

MEDICARE PAYMENT ADVISORY COMMISSION

PUBLIC MEETING

The Horizon Ballroom
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9:17 a.m.

COMMISSIONERS PRESENT:

GLENN M. HACKBARTH, Chair
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DAVID A. SMITH
RAY A. STOWERS, D.O.
MARY K. WAKEFIELD, Ph.D.
NICHOLAS J. WOLTER, M.D.

AGENDA ITEM:

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 - Chris Hogan, Direct Research, LLC
 - Nancy Ray

DR. KAPLAN: The purpose of my presentation is to introduce the post-acute care chapter that will be part of the June report. The chapter is in response to your questions about three areas of post-acute care. This is ongoing work. What you'll see in the June chapter will only be the beginning. So that's either a threat or a promise.

The June chapter will have three main sections after an introduction, results from research using the post-acute care database, on differences between freestanding and hospital-based SNFs, and on long-term care hospitals. Today you'll have presentations on SNFs by Suzanne Seagrave, and on the post-acute episode database by Chris Hogan and Nancy Ray. In April we will return with the draft chapter which will include research on all three topics.

So Suzanne will be up next with the freestanding versus hospital-based SNFs.

DR. SEAGRAVE: Good afternoon. First I want to start off by reminding you of some of the issues we discussed this fall, and this is in reference to motivating why we're looking at the difference between hospital-based and freestanding skilled nursing facilities.

First, we noticed a difference in financial performance between these two types of facilities with freestanding facilities having a Medicare margin in fiscal year 2003 of approximately 11 percent and hospital-based facilities having a margin of minus 36 percent for fiscal year 2003. This is, again, the Medicare margin. This shows, obviously, apparent market difference in the financial performance of these two types.

In addition, we also showed you this fall evidence to suggest that cost in freestanding SNFs have been declining between 1998 and 2002, but GAO recently reported that hospital-based SNFs' costs may have been rising, at least between 1997 and 1999. They showed hospital-based SNF costs going from \$461 per day in 1997 to \$490 per day in 1999.

Also suggesting a difference in the financial performance of these two types of SNFs is that freestanding SNFs appear to have increased their participation in the Medicare program between 1998 and 2002 by about 3 percent, whereas over the same period

the number of hospital-based SNFs participating in Medicare decreased by about 26 percent.

So this naturally led us to ask the question, why are these two types of facilities, why do they appear to be so different in terms of financial performance under the Medicare program? So in the next few slides I will discuss some of the observed differences between hospital-based and freestanding SNFs that have been previously identified in the literature. Then I will go on to discuss some very preliminary findings from our analysis of some SNF stay data that we've acquired in which we examine the populations and patterns of use by type of facility.

First of all, in the literature a number of studies have suggested that hospital-based SNFs may have a higher case mix of patients than freestanding SNFs. For example, MedPAC using 1999 data on APR-DRG case mix indexes found that hospital-based SNFs had about 11 percentage points higher APR-DRG case mix than freestanding SNFs. Similarly, Corbin Liu and Associates in 2002, also using 1999 data and a slightly different DRG-based case-mix index found that hospital-based SNFs were likely treating a higher case mix of patients. They also found slightly higher use of cardiac care units and intensive care units in the hospital stay prior to entering hospital-based SNFs than in patients who entered freestanding SNFs.

There have also been examples in the literature demonstrating that hospital-based SNFs may have higher costs per day than freestanding SNFs. This is just one example of that. Liu and Associates, again using 1999 data -- and this is not adjusted for case mix, I don't believe -- but he found that hospital-based SNFs had almost twice the total per diem total costs and twice the per diem routine costs per day than freestanding SNFs.

Other observed differences previously noted in the literature include the fact that hospital-based SNFs tend to have about half the average length of stay of freestanding SNFs. The research also tends to find higher levels of nurse staffing and more skilled nurse staffing in hospital-based SNFs. As you can see, a study by CMS -- this is the big nurse staffing study by CMS -- found substantially higher nurse hours per resident day both in total nursing hours and in RN hours.

Because there are still a number of unanswered questions about the differences between hospital-based and freestanding facilities and the implications of these differences for access to care and quality of care issues, we have obtained a SNF stay database from CMS. The database contains SNF stays occurring from 1996 through July 2001. I want to note that the stays in 1996 and 1997 are probably less complete and less reliable than in the later years. So we tend to only use the data points after about 1998.

Stays in the dataset are identified by a unique beneficiary ID, a unique facility ID, and a unique admission date to the facility. So this means, for example, that if you have a patient going from a hospital-based to a freestanding facility those would be two different stays. So we will eventually try to link those up to create an episode.

This database is useful in that it links the claims for the SNF stay with the claims for the prior hospital stay and any rehospitalizations that occur after or during the SNF stay. It links all of that with the OSCAR file which provides provider information such as ownership, type of facility, number of beds, location, et cetera. Then this is all linked with the MDS 2.0 file which are all of the beneficiary assessments that occur while the patient is in the SNF. So this is a rich data source.

I wanted to point out that this differs from the post-acute care episode database in that this looks, obviously, at the stay level rather than at the episode level. The database you'll hear about next looks at events at the episode level. This also concentrates only on the SNF stays so we actually capture all of the SNF stays that occur in Medicare in each year, whereas the episode database uses the 5 percent, so it's only a sample of those stays.

This slide presents a summary of the 200- data as well as a summary of the 1994 data. In some cases we have used 1994 data from the ProPAC June 1996 report. So this shows you that in 2000, in our data we had 1.8 million SNF stays accounting for about 1.4 million beneficiaries. 73 percent of these SNF stays were in freestanding facilities. Almost 15,000 SNFs are in the database and about 87 percent of these are freestanding. Just to compare, in the 1994 data there were 1.1 million SNF stays and just slightly over 12,000 SNFs. But if you can see, not as much changed as you might expect between 1994 and 2000. That's going to be a theme of this data.

This is to give you a look at the demographics of patients going to freestanding and hospital-based SNFs both in 1994 and in 2000. Again as you can see, not as much has changed over the course of these years as you might have expected. The hospital-based SNFs appear to treat fewer of the 85-and-older population, but this was also true in 1994. Similarly, hospital-based SNFs appear to treat more of the non-elderly disabled population, as they did in 1994. Interestingly, the population of non-elderly disabled treated in both types of facilities has grown over the period for both types of facilities.

This next slide shows the 10 most common DRGs going to both freestanding and hospital-based SNFs. It is in fact the same list, although for hospital-based SNFs the order is just slightly different towards the bottom. But interestingly, by the way -- it doesn't show on this slide but these are in fact the same 10 DRGs that were most commonly in SNFs in 1994 as well. Again, slight ordering differences.

DR. ROWE: All this is just for Medicare, right? This is not for SNFs in general, it's just for people in Medicare.

DR. SEAGRAVE: Correct. We just focus on Medicare beneficiaries.

As you can see, DRG 209 is the most common DRG of patients going to SNFs. The percentage, 11.9 percent of the stays in hospital-based SNFs were accounted for by this DRG and 6.4 percent of the stays in freestanding facilities were accounted for by this DRG. So it appears that hospital-based SNFs are taking a higher proportion of their patients from this DRG. But

the trend is that the DRGs appear not to be that different between the two types.

DR. REISCHAUER: This is like a hip replacement or a knee replacement? It can't be a reattachment. I mean, not many --

DR. ROWE: It's a joint reattachment. It's a hip replacement or a hip fracture, a fixation of a hip fracture.

DR. SEAGRAVE: The last bit of data that I'm going to show you today demonstrates again that hospital-based SNFs continue to have about half the length of stay, the average length of stay as freestanding SNFs. Interestingly, the length of stay in both types of facilities has decreased at about an equal rate from 1994 to 2000.

So as I said, these are just very preliminary findings. From the literature and from our research of the database we find that there may be a slightly higher case mix of patients in hospital-based SNFs although additional research may need to be done. Some studies indicate that hospital-based SNFs may have higher nurse staffing ratios. Eventually we want to look into this more.

Demographic mix of patients appears the same in hospital-based and freestanding SNFs, but hospital-based SNFs consistently appear to treat a higher percentage of disabled beneficiaries and a lower percentage of beneficiaries 85 years and older.

The most common DRGs treated in SNFs appear to be about the same for hospital-based and freestanding SNFs, and this doesn't appear to have changed much since 1994. And the average length of stay in hospital-based SNFs is consistently about half that in freestanding SNFs.

Next steps. Originally we had wanted to examine the differences between hospital-based SNFs in three categories: the types of beneficiaries, the use of the facilities, the costs. When I say that I mean the cost to the Medicare program, so Medicare payments to the two types of facilities. And quality of care in the two type of facilities. So our next steps are to try to examine Medicare spending for the two types. When I say that I mean we want to look all the way through the episode, from what we spend in the hospital, what we spend in the SNF, and any rehospitalization through the entire episode, to compare Medicare spending in the two types of facilities.

Then also we hope to be able to bring you quality of care with some preventable rehospitalizations that we're looking at between the two types of facilities. I just want to mention as well that we will look at some of this, we'll try to look at some of this regionally, if we can, as well.

So I welcome any comments or questions.

DR. NELSON: I think also it would be important to try and capture disposition, whether patients in a hospital-based SNF, for example, were transferred to a freestanding SNF in a more convenient location for the family, for example. They were stabilized in the hospital-based SNFs with an intention of subsequently going to another. So whether they were discharged home, back to the hospital or to another post-acute care setting would be interesting.

I think also with respect to quality measures, things like

bedsores, things of that sort that I believe are captured in -- in the what, OASIS?

MS. DePARLE: No, not OASIS. MDS I think.

DR. NELSON: Anyway, some quality measures other than just admission to the acute -- readmission rates -- that more particularly focus on the quality of post-acute care.

MR. HACKBARTH: Your first point may also help explain something that puzzled me, that the hospital-based have higher case mix but a much shorter length of stay, which would be consistent with the hypothesis that they're there for a brief period, stabilized, and then moved on to a freestanding SNF.

MR. MULLER: Consistent with the minus 36 percent as well.

MR. HACKBARTH: In terms of intensiveness of the services they receive during their stay.

MR. MULLER: And also then, when it's appropriate, to move them to post -- home care and so forth.

DR. MILLER: Just to reassure you on this point, some of these discussions have already taken place and part of the reason that we're thinking that we need to look at this, hospital-based and then into freestanding is we see these lower lengths of stay and this question was coming up. That's why Suzanne was pointing you to the episode analysis.

MR. SMITH: Actually most of what I wanted to query about, Suzanne, was just done. We have hypothesized in the past that hospital-based SNFs were up to something else, something that the freestanding SNFs weren't. The data are, at best, murky about that, but one possible answer is the disposition, Alan. It may even be a facility and resource management issue that hospital discharge planners are less willing to take folks who are going to occupy hospital-based SNF beds for long. So it seems there's a lot to tease out here. The case mix difference is real but it is not as striking as our last year's conversation about they're up to something different would suggest. The demographics are the same, the DRGs are the same. So I think we need to look a little bit harder.

DR. NEWHOUSE: The demographics aren't the same. They're much older.

MR. SMITH: Older in the freestanding SNFs, right. So I think we need to really try to plumb this notion about, if they are doing something different, what is it? It doesn't come easily.

DR. REISCHAUER: But it does in that they have twice the fraction that the freestanding does in people with these hip replacement, joint replacements.

MS. RAPHAEL: Actually, this is not the DRG for hip fracture. There is a different DRG. It's 236 that's hip fracture. It's not this number one, 209. So I don't know what 209 is exactly. It's hip replacement but it isn't hip fracture.

DR. ROWE: But would it be -- it's not worth mentioning but I think there are two kinds of hip fracture, subcapital and intertrochanteric. When you have replacement of a subcapital fracture you replace the head of the femur, and therefore it's a joint replacement. So 209 probably includes subcapital repairs plus hip replacement for people with arthritis, and the other one

is intertrochanteric fractures. That's my guess, and that's why 209 gets to be so high. But I'm not an orthoped, so...

MR. MULLER: The fact that the costs are roughly twice and the case-mix index is maybe about 10, 15 percent more -- I'd have to go back to that sheet -- would cause me at least to look at some of the staffing ratios and so forth.

DR. NEWHOUSE: That's the DRG case mix. That's the hospital side case mix.

MR. MULLER: Correct. I'm just saying that the cost difference is considerably more than the average case-mix difference.

DR. NEWHOUSE: Yes, but you would really like a case-mix index for the SNF, not the hospital case-mix index.

MR. MULLER: Yes. So in terms of -- my sense, one of the things I'd be looking at here is just, if there's any kind of data we have on staffing ratios and so forth. My hypothesis would be that the hospital-based SNFs just follow the pattern more closely of how hospitals get staffed, whereas the freestanding being fairly separate do not. So there's a kind of a number -- of how hospital staff that falls into the hospital-based SNFs which probably causes some of the higher costs. Then obviously there's a question, is that consistent with what we need to be paying for in terms of demographics and other characteristics of the population?

MS. RAPHAEL: When we looked at the updates for SNFs we noticed that the freestanding SNFs had really lowered their costs and really changed their mix of staff. Do we have any sense of what the patterns have been in hospital-based SNFs? Have they done similar things?

DR. SEAGRAVE: The only evidence that we have about this comes from the recent GAO study and they actually -- as I said, they found that the costs were actually rising between 1997 and 1999. Unfortunately, they were not able to look at costs yet for 2000. We may try to do that eventually because we have the cost reports now. But it did not appear in the early -- of course, those were very early stages, but it didn't appear in the early stages that hospital-based SNFs were responding to the PPS in the same ways that freestanding SNFs were.

MR. HACKBARTH: The freestanding SNFs, as I recall, the largest declines were right at the beginning of PPS; is that right?

DR. SEAGRAVE: [Nodding affirmatively.]

MR. HACKBARTH: So they were especially large in '98 and '99. Here we see a quite different pattern for the hospital-based of continuing increases.

MS. RAPHAEL: If there were any possibility of your taking a look at that post-'99 I would be very interested in seeing that because I agree with what Ralph says, that the mix of staff here I think is driving the costs, and we need to understand if there have been any changes in that area at all.

Then I would be interested, for the young disabled population where we see a higher proportion in the hospital-based SNF, what the DRGs are associated with that population. Because that population tends in fact, in general, to have longer stays

in post-acute, but in this instance we see shorter stays for hospitals and I'd just like to know a little bit more about that particular subset.

DR. WOLTER: I was just thinking of the SNF recommendation to take the 6.7 percent add-on in certain rehab RUG groups and spread that out into the non-rehab RUG areas. I don't know if you guys have posed the question, but does this information support that, conflict with it, or really not take us anywhere in terms of that thinking? In particular, the higher number of major joint replacements in the hospital-based SNFs, intuitively I would think there would be more rehab done with those patients. It's sort of counter, in a way, to what we were thinking we were doing with that recommendation. I don't know if you guys have thought about that.

DR. SEAGRAVE: I did think about that and my first reaction -- we need to look at this in the data but my first reaction, since this is based on stays and not episodes these may be, as someone pointed out, these may be being stabilized in the hospital-based SNF then to move on to get rehab in a freestanding SNF. We don't know that at this point but that would be my hypothesis starting out. So we want to look at that.

DR. MILLER: And also some of that -- correct me if I'm wrong here, Suzanne -- some of that recommendation is based on analysis that just spoke to the development of the weights themselves when the SNF PPS was implemented, and some suggestion even before you got drilled down to this level, that the allocation wasn't quite right there. But I don't see anything at this point -- we can drill down and look at it -- that is in conflict with that recommendation.

DR. SEAGRAVE: No, I don't think -- this is still at a very basic level. This is very preliminary and we started out kind of at a high level. So this doesn't really -- it's not at a deep enough level to really conflict or not conflict with our recommendation I think.

DR. WAKEFIELD: Just since we're doing a lot of hypothesizing here about what might be behind some of what you found so far, maybe one other possibility, and perhaps it's being driven by a number of things so this would just be one, but your finding that the hospital-based SNFs have higher nurse staffing ratios and the lengths of stay are shorter, maybe part of what's contributing to that is the fact that you've got higher nurse staffing ratios in terms of being able to move some of those patients through a little bit efficiently. If you look at least the inpatient side and the research that's been done in the last couple of years looking at complications linked to different levels of staffing -- that's on the inpatient side and we're talking skilled here, but there is that phenomenon that's been documented to some extent on the inpatient side, and linked to outcomes and quality of care.

DR. REISCHAUER: On length of stay, how do they treat patients who die? You obviously don't keep them there, but you might get a very different picture if you dropped them from the analysis because one group, the freestanding has a lot higher fraction of people who are 85-plus and they might exit through a

different mechanism, shall we say, than others.

DR. NEWHOUSE: What would you make of that?

DR. REISCHAUER: Some people are in the SNF for a long period of time and there is no exit in a sense.

DR. NEWHOUSE: You mean, these are people that are presumably terminal?

DR. REISCHAUER: Yes.

MR. HACKBARTH: Okay. Thank you, Suzanne.

Next is some further analysis of patterns of care and how they've changed pre-PPS to post-PPS.

Welcome, Chris.

MS. RAY: Good afternoon. I'm just here to introduce Chris. At the October meeting we discussed our plans to create a post-acute episode database and I just want to briefly review our motivation behind this. The goal of the database is to permit MedPAC to monitor trends in the use of post-acute care services, and our motivation was so that we would be able to assess the impact of the prospective payment systems right now for home health and SNF services, as well as to monitor trends in the use of and payment for post-acute services post-PPS.

MedPAC contracted with Chris Hogan, Direct Research, to develop the episode database, which he has done using the 5 percent Part A and B files, and to conduct some of the analyses. We've worked pretty closely with Chris in constructing the variables and defining the episodes, and I'd like to acknowledge the other post-acute folks who participated in this effort, Sally, Sharon, and Suzanne.

The analysis that Chris is now going to present to you is our first analysis comparing where beneficiaries have gone pre-PPS in 1996 and post-PPS in 2001. I want to stress that we have big plans for this database and this is just the first in what we think will be many analyses to be completed from the episode database. The results of the analysis will form part of the post-acute care chapter for our June 2003 report so we encourage you to ask questions about the methods and the findings so that we will be able to bring you back any additional information at the April meeting.

Chris?

DR. HOGAN: Thank you. I'll just move right into my talk.

What I'm going to do today as briefly as I can is tell you why we're bothering to do this complex piece of research, talk about methods just a little bit, and then discuss some qualitative measures of the change in post-acute use between 1996 and 2001.

The next two slides talk about why we're doing this, why bother to do this. What is it that we're doing? We're putting all of the post-acute providers on one slide. We want all the post-acute providers, regardless of type of post-acute care, in one place so we can look at them all.

There's lots of different post-acute providers, as you know. They're all moving to their own separate prospective payment systems, they're all moving to those prospective payment systems on different timetables and there's potential for substitution across the various types of post-acute care. So staff got the

idea, let's look at post-acute care as a whole, and that's what we're going to try and do. Ask what changed, and then maybe, if we can, look at some qualitative implications for access to care.

This is the timetable. I think I finally got it right. Every time I put this slide in front of staff they tell me what I've gotten wrong on this timetable. This is the timetable for the transition of the post-acute providers to their prospective payment systems. The light gray bars are the transitions, dark gray bars are the prospective payment systems. What we are going to do, and I wish I'd put lines on this chart, we're going to look at 1996 which is pre-everything, and then we're going to look at '01 which is post-some of it but pre-some of the rest of it, as you can see. So the prospective payment system or transitions for long-term care and rehab facilities hadn't really started by the time we get to this 2001 year in the data.

So the payment system is changing an awful lot, and what Medicare is paying is changing an awful lot. These dollar figures are just totals out of a 5 percent database so they won't necessarily benchmark to anything you've seen, but this is just to show you from '96 to 2001 SNF spending was up, home health spending was down a lot, spending for the other types of providers was growing quite rapidly. The interesting things you can't see in a one year against another year comparison is that if we picked two different years these bars would look a little bit different. Home health would be down almost no matter what you saw, but if we had picked a different year, for example, for SNF, the SNF bars would either be level or perhaps down a little bit. So this in part reflects the happenstance that we've picked 1996 and 2001 as the two years.

Now I'm going to tell you how we went about this, what's our unit of analysis. The unit of analysis is an episode of care. Five percent claims database. That's about 2 million beneficiaries. That's enough pretty much to say what's going on. That's enough people to look at. A post-acute episode is a PPS discharge followed by a stream of post-acute bills. The episode terminates in any of several ways. It could terminate with readmission to the hospital, with death, with admission to a hospice, or the claims stream may simply stop. If we don't see any more bills and we don't see you going anyway, we don't see you dying, we assume that you've gone back to your residence, either your home or your nursing home.

So we tracked the bills for any gap of 31 days or any other termination. We redid this with a 60-day gap to see if it made any difference and it made very little difference. There's a couple of tables in your report that look almost identical, and the fact that they're almost identical means it doesn't make any difference whether you use a 31-day gap or a 60-day gap.

Finally, there's a type of care we want to track that's not really post-hospital care. We use the term in this paper, non-hospital home health care. That means the home health episodes that don't start following hospitalization. That's about the third iteration on that. A more elegant term we have since learned is community referral home health care. We're not talking about who owns the home health agency. We're talking

about hospital. We're talking about the start of the episode not starting with a PPS hospital discharge.

So I can define the episodes. That's great. Then when you put these records into these episodes what you find is a tremendous mix. So you have to develop some sort of a typology, or John Eisenberg's word was nosology -- a nosology of the episodes to figure out what you're going to look at. So this is what we did.

The first five lines are post-acute care in the sense of post-discharge care. You can either go straight to home health and stay in home health. You can go to a SNF and stay in the SNF. There are a bunch of episodes that are SNF and home health. Almost all of those are SNF care followed by home health. You almost never go to home health first and then back to a SNF. Those that were sort of a broken-up pattern and got put into the other category.

You could get discharged to a long-term rehab or psychiatric facility, or there's another category of mixed, just the things that didn't hit any other category. For example, part of a SNF stay that wasn't apparently attached to a hospitalization we had to put somewhere. Non-hospital home health care is the home health care that was community referral.

Finally at the bottom I decided to track hospice entry after discharge, hospice entries within 31 days of hospital discharge. Hospice has been growing rapidly and I wanted to see whether, for example, the discussion that came up in the last session, whether SNFs in fact were for terminally ill patients and whether the growth of hospice has relieved some of the burden from SNFs for those patients. I had to see whether the changes in mortality rates within SNFs could be attributable to people dying in hospice instead of SNF. We never got that far in this analysis but the intent was to track the people who were moving directly into hospice now who would have gone through a SNF before.

This is the change in the total number of episodes. Once again, this is out of a 5 percent database so it doesn't really benchmark to everything but the relatives would be right for the entire population. As everyone already knows -- the dark bars are 1996, the light bars are 2001. This shows the decline overall in the number of episodes and the change in the mix. As everyone already knows, home health episodes fell precipitously, so you can see the first pair of bars, the 2001 level is about half of the 1996 level. That's Non-hospital home health care or committee referral home health.

The use of home health as the sole modality for post-acute care also fell quite a bit. SNF care rose. SNF plus home health was essentially unchanged -- fell a little bit -- and the others all rose somewhat, including hospice use. So it's a mix. Everything that involved home health went down. SNF plus home health went down the least among the home health episodes. And everything that didn't involve home health when up.

Length of stay fell right across the board. This is an interesting slide -- I don't know if you find it an interesting slide or not, but this is the average length of stay. Once again, the dark bars are '96, the light bars are 2001. Length of

stay fell the most for community referral home health. Once again, I think that's already been pretty well established. The interesting thing is, length of stay fell for the types of providers who weren't on a prospective payment system yet. So I was not quite sure what to make of that but my first interpretation is there's a secular trend in the length of stay for post-acute care, changes in technology or what have you. I don't have an answer for that but the interesting thing here is, remember back to that slide that had the dark gray and the light gray bars, the long-term care rehab and psychiatric facilities, they weren't on a prospective payment system at this point and yet their lengths of stay fell as well.

So that's really the comparison of what happened in the aggregate. The number of episodes fell, particularly the number of home health episodes. More or less everything else went up. Length of stay fell across the board, fell most for home health that was not associated with a hospitalization. I don't think that's the least bit controversial.

The next four slides are going to look at patterns of change to try and make some sense of this. The first slide says, you know there were tremendous statewide differences in the use of post-acute care and all this slide is trying to show you is that pretty much as intended with the new prospective payment systems, there was a tremendous leveling of the spending across the states. This chart tends to exaggerate differences because I literally sorted the states by their level in 1996, but I think the values here are about right and the conclusion is about right in that the states that had the highest use came down the most, the states that had the lowest use actually saw a slight increase in spending and perhaps the smallest decline in the number of episodes in total.

That's mainly driven by home health spending, because you all knew that home health had the highest regional variation among any Medicare service. But it's also driven by the spending in the other service as well. If we did this table solely for non-home health post-acute care spending you would find a similar looking though less severely skewed table. A lot of words to say, the level of spending across the states was substantially more level in 2001 than it was in 1996.

Here are DRGs. So now let's move away from just looking at post-acute users to looking at all hospital discharges and ask, what fraction of those discharges had a post-acute episode associated with them? I'll take the DRGs and I'll group them by their use of post-acute care in 1996. So what I'm doing is using my 1996 patterns of care as my norm. I don't know whether it's right, wrong, or indifferent but it's what happened in 1996, and then look at what happens in 2001 for those same DRGs.

What you find is the DRGs for which post-acute care was typical -- in other words, 80 percent of cases or more in 1996 got post-acute -- the level of post-acute care actually went up from 1996 to 2001. The farther you go down that spectrum for DRGs for which post-acute care was occasionally or rarely used, the proportionate decline in post-acute use gets larger. So let me see if I can say that again in fewer words. The DRGs for

which post-acute care was routine in care 1996, post-acute care remained routine in 2001. In fact it was slightly more prevalent. The DRGs for which post-acute care was not routine and was only occasionally used saw more substantial declines in post-acute care.

This is a DRG-based analysis and that's great for post-acute care where you have the discharge event to define the population you want to look at. What do you do for the non-post-hospital home health care? There is no discharge. How do I find the people who would have been the equivalent of people discharged from hospitals? I couldn't think of a great solution so I ran a risk-adjustment model instead, and that's what this next slide is going to show you.

Here's what I did. I took beneficiaries' diagnoses in 1996 and their home health use, any use in -- I have a separate set of analyses for the dollars they used -- and I predicted their home health use based on their diagnoses. That's not a great concept because you know in theory it should be their functional status. But there are lots of diagnoses that are pretty good indicators of things stuff like functional status, like bedsores, like pneumonias, just generally the indicators of frailty tend to predict home health use.

So I predicted whether they would get home health use or not based on 1996 patterns of care. Then I went to 2001 and generated a predicted value off of their diagnoses and compared it to what they actually got, and sorted them by the people at the left of this graph who had a high probability of use based on 1996 patterns of care, to the people at the right of the graph who would rarely have gotten care in 1996 based on their diagnoses.

What you find is, yes, there's declines across the board, but the declines are proportionally much larger for the beneficiaries who would have had a low probability of use in 1996. I graph that directly on the next slide.

What I want to say is, the diagnoses that predicted a high probability of home health use in 1996, the beneficiaries who had those still had a relatively high probability of home health use in 2001. And the beneficiaries who didn't have any clear markers for home health based on 1996 patterns of care had much more substantial declines in the use of non-post-hospital home health care.

There I just plot this directly. This is just the ratio of the bars in the previous slide, just to sum that up. So for the beneficiaries who had -- the beneficiaries on the left are the one for whom I would have predicted a high likelihood of home health and they get about half of the level they had before, maybe 55 percent of the level they had before. The beneficiaries as you go farther down the spectrum of beneficiaries for who we would progressively predict a lower probability of use and the decline in use, or their use compared to predicted is lower. Meaning there was a bigger decline in use relative to their predicted value.

Let me sum it up. Home health care fell. All other types of post-acute episodes rose over this period. Episode length

fell across the board, whether you're in a prospective payment system or not, episode lengths fell. It fell the least for SNF care, fell the most for community referral home health. Declines in spending were greatest for the states that had the highest levels of spending at the start of the period.

Post-discharge use of post-acute care declined for the most for the DRGs that had a low probability of use in 1996; declined the least -- actually increased for those DRGs for which post-acute care was routine or common in 1996. Non-post-hospital home health care fell the most for the individuals who had a low probability of use. The individuals who had a high probability of use based on their diagnoses and 1996 patterns of care showed the proportionately lowest declines in use in non-post-hospital home health care.

The final two points are that we now have this lovely database available for use. It's a 5 percent sample. It's very easy to use. It's on a PC. And we want to know what you'd like to see next.

MS. RAPHAEL: First of all I want to compliment you because this is a very complex endeavor. I want to compliment the staff and you for really tackling this because I think this is a big step forward for mankind, to be able to look at post-acute across providers.

I had a couple of comments. First of all, how did you find out the DRGs for the community-referred non-hospital home health care users?

DR. HOGAN: That's a tough one. There are no DRGs, so what I did was I ran a risk adjustment model on all Medicare beneficiaries and said, how likely are you to use home health care in 1996? So I have their diagnoses laid out, 170 different categories of diagnoses. If they had a lot of frailty diagnoses, for example, the likelihood was higher. So the denominator for that analysis is the entire beneficiary population. So there is no DRG-type event.

The way I sort those beneficiaries is by their predicted likelihood of using any home health in '96 based on their diagnoses. That's clear as mud, isn't it?

DR. NEWHOUSE: You're using the Part B diagnoses, right?

DR. HOGAN: Yes, I'm taking all the diagnoses off all the claims. That's right.

MS. RAPHAEL: Secondly, I just want to reiterate how astounding it is in terms of the drop in home health care. This kind of 50 percent drop in expenditures that you again document is just astonishing to me, and continues to be astonishing.

Another thing I am interested in is one pattern I have seen is that there is greater use of multiple acute care providers. So you have the SNFs and home health care and that has left of a drop, I believe, than home health care in its pure form. But I also believe there's been more of an increase in rehab followed by home health care. I'd just be interested in the patterns of multiple use of acute care providers.

My main issue with this is this notion of who you're predicting what you would expect use to be based on prior use. As you say in your paper, the people who tended to get less home

health care are those people who had congestive heart failure, COPD, pneumonia, the frail elderly population where their need was, I think your words were, was more ambiguous or harder to define. I don't want to see the word need used in this because I just don't think we have enough here to know who most needs home health care, or what the side effects are of not getting it. Because we see CHF patients who are in the hospital five times in the course of a year and who end up using other parts of the system.

But I think what is very important as I began to think about this is that one of the things that might be going on is that where it is harder to predict use and there's more likely to be variability in use, there may be reluctance on the part of providers to admit those patients. So you sort of go with the tried and true, those you know, those where you have, at the outset, a fairly good probability of being able to predict and manage utilization.

When you have your post-85 frail elderly, multiple conditions, heart failure, pulmonary disease, very hard to predict use. They are probably the ones who spilled over into long-term supportive care where we saw higher utilization patterns. So you're more skittish about being able to really say what their utilization and resource consumption is going to be, and therefore, you're less likely to admit them.

I have no proof of this. This is just my hypothesis as to some of what's going on. Because incentives should be that you would admit people who have lower needs and will have lower use. All the incentives should cause you to do that. But they're not necessarily causing people to do that in every instance, so there I believe there are other things going on here that I just would like to highlight and explore more.

When we talked about volume of physician services going up, I think Alan and Nancy-Ann both said, let's not say anything about the appropriateness or inappropriateness of this. I want to apply the same kind of measure to what we're doing here.

DR. HOGAN: Absolutely.

DR. NEWHOUSE: Chris, this was a terrific piece of work. I have one reaction that I don't know what to do about it analytically but I thought it ought to be mentioned in the text, which is that there's certainly some reason to think that some of the home health in '96 was fraud, so we may be straining to interpret what really wasn't, except that Medicare paid out some dollars.

DR. ROWE: Chris, I noticed in your paper that you defined people in the data set in such a way that you excluded people who died, who went to a hospice, and who were readmitted to a hospital: is that right?

DR. HOGAN: No, that just terminates their episode.

DR. ROWE: Terminates the episode. Okay. Because I think one of the interesting subgroups here are the people who get readmitted to the hospital. When you look at the different things that happen post-acute care, the one thing that's missing from your list of the things, you can have home health, you can have long-term, et cetera, is acute care again. Some proportion

of those people were prematurely discharged from the hospital or they were sent to the wrong place when they went out of the hospital. So they went home instead of to a nursing home where they really needed to continue to have intravenous antibiotics or physical therapy or chest PT or something, and so they bounce back into the hospital.

There are certain diagnoses in which this might be particularly common, such as certain infections or chronic heart failure, which I think is the number one DRG for recidivistic for readmission to the hospital. People with a wound infection post-op sometimes will bounce back with that kind of infection, or a lung infection. I don't know how informative it would be, but it might provide some sense of quality of care if we were able to look at readmission rates, which is not only an expensive experience for Medicare but obviously very disabling for the patient.

MS. RAY: Jack, let me just address that. One of the things -- I don't think we can do that for the June report but one of our plans for the summer and into the fall is to look at what I would call outcomes of care. That would be one of them, to look at rates of -- as well as looking into emergency department use, and also looking at rates of mortality. So that's on our future list of things to do.

DR. HOGAN: Let me pile on there. So part of the planning of this was we wanted to track the episodes and the fact it I just didn't get them tabulated in time for this presentation. For an earlier study done for MedPAC, this is a couple years back, the SNF patients who didn't graduate to home health, who stayed in SNF, just about half of those people ended up either dying or being readmitted. So I was trying to get the name of the paper changed from post-acute to inter-acute care because at some point the fraction of patients whose episodes end in a successful discharge to home was less than half for some of these categories. So yes, it's a very important point and would definitely like to bring that into the analysis.

MS. BURKE: I suspect there will be a difference between hospital-based and freestanding.

MS. RAPHAEL: Just in terms of what you're going to do in outcomes, the same way that the DRGs should not be the sole reference point here in predicting utilization and functional impairment levels are very, very important. When we look at outcomes, in addition to looking at readmission and ER emergent care, I want to be sure we have some measures on the functional side as well.

DR. HOGAN: If we could get the MDS, that's the issue. The MDS, I'm the one of the few people who's used that -- lovely data set, wonderful data set. You hear mixed views on that. That would be wonderful. We don't have that in hand yet.

MS. RAY: Not yet, but we have plans.

DR. WOLTER: I was thinking about readmission rates too and particularly this issue of there's been a change since PPS in a way in the product and more shorter term rehab, get people back on their feet focus, as opposed to maintenance of chronic illness. So for those patients who aren't being admitted now

that are in that frail elderly or chronic disease category -- of course, we don't have data -- it's going to be more crude. But we could look at readmission rates. I don't know if you could look at cost per beneficiary of care in congestive heart failure and see how that's changed over the years. Then of course, this fraud issue probably does cloud things also in terms of how you sort all that out. But there may be a subgroup of patients now who are maybe not getting some things they should be, and if we could get at that it would be helpful.

DR. HOGAN: So that would be a chronic care analysis then, to take the entire spectrum of care provided of congestive health failure patients, fit post-acute into that and see how that mix has change between '96 and 2001. Yes, we can do that.

MS. RAPHAEL: Take a subset; take CHF.

MS. RAY: Again, not for June but that's definitely in our long-term plans.

DR. STOWERS: I just had a quick question too, Chris. I know in your post-episode we're not including nursing home or going to home, but anecdotally with this change to the PPS there's a lot higher use of the nursing home as part of this post-acute care cycle. I know it's usually state funded or private instead of Medicare, but I think it's playing a much larger role in this picture since the PPS, so it would be interesting to see what change and what different role that stage of care is.

DR. HOGAN: I completely agree, and when we get the MDS we can tract that because we'll know. We have a rough cut at identifying the nursing home residents now by looking for physician visits in the nursing home and other services by the nursing home, but we didn't integrate that with this analysis. It's always a guess out of the Medicare claims to figure out whether they're actually in a nursing home or not. But when we get the MDS we'll know for sure.

MR. HACKBARTH: Anybody else?

Okay, thank you.