

**Centers for Medicare & Medicaid Services**  
**ICD-10-CM/PCS Implementation and General Equivalence**  
**Mappings (Crosswalks) National Provider Conference Call**

**Moderator: Ann Palmer**

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Part 2 of 4 Audio Recordings

General Equivalence Mappings

**Pat Brooks:** Moving on to slide 20, I talked about the GEMs being bi-directional - and by that I have a pictorial explanation. There's a mappings that goes from ICD-9-CM diagnosis - that's the source code - to convert it to the target code. In other words, convert it to the ICD-10 codes - the ICD-10-CM. We call that forward mapping - mappings that - call - comes from the old system, 9, to the new system. We also - and you will find out that you'll also need to use the backward mapping code. Sometimes you'll pick up the ICD-10-CM book, you'll look at the code, you've got an application for it, you'll wonder what the predecessor codes were in ICD-9-CM. And you'll look that up in the ICD-10-CM backward mapping file that takes you back to the previous codes in the ICD-9-CM. We have these forward and backward mappings for both ICD-9-CM for ICD-9-CM diagnosis as well as forward and backward mappings from - ICD-10 - 9-CM procedures to ICD-10-PCS procedures. And, once again, you'll find that you use both - the forward and the backward mappings - in converting data. You can think of these mappings as a

bi-directional translation dictionary. If you picked up a Spanish or a English dictionary today, you would find in one section that it's the Spanish words and their appropriate general equivalent English code for it. Or you could switch to the back of that dictionary and find the English words and then find the closest Spanish equivalent for it. And that's the way these mappings work. They are a perfect mirror image of each other. You'll see examples of that later in the slides.

Moving on to slide 21, we'll discuss the use of the GEMs to convert a payment system. When we developed the GEMs and we got comments in after the proposed rule, we had some providers and payers who called and said, "Well, we see you have the General Equivalence Mappings, the GEMs. However, we're not sure if they work or how well they work. And we would like some reassurance that they are good tools." And, frankly, that was a good point. We developed the tools. We needed to see how well they worked. CMS decided we would be the first one to test it. We picked one of our most complicated payment systems and that's our inpatient Medicare Severity DRG system - Diagnosis Related Groups. And we decided that if we could use those GEMs to convert the MS-DRGs from ICD-9 codes to ICD-10, then we would be pretty sure that they would work very well on other kinds of data conversion tasks which were not nearly as complicated. We selected the digestive part of the MS-DRG payment system to be our first exercise. That's called the Major Diagnostic Category 6, and it's a reimbursement system for inpatient cases that have digestive types of diagnoses and procedures. We did that task, we used the GEMs, we converted that part of the DRG system from ICD-9-CM to ICD-10, and we presented our results at the September 24, 2008 ICD-9 Coordination and Maintenance Committee. For those of you who did not attend or have not heard about this exercise, I would urge you to read the Summary Report along with the slides we've posted for that particular

meeting. And see what we did and what we learned. It went so well, frankly, that instead of picking one or two more parts of the DRG system to convert, we decided we would set ourselves up with the task of completing a total conversion of the MS-DRGs to an ICD-10-based by October 1, 2009. We are pretty far along on that task now - we've already converted the medical DRGs for the entire system, and now we're working on the surgical DRGs to convert those to ICD-10.

Moving on to slide 22, I'll discuss what we did. In the MS-DRG conversion our goal was, frankly, if a patient is admitted to the hospital and coded now in an ICD-9 code, they're assigned to a payment group - an MS-DRG. Our goal was that if that same patient was coded not with ICD-9 but with ICD-10, then they should arrive in that same payment group - the same DRG. So we wanted each DRG converted from ICD-9 codes to the very equivalent ICD-10 codes so that we would be paying the same, they would be clinically equivalent. And those of you who are familiar with our definitions manual that lists codes under any DRGs, we wanted the definitions manual to look similar so that users would understand what we were doing. On the slide 22 to the right, we just show some Diagnosis Codes that are listed in the diagnosis part of the DRGs. The asterisk just shows that it was abbreviated down to a category - why - it was just to save room on this page.

Turning to side 23, I'll show you how we approached updating a medical Diagnosis Related Group - medical payment group. And this one is for a set of three DRGs that have to do with inflammatory bowel disease. On the left side you'll see some principal diagnoses - four of them - four codes for enteritis that would lead the patient to be assigned to one of these payment groups

for inflammatory bowel disease. What we did is - we looked at the GEMs and we found all the equivalent codes in ICD-10 for these four codes. In other words, we would find all the relevant codes, their applicable codes, and we placed them under that DRG. There were 28 ICD-10-CM codes that were equivalent to the four ICD-9-CM codes. And so you see a picture on the left of the ICD-9-CM version of our DRG, and on the right you see a list with some of the ICD-10-CM Diagnosis Codes from the search and replace exercises using our GEMs.

Slide 24 shows a surgical DRG. We have medical DRGs and surgical DRGs in the inpatient payment system. Under this particular set of DRGs for adhesiolysis adhesions, we had two Procedure Codes that are shown on the left - 5451 and 5459. We saw the equivalent codes in ICD-10-PCS and there were 112 Procedure Codes equivalent to those two ICD-9-CM Procedure Codes, and so we replaced them in the DRG. And the reason there's more detail, if you notice, is that we actually tell where we had adhesions, what part of the body, and what approach was used. So there's a lot of valuable information here. And the patients in the payment groups will be clinically consistent because they're going to be assigned to the same DRGs based on whether the ICD-9 Procedure Codes were used or the ICD-10-PCS - what precise codes they used.

Slide 25 shows the size of the task we were faced with. On to the MS-DRGs - the inpatient payment system - there are a lot of lists of codes. And we have to convert each of those lists to work out the logic. The chart shows that there are about 200 unique lists of codes that are just Diagnosis Codes. There are also 300 lists of unique codes for Procedure Codes. So we had a total of about 500 lists of codes we had to convert from ICD-9 to ICD-10. Using the GEMs - the mappings systems - we were able to auto replace - find and replace - 92 percent of the Diagnosis

Codes, which surprised us pleasantly when we saw that high number. We were able to find and replace - using the GEMs - 91 percent of the Procedure Codes. And the reason for that you'll see in some of the additional slides. We have so many imprecise codes that - so many vague Procedure Codes - that many times we would have to analyze these and look at them clinically to decide how to handle them. But the bottom line was - in the digestive part of the DRG system - using the GEMs mappings we were able to convert to ICD-10 codes in 95 percent of the time using the GEMs. So 1 percent of the Diagnosis Codes required this clinical review to figure out how to reassign the codes and 9 percent of the Procedure Codes. Now, based on the work that we've done, we felt like after the digestive chapters that just by setting up some simple rules and approaching it a little bit different, we could reduce that number so that even greater than 95 would be able to automatically replace in the future editions. And I'll be explaining some of these rules in the upcoming slides, but it did prove to be the case.

Slide 26 shows the problems we're faced with with converting the DRG system because of these overly broad ICD-9 Procedure Codes. Looking at the list on the right, you can see, such as - one of - the first one on the list - 92.27 for radioactive element implant. There's another one - 81.96 for other joint repair - where we don't even know which joint's involved with that code. 39.31 - suture of an artery - and, once again, we are not even sure what part of the body this artery is that we're suturing. On the left side of slide 26, we mentioned that there are approximately 200 of these overly broad ICD-9 Procedure Codes. And these make it very difficult to update our DRG system. The question is - if you have this overly broad code, you use the GEMs, and you find all the precise ICD-10-PCS codes that are equivalent to them - do you assign all of those codes into the same spot where this one came out of or a subset of them? That's the question. Looking at the

first code on the list at the right - the code 92.27 for the radioactive element implant - there are 261 ICD-10-PCS codes associated with that one for the element implant.

And I'll show you why if you look at slide 27. On the radioactive element implant - these implants in PCS - there's information about how you got the implant in, the approach, and where we put the implant. Well, given this information, it doesn't really make sense to put all of those implants into the digestive payment group. Under our Digestive DRG System, we have a set of DRGs - DRGs 356, 357, and 358 of the Digestive System O.R. Procedures. And that code 92.27 - implantation on insertion of radioactive element - is assigned there. The question is - do you want to take all of the 261 codes for radioactive implant and put them into that Digestive System Surgical DRG? And we decided no - it was only appropriate to put ten of them. And those ten are the ones that have something to do with the digestive tract. So on slide 27 on the left, obviously, a PCS code that would show implantation of radioactive element into the esophagus makes sense to include in that DRG as well as the one where you insert it into the rectum. On the right side of slide 27, it really doesn't make a lot of sense to put the radioactive element implant into an eye, lung, or breast into a Digestive System O.R. Procedure Code. So we are going to take these vague codes, work up logic about which body system was involved, and use that to automatically update some of our future DRGs that we're doing throughout the body.

Slide 28 shows another issue that required some medical review - some closer examination - and that involved some code conflicts. There are times, even though that ICD-10-CM is much more precise than ICD-9 and there'll be many more ICD-10 codes than ICD-9 - there are some times when there's one ICD-9-CM Diagnosis Code that was previously assigned in more than one

ICD-9 code. And those two codes could be in different payment groups - different DRGs. And we show you an example on slide 28. On the left, we have an ICD-10-CM Diagnosis Code for other specified heart diseases. On the right, we show the two ICD-9-CM codes that captured this before. The code at the top, 398.99, other rheumatic heart disease - was assigned to one set of DRGs - DRGs 314 through 316. But the other code, that was a predecessor code, went into an entirely different set of DRGs - 306 to 307. Now, the question is - given that the GEM mappings tell us that this one code came from two different ones and we know that they paid them separately - which payment group do we put the new ICD-10-CM Diagnosis Code in? Well, in this area where we had conflicts, what CMS decided to do is - we looked at data for cases that reported these and we looked at how frequently they occurred. And we found within our Medicare data that the code 398.99 is hardly ever used - very rare. The code that's used most frequently is 397.1 - rheumatic diseases of pulmonary valves. And for that reason, we selected the DRG's assignment for that second code - DRGs 306 and 307 - and we said that will drive the conversion of the ICD-10-CM code I09.89. So, in other words, that ICD-10-CM code would go to DRGs 306, 307. Because of the two predecessor codes, we went with the one with the greatest frequency. Now, if others were doing other conversions - and for your own payment system or analysis for whatever purpose and - you had different payment populations, you may use the GEMs and make different decisions based on your own population. We show you simply how we use the GEMs to convert our Medicare payment system for inpatient using Medicare data.

Turning to slide 29, we'll discuss some additional uses of the GEMs to convert payment systems. We plan to discuss progress at future ICD-9 Coordination and Maintenance Committees of the use of the GEMs and conversions of the data. The next meeting, as I told you previously, is

September 16 and 17, 2009. It's here in CMS' auditorium in Baltimore. In addition to discussing whether or not we should freeze the coding system, we're also going to be reporting back on the progress we've made in converting the DRGs - the inpatient payment system - from ICD-9-based to ICD-10. We will be sharing additional lessons learned. We will be responding to individual questions that are raised. And for those of you who are doing similar projects with other settings, other needs, who want to come and ask us questions about using the GEMs based on our own experience in converting the DRGs, we would be happy to try to answer those questions at the meeting. We have already posted the work we've done to date of converting the digestive part of the DRGs to our website. We will complete the ICD-10 Grouper - that's the ICD-10 version of the inpatient payment system - by October 2009. We will get input from people at the September meeting. We will discuss how this should be displayed so that people can analyze it in the most easy fashion. And we will post the complete updated ICD-10 version of the Grouper - the inpatient payment system - by the end of 2009. Now, I should mention that - there will be - the final Grouper logic will be subject to formal rulemaking just as we do each year when we update the Inpatient Prospective Payment System. The purpose of this exercise is to show people how to use the GEMs - learn about using the GEMs. And if we need to maybe make modifications to them. And suggest to other people how they could use them for their own purposes. It also, I think, when we get to formal rulemaking on the Grouper, will help people understand what thought went into conversion, how to approach it. So I think it will help everybody who's commenting on the final Grouper to have gone through this exercise and have these files freely available. I give you, once again, the place where we're going to be posting the Grouper logic work that we've done so far and where we'll be posting the complete Grouper logic when we're finished it.



Moving on to slide 30 and we asked the question - and you probably already know the answer - why do we need the GEMs? Well, one reason is ICD-10 is so much more specific. There are more codes. There are more details. We've gone over - the - how much increase in code numbers once before and I show them to you again.

Slide 31 gives an example of how the GEMs work and why we need them. ICD-10 is much more specific than ICD-9. And on this slide, 31, I show one ICD-9-CM Diagnosis Code and you'll see the multiple ICD-10 codes that would be equivalent to that. Using the GEMs, you will be assisted in finding those additional codes that were equivalent to 82002. And this would be using a forward map because we're going forward from ICD-9-CM to ICD-10-CM.

Slide 32 shows that sometimes the reverse happens - sometimes you have one ICD-10-CM Diagnosis Code and it's represented by multiple ICD-9-CM codes. So for this diabetes code in ICD-10 at the top of the page, it would map back to the equivalent of three equivalent codes under ICD-9-CM. Clearly, this is an example of using the backward map of ICD-10-CM because you're mapping backwards from ICD-10-CM code E11341 back to the ICD-9-CM equivalent code.

Slide 33 shows something that maybe you hadn't thought about and that's that sometimes ICD-10 has new concepts that never were in ICD-9-CM. And you can find those easily in the GEMs. Here I have an example of some T500X6A codes and others that are trying to capture underdosing. If you tried to look up underdosing of certain medications in ICD-9-CM, you

wouldn't find an equivalent code. So using this backward map from ICD-10-CM back to ICD-9-CM diagnosis, you would have an indication that there's no predecessor code available. This a new, unique thing in ICD-10-CM. Also, slide 34 shows you other complexities to try to map between the codes that these GEMs assist you with. Sometimes ICD-10-PCS codes - one of them will capture multiple ICD-9-CM codes. And one of the examples, I guess, that probably drives inpatient hospital coders the most crazy is trying to code angioplasty codes where you have to have separate codes for the angioplasty to tell the number of vessels involved, if you used a stent, if it's drug eluting or not, and if there was a vessel bifurcation. It takes separate codes to capture all that information. With ICD-10-PCS, one code captures more. Now, this is an example of a backward map - mapping backward from ICD-10-PCS back to the ICD-9-CM Procedure Codes.

Slide 35 shows the opposite of the previous one. In this case, we have suture of the skin code in ICD-9-CM codes that's captured by multiple ICD-10 codes. And if you notice, all the sites and the approaches get described more clearly - how the suture of the skin is done and the type of repair. This is an example of a forward map from ICD-9-CM Procedure Codes to ICD-10-CM Procedure Coding System.

So - map - for slide 36, I tell you where you can find the GEMs - the forward and backing maps for both Diagnosis Coding System ICD-10-CM and the Procedure Coding System ICD-10-PCS. Depending on your use, you probably will use both. But depending on which one you want to start with and what you want to do, you analyze it one way - forward or backwards. Also, there is a very useful document that I would urge all of you to look at and that's the User Guide. The User Guide tells how to use the GEMs and it gives a lot of helpful hints that we're not going to

get in today. But if you forgot some of the things that we went over today or you feel like you need to dig in and do it a little more closely, then I would urge you to read the User Guide to find out how you can make your job of converting data easier.

We'll now turn to slide 37, and we'll start learning about the GEMs files. On slide 37, on the right side, it's just a little picture. If you open the GEM files today and look at them, that's what a section of one would look like. The first column in this particular example - this is from the ICD-10-CM mapping - it's a backward mapping file beginning with ICD-10-CM. On the left is the ICD-10-CM code and we call that the source code - that's the one you're working from. You know what this code is and you want to know what ICD-9-CM code or codes are equivalent to that code. So the middle column shows you the target code - we're trying to convert to this - and it shows you the option or options. The column on the right is a series of flags that will assist you even further in converting data. Once again, this is a backward map starting with ICD-10-CM and going back to ICD-9-CM.

Let's look at this in a little more detail and understand what all this means. And if you look at 38, I've taken a picture of just a few of the codes at the top of this GEM file. And you'll notice the first one - the source code - the ICD-10-CM source code is T1500Ax. And you'll notice that's listed twice - it's there twice. The target code to its right - you see two separate codes - you see 9300 and E914. And, as I'm sure you probably know, we're saying that that code - that T1500xA - has equivalence of two codes in ICD-9 and those codes are 9300 and E914. Going down that same list, you'll see that T1500xD is also listed twice and it also provides two codes in the middle column associated with it. So T15xD is two equivalencies under the targets codes - it

takes both 9300 and E914 to be equivalent to T1500xD. Looking at the last entry into our little column of GEMs codes, we see T15xS - it's only listed once. It has one code beside it - one ICD-9-CM target code - 9085. And what this is trying to say to you, in general, is the equivalent code for T1500xS is code 9085. Below it you'll see that I have inserted full titles for each of the ICD-10-CM codes and explained what those two matching codes are under the xA code - the full titles. You can do this yourself since we provided on our website the full coded titles for all of these GEMs. So if it's easier for you to simply make your comparison and insert the code titles to read them, then you can do that also. The User Guide gives you information on how you can accomplish this.

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