

Impact of Market Competition on Part D Plan Premiums: Does Competition Among Public Plan Options Work?

Benjamin Howell, Ph.D.

Hello, everyone. Today we're going to talk about the impact of market competition on Part D premiums. I have to find my clicker. And the motivation in this research project was to determine whether competition in general in Medicare and public insurance options in general kind of actually is working the way we would hope and think it is. Just by way of disclosures, I have none. But I'd also like to take this opportunity to acknowledge Jessie Levy, who's my co-author on this project, who regrettably couldn't be here today.

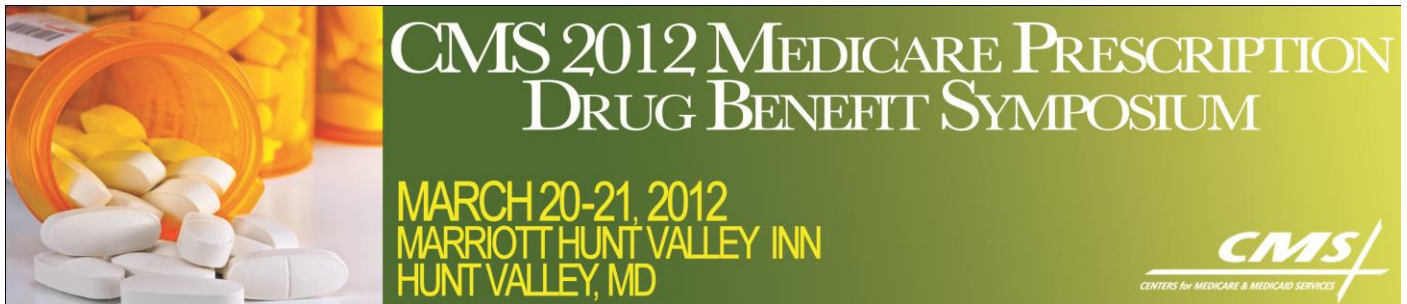
As far as learning objectives, I primarily want to describe why understanding the impact of market-based approaches to delivering healthcare is important. And then too, I'd like to describe the impact specifically of market competition on Part D plan premiums in the early years of the Part D program.

By way of outline for our discussions this afternoon, let's start with introduction. I'm going to go over why looking at market competition is important. I'll go over some prior research, talk about what it known, and that will lead us to our research objectives, which is essentially what we're going to try to address in this study. Analytic methods simply is how we addressed it, the results, what we found. And then the discussion which is always I think the most interesting part is why these results are important and what should be done, along with some important caveats about the research in general.

So, setting the stage, you know these market-based healthcare policies are beginning to dominate the national health policy agenda. It started kind of back with the formation of HMOs, Medicare Part C and then the Medicare Advantage program under the Medicare Modernization Act. The Medicare Part D also came into being under the Medicare Modernization Act, the health insurance exchanges, which is also a market-based approach to providing insurance to the uninsured. And then we also have proposals by kind of various people in the political landscape right now, for example the proposed Ryan program, with these voucher programs. And moving forward, I expect that we will see more of these types of solutions from both sides of the aisle in Washington. And it's because they're that popular, and the thought is that there's really a lot of potential for them to really improve our outcomes.

So, talking about the theory of these market-based reforms essentially you know we hope that the competitive forces are rising from, you know, millions of people in the healthcare system for Medicare beneficiaries. You know the behavior of seeking the best possible value for their healthcare benefits will lead to a more responsive, but less costly, and higher quality healthcare system, that is by voting with their feet and their wallets, as it were. You know the best plans and the best programs will, you know, again advantage and grow bigger, and the underperforming ones will vanish.

There's a couple of critical assumptions of this, you know namely that beneficiaries are kind of these rational self-interested consumers and that have, quote/unquote, perfect information, which is kind of a



commonness for it's not wrong information. But there's some potential market failures that we need to be aware of too, and namely kind of in relation to some of these Medicare private programs that we've been sponsoring.

So first, research has indicated that Part D beneficiaries, you know, are not typically choosing the most cost-effective Part D plan options. Two, beneficiaries seem to be relatively uninformed about key aspects of both the Medicare Advantage and the Part D programs is based on some survey research that we've done. And that - and this, I think is the most critical of them all, the enrolment and enrolments in MA and stand-alone Part D plans, those decisions are relatively sticky. That is, once a beneficiary ends up in a plan, they very rarely switch. While at the same time, the plans can be changing the benefits or premiums, kind of a lot of aspects of the plan that they're enrolled in year-to-year.

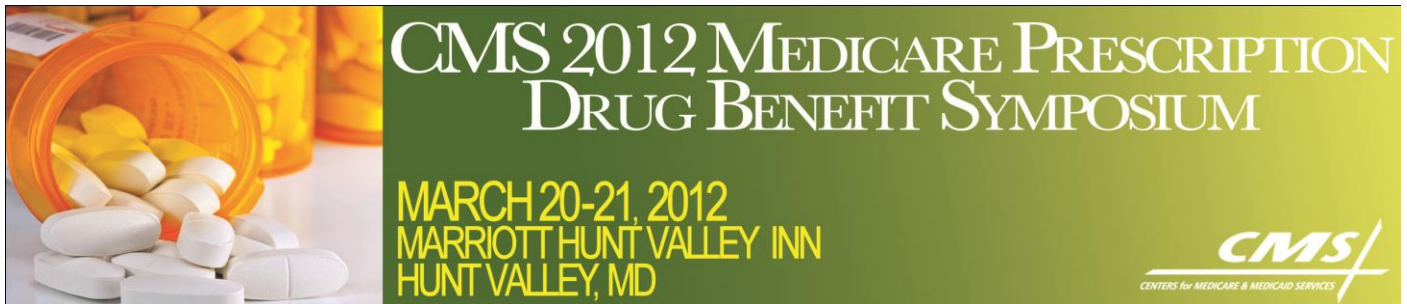
So I've gone over some prior research. And a lot of this is really quite dated. It's been a long time, as far as at least I could tell, that anybody's really looked at this. It goes clear back to the 1990s when, you know, HMOs were kind of invading the - well not invading, but they were becoming much more prevalent in the private sector among these privately purchased self-options, employer sponsored and those markets.

So, a few researchers, you know, back in the day like Hulley et al., for example, found that, you know back in the late '80s and early '90s that greater levels of market competition were, in fact, associated with lower member premiums in the private HMO market. Just for future reference in the presentation, I cite the author and then PubMed ID. So, an interested party, you just put that number into PubMed and it will take you straight to the exact citation.

However, Morrissey et al., they found - they did a similar analysis a few years later - they had a slightly different outcome variable. But they found no relationship between market competition and premiums. There's also been - and this is the most common literature - the study of plan mergers, whether or not they have impacted average premiums within a market. And this is where it's decidedly most of it. Most of the studies don't actually detect any kind of a difference. And even when they do, they're only in the very, very concentrated markets and the effects are very transitory. That is they disappear after a few years.

You know, to our knowledge, no program has examined either the Part D program or the MA program. So we're hoping to change some of that with this particular project.

So our research objectives is essentially determine whether greater levels of market competition among Part D programs are associated with lower beneficiary premiums. And to do this, we're going to test two key hypotheses. You know the first one is that plans in highly competitive markets on average will have lower premiums than plans in less-competitive markets, you know after we control for, you know, pretty much everything we can think of. The second hypothesis - and it gets to the dynamics of the issue - is whether or not plans that are experiencing levels of growth and competition, whether there's entry into the market, whether market shares are being disbursed among more and more plan options, whether those plans are experiencing lower premiums, and again after controlling for all kinds of stuff.



So, our conceptual basic framework, we're actually going to go with something that was actually developed in that first study from the 1980s with Hullely et al. And basically, we're going to state that plan premiums are essentially of functions affecting factors influencing the elasticity of demand for an individual firm's coverage package that translates into market competition. The elasticity of demand for drug coverage in markets as a whole, that's the market level demand for prescription medication coverage, the marginal cost that plans face in providing drug coverage. So these are factors influencing how much a plan has to pay to fulfill their obligation to provide drug coverage to their respective members. And then the final point, which isn't actually relevant for the Part D program, but is outlined in the conceptual framework, is the ability of plans in market to collude on pricing.

Now it's not really an issue because there's no variation, market to market, since the Part D program is centrally regulated and administered. As far as data, we obtained data from two key sources. The first is the Chronic Condition Warehouse, or CCW. And we gained information on the plan of market characteristics from these files. And we also used the Center for Plan Choices master reconciliation file. And this is where we got information on plan level financial data.

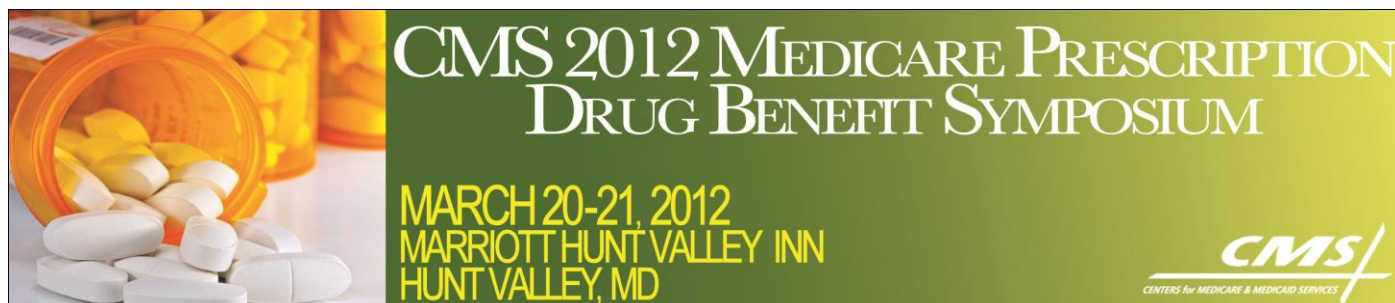
We have some key exclusions that are worth noting: first of all, that we excluded MA PDP plans. They're kind of a completely different animal from the stand-alone PDP plans. It's hard to differentiate kind of whether or not that premium is actually kind of reflective of what the PDP - the MAPD, the Part D plan part of the MA benefit - is actually covering. And also it's much harder to define their markets because MA plans kind of operate on this mostly county level, but there's some regional level plans. So it's just really hard to disentangle that.

The second inclusion criteria is we had to drop plans that we didn't have data for through the three years of our study 2006, 2007 and 2008. So essentially, we were excluding kind of new entrants to the market and plans that either went under or were absorbed into other plans. And that was completely a pragmatic thing, based on our model. We'd love to figure out a way to include them.

So, in the end we ended up analyzing a cohort of approximately 1100 stand-alone Part D plans. So our key variables, you know, our primary outcome is, of course, the premiums. So it's a premium of Plan I in the market J for 2008, so measures of market competition. So, you know, most of these are on the market level, although there's one plan level variable.

So first of all, we used a Herfindahl Index for the level market competitions. It's calculated based on the contract level, and not the plan, the logic there being that plans nested within contracts could kind of cross-subsidize each other in the corporate sense. Our next variable, again from two, is the change in market competition, change in this Herfindahl Index between 2006 and 2007.

Now, before I go on too much farther, you know the reason why we're looking at 2007 data is we're trying to take the perspective and modeling of kind of what information the plans would have had access to and would have been able to use in making their bids and then, in the end, indirectly setting their premiums



there. So the outcomes are in 2008, and most of the predictor variables are in either 2007 or the change between 2007 and 2006.

Plan share: this is the share of the total enrollment of, in market J, captured by any individual Part D plan. So this is to control for the plan's actual size. You know, the thought being that bigger plans might be less sensitive to some of these market forces than smaller plans that are trying to, you know, more aggressively build market share.

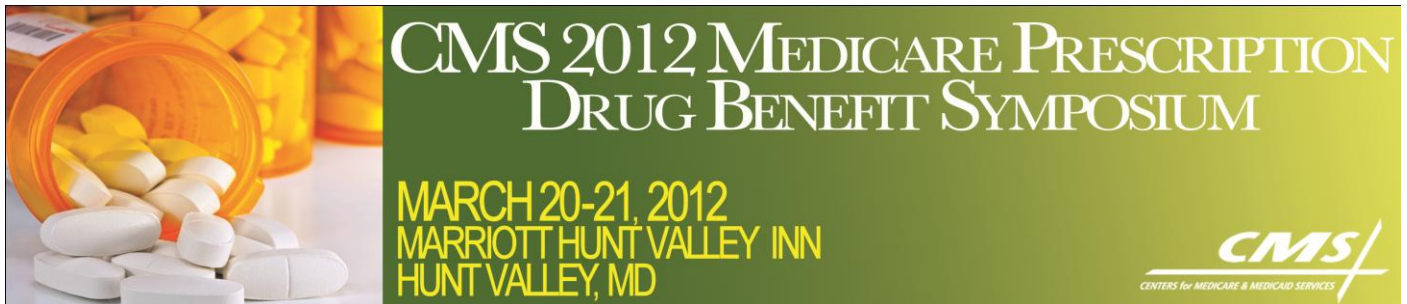
And then as a control variable, we looked at the market the Medicare Advantage Plan penetration in the market. And the idea behind that is MAPD plans are essentially a substitute, though not an exact substitute, to a stand-alone Part D plan. So we needed to control for that.

So measures of market demand for coverage: so basically the best thing we had here was kind of a region level socioeconomic status indicator. And the one we used was based on some work done by RTI to create this socioeconomic status imputation for beneficiaries that was based on kind of these geo codes of where beneficiaries lived. So essentially, how that process worked was we kind of figured out what census tract the beneficiary lived and using some software that we ran against our enrolment database. And then we merged in a bunch of indicator variables from the census's community survey. So basically, it's this big fancy kind of factor analysis approach that looks at things like, you know, the median home values on the beneficiary's block, the unemployment rate, the average level of education and stuff like that. And that was kind of the proxy for socioeconomic stats. We just aggregated all that up to the state level. And the idea is that kind of more affluent, you know, Part D regions I should say would have a higher demand for drug coverage in the sense that we think it's kind of this normal good.

So, measures of providing drug coverage or the cost, that is: so this is based on some work that Acumen did at the start of the Part D program. So we looked at these dispensing and ingredient fee indices. And basically, these just capture kind of the regional variation and kind of how much it actually cost to pay for medication, you know. Because if the dispensing fees are high, that feeds right into the plan's cost structure, and same with the ingredients. Another interesting thing we looked at was the loss ratios for the individual plans within the markets in 2007 and then again the change in loss ratios. These are medical loss ratios.

And then the last aspect we controlled for - and this is actually really important for the model - was the actual benefit structure. So we essentially specified this as a categorical variable. So we, you know, the referent was just the basic Part D coverage. Then we had enhanced plans with no gap coverage, and then enhance plans with gap coverage. And the idea behind this is that these enhanced plans simply cost more to administer. And, by definition, they're supposed to charge premiums for these extra benefits. So that would translate directly into, you know, higher premiums, so it needed to be included in our model.

So, a little bit more on the loss ratios: different people have different ways of computing this. We took kind of the approach of, you know, classifying these things as medical loss ratios. So it's basically what



the plan paid out for all the drugs that it provided to beneficiaries over kind of all the various financial inputs. So we had the beneficiary premiums, what Medicare chipped in, the perspective reinsurance, perspective LI, the LI premium. And then the payment reconciliation kind of brings it all together.

So ignored the revenues and losses from the enhanced portion of the plan first because we didn't have them and second, I don't think it's really necessary in the sense that, you know, all the premiums that beneficiaries pay for the enhanced portion is supposed to be plowed into additional benefits and not into things like plan profit. But that was a limitation of our data.

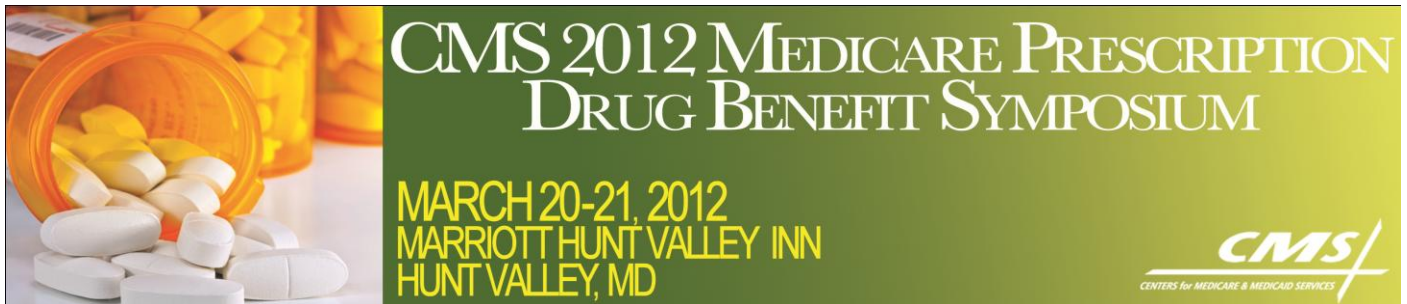
Measurements of the plan's ability to collude with one another, that is they get together and kind of, you know, collaborate on their bids, which they really aren't supposed to do. You know we don't have - you know, so we're not including this in the model because it would be essentially be constant because of the ability of kind of plans to cheat would be constant across all the regions we looked at because Medicare just administers and regulates things centrally.

So analytic methods: so we're going to estimate a somewhat fancy model. We estimated a multi-level linear regression model kind of on the log of premiums. And that was actually derived directly from the conceptual framework. So we considered the effects of variables on both a plan and market level. So for the curious, here's the equations. Basically, all we need to know from this is that, you know, the market-specific - so these are the plan level things. So things like the plan market share or the loss ratios, change in loss ratios, and the benefit structure, they all enter into the equation on the plan level. And then we have a market level. And this is where the market competition variables enter in into the thing. So and this is also where the variables of interest are. So it's this gamma zero one and gamma zero two. It's those little things that they're supposed to be gammas, but they came out looking like Y's on the slides.

So, you put this all together. Now on this model the coefficients can be interpreted as percent changes in the premiums. And in terms of our specific hypotheses, you know we think that negative significant values on this gamma zero one coefficient - that's the one associated with the Herfindahl Index for market J - you know a negative value of that would provide evidence supporting the hypothesis that market competition is leading to lower premiums. And then again, a negative coefficient for the gamma zero two, that's the change in competition, year-to-year, that would provide evidence that, you know, kind of more competition, growth in competition, year-to-year, is depressing premiums.

So as far as results, so this first slide is going to be an overview of the Part D plan dynamics between 2006 and 2008. And that's a lot of data. So it's mostly there for reference. But I do want to point out some kind of the broad findings from it.

So first of all, that markets became more competitive between 2006 and 2008. So the Herfindahl Index improved from .16 to .12. So on the scale, lower numbers are better. Just to kind of put things in quasi-reference, the Department of Justice gets suspicious when mergers and stuff - of markets where the



Herfindahl Index is .1 or higher. But that's kind of for commodity markets, so it doesn't quite apply to the Part D marketplace.

The premiums on average also increased in our data from about \$26 on average per month to 30. The plan loss ratios also increased from .65 to .73. So that would indicate that plans were spending kind of a greater share of their revenue and actually providing drugs over time, which I think is probably a good thing.

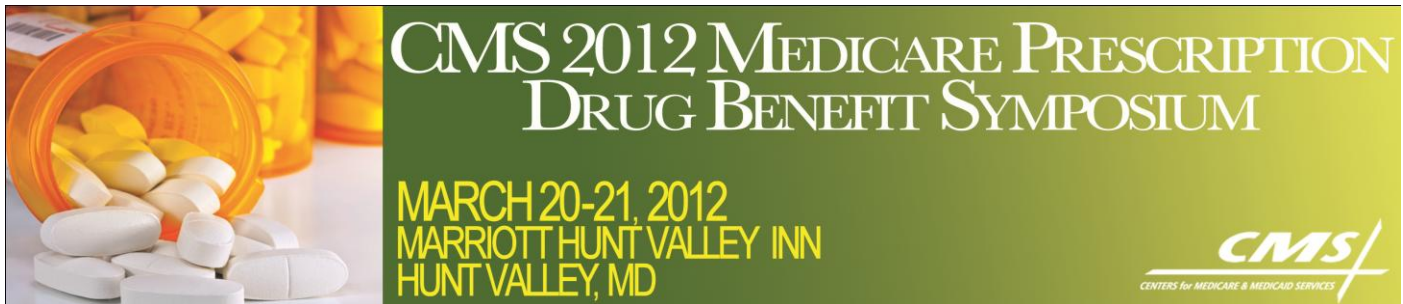
But the trends were not uniform across all markets. So, here's kind of an interesting table. And the key to following this one is just kind of following these numbers up in the first row. So, we start off in the Loss Ratio heading with this little 1 over the top underneath the 2006. So, if you look at the New York region, the loss ratio on average for plans in that particular market was .59, which is, you know it's pretty good. They're kind of making money. And you look over to the Herfindahl Index. And that's .13, so it's a little on the high side.

So, when you follow it to 2, since their plans were doing so well in 2006, I think we saw entry and greater diffusion in the market so it drops down to the .1. And you follow that back over to 3, so now the loss ratios are up at .67, which indicates, you know, all these plans, in response to the market competition, were having to spend more and more on drugs and less and less on other stuff. You follow it again to 4, you know now it's looking really competitive at .07 for the Herfindahl Index. And you follow it back out to 5 for 2008, and the loss ratios are now at .71.

You know, going down to North Carolina and Wisconsin, you know, these are plans that started off with kind of, you know, higher loss ratios in 2006. That means they weren't kind of making quite as much money. And you see, if you look over to the Herfindahl indices, those are kind of remaining fairly flat, at least been 2006 and 2007. So we're not seeing a lot of entry in that market. And, accordingly, the loss ratios don't seem like they're growing super fast either. But interestingly enough, the plan premiums are growing, whereas if you look up at the markets where you're seeing lots of entry, the plan premiums actually seem a bit depressed over time, or at least the growth in them.

So, this is just kind of things I picked out that were kind of obvious from the data. So I guess it's quasi-anecdotal. You know, the real interesting stuff is going to come when we're actually fitting the model.

But before we get to that, let's just go over some of the sample characteristics. Again, we're having to take a subset of plans, so this doesn't quite look like the national averages. Most notably is that our average premium is significantly higher than what was kind of reported in the nationwide statistics. So we are - I think that has a lot to do with the fact that we're excluding kind of the new entrants to the Part D market. You'd think they would have an incentive to bid low in order to bid market share. The fact that we're going with established plans I think indicates that, you know, they're a bit more established in their position and, you know, don't necessarily need to compete as aggressively on the premiums. Again, that's an interesting kind of point of the data.



If you look down at the Herfindahl indices, on the average it's .14. But it ranges amongst all the regions between .1 and .23. So there's a good bit of variation there. And the same is true with the changes from 2006 and 2007. On average, it's a .01 unit change. So again, by way of reference, if you were to engage in a merger that would result in a Herfindahl Index change of .01, that's usually where the Justice Department gets involved. Again, that's for kind of these commodity markets not directly analogous to Part D. But this just gives you an idea of what the scale is. And I know it's kind of an abstract concept.

You look over at the min and max, some markets experienced no change, others quite a bit up to .07. So, you know, the way I scaled these are these are improvements. So .01, that indicates that the Herfindahl Index - I multiplied it by negative 1 - so that's actually a decrease. So that's an improvement in competition. So the other scale. So across the board, everything seems like the competition is improving. There isn't any place where it's getting worse.

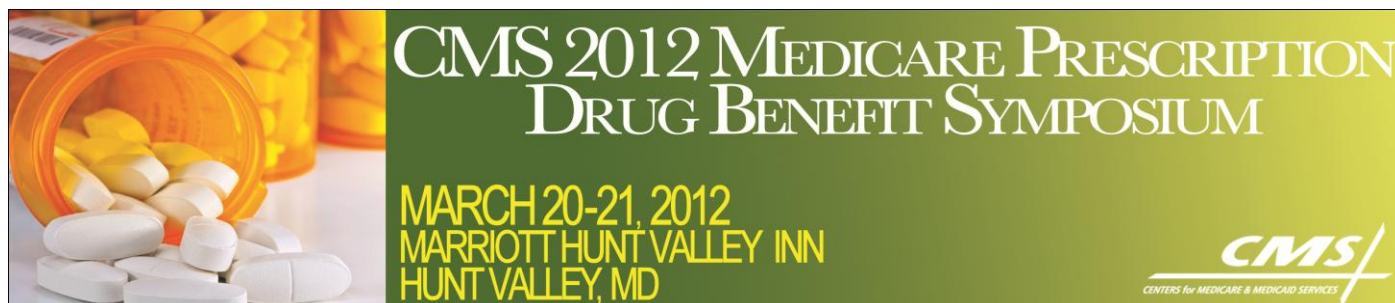
So here are the results of our model. So the most interesting one are, again, the first two rows. So, if you look at the Herfindahl Index in 2007, the coefficient estimate is not statistically significant. So, that seems to indicate that where the market is in terms of kind of absolute level of competition isn't a big driver of premiums. However, you know, if you look down at the dynamic part of the model where it's a change between 2006 and '07, we see this statistically significant coefficient of .02. So that translates into about a two percent reduction in Part D plan premiums associated with each .01 unit increase - or improvement I should say - in market competition. So that is statistically significant. And it does provide some evidence that market competition is, in fact, working.

So it comes. The model actually fit fairly well. All these other variables, they kind of are going in the direction that we would expect them to. You know, the most important one that was the coverage, the benefit package, which makes, I think, a lot of sense. You know, if you're offering an enhanced plan with gap coverage, of course that's going to feed directly into your premium, and that's going to have a very strong effect.

So to put things in perspective a little bit, you know the take-away message is that, you know, the higher levels of competition alone don't seem to be what's important. It's the fact that it's the change, year-to-year, that seems to be driving the premium. And I think that that makes sense. It's not where the market is, per se, it's what's going on in it, year-to-year, that seems to be, you know, driving the improvements in premiums, as it were.

So again, it was, you know, each .1 unit change in the Herfindahl Index was associated with a two percent lower plan premium. So, just to put that in context if, you know, if the average for this particular subset of data, the average premium is about \$38. So that translates into about a 75 cent change for each .1 unit change in the Herfindahl, which is it's good. It's, you know, one, it's detectable, so that's good. It might seem small, but when you aggregate it across the beneficiary population, that's quite a bit of money. You know, these are out-of-pocket costs for beneficiaries too. And, you know, the .01 was kind of a small change. Some of these markets experienced changes like up to .07.

So the discussions of this. So again we found evidence that these market forces can work to keep beneficiary premiums. And, you know, inasmuch as those premiums are functions of the bid, total



Medicare Part D costs down. So again, competition is a good thing. And, you know, the results are kind of meeting what - or at least in agreement with what the theoretical underpinnings of these Part D programs is. So, but this improvement relies on kind of the continued entry or diffusion in the market or at least the threat of entry or diffusion in the market.

So to put it more simply, plans actually need to be worried about their market share. And when plans are competing with one another for their market share, that's when we see these gains to beneficiaries and gains to the Part D program. These effects would be stronger if beneficiaries were able to be better consumers. Going back to the introduction, there are these market failures. You know, beneficiaries do have a hard time kind of distinguishing between plans, especially on kind of non-price dimensions. You know, it's easy to pick out the lowest price, but it's a bit harder for them to kind of figure out well what's a good plan for me, what's a good plan for my conditions.

And then there's also the stickiness problem. You know, just because you enroll in a good plan this year doesn't mercenarily mean that plan will be meeting your particular needs, going forward. But when we have this competition, if we can solve some of these consumer problems, then I think we'd see the gains to the Part D program increase even more.

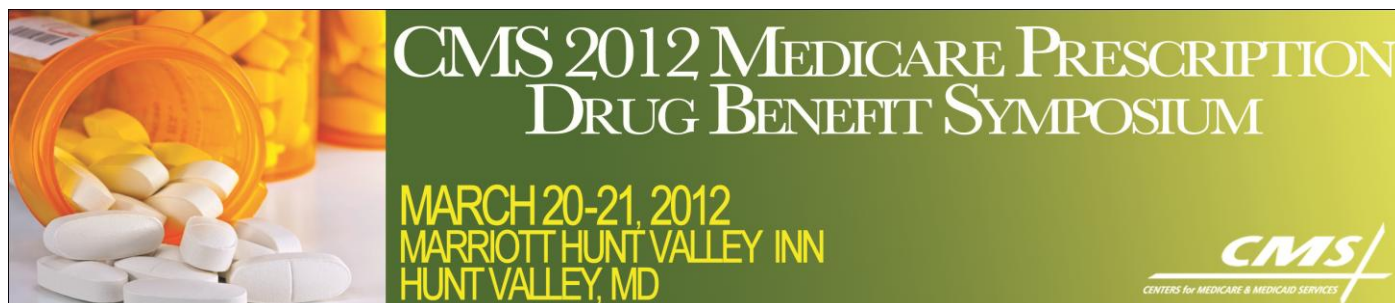
So some policy discussions: so first of all, you know, reducing the number of plans. You know, we're in the process of doing this. I believe we started in 2009. You know, the firm's likely got rid of their kind of their underperforming options. So, and it's not clear, at least in my mind, whether to not they were shrunk enough to really, truly simplify the decisions. They're certainly better now than they were, but whether or not it's enough it's unknown.

Another policy option that's been suggested was standardizing the plan options kind of like Medigap. Firms that compete on price alone in this scenario and, you know, one of the downsides is we would lose the ability to have innovation in the market on kind of the value side of the equation. It wouldn't necessarily compete as much on quality or the benefit design, helping beneficiaries be better consumers.

So better, more comprehensive decision support tools in the plan finder could be very helpful. One idea is a pre-screener questionnaire designed to elicit beneficiary preferences, even rank options according to those preferences. So if you're especially price-sensitive, they'll be ranked in order of price. If they're quality sensitive, they'll be ranked in order of quality.

Another aspect is they add some social or social marketing or decision support tools to the plan finder, things like user reviews, kind of information with similar beneficiaries may have chose and also tools for caregivers to exist in the process.

So, and just really briefly, the limitations of the study: the Herfindahl Index was designed for commodity markets. That being said, this is probably a better indicator of competition than simple plan counts. Like I mentioned, for the loss ratios don't account for the enhanced portion of the benefit. And we weren't able to consider new plans entering the market, although we would. And we didn't consider what happened to



plans that went under. Often times, they're consolidated into plans, but we just don't know how to keep track of this, at least with the data that I have available.

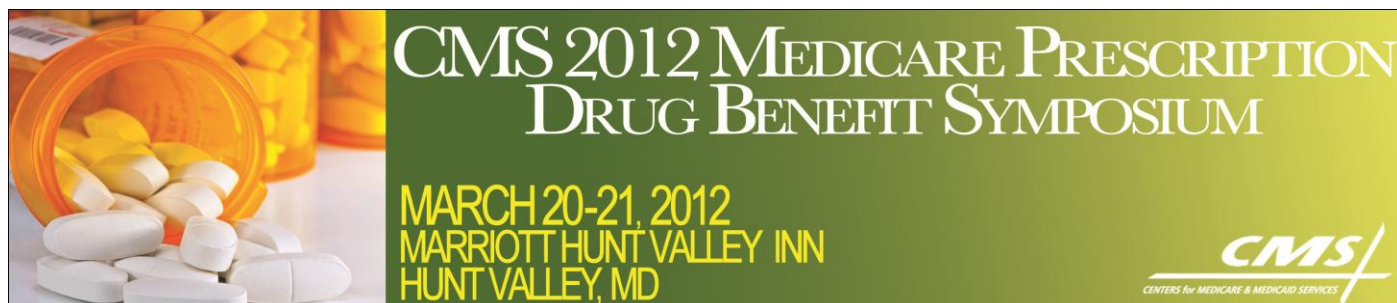
So, moving forward, we'd like to look at 2009 and beyond, especially looking at the impact of kind of this new regulation, reducing the number of plans and a few other things. I believe I need to move to the conclusion and to the assessment questions. So this is one, the first and only study of this kind. And it was made possible, you know, I think only Medicare could have done this, because the data that was used was so proprietary. But I think it's valuable to the field and for people to know. And we found that evidence that market forces can work to improve kind of these cost outcomes. But our study doesn't really speak to the comparative effectiveness of this approach, whether or not we're better off with competition or with Medicare just setting prices. It doesn't speak to that directly.

So if the assessments - so it's time to conduct the assessment. So please get out your ARS response cards. We'd encourage all of you to participate. As a reminder, if you're seeking CPE credit, you must respond to all assessment and evaluation questions. After the questions and responses are read, you will have ten seconds to respond. You will see the timer on the screen. So there's the instructions. So, you should all be on channel 41 too.

So okay. All right, so first question: why is understanding the impact of market-based approaches to delivering healthcare important? So one, markets always yield the most efficient outcomes; two, examples of market-based approaches are to reforming healthcare becoming increasingly common; three, Part D plans exercise a great deal of market power; and for four, so people can know if they're paying too much for healthcare. So, please vote now. You have ten seconds. Okay, so voting has closed.

So let's take a look at the results. All right. So 74 percent got - I think they got it right. So examples of market-based approaches are reforming the healthcare - are becoming more common in the healthcare system. So Part D market plans - Part D plans exercise a great deal of market power. That was the second most common response. I am not sure we can actually say that from these data. There's lots of things that kind of are factors in the market power. We didn't specifically address them. It's basically it's how the firm is positioned relative to its competitors and payers and clients in the marketplace. So certainly, they're kind of the only game in town for Medicare beneficiaries in terms of providing coverage under the Part D program. At the make time, Medicare is the only payer for these. These plans are also nested within markets where they have different costs for providing drug coverage and different dispensing fees, which is a function of the market power of the pharmacies.

All right, let's move onto the next question. So according to our study, what was the impact of market competition on Plan D plan premiums? So one measures the competition had no impact on premiums; high levels of competition were associated with higher co-pays, year-to-year growth and market competition is associated with lower Part D plan premiums, on average beneficiary premiums are too high. So please vote now. You have ten seconds.



Okay, voting is closed. All right, we all did a good job on this one. So yes, the year-to-year growth and market competition was associated with lower Part D plan premiums. So that was kind of the key finding of the study. And in a sense, it is good news. It provides some confirmation of the fact that, you know, this competitive Part D marketplace that CMS has created does appear to be generating efficiencies within the healthcare system.

So great. All right.