Assessing the Impact of Cost Sharing on the Induced Demand for Prescription Drugs to Support Medicare Part D Pricing

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INFORMATIONAL REPORT

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Introduction

Medicare Part D pricing actuaries are challenged by many forecast assumptions that affect the final developed member premium. Not only are pharmacy costs forecast, but CMS revenues and benchmarks must also be forecast. The multitude of Bid Pricing Tool entries, complex benefit designs and full disclosure of every assumption place a significant responsibility on the actuary. The large amount of analysis and assumptions involved in bid development and the integration of each issue further adds to the complexity.

Within all of this work is an assessment of the induced prescription drug use resulting from the cost sharing of enhanced alternative benefit designs. Many actuaries find this forecasting to be difficult to develop and support and struggle to find a sound basis for developing induced demand factors for drug pricing. Bid desk review and audit do not allow for an explanation that assigns these factors based purely on "actuarial judgment", but require that judgment to be supported with consideration of data and research.

Fortunately there are studies that provide all of the necessary information to formulate prescription drug induced demand models. These studies provide a wide variety of insight and can help with the development of models that may be unique to different populations and to the cost controls of different plan sponsors and plan types.

Reasonable prescription drug induced demand factors are important for the development of pricing for the Defined Standard benefit design from a base period with an Enhanced Alternative benefit design. They are also important for the development of Enhanced Alternative pricing from the Defined Standard pricing of the contract period.

While in many cases the removal of induced demand for pricing the Defined Standard benefit is directly offset by the application of the induced demand to price the alternative benefit for the contract period, the interim step of pricing the Defined Standard benefit is important for the overall member premium rate and for the setting of the benchmark basic payments by CMS.

This report discusses the available studies and information to help understand prescription drug induced demand. It outlines some considerations and assumptions that can be used to adapt these studies into an induced demand model. Finally, this report shows the mechanics of developing such a model from all available information.

Available Resources and Information

The primary resource for the information compiled in this report is the AARP Public Policy Institute Research Report from April 2008 titled *How Prescription Drug Use Affects Health Care Utilization and Spending by Older Americans: A Review of the Literature*, by Cindy Parks Thomas, Ph.D (AARP Research Report). The AARP Research Report is most valuable as it summarizes the results of a wide set of studies and presents consensus findings from these studies.

The key goal of pricing for the induced demand is assessing the slope of the demand relative to the changes in cost-sharing levels. The AARP Research Report presents a consensus finding that a 10% increase in drug cost sharing is associated with a 1% to 6% decrease in drug use. This is a wide range of results and it is important that the actuary selects the demand slope that best represents the population considered for pricing. Fortunately, the AARP Research Report provides insight to help narrow this range and select an appropriate slope.

Measuring the impact of induced demand for a population due to varying the cost-sharing amount is extremely difficult, separate from the attraction of higher utilizing members to richer benefit designs. This is mentioned in the AARP Research Report and it is noted that not all studies have used adequate controls for these unobserved factors. This suggests that true demand for a fixed population leans to the lower side of the reported range, as the larger changes may include the effect of attracting a less healthy population.

As noted in the AARP Research Report, managed care populations use drugs differently than other populations and that the effects of cost sharing may be lower than that for the other populations. This gives guidance for selecting the slope of demand for the PD portion of an MA-PD plan separately than for a PDP Only plan designs.

Having insurance for physician visits is critical to using a drug benefit. Most prescription drug induced demand models do not integrate physician benefits (although some do). Consideration for a physician benefit may influence the selection of the demand slope.

While demand for both essential and non-essential drugs is impacted by cost-sharing levels, the non-essential drug use is more responsive to cost-sharing levels.

Having prescription drug coverage increases drug utilization by as much as 20%. This consensus finding places an upper bound on the overall impact any prescription drug induced demand model may produce.

Benefit limits of all kinds decrease prescription drug use. This information is particularly important when considering the benefits, as most Part D plan designs apply only to cost below the Initial Coverage Limit.

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None of the studies address whether the demand slope is linear with respect to a percent (coinsurance) basis or to a fixed (copay) dollar basis. A separate study *Patient Cost-Sharing, Hospitalization Offsets, and the Design of Optimal Health Insurance for the Elderly* by Chandra, Gruber & McKnight in March 2007 provides some data that can be used to help further understand this relationship. This study shows data specific to prescription drug demand for changing copay levels. While not conclusive, the data does appear to suggest that demand is more linearly connected to fixed dollar copay rather than to a percent coinsurance.

Building a Model

The available information provides a substantial basis from which to develop the induced prescription drug demand resulting from a change to cost sharing. The demand curve may vary for different populations and may vary for different managed care organizations. Each actuary may have a different assessment of the strengths and value of each assumption; resulting in different induced demand models and impacts.

Before fully developing an induced prescription drug demand model, there are several considerations and assumptions that should be made. After these are explored, the actuary can more fully develop the induced demand model appropriate for a given situation.

Considerations and Assumptions

The actuary will give consideration to whether induced prescription drug demand will be priced as linear with respect to a fixed dollar copay change or a fixed percent coinsurance change. This consideration has not been analyzed by any of the studies, and there does not appear to be substantial evidence that demand is more closely linked to either. The separate study *Patient Cost-Sharing, Hospitalization Offsets, and the Design of Optimal Health Insurance for the Elderly* by Chandra, Gruber & McKnight in March 2007 provides some data that can be used, but even this is a matter of interpretation. Each actuary's own experience, and the experience of their client, may enter into the decision regarding this assumption.

The studies find that benefit limits of any kind affect drug use. The slope of the demand curve should consider the portion of drugs that are subject to the cost-sharing benefit being evaluated. In most instances, the cost sharing benefit is limited to the drugs applicable below the Initial Coverage Limit (ICL). It will be important to understand the portion of total drug costs applicable to amounts below the ICL in order to develop the induced demand model.

Essential drugs have demand that is less influenced by cost sharing than non-essential drugs. The actuary must consider which drugs may be considered essential and whether or not a reduced impact, or even no impact, should be considered for these drugs. The actuary may solicit help from the plan sponsor's pharmacist in identifying the essential drugs and understanding the potential for induced demand.

When developing factors, consideration must be given to the maximum impact to be applied for any given cost-sharing tier. The literature notes that having prescription drug coverage can lead to as much as a 20% increase in overall drug utilization. This provides an upper bound for demand; however, this is measured against having no insurance. Therefore, induced demand impacts measured as relative to the Defined Standard Part D benefit design should be more limited.

Separate from any alternative copay and or coinsurance structure change, there may be a change to the deductible. An induced demand impact of a deductible change must also be developed.

To support this, an effective overall cost sharing of the deductible will be necessary. This can be measured as the portion of overall drug costs that fall below the deductible.

Based on the considerations and assumptions above, the actuary can produce a range of induced demand changes for copay, coinsurance and deductible benefit changes by adapting the study results of 1% to 6% change in utilization for each 10% change in cost sharing to all of these assumptions. The resulting updated range will require a final step - to select the demand slope from within this range. When making that selection, the following considerations may be applied:

- The AARP Research Report does denote that separate from the underlying utilization of a given population, the richer benefits of a lower cost-sharing level will attract higher users, and this may be influencing the measured demand in some of the studies. The report further raises the concern that the studies have not used adequate controls for all unobserved factors. This gives a reason to consider demand at the lower range of these studies' results.
- The AARP Research Report states that managed care populations use drugs differently than others and the effects of cost sharing may be lower for the managed care population than with other populations. This may lead to a lower selection for the PD portion of an MA-PD plan than the selection for a PDP Only plan design, as a PDP Only plan is offered to Medicare FFS members who are not a part of a managed care plan.
- Any particular plan sponsor may have a variety of drug utilization controls in place. Such controls may serve to dampen the impact to induced demand expected from reduced cost sharing.
- Consideration must be given to the availability and copayment for professional office visit coverage, as the studies indicate that having insurance for physician visits is critical to using a drug benefit.

Prescription Drug Induced Demand Model Structure

The induced demand model will be developed in a manner that integrates with the capabilities of the overall drug pricing model. For example, if the drug pricing model applies averages of drug use for each member without regard for being below and above the ICL, then developing factors that apply to only costs below the ICL will not easily integrate with the pricing model. It may be preferable to develop factors applicable to all drug costs, and those factors are developed with a level of dampening that considers there is no benefit change for drug use above the ICL.

Additional consideration for the model structure may include a model with "fixed factors" for a set of copay amounts (or coinsurance amounts). This structure would be different than defining a model which measures changes in the effective copay from that of the Defined Standard benefit and then calculates an impact to demand resulting from the "difference from" the Defined Standard benefit amount per dollar copay.

- **"Fixed Factor" Model** – such a model will contain a chart that has assigned factors for induced demand for each copay amount. As an example, the $10 copay factor may be 0.950 and the $15 copay may provide a 0.925 factor. The impact of moving from a $15

copy to a $10 copay would induce 0.950 / 0.925 = 1.027 (or 2.7%) additional prescription drug use.

- **"Differences From" Model** – such a model would be a mathematical formula that denotes for each $1 decrease in copay will result in, for example, 0.5% increase to prescription drug utilization. The impact of moving from a $15 copy to a $10 copay would induce ($15 - $10) x 0.5% = 2.5% additional prescription drug use.

Other than very small mathematical differences, these two model designs have structural difference from the application of the maximum induced demand change – the "fixed factors" model will limit the demand change within a defined set of copay amounts in the chart, while the "difference from" model will limit the demand change calculated from the Defined Standard benefit design.

A Practical Example (for the PD portion of an MA-PD Plan)

As a first step in the development of an induced demand model, a model design must be selected. For this example, the model will be selected such that induce demand is linear to fixed dollar copay amounts and develops factors based on their "difference from" the effective copay of the Defined Standard benefit. The selection to be linear to copay rather than coinsurance is based on two actuarial judgment considerations:

- although inconclusive, my read on the data in Chandra, Gruber & McNight 2007 is that it suggest a stronger correlation with copay than with coinsurance
- actuarial judgment is applied to consider that moving from a $10 to a $15 copay for someone already paying the $10 for a prescription will have the same effect as moving from a $40 copay to a $45 copay for someone already paying the $40 for a prescription.

Specialty drugs will be considered as essential drugs and are assumed to not be impacted by cost sharing changes. The decision for no impact is made in connection with many reasons; including the research supporting essential drugs are less impacted, managed care controls in place on high cost drugs and general overstatement of some studies due to inadequate controls for unobserved factors.

The detailed cost sharing tiers will be evaluated comparing a one-month supply copay amount to the effective copay per script of the Defined Standard benefit. The maximum impact for any tier will be set at 12% increase in use. This selection is based on judgment after considering that the studies denote an overall impact of up to 20% when providing coverage. Also, there is the expectation that a 12% limit at the detailed tier levels will accumulate to amounts below 12% for the overall benefit design.

Table 1 below shows the progressive development of the induced demand model. The model begins with the AARP Research Report showing study results that range from a 1% to a 6% increase to prescription drug use for a 10% increase to cost sharing. A client's experience shows an average cost per script of $55, which under the Defined Standard benefit design maintains a roughly $14 effective copay when below the ICL ($55 x 25% coinsurance = $14 copay). Every $1 change to that copay represents a 7% change from the Defined Standard benefit ($1 divided

by $14 = 7\%$). Therefore, for this population and experience the study results equate to a demand change in the range of 0.7% to 4.2% (lower bound changed from 1% to 1% x 7% /10% = 0.7%; upper bound changed from 6% to 6% x 7% / 10% = 4.2%) for each $1 change in copay.

The range is further adjusted to reflect that roughly half of the total prescription drug costs are applicable to the benefit, due to the ICL limiting the benefit application. The updated range is 0.35% to 2.1% demand change per $1 copay change.

Table 1 Progressive Development of Induced Demand Model

Effective Cost Sharing Change	Lower Limit	Upper Limit	Explanation
per 10% Coins Increase	-1%	-6%	Consensus from Studies
per $1 Copay Increase	-0.7%	-4.2%	Converted per $55 avg cost/scr
per $1 Copay Increase	-0.35%	-2.1%	Impact of the ICL

As a final step, the slope of the demand curve must be selected from within the developed range. It would be appropriate to select a value toward the low end of the range for the following reasons:

- The AARP Research Report suggests that the studies do not adequately remove the impact of higher users being attracted to the richer benefits; hence the high end of the range of studies may have this influence that is not appropriate for the pure demand due to cost sharing
- the effects of cost sharing on drug demand for managed care populations are noted as having a lesser impact than for other populations
- the presence of physician office visit benefits is expected to dampen the slope of the induced demand model as its influence on prescription drug demand is present for all drug cost-sharing levels

For this example we select 0.5% increase to utilization per $1 copay decrease (although any value at the low end of the developed range would appear as an appropriate selection). This formula is applied to all non-specialty drug tiers. Each tier increase is developed considering a maximum impact of 12%.

The selection process for the impact of changing the deductible is developed in a similar manner. The $310 deductible of the base period represents 14% of total allowed costs. Hence the entire deductible will affect utilization by 1.4% to 8.4% (lower bound equals 1% x 14% /10% = 1.4%; upper bound equals 6% x 14% / 10% = 8.4%). On a per $100 deductible basis, the range is 0.45% to 2.7%. Table 2 below shows the progressive development of the induced demand model as applicable to the deductible.

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Table 2 Progressive Development of Induced Demand for the Deductible

Effective Cost Sharing Change	Lower Limit	Upper Limit	Explanation
per 10% Coins Increase	-1%	-6%	Consensus from Studies
per $310 Deduct. (14% Coins)	-1.4%	-8.4%	$310 ded is equiv to 14% coins
per $100 Deduct. Increase	-0.45%	-2.7%	per $100 deductible

We select 0.5% per $100 deductible change for this example. This selection is made toward the low end of the range for the same reasons as depicted above. Another consideration is to recognize that the calculated upper and lower bounds reflect moving from the full deductible to 100% coverage, rather than to the partial coverage of the enhanced benefit.

In total, this describes a complete model for developing induced demand from benefit changes between the deductible and the ICL and with changes to the deductible. Rules for the applicability of the formula are included.

Conclusion

There is a great amount of information available concerning the induced demand for prescription drug use resulting from cost sharing changes. The studies available do have some shortcomings, but understanding them is useful for helping to narrow the induced demand slope ranges for pricing.

Considerations for physician office visit benefits, managed care controls, limits to total impact, benefit limits (e.g., the ICL) and impact differences for essential and non-essential drugs must be considered. All of this information plays a role in the development of induced demand.

Collectively, all of this information can be used to develop an induced demand model for Part D pricing. This model may be unique to any population, drug cost management controls and plan type.

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