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Estimating the Impact of the Transition to ICD-10 on Medicare Inpatient Hospital Payments

Leah Nguyen:
Welcome to this MLN Connects video on Estimating the Impact of the Transition to ICD-10 on Medicare Inpatient Hospital Payments. This presentation was recorded at the ICD-10 Coordination and Maintenance Committee on March 18, 2015, at CMS.

Pat Brooks:
I would like to introduce Ron Mills from 3M, who's going to be reporting on some analysis that he performed for CMS under contract. We asked them to update their analysis of the impact of the ICD-10 MS-DRGs, which will be implemented October 1, 2015. Ron will go present all this information now.

Ron Mills:
The objective of this study was to estimate the impact on MS-DRG-based payments to hospitals due to the transition from I-9 to I-10, all else being equal. Now the MS-DRG version 33, which will be the version of MS-DRGs which are used when we go to ICD-10, is currently going through the rule making process. So there may be slight differences in MS-DRG definitions, and differences in weights from what we have now, which is version 32. So were necessarily had to do this analysis using the version 32 MS-DRGs, and fiscal year 2015 weights. So there is the always the possibility that, because of small changes in the in the next version, that there will be slight changes in what we predict.

Before we get into this, in case this is being watched by anybody who's not familiar with MS DRG terminology, let me just make sure that some terms are defined. A grouper is the software that assigns an MS-DRG and its based on the coded diagnosis, procedure, sex, and discharge status. If those coded diagnoses and procedures are in ICD-9, we call the software an ICD-9 grouper. If they're coded in ICD-10, we call the software an ICD-10 grouper. A grouper is also a fish.

[laughter]

A DRG shift is the term we use when the MS-DRGs from a record coded in ICD-9, and run through the ICD-9 grouper, gets a different DRG than the same record correctly coded in ICD-10, is run through the ICD-10 grouper. And you'll often hear us talk about CCs or MCCs. A CC is a complication or comorbidity. It's a secondary diagnosis that's so designated. And the M makes it a major complication or comorbidity. And CCs and MCCs are the thing that puts the S in MS-DRGs. They are the basis for the MS-DRGs definition of severity.

So, I'll jump right to the results of this study. We worked with 10 million, fiscal year 2013

MedPAR records, the last year for which we have MedPAR data. And these represented about $100 billion of hospital reimbursement. Of those records, about four-tenths of 1 percent had a DRG shift to a higher paying DRG. That is, when coded in I-9 they had one DRG; when coded in I-10 they had a different DRG that had a higher weight, and therefore, would have a higher payment. And taken all together, there was a 0.13 percent increase in payment for that subset of claims. A little over six-tenths of 1 percent had a DRG shift to a lower paying DRG. And taken all together they had a minus 0.17 percent impact on the reimbursement. When you put these two things together, the net is just slightly over 1 percent of the claims shifted from – shifted DRGs when they were coded from 9 to 10. And that is a minus 0.04 percent in change in reimbursement. Now that needs to be read carefully. That's not 4 percent. That's four one-hundredths of a percent. Or another way of saying it, it's only $4 on every $10,000 of reimbursement. Anything less than a tenth of a percent is, in terms of this study's ability to predict what's going to happen next year, just due to the change in coding system, is statistically zero. So were basically -- what this is telling us is we can't predict that there will be any change in MS-DRG based hospital reimbursements just due to the fact that were moving from 9 to 10.

And there's more good news. When we've run these kinds of studies with institutions, who are then able to take the DRG shifted claims and go back to the medical record and recode the record with a human being doing the coding in I-10, very frequently they got back the DRG that they would have had in ICD-9 with ICD-9 coding. They found more useful information in the medical record that they did not need to use when coding an ICD-9. They used it in coding in ICD-10. They got their CC or MCC back that they had lost. And so the anecdotal evidence suggests that the actual net reimbursement impact may be even less than what was estimated by these by this study, even closer to zero.

And, I don't expect you to read through this slide right now, but it's available in the paper that accompanies this presentation. And the URL for that paper I'll give you at the end of the talk. But what we did was we ran this study for different types of hospitals. And, there's two points to be made from what you're seeing up here. First of all, that the net reimbursement change over in the right hand column is always less than a tenth of a percent under all these circumstances. So, they're all statistically zero. There's no particular type of hospitals in which were inclined to say, we expect that your MS-DRG reimbursement will change.

But the other thing to notice, that there are some differences. So where are these differences coming from? They're coming from differences in case mix. Different kinds of hospitals generally have different kinds of case mix. So in order to illustrate that, we took the top 25 MS-DRGs by expected reimbursement. These MS-DRGs are the ones for which we paid the most money in that group of 10 million records. And we looked at the change in reimbursement due to DRG shifts for those 25 ICD-9 DRGs. And as you can see, some increased, some decreased; a lot of them were so very close to zero that you can't expect anything from them. And what ends up happening is that when you net the increase and decreases, you get that 0.04 percent, which we said is statistically zero.

Now what this means is, if your institution happens to have a case mix that's radically different from the overall national case mix that was the basis of our sample, you might see an impact. And in particular, if your institution is dealing with only a handful of DRGs, and those happen to

be among the ones that change a lot in one direction or another, you may see, actually, an impact over the first year for ICD-9 to ICD-10 conversion. So your results will depend on your case mix.

Now there are two questions that I want to pursue that come out of these results. The first one is, why aren't they identically zero? Why are they statistically zero? Why are they just statistically zero? And the other one is, why are they so close to zero? So well take the first one. Why can't the ICD-10 grouper be made to behave exactly like the ICD-9 grouper, in which case the impact would be identically zero? There are unavoidable differences between the coding in ICD-9 and ICD-10 that impact grouping. You've all heard that ICD-10 adds detail to ICD-9. There are 17,000, roughly, ICD-9 codes but 140,000, roughly, ICD-10 codes. We all have heard about the increased specificity of ICD-10. So this would lead one, naively, to expect that ICD-10 is just adding detail to ICD-9. It's like a tree with more leaves on it, but the same branches. This is not true. The reality is that there are distinctions that were in common use 30 years ago, when ICD-9 was developed, that are no longer in common use now, and so have been removed by the people who created ICD-10. There are some areas in the ICD-10 classification that use a completely different approach.

OB is a good example. OB diagnosis codes in ICD-9 often indicate whether or not a delivery took place. OB codes, the same OB codes in ICD-10 speak instead about trimester. ICD-10 PCS procedure codes have no diagnostic content, whereas in ICD-9 they sometimes do. In ICD-9 the procedure code might tell you why you did the procedure. In ICD-10 it just tells you what you did. You have to go look at the diagnosis to find out why. And some of the coding guidelines have changed between 9 and 10.

What we tried to do for the first year for the version 33 grouper, to the extent that it passes through rule making unscathed, is make it as much as possible like the ICD-9 version 32 grouper, a process that we called replication. So what about all those distinctions that ICD-10 has made that were not available in ICD-9? Well since were trying to replicate the ICD-9 grouper, were trying to make it behave, make the I-10 grouper behave like the I-9 grouper. These are no problem. You take an ICD-10 code that's' just a further specification of an ICD-9 code and you treat it the same way in the grouper. So, all those ICD-10 codes with additional specifications have no impact on the ICD-10 grouper. And that actually is 130,000 out of the 140,000 codes. So, 93 percent of the codes gave us no problem whatsoever when we were building the ICD-10 grouper. It's the distinctions that are made by ICD-9, and that the grouper used in making its decisions about MS-DRGs, that are no longer available in ICD-10 that presented the challenges. And we had to deal with each one of those clinically, or statistically, individually.

This is what we generally did. If an ICD-10 code contained conditions that were previously classified in different ICD-9 codes that is, ICD-9 made a distinction, ICD-10 doesn't then we said, well what's the more frequently occurring ICD-9 code? How often was this code used in these 10 million records? Actually, we've had several years of doing it. So we've got more like 50 million records to work with. And then those case, and so then we made the ICD-10 code behave like the most frequently occurring ICD-9 code that's equivalent to it. When we do that, then records that were coded by those other ICD-9 codes, the less frequent ones that are now

coded by this ICD-10 code, are now going to behave differently in an ICD-10 grouper. And then they will be, quite likely, the cause of a shift.

I have an example. There are two different codes in ICD-10 for depressive disorder not elsewhere classified: 311, which is not a CC, and that occurs on about 50 out of every 1,000 records in Medicare population; 296.20, major depression unspecified, is a CC and that occurs in about five of every 10,000 ah of every 1,000 records. So, 311 occurs 10 times more frequently in the data than 296.20. Now both of them are expressed as F32.9 in ICD-10. So we have to make F32.9 do something in the grouper. Are we going to make it behave like 3.11 or are we going to make it behave like 296.20? Well, because 311 is much more frequently occurring, we make it behave like 311. And so F32.9 is not a CC. What about all those records where somebody in I-9 coded 296.20, and now in I-10 are coding F32.9? Well they're going to become, or they may become, DRG shifts if they were the only secondary diagnosis on the record that was a CC -- you don't have another CC on the record -- the record stops having a CC, and you go to a lower paying MS-DRGs. So the 7 percent of the codes that had these kinds of discrepancies in the coding system were handled by making these kinds of decisions and, hence, were the basis for the DRG shifts that we reported.

Now were going to go to the other half of this, which is why aren't the – why are the numbers so close to zero? And to discuss this, we should look at how we went about doing the analysis, because it turns out that it's how we code the ICD-10 that makes all the difference. Our estimates were made by starting with the 10 million MedPAR records coded in ICD-9. We ran them through the ICD-9 MS-DRGs. We got a DRG for each record which we called the I-9 DRG. Then we mechanically converted the records to ICD-10. We would love to have had a huge data base of records that were coded in both 9 and 10, but such a database does not exist, and it would be very expensive to create. So we had to do this with a computer, which was considerably stupider than any coder. We then grouped these using ICD-10 MS-DRGs, and we compared the results. And when the DRGs were different, then we had DRG shift.

For those of you who like diagrams, here's the same slide expressed again as a diagram. And it points out that the critical step here was this mechanical translation to ICD-10. People have reported much worse results than statistically zero, or 1 percent DRG shift. So part of the reason were going through this level of detail is to refute those reports; to say, If you're getting a much different results in your study than about a 1 percent DRG shift and a close to zero reimbursement change, then you either have radically different case mix, as we've shown before, or you need to take another look at your methodology. The mechanical translation that we used was restricted to only use the information in the ICD-9 codes, and then to try to correctly code the record in ICD-10. We couldn't go back to the original medical record. We only knew what we were told with the ICD-9 codes. And as we developed these programs, we asked Well what would a coder do knowing just this amount of information? We were very fortunate to have a resource that allowed us to deal with this question: the GEMs, the general equivalent maps. And in the next three slides, well give you some specific examples of the kinds of considerations we had to go through.

Procedures: groups of ICD-9 procedure codes may translate into a single ICD-10 PCS code. For example, PTCAs with their stents, drug eluting stents, bifurcations, number of vessels. You can

-- you can take up to five codes in ICD-9 to correctly code a PTCA; whereas in ICD-10, it only takes one. So, if you're going to write a computer program that translates from 9 to 10, it needs to look for the possible occurrence of all five of those codes if it's going to get the correct ICD-10 code. ICD-10 does not include procedure information in diagnosis. The OB example that I talked about before, you can often infer that a delivery took place just by looking at the diagnosis. In ICD-10, you can't do that. All you know is trimester. So there has to be a procedure code on the record in order to infer that a delivery took place, and that's an important distinction in the grouper. So in translating, if you have one of those delivery codes in the diagnosis, but you don't have a procedure code, then you have to add a procedure code to the record.

Our clusters is the term that we use when a code in one coding system is equivalent to more than one code in another coding system. And when ICD-9 can express things in one code that takes two codes to code in ICD -- two or more codes to code in ICD-10, then that has to be taken into account. For example, 241.11 secondary diabetes with ketoacidosis uncontrolled, takes two codes in ICD-10, one for the ketoacidosis and the other one for the uncontrolled. If you don't put both of those codes on the ICD-10 record when you see 241.11 on the I-9 record, then you're losing information that the grouper might need.

And finally, using the GEMs requires a very careful interpretation of the flow of meaning between the codes in the GEMs if they're going to use them effectively. There's a 9 to 10 GEM, there's a 10 to 9 GEM; they are not mirror images of one another. They both provide useful information in going back and forth between the coding systems. There is a document on the CMS site where the -- where the GEMs are provided that explains the thought processes behind the construction of the GEMs. If you're going to use the GEMs as the basis of mechanical translation, we strongly recommend that you read and think very carefully about what's in that document, and much has been written elsewhere about how best to use the GEMs in order to do this kind of work.

So to give you an idea how important these kinds of issues are, we ran this study over again several times, doing the mechanical translation in ways that we thought were inappropriate. Just to remind you, the way we ended up doing it, our DRG shifts were slightly more than 1 percent. If we did not use the procedure translation logic that I described a couple of slides ago, that went up to 3.5 percent. If in addition we didn't record clusters that went up to 4.5percent. If we took the easy way out, and we said Ah, let's just go to the 9 to 10 GEM, anytime we have an I-9 code. We look it up in the I-9 to 10 GEM and put down the I-10 code and then group that that went up to 6.5 percent DRG shifts. And if you look at the detail at the DRG level, it's even worse. Eight of the DRGs disappear completely; 40 of the DRGs have a 50 percent or higher shift rate. Commonly, the MS-DRG shifts when the translation is performed the way we would recommend come from a change in CC or MCC in the secondary diagnosis. So, secondary diagnoses are very important in MS-DRGs: 40percent of the shifts to lower weight come there; 75 percents to higher weight come from there.

Now, one way around this whole problem of mechanical translation is to not use mechanical translation, but instead, to do what we have been calling a dual coding study. And in these studies, a coder with access to the original medical record will be able to create more accurate

codes than mechanical translation. The study's pretty much the same. You code an I-9. You group an I-9. Then you recode an I-10. You group an I-10, and you compare, look for shifts. I had the honor of working with a group that was doing this, and they ran 100 cases through a pilot study just to -- just to test their procedures. And they came back to me, and they said Whoa, where are you getting off with 1 percent? We had 20 percent of our cases had a DRG shift. So we dug into those 20 cases. We looked at them more carefully. And it turned out that in nine of these, the ICD-10 coder found clinical facts that the I-9 coder missed. And in nine others, the ICD-9 coder found clinical facts that the ICD-10 coder missed. So 18 of those 20 were just coder errors. And so once we had analyzed those 18 more closely, and got the coders to agree on what was actually there those DRG shifts went away. And only two of the 100, which is statistically reasonable, given a 1 percent DRG shift rate, turned out to be due to the difference in the coding system.

But what this emphasizes, which you already know, is that coding issues are going to impact the DRG reimbursement much more than the differences between I-9 and I-10. Yes, you can expect some slight changes in your first year MS-DRG reimbursement because it's a new system, but the changes that you're going to see because your coders are getting up to speed are going to be far greater. Documentation improvement is always a good idea, and is recommended for dealing with coding issues. Documentation improvement that's targeted only on the new ICD-10 detail is like Whoa, we got all this more specificity. We got to get it better documented. This is a good thing. You're certainly going to need it after the first year. But it may not help you that much in first year MS-DRG reimbursement, because we're not making any use of this additional specificity.

The areas where ICD-10 no longer works like ICD-9 are the places where you really need to focus on documentation improvement if you want some results right away. Coding procedures don't rely on diagnosis to indicate that a procedures taken place. Things like malignant hypertension that are no longer represented in ICD-10 -- and this one is used a lot because it's a CC – you're going to have to dig into the record and find what really is going on that caused the doctor to feel that the hypertension was malignant. And unspecified diagnoses that have greater specification will often have their CCs or MCCs. That F32.9 example is a good one. Another -- that was major depression unspecified. Most of the major depression codes where there was specification do end up with a CC.

So in summary, for a typical case mix and correctly coded records, expect about 1 percent of the cases shift to MS-DRGs, and your net impact is as close to zero as we can predict. The coding issues can have a greater impact on the differences between I-9 and I-10 than just the coding systems themselves. And if you do an analysis of this with your own data, pay very close attention to the mechanism, whether it's mechanical, or with dual coding, that you use to translate from 9 to 10. There's an article describing all of this with the -- with the details that I just went by very quickly, and it's at this site. It'll be in the first zip set of documents under downloads over on the left hand side.

Pat Brooks:
Thank you, Ron. That was extremely informative, as always.

Leah Nguyen:
Thank you for viewing this MLN Connects video presentation on Estimating the Impact of the Transition to ICD-10 on Medicare Inpatient Hospital Payments. This MLN Connects video is part of the Medicare Learning Network. The information presented in this presentation was correct as of the date it was recorded. This presentation is not a legal document. Official Medicare program legal guidance is contained in the relevant statutes, regulations, and rulings.

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