# CMS 2012 MEDICARE PRESCRIPTION DRUG BENEFIT SYMPOSIUM

MARCH 20-21, 2012
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# Measuring the Benefit of Pharmacist-Provided MTM Services –
## Dr. Mitchell Barnett, Pharm.D., MS
## Brand Newland, Pharm.D., MBA

Good afternoon. My name is Brand Newland with Outcomes, an MTM Company, and excited to be here with Mitch Barnett to talk a bit about some of the things we've been doing in Medication Therapy Management. I was excited to hear this morning during the early presentation that MTM is considered a success story within Medicare Part D. I hope this is just the beginning of the story of the successes we can find with MTM.
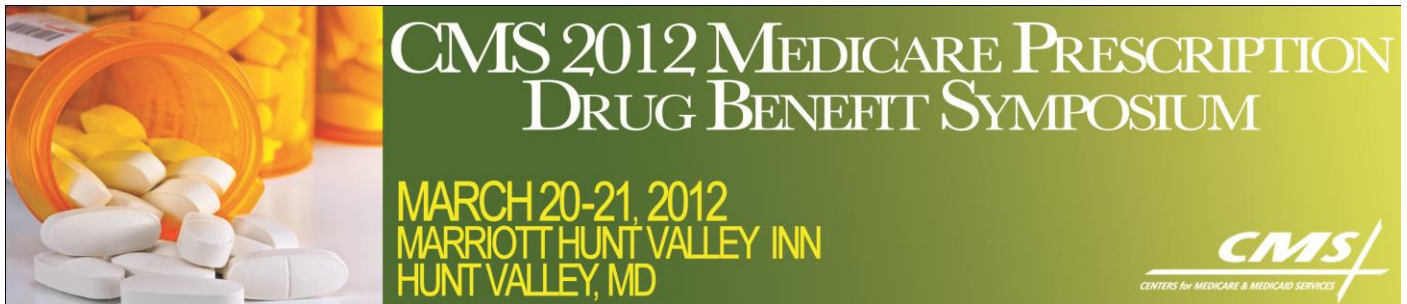
So what is MTM? That's always a good place to start. It's not a well-known enough service, I would say, yet that we can just assume that everyone's thinking of the same thing when we start talking about Medication Therapy Management. So what we're talking about when we think of MTM today – it's really an umbrella term under which many different services may fall, not the least of which is the medication therapy review, which is more commonly known now as the Comprehensive Medication Review. For many reasons, that's become a very prominent service. It's a required service within Medicare Part D. If there is a standard within MTM services, and especially within Medicare Part D, it's the Comprehensive Medication Review. And as you may well be aware, it's proposed as a Plan rating – completion of CMRs is a proposed Plan rating for the Star Ratings for 2014.

But that's not the only MTM service. There are pharmacotherapy consults, which you might consider in the Medicare Part D terminology more of the targeted medication reviews. So that's pharmacotherapy consults. We have disease management, immunizations – all of that fits under the umbrella of Medication Therapy Management. And really the bottom line is that MTM is all about prevention, detection, resolution of drug therapy problems. If you're not doing one of those things, chances are you're not doing MTM.

Within Medicare Part D specifically – and this goes back a number of years now – but MTM was created as a way to optimize therapeutic outcomes, helping beneficiaries to avoid adverse drug events through patient education; helping them to improve adherence; and just overall optimize their medication use. And importantly, it's for targeted beneficiaries -- which we'll get back to as we get more into the analyses today.

So what's known about MTM? Well, first of all, they've increased since the implementation of Medicare Part D. I think that's pretty widely recognized that MTM has taken on a much larger role in health care since Medicare Part D came into being. It wasn't a mandated service, by and large, prior to 2006. It is today within Medicare Part D. The result of that is health plans, payers, providers; even patients increasingly understand what MTM is.

The second two bullets here maybe aren't as widely accepted yet, but I think they're up for some debate. But they've been reported in the literature; that is, that patients have higher levels of satisfaction when the services are delivered face-to-face, number one; and number two, that there may be a greater benefit when you target specific conditions. And that one specifically we're going to look at today as Mitch gets into a subcohort cohort analysis around diabetes.

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An important point about MTM is that there's still a wide variation in the way that these services are implemented, the beneficiaries that qualify, the services that are actually delivered, the methodology for delivery – so there's still quite a bit of variation out there. What we wanted to focus on was why some candidates get MTM and what happens when they do.

And one of the challenges with especially that, *What happens when they do?* part of that question, is matching beneficiaries who get MTM services with control beneficiaries who don't. The problem is the selection bias. The good news is patients who need MTM seem to be more likely to get it; the bad news is that makes it harder to do a really fair analysis of the outcomes of MTM. So that's really what we're focusing on here. This relates, if you were in the session this morning presented by Dr. Tudor, there was a mention of, *Let's get more information out there about what's happening in MTM – not only what CMS is collecting and reporting on, but what else is happening*. And we are certainly supportive of that. So this is a step in that direction. It's certainly not the last and end-all/be-all of analyses; but a step in an innovation direction, I think, that we'll be talking about today.
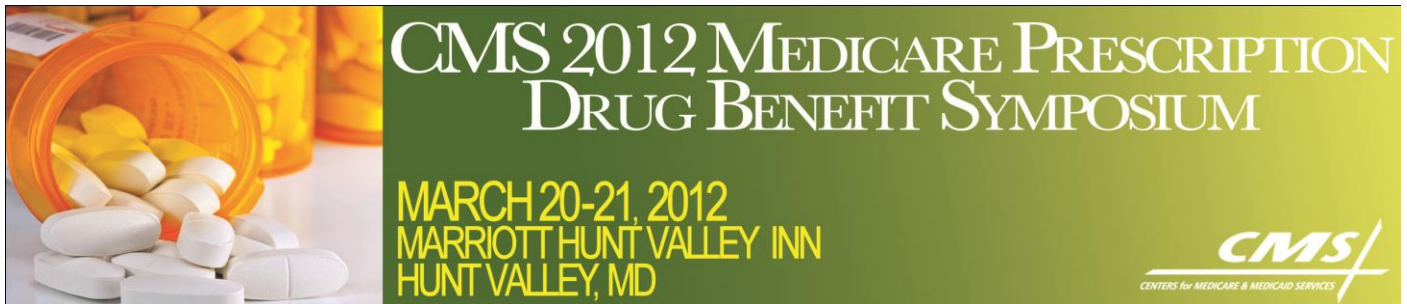
So what we've done here and what we're going to be talking about, trying to minimize that selection bias through the use of what's called "propensity score matching." And essentially what that means is we take two patients who we've matched on a number of criteria we'll talk about. Both of them appear equally likely to have a certain outcome – in this case, receive an MTM service. One of them gets the MTM service, and one of them doesn't. And then we find out what happens over – we're going to look at 12 months of data. The goal is to mimic the effect of a randomized control trial without actually having to go through that whole process of randomizing some patients to get a service and others not.

So our learning objectives today: list patient-level factors associated with utilization of MTM services in Medicare Part D; describe the impact of the delivered MTM services on patient costs; and an underlying objective of all this is to look at a large population of patients covered for MTM services in Medicare Part D and characterize what happened to them.

So what we're looking at here is a group of patients and MTM services, prescription claims from a Midwestern state. We're looking at MTM services delivered in 2010. But we're actually looking at prescription claims from 2009 through 2011. These members' beneficiaries were dual eligibles in a number of different plans – Medicare, Medicaid. All of them were eligible for MTM, face-to-face from local pharmacies. So this is a variance from what is required of Medicare Part D. Medicare Part D CMS talks about enrolling beneficiaries who hit a criteria of having a certain number of conditions and medications and drug spend. Well, that really sets the floor. That's the people that you have to enroll for MTM. These plans include patients beyond that floor, so they have not applied an eligibility criteria for coverage of MTM. All the claims are authenticated. The prescription claims through the typical PBM processes, the MTM claims through a claim documentation platform and quality assurance process.

So the data extraction – the prescription claims are pretty typical, what you would expect to see there. The MTM claims -- we have on every claim patient ID, we have provider identification, date of service, and then we have some basic information about the MTM encounter. So we have a reason, an action, a result, we have a cost-avoidance level, and we have encounter notes for each of the services.

We used medication information as a proxy to identify conditions. So keep that in mind. We weren't using actual diagnosis codes in this process. We were using medications as a proxy for conditions.

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And just a brief note here on the provider network -- as I mentioned, these are local pharmacists providing the services – chain-independent consultant health system pharmacists providing services face-to-face. The pharmacies that participated had to contract with the network, and they also did a registration – the pharmacists did a registration and brief orientation into the MTM program. After that, they were set up to participate. There's pretty broad coverage of the MTM services from a network perspective nationwide, about 40,000 pharmacies contracted and over 58,000 pharmacists who have done that orientation.
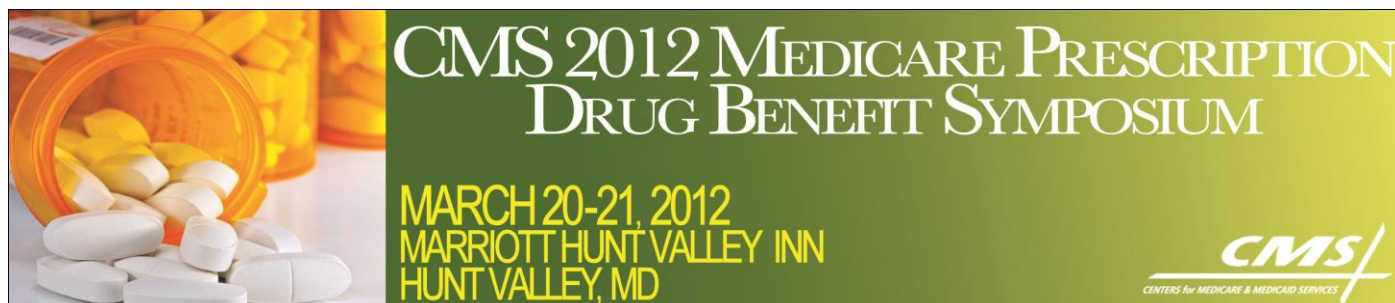
Covered services – which match up with what we talked about under that umbrella slide. We have the comprehensive medication review – once annual, face-to-face service. Then we have three other services which would fit more in the category of targeted medication review. They are specific typically to a single medication. So the patient has some issue with a certain medication, and the pharmacist is working with the patient on that one medication. So those fall into prescriber consultations, patient compliance consultations, education and monitoring. One important note, and this will come up as Mitch takes over here in a bit, we have tracked not only successful services – meaning the pharmacist offered it, and the patient and/or prescriber accepted; but we also have refusals. So we have a full picture of what was offered, and then we have a breakdown of what was accepted and what wasn't. And we have some actually interesting results on the impact of even offering an MTM service.

What this looks like when it's being delivered – there are really two methodologies that these patients were engaged in the MTM. One is through a push process. What that means is we've got data coming in -- eligibility information; prescription information; and in some cases, medical information that's churned through a clinical rules engine, and we look for gaps in therapy. So if you think about as an example what's laid out here – diabetes treatment measure in the Star Ratings patient safety area – the diabetes treatment measure, patient's got diabetes, hypertension but doesn't have an ACE inhibitor or an ARB. So through that clinical rules process, you find the gap in therapy; you engage that patient's pharmacist to work with the patient and prescribe her to hopefully close the gap. So that's a retrospective process to close those gaps.

There's also this prospective process, and that's where you're empowering the pharmacist to find these on their own. They don't have to wait for the trigger. If they see a patient who has diabetes and hypertension, they can engage the patient on their own to initiate that ACE inhibitor or the ARB if they don't have it. And that's especially important if you have a new member who's come into Part D or come into your plan. You don't have to wait for that feedback loop to kick off and trigger the push side. It's also especially important in some of the interventions if you think about high-risk medications. You want to get patients off those medications as soon as possible, and getting them prospectively at the point of service in the pharmacy is the best way to do it.

Regardless of the way that the patient is engaged, both of them go through this central process where you've got a pharmacist working with a patient prescriber, hopefully achieving a successful intervention and eventually documenting and being paid for that. It all ends up being documented in an online platform where the reporting occurs.

And now we're getting into some of the data. So with this study sample, we had just about five million prescription claims that were analyzed. As I mentioned, there's no targeting that was applied for this population; so there were 85,000 (just about) unique patients, all of them eligible for MTM services. Most of them were over the age of 65. As far as the MTM services -- and I want to mention this – there was a typo in your slide that should be 18,002 MTM services. So there are 18,000 documented MTM interventions for those unique patients in 2010. That covered just over 10,000 unique patients; and,

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again, most of them were over the age of 65.  To be included in the analyses, they had to of not only received the MTM service in 2010, but they had to have had at least one prescription claim in 2009 and one in 2011.

So, the methodology – there was a logistic regression used, and this is where we're getting into this propensity scoring to try to eliminate, as best we can, that selection bias.  So matching patients on age, gender, number of different medications, drug expenditures and their conditions, then matching case with control and comparing.  And again on the propensity scoring, that's where we're taking two people who, for all intents and purposes, looked exactly the same from a likelihood to receive MTM services.  The minute before one of them got an MTM service -- one of them got MTM, the other didn't.  And then we're going to talk about what that looked like over the following 12 months.
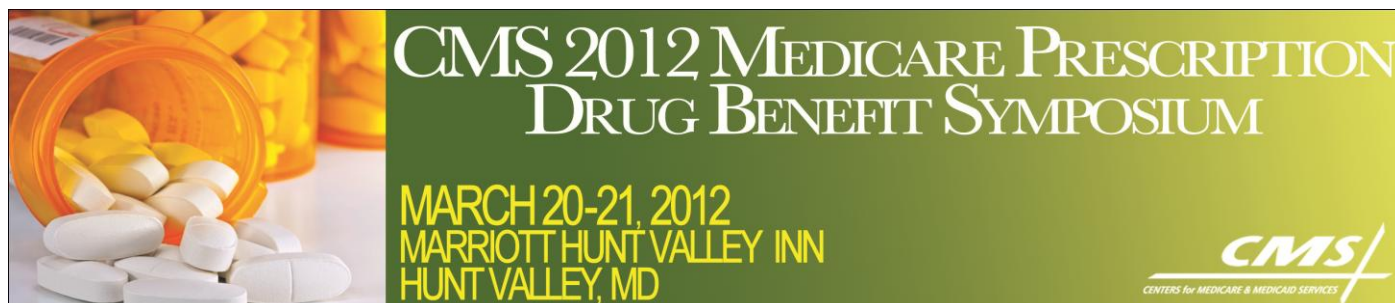
And with that, I'm going to turn it over to Mitch.

Thanks, Brand.  I'm going to start talking a little bit about the analytical strategy; and again, we used a propensity score model to simulate a randomized control trial.  We used the MTM date; and if a patient had more than one MTM encounter during the year, we used the first MTM encounter.  This is what's called the "index date."  For the match or the control cohort, we also utilized that same date for that patient.  What we did was is follow the patients – both the cases and the controls -- for 12 months after that date, looking at patterns and prescription drug utilization.  So we looked at things like the number of prescriptions received; the costs – both the Plan costs and patient costs for overall cost; percentage of patients on what we considered to be a Top 10 costly medication, as well as patients on a potentially inappropriate medication.

We also did a subanalysis on a group of patients that we identified as having diabetes and took a little bit closer look at those patients.  Those were matched in the same methodology as described previously by Brand.  And the other thing that we did with this diabetic cohort is we calculated a measure of adherence; in particular, measure of adherence related to oral diabetic medications.  And we did that using percent of days covered, and I'll show you some results here in just a second.

So as I mentioned, the outcome measures that we were most interested in included things related to prescription drugs.  And then with the diabetic cohort, we also took a look at the percentage of days covered.  The statistical analysis or tests that we used were just a straightforward Pearson's chi-square test for categorical variables and a paired or matched Student's t-test for the continuous variables.

This slide here shows some characteristics of the entire population; and again, this is just for one year (year 2010) where the intervention occurred.  What you can see here is that the average age of the patient was about 73, with a range in age from 20 all the way up to just over 100.  Patients had an average number of about 57 prescriptions during that calendar year, and about 40% of the patients were male.  Annual cost for the patients – and this is total cost, including both patient copay and Plan costs -- was about $3,200.

This slide just shows visually how we ended up with our analytical cohort.  And as Brand alluded to earlier, the first thing that we did was eliminated patients who were not in the prescription drug files for all three years.  So as you may recall, we used the 2009 prescription data to identify the comorbid conditions using the validated AHFS-V8 category system.  And then we followed patients for a year after the MTM service in 2010; so in other words, anytime from 2010 after the index date, all the way through 12 months

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into 2011. Eliminating patients who weren't in all three years also had the positive impact of making for sure that all patients in the analytical cohort were alive at least at the start of the third year of the study.

The next thing we did was eliminate any patients who received an MTM encounter intervention in 2009. So in other words, all the patients that we looked at who received an MTM encounter in 2010 were what we considered to be MTM naïve. From that cohort, we identified approximately 6,100 patients who received an MTM encounter, and we were able to match almost all of those using that propensity score matching. So our final analytical cohort then was 12,260 patients -- 6,130 of which were the control or received MTM, and 6,130 of which were the propensity match control.

This slide begins to show some of the results of our study. And what you can see here or what this slide illustrates is the importance of propensity matching. So what you can see here on the left are the patients who actually had an MTM encounter compared with the patients who did not receive an MTM encounter for calendar year 2010. And what you can see here is that patients had a lot more prescription drugs as well as more comorbid conditions that received MTM. And this is a positive thing. So again, as Brand alluded to, it appears as though pharmacists are correctly identifying the patients who are in most need of MTM intervention; but it makes a typical or straight or simple comparison rather difficult.
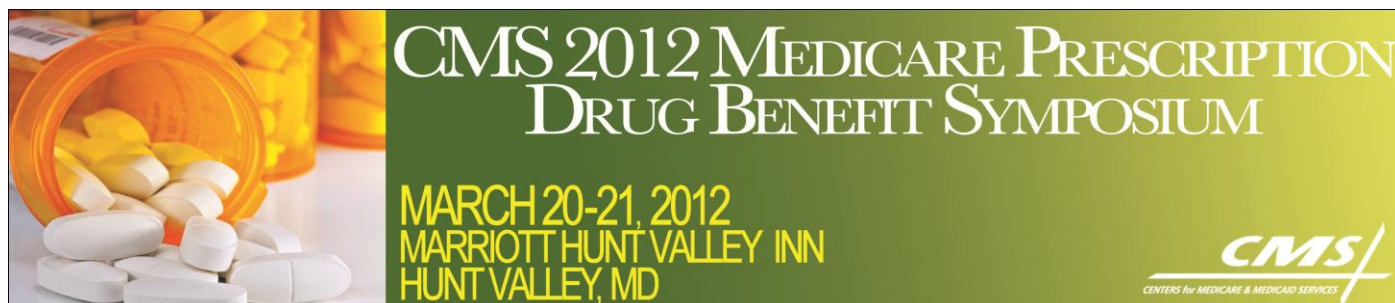
This next slide here shows the results after propensity matching. And what you can see now is that there's no longer any significant differences between the cohorts. In other words, the propensity matching scoring technique did a very good job of leveling the playing field. So in other words, the patients who received MTM and their matched cohort or controls were very similar in regards to all the measures that we took a look at.

This slide here begins to show the main results of the study, and this is for all patients who were offered MTM services along with their controls. What you can see here is that patients who received MTM had slightly more prescriptions during the following 12 months, had an additional or a slight increase in annual drug spending for that 12 months, but no difference in any of the other measures that we took a look at.

If we take a look at just the diabetic cohort, in other words patients who were identified as having diabetes, the only difference that we saw was a difference in cost; in particular, costs related to patient copay. And so what we saw here was that for diabetic patients who received the MTM intervention over that 12 months that we followed them, they actually had a reduction in patient copay.

This slide here shows the percentage of days covered for just the diabetic cohort. And what you can see here is that patients who received the MTM intervention -- or diabetic patients who received the MTM intervention had a significant increase in percentage of days covered with an oral diabetic medication.

This slide carves out and takes a look at just patients who accepted the MTM intervention. In other words, it excludes prescriber and patient refusal of MTM services. Again what you can see here is that there was a small increase in number of prescription drugs, as well as a significant decrease in the percentage of patients on a Top 10 or costly medication. If we take a look at the diabetic cohort -- excluding prescriber, patient and refusals -- again we see this reduction in patient copay for the patients who received the MTM intervention, as well as with the overall cohort a reduction in percentage of patients on a Top 10 or costly medication. And if we take a look at the patients who had an accepted MTM intervention with just the diabetic cohort, again you can see this increase in percentage of days covered. It wasn't quite significant here; but the effect size was almost the same, suggesting that this finding, despite not being significantly significant, is rather robust.

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This next slide and final slide of the analysis shows the results for a particular type of MTM intervention. So as Brand alluded to, there were different types or services of MTM that's offered. If we carve out and take a look at just the MTM that's designed around cost benefits, what you see here is again you see this increase in utilization as measured by annual number of prescription drugs, but a rather large and significant decrease in the percentage of patients on a Top 10 medication. So what this slide I think suggests is that the types of MTM interventions are being directed correctly and have the result that you would expect.
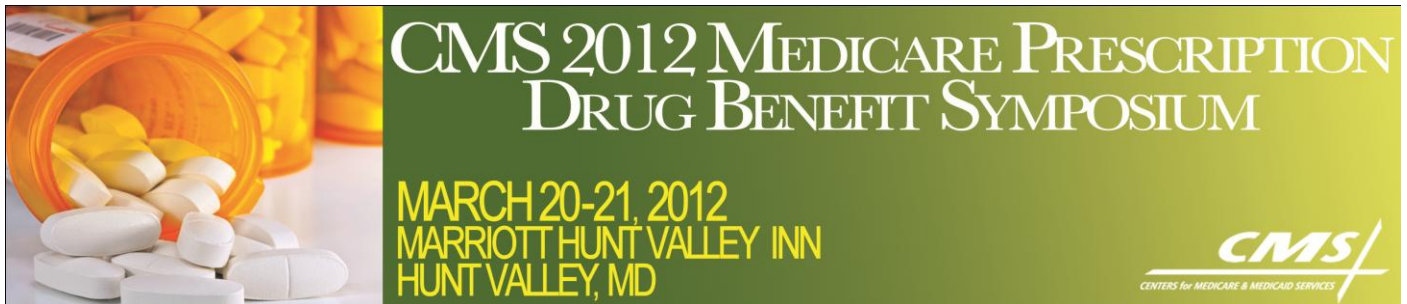
So in summary, patient factors predicting MTM services included being male, being on a Top 10 costly medication and/or a potentially-inappropriate medication, having any one of a number of comorbid conditions. Also, MTM appears to decrease patient costs (patient copay in this case) in a particular subset of patients, the diabetic patients. And MTM appears to also increase adherence as measured by percent of days covered in this same cohort, the diabetic cohort.

While not part of the analysis or discussion today, I did want to cover some potential barriers of MTM – in particular, the geographical or physical barrier between the pharmacist and the prescriber or provider. These were all retrospective interventions. So despite our best effort to mimic a randomized control trial, it's still not the gold standard of the randomized control trial. Other barriers identified as potential inhibitors of MTM include a lack of communication between the pharmacist, the patient, and the prescriber or provider; patient education, just making patients aware of what MTM is and that service is available; as well as a lack of commitment by pharmacists to perform and get out there and become engaged in MTM.

Before presenting conclusions of our study, I'd like to briefly mention some limitations. Again, we did not have access to inpatient or outpatient data for follow up of different measures; so for example, inpatient admissions, outpatient cost, ER visits. Because we lacked this, we also could not perform sort of the traditional or gold standard method of identifying comorbid conditions. The results are from a single region in the Midwest, so they may not necessarily be generalizable to other geographical regions in the United States. And finally, propensity score matching, although it does a very good job of mimicking a randomized control trial, only controls for variables that are measured and that you include in the model.

So in conclusion, pharmacists providing MTM appear to be targeting the correct patients – in other words, patients who are receiving Top 10 costly medications, patients who are receiving potentially inappropriate medications, patients who are receiving the most types of therapy and the most complex types of therapy. Although limited, our results suggest that MTM increases prescription drug utilization, as shown by that increase in average number of prescriptions over the 12 months, as well as increasing adherence to medications.

Some ideas for future research that we have include bringing in inpatient and outpatient data, as well as clinical data; looking at additional geographical regions to see whether or not these results are robust in other patient cohorts and provider cohorts; disentangling those patient and provider refusals. And I probably didn't have time to highlight this, but one of the things that we found was really interesting was this increase in adherence and increase in utilization if the MTM intervention was offered. So regardless of whether or not the patient or provider accepted it, we still saw some positive benefits – in some cases, some very significant positive benefits – with just offering the MTM services to the patient.

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And then finally, taking a look at some additional disease states besides diabetes to look to see whether or not this nice increase in adherence that we saw is consistent across other disease cohorts.

I'd like to acknowledge some people who were instrumental in this study: Dr. Jessica Frank, Vice President of Outcomes; Dean Katherine Knapp, who is Dean of Touro University College of Pharmacy in Vallejo, California; and also Todd Kumbera, Director of IT in Outcomes. And Todd and I were on a -- became very quickly on a first-name basis as we were working on getting all this data together to do this study.

Well, it's that time once again to conduct the assessment. Please turn to Channel 51 and get out your response cards. We'd encourage everyone to participate. And as a reminder, if you're seeking CPE Credit, you must respond to all the assessment and evaluation questions. After the questions and responses are read, you will have ten seconds to respond; and you'll see the timer on the screen.

*Patient level factors associated with utilization of MTM services in Part D patients include: (a) being on a Top 10 costly medication; (b) being on a potentially inappropriate (in other words Beers criteria) medication; (c) having chronic conditions, for example, dyslipidemia, diabetes, hypertension, as well as others; or (d) all of the above.* The correct answer is (d), all of the above. Looks like most everyone got that correct.

Fran, did you answer (c)? Was that you?

*Assessment Question 2: Delivered MTM services in Medicare Part D diabetic patients tend to _____ patient costs as measured by patient copays: (a) have little or no effect; (b) increase; or (c) decrease copays.* The correct answer is (c) decrease. So in our study, what we saw with the diabetic patients was this positive effect or increase in percentage of days covered; but we also saw a decrease in patient copays to go along with that.