

>> Beth Virnig: Anyway, so I'm going to be talking about the MedPAR, and this is the hospital data. And again, like I did yesterday with the denominator, I'm going to really try to focus on inference and sort of on what you can do with these data and where the places where, sort of, when running a study and doing an analysis, you need to sort of stop and pause and think, and occasionally, where the opportunities are.

The MedPAR is the other file that was created explicitly for researchers. That is to say, it was organized and developed with a very particular application to researchers. So, it's one of the oldest files in terms of the Medicare data. So, the first two files that were created were the denominator and the MedPAR. The carrier and all of the other SAFs were developed later. And in fact, if you -- again, if you go through the literature, you will find articles using the MedPAR in the '80s. So this is -- and it's expanded a bit, but it's actually been a really stable file. For those of you who have used the HCUP, the Health Care Utilization Project, data, their hospitalization data, it's very much the same format. It's the same essential origins. And so a lot of -- so, I would also say that a lot of the things we talk about here are going to apply to the HCUP data as well, if you use those.

^M00:01:19

So, MedPAR stands for Medicare Provider Analysis and Review. You will see other explanations of what it actually stands for. They are wrong. This is what it is, and it is actually listed in the record layout. And the MedPAR technically includes two types of stays, in a -- there's sort of the short stay, long stay, hospital, and it includes skilled nursing facility claims. If you request them both, depending on -- typically, they will come in a single file, so the first thing you're going to want to do is split the skilled nursing facility from the short stay/long stay. And today, for the most part, I'm going to focus on those short stay/long stay hospitalizations. But I'll occasionally comment on the SNF.

So, one of the big questions you might be asking is, well, what's the difference between this inpatient SAF -- standard analytic file -- and the MedPAR, and how do I decide which one I want? So, the MedPAR, because it was created for researchers, contains one record per stay that summarizes everything that happened during that hospital stay. The inpatient SAF is basically an electronic print of bills. It makes sense, right, so the -- so a bill is submitted, and this is just sort of reorganized a little bit and just printed out. It's -- well, it's, frankly, less processing. And what that means is, that if a hospital submits two bills for a particular stay, they will have two inpatient records. For the MedPAR, that will be rolled up into a single record. So, that -- so, that is -- that is a huge difference. And we can talk about -- we'll sort of continue talking about it. The reality is, is most people only have one record. So, you could argue that, for the most part, it doesn't matter. Or you could argue that, for those few people that have multiple records, it does matter, and you still have to go through the process of getting them into a single record, and that's a total pain. So, the real decision is going to be, do you have a choice? And if you do, what are the circumstances where getting the inpatient SAF offers an advantage over other sources, and what is the

easiest way to get the information you need?

So, there are different rules. And somebody asked me about this yesterday. So, when you -- what happens -- the question is, what happens to people, those sort of unlucky people who are admitted December 27th and discharged January 5th? Where do they show up, right? These are calendar year files. And the answer is, it depends, like all good answers, right? So, the short stay MedPAR -- so the MedPAR is -- it's based on year of discharge. So, if somebody was discharged in 2011, it doesn't matter when they were admitted. They will be in the 2011 file. In the SAF -- does that make -- right, that makes sense. So, in the standard analytic files, it's based on claim through date. So, if -- so, if a person has two claims for a single stay, one claim is December 27th through December 31st, and then the second claims is January 1st through January 5th. One of the claims would be in the 2010 file, and the other claim would be in the 2011 file.

Does that make sense? So, it's just sort of the rules, right? It's just claim through. So, each bill, each claim, each bill is separate. And then what happens is that they're put that way. So, the real question that it comes down to practically is, what file and what do I ask to get the data I want for my study, right? I mean, be honest here. I mean, if you're like me, it's like, I don't want to be a claims processor. I want to do my research. I need to figure out what I need to do to do my research.

^M00:04:55

And so the answer is that the biggest place where I think people get in trouble is by saying, well, I want everybody admitted in 2010. And they sort of get sort of fixated on this admitted. And if you really want everybody admitted in 2010, you're going to need two years' worth of data, right? You're going to need all the 2010, and you're going need to those 2011. If you can be just, like, a little flexible and say, well, okay, I'll go with discharges, then you need one year worth of data. So, you've got to really think about why is it that we want something, and do I really want it because I really need it, or do I really want it, because I think I want it? And this is a challenge. And I get -- I mean, I'm saying sort of colleague to colleague, because I get pushback on this all the time. Because I'll -- you know, I walk down the hall to the technical advisors. I don't have to call them. I just go bug them at their desks. And they say, do you really need to do it that way? I'm, like, well, I want to do it that way, and, like, that's -- you know, and so we have this debate of, you know, can -- there's a simpler way to do it if you're willing to just let something go. So, just, when you start seeing things becoming more complicated than you think they should be, take the time ask, well, am I making it complicated, or is it complicated because these are hard data? And just try to separate the two.

^M00:06:09

Denied claims -- we talked about these briefly under strength and weaknesses. MedPAR does not contain denied stays, sort of. And I'll get back to that. The inpatient SAF contains denied claims. So, if a claim is submitted, and it's rejected, we're not paying this, it will show up in the inpatient SAF. There's a field called "claim Medicare non-payment

reason code" that says it's a denied claim. There are reasons for claim denials. Some of them get sorted out, some of them don't, in that final action process that Barb talked about. So, if a duplicate claim gets submitted -- a hospital computer error, they hit -- they hit enter twice, there's going to be two bills. Only one will get paid. The second one will be denied. Okay, those will often get picked up in the final action process and get smoothed out. But, if there's a claim for somebody who is in managed care that gets submitted by mistake, that will be a denied claim. They'll say, we're not paying this. You've got -- you're in Medicare Advantage. Or somebody who's got primary insurance, we'll say -- Medicare will reject the claim initially, saying, we don't -- we won't pay until your primary payer pays. So, those are -- those are non-payments.

The piece -- we talked yesterday, if you remember, about managed care and about the problem with managed care and that, with managed care, we don't get claims. Remember that whole bit? Instead of restricting your cohort? Well, the problem is, is that hospitals get paid through a sort of a complex allocation that includes what's called indirect medical education and charity care. And they get credit for those things. And it turns out that they actually -- the hospitals figured out, especially in areas that have a lot of managed care penetration, so it's sort of market-specific, that they weren't getting the credit when the people were paid through Medicare managed care. And that was a huge financial hit for some of these hospitals, particularly for teaching hospitals in markets that have a lot of managed care. So, the hospitals were allowed to submit what we're going to call dummy claims, almost, which were claims that were zero payment, but that allowed the hospital to document the care they provided for the Medicare program. So, when it came time to set their medical education payments, that they got credit for that work. And those claims will show up. Those are more common after about 2008.

So, again, the piece that -- so the -- do you remember the advice I gave you yesterday was the following. It's use your denominator to set windows for which you're going to allow claims to come through. And that will solve both of these problems, okay? So, but that's what -- this is one of those cases where, if you're not careful, you will end up with people in your numerator who aren't in your denominator, because we've now cleared all the managed care out of the denominator, but we're going to let some of those people stay in in the numerator if we don't explicitly get rid of them. Does that make -- I mean, so this is -- some of these -- these are, like, these processing issues that are frustrating because, if you're like me, I don't care how much the hospital gets paid for medical education. I just want to know what is the relationship between cardiac surgery and readmission rates. And so the point of it is, is have to keep track of all of these other things in order to do what we want to do.

^M00:09:30

When we're comparing the MedPAR and the inpatient SAF, the majority of the fields apply to both. So, there a few people, like, with a limited data set, where they might be an advantage -- a different advantage. My personal experience is the MedPAR is easier to work with than the inpatient SAF. It's a fixed-length file. And the -- and the underlying data for the

inpatient SAF is a variable-length file, because it's just a print of everything that shows up. The inpatient SAF does contain detail about some things which might be useful, though what I'm going to argue as we go through the -- sort of the list of fields is that most of the things that the inpatient SAF contains you actually can find other places. And so, if you're already using the carrier data, for example, the advantages of having the inpatient SAF may not be met. And that's certainly been my experience. I've used both. There have been a couple of studies I've run where I've actually said, no, I need the inpatient SAF to do what I wanted to do and have been very disappointed in what I actually got out of the inpatient SAF relative to the MedPAR -- relative to MedPAR plus carrier. And now, for the -- I don't -- rarely, I can't -- I would have a hard time imagining a circumstance where I would actually choose the inpatient SAF over the MedPAR. That's why I get to teach it, right? I'm going to sell the file.

^M00:10:54

A couple of other technical things to know. So, we talked about this long stay/short stay. And long and short applies to hospitals, not to stays. Okay, so hospitals would be classified as long-stay hospitals or short-stay hospitals. So, you can have a long stay in a short-stay hospital, and you can have a short stay in a long-stay hospital. So, it has nothing to do with length of stay. It has to do with the type of facility that it is. And a lot of these are rehab, psych institutions -- but there's another class that you need to know about, because you need to not delete them, and that is critical-access hospitals.

And so, critical-access hospitals are rural -- small, rural hospitals that are paid under a different mechanism in order to make sure that there are hospital facilities available for people in less population-dense areas, like Iowa. Now, I mean, seriously, Iowa has got a lot. Minnesota has a lot -- Wyoming. And the definitions of critical-access hospitals changed in 1997. So, we've had critical-access hospitals for a long time, all the way through the '90s. In '97, the definition changed, and over a period of years, between '97 and the early 2000s, all of the critical-access hospitals got renumbered into a consistent list of numbers. So, you can find them pretty easily by just saying, if facility ID is in this range, they're critical-access. The point of it is that they are short-stay hospitals. They are effective -- they are acute-care hospitals as much as in a large hospital labeled with an S. So, it's important, if you really want to understand health care of a population, particularly if you're looking at a state that has a rural area, which I think includes just about all of ours -- I think every state has critical-access hospitals. I'll have to -- might have to look up a couple of the New -- sort of southern New England. But basically, every state has these. And so, if you get rid of these hospitals, although they have sort of small admission bases, they are very definitely part of this, and they will -- and so, it's important that you know about them and keep them in.

^M00:13:17

So, most of the -- so, again, back to this thing. So, we talked about, a few minutes ago, that MedPAR rolls everything up into a single record and the SAF -- standard analytic file -- doesn't. But now you notice that

almost 100% of the records have only one bill. But there's a range from one to 12. And my experience is, is that it looks like the second bill happens when somebody has sort of a longer-than-expected stay, and they seem to cross a fiscal year. So, it's not always the calendar year, but it really ends up looking like it's the hospital fiscal year. So, a lot of the people, when we looked at it last, that had two records, often they actually were in the hospital over July 1st. So, a lot of hospitals use a June 30 fiscal year. Some use an October 1 fiscal year. And so basically, if there's a -- if there's a long enough stay so that somebody's maybe going on eight, 10 days, and it's crossing the hospital fiscal year, the hospital will sometimes send an interim bill to facilitate their record keeping.

That seems to be what it is. It doesn't affect how Medicare pays it, but it seems to be sort of an interim -- just -- I see you -- an internal record-keeping issue. And but what it means is that it's, again, taking the SAF and rolling it into a MedPAR affects a minority of records, but it does affect records. And in fact, to show the point, about 2% of all MedPAR records will cross a calendar year. So clearly, it isn't crossing a calendar year that triggers a second bill. It's other things, as we said, in my experience from looking at them is, it's business administrative issues. So they'll often be at the end of the month, and it looks more like a fiscal year.

This is the billing form that is used for institutional providers. I believe Barb showed that to you just a little bit ago. And just to point out a couple of things so you get -- so we're used to the language. This part up here is called the header, and it contains information that identifies the patient and the stay. It will contain the name of the hospital, the patient, their Medicare number, the dates of admission and discharge, discharge status, discharge destination. As I said yesterday, the demographic information that hospitals put in this is ignored in terms of what we get. So, we don't need to worry that the hospital has the wrong date of birth or mistypes gender or anything else. This next section here is what are called revenue center codes. And revenue centers are hospital billing centers. And we'll talk about them in a little bit. And then finally, down here, we're going to have diagnoses, procedures and procedure dates.

And then this column here is going to show us where all the money is. Now, the point of this, in part, is, as we -- we're going to go through the file in order, and you will notice, if you're like me, it's these diagnoses and procedures that are the most interesting, right? Well, guess what? They're at the end of the file. So, it's sort of funny. You're going through this file, and you're reading all this stuff, like, well, I don't want that. I don't want that. I don't want that. And finally, at the very end, it gets interesting. And it exactly just relates, even in the MedPAR, to the order in which the information comes in. It's not rearranged to put the best stuff at the beginning. You just have to slog through just like the people doing the payments.

^M00:16:38

So during processing, the DRG is added -- the DRG code, which is a diagnostic-related -- diagnosis-related grouping. And so, the point of that is, is that, if you look at these forms, and if you take time to look at it, there's actually a slot for the DRG. And even though there's a slot there, it isn't -- it isn't put in by the hospital. It's put in during processing. Now, I think we've all heard about times where hospitals say, well, we had the wrong grouper, and we didn't do it right. Have you ever heard these sort of stories? Well, what goes on there -- hospitals try to estimate how much they're going to get paid for a stay. And then, when the payment comes in, they'll compare. They'll say, well, did we get what we expected to get? And sometimes what happens is, a hospital will say, well, we thought we were going to get \$10,000 for taking care of Mr. Jones, and we got 600. And then they'll go back and they'll say, wait a minute. What wasn't done right here? Because we think we should have gotten paid more for this stay. And then, they might correct the bill. They might resubmit. They might say, oh, we miswrote the diagnosis down, and we put down athlete's foot instead of lung cancer. Let's change that code, because we missed a digit. And all the sudden, the payment goes up, or one of the procedures was missed, and it's -- it was a really -- it was liver transplant, and we didn't get paid for it.

So, when hospitals talk about having the wrong grouper, and you hear those stories, it's not because hospitals are charging different amounts and they're setting their own charges. It's because their expectations are not being met. And so, what they do is, they base their expectations to confirm that they have billed things through properly. And if a hospital has outdated expectations, they will end up kicking things back until they finally figure out what the problem is, that it's not a single-record problem, but it's, in fact, their expectations and how they're anticipating what they're going to get reimbursed.

^M00:18:30

Likewise, so, reimbursement amount, primary payer amount, copayment and deductible are all added during processing. So again, hospitals may anticipate it. They may guess. They may look at it, but in fact, it is determined by CMS. There's a field called days from admission to death. That is added during processing. And now, as Barb said, the tricky part about this field right here is, you need to know when the file stopped being updated to know what the -- what the censoring date is on that field, right? So, if the file is locked after 30 days, then you know that anyone who survives more than 30 days will be censored. If the file is locked after a year, you will know that anybody's who's still alive at 365 days needs to be censored. And that's really the challenge I have with that field is, there's no censoring date on it. If you think about, like, a Kaplan-Meier thing, the denominator is going to be a better choice for that reason, is because you know the censoring date for it, and you can extend it by just adding extra years of denominator file through it.

So, the question was, so the hospital submitted a bill. They were surprised. They corrected it. What do we get? And that's -- so, when Barb talked about what we call final action claims, that's what -- that's what it is is all of that stuff, and all of that correspondence and

back-and-forth and the fixing is all rolled into a single record. So, we will actually get the most updated stuff. And I've got to tell you, we should be grateful to CMS for giving us final action claims. We -- a few years ago, we were working with the state of Minnesota and Medicaid, and we didn't get final action. We got -- we got the claims as they came in, and we had to figure it out. It was the biggest mess. It was incredibly challenging to figure out what replaced what and what was right and what -- because of the way the fixed bills come in. So, the good news for us with these data is, we will get, at the end of the day, when everyone was done dealing with it, this is what the final conclusion was. These were the procedures, the diagnoses, the revenue center codes, the charges, the payments. And so, it's a huge advantage that we don't -- we don't even need to worry about.

^M00:20:45

Claim edit codes are there. I rarely use the claim edit codes. The only ones that I would use would be related to denial or some of those zero-payment codes to know why they were there. There will notes there. And then, as I said earlier, the demographic information is replaced out with information from CMS sources. There are fields on the file that are not retained in the claims data. We do not get patient name and address. We do not get any non-Medicare insurance information. We don't get the details. So, we get that there was a primary payer, because we have a primary payer amount, but that is all we get. We do not get anything about the attending physician or other physician, and we can -- and we can talk about that.

Again, my argument here would be that the attending physician of a hospital record is a physician who's technically responsible. Now, sometimes that's the person who really is responsible and who really is seeing the patient every day. Sometimes it's the person who happened to be on call at 4:00 in the morning when the patient was admitted, and they see them for 20 minutes trying to stay awake, and then they get passed off to somebody else. But they still remain the attending or other physician. So, I tend to say that, because a physician taking care of a hospitalized patient will also bill directly through the carrier file, if I want to know who the attending is, I go to the carrier. And I would merge in the carrier file for those -- for those E and M visit and for those visits and those procedures, and I would -- I would define -- and I'd define the attending physician as the person who bills the most or who does certain -- I make my own algorithm rather than -- I wouldn't trust this field, anyway.

This was one of those reasons that I'd looked at getting the inpatient SAF. I thought it would be really useful. And I figured out that the price of getting the inpatient SAF can be high in some cases and that there's other information that's equally useful that I needed to use anyway. And I think that's part of my logic is, I rarely am able to just use the MedPAR anyway. So, as long as I'm reading in the carrier for one thing, the advantages of the inpatient SAF over the MedPAR start to disappear very quickly.

And then there's this provider representative field. This is like the CEO or the CFO of the hospital. Nobody cares, right? It's just -- you know,

it's just the person who stamps, saying, on behalf of the hospital, this bill is real. And that's not -- and they don't even give it to us, but again, I hope there are no hospital provider representatives here, but if there are, I apologize. But I would argue, for research purposes, it's not particularly useful field.

^M00:23:25

Using age -- now, so you guys have heard me say now about 40,000 times that my recommendation is to use demographics from the denominator. Here's an example of some of the problems. The MedPAR does not include date of birth. And age in the MedPAR is reported in years with no cap. There have been times -- the MedPAR code was first written in the '80s, and it has been updated. And every once in a while -- I said to somebody the other day, it's sort of like, if you could imagine, like, correcting a single DNA error, and then not being surprised when other things changed. Well, the same thing happens with the MedPAR from time to time. It's actually been completely reprogrammed recently. But there was a point when the programming around age was done wrong. And so, some of the ages were set back to 65. So, we had a whole bunch of -- like, way too many people at 65 and way more than fit -- than matched the denominator record. And because there was no date of birth, it was impossible for researchers to check it. So ResDAC got a lot of calls, and we helped sort it out. My point on all of this is, well, if I had date of birth from denominator file, I can calculate age at hospitalization, and I don't need to trust that anyone programmed it correctly, other than my own analyst. And I can check that much more easily. So, my advice would be, there is age. At present, it is coded perfectly. If you are worried, use the denominator file, use date of birth, and calculate age at admission.

^M00:24:56

We talked about geography yesterday. Well, in the MedPAR, there's also information about geography. There's patient information and there's hospital information. The patient information is based on residency when the bill is processed. So, when that bill is processed and goes through CMS systems, the information on residency is grabbed off the enrollment database and just populated in the file. So, what you can tell about that -- the biggest thing is, is that if somebody -- if it's different between the denominator and the MedPAR, you know that they moved. They either moved before the denominator was finalized or after, depending on when bill processing was. The good news is, there's not a lot of movement. So about 1% of MedPAR records have a state of residence that doesn't match the denominator. So, people aren't moving a whole lot. But it's also one of these things where you could spend an awful lot of time on these fields, on getting the MedPAR and the denominator to line up. And so, I encourage you think carefully about what you would get out of this exercise before undertaking it.

^M00:26:04

You can also look at state in terms of provider state. So, the first two digits of provider number tell the state of the provider. And so, then you can do this fun thing where you can compare state -- provider state and bene state and examine people who receive care out of state. So, we

can calculate distance, but we also -- right, travel time, but we can also just look to something simpler, like how many people leave their state? And so, and we looked -- or, when I last looked, almost 6% of people have a provider state and a beneficiary state that's different. Now, that still doesn't necessarily tell us what we want to know. Because if we live in -- if we live in Hanover, New Hampshire, and we get hospitalized in -- what's the town? There's a Vermont town right across the river that I'm totally blanking on now. Or, we live in Stillwater, Minnesota, and Hudson, Wisconsin. It's across a bridge. The closest hospital may be in a different state. So, there's sort of this rational adjacent border crossing that is one thing, but then, at the same time, if I live in Minnesota, and I go to the Cleveland Clinic, that's a completely different amount of travel. So, the answer is, you can figure out which way you want to do it. Do you just want to know, do we leave the state borders? Or do we want to know, did they actually travel where the travel is more than just crossing a state line but is in fact going several hundred miles or several thousand miles in order to get health care?

^M00:27:33

PPS -- this is the Prospective Payment System, and prospective payment system is how the majority of facilities are currently paid in the Medicare program. And what that means is that they are paid based on assumed charges for certain things -- DRGs. And then at the end -- after the end of the fiscal year, usually about a year later, there's sort of an aggregate accounting that happens with the facility. There are a few details you need to know. There are no PPS hospitals in Maryland. So, in Maryland, no one is paid under DRGs. There are 10 cancer hospitals that are PPS-exempt. Critical-access hospitals are PPS-exempt. So, their payment is based on a different set of rules than for all other hospitals. Overall, about 6-1/2% of stays are non-PPS, okay?

So, but the thing you need to understand is that the MedPAR records for the PPS and non-PPS hospitals look the same. There will be a DRG populated. There will be payment amounts. There will be dates. They will all be populated. The only time that you -- that you need to care about whether it's PPS or non-PPS is if you start caring about why they got paid what they got paid. So, not what they got paid, but why they got paid. If you care about why they got paid, you need to look at the PPS field. If you care about what they got paid, you can ignore it. But, this is a question that has come up. I've had this from reviewers from time to time. Well, you're studying -- because I do a lot of cancer-related research using these data, and they're, like, but you're studying oncology, and everybody knows they're these PPS-exempt hospitals. Right? But that has nothing to do with what I'm doing with it. But still, you get a reviewer who knows that there are these 10 PPS-exempt hospitals and can't quite figure out how it all comes together. So, it's just important that you understand this and that you not worry about unless you need to.

^M00:29:29

Managed care -- so, this is, again -- this is the biggest thorn in our side. Prior to the Balanced Budget Act, HMOs were encouraged to provide hospital encounter data, but not required. This hospital encounter data that they

did sort of dummy bills they did provide were put in the MedPAR. There was a -- there was discussion about what exactly was included, or which stays, and there sort of were -- were sort of a couple of theories floating around, and then I'll tell you my take on it.

So, there was a theory that it was random, what managed care plans included. That sometimes they would dump everything for a month, and then somebody would forget to do it for another six months. Some argued that it was systematic, that they would take the most expensive stays and submit bills for those to just how hard they working and ignore all the bunionectomy kind of stuff. There was -- there was people saying it didn't matter, because they weren't real, they were just made up, and they were just dumped from time to time. The reality was, because it was so incomplete, and nobody really got a good handle on what these claims meant, but they were included in the MedPAR.

So again, this was -- so my advice to you, which is, explicitly remove managed care, is a longstanding pattern. Because it's -- these data have -- this has been a longstanding issue. Inpatient encounter data have been mandated by managed care for managed care to submit since January of 1999. They have been submitting them. They are the basis of payment. They have never been included in the MedPAR or in any data that's available to researchers. And personally, I don't expect it to happen anytime soon. I've got friends at CMS who have tried to use these data and tried to look at validation. And I think this is just sort of an area of confusion. There's this concern that the data aren't accurate and they're not complete. And nobody quite knows why.

And so, the concern is that we wouldn't sort of -- if you think back to our idea of likely to have complete claims, the real concern, the fundamental concern, is that there's not obvious evidence that these claims are complete. It's - nobody is accusing the plans of being -- of misleading, of over-reporting. If anything, I think the issue is still under-reporting. So, everybody is very concerned, and these are kept separate. There's hope, by a lot of people, that in time, they will be able to be combined or be available so that we could actually compare health care outcomes, utilization, between managed care and fee-for-service. At present, we can't. It's sort of still this black box we're having to work through. So, again, that's my advice based on what I know now. I will tell you from other experience, you know, next year when we re-tape this, you know, sort of scroll through quickly to see if any of this advice has changed. Things can change very quickly. We had things we'd been begging for for years, and like, no, no, no, no, no. It's like, oh, guess what, we're doing it next week. So anyway, so things do change, and we can hope that this may be one of those.

^M00:32:44

But again, just to bottom-line, risk managed care enrollees such be explicitly deleted from the MedPAR, even if the file contains records for them. That's my strongest advice. Cost managed enrollees will have their MedPAR claims processed by CMS. We talked about those yesterday. And this is -- and their outpatient will be, as well, but so the issue here is that,

if you are doing an analysis that only need hospital data and doesn't need carrier and doesn't need DME, I don't see any reason not to include -- not to keep the cost managed care in your study. And I certainly have done that myself. If you are going to need carrier, you're going to have to get rid of them, because the carrier data will be incomplete. So, my decision, personally, came down to, if I could have a single study -- a single manuscript that used only MedPAR in denominator, I kept them. But what I personally didn't want to do was have this switch of, halfway through my study, getting rid of a chunk of people because they had something else. And so, it really came down to that. We have run sensitivity analysis, sort of, do I get different results when I include cost managed care or risk managed care? And the answer was, no, they're a small group of people. They're unlikely to sort of move the ship of -- the Medicare ship. But again, think about them and make an explicit decision based on your needs -- around power, around simplifying, around sort of the ease of writing your manuscript.

^M00:34:24

Dates. Dates tend to be consistent. How's that for -- and again, as we said yesterday, this is because one of the first checks that happens when a claim is submitted is, it's checked to see whether Medicare was responsible for that person on those days. So, the dates tend to be very good. The only tricky thing with dates is there are no zero length of stay. So, if somebody is admitted and discharged on the same day -- so, for example, they're admitted, and they die that day, which is usually -- when you get the zero -- when you get the single-day stays, they will have a length of stay of one. If somebody is admitted and discharged the next day, they will also have a length of stay of one. Okay, so there are no zero length of stay. So what that means is, if you really want to differentiate between those two, then you need to calculate it yourself in order to separate those out. You've got the dates yourself. You can always do it.

And then, just a reminder, length of stay for SNF follows a completely different rule we're not going to review today. So, oftentimes, when we've had calls saying, length of stay isn't calculated right, the first we'll say is, well, did you get rid of the SNF stays? And then usually it clears it up. So, there's just a totally different rule.

This is one more reason why you want to keep them separate. Length of stay follows a really typical pattern. There's a really steep drop-off. The median length of stay is about 5-1/2 days, and a hugely long tail that continues way out. So, the question was, we don't have time of day, so you cannot figure out 24-hour periods. So, we cannot calculate how many hours was this person in the hospital. We can calculate on how many different calendar days were they in the hospital. And so, we do worry. We say, well, if they came into the emergency room, and maybe they're getting credit, we're saying this is a one-day -- you're saying this is a two-day stay, and in fact, they -- you know, they were barely there overnight. And the answer is, those things happen, and we don't have the precision to do it. It's not on the form.

So what it would -- for us to get it would require asking hospitals to improve the precision of their reporting from admission day to admission day and time. I mean, clearly, the hospitals know it. If you look at -- if you've ever looked at charts, though to be honest, if you've ever looked at charts, it's not always easy to figure out exactly when that person first showed up. I mean, unless it's, like, a planned admission, but some of the ER stuff, it could be really tricky to figure out. Like, when did they actually show up, right? So, if you want -- if you need that level of precision, these just aren't going to be the right data. But you can do calendar days. And once you get out to -- you know, once you get out to this part of the curve, that's fine. Really, the only place where we really care about how many hours they were around is for these very, very short stays. And those, we're just stuck with.

^M00:37:25

When we look at clinical information, there's four sources of information. There's DRGs, diagnoses, procedures and an admission diagnosis code. And we're going to go through them in order. I want to remind everybody that diagnoses and procedures will be consistent with DRGs, but not all DRGs require a specific diagnosis. And, as I said earlier, DRGs will be -- will be calculated for everybody, even if that's not the basis for payment. So, if you want a DRG, you will have it, even for the PPS-exempt stays.

But here's the problem. So I bought -- a few years ago, I bought a DRG -- a DRG book, right? And mine -- and I bought this really good one that had an ICD-9 crosswalk. So, I was very excited, because this was, like, okay, I can finally get these things to work. And so, I looked it up, and I was, like, okay, so I looked at my hip fracture, and it said, go to DRG 236. Like, oh, this is easy, right? Like, after all this slogging through charts, I can finally just get it. So, then I did it, and I checked back, and it turns out that about 6% of hip fractures are actually coded under the DRG for fractures of hip and pelvis. And that most of the DRGs, in fact, have DRGs 209, 210 and 211, which are surgical DRGs, which are major joint, hip and femur procedures, which don't require a specific diagnosis. So, this is our problem with DRGs is that DRGs -- the first cut on DRGs is, is it a -- is it a surgical stay or a medical stay? If it's a surgical stay, the DRG is assigned based on surgeries first. If it's a medical stay, this ICD-9 crosswalk works beautifully. So, my ICD-9 crosswalk worked far better for the hip fractures that were treated medically, which are a minority, than it did for these hip fractures that were treated surgically. And yet, often when we think about a clinical cohort, we want to kind of combine the two of these. We want to define it based on a diagnosis and then see the effective treatment, rather than on treatment and see the effective diagnosis.

For heart attacks -- AMI, acute myocardial infarction -- 92% of people with a diagnosis of 410 have one of five DRGs. But I want to point out that DRG 106, DRG 110, DRG -- and DRG 106 and 110, which are two of the common, don't require a diagnosis of heart attack. These are procedures. These 121, 122 and 123, which are circulatory disorders, do in fact require a particular diagnosis. So, even with something like heart attack, what you will find is, if you only use DRGs, you've got to be careful to make sure

you get everything. But also notice that there's no strategy that gets it all.

Notice two things here. You'll see this thing call "with CC." This is complicating conditions. So, hospitals are paid more for their DRGs if the person has complicating conditions, and there's a whole list of diagnosis codes that are considered complicating conditions -- diabetes, cancer, pulmonary problems. And that makes sense, right? It's going to be a whole lot harder to take care of these patients. The challenge, then, is, is that there's -- you can also see there's this built-in incentive for hospitals to code complicating conditions, because it will improve -- it will change their payment. Not fraud, just completely coding everything that is wrong with a patient. So, we've got to keep this mind when we talk about -- we talked yesterday about the fact that the payment rules will impact what is reported. This is an example. In the inpatient setting, complicating conditions impact payment. In the carrier file, they do not. So, we will -- so, there's a different incentive to fully record all comorbidities in each setting. The other piece you should notice, and these are relatively unusual, but they happen, is that we've got -- that in some cases, the DRG will be affected by discharge status. So, for cardiac, discharged alive and discharged dead have different DRGs. So, the DRGs will be influenced not just by diagnoses and procedures and complications, but, in some cases, age, in some cases, discharge status and other things.

^M00:41:47

When we look at the number of diagnosis codes, what we see is that there's sort of this hump that -- the most common diagnosis code is 9. So, in other words, whenever anybody can, they will fill in all of the slots that we have. So, in fact, the -- if we looked, I think the average is more like five. So, again, there's this incentive to fill in complications. With that comes sort of this funny joke, because you can sometimes end up with these things. Like, hypertension is protective against mortality. People, sometimes, like, how can -- how can, like, being -- so you get all these theories, like -- and this is my, if it's too good to be true, it's probably too good to be true -- like, well, maybe having higher blood pressure helps the body compensate against shock, and they're less likely to be hypotensive. And you can imagine, right, these stories. What it really is, is that, if you're trying to show complicating conditions, and the only thing wrong with this person is that they're a little hypertensive, they're pretty healthy, right? Because, you're not going to code hypertension until you've gotten their diabetes, their congestive heart failure, their cancer, their renal problems. And by the time -- if the only -- so, if your secondary diagnosis is hypertension, you've got somebody who's very healthy, and that's probably the reason why they have better survival than somebody else.

There's also this other explanation, which I actually experienced when I was in grad school doing chart abstraction, which is, if somebody comes into the hospital and crashes right away, and so all that effort is put on trying to save them, and they don't succeed, rarely will the hospital go back through and figure out -- do a full history and figure out all of

their comorbidities. They'll move on. And so some -- so, the other group of people that will sometimes look very healthy, are the people who have -- are the people who don't do well, and where we just never got back to it. There is some concern that, for some of the PPS-exempt hospitals, because they're paid differently, that there may be less completely reporting. And my biggest concern is the rural hospitals. We see this really funny thing of, the patients are healthier, and they do worse, right? So, they have fewer diagnosis codes, they have lower comorbidity scores, and yet, they don't seem to be as healthy. And so, the question is, well, are rural hospitals not as good? And having spent a fair amount of time looking at this a couple of ways, I've come to the conclusion that they're not as good, but they're not not as good at what we think they are. It's not that they're not as good at providing medical care. They're not as good at coding.

^M00:44:21

And so what happens is, there's less of an incentive for them to fully list all of the comorbidities. They will often tend to -- they will have less sophisticated administrative staff, and they probably aren't reporting things in the same way that some of our large urban hospitals are. So, we end up seeing, in the claims that come through, this difference between the two that we could assume is quality of care, that probably has more to do with processes. So, it's important, if you see something systematic, to really take the time to think, what else could be explaining this, knowing the origin and the incentives behind -- and the requirements behind these data?

Present at admission. There are these new present on admission codes, and they -- hospitals are paid less for conditions not present on admission. So, the idea behind that is that, if somebody has -- it's for these conditions that could be either complications or comorbidities. And there's still a fair amount of debate. So, if somebody has congestive -- comes in with congestive heart failure and a heart attack, managing that heart attack is going to be a whole lot harder because of the congestive heart failure. However, or if somebody comes in with a pneumonia, right, the pneumonia's present on admission. The hospital needs to manage it. However, if somebody comes in completely healthy and develops a pneumonia, that's a different thing.

So, the idea is to try to separate out what the hospital got with what the hospital created. And there's somewhere it makes less sense, like diabetes. Like, if you've got somebody who comes in with a heart attack, oftentimes, that's how diabetics are found. And then, once they're in the hospital -- so, like, what do you code the diabetes as? Is it present at admission? I mean, it's hard to imagine a hospital caused it. It's just more like they found it. So, there's still some tweaking and some focusing to say, we're really not worrying a whole lot about chronic conditions we don't think can be caused. We're really worrying about congestive heart failure. We're worrying about fractures. You know, did they come in with a hip fracture, or did they fall out of bed in the hospital and do that? That's really where the focus is. Some hospitals are exempt. They're required for every diagnosis.

And the big point here is, expect secular changes over this transition period. Expect, as everybody adapts to this -- as CMS adapts, as the hospitals adapt, as these roll out, expect that there's going to be adjustments. And so, if you're looking at these, you know, this is one of those times where, even if you don't care about time, you're just trying to group a bunch of years, you really want to focus on time, hospital size and a few other things to make sure that you understand whether the patterns you're seeing are a cause or an effect of something else.

^M00:47:08

Surgery codes. Most people don't have any. Those who do have one. And there's a very small number of people who have multiple codes. I stopped my graph here at six. They're actually -- the form lets you have, I think, up to 12 surgeries, and the people who have 12 are not in good shape. So, one of the questions that comes up is, well, how do I know the diagnosis coding is complete? Can't I assume a diagnosis from a procedure? And the reality is that that's harder than it sounds. So there are very few procedures that have only one indication.

And years ago, I was doing a study of -- an oncology study, as always, and we were trying -- we were exploring this, and we said, well, let's look at this. Like, why would you do -- and we started going through the procedures. And so, it started -- and so we said, like, well, why would you do a lobectomy other than for lung cancer? And sort of the generalist I was working with, this general surgeon, said, well, what if they got shot? Okay, fine. Like, why would you remove someone's liver other than for cancer? And he said, well, what if they got shot? And about the third cancer, I'm like, I'm not talking to anybody, but apparently we kind of agree that nobody gets shot in the prostate. And so I was allowed to look at that one. And so -- and so we actually said, well, look, radical prostatectomy is basically a procedure for prostate cancer that really has no other indications. We don't really do radical prostatectomies for BPH. It should be for cancer only. And so, when we did that, we found -- and we've repeated this multiple, multiple times. We looked at the 5% data, and we found that almost 100% of the cases with a radical prostatectomy had a diagnosis of prostate cancer. We've tried this for other things, but it gets -- it gets really tricky. Like, you know, you can -- there are multiple indications for coronary bypass. There are multiple indications for very -- for a lot of these things that we do.

And so, what we -- what I have concluded personally is, is that assuming a diagnosis from a procedure is more likely to introduce error and that the coding is pretty good, sort of the bottom line. However, what you can do, is you can combine them to separate out subgroups. So, if we look at hip replacement, we can say, well, you can replace hips for two reasons. You can replace it because you broke it. You can replace it because you're tired of it. And it's the same -- it can be the same procedure, but the indication would be different, and we might expect that the outcomes -- the rehabilitation and the cost would be different depending on them.

And so -- and this is actually an example that Jack Wennberg at Dartmouth did and I borrowed. So, combining the diagnosis and procedure codes allows

us to separate out elective hip replacement and hip replacement due to fracture. And so, when we did that -- these are total hips. And so what we find is that, out of the total hips, 91% of the total hips are -- in fact, are elective, and only 9% are for fracture. When we look at the mean age, the total hips are younger than the fractures. They have shorter length of stay. They're more likely to be discharged home. They have tremendously lower mortality, and they are less likely to be diagnosed -- sent to a nursing home. So, you say, well, that seems to stratify it quite nicely. Just a reminder, when you do these sort of things, you've got to ask, well, maybe it's because the fractures are all partial hips and not total hips. I haven't re-run that yet, but again, this is where you want to make sure that you really take into account sort of the clinical reality. The point of this example is still the same, which is, you can combine a diagnosis and a procedure. Prophylactic mastectomy, mastectomy for cancer. Or, mastectomy with and without reconstruction. Or, whatever -- hemicolectomy due to cancer and due to irritable bowel syndrome, Crohn's disease and other non-cancer conditions. What are the differences?

^M00:50:56

There's this group of codes called V-codes that I want you to know about. And V-codes are called -- they're defined as supplementary classifications, and when I first found them, the person I was working with said, you know, social things. Whatever that means. Almost a quarter of hospitalizations have some V-code. But about 3% have a V-code as the primary reason. So, when we look at our heart attacks again, personal history of cancer -- and this is one of these really common ones we'll see in a couple of directions.

Personal history -- and we see this with cancer cases, and we see this with other things, is that sometimes some hospitals, rather than coding something as cancer, coding it as heart disease, will code it as a history. And that's, I think, their way of -- at first, I thought it was their way of saying, well, we're not really treating the cancer. It's just this thing floating around. But you will notice a fair number -- if you look, like, a fair number of people whose diagnoses are personal history of cancer and chemotherapy. Now, if someone's getting chemotherapy, it's more than just a history. It's, like, their active disease. So my answer is, I don't quite know why some institutions use the personal history field versus the active diagnosis field. But they do. So, just look both places. It's actually, in my mind, a weakness, for example, of the Charlson. There's a Charlson, and most of the comorbidity scores do not use V-codes. They ignore them. And I think they underestimate some comorbidity in some cases.

^M00:52:27

You'll see codes like tobacco use. Now, the problem with tobacco use is that, while I have no doubt that everybody that has that tobacco use code smokes, I am not convinced that the people who don't have the tobacco use code don't smoke. And that we've got to watch. Pacemaker is an important one, as is coronary bypass. And what these are is, these are places where -- these are both procedures. So, if somebody in a previous stay had a pacemaker, or previously had a bypass, how do you note it on the record? You're not -- you can't use it as a procedure code, because you're not

getting another one. So, that's the case where the V-codes could be useful. Likewise, AKA is above-knee amputation, or BKA, below-knee amputation -- once that limb is amputated, the question is, how do you report it? Because clearly taking care of a diabetic who's got an amputation is a whole lot harder and clinically means it's a whole lot complicated case than somebody who isn't there. So, that's, again, where V-codes are. History of gastric ulcer -- so, this is -- this is, again, one where I haven't done the looking to say, is that they've had ulcers in the past, so we need to be really careful? Or is it that an ulcer is an active issue? We can't -- based on my cancer -- personal history of cancer, I would say it probably is a mix. But these are -- again, these are examples of things that could be coded that are -- that would make taking care of this patient much more challenging.

^M00:53:54

Just a reminder, there are other V-codes -- renal dialysis, chemotherapy, long-term use of anticoagulants, kidney donor, general psych and so on. So, if you have time, at some point, just flip through that section. There's some pretty interesting things, and in some cases, might be useful.

Pre-existing conditions and comorbidities. So the Charlson index is the most common index used in the administrative data to -- and it counts the number of comorbidities, and in some cases, provides weights. The index was developed by Mary Charlson in the '80s, and there's been a tremendous amount of work on comorbidity indices. And what's amazing is, no matter how sophisticated we get, the Charlson is amazingly robust. It drives everybody nuts, because it's so simple. It's pretty crude. And it's pretty robust. And there ought to be a way to improve it, and nobody has really been able to do that much better, which seems wrong. So, you will definitely find occasionally reviewers who like a different comorbidity index than the one you have. The two things about them is, Charlson is calibrated to predict mortality. That means there are things that are not in the Charlson. There are things that are low mortality, high-use conditions that will not be in the Charlson. So, make sure that your index is right for what you are trying to adjust for. If you're worried about mortality, this is -- this one works as well as anything else. If you're worried about something else, it may not be the right one. And that's probably the biggest thing.

The other piece to remind you, this is one of these things that happens as people say, well, can't you pre-program Charlson for me, so it's just sitting in the file waiting for me to use, right? And the answer is, Charlson, like all of these, is anchored around a date. So, what is their Charlson at admission? Or, what is their Charlson at a point in time? Because, your comorbidity score will change. And so, one of the biggest challenges with sort of pre-programming these things is, you can get your code ready, but the start date is going be study-specific.

I will tell you that, in my studies, again, of oncology patients, where I'm looking at comorbidities, I will often set the Charlson to three months prior to diagnosis rather than at diagnosis. And the reason I do that is, one of the things we've found is that, during the diagnostic workup,

oftentimes other things are found. And so it's hard to tell sometimes how much of the comorbidity is due to somebody having a pre-op physical and finding something versus having a comorbidity that was there before the decision whether or not for that person to have a pre-op physical. So, think carefully about how you're -- where you want your comorbidity index to be anchored and what it is you're worried happening and how you think the thing you were measuring is going to affect what you see. Make sense?

^M00:56:50

So, when we look across all discharges, this is what we see. So, first of all, we see that most people have a Charlson of zero. And that -- and then the next most common is one and two, and then we've got these bumps because of the Charlson weights. Just keep in mind that this is -- this can be -- one of the other challenges is, is that hospitalization rates are changing over time. They're dropping. So, the Charlson based on hospitalization data only will have more people classified at zero than other comorbidity indices.

Carrie Klabunde from the NCI created a modification of the Charlson that used data from physicians in outpatient settings to try to take care of this zero. And what she did in her modification, which I personally like, is she said, there's -- sort of, it's a two-stage comorbidity index. So, it said, the effect of having a hospitalization and one comorbidity is different than having one comorbidity but no hospitalization. So, she keeps the two pieces sort of separately, and that seems to work well.

There's always the ongoing thing about whether different conditions should have different weights. Should the weight -- should the importance of diabetes depend on what the primary thing is, or is diabetes a constant? As we said with diagnoses, it could be just difficult to distinguish between pre-existing conditions and complications. The present at admission code should be helping that, but I think, again, we need to watch it, and we need to make sure that we look at it over time and across institutions. There are no rule-out diagnoses. This is sort of the house effect -- excuse me. And in the inpatient setting, most rule-outs aren't noted. Like, if we thought it was something, and we did some tests, we decided it wasn't, they won't ever be noted. Sometimes in the carrier file, rule-outs will often appear as diagnoses.

So, Marshall will talk to you about algorithms to try to separate out -- you know, so, for example, a mammogram should actually be coded as rule out breast cancer rather than breast cancer. But often, it'll be coded as breast cancer, and then it just never shows up again, and diabetes, when people do screening tests and so on. The admitting diagnosis field may provide some information. My personal experience is that the admitting diagnosis field often will have a symptom rather than a diagnosis. So, you'll be admitted with chest pain, discharged with a heart attack, rather than admitted with rule out heart attack, discharged with heart attack happened. But again, also remember that the admitting diagnosis isn't finalized until discharge, which means, at the end of the day, the hospital knew what was wrong when they filled that in, or finalized it. MedPAR has about 30 fields describing charges. Total charges, accommodation charges,

developmental charges, specific charge subgroups.

[Inaudible] payments. There's patient payments, which are both the inpatient deductible and the coinsurance amount. And CMS has two pieces -- the total reimbursement plus billed total per diem, and then there's a primary payer amount. So, when we're looking at the payments, CMS pays these two pieces -- total reimbursements plus billed total per diem. Bene pays the deductible plus coinsurance amount, plus there's a blood deductible that we rarely see. And then, all sources, you take the patient, plus the bene, plus the primary payer or not.

So, if you want to find out -- like, there's no field that is, like, at the end of the day, what was the hospital paid? There's no field like that. You've got to put it all together. You've got all of the pieces that you need, but you need to do it. Revenue centers are institutional cost centers. And this is sort of how the hospitals do their accounting. So, departmental private room, lab, CT scan, whole blood, professional fees and so on. There's a huge list in the record layouts of all of the revenue center codes. The problem is, and this is very interesting and useful, revenue centers. The problem is, facilities can choose which revenue centers they're going to use. So, a facility could use to have all of their imaging under radiology -- under diagnostic radiology, they could choose to have a separate MRI, separate PET, separate CT, separate x-ray. And that's one of the problems.

So, one of the cases where I actually wanted to use the inpatient is, I wanted to find PET scans. This was a few years ago. And so, I looked up, and there was a PET scan revenue center code. And I'm, like, well, this is great. I can just find them. Well, what I figured out is that most institutions that had -- that did PETs did not use the PET scan revenue center code. They rolled it into diagnostic radiology. So, the fact that there's a revenue center code for these things does not mean anybody will use it. And in general, the bigger the institution, the more fine-grained the revenue centers will be, because the more sophisticated their accounting system will be. The smaller the institution, the more things will be lumped -- the more things will be grouped. So, for example, do you have a general -- a general ICU, or do you have a surgical ICU, a medical ICU, a trauma ICU? Depending on how the institution is organized, they may go either way. And because it doesn't affect payment, this is their accounting system. So, we need to recognize what would cause an institution to choose to go one way or another.

So, the MedPAR rolls these up into more general categories, such as lab, pharmacy and so on, recognizing that we've got to be careful not to read too much into these. But there are some indicator variables which are thought to be generally stable. There's an ICU indicator. So, just about everybody who's got an intensive care unit combines surgical ICU, medical ICU, trauma ICU. But there is an ICU indicator. There's a CCU indicator -- these diagnostic radiology. There are indicators for CT and MRI, but sometimes you want to combine the three. You also get charges. You can get pharmacy charges, PT charges, lab charges and ER charges. So, one of the things that I will do if I want to find an emergency -- a person who

was admitted through emergency is, I will actually look for emergency room charges. So, the emergency room revenue center code should have a hit. Now, the challenge we've got is that some hospitals will have a policy, especially on weekends, that everybody is admitted through ER. So, everybody picks up a couple of dollars, just in the admitting process. And so, people have looked at strategies to try to differentiate between sort of a pro forma ER admission and really showed up in the ER.

And, you know, so I've joked about this, sort of like -- at one point, I said, you know, I used to know how much it cost to get eight stitches. And I'd say, well, if it cost more than eight stitches, than I'm going to call it an emergency room stay. But, you know, just sort of -- that's the case where I do some sensitivity analysis. I would expect it to be more than \$10, but probably less than 1,000. Somewhere in that range, you're going to say, there's a cut, and if you had less than that, I'm assuming you just kind of had to walk through the emergency room to get admitted. And if it's more than that -- or, you could go to the carrier and look to see whether there was an E and M code -- evaluation and management code from an emergency room physician with an emergency room. You could look at it that way. So, you could look at other signs if you -- to really sort of get those bubble cases sorted.

^M01:04:14

Admission type. Provided by the hospital, not related to reimbursement. So, this is our challenge. We've got these great categories, but it does affect payment. So, what does that mean? It means that only 66% of our hip fractures were emergencies. But the good news is, only 6% were elective. So emergent, urgent, is sort of this funny thing. But at the same time, our hip fractures not due to fracture -- 3% of those were coded as emergencies.

Elective stays are variable. Fortunately, most of our elective hips were, in fact, elective stays. But you can sort of see, there's this funny mix here, where things that we think ought to be more important are under-coded, and in some cases, we might expect things are over-coded. So, I would just encourage you to be careful using this field and really think about it. Because, again, it's not related to payment. But it has to be filled in, and so, use it cautiously.

Discharge status. Somebody asked me this yesterday. So, in fact, when we look at alive versus dead, this all lines up. So, what it -- and so, we get consistent information there. We also have discharge destination. And discharge destination is one that I personally have trouble with. The reason I have trouble with it is that I think -- I think it has a high risk of being incomplete. So, for example, people discharged -- the information is provided by the hospital, and it's based on the information that was available when the discharge summary was written. So, for anyone who's ever had -- ever been discharged from a hospital, or had a relative discharged from a hospital, you know that sometimes the home health care isn't arranged for a couple of days. And sometimes you get people home, not quite sure what you're going to do with them until you get all the arrangements made. And it's not clear to me that those arrangements will

always show up as being discharged to home health care. Sometimes I think people are just sent home. So, the fact that they are sent home doesn't mean they're not getting home health care.

I also worry about people coming from skilled nursing facilities. So, if somebody's living in a skilled nursing facility and goes to the hospital, and then they go back to their room, where did they go? Did they go home? Or did they go to skilled nursing facility? I mean, I don't know, right? I mean, because -- you know, it's, like, it is their home. They just went back to where they came from.

And so, there's this funny thing here of trying to figure these two out. I have no doubt that the transfers are fine -- intermediate care facility, the other institution, the other hospital. But I think some of, like, the home health service, home IV drug therapy -- I think some of those have a chance of being incomplete. So, what I do if I really want to find out the people who received home health care after discharge, I get the home health care file, and I just check. And I say, I'm going to define anybody who had a home health care visit within three days of discharge, or five days of discharge, or whatever, is receiving home health care. So again, what I'd say is, if you think about the Medicare program, these are all covered benefits. So, if you really want to know it, you can -- you can take -- you can use what the hospitals gave you. If you're using the other sources of data anyway, you can just check yourself. And that way, you will have far more control over definitions.

^M01:07:27

So, again, if we look at our discharge destinations, we see -- you know, hip fracture cases are less likely to go home, more likely to go to skilled nursing facility. Sort of less likely to go to home health care. Very unlikely to leave AMA -- against medical advice. And they have relatively high mortality.

^M01:07:48

As Barb pointed out this morning, care that begins in an outpatient setting and leads to an admission will be rolled into the admission. The two big examples would be emergency -- an emergency room stay that leads to an admission, and frankly, a procedure that was intended to be a day surgery and, for whatever reason, doesn't end up being one. Okay, so somebody's having a procedure. They don't recover from the anesthesia as well as they thought, or there's some complication. They end up getting admitted. So, this is -- so again, inpatient setting is where they end up, not where they were intended to be.

So what this also means, just for this one, real quickly, is that, if you're looking at something that's usually, almost always, an outpatient procedure, you still might want to check the inpatient just to make sure that a few of these didn't convert to hospital stays. Inpatient rehab. And this is -- this is tricky. So what happens is, some hospitals can have a rehab unit. And rehab that's done in skilled nursing facilities is found in the skilled nursing facility file, or the SNF MedPAR. Rehab provided -- acute inpatient settings is found in rehab hospitals, which is easy.

But then, short-stay hospitals can also provide rehab. And in that case, they would be discharged from the hospital and readmitted to the hospital -- the same hospital, but as a separate admission, and there will be a separate unit -- there will be what's called a special unit code variable with a value of T. It makes no sense, but that's just the rule. And so, what I would say is, check with ResDAC if you're tracking rehab over time. These rules have changed. But what it means is, that if -- what you're going to have to decide is, how do you count length of stay when somebody goes from an acute care to a rehab. And my advice would be, think carefully about how you're going to count length of stay. Make sure you don't count it differently for the short stay, the rehab facilities and the skilled nursing facilities. Just think about those, just sort of all things. When you're calculating readmission rates, think about the difference between readmission and transfer and rehab. So the idea is that you don't necessarily want to penalize a hospital for transferring somebody. That's not the same as discharging them and readmitting them. So, but it can be tricky.

So, just to sort of go through this, weaknesses of the MedPAR, medications are not recorded. Precise timing isn't recorded. And recording of comorbidities and complications may be uneven. It's an easy structure to work with. We've got good dates, diagnoses, procedures, and we can combine it with other forms of data to look at more complicated questions around hospital patients.