Modeling the Economic Value of Medication Synchronization among Medicare Beneficiaries

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RESEARCH OBJECTIVE

• Suboptimal medication therapy that includes non-adherence has been associated with $495.3 to $672.7 billion in annual US healthcare costs. Medication synchronization (med sync) programs that align medication fill dates and offer consultations have been shown to improve medication adherence.
• The study objective was to develop a model to estimate the impact of med sync driven adherence improvements on associated healthcare costs among Medicare beneficiaries.

STUDY DESIGN

• An economic value model was developed based on the published literature and National Health Expenditure (NHE) data to compare the total healthcare costs with and without medication synchronization programs for Medicare Part D beneficiaries.
• Three medication adherence improvements from 3 independent studies with different program settings were applied in the model.
• This model can be customized by entering an alternate population size, medication synchronization eligible rate, enrollment rate, and projection year.
• The primary outcome measure reported net healthcare cost savings for 100,000 members and per member per year (PMPY).

POPULATION STUDIED

• Medicare Part D beneficiaries
# RESULTS

**Assuming:**
- 100,000 Medicare Part D beneficiaries.
- 50% filled multiple maintenance medications in multiple pharmacy visits per month, and 10% enrolled in a med sync program; overall, 5% of the beneficiaries enrolled.
- The total healthcare cost per Medicare enrollee $12,622 was stratified for qualified members as $21,103 and non-qualified members as $4,141 since med sync programs target high-risk patients with two or more medications.
- Based on CMS NHE by Type of Service and Source of Funds data, Rx cost is about 14.3% of healthcare cost, medical cost is about 62.6% and other expenditures is 23.1%.

**Estimated total healthcare cost without med sync is $1,262,200,000:**
- Rx cost: 100,000*50%*$21,103*14.3%+ 100,000*(1-50%)*$4,141*14.3% = $180,494,600
- Medical cost: 100,000*50%*$21,103*62.6%+ 100,000*(1-50%)*$4,141*62.6% = $790,137,200
- Other cost: 100,000*50%*$21,103*23.1%+ 100,000*(1-50%)*$4,141*23.1% = $291,568,200

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<table>
<thead>
<tr>
<th></th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDC Lift</td>
<td>6.8%&lt;sup&gt;1&lt;/sup&gt;</td>
<td>8.4%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>15.6%&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Estimated total plan healthcare costs with med sync</td>
<td>$1,258,923,980</td>
<td>$1,258,153,152</td>
<td>$1,254,684,424</td>
</tr>
<tr>
<td>Rx cost&lt;sup&gt;4&lt;/sup&gt;</td>
<td>$181,520,628</td>
<td>$181,762,046</td>
<td>$182,848,429</td>
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<tr>
<td>Medical Cost&lt;sup&gt;5&lt;/sup&gt;</td>
<td>$785,835,152</td>
<td>$784,822,905</td>
<td>$780,267,796</td>
</tr>
<tr>
<td>Other Cost&lt;sup&gt;6&lt;/sup&gt;</td>
<td>$291,568,200</td>
<td>$291,568,200</td>
<td>$291,568,200</td>
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<tr>
<td>Estimated total plan healthcare costs savings with med sync</td>
<td>($3,276,020)</td>
<td>($4,046,848)</td>
<td>($7,515,576)</td>
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<tr>
<td>Total additional dispensing fee cost due to short fill&lt;sup&gt;7&lt;/sup&gt;</td>
<td>$68,100</td>
<td>$68,100</td>
<td>$68,100</td>
</tr>
<tr>
<td>Estimated net total plan healthcare costs savings</td>
<td>($3,207,920)</td>
<td>($3,978,748)</td>
<td>($7,447,476)</td>
</tr>
<tr>
<td>Estimated net total plan healthcare costs savings PMPY</td>
<td>($32.08)</td>
<td>($39.79)</td>
<td>($74.47)</td>
</tr>
</tbody>
</table>

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1. Medication Synchronization Improves Medication Adherence; Mu, Y et al.; Value in Health, Volume 21, S137.
4. 100,000*5%*$21,103*14.3%*(1-pdc lift)+100,000*(50%-5%)*$21,103*14.3%+100,000*(1-50%)*$4,141*14.3%.
5. 100,000*5%*$21,103*62.6%*(1-pdc lift*0.9578)+100,000*(50%-5%)*$21,103*62.6%+100,000*(1-50%)*$4,141*62.6%.
6. Weighted reduction of 0.9578% in medical cost from 1% increase in drug use was derived from study: Medical Cost Offsets from Prescription Drug Utilization Among Medicare Beneficiaries. Journal of Managed Care & Specialty Pharmacy; Roebuck, M.C. et al.; October 2014; Vol.20, No.10.
7. Other expenditures include dental service, nursing care facilities and continuing care retirement communities, home health care, durable medical equipment, other non-durable medical products, and other professional services.

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In a group of 100,000 Medicare beneficiaries with 5% enrolled in a medication synchronization program:

- If medication adherence increased 6.8%, then healthcare cost would decrease by $32.08 PMPY.
- If medication adherence increased 8.4%, then healthcare cost would decrease by $39.79 PMPY.
- If medication adherence increased 15.6%, then healthcare cost would decrease by $74.47 PMPY.

CONCLUSIONS AND IMPLICATIONS

- Economic modeling demonstrates that medication synchronization programs can result in substantial healthcare cost savings by improving medication adherence.
- Proper planning with cost models can help policy makers understand the value of medication synchronization and develop strategies to implement and improve its impact on the Medicare population.

AMA Citation:

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