Cyber Seminar Transcript
Date: 05/18/15
Series: ESP
Session: EHR for reducing inappropriate imaging
Presenter: Paul Shekelle
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Dr. Atkins: And low back pain and so we recognized as we started out that no one had recently reviewed the literature on potential interventions such as HIT interventions to look at reducing imaging. And so we engaged Doctors Anderson and Shekelle to help frame this topic and I am happy to introduce it and turn it back for introductions of the individual speakers.

Molly: Thank you so much, Dr. Atkins. We appreciate you being here to introduce the topic. So as he was just saying, we have Dr. Paul Shekelle, who is the Director of Southern California’s Evidence-Based Practice Center. Also a staff physician at West Los Angeles Veterans Affair Medical Center, a consultant in Health Sciences at RAND Corporation and finally, a Professor of Medicine at UCLA David Cotsen School of Medicine. Joining him today we have Sherrill Snuggs, who is the Utilization Officer for Diagnostic Services in the Office of Patient Care Services. And finally we have Dr. Charlie Anderson, who is the Chief Consultant for Diagnostic Services also at the Office of Patient Care Services. So at this time, Dr. Shekelle, are you ready to share your screen?

Dr. Shekelle: I think so.

Molly: All right. And there we go.

Dr. Shekelle: Okay. So we got it now?

Molly: Yup.

Dr. Shekelle: Okay. All right. So we are going to talk about Electronic Health Record-Based Interventions for Improving Appropriate Diagnostic Imaging. Our group is going to talk about the review and the med analysis and then we are going to turn it over to Sherrill Snuggs and Charles Anderson to review some VHA experiences with this. So here our team included myself, Caroline Goldzweig, who is our ACOS for Clinical Informatics, Greg Orshansky and Neil Paige, who are two General Internists, Isomi Miake-Lye and Jessica Beroes, who are Research Assistants who are here with me today, and then Brett Ewing, who is a Statistician from the RAND Corporation. The stakeholders include the people that you see there who you are going to hear from all of them later in today’s webinar. So the evidence – for the people who are not familiar with it, this is part of the Evidence Synthesis Program, which I will talk a little bit about. And then we will go through the current report. We are going to give it to Sherrill Snuggs and Charles Anderson and then we will have time for questions and answers at the end.

So the ESP program. It is funded by the Office of Research & Development through the HSR&D Service. Its goals are to produce evidence synthesis reports on health care topics that are needed by VA leaders, managers and policy makers so somebody identifies a need and they send it to the ESP program, who then assigns it to one of the four sites, us, Durham, Portland and Minneapolis. And if any of you on the phone have an interest in any particular topic, the website there tells you how to nominate a topic for the Evidence Synthesis Program.

So this, the disclosure, this is research that we conducted here. The findings and conclusions are those of us. They do not necessarily represent official DVA or United States Government views. Yeah, so again, the ESP program is a partnered research program. So we have partners. And we also then recruit technical experts and external reviewers to help review our work.

So that is sort of the general background of the ESP program. Now we are going to talk about the current report. And it has also recently been published, or a shorter version of it. The full report is available on the VA Internet site and then a shorter version of it has recently been published in the Annals of Internal Medicine, as you can see here. So what was the context for this? Well, as everybody knows, the cost of care is going up and a big part of the cost of care is increasing use of diagnostic radiologic testing. And in the article and in the report, we quote a few example statistics like the 300 percent increase in CT exams over the last 12 to 15 years. And David Atkins alluded to the Choosing Wisely campaign started by the American Board of Internal Medicine, where they ask the various specialties to identify five interventions or procedures or diagnostic tests that were within their clinical practice that they thought were not high value care. And a large number of these medical groups identified one or more radiologic testing modality as something that they thought were low value, including CT for minor head injury in the Emergency Department identified by the American College of Emergency Physicians. Imaging for nonspecific low back pain identified by the American College of Physicians. Imaging for uncomplicated headache identified by the American College of Radiology and cardiac stress imaging in patients without high-risk markers from the American College of Cardiology. And the general belief is that more appropriate use of diagnostic testing or radiologic testing could improve quality and reduce cost.

So now there has been a lot of obviously efforts and interventions to try to think about how this might be done. Some of these have been using the electronic health record. And since VA has an electronic health record and has the ability to implement computerized decision support through the electronic health record, that led to the focus of this report on clinical decision support through the electronic health record to try to help improve the appropriateness and decrease the inappropriateness of diagnostic radiologic test imaging. Now remember, we are talking about diagnostic test imaging. We are not talking about trying to increase screening mammograms or anything like that or increase AAA screenings. We are talking about diagnostic imaging. So what do some of these things look like? And here is some examples pulled from three of the articles that we actually reviewed. So here is one about looking at possible head CT in the Emergency Department. So the computer screen asks the clinician to fill out these questions. Did the patient experience a loss of consciousness? Did any of the following apply to your patient, etcetera. You know, post traumatic seizure, Glascow coma scale less than 15, etcetera, etcetera. And then another screen has does any of the following apply to your patient. Short term memory deficits, physical evidence of trauma above the clavicles, etcetera. And again you submit. And then if you decided that you wanted to go ahead and get this and the clinical decision support was telling you that maybe it was not necessarily appropriate, then it gave you another chance to put in additional modifiers here that might justify wanting to get this test done. And then if you still wanted to do it, it would say that the clinical decision support thought you probably did not need to get it done under these circumstances and it gave you some references. And that thing was done in a Harvard affiliated academic medical center and what they found pre to post implementation was this increase from 49 to 76.5 of adherence to guidelines.

So another example. This is around lumbar spine MRI, which as Dr. Atkins already alluded to is going to be something that is a VA focus. So if you tried to order something that they thought was a, did not meet guidelines, they gave you this kind of a pop up. In addition, this study added what they call the accountability tools, which included what they called “near real-time” peer-to-peer telephonic consultation with a radiologist or internist when you attempted to override the guidelines. So if you tried to order it despite the CDS telling you that the CDS did not consider it to be appropriate, it actually then prompted you to then call to get this peer-to-peer telephonic consultation. And in addition, it also did quarterly audit and feedback of ordering patterns and those were individually reported back to clinicians. This was also done in a Harvard affiliated medical center and you can see guideline adherence rate increased from 78 percent to 98 percent.

And then the last example. This was actually done here in the VA actually, in this very VA that we are in. This was trying to change the rates of CT Angiography done in the emergency room. And it had you input various things in order to calculate a Wells score and if the Wells score was above four, you automatically were allowed to this. If the Wells score was less than four, it prompted you to get a D-dimer and then depending on what the D-dimer was, it either allowed you to go forward or it required you to get a pulmonary consult or a chest radiology attending physician approval for the study to be done. And the positive examinations rose from three percent to 16 percent following the implementation of this.

So I want to stop here for a second and ask for the people on the phone who are listening, has your institution implemented any kind of clinical decision support for diagnostic radiologic imaging? And I turn it back over to you here, Molly, right?

Molly: Yeah. So as our attendees can see, you have up on your screen right now a poll question and as Dr. Shekelle just said, the question is has your institution ever implemented a CCDS intervention for diagnostic radiological imaging? You can either click the circle next to yes or no and these are anonymous and you are not being graded so feel free to respond. It looks like we have had about half of our audience respond so far so we will give people some more time to get their answers in. Well it looks like we have capped off at about half of our audience. So I will just go ahead and close the poll and share the results. As you can see –

Dr. Shekelle: Okay.

Molly: Would you like to talk through it real quick?

Dr. Shekelle: Yeah, sure. Yeah. So about a fifth of you have, so about 20 percent have and about 80 percent have not. I expect those numbers to change in the coming year as the VA Choosing Wisely thing moves forward. So for the people that have, we are going to be coming back to you later on in this to ask what some of the experiences have been. So back to the presentation. So the key questions that were given to us by the VA stakeholders were what is the effectiveness of Clinical Decision Support interventions in reducing unnecessary or inappropriate imaging? Do they vary by system? And what are the harms or potential harms associated with use of Clinical Decision Support systems like this? So where we found the data. Well our center for the last decade has been reviewing health IT interventions in general. And so we have a large database of health IT studies that we have already identified. So we were able to search that database and then we did some additional targeted searches and then referenced mining of other published articles. We screened articles and extracted data using two independent reviewers. And then for the synthesis and the analysis, we did random effects meta-analyses as well as a narrative synthesis.

And so this is just sort of the general literature flow. We started out with nearly 1,200 studies or titles up at the top and ultimately we had 23 articles that we felt met all the inclusion criteria for this topic. Of these 23 studies, three were randomized trials, seven were time-series studies and 13 were pre-post studies, all of which assessed the effect of clinical decision support on diagnostic radiologic test ordering in adults. There are a handful of these in pediatric cases, too, but we were not considering those in here. Now of these studies, 13 reported on appropriateness, either the percent of appropriate studies that increased or the percent of inappropriate studies that decreased. Thirteen percent reported just on use rates but those were all in the context of such and such diagnostic testing is overused and so we did something to try to decrease the use of it. Five reported both of these. In the ones that reported both of them, the numbers moved in the same direction but appropriateness moves bigger or has a bigger effect than does utilization because utilization obviously includes both appropriate and uncertain and inappropriate uses. And so anything designed to try to move just one component of those will not move. The component will move more than the overall total will. So we had to consider those two outcomes as separate. The primary outcome is appropriateness and that is what we are going to present right now.

So here are the 13 studies. Now this is what we call a forced plot. We use these in the kind of systematic reviews in meta-analyses that we do all the time. Each of the rows is a study so the first is the study by Day and the next is by Chin and Wallace and the next was by Carton and then Rosenthal, etcetera. And then the sample size you can see. So 206 people in the Day study and 4,385 in the Chin and Wallace study, etcetera. And then next to – the little boxes and the little lines represent the point estimates and the 95 percent confidence intervals for the individual studies. And so you can see I have highlighted here the one by Rosenthal and the one by Drescher and the one by Raja just as examples. This is basically a visual depiction of what all these studies report in terms of their results of appropriateness. And then here at the bottom highlighted here now, this is the pooled estimate of all those studies together, and that pooled estimate shows that that is an effect side in the direction favoring the intervention of minus 0.49 with a 95 percent confidence intervals going from minus 0.71 to minus 0.26. And so an effect size of about 0.50 is traditionally considered to be a moderate effect size and it is about the same as the effect sizes that we were just looking at there. So from 40 or 50 percent appropriate to about 70 percent appropriate. Things like that.

Now here is what the data are for utilization. Much smaller effect size but still statistically significant. About a 13 percent reduction in use and you can see that the confidence intervals tend to be much tighter because these are in general much, much larger studies. So now one of the questions, though, is that. Actually, if you just go back a couple here. So if you go back to this one for just a second, you can see, though, that all of these studies do not reach exactly the same results. They kind of wander around a little bit on this forced plot. And so the question is is there a reason that we can discern for why some studies are more effective than other studies. And so as we were extracting the data from these, we developed four hypotheses for why studies might have differential effectiveness. One of which concerns the intervention, one concerns the setting, one concerns the implementation characteristics and one concerns the targets. And so for the intervention type, we sorted these interventions into four categories. One was they present information only in a non-patient specific manner. So it would say as you got ready to order whatever, a CT exam. For every patient regardless of what you were ordering, it would give you whatever the local guidelines were or whatever the national guidelines were. Then – and we call those the A level interventions. And then the B level interventions, those presented clinically specific information. So if your patient was over a certain age and they had certain clinical findings, you would get a different pop up than if they did not have those. So it was tailored to the specific patient presentation. And that was usually in the form of a pop up or reminder as you got ready to order something about that specific patient. And we call those the B interventions. And then the C interventions had all those same features but then if you actually tried to order the thing, you had to then, it asks you for a narrative justification. So any of you in the VA who have tried to order things in pharmacy, where it says that there is some kind of potential drug interaction and it asks you do you still want to continue, you will recognize that kind of intervention. It says reason for justifying it and you type it in. And then the D interventions are what we call – oh. And those last ones we call the soft stop. What we call the D interventions are the hard stops. They will not let you order it if the clinical decision support says that it is not appropriate. And those are the ones that then require something additional and we talked about one of those in those examples. Where you had to get this “near real-time” peer-to-peer consultation in order to get approval to order something that the clinical decision support judged was not appropriate. So those were the characteristics of the intervention. For the settings, we investigated whether it was going to be more effective in integrated care settings such as VA versus non-integrated care settings. The implementation characteristics, the only one that ended up we were able to test was the presence or absence of audit and feedback. And so we tested whether they looked like they were more effective if audit and feedback was used. And then the target had to do with whether it was targeting x-rays or whether it was targeting CTs, etcetera. And so now we are going to go through each of these.

So for the intervention type, here are the A studies, the B studies, the C studies and the D studies. And as you can see, there was only one A study and we had posited that these would not be very effective studies presenting non-clinically specific guidelines, but in fact this one had a really big effect. And we are not sure why but it may have been because it was being done in an integrated setting that had a baseline inappropriate rate of almost 50 percent. This was around getting upper GI tests in Kaiser and that posting their guidelines had this big drop in the ordering of inappropriate upper GIs. Now moving on to the B studies. The B studies there were quite a number of them and as you can see they kind of wander around in their effectiveness. Some of them were not effective or only minimally effective and then some where moderately effective at the bottom. But not a consistent result. And then we have the C studies. There were only two of these. One was really effective and one was only modestly effective. And then lastly the D studies. And the D studies were all highly effective. Those all had effect sizes 0.63, 1.01 and 1.05. So those are all highly effective interventions.

Now moving on to the settings. There were, as you can see, five studies in settings that were outside the academic health IT leaders and outside of integrated care and they had modest to maybe slightly bigger results then modest. Then in the academic health IT leaders, these are almost always academic university medical centers. A lot of them are Harvard affiliates. And you can see most of them were effective but not all effective. And then the last two were the integrated care studies, one in Kaiser, one in VA, and again, both highly effective. And then in terms of audit and feedback, unfortunately almost all the studies had no mention of whether they used audit and feedback, so there were only two studies. Both were pretty effective and so that is kind of a suggestion that audit and feedback may help with intervention effectiveness, but we did not feel the results here were quite as strong in order to be able to draw conclusions. And then on target, you can see there was one about chest x-rays. The ones about CTs kind of wander all over. The high cost imaging ones tend to look pretty good but they slightly differ in what their definition is of high cost imaging. The one that targeted a bunch of different things. At any rate, we did not see a real pattern in this forced plot about the target.

So, harms. Only four studies talked about harm, four out of 23. So barely 20 percent, or not even 20 percent of the studies actually reported whether they had looked for harms. And in one of them, a distinct harm was noted. So the percentage of inappropriately not ordered tests. So these are tests that were appropriate to get but were not ordered in the post intervention period increased from 1.9 percent to 9.3 percent in terms of chest radiographs. And so that is a suggestion that that intervention may have actually also been causing a harm. The more commonly reported harm were physician complaints about the intrusiveness of the intervention and that the intervention, they thought, was not helping them clinically and was intrusive on the clinician patient interaction.

So now let us stop again. So for those 18 percent of the people who have been at an institution that has had a clinical decision support, what we want to know is whether the results have been all positive, so it has been a really good thing. Has it been mixed? There have been some good results from it and some not so good. Has it been mostly negative meaning that people actually did not like it? Or has there just been no effect. Back to you Molly.

Molly: Thank you. I got a little nervous. Nobody had answered by the time you were done talking but it looks like people are finding the buttons and a little slow to respond. But take as much time as you need everyone. Again, these are anonymous. We are not going to grade your center or anything. Okay. It looks like only four percent have voted so I am going to give people more time.

Dr. Shekelle: Well, and some people may just not know the answers in their own institution, which is okay.

Molly: All right. Well I do not see the numbers increasing at all so we will go with your response, Paul. I am going to go ahead and close it now and share the results. So we had 100 percent say mixed.

Dr. Shekelle: Mixed results. Yeah. So mixed results. And so then the question then would be how can we make these things look more positive in going forward in the future. Next slide. So some of the limitations of what we just presented. First is the potential for publication bias. So we expect that there is actually a lot of institutions within VA and outside VA that actually have been implementing these things but have not yet gotten to the point of evaluating them and putting them in the published literature, which of course we cannot synthesize the results without seeing a published evaluation of it. Another limitation, and this is a big limitation, is the lack of reporting of harms. So when you only have harms being reported in 20 percent of the studies, you do not know what is happening in the other 80 percent. And then lastly, this poor description of context and implementation. In almost all health IT interventions, the technical aspect, the actual what the clinical decision reminder says and the software it is running on is really only part of the story. A potentially bigger part of the story is how the thing is actually implemented in terms of training the staff, using the audit and feedback, revising it in response to issues involved in its initial implementation, etcetera. And that is in general very poorly reported in these studies and in other health IT studies as well.

So anyway the conclusions that we had. Well computerized clinical decision support that is integrated in the physician order entry system of an electronic health record can help improve the appropriate ordering of diagnostic imaging studies. And that can help improve also includes decreasing inappropriate. So it can help drive up appropriate and decrease inappropriate. Interventions that include a “hard stop” to prevent clinicians from ordering imaging tests and intervening in an integrated care delivery setting may improve effectiveness. And lastly, the potential harms have been rarely studied.

So we want to thank our various peer reviewers on this list that helped us improve our report. We will be taking questions at the end of the next presentation so if you have any questions for us just hold them for now or send them by email or whatever the thing is. Whatever the thing is online to get it to Molly. It is not email. Sorry. Messaging. And now I am going to turn it over to Sherrill Snuggs and Charles Anderson for their review of the VHA experience. And Sherrill, you will just need to tell us when you want the slides to advance because we have control here.

Sherrill Snuggs: Great. Thank you. Can you hear me okay?

Dr. Shekelle: Yeah, I can.

Sherrill Snuggs: Yeah, okay, great. You can go ahead to the next slide. We wanted just to do a little piece of review what has already been done in VHA and what we know from the perspective of VA. So historically, inappropriate utilization of diagnostic imaging in the private sector has been partially attributed to ordering providers that have a financial stake in the process or the fear of litigation and were practicing defensive medicine. Lack of these incentives has led some to speculate that inappropriate utilization may not exist in VHA. However, there have been several studies done over the years which have shown that even with those factors removed or mitigated, that there is still a problem with inappropriate utilization. Go on to the next slide.

In 2006 the National Radiology Program contracted with American Imaging Management to conduct a study of our utilization rates as compared to commercial managed and unmanaged systems. AIM is one of the largest private sector utilization review companies. The majority of their clients are HMOs and health insurance companies who have experienced drastic increases in their imaging claims over the last few years. And they have claims information on more than 10,000,000 members covered by these groups. The study found that VHA CT rates were significantly above the managed and unmanaged commercial benchmark. That our CT use suggests the possibility of inappropriate ordering and that our MRI rates were relatively low compared to the commercial benchmark. Both high tech and low tech utilization and utilization growth showed significant regional variation as can be seen in the next slide. So go ahead to the next slide please.

VHA data was looked at by region and compared to both the managed and unmanaged market benchmarks established by AIM. According to research exploring the implications of regional variation and practice and spending on healthcare outcomes, these variations are largely unrelated to differences in price or levels of illness and instead, these variations have been attributed to differences in patterns of practice where areas of increased spending on healthcare being unrelated to patient outcome. You can go on to the next slide.

The next study was completed in 2009and was done by the National Radiology Program Office and the Office of Quality and Performance. To complete the study, OQP contracted with the external peer review program to review 2,000 patient records from ten facilities. Their reviews were done for appropriateness as based on the VHA approved InterQual Criteria and we limited the study to two CT exams and two MRI exams that were known to be problematic. Overall the results of the study showed a similar pattern of regional variation and inappropriate utilization as was seen in the previous benchmarking study. Next slide please.

The facilities selected for the retrospective review were chosen on the basis of size, location and sufficient utilization of the exams included in the study. Although the average percentage of exams not meeting criteria ranged from a low of 21 percent for CT chest to a high of 46 percent for CT abdomen, you can see from the graphs of the individual facility scores that there was considerable variation in the percentages and appropriate studies from one site to the next. Next slide please.

I am going to skip this slide. I was asked to withdraw it. This is pending publication but it did not dispute the results of the other slides. And basically from what we can draw from all of these studies is there is indeed inappropriate utilization that exists in VHA. So next slide is – yeah, that is great. So there have been several different methods tried to fix the problem at various facilities across VA. These have included education, order templates, use of nurses trained in utilization review and management, as well as an innovation project that integrated a computerized decision support software program directly into the order process. Most recently inappropriate utilization of many exams, tests and medical services have been called into question by the nationally sponsored Choosing Wisely campaign. This campaign is currently being supported and promoted within VHA. Next slide please.

One of the first methods attempted was the use of templates. Locally developed templates mostly targeting MRI or other high tech exams have been installed and used at various facilities including Tucson and Indianapolis. Both of these facilities reported an initial success with results around a 24 percent decrease in their order volume. However both saw decreases in the effectiveness of the templates at around six months, at which point utilizations began to creep back up to the previous levels. Similar results have also been reported with efforts to provide education and that small improvements would be seen directly after the intervention. However, the improvement was short lived. Next slide please.

In addition to templates, there have been some efforts to reduce inappropriate utilization of targeted high tech exams through the use of utilization review nurses. Indianapolis found that the addition of a utilization review nurse after the templates became ineffective restored the previous improvements. Las Vegas also conducted a trial in 2003 using a utilization nurse to review the orders for MRIs of the lumbar spine for appropriateness and their initial results were very promising. However, they reported that the project was not pursued at the time because of changing priorities for veteran care. Next slide please.

As discussed in the previous presentation, VHA has also had limited experience with the template using an EHR based intervention through a project funded by the VA Center for Innovation. Solicitations for the project was announced in February of 2012 and the contract was awarded to Medicalis the following April. The main goal of the innovation project was to develop an interface that would integrate a computerized off the shelf software product with current information systems used in VHA. Next slide please.

The goal was achieved and the project was taken one step farther by testing it in a live environment at one medical center. Testing identified several unanticipated bugs in the interface, which the vendor was quickly able to correct as well as a number of challenges that still need to be resolved. Volunteer physicians were recruited to test the product and help identify the major challenges of the project going forward, including physician resistance using the product, the need to gain better buy in from this group and the need for further development of the algorithms to customize the product for use in VHA. Next slide please.

And that brings us to the current Choosing Wisely initiative. The Choosing Wisely campaign is a collaboration between the American Board of Internal Medicine Foundation and Consumer Reports to promote conversations between physicians and patients in choosing only the care that is the most appropriate and effective. It is a collaborative effort of professional societies whose goal is to identify and reduce the use of medical tests and treatments that are easy harmful or of marginal value. VHA formed a committee to find a way for our organization to become involved with and promote this campaign. One of the first initiatives selected for promotion within VHA was the recommendation to not do imaging for uncomplicated back pain. There was a subcommittee formed to address this initiative, a template was developed for use by facilities that were interested in voluntarily joining the initiative. Building on the work done by those that have previously used templates, this one was designed to not only educate and direct appropriate utilization of MRI of the lumbar spine, but also to collect information on reasons outside of the criteria that inappropriate orders were still being placed after educational information had been provided. The template was tested at the Miami VA for six months and all information from the template was collected in the clinical history field, which is passed to the corporate data warehouse where it can be extracted through the use of a SQL query for analysis. Analysis of the Miami data showed that approximately 62 percent of their MRI lumbar spine studies were being ordered for low back pain. In the six months that was studied after the template was put into use, there was a ten percent decrease in the overall number of lumbar spine studies ordered as compared to the same time period from the previous year. Next slide please.

Of particular interest was the collection of reasons outside the criteria while these exams were still being done even when practitioners were provided with and knew the guidelines before they entered the order. For this facility it was found that the great majority of exams were being ordered as a requirement or a prerequisite for referral to specialty care followed by a patient request or insistence. This suggests that there needs to be separate programs developed for patients and providers. Patients need to be provided education on why an imaging exam would not be useful and offer self-care alternative. Practitioners need to be provided with alternate treatment programs that avoid the use of specialists as a first step and which may be useful in reducing the number of inappropriate exams ordered. Next slide please.

In conclusion, given our experience to date, we found that templates and education have been shown to be useful but have limited effectiveness. Having a UM nurse conduct reviews and provide feedback has also been shown to be effective but occurs retrospectively and will not address the need for patient education, especially in the case of MRI for low back pain. Computerized decision support software shows promise but needs further development. Limited experience has shown problems with physician acceptance that would need to be addressed. And finally, no matter which approach is used, those that have targeted specific problematic procedures instead of trying to implement a review of all diagnostic procedures has proven to be a better approach in alleviating the problem. Next slide.

And that concludes my part of the presentation. And we have contact information here for both the National Radiology Program and the ESP Program. And I will hand it back to Paul or Molly.

Dr. Shekelle: Actually to Molly.

Sherrill Snuggs: Molly to finish up.

Molly: Excellent. Well thank you both so much for your contributions to that. And for our attendees who joined us after the top of the hour, to submit your questions or comments, please use the question section of that go to webinar dashboard that is on the right hand side of your screen. You can just click the plus sign next to the word questions and that should expand the box where you can then type it in and we will get to them in the order that they are received. If by chance that dashboard has collapsed to the side of your screen, just click that orange arrow and that will re-expand it. The first question we have: when effectiveness of templates starts to wear off, does it help to rearrange the order of questions or reword the questions so the provider has to read them instead of just automatically answering them?

Dr. Shekelle: Yeah, I think that question is for Sherrill.

Sherrill Snuggs: I think so. Well, I can put people in touch with either Tucson or Indianapolis but their theory on it was that the physicians kind of became a little jaded and found workarounds. They became wise to how to answer the question to get it approved or they found a way to avoid the templates.

Molly: So there was no changes made to the wording at any time.

Sherrill Snuggs: Not that I know of. Not that I am aware of.

Molly: Okay. Thank you. The next question people are asking if – let me see. Is the VA bound by CMS guidelines to implement computer decision support by 1/1/2017?

Sherrill Snuggs: We generally – somebody else want to take this? I can take it.

Dr. Shekelle: No, no, no, no. Please. Take a crack at that one.

Sherrill Snuggs: I do not believe we are required but generally we do follow the same guidelines that CMS puts out there. However, if the insurance companies decide to adopt and will only reimburse that could affect our – is it still called NCCS [PH] collections, where we bill insurance for non-service connected. So kind of a yes and no. We generally try to follow it but I do not believe we are required by law to follow it because we cannot bill Medicare and it is a Medicare rule.

Molly: Paul, did you want to add anything to that?

Dr. Shekelle: I am afraid I have nothing to add to that.

Molly: Okay.

Dr. Anderson: Yeah, so this is Charlie Anderson and I think that this law, it will become law. I think it is really going to cause a rather rapid evolution in the decision support business for imaging. There will be some pretty quick feedback to the companies. I mean so far most of the people who have been working on this have been out of academic centers. Other than that, they are using call centers or web based questionnaires. But I think that this law is going to result in a rapid evolution and I think that the primary care providers will become more used to having this as a part of their every day working environment.

Molly: Thank you, Dr. Anderson, for your input. I know we do have – Dr. Atkins, I do not want to put you on the spot, but if you have any information to add to any questions, feel free to jump on in as well.

Dr. Atkins: I think one interesting question. I am sure Paul does not have the answer is that of these studies that showed an effect, whether the institutions that did them actually continued the programs after the research. I do not know if Paul has any anecdotal information from the systems that had successful tries. Whether those interventions stayed or whether they diminished because of some of the barriers that have been alluded to.

Dr. Shekelle: Yeah, you know that is a really great question, David, and we did not. I mean the articles, I mean I think when we looked for that but we did not see it in the articles. But that would actually be an easy follow on. We could write letters to those guys and ask them what has happened.

Dr. Atkins: Yeah.

Dr. Anderson: Then the other interesting question. We had some research studies underway that might allow a look at that. In an era of big data, well, let me back up to a question. Do we know, this is for Sherrill. Do we know about provider level variation? I mean so you alluded to some institutional level variation but is that? Is underlying that provider level variations and which raises the question if we think hard stop interventions are more effective, could we think of a world where we direct hard stop interventions at the providers whose practices are most out of bounds. But do not subject providers who are generally judicious in their use of these tests to the same kind of barriers.

Sherrill Snuggs: Sure. The ones that I have seen that have explored. There is one group ordering more inappropriately have been primary care and the emergency room are always cited as the group that kind of fall into that group. And I know when we did look at bringing computerized solution in, that was one of the questions that we asked is that could it be customized depending on what the ordering provider specialists, what specialty they practiced. And we were told that yes, that would be possible. So I know the pending study has some information and a couple of the other studies have looked at who was doing the inappropriate ordering. And they did find the ones that, the previous studies, that it was mostly primary care and the emergency room but not always. And often it could be attributed to high utilizers of physicians that were basically outliers.

Dr. Anderson: Yeah, I think, David, your question was actually could you identify, could you target this not just at the clinic level but actually at the individual provider level. And that would be fascinating, would it not? To be like if you keep your utilization below a certain percent, you sort of have a free pass and if you go over that, then you get subjected to more rules. That would be a fascinating thing to look at.

Dr. Atkins: Yeah, I learned a term at a recent low value conference called earned autonomy.

Dr. Anderson: Yeah, yeah.

Dr. Shekelle: Well, yeah, you know there are hospitals in the NHS that have that. And so that if you are a high performing trust, then you are no longer subjected to certain kinds of oversight.

Molly: Excellent. Well thank you all for your contributions to that question. If you are ready, we can move on. The next question: does the literature say anything about the limited duration of the effectiveness of “deficient support?”

Dr. Shekelle: Yeah, right. So this is the same thing that David was also alluding to, that almost all of these studies were pre-post studies. So that they just had one time point at the beginning and one time point at the end. And so they cannot really talk about that kind of trend. Not all of them are like that, though. Some did have multiple time points. And the ones that did, they would kind of show a quick drop off and then a plateau. And then the plateau is have you really reached the level of where everything is appropriate or have you just reached the maximum effectiveness to this? I did not see any of the ones that we were looking at like Sherrill talked about, where it started to turn around and go the other way. But I would not be surprised at all if some of that happened. And I certainly imagine the minute you turn it off, like Dr. Atkins was alluding to, that some, possibly all of the effectiveness disappears once the thing is turned off.

Molly: Would anyone else like to contribute to that? I will take that as no. Somebody does have a follow up to that. Why would we turn it off?

Dr. Shekelle: Well, I mean I do not think there is any necessary reason to do it. I think what Dr. Atkins was saying is once the research study that supported some of these 23 disappeared, what did the institutions do? Because you can see that at least in one of these that Sherrill presented, it was not around the decision support per se but it was around some of the other things. Is that the decision changes priorities in terms of what it was going to technically support and so they just got rid of it. And so the point I was making was not that you would turn off a desired effective intervention but that some kind of continued intervention would need to be going and Sherrill’s data would suggest need to be augmented in order to continue to be effective over time.

Sherrill Snuggs: Yeah, in that study they decided to use their resource in a different way because all of these interventions require some sort of resources dedicated to them. And if they decided that their return on investment would be better used elsewhere, then they may shift their priorities.

Molly: Thank you both for those replies. The next question: I am currently at ACR Conference and in regard to the question about the facilities still using computerized decision support, it would appear so but with many modifications after implementation.

Unidentified Male: Yeah, you would expect that. I think that the successful interventions are going to be the ones that modify themselves the most after initial implementation in order to be responsive to the inevitable problems that happen when you implement anything new. The history of these kinds of help IT interventions is that it takes a while for both the flow processes to catch up with the help IT intervention but then also the help IT intervention to be modified appropriate for the flow processes. So I totally agree with that comment and I suspect that that is the mark of good interventions, not bad ones.

Molly: Thank you for that reply. The next question: does it make sense to address the problem by offering the clinicians with alternatives to imaging?

Sherrill Snuggs: Well that was from the Choosing Wisely part, the alternative to imaging. Yes, if the imaging is not going to be useful in determining what is wrong with the patient. It may only lead to other more expensive and unneeded tests or surgery. And sometimes especially for low back pain, which I believe that was speaking to, physical therapy, just waiting and seeing, and waiting and taking other conservative measures is just as effective as doing the imaging because the imaging does not provide them with any information. It could lead to harm and by saying no, an imaging is not going to be useful to help diagnose you. What we need you to do is do this physical therapy or other conservative. That was what was meant by alternate therapy.

Unidentified Male: Yes, so it is especially important for the patient. So if the patient’s expectation is I show up with back pain and therefore I should get an MRI, then it is good to enroll the patient into some alternative program so they feel like they are being taken seriously and their needs are met and there is some systematic approach rather than just going home and saying well. It will go away in a few weeks. So yes, that could be an important way to avoid more expenses and potentially harmful procedures.

Molly: Thank you. Does anybody else want to chime in before we move on? All right. The next question: is there a plan to build your own radiology decision support system or purchase one from a vendor? There was a recommendation from a Kaiser speaker to “try not to merge two but to start a whole new venture.”

Sherrill Snuggs: We do not have any plans currently. We did put in a new service request some years ago and right now, our IT support that would be needed to support software, a new software integration, is just not available in our system.

Dr. Anderson: Yeah, I want to echo that there are very little funds for software development in VA right now. But I think with time – I mean if this becomes ubiquitous in the private sector, then I think VA will go that way as well.

Molly: Thank you. While we wait for any last minute questions, I would like to give you all the opportunity to make any concluding comments if you would like to. Dr. Shekelle, do you have anything you would like to wrap up with?

Dr. Shekelle: No, other than I think that this is something that is coming and I think that it is going to be the kind of thing where a lot of experimentation is going to be a good thing. And I just hope that people will try to evaluate it as much as they can and get it into a format that is searchable online. So that when we do this thing two years from now, we have many more of these kinds of studies to evaluate rather than letting the evaluations just sit and stay inside their own individual institutions.

Molly: Thank you. Sherrill, do you have anything that you would like to add?

Sherrill Snuggs: My only thing is if the law does go into effect for 2017, I think we will find that when we initially looked at doing the computerized decision support, there were literally three products on the market and that is it. So hopefully if this does go into law, we will see a lot more development out there and some of them may be a better fit for us. So I think it is still a promising field.

Molly: Thank you. Dr. Anderson, do you have anything you would like to add?

Dr. Anderson: Well, I just want to point out that the expression is Choosing Wisely, not Denying Wisely. And that effective decision support programs – a program will be most effective if it does not just tell people what not to do but rather defines a practice guideline.

Molly: Thank you for that. And Dr. Atkins, would you like to add anything?

Dr. Atkins: No, I just want to thank all the people who worked on this report. Very interesting findings and we will keep people posted as we learn more from the Choosing Wisely effort.

Molly: Thank you. I do have just two quick things to go over before I let you all go in a minute. One last question for Paul. Did you find any cost benefit of these systems?

Dr. Shekelle: Nope. Zip. We looked for it. Was not there.

Molly: Thank you. And Paul, I am going to ask your group to back up to slide seven because people are asking if the report is available now. And I know that your slide seven has the web address that people can go to. And I will just read it while you are getting there. So you go to the www.h – there we go. So it is on the ESP page and you can find this report and all previous reports up there. So we are getting near the top of the hour. I very much want to thank our presenters today for lending your expertise to the field and for going through all the legwork of getting this report done. Of course, I would like to thank Dr. Atkins for joining us today and providing your comments. And thank you to our audience members for joining us. Please feel free to go check out the full report and pass it along to any colleagues you feel may be interested. We did record this session and two days from now you will receive a follow up email with a link leading to the recording and to an archive of the handouts so you can also pass that link around to any colleagues you feel need to hear about this topic. So once again, thank you everyone and I am going to close out the meeting. And please wait just a second while the feedback survey comes up on your screen. We do read your answers very closely and it helps us decide which sessions to support and how to improve our program. So please do answer just a few questions. Once again, I want to thank everyone for joining us and this does conclude today’s HSR&D cyber seminar presentation. Have a wonderful day everybody.