

**Center for Medicare & Medicaid Innovation  
Bundled Payments for Care Improvement Initiative**

**Accelerated Development Learning Session #4:  
What to Pack in your Bundle: Episode Selection, Definition  
and Clinical Management for Care Improvement**

**Tuesday, March 13, 2012, 12:00pm – 1:15pm ET**

**OPERATOR:** Good day ladies and gentlemen and welcome to the Bundled Payment for Care Improvement ADLS #4. My name is Jasmine and I'll be your operator for today. At this time all participants are in a listen only mode and will remain muted for the duration of the conference. If at any time you require operator assistance, please press star followed by zero and an operator will be happy to assist you. I would now like to turn the conference over to your host, to Ms. Weslie Kary, Principle Project Specialist. You may proceed.

**WESLIE KARY:** Thank you. Good morning everyone or good afternoon as the case may be, and welcome to our fourth ADLS Session, What to Pack in your Bundle and we're going to be talking today about Episode Selection, Definition and Clinical Management for Care Improvement. Before we get going a couple of things you should know, and excuse me I have the wrong slide. First of all, we will be posting a transcript of this call and an audio file and the slides by probably about the end of this week or Monday of next week, you should be able to find these slides at <http://cmmi.airprojects.org/bpci.aspx>.

And then secondly, as always the views that are expressed on these presentations today are the views of each individual speaker and do not necessarily reflect the views or policies of the Centers for Medicare and Medicaid Services. And the materials provided are for educational use and has no bearing on participation in any CMS program. Our objectives today are as always to support you practitioners in your efforts to successfully implement bundled payments, and specifically to implement bundled payment in support of the three part aim.

And we are lucky and grateful to be able to share expert knowledge with you and lessons learned by early adopters and also we set the stage for continued collaboration as we move into the implementation phase. We have two presentations today. The first is from Rob Mechanic. And he's going to be talking about episode selection and construction.

And then Dr. Thomas Graf will talk more about preparing for the actual implementation, so once you've chosen your episode based on factors that can be influenced and defined the episode to include those factors how do you actually influence them through clinical management practices.

We're going to have both presentations and then we will do a Q&A. And to ask a question you want to click the "Ask a Question" button at the bottom of your screen. We're not going to be doing live questions, so you can start queuing up these questions at any point and we will have a question and answer session about a half at the end of these two presentations.

I'm going to introduce both presenters and then we will turn the slides and the voice over to our presenters today. So our first presenter, Rob Mechanic is a Senior Fellow at the Heller School of Social Policy and Management at Brandeis University. And he is also Executive Director of the Health Industry Forum, a national program which works on strategies for improving the quality and effectiveness of the

U.S. healthcare system. Before he was at Brandeis, Rob was a Senior Healthcare Analyst with Forester Research and was Senior Vice President at the Massachusetts Hospital Association and also he was Vice President with the Lewin Group.

Dr. Thomas Graf is the Associate Chief Medical Officer for Population Health and Chairman of the Community Practice Services Line for Geisinger Health System. Dr. Graf is responsible for value engineering, reengineering of the care continuum and other population health initiatives for Geisinger. And he has also implemented nearly 40 NCQA level three accreditation medical home sites in the Geisinger Proven Health Navigator Model.

So we're very lucky to have both of these presenters with us today and I want to queue up their presentations and turn it over to them. Okay, Rob can you see your slides?

**ROBERT MECHANIC:** I can see it on the main screen, but not on the sidebar screen. Do I have to continue going down? Yes, I've got your presentation on the sidebar. Okay, here we are. So thank you Weslie. I think I'm supposed to say by way of disclosures Brandeis University is working with a number of hospitals including the Geisinger Health System on providing analytic services for the bundled care program. Brandeis University is also working CMS on a variety of projects including work on an episode grouping system. So those are our disclosures for the presentation. And again this presentation includes my opinions and probably that of my colleagues at Brandeis.

So what I'm going to do today is basically give a very short overview of bundled payments just to make sure that everybody is on the same page with the basics. We'll talk a little bit more about the characteristics of bundled data, which I'll rely heavily on the RTI report which has some great information and I recommend it to all of you. We'll talk about the major elements of designing bundles. And then I think risk is an issue that is on everybody's mind, so we'll talk a little bit about what the sources of risk are, how do you measure risk and how one might go about adjusting for risk.

So let's just start with a schematic of a bundle. And there are really four elements to a bundle that you have to think about. One is what triggers the beginning of the episode? The second issue is once the episode is triggered how long is the episode? The third is you need a series of rules to determine which claims are counted towards the episode and which claims are not. So in the context of this program we're talking about rules for exclusions. And then the fourth issue is you need some mechanism for controlling or adjusting for risk. And so again in this case in this particular demonstration the trigger is obviously the admission, the bundled payment admission. Although the question is which DRGs are going to trigger the bundles?

Now importantly the question of pricing comes up and so this schematic shows just a schematic of how you would get to a target price. So remember we're starting with historical data from 2008 and 2009. And so your groups with your analysts as we do at Brandeis will come up with a series of definitions for episodes and then apply that to the historical data and apply whatever risk adjustment model to come up with a historical cost per episode.

Then the way we get to the program year is two things happen. The first is that CMS will be developing a trending factor which will take these historical costs and update them to the performance year. The second thing as you know is that as part of your bid you must offer a discount on the episode, so in this case just for an illustration we've put in a three percent annual update and a three percent discount, which is not just on the DRG it's on the overall episode.

So that would lead you to your target price in the first performance year. So next when you actually go through the performance year and CMS would look at the data and then we ask the question what are your actual costs? So we would take that same episode definition, we would apply that same risk adjustment mechanism and come up with your per case actual cost. And then the question is, is your actual cost above or below the target price? If it's below the target price the government writes you a check, if it's above the target price you write the government a check.

And the important thing to think about as we go through this discussion particularly as we talk about risk is this period between historical data that's used to set the rates and the actual performance period. So there's a window and things can happen in that window that may affect risk and risk profile.

Now I'd just like to talk a little bit about the opportunity, and this is a chart that was developed by the Medicare Payment Advisory Committee, and what they did in this case is they looked at a CHF bundle, the admission plus 30 days. And they took a group of hospitals and they split them into the low, so this is the 25 percent of hospitals had the lowest total episode cost, the average, which was between the 20<sup>th</sup> and the 75<sup>th</sup> percentile of hospitals and then the 25 percent of most high cost hospitals. And then this chart, and it's circled in red, shows the difference between the low group, the bottom 25 percent and the high group, the most expensive 25 percent.

So you can see across the episode there is some variation but it's not that great in total episode cost, about 42 percent. When you look at the hospital basis, and this is also normalized for geographic wage index and indirect medical education and other things like that, the variation is zero. That's because when we talk about the hospital cost as applied to the bundle it's actually not your cost, it is what Medicare pays for that DRG. So their variation in the DRG is essentially zero. But look where their variation is: 170 percent variation, the readmission cost and 142 percent variation in post acute cost.

And when you look at those figures there's two things, one is there is an awful lot of opportunity to take out wasteful spending. There's also an awful lot of opportunity to improve quality while you lower those numbers. So this is really the opportunity and I think it's the hope of a program like this that we would begin to compress those numbers and create more efficient care.

Now I want to give you just a little bit of a sense of the dynamics of the bundles and what's in the bundles. So here we've picked five DRGs. These are among the top 20 in terms of their volume and their total amount of post acute care. So we've got joint replacement, pneumonia, heart failure, renal failure, etc. So this is what you were paid in 2008 by CMS for the DRGs. Now let's add to this a 30 day window and let's ask the question, and this is now of course from the perspective of CMS, they're looking and saying what are we spending for these patients that are admitted with these DRGs?

So the light blue bars show you the total spending for post acute care costs 30 days after discharge. And if you take a look at it, I mean it's fairly mind boggling. We think of the hospital as being the most expensive piece, but joint replacement, for example, you're spending slightly less than 50 percent of the episode cost in the post acute setting. And when we move to these chronic bundles like heart failure you're spending, for every dollar you spend in the inpatient setting you're spending two dollars in the post acute care settings.

And by the way for these chronic bundles this is including very high rates of readmission. So again there's great opportunity in the post acute care setting. And for many hospitals this is a view that you've never seen before because you don't get this information. You know what happens in your institutions, but not what happens outside.

Alright I want to show just two quick profiles, and again these data for the RPI. Again the 470, major joint replacement is probably the highest volume DRG in Medicare. But if we look at the index stay plus 30 days, and I'm sorry we skipped ahead to heart failure. So for joint replacement this chart shows in the left hand column for each post acute setting what percentage of patients who were discharged in DRG 470 go to that post acute setting. And then on the right hand side it shows for those people who go to that post acute setting what is the cost they occur in that setting.

So first of all you can see in this, you know, a fair number of joint replacement patients go to SNF and that's at a cost of about \$9,000 and a lot to home health. And the readmission rate here is relatively low at about 12 percent relative to total, although the readmissions generally cost more than the index admissions.

Now let's take another look at, and this is heart failure with complications. Now here you see a slightly different picture. Few of these patients compared with joint replacement are actually discharged from the hospital directly to post acute care. But ultimately more of them end up with post acute care cost. You can see more people in SNF setting, about the same number of people with home health. And look at that readmission number, 42 percent of people in this DRG are readmitted to the hospital within 30 days. And that is definitely an area for improvement.

Now to give you a sense, and we talk about risk the overall distribution, we all know that there's significance variation in cost across individual patients and that it's substantial and also that the distribution cost is skewed and so a small percentage of patients is responsible for the majority of health spending in any given year. So here we're looking at a CHF episode and we're looking at not the hospitalization but actually the post acute care costs and showing a distribution for a large population of patients. So you can see the red line that's at 25, 50<sup>th</sup> and 75<sup>th</sup>. Those represent the percentiles.

And so the bottom 25 percent of cases incur virtually no post acute cost. The next 25 percent of cases are relatively low. And you get the median, the half way point and the post acute spending for CHF is about \$10,000. But look at this last quarter of patients. So you're starting at about \$30,000 and going on, well up into the \$100,000 range for post acute care.

So this last portion, this 25 percent of patients, or even the 10 or 15 percent of patients first of all is your biggest source of opportunity for savings and for improved quality, but also when you get up to this side this is where we worry about random risk, because think about this way if you have 100 cases and one of your cases is a \$100,000 case and that's what your base year, and so we just happened to get two of those \$100,000 cases in the following year.

Well, across your 100 cases that adds \$1,000 per case in your actual cost. And that can be completely random. So again this upper end in the distribution it's where the opportunity is, but it's also where we worry a little bit about risk.

Okay, so let's go to bundled buildings. So there are three main issues. The first is picking your DRGs. And I've got this point that says individual versus accrual bundled DRGs. Now it turns out further guidance from CMS which is that you have to price all of your DRGs separately for episodes, but also the CMS guidance that said that you have to include families of DRGs together. So, for example, I will show you a couple of examples. For CHF there are three levels of severity for CHF admissions. You would have to include all three of those DRGs in your application if you want to do CHF episodes, although you would price the individual bundle separately.

So the second thing you think about in selecting DRGs, you want to look at your frequency or your volume and how they vary over time, so that gets to your level of risk. And you also want to pick DRGs that your clinical team and your post acute partners are prepared to work with you. And Tom will talk more about that. Now the next thing, once you selected the DRGs is you're able to do exclusions.

One of the important things is that CMS is not going to allow you to take some of a particular DRG but not others, because they're worried about risk selection or cherry picking. So you must take all patients, if you pick the CHF DRGs you have to take all patients that come into your hospital with those DRGs. Now what you can do by way of exclusion are two things. One is that you can exclude certain readmission DRGs and the second is that you can exclude some Part B services. So, for example, if you have CHF patients you might want to exclude readmissions that are for elective knee replacement or elective hip replacement.

Those really have nothing to do with the index admission, you know have no responsibility for them; net cost shouldn't go to your DRGs. The second thing that you can exclude are specific Part B services. So, for example, for knee replacement patients you might say gee, we don't want any injected or any infused chemotherapy agents that are paid under Part B because those have nothing to do with the index admission. So that's a very painstaking process, you have to do it with clinical experts. But those are two ways that you can exclude services. You have to think about your episode length and then risk adjustments. So we'll talk about more of those in a second.

I want to give you just a couple of examples of bundles. These come from the Healthcare Incentives Improvement Institute, better known as Prometheus Payment. And so these are just a couple of examples of DRGs that they bundled together for an episode; the first one CABG surgery, the second one being PCI. Here are two more. Just by way of example these are one of the ones I've talked about, heart failure. There are three at different levels of complications. Here is another common one, Asthma/COPD. I would advise to people to take a look at the Prometheus Payment website. They have a lot of good information, technical information that will help people with bundled design.

Alright, so let's talk about risk. This is really the last piece of my talk. And there are two basic issues. You have essentially risk, you have random risk, things that happen that are beyond your control, statistical risk and then you have what's called unsystematic risk, so that would be certain things that are happening in your population that biases the kind of patients you see.

So if we look through some of these issues, the first big source of risk is low case volume. If you only have a few cases it's more likely that you will see some of those high end cases in a particular year. So you can have either a very high cost or a very low cost relative to your baseline. And that risk goes away the more volume that you have. The second related issue is this of outliers, which is getting catastrophic cases.

A third is now I said heterogeneity, which means the mix of DRGs, that your mix of DRGs could change in an episode. But it turns out because CMS has said you have to price each one separately that source of risk goes away. However, you still have the problem of within DRGs in a particular year you can have a sicker mix of patients that you get in the base period. You could also have a healthier risk. So it cuts both ways; it could be both a benefit or a problem. But this is randomness, randomness in the patients who walk through your door.

Now remember when I showed them the chart where we showed the position, the timing from the base year into the performance year. And so this third point about changes in case mix or patient mix or

service mix over time, the issue is whether there's something systematic that happens and who comes to your hospital or is admitted or in your practice pattern.

So, for example, if in 2008 you did all of your angioplasty in the hospital but over time you began to say gee, we're doing our simple cases, we now have the capacity to do those as an observation stay or in an outpatient setting and then all of a sudden the severity of your angioplasty cases you're having sicker patients over time. So that would be a systematic bias which could cause you to lose money in the performance year if you don't have a way to adjust for it.

Now other sources of risk are complications. Some of those might be under the control of hospitals, so hospital acquired conditions. If you can reduce hospital acquired conditions you can reduce episode costs. And so that could lead to better outcomes. That's actually performance risk that you can manage. But then there's the presence on admissions. So if you get patients who have more conditions on admissions that's random risk that could increase your risk.

So finally we have the issue about care redesign protocols. And one of the big sources of risk is really when you sign up for this can you execute on the strategies that you're going to try to implement to provide more reliable, more standardized, more high quality care. And Tom will talk about that at length.

Now I want to give sort of an illustration of the impact of case volume on random risk. So again this is talking about the mix of patients who walk into your hospital on any given day or any given year, may vary slightly, just randomly, something you have no control over. And so what this is doing is modeling a CHF episode. So this is the post acute spending; it doesn't include the indexed DRG and this shows a range. And so the little diamond in the middle is the expected post acute spending per episode for different cohorts of hospitals.

The first cohort, which is the left hand bar, has 25 to 50 cases in a year, the second has 51 to 100 cases, third bar has 100 to 200 cases and the fourth bar has more than 200 cases per year. And so what we've done is looked at the random variation. And so this shows a distribution from the fifth percentile to the 95<sup>th</sup> percentile. So at the top there you see on the left hand bar for a hospital with 25 to 50 cases there's a five percentage chance that your cost could be \$9,200 per case above the expected value.

At the bottom there's also a five percent chance that your cost could be \$7,500 below the expected value in which case you'd have a big surplus on your episode. Now this is why case volume is important. Let's move across to the right, you see that range narrowing. And so if you have 200 or more cases now your potential gain, your potential overage is \$1,900. That would be a random hit with a five percent chance.

And on the lower side you have a five percent chance that the people who walk in the door are \$2,800 lower than the average, which would be a surplus. Now remember that I'm showing this in a very narrow way. And really you should think about risk in a more holistic way. So while you might have a moderate volume of CHF cases if you're doing multiple episodes, if you're doing CHF, COPD, joint replacement, this random variation is going to cancel out across multiple episodes.

You're going to see it, and the narrower your episodes, the more you're going to see it, the more you have a breadth episodes and more DRGs and more cases, even if they're across different episodes, the more your random variation is going to cancel out. Also remember that this project is multiple years.

And so the random variation if you're doing a three year program is going to cancel out as opposed to just a one year program.

And finally you know the DRG you're also taking, you're already today taking risk on the inpatient DRG itself. So the only additional risk that you will bear on the inpatient DRG is going to be your discount, your two or three or if you have a higher discount, the discount you give on the DRG. But there's no added risk on the inpatient side. So my advice is really to think about this risk and this variation very holistically.

Now you still may be worried about risk so how do you reduce the level of risk. And there are several things to think about. Probably the most important for the non-systematic risk is strong clinical intervention; it's really good clinical reengineering that's consistent through your hospital, is going to help you reduce risk and create surpluses under the episodes.

Secondly, of course bundle design. And these are things that are fairly straightforward. You want to select high volume DRGs, you want to pick episodes that have a larger number of DRGs to spread out the impact and you want to have multiple episodes. That's not a bundle design. But all of those things will reduce the random variation. Now you can have a narrow clinical focus, a single DRG. But that actually is going to have more random variation unless your clinical focus is so good you think you can manage those cases and really tightly and keep the bands low.

And a third thing in the design you can do is you can take out exclusions. Then the other two big pieces, well, one is going to be risk adjustment and I'll talk a little bit more about that. And then the second issue you can always go and purchase reinsurance. And let me just give you an example of reinsurance. Now I'm going back to the example from a couple slides back where we looked at the variation in post acute care cost for CHF episodes.

But now I'm taking the hospitals with between 100 and 200 cases. And so the left hand bar what we are showing, and it looks like the slide has just jumped, so let me go back. On the left hand bar we're showing the variations considering all the claims, so your five percent chance, you have a five percent chance of being \$3,700 above the expected cost if you're a hospital with a 101 to 200 cases. And that's the band. You also have a five percent of a big windfall of approximately the same.

Now if you go to a reinsurer and you say I want to cap my risk on these cases at the 99<sup>th</sup> percentile; that is to say that we're not cutting cases out, but we're saying that the reinsurer would pay any amount above the most expensive case at the 99<sup>th</sup> percentile that band drops down, so that your five percent chance of a loss, of the maximum loss drops from \$3,700 to \$2,900. If you say let's rather than capping it at the 99<sup>th</sup> percentile let's cap it at the 95<sup>th</sup> percentile, then that upper end potential overage in cost drops down to \$2,600, and at the 90<sup>th</sup> percentile, \$2,500.

So what that goes to show is that a little reinsurance may get you a fair amount but a lot of reinsurance doesn't really make that much difference and again you may be better off having multiple, more DRGs and more episodes rather than going and paying a lot to reinsure for a relatively small gain in risk.

I'm probably running close to the end of my time, so just a couple of quick things. There are a variety of things you can do to adjust for risk. Number one, DRG case mix set actually is now a non issue because CMS has made it clear that you're pricing DRGs. The second thing that you might want to adjust for is what happens during the stay and particularly principle diagnosis. So, for example, if you look at hip

replacement and you look at the principle diagnosis, if the principle diagnosis is osteoarthritis it turns out that the average cost is relatively low and the average variation in that cost is relatively narrow.

But now you look at the principle diagnosis and it's infection, hip replacement and it's infection, the average cost is very high and the variation is very high. That might be something that you want to try and exclude. Or I'm sorry I can't exclude it because you can't exclude the DRG, but it's something that you might want to build into a risk adjustment model. And the third thing you want to think about in terms of a risk adjustment model is what happens before the patient is admitted.

So this is an approach that's used by Medicare Advantage plans, they look at prior year claims and they look at things that predict future costs and so they build that into a model, and so that actually if you build in prior events that leads to a more robust risk adjustment model than simply than events during the stay.

Now if people are completely confused or without about risk I want to put this into perspective, and that is if you look at your overall book of business in a hospital your total revenue, and this is just a back of the envelope calculation, if your total revenue is 100 percent, if you look at your ballpark, your percentage of total Medicare inpatient revenue, say it's 40 percent. Now if you pick ten percent, enough episodes so it makes up ten percent of your inpatient cases or revenues, ten percent of 40 percent is four percent. So now you have four percent of your inpatient revenue involved in DRGs.

Now if you then apply the CMS discount, and I'm going to just pick for illustration three percent, you apply three percent to the four percent but you double it because half of the episode care is for post acute and you have to give a discount on that as well, now you're looking at if you perform exactly the same in your performance year as you did in your base year and so you lose your three percent discount we're talking about two tenths of one percent of revenue. And that's not very much. And so I would advise to people first of all you're not going to get rich in this demonstration, you're not going to make tons of money, and the other thing that's going to happen you're not going to lose your shirts in this demonstration either. You could have losses, but they're not going to be that big in general.

And so the biggest value of getting involved in this project is the learning experience. This is a very valuable opportunity to work with your clinicians to get your teams together and to learn and to get prepared for change, which you're going to be seeing in the government payers and you're going to be seeing in the private sector. So where do you go from here? You build your bundles, you assess the opportunities and then it's really looking internally, looking at your capabilities, asking about your readiness, and developing a set of strategies to provide more high quality reliable care.

And with that I'm going to turn it over to the expert in that which is Dr. Graf.

**DR. THOMAS GRAF:** Thanks, Rob.

**WESLIE KARY:** Excuse me, this is Weslie. Thank you very much Rob. We've been having some problems with the slides advancing at the same tempo. We're seeing them as presenters, but the audience is not seeing them at the same tempo. So just wanted to interject here, Dr. Graf be sure and click on the top of the thumbnail when you're advancing the slides and maybe take a breath between each one to give the slides a chance to catch up with you. Okay?

**DR. THOMAS GRAF:** I think I understand.

**WESLIE KARY:** All right, thank you.

**DR. THOMAS GRAF:** Very good. So just to give a test here, I think Rob pointed out a number of important things in this. The first is really to carefully design your bundle to manage that insurance risk or that random risk around what is beyond that. What I'm going to talk about for the next half hour is really how you manage the performance risk. The real point of the demonstration is to change the way you deliver the care so that we are understanding what it is that we're driving toward, you know this slide really indicates the opportunity in a way, which you know in the 90s we sort of thought of you know the choice, the dichotomy of high quality or low cost and then in the early 2000s we recognized that maybe there was no association between cost and quality that it was sort of a scattergram.

You know this data and other emerging data, both at Geisinger and nationally and internationally, would imply that in fact there is a very direct correlation between cost and quality, but it's not necessarily inverse, that in fact higher quality drives lower total cost of care. And that's something that we've been sort of dedicated to proving. And so in this bundled payment demonstration or contract the important pieces to achieving total cost of care reduction is that you need to understand your targets.

And I think Rob did a nice job and we'll review a little bit of that briefly so you can see how it ties to the clinical strategy, understand your targets, develop a disciplined and defined approach to value reengineering and then you know within that execute on each of the strategies in a reliable fashion so that you can in fact see you know more high quality performance, less low quality performance and really manage that total cost of care piece.

And so when I think about the targets you know as Rob pointed out really there's three pieces, three moving pieces to this. There's the hospital cost. And you know in a way cost needs to be looked at in two flavors, there's the PMS charges which is the cost according to CMS right, there's internal cost of each of those providers, so what it actually costs to do business. And the truth is always sort of somewhere in between, right?

And so additionally you've got the hospital and its CMS charges and actual cost of care, the post acute which can be anywhere from 30 to 70 percent as Rob said of any individual bundle, so their CMS charges and their actual cost. And then on the physician side, first of all, the physicians are critical to the performance on cost and quality in both of those initial two categories. As well as, obviously being their own sort of CMS charge and internal cost center.

And so when we look you know at that slide that Rob had that shows the variation in total cost for let's say readmissions that was you know 170 percent from low cost to high cost or post acute at 140 percent from low cost to high cost those are you know clearly the areas. Now there's no variation in the hospital cost essentially because that's paid on a DRG basis, but CMS what they're seeing as cost. On the other hand the variation in actual hospital cost is not insignificant.

The other piece to think about, you know, Rob sort of ended with that slide that showed the real risk if you will of the demonstration. And the one key just to finish that off before we move on that it made me think of is to an extent that you give a target for your cost, your charges or essentially a cap on your charges to CMS the check that you would write to CMS at end of the year is really just a return of an overage of payments that they've already made to you beyond the target that you set. I mean, in a way

you're just defining what your revenue stream is going to be. Now it's still dependent a little bit on units of work, so how many times each individual DRG is executed will vary, but you know what your payment for that DRG is on a per event basis.

And so the check that you write to CMS is really just a return of that overage beyond the target that they've already sent you. So it's not necessarily new money that you're sending them. Now of course in order for them to have sent you the money you had to drop a bill and in order to drop a bill you had to deliver a clinical service. Obviously the clinical service costs real money to deliver; you had to pay the workers, etc. So some of it's real, but it's not as simple as just finding new money, it's really money beyond which you let's say budgeted for that particular procedure.

Now the other caveat to that is to the extent that you do or don't own physician services or post acute services you know if all of the overage was generated let's say in the post acute environment depending on how you set up your sub deals with the post acute providers you know you may be on the hook and so they got the original check from CMS and now you're sending the check back to CMS. So there's some caveats there but it's not a straightforward as you know just writing them a check.

So let's look at those targets jumping back to the actual subject here. With DRG 292 heart failure, DRG 470 as Rob showed earlier there's a significant variation in the percent of patients that go to each of those areas based on DRG. But even within a particular DRG when you look from one clinical setting to another. And a great example of that is some of the guys in our tertiary care centers, where at one of the centers the majority of our patients that have a joint replacement go to a rehab center, not the majority but a significantly larger number let's say versus the other site where it's a very small number of patients go to a rehab center.

To me those variation in clinical care within the same essentially patient type particular when you get into a reasonable number of cases where individual patient variability is much less likely to be the driver those are good targets for value reengineering because obviously not everybody can be getting optimal care if there's that degree of variation.

And you know the determinant of whether or not you go to rehab shouldn't be which hospital you get your joint replacement done at, unless there's some systematic factor, you know, only one hospital does let's say revision replacement surgeries, okay, that would be a patient centered variation that would cause that. Absent something like that, significant variation would be a target. So understanding the variation in those pieces is important.

The second area that Rob pointed out was the cost differential when you look at the various modalities for let's say post acute, and of course, in and of itself readmission. And those are dramatic charges. And so one of the things we'll talk about is the effectiveness of developing an optimized pathway that supports the appropriate placement of patients where they're going to get the best clinical outcomes at the lowest total cost of care.

And for instance when you look at joint replacement there's actually good data in the medical literature that shows that in appropriately selected patients home based home health rehabilitation can actually get as good as or in many cases better functional outcome than the much more expensive you know rehab at nursing homes or rehab centers. And you can see if you can shift a significant portion of your patients from a \$13,000 cost rehab stay to a \$3,500 cost home health stay that you can change the total cost of the episode of that DRG family not insignificantly.

Additionally the most obvious target and one that I think is very well within the span of influence and control of a hospital based system would be readmission. And if you can influence readmissions in a significant way you know as we showed in the earlier slide if you look at heart failure 42 percent of those patients are readmitted within 30 days, about half of the patients almost that got readmitted added an additional \$17,600 to the index admission which was only \$5,300.

So if you can reduce that readmission rate from 42 percent to 30 percent, you know, that's 10 percent patients generating \$17,000 less charges, the impact on total cost of care is not insignificant. And with very few exceptions most folks would see that reducing readmissions is certainly better for patients, better for payers and to a certain extent better even for hospitals.

Now in the current system you get paid to readmit patients, clearly that's changing and so that semi-incentive, if you will, will go away, making it much more, simple. Certainly in this situation you would be very well advised to reduce readmission. So this is in a way pre-work for the other changes that are occurring relative to never events and those types of issues.

So let's focus a little bit on the places of redesign. You know, we looked at the targets, we know post acute is a big target, readmissions are a big target. But if we look at the sites of redesign focusing first on the hospital, most folks have done a lot of work in the supply chain area. You know, DRGs behoove you to do that. But to the extent that you have not, you can make significant improvements. And you know one sort of minimum criteria as Rob pointed is you at least need to be able to make up that discount that you give to CMS of two or three percent.

Well, probably much of that could be done within the four walls of the hospital with things that are under you know hospital administrative control or at least influence. When we designed proven care for coronary bypass one of the significant areas, even though we had a very high functioning or at least we like to think of as a high functioning supply chain system, was we were able to standardize OR steps for that procedure which resulted in significant net savings.

Now that required the agreement of the surgical folks and we'll talk a little bit how we went through that, but standardizing that process even though we had already done supply chain work had an incremental impact and was important. So that's an example of an operational standardization that made it more likely to correctly execute. So the chance that you got the wrong OR tray for surgeon X was dramatically reduced when the OR tray for surgeon X, Y, and Z were all the same.

Additionally obviously getting the clinician to agree on in hospital management plans for common clinical conditions, and again the poster child for us was the fact that we had five cardiac surgeons at one facility and we had six different regimens for preventing deep vein thrombosis in these patients. And so finding a single or at least a patient centered variation driven protocol for managing common the prevention of common occurrences was an important piece of again improving the quality, improving the reliability of delivery of that protocol.

Because again you either did it or you didn't; it wasn't a matter of trying to pick out which doctor, which patient got what program for prophylactics, it was a standardized program that all the patients got unless they had some reason not to get it. And so the ability to reliably deliver that was much improved.

And then obviously, from a hospital standpoint focusing on the transitions of care; and we've really moved from Geisinger from a focus calling it discharge or discharge planning to transfers; patients are transfers from the hospital to another post acute setting or to an outpatient. And the concept there, I

think it's something that's well known to hospitals you transfer a patient from the intensive care unit to the step down unit. For instance, in most hospitals is a very clear and delineated process with multiple steps, multiple hand offs, often physician to physician communication, nurse to nurse communication. It's a very well orchestrated procedure.

When we transfer patients from the hospital to a nursing home often there is very little, very incomplete or even worse contradictory information that's sent in very little direct communication. One of our hospitalists described it once as throwing a patient over the wall. And so we need to make sure that we're not launching folks off into space, but in fact are orchestrating and executing a well organized procedure.

If we look at the next area of, or the next target, sorry, I'm having trouble getting to the right slide, here we go, for managing costs it's really in the post acute environment. And I'm going to talk about two things to think about specifically around what I call modality of choice, which post acute type of facility, as we talked about moving from increasing the percentage of patients that go home with home health directly as opposed to rehab or nursing home has a dramatic influence on cost, but then also within that modality the facility of choice.

So we know that about 20 percent of the acute care readmission in many of these different bundles are what I call failed nursing home to home transfers. So it's not the patient who comes to the nursing home and goes back to the hospital in 48 hours, it's the patient that completes two or three weeks at the nursing home and then in trying to get them home that transfer fails and the patient ends up back in the hospital.

So if you have a facility that can prevent you know 75 percent of that 20 percent that's going to have a dramatic reduction in your overall readmission rate which as we looked at earlier could be as much as \$15,000 per patient. So finding the facilities that can do that will be important in your partner activities and potentially transferring some of that performance risk to them through the way you set up your subcontracts with them would be, your gain sharing model with them would be important.

And then finally you know absent any of those hospital directed strategies making sure that we manage those transfers as we talked about exquisitely will be important. And so defining what the responsibility of the receiving institution as well as the sending institution as well as the physician will be an important part of that piece. The other piece was that we talked about the ability to reduce readmissions or what I call treat in place for these nursing homes will be important. And so finding the ability to do that with putting advanced practitioners or other care delivery troops into those facilities will be an important function of that.

Moving to the physician, on the general bundle management side we talked about 30 to 70 percent is in that post acute, working with your primary care physicians around medical home, around transitions of care, targeted pieces to drive emerging exacerbation will be important. And then finding a good process and accelerating those IT will be critical.

The same thing on the specialty care side, getting some standardization of best practices and having it apply methodology to reliably deliver those best practices will be important. But the physician involvement at every level, and I would include primary and specialty care in each of your bundle redesign teams will be an important piece.

So if we look at an example in the last few minutes, for how we manage this type of process, with proven we really looked at a defined process that says what can we get rid of that adds no value? How can we automate work or delegate work to the lowest trained person that's well within their span of control and how do we improve their reliability in that through that automation. So focus physicians on physician level work which is complex medical decision making, patient relationship and flow the rest of the pieces around them so that they can achieve that and really focus on that 20 percent that does need to be customized for each individual patient.

And then once you've designed that getting it incorporated into standard practice using tools or other accelerators to make sure that every patient every time gets this newly designed care and to the extent that you can activate and engage the patient because there's good literature that shows that those people, those patients have far better outcomes at lower costs.

When we looked at characteristics of the redesign team that were important for success, certainly having motivated and enthusiastic physician leadership that's engaged and ready to lead and drive this process. You want to start with a team that's already generating good baseline performance. On one hand you would think that perhaps those who are not performing well have the most opportunity for improvement that would be a good place to start.

The challenge is you know the team that's getting you mediocre or poor results is probably not the team that's most likely to come up with an innovative solution or to drive high performance. If you take a good performing team you can help them get better, it's a lot harder slog with a lower performing baseline group.

You want to start where there is a good body of evidence based guidelines, so things that have been proven to make a difference. It's really about the reliable delivery of those to every patient. If you don't have that evidenced based baseline it's a lot harder to get started. You also, if you can have external-based bench marks, that's very helpful. And then to the extent that you have clinical informatics that can inform your redesign efforts in real time is obviously helpful to accelerate, to measure the change and accelerate the improvement.

So as an example if we look at the American Heart Association they have a number of evidence based recommendations around what care should be. The challenge with that is their definitions are somewhat vague, open to a lot of interpretation and would be very difficult in their current form to necessarily reliably execute. So the first thing you have to do with that clinical team is review each of those recommendations and decide exactly what that means.

So here's an example of their number 14 recommendation. Essentially it says if you're going to reduce objection fraction you should be treated with a beta blocker or an ace inhibitor or an ARB. And if it's not being done prior to admission it should be done prior to discharge from the hospital. Well, what are the appropriate agents, right? Is any beta blocker or any ace inhibitor equal? What are the indications and contra indications? Are there minimum or maximum dosages that should be used? So it's not, a beta blocker at a homeopathic dose is not going to be sufficient.

Who is responsible? I always look at what are the people, what are the process and what are the tools necessary to make this work? So who's responsible for doing it? How do you sort of hard wire it so that you can go from you know people remembering better and working harder to a system that reliably delivers it? And then how do you feed that information back to the clinician? You want a system that will allow you to do all those so that you can monitor your redesign.

So a simple issue here for a beta blocker there's lots of different opportunities. Each one of these opportunities would be a place that you could check the dose, adjust the dose, you know, start the medication if it hadn't been done. And within each of those settings who's responsible, what does that process look like and how is it hardwired? It can't be an additional factor that people have to remember at the end of their day, so to speak, to make it work, it has to be built in.

So an example of how we did that but also did not create drag on the offices is leveraging our electronic health record (EHR). And this is sort of a series of screen shots that show you. At the top we have sort of a checklist if you will of these elements. Now to the extent that the EHR can it actually pre-fills the answers to those. So, for instance, this patient is not on blood thinners, they were appropriately prescribed a beta blocker. Those answers were pre-fed in.

Now the clinician or whoever is doing this, it might be a nurse in this situation, might adjust those answers, if the EHR is in fact wrong, but it fills in the answers it thinks are true, if necessary to the right there shows an order set that's tied to that. So let's say the patient wasn't on a beta blocker, in fact it would bring up that order set, it gives the patient discharge instructions as well as allows them to order the medication that's most appropriate.

And, in fact, you can sort of preselect the preferred agent at the preferred dose for the average patient and really the clinician just has to manage by exception, to adjust the dose for those patients that needs to be done. So again as much of the work as possible is already done and you make it as easy as possible for folks to get the right answers if you will.

And then finally those two elements create that third set which is some of the documentation, so that folks aren't having to do the same work over and over again. If you put them on a beta blocker that should drive right into the note so that it's all there, everyone can see what happened. On the population side you know we deployed our medical home across all of our sites. And what we did was we found clinically meaningful differences within the population and developed a proactive response to delivering the care that was necessary.

So obviously much of the care for the heart failure patients is in that post acute environment, either in the clinical care office or perhaps in the nursing home or involved in home health. And so having a system to monitor those heart failure patients, to know that they're getting into trouble, to intervene rapidly is a critical element to being able to do that, so you can manage them at home and prevent that readmission. And that's exactly what we achieved, which shows you year over year reduction in heart failure admissions.

We actually started out in the site that had our medical home health navigator slightly worse performance. By 2007, we implemented in 2006, we had about a dozen sites in 2007. You can see at that point we started to create separation and then that continued through 2008. So the ability to impact clinical performance is significant. These were readmissions for heart failure exacerbations, readmission per thousand in an essentially similar population.

And then the final piece and I'll wrap up with this is how you engage patients and inform them of their care. There's a lot of different ways that having again a defined strategy to do that, and this was just an example of what we call a self management action plan that has again customizable templates for the patient. This can be pulled actively from the EHR if it's filled out in other places or can be filled out by hand if those targets have not been predefined. But the idea is that every patient gets a similar action. It has to be simple. It has to be actionable. And it has to be understandable.

And if you do those things, if you have a dedicated team that's physician led and appropriately supported, focusing on good evidence based guidelines you find a way to reliably deliver those evidence based guidelines across the continuum to those patients, you focus on the areas that have significant impact on cost like readmissions, like being able to treat in place in a nursing home, like sending patients to the best provider of that post acute care either within a modality or even better within the types of modalities and then engaging the patients in a process that gets them as excited as possible that will get the kind of results that we need to drive down total cost and succeed in the bundle. And with that I think I am done.

**WESLIE KARY:** Okay, thank you so much Dr. Graf. We're now going to move into the question set of our ... I'm sorry, I'm searching for slides here. We're moving into the question segment. And we will pose questions to you. If anybody still would like to ask a question you can do that by the "Ask the Question" button. And if you leave us before we close, please be sure to press the survey button and give us some feedback on our presentation today. Okay, Deb Milne who is Senior Researcher here at AIR is going to pose the questions.

**DEBORAH MILNE:** Thank you, Weslie. The first question is for Rob. Make sure off of mute, both of you. Please discuss the considerations requirement choosing a DRG with no complications for comorbidity versus one with major complications in comorbidities for an episode of care. Are there advantages at choosing one over the other?

**ROBERT MECHANIC:** Okay. So there are two pieces to that answer. The first is that you will have to choose, you cannot choose one or the other. CMS has specifically required that hospitals, if you're going to take a certain episode you have to provide all the DRGs in the family. And we've interpreted that to mean, for example, using CHF as an example you cannot exclude some level of comorbidities, a DRG with higher levels of comorbidity and just take the lower. You cannot take just the higher comorbidities and exclude the lower. You have to take all of them. So for CHF you would have to take all three CHF DRGs.

Now the other piece of the question about the considerations and the advantages is clearly the DRGs that have more co morbidities provide greater opportunity for savings and better quality through good management. So through better processes you can reduce complications, you can prevent these complications from occurring. This is a real opportunity for savings. But you don't have the option to split them up, you have to take them all.

**DEBORAH MILNE:** Thank you. Another question for you Rob and that is to be clear when the speaker says we are pricing at individual DRGs in a group of DRGs, for example, CHF, are we still required to take the group of three DRGs, but can set an individual price for each individual DRG? We are not setting one price for the three DRGs combined, correct?

**ROBERT MECHANIC:** No, that's correct. And actually, again to be clear, so the issue about the requirement to take families of DRGs, people can find that in the Frequently Asked Questions that's posted on the Innovation Center website. In terms of the requirement, I guess the requirement or the direction to price individual DRGs within the episode that has been raised orally at previous webinars. I don't believe that it is in writing, although my guess is that it will be in writing fairly shortly.

But, no, we were confused about that too. But, no, you do not propose an episode price; you propose individual DRG prices within an episode.

**WESLIE KARY:** I would like to just jump in and say that a number of the questions that we have received here really are better directed to CMS. And I have showing on the slide the web, the email address to pose a question to CMMI ([BundledPayments@cms.hhs.gov](mailto:BundledPayments@cms.hhs.gov)). I expect many of you have used it before. But we are avoiding questions that we think really require a direct request of CMMI. Deb?

**DEBORAH MILNE:** The next question is for Dr. Graf. Dr. Graf in a Model Two program what types of quality metrics will the hospitals look at in terms of choosing post acute provider partners, for example, an SNF?

**DR. THOMAS GRAF:** Right. That's a great question. What are the performance attributes that you would look for in a nursing home that would indicate that they would be a high performance partner? And that's an important point. The challenge with a lot of the things like nursing home compare is that some of the measures, for instance, pressure ulcers, you know, certainly the complications, patients are usually re-hospitalized for that, you know which drives cost.

The challenge would be that there's two ways to have a good rate of pressure ulcers. One is to be a really good facility and aggressively manage weight issues with the patient and wound issues with the patient. The other one is to not look very hard for pressure ulcers. And that wouldn't necessarily impact your readmission rate. So the things you want to look at are things that are proxies for the ability to manage.

So readmission rate, you should at least be able to get that to your facility, so how many patients do they return to acute care from them, particularly based on the DRGs that you're thinking about. What is their ability to treat in place, so do they have the ability to do IVs in the office or in the nursing home rather. The things that usually result in patients returning are infections, fluid issues, so heart failure or dehydration and then post op wound infections as well as other complications of the surgical procedure or the initial admitting diagnosis to the nursing home.

So thinking through those kinds of things to the best of your ability to note those would be an important performance parameter. And then the other piece just in general if you think about those teams if they've got an executive management team that understands what bundle payment is about and is interested in that, do they have an operational team that can effectively execute strategies?

So what have they put in place to manage quality or other non-clinical significant change efforts in their facility? And then are they willing to commit some level of resource to the initiative, do they have skin in the game, if you will? I think those would all be general performance parameters that you would want to think about.

**DEBORAH MILNE:** And one more question and that is for Dr. Graf. How would you get the physicians motivated? In the academic setting this type of work is not well compensated, for example, not compensated by RVUs or grants and not considered on promotion tracks.

**DR. THOMAS GRAF:** That's a great question. So one opportunity as part of the game share model with the physician you could actually create a pool of money that could either be converted into your RVUs or paid directly to the physicians, for to your point this important non-revenue generating time to you know review the literature, to develop pathways, to ensure that they get good adherence. So that would be one option that requires you to sort of put the money up front.

The other option would be to say that the folks that are going to be influencing the decision so when the reconciliation comes with CMS you know if they build a better mousetrap they're likely to get better improvement, but physician engagement is a challenge. Certainly there is at least the potential for enhanced compensation through this project.

The other piece is much of this work would be publishable if it was designed in the correct way up front. So it could easily be, I mean, healthcare redesign and the literature in that is fairly wide open at this point, and so I think there is the opportunity to do a fair amount of publishing and actually become an expert. So a younger clinician who is interested in that would have a great opportunity I think in becoming sort of a nationally known expert in that field. So I think there is some opportunity for a tenure track in a somewhat nontraditional sense.

**WESLIE KARY:** Thank you. I'm really glad we ended with that question. That was a very interesting one. And just to remind you there were a lot of questions that really were better directed to CMMI, so they will not answer questions because they were sent to us. If you continue to want those questions answered you need to direct them to that Bundled Payment at the CMS website, [BundledPayments@cms.hhs.gov](mailto:BundledPayments@cms.hhs.gov).

We have another ADLS coming up on March 22<sup>nd</sup> from 3:30 to 4:30 pm Eastern. And it's going to be on Contractual and Governance Issues among Providers in Bundled Payments. So this will be about what should contracts or not incorporate, but you know organizational structures, contractual structures look like to administer a bundled payment program without unnecessary disputes between the providers at the back end, and that will be Alice Gosfield, a well known health lawyer who will presenting.

And once again the slides will be available, probably at the end of this week or very early next week at <http://cmmi.airprojects.org/bpci.aspx>. And once again remember that the views that were presented today are the views of the speaker, not the views and policies of the Centers for Medicare and Medicaid Services. And if you need to reach me, [bpci-web@air.org](mailto:bpci-web@air.org) will get to me. And we would be delighted to hear ideas about future presentations and please you can also put those ideas in the survey that you complete before you log off today. Thanks very much to our speakers once again, and have a good day, everyone.

**OPERATOR:** Ladies and gentlemen this concludes today's conference. Thank you for your participation. You may now disconnect. Have a wonderful day.

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