims, and were unaware that pharmacy claims are real-time and almost instantaneously available. So there is a lot of education that needs to be done for physicians in order for them to appropriately use medication history. I think the key thing is, is a lot of them don't know it's there, and if they knew it was there, they'd use it more often.

One of the things we found in our long-term care pilot was that the long-term care pilot was fairly interesting. There was a higher percentage of patient eligibilities than was expected, the script standard worked fairly well, medication history was not tested. But I think what was important was that the script standard itself needed additional support for long-term care, a very, very different place for prescribing, very different than hospitals, very different than the ambulatory space. Additional information is needed in the script standard in order for it to be more functional, and frankly, we've seen good progress at NCPDP at looking at the current standard and enhancing that for long-term care. And I think that as long-term care adopts to e-prescribing, there will be additional functionality there for long-term care to utilize.

So some of the outcomes I've discussed -- formulary versus generic prescribing, medication history utilization, the inappropriate prescribing or adverse drug events, and some of the alerts that occurred. One other thing that occurred was that there seemed to be a decrease in callbacks, specifically in long-

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation

November 2, 2007

term care, callbacks were dramatically reduced, but in another pilot survey, no significant differences were noted in one. So in long-term care, we seem to see some decrease in callbacks.

Some quick conclusions: e-prescribing obviously is still in its infancy, even more so in long-term care. The pilots did demonstrate effective standards-based implementation, including the initial standards. Additional work needs to be done on a variety of others. Implementation issues still remain and frankly as we continue to build critical mass in payers, participating in allowing their data to be shared in real time, those implementation issues will hopefully decrease.

The pilot was impacted by the fact that there was a limited amount of time granted to the grantees and contractors to conduct the study. There were small size of pilots, and they didn't really represent a large sample, and a lot of the physicians. If we look at some of the reports that are coming out on the value of e-prescribing like at Henry Ford and like at some of the initiatives, we're seeing some of the data really come out of large groups, and coming out after truly one, two, two and a half years worth of study. So the short amount of time, small size of the sample size, and the small physician groups, I think some might have skewed some of the pilots, but at least, I think most importantly, proved that the standards that were being tested are ready for prime time -- the majority of them are ready for prime time, such as eligibility, formulary, and benefits, medication history, and scripts.

I want to thank you for allowing me to present today. I'll turn it over to the next speaker, and look forward to the question and answer session later in this presentation. Thank you.

DB: Hi. Thanks, this is Doug Bell, and I was the principal investigator on RAND's e-prescribing pilot study, and the results I'm going to show you today are just part of what we did, and were largely the work of some of the people shown here. But there was a large group of people, much larger than shown here and we have at least some of these people on the call today as well, and I may bring them in at the question and answer period. The study was funded by AHRQ and CMS, and so I'll just move on to the introduction and provide some background on why this was important, and worth a federal investment.

It grows out of the Medicare Modernization Act, which as probably everyone on this call knows, established a prescription drug benefit, and in response to concerns drug safety issues while itself, had provisions to fostering prescribing. And the goal, as stated in the act, was that e-prescribing can deliver information to the point of care that enables informed decisions about appropriate and cost-effective medications. So that, we always try to keep in mind as the ultimate goal, in what we evaluate.

And just to familiarize people with the timeline for implementation of e-prescribing, first of all, Part D plans were Medicare prescriptions, and those prescriptions would need to be standardized, however. So in 2006, the act said that there would be pilot testing of the initial e-prescribing standards, and then in 2007, HHS did the initial rules and then coming next year, there will be a final ruling on e-prescribing standards that are addition. The word "additional" is here because there are already a set of foundation standards that HHS has promulgated. And then in 2009, it would take effect.

So in evaluating this, we wanted to keep a strong conceptual model in place because there are a lot of things to look at, and especially because we're talking about evaluating a standard which is a very sort of low-level, technical thing, and what we're interested in ultimately are the changes that it creates in drug use and other outcomes of interest. But along the way, there's a causal chain that has to take place where somehow the information delivered in the standard has to be seen by the prescriber, and then that somehow has to change work processes in order to produce these effects.

On a previous call, I talked more about our results up at this level, and on this call I'm going to talk more about the work process and outcome level results that we had. Our study was conducted in New Jersey in the e-prescribing action coalition, which was really based around Horizon BlueCross BlueShield of New Jersey's e-prescribe program, which was already underway, starting really -- a pilot dating before 2005, and was rolling, especially starting in 2005 with a targeted enrollment of 1,000 physicians. The program paid for the installation and training of a standalone e-prescribing system, and it actually also paid an honorarium to physicians each quarter, based on the extent to which they used e-prescribing.

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

There were three systems available -- Caremark's iScribe, Allscripts' Touchworks, and the InstantDx OnCallData, which are all e-prescribing software. Also involved in the coalition were RxHub and SureScripts, the major intermediary companies and Point of Care Partners, consulting firm that was critical to coordinating all of this. UMDNJ was on the ground, providing qualitative interviews and we were providing analysis at RAND.

So I'm just going to show you results from three different sub studies that we did, and first is analysis of adoption and use of e-prescribing, based on secondary data that we have as of July 2006. We're looking at two different things here. One is who adopted e-prescribing, and the other is among those who adopted it, how much are they using it. So the adoption, we're comparing e-prescribing primary care physicians who activated during 2005, and we're comparing them with primary care physicians who hadn't enrolled at all in the program as of July 2006. We wanted to cut off this group so that we would have six months of data.

The characteristics we had for these people were based on their assigned patient panel. As I mentioned, we had six full months of data on how much they'd used it. Oh, and by the way, this group only included iScribe, it's worth mentioning, because at the beginning of 2006, AllScripts and InstantDx had not actually started installing. So this is actually all iScribe. Now, for how much they used e-prescribing, we are looking at an e-prescribing usage ratio, which is a count of how many prescriptions were written electronically during a given period, over the count of how many prescription claims were filled, and attributable to that physician, in the same period. Now this is a ratio, not a percent, because these don't necessarily match up perfectly. Some prescriptions are never filled -- and it did exceed one in some cases, although we truncated all these numbers, and one for the analysis I'm going to show you.

So here are the results. First of all, who activated? We started with 4,600 physicians who were recruited, who received recruitment, and out of that, 700 had enrolled by July 1. But of those, 155 had not activated e-prescribing by January 1. So these were sort of late people that we wouldn't have enough usage data on, and those are excluded from this analysis. That left 551 physicians. Out of those, 268 were not primary care physicians. They were matched to 1,800 physicians who were primary care physicians in a controlled cohort. And this is a logistic regression. These are results just comparing the features of those who were in this e-prescribing group with those who were in the control group, and which features were associated with being in the e-prescribing group.

So basically, the practice size, the amount of prescriptions people wrote, and actually the race of their patient panel were the only factors actually associated with being in the e-prescribing group. And just to drill in on that, for practice size, the reference group here is solo physicians. So they would have the odds ratio of one. Compared with that, the slightly larger practices actually had a higher odds ratio of joining. I should mention that individual -- the program enrolled physicians individually, but we're looking at the practice size for each individual physician who is enrolled. So it was possible to be in a practice of say five physicians, and have only three of those physicians enrolled. They would each get e-prescribing hand-held individually, and would be able to prescribe through the system.

So slightly larger practice sizes also had higher odds ratio than solo people. For claim volume, the reference group here is middle, actually, and the bottom line is that low prescribers were less likely to enroll. That's people who wrote less than 1,750 prescriptions per year, and high prescribers who are actually not significantly different than medium. Finally, for patient race, we dichotomized doctors based on what percentage of patients they had whose zip codes were in predominantly black neighborhoods, according to the 2000 census. So ten percent cutoff gave us about 15 percent of doctors. So about 15 percent of doctors who were in this category, where they had more than ten percent of patients in these predominantly black neighborhoods.

So moving on to e-prescribing usage. Now this is just among the 283 e-prescribers, and this is looking at those first six months of 2006 when everybody should have been up and running. This is the distribution of usage ratio. It's basically -- this is just the counter-prescribers in each category, and this is each five -- you can still think of this as a percentage, essentially. We're thinking of it functionally as a percentage of

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

prescriptions that are written electronically. So we have a lot of subgroups, about 20 percent overall, who are up here -- actually, it's less than 20 percent -- who were using the system quite extensively. And really, about half of the users, or half of those who were enrolled, this line is actually the cumulative. So the 50 percent mark is really around 15 percent prescriptions being written electronically. The majority of people who enrolled were not using it very much, but they were using it some. Overall, that was a little less than 20 percent of the people who had enrolled.

So we did a linear regression, looking at what factors were associated with the level of use, with this usage ratio. Overall the average for 2006 is a 0.24. So again, that's about 24 electronic prescriptions for every 100 prescription claims total for that doctor. And the only factor that was associated with the extent of use was practice size, and again, the reference group is solo physicians here. And the interesting thing is that the physicians in larger practices were actually the ones who tended to use it less. So most statistically significant difference between the two- to five-physician practices from solo, but about 15 percentage points less for the largest practices in use. And then a lot of things that you might think would be significant were not, and were dropped from this model, including the patient panel characteristics, like the race/ethnicity that I showed you, that was associated with adoption.

So that's what I was going to show you for the secondary data. Now to drill in a little bit, I'm going to show you some results from our qualitative study, and this was in-depth interviews and site visits that we conducted at a purposive sample of 12 practices that initially were scheduled to install iScribe or AllScripts, and we then did site visits before, and then we came back three months after e-prescribing was installed. We conducted observations of the physical environment, prescription work workflow and analyzed that qualitatively using ATLAS.ti, and identified themes using a template organizing style.

And I'm only going to be able to touch very briefly on some of our results, but out of the 12 practices where we did complete baseline site visits, two of them cancelled their installation and never actually got off the ground. Two successfully installed but had actually quit using the e-prescribing system by the time we came back, and then eight of them -- the remaining eight had installed an e-prescribing system and was still being used, but out of these eight, the physicians had pretty much quit using it at two sites, and the staff were just using it for refills.

So obviously this is not a statistically representative sample, and to some degree these might have been late adopters, but we still think overall these practices are early adopters, so may be illustrative of some of the issues that will be encountered elsewhere. So to show you what happened at an unsuccessful site and this is relatively representative of some of the barriers that we've found, this was a six-physician family medicine office where they had 11 non-physician staff, and the MD champion said this about their experience: "We went online Friday. I tried on Saturday, it worked. I tried at 9:00 a.m. on Monday, it didn't work. We contacted them and they called us after two weeks -- two weeks later on Monday, so the momentum was broken." So this person basically gave up on -- and this office gave up on e-prescribing. And furthermore, the physician, talking about the effort it took to prescribe, said, "I write the name and prescriptions on one sheet," so he's talking about handwritten prescriptions here, "and I can actually do that quicker. I was torn, but then the rep just kept saying practice to make it work flawlessly." So this is a person explaining why they gave up.

Now, contrast that with a successful site where one of the physician users said exactly the opposite. "It's made me a lot quicker. After the growing pains of getting used to how it worked and the initial bugs and especially after preferences were in there, I didn't have to put in the amount, the dosing, because it saves those configurations for you." So just in the interest of time I'm going to skip ahead, but basically a divergence there on that.

So we did see interesting shifts in work that probably affected utilization, and we can go into that in the Q&A if we need to. Then I want to show you very quickly some results from our prescriber survey, which was online survey of 395 physicians, who actually were all enrollees in the e-prescribing program, but some of them had installed iScripts or AllScripts, and some were on a waiting list. And so those were really non-e-prescribers at the time that we surveyed them, and basically people were satisfied overall with e-prescribing. Actually, these are only results from the e-prescribers, and the green highlights what

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation November 2, 2007

the majority of responses were on the Likert scale. But basically, people did generally agree that e-prescribing had made their work easier, not quite so much with increase as to my productivity, is the bottom line. But still, overall we did get positive feedback.

So we think the study shows that e-prescribing holds promise, and that users do tend to perceive increased safety and efficiency, despite some of the technical problems, and -- well, one thing I didn't show you much of but we can get into later is that it may say staff time more than prescriber time in a lot of implementations. But overall, it was substantially underused, and only a minority of prescribers really achieve high use. So we really need to identify what workflow training strategies need to be to promote more use and overall acceptance. That's what I had, thanks.

KL: Hi. This is Kate Lapane. Thank you for the opportunity to share some of the work that has come out of the SureScripts e-prescribing pilot, of which I was the principal investigator. Our project represented a unique private academic partnership with the leadership team coming from SureScripts, with Ken Whittemore who's on the line and available for questions, Midwestern University, with Mike Rupp, who is not available today, and University of Arizona. From there we have Terri Warholak, who is also available during the Q&A.

With SureScripts as a prime awardee and the team with expertise in pharmacy practice and clinical practice in ambulatory settings, we're actually able to achieve a breadth of research that we had hoped for when we wrote the original application. The objectives of our process were two-fold. First, to the left, we were of course testing the interoperability of the standards, but secondly, we were focused on -- and this is what I'm going to talk about today -- we sought to evaluate the implementation of the standards with the goal of capturing perspectives from a variety of stakeholders, and we used the mixed method approach.

Participants included pharmacists and pharmacy technicians at hundreds of retail settings, physicians as well as patients and caregivers. We ended up engaging nearly 240 physicians and we selected the states with inputs for SureScripts, and level of e-prescribing experience including Dr. First, Gold Standard XML scripts. Our goal was to provide a breadth of perspectives with respect to geography, e-prescribing technologies, practice and perspectives.

This shows our research approach. We actually used a mixture of quantitative and qualitative methods to achieve the research objectives. For physician practices, we used qualitative methods that included focus groups, on-site observation, and interviews with staff and clinicians. For the patient and pharmacy perspectives, we used surveys as well as the medication therapy intervention documentation system that was developed by Terri Warholak at the University of Arizona. SureScripts was instrumental in helping us access all of the right partners to get this research done in a really short time frame.

Our study actually involved many smaller sub-studies to address particular research questions. My goal today is really to provide an overview of some of the findings from the project, as integrated across the perspectives. We're hoping that what I show today provides different and complementary data to what you'll see from the other pilots. I've organized three sections -- patients, clinicians and their staff, and the pharmacy perspective.

What we see here in this slide is that regardless of the specific e-prescribing software used by physicians, patients showed preference towards e-prescribing with the greenish bars to the right. We also conducted a specific analysis in geriatric patients because of concerns regarding potential aversion to technology with age, and these findings were replicated in elderly patients as well.

From the focus groups, the overall clinician perceptions of patient preference reinforced what the survey data showed. That is, the patients really liked it. However, if a patient had just one experience where the prescription experienced a glitch, then they weren't willing to have their prescription sent electronically, as the last bullet shows. So then it makes it difficult, because then the patients don't want us to do it to prescribe electronically.

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation November 2, 2007

The next slide shows that the use and knowledge of e-prescribing was not widespread, even in the practices that have e-prescribing, and in our study, many of the practices had been using their e-prescribing systems for several years. Nevertheless, about 40 percent of patients within the e-prescribing practices, as shown by the dark blue line, were unaware that this was even an option, and 40 percent had never received any prescriptions.

Comments from the focus groups also reinforced this notion that not all clinicians are using e-prescribing consistently. In some situations, the clinicians acknowledge that it's just easier or faster to call in prescriptions at certain times. "Once in awhile, a patient will call me with a problem, and I'll just right off the bat call the pharmacy and call it for them." Or, "I can't do all e-prescriptions if I see six patients in an hour and I can't do all my patients on that. I have to do some written prescriptions." This is also reflective of the inability to use electronic prescribing for all types of prescriptions as well, with schedule drugs.

This slide shows that 20 percent of the patients actually believe the prescriptions will be ready immediately at the pharmacy. This may lead to poor e-prescribing experiences, what they believe isn't reflected in reality because the expectations of one prescription to be ready has not been adequately communicated to the patient.

Nevertheless, this mismatch in perceptions does not appear to adversely affect the patient's satisfaction with the pharmacy, with respect to their e-prescriptions. Indeed, about 54 percent were very satisfied with the pharmacy services provided with their electronic prescriptions.

Now we'll shift to the perceptions of the clinicians and their staff. Now, to the left, we have the pie chart showing the clinician data, and to the right, the non-clinician or staff. And what we can see is that regardless of your position, when we asked respondents to compare e-prescribing to other forms of prescribing, about 35 percent of clinicians and 40 percent of the staff rated the e-prescriptions as much better.

Indeed, when we were saying, well what do you think e-prescribing has done to -- has it impacted quality and safety, the bar to the left shows that about 35 percent, in the greenish bar, indicated that e-prescriptions were much better with respect to patient safety, and about 30 percent much better with respect to quality of care delivered.

This slide actually shows that one-third of clinicians and their staff reported that communication with the pharmacy was actually much better. And from the focus groups, when we specifically asked about the relationship with the pharmacy in the first bullet, one participant said, "Well, I think it's been good in the aspect that my scripts can be read by the pharmacy, and they're thrilled with that." In addition, they acknowledge in the second and third that the communication, it may be better because there's actually less call-backs and back-and-forth in terms of the administrative aspects of filling the prescription.

And lastly, I'd like to go over the pharmacy perspective, and I think this is where our project provides information that some of the other pilots didn't have an opportunity to get into. This slide represents data from a study that was performed by Mike Rupp at Midwestern University. He had actually implemented a pharmacy personnel e-prescribing survey. For the pharmacy personnel survey, Mike selected pharmacies that processed at least five e-prescriptions in a day. The personnel at the pharmacies agreed to participate in this aspect of this study were given access to a paper or a Web-based survey. What you can see here is along the rows, there are different conceptual domains that participants were asked to pair how they felt about it in relation to e-prescriptions.

So for example, about 15 percent of pharmacists stated that relation with physicians were much better with e-prescriptions, and nearly half stated that communication was at least somewhat better with e-prescriptions. It should be noted that 25 percent reported that communications with clinicians were somewhat or much worse with e-prescribing. So it's a little bit contradictory. What was beyond the scope of this study was understanding the extent to which these findings were due to reduced communication between physicians and pharmacy, versus poorer quality of communication, and that's just beyond what

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

we were able to do in the context of this survey. Nevertheless, the efficiency, safety, and effectiveness domains clearly favored e-prescribing.

This next slide shows some research that actually calls for more research on the next generation e-prescribing issues. Terri Warholak, you had research which documented that pharmacists intervene on about 3.8 percent of electronic prescriptions. She developed a medication therapy intervention study where pharmacists actually documented the types of interventions that they were performing on e-prescriptions. Her research clearly reinforces the need for structured and codified sig, as many of the interventions that were documented were because of need for clarifications regarding the instructions. And Terri is only on line in Q&A to clarify any questions on that part of the work.

Ken Whittemore, at SureScripts, led a survey of stakeholders, including physician users of e-prescription software vendors, pharmacy chain organizations, and pharmacy management vendors. In particular, the survey sought to understand the perspectives of key stakeholders related to structured and codified sig. At the time, two major propositions were being considered, one in which a code set would be devised to capture 99 percent of the instructions, and leave one percent to free text. And the other proposition would move forward with writing a code set that captured 80 percent of the instructions, leaving 20 percent to free text.

This slide shows that regardless of the type of respondent, meaning physician, vendor, pharmacy management system vendor, or a pharmacy chain, all recognized that the 99/1 proposition would likely yield the greatest reductions in errors related to instructions with e-prescriptions. The findings related to the value of going with the 99/1 versus and 80/20 was less clear by the type of respondent. Chain organizations favored 99/1.

So in summary, some of the clear things that came across in this piece of the research is that just because a practice has e-prescribing capabilities, not all clinicians within the practice will e-prescribe, and there may be training issues that I didn't have time to get into here, or lack of understanding of what benefits and what the capabilities of this software actually are, and the different functionalities. In addition, not all clinicians use e-prescribing with their patients, and this may be a function of the types of patients they're seeing and the patient desires, or just the moment in which they're being asked to prescribe. Not all clinicians will use e-prescriptions with all of their prescriptions, their types of prescriptions, and this is a function of the regulations that prohibit e-prescribing of certain drugs. And in fact, it's very clear that there's a lot of variability with respect to how the e-prescribing software and the functionalities of it are being used.

So overall, though, I think what you have to take home from this research is that overall, the perspectives from patient, pharmacy, and clinicians is highly optimistic. But that doesn't negate the fact that more work needs to be done. There is less than optimal use of the capabilities of e-prescribing. The need to reduce errors, I think that more work needs to be done on structured and codified sig. There also needs to be more understanding about the use of multiple prescribing systems in the same practice, and how we can work towards eliminating that. And I do believe there's untapped potential for engaging pharmacists, physicians, and patients in ultimately improving patient-centered pharmacy care. And with that, I'm done. Thank you.

BE: This is Bob Elson. I'm going to talk about the Northeast Ohio, or NEO, e-prescribing pilot. Specifically going to focus on our workflow findings and just scratch the surface and to that I would point folks to the URL on the lower left-hand portion of the screen to get at the full project report with much more detail than we have time to go over here. There are a number of project participants. I don't have time to acknowledge all of them here. Primarily, this was a joint effort between University Hospitals Cleveland, and the Ohio QIO, Ohio KePRO, but there were significant contributions from Dave Gans, and Dr. John Kralewski at the University of Minnesota, Division of Health Services research. In fact, there were some very interesting practice culture issues that were addressed by Dr. Kralewski that we're not going to cover today, that I would refer folks to the full report, if you're interested.

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation November 2, 2007

As I mentioned, going to focus specifically on workflow and three areas in particular -- e-prescribing adoption and basic workflow, we're going to look at incumbent transactions, and related workflow, in particular eligibility checking on medication history and new prescription transmission. These were transactions that were in full operation before the project began. And then we undertook several transaction interventions, if you will, that we'll touch on.

Just for context, this project began in mid-February of 2006. There was a robust, mature, e-prescribing implementation at dozens of small- to mid-sized practices owned by University Hospitals well before we showed up in Dodge to conduct this project. So this, from the outset, we didn't have to worry about driving adoption, but mostly just about studying adoption that already existed, and then had an opportunity to look at some transaction interventions, which we'll touch on at the end.

University Hospital Medical Practices are a scattered group of small- to mid-sized practices throughout Northeastern Ohio, centered around Cleveland. Just some issues related to adoption that we identified, that seemed to be a part of a magic mix that led to successful adoption, although we're not able to isolate any one of these factors. These are the characteristics that we noticed going in. E-prescribing was offered essentially free of charge to all of the University Hospitals medical practices. There was out of the box integration with the incumbent practice system. There were minimal equipment requirements for practices that the software, which was OnCallData, that e-prescribing application, was delivered via an application service provider model. It was completely Web-based, and they offered robust remote training and support. Each practice was allowed to determine their own optimal workflow, and what we'll see is that this translates into that their physicians didn't have to be using the e-prescribing tool directly themselves. And for those practices that needed a little nudge, there was a \$500 malpractice subsidy that was offered if a physician met threshold utilization criteria.

Pre-project adoption -- before the project began or was substantial, beginning in early '05 -- actually, late '04, which is not represented here, and through 2005, more and more practices came on board. As an organization, UHMP was cranking through 30-plus thousand prescriptions per month in total, before the project began in February of '06. There's a graph that's not showing up here, but that's okay, we'll skip that. What that graph showed was that once the project began, the first several months of 2006, that e-prescribing adoption continued to increase, and by the end of calendar 2006, we were up over 40,000 prescriptions per month, from practices in total.

Because e-prescribing was well underway before the project started, in order to compare workflow issues, e-prescribing versus non-e-prescribing practices, we weren't able to do a time series approach, so we had to identify a group of controlled practices. So we isolated 25 primary care practices from within the UHMP family, a mix of family medicine, internal medicine, and pediatrics that were actively e-prescribing, and then we were fortunate to be able to line up a group of 22 control practices, largely through Ohio KePRO's relationship with those practices under there. And those are practices that were not currently e-prescribing, although those are practices that had identified an interest in proceeding with e-prescribing.

Just a comparison of the e-prescribing and the control practices. The e-prescribing practices are represented in the graphic on top. They're a good mix of family medicine, internal medicine, and pediatrics, and small, medium, and large practices, although close were not an identical match, either in terms of specialty, size, or geography for that matter, for these practices. But under the circumstances, we were pretty happy that we were able to line up these controls and have them be reasonably matched.

This table represents e-prescribing at the 25 University Hospital's primary care practices, beginning in January of 2006, starting at about 20,000 prescriptions per month for those 25 practices, to about 30,000 by the end of the year. Those e-prescriptions represented about two-thirds of the total e-prescriptions for UHMP as an organization. If you look at number of e-prescriptions per prescriber, by practice, this is what we came up with. At the left you have a group of two physicians, and the numbers at the top of each bar represent the number of physicians in that practice. Each of those physicians were producing more than 700 e-prescriptions per month.

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation November 2, 2007

And then way at the far end you have an eight-physician pediatric practice on the far right, where the physicians on average were producing about 80 prescriptions a month. The piece at the bottom under the bottom of the graph, represent pediatric practices. So we had six pediatric practices, and as you would expect, those practices were not producing as many prescriptions as the family medicine or internal medicine practices.

One of the striking findings that we noted was that for all University Hospital's medical practices, of the 48,000 e-prescriptions created in October of '06, only just under 17,000 were entered directly by a physician, and of those, about 16,000 were new prescriptions and 1,000 were electronic renewals. Only less than half of the e-prescribers did at least some data entry themselves. The majority did none, so what we've found here was a predominantly surrogate-based e-prescribing pattern where medical assistants for the most part were doing the data entry and not the physicians, although that varied considerably practice-by-practice.

One of the things we did in our site visits is we spent about an hour with the office manager, 25 e-prescribing practices and the 22 non-e-prescribing practices, and asked them detailed questions about their prescription practices and they quantified for us what percentage of -- among other things -- what percentage of renewal requests were received by the practice by phone, by fax, or through the e-prescribing application. And then the middle column of that table, you can see that 40 percent or so of renewal requests came in by phone or came in by fax, and a third came in through the e-prescribing application, compared to the control practices, where on average, 62 percent came in by phone, 36 percent by fax, and of course, none by e-prescribing.

There are several takeaways from this. For starters, e-prescribing practices were still depending on paper for internal processing. Actually, that's not represented in this table, but we quantified how often communication was occurring electronically versus internally in those practices, and it was overwhelmingly on paper, even when the request came in electronically. So for some phone calls and faxes that came in, even if the medical assistant taking the calls entered the prescription information into OnCallData at that time, they still would print something out and give some paper internally back to the physician for a manual authorization on paper before then using OnCallData again to transmit the prescription back to the pharmacy.

For faxes themselves, for faxing requests, the fax itself was predominantly, 90 percent of the time approved and often just faxed right back to the pharmacy. On occasion, prescriptions were transferred electronically, but it was really hard to beat the fax in terms of communication efficiency. 73 percent of prescriptions were sent back to the pharmacy via the e-prescribing application. Even only a third came in. This is really what the medical assistants loved, is that they didn't have to pick up the phone and call the pharmacy and take all that time to do that. This was much quicker.

We tried to quantify, through more complete measurements, phone call volumes related to different prescription scenarios. We didn't have a lot of success doing that in terms of coming up with absolute call volumes. Our methods really did not work very well, but one thing we were able to do was to quantify ratios of the inbound and outbound calls, and in the e-prescribing practices there certainly seemed to be a shift away from outbound calls, in large part because of the ability to input the prescription renewals directly into OnCallData and send those authorizations, renewal authorizations, to the pharmacy electronically instead of having to pick up the phone.

Talk a little bit about incumbent transaction, and transactions and workflow. One of the things that OnCallData supported was prescription benefit eligibility checking, and formulary status described earlier by Ken Majkowski. This can be triggered manually, as represented on this screen, but it typically occurred automatically on patient selection, formulary assignment after a successful eligibility check occurred. Also automatically behind the scenes.

The users, and even the support team, the UHMP support team responsible for deploying OnCallData, were uniformly unaware that this eligibility checking was going on under the covers, and much less, it's formulary assigned and implications. There's also no dual eligibility resolution workflow. I think maybe

## Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation November 2, 2007

we could talk a little bit more about that during Q&A. So this is a graphic representation of the transaction that was occurring with high volume at UHMP during the 12 months. January to December of 2006 there were 176,000 positive eligibility checks out of 300,000 checks, for just under at 60 percent hit rate. That correlates nicely with RxHub's coverage on Northeastern Ohio. Actually, that bolded line, Cleveland/Akron, is the one that should be highlighted on here.

So the RxHub MPI at the time had about a 63 percent coverage, which correlated nicely with about the 60 percent positive hit rate we were seeing. OnCallData also supported a medication history transfer. This actually occurred automatically after a positive eligibility check through RxHub, but the users did not see that medication history unless they clicked on a button that said PBM Drug History, and then a screen would pop up that advised them that they had to make sure they had patient consent to view the transferred medication history, and then if they clicked OK through that screen, a screen I'll show you in a moment popped up.

So this was automatically pre-fetched. User action was required to view this. Patient consent was implied typically, via the clinic registration forms. Again, the users and the support team were unfamiliar with this function for the most part, much less the more complex data source and interpretation issues. Here's what the medication history transfer screen looked like at the time. This was just a reverse chronological listing of individual prescription claims events. In all fairness to OnCallData, they have since done a lot of work to clean this up and their current medication history is much more user-friendly than this is here.

What we found is that over a six-month period or a several-month period in 2006, that there are about ten-plus thousand medication history transfers that were occurring behind the scenes every month, but only about 100 times every month were users actually looking at them. So about one percent of the time, when the history was available was it actually used. And this is a breakout, month-by-month -- number of years relative to the number of times medication history was successfully transferred.

Prescription routing was occurring electronically through new Rx transactions. In a typical month there were over 40,000 prescriptions being routed. About half of them were going to a combination of CVS, Rite Aid, and Walgreen's. Strong positive feelings by staff about electronic prescription transfer, in spite of having to hand enter most new prescriptions and new authorizations before routing.

Internal messaging for renewal of prescriptions was one of the biggest surprises with this, there seemed to be a persistent reliability problem related to pharmacy "receiving" the electronically routed prescriptions. So this appeared to primarily be a retrieval/training problem at the pharmacy, rather than a true transaction failure. Another is when you trace the transaction logs, there's a transaction -- those that went to and arrived at the pharmacy, but the pharmacist for whatever reason couldn't find it when the patient showed up to pick up their prescription. And it didn't seem to get better over time. So these were practices that were a year or longer often into their dealings over this issue. There did appear to be a perceived increase in inbound calls from the pharmacies specifically because of this issue.

Talk a little bit about some transaction interventions, and then wrap up. So there were already medication history transactions from RxHub, but at the beginning of the project and throughout, but late in the project, in October of '06, SureScripts enabled their medication history transfer service for us to test and so we were able to add that to the RxHub claims base description history that was already occurring, and also we asked nine of the practices, of our study practices, three family practice and three internal medicine practices, to actually intentionally have the staff pull up the transferred prescription history when it was available and print it out and place it on the paper chart, just to see if we could gauge physician reaction at having it available. Only one of the large practices, a large internal medicine practice, complied with the request, and they were quite eager to stop because of the workflow involved.

When we surveyed the physicians afterwards, we got a mixed response. They continued to support the importance of transferred prescription history, at least at the conceptual level, even though we couldn't verify that they were willing to go through the work necessary to actually use it. We had significant

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

problems with the SureScripts transactions, probably largely related to some early bugs with their patient matching issues, and really were not able to test those transactions specifically.

You can see on this slide that in October/November/December we increased the number of medication history views, or at least in October and November, as a result of the requests we made, but then in December it dropped back down towards baseline. We also tested an RXL transaction. This was kind of an odd duck because it was implemented in a way that was not originally envisioned. So instead of a pharmacy actually sending a true no-fill notification back to the e-prescribing application when they returned a drug to stock, after the patient didn't pick it up after some time period, a week or ten days, instead we were able to get prescription history from SureScripts, essentially an RXL notification generated by SureScripts, not from the pharmacy, and then leave that additional intelligence back at the e-prescribing application to try to match up that fill data with the earlier prescription that had been sent and then presumptively generate a no-fill alert if there wasn't a match within ten days of the prescription having been created.

As you can imagine, this was fraught with problems. And plus, in the way it was designed necessitated training for the end users, and we went through several false starts here with this and ultimately got no traction on it. And our conclusion was that presumptive-based, no-fill alerting was untenable, at least as we tried to use it. Now we did one other transaction test where we developed some electronic prior authorization capability with RxHub's help.

Basically, prior authorization requests for eight Anthem of Ohio drugs -- I'm sorry, prior authorization questions for eight drugs were built into our data tables and OnCallData and when the clinicians went to prescribe any one of those eight drugs for a patient the application would not only alert the users to the fact that there was a prior authorization requirement, but would display a list of the prior auth questions to be answered online and submitted online right at that point in time.

We actually were able to test a number of transactions, about 30. We had 30 of these transactions over a four-week period in December of '06 and early January, touching 17 different prescribers and 13 practices. Again, it was predominantly surrogates that used this function. They absolutely loved it. The one glitch was that the e-prescribing software had no way of knowing whether or not there was a preexisting authorization for these drugs, and about a third of the time, in fact, the authorization requests were submitted as repeats. These drugs had already been authorized earlier.

In summary, e-prescribing with advanced transactional capabilities can be rapidly adopted by small, community-based practices. In this case, these practices happened to be owned by University Hospital so it's not clear how representative they are, but they otherwise seem to function like independent practices having practice management system integration out of the box and no licensee, plus a small incentive, certainly seemed to help. There was a large dependence on surrogates. It's unclear what the implications of this are for decision support and anticipated safety benefits. There's implications for policy in regards to pay for performance.

There was a big impact on efficiency, communication channels. The paper-based internal communication still seems to predominate. Faxing is tough to beat and a great opportunity for additional. Conventional wisdom doesn't appear that e-renewals drive adoption. And it's commonly said that surrogates provide a bridge to position adoption. In this case, it seemed there would be more of a permanent strategy rather than a transitional one, and then in this instance e-prescribing wasn't a particular stepping stone to a full-fledged EMR.

As far as standards were concerned, eligibility checking worked remarkably well, but users were unaware that this was going on. Human assessment increases possible false positive rates. The new Rx transaction was really the workhorse and the primary driver of surrogate adoption. There appear to be persistent transmission reliability issues, largely related to human factors at the pharmacy. Prior authorization is a big hit and has a lot of potential. At that, I will stop. Thank you.

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

PD: To what extent, in the last practice sites did physicians already using an EHR, for medication management and therefore less likely to take on a standalone, non-integrated e-prescribing application. So Doug, can you talk a little bit about that?

DB: Sure. First of all, in New Jersey, there's a strong preponderance of smaller offices, so it may be a little different than a lot of the rest of the country. But there are some larger offices, especially at academic medical centers. And many wouldn't have been interested in this program that Horizon offered but a lot of the larger medical groups in New Jersey are still -- the physicians still practice in small offices. So we don't think that there's a big effect of electronic medical records -- we did know that some offices, a few offices that had quit e-prescribing, said that they were doing it because they were adopting an electronic health record. But that was a relatively few.

PD: Another question that we had is I guess basically focused around what's the use of e-prescribing? I guess if a panelist can answer to what extent did the e-prescription get routed to the wrong pharmacy? And I guess to start up the discussion, I would like to pose that question perhaps to Bob, and then Kate and Doug.

BE: We were not aware of any instances where prescription transactions were routed to the wrong pharmacy. I don't know if Katie and the SureScripts folks have better data on that.

KL: We didn't come up an estimate on that as well. We weren't aware of that problem. Ken Whittemore is one of the attendees who would probably have, if there are estimates out there, they would be the ones to know. But we didn't have that problem in our study.

PD: Ken, are you with us on the line here?

KW: Yes, I am, and I really don't have anything to add. We haven't noted that as being a problem. Thanks.

PD: Another question that has come from one of the participants has there been any information collected on the rate of transaction failures after the first year of use? And I would like to pose, I guess that question perhaps, to Doug first, and then if Kate and Bob can follow up with just a few comments.

DB: I'm not sure which transactions specifically you might be talking about, but I guess the first one would be eligibility, and I think Ken really spoke to that initially on how often eligibility is hitting. I guess it's increasing, but in New Jersey it was I believe RxHub during 2006 where it was something of a factor because a lot of patients were not in there.

I was just going to say, yes, it's definitely a function of where you are.

KM: If you mean failure, we have SLAs as our service-level agreements of payers and technology partners that require greater than 99.5 percent of the transactions all within a three second time period, and on a monthly basis we find that the payers and technology vendors develop service level agreements on a routine basis. So from a failure point of view, transactions are getting through. On the eligibility requests not finding a patient, the patient has to be a member of a participating payer in order for us to find them, and as I think each of the researchers pointed out, they're different in different points of the country.

PD: Thanks. The next question is a workflow related question, and Bob, I'm going to ask you to answer this one. With the use of surrogates for e-prescribing, does the system identify who the surrogates, is one question, and related to this, how does the prescription entered by the surrogate get reviewed or verified by the physician?

BE: Great questions. The particular system, OnCallData, did identify surrogates for every user -- physician or otherwise had a unique user I.D. and password, and security rights associated with that user I.D. So the way this was set up is if the surrogates couldn't complete a prescription, if there were, for

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

instance, an allergy warning or a drug interaction warning, it had to be ultimately approved by the physician. So they would have to go back and pull the physician over, and these were again typically small practices where -- and even some of the larger ones, the MAs were working in close proximity to the physicians and, you know, it typically wasn't long before the physician stepped out of the exam room and the MA could get an answer to the particular question. And when we asked both the MAs and the physicians about this issue, it wasn't intrusive.

Actually another e-prescribing application, which actually anticipated surrogate based workflow somewhat better, and if you had the doctors using the tool directly themselves, then prescriptions can be prepped by surrogates and when issues arise they can be then parked on a physician work list and then completed by the physicians. But that's not how it is done. I don't know if that fully answers the question.

PD: Thanks, Bob. I guess another question to the panelists, a number of you had discussed the use of medication history, that providers weren't aware of its presence. You also indicated a particular view of the application. To the best of your knowledge, was this to some extent validity studies done by the vendors' work providers prior to this capability rolled out? I would like to start with, I guess, Ken, if you can address that, and then see if Bob has a follow-up.

KM: I think that there is high variability about what vendors make that function known and available to all physicians using e-prescribing. I think if you look at how physicians want to adopt e-prescribing, I think they first want to be able to send a prescription electronically. That's a real baseline function, and as they get comfortable with that, then they often will move into other functionalities within an application, but I think there's a high degree of variability about whether or not physicians and their staff are taught that external medication history exists, how to use it, what's the difference. As I said in our focus groups, physicians didn't know it was there, and if they did know it was there, they kind of found it accidentally on their own.

KL: I just wanted to add, one of our vendors was Gold Standard, and they had Medicaid data flowing through to the point of prescribing and med history, and so what happened when we went in there, Medicare Part D had come in and so they had lost medication history. So we heard a lot of missing it when it was gone, because they had a pretty good medication history on -- they rolled it out to the top 1,000 highest prescribers in Florida. So we had heard kind of when you take it away, will they miss it, and the answer was overwhelming yes. Because clearly with that vendor, they had done the right training with the physicians so that they knew it was there, they knew how to use it, because then they were aggravated when it was gone.

KM: I think you hit the button on the head there. You've got to teach the physicians it's there and how to use it, and it will get used properly.

BE: This is Bob. Unless I'm mistaken with that project in Florida, that started out as a medication history project. It didn't start out as an e-prescribing application, so in that instance it certainly made sense that there was a focus on medication history and that it was missed when it was gone, even though it had been expanded to include e-prescribing. I believe that it started out as medication history only, and that's why the devices were originally deployed, to support medication history.

PD: I would like to give CT a chance to ask a question.

CT: Thank you. I have two questions. First one is adoption rate -- how do you measure adoption rate? I mean is that something like number of e-prescribers who are active users? If you're using active users, what's a definition of the active user? The second question I have is I know from SureScripts or from other source, they're like 90 percent or 95 percent of the pharmacies are certified by SureScripts. But in our pilot study, a lot of independent pharmacies, they are not. I just want to know what's the percentage of the pharmacies are SureScripts certified?

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

PD: So I guess the first question, Kate, I'm going to ask you to perhaps describe how you measured adoption and effective use, and as Ken Whittemore is on the line, I would like him to address the second question regarding (inaudible) certification question.

KL: We didn't measure adoption. I think Doug did. All of our folks were users.

I can just step in and say that we just defined it as having activated e-prescribing, even if you weren't using it, for that one analysis that I was showing. But we did look at a lot of different sort of patterns of uptake and use, and it remained pretty stable through the pilot and some people who got a slow start and then increased. But overall, if you want to talk about with the national level of adoption, that would be a different sort of study. We were just looking at a program that had a fixed number of slots and basically filled up those slots and then ended. So it's true adoption.

KM: This is Ken and I'll comment briefly. Again, we see a 30 to 50 percent increase in eligibility requests on a year-by-year basis. Two years ago we saw 27 million, last year just under 40 million, this year it will be somewhere between 55 and 60 million eligibility requests. And an eligibility request is basically a physician's application requesting pharmacy eligibility, formulary, and benefit information for a patient when they're visiting their office, during the patient event. So they correspond to patient events, and we just continue to see that kind of over-year growth of eligibility requests incoming to our facility.

There are two issues that you have to consider. One is whether or not a pharmacy's vendor is certified to handle e-prescribing transactions. Currently, greater than 95 percent of the vendors that service both chain pharmacies and independent pharmacies are certified on our network. The second question then becomes whether the pharmacies themselves have activated, and it is true that the independent pharmacies have shown a much lower activation rate. Currently, we have probably three-quarters of the chain pharmacies actually activated on our system, whereas for the independent pharmacies that would be down in the range. But that's, for the most part, their choice. They have the ability, they could go to their vendors and get connected, but for whatever reason they've chosen not to.

PD: Thanks, Ken. So I do have a question from one of the participants, and basically I would like to address those to Doug. Can you speak a little bit about any thoughts that you may have on the impact of the project to date?

DB: Sure. Just to fill in background, that's AllScripts' product that's being offered free to any physician in the United States- it does get to RxHub. So I don't know any quantitative numbers on that, so I think we're still waiting to see. We've basically just activated about maybe six months ago, and we'll see. I'm not aware of any funded studies looking at it either, but I know there are some plans in the works.

I think there's a Netsy newsletter, so if the questioner wanted to go to AllScripts' Web site, I think they may have some statistics in their Netsy newsletter that I'm sure would be available at their Web site.

PD: So one last question to the panel. You know, a number of you spoke about the workflow and sort of the impact of workflow on e-prescribing use. In terms of the implementation of the e-prescribing software, to the best of your knowledge, did any of the vendors work specifically with the site on working through the workflow around renewals or any of the other transactions prior to them going live? So with that said, I would like Bob Elson to start off the responses. Any of the other panelists have some feedback, they can add after that.

BE: I'm not as sure of any specific work that OnCallData or InstantDx the vendor did with the University Hospital practices around renewal workflow. I do know that because it's such an important and critical issue for e-prescribing, there were a lot of features in the tools that had been developed over time in response to physician comments, that played out particularly well in this environment. So in the past, I largely thought about renewal workflow in terms of complete electronic communication of the renewal request and whether it came into the practice electronically, to a surrogate, or directly to a physician's work list. It would ultimately end up on the physician's work list electronically, and the physician would respond electronically back to the pharmacy. So that's clearly not what we saw, and there was a lot of

Outcomes of the Medicare Modernization Act Electronic Prescribing (e-RX) Pilot Evaluation  
November 2, 2007

flexibility in e-prescribing application software, and in terms of modifying or adopting to modified workflow so that things could be printed at various points or entered at various points in that communication flow.

PD: Do any of the other panelists have any additional comments regarding that? I know we're out of time and I want to say thank you very much to our panelists, especially for sharing your insights from the pilot. And I want to thank all the participants as well for joining us this afternoon for a very lengthy discussion.