Evaluating Alternative Benchmarks to Improve Identification of Outlier Drug Prices for MEPS Prescribed Medicines Data Editing

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MEPS Prescribed Medicines Data

• Household respondents report
  ► Drug names
  ► Number of fills and refills
  ► Pharmacies visited

• Pharmacy follow-back survey collects
  ► National Drug Codes (NDCs)
  ► Quantity dispensed
  ► Days supplied
  ► Payments and sources of payments
Why Edit Price in MEPS

- Average prices in the MEPS and IQVIA were fairly close from 2004 through 2011
- A growing divergence between price per fill in the MEPS and IQVIA since 2012. E.g., The average price across all fills was 12% higher in the MEPS than that in IQVIA in 2019

We report IQVIA price per fill estimates excluding those fills in long-term care setting
Research Questions

• This study will evaluate potential improvements to how prescription drug prices are edited in the MEPS Pharmacy Component data
  ► Identifying outliers in the retail prices reported by pharmacy providers

• The goal of editing and imputation is to ensure
  ► The distribution of unit prices in post-edit MEPS data is reasonably similar to other sources, like the IBM MarketScan claims data for various types of drugs
    – Single source brand name drugs, originators, and generics
Types of Drugs

- Price editing rules vary between brand and generic drugs because prices vary
  - Brand name drugs:
    - **Single source**: have patent protection
    - **Originators**: lost patent protection and face generic competition
  - **Generics**:
    - Enter the market when brand name drugs lose patent protection and are chemically equivalent to originators
Imputing Missing Payment Data

• MEPS Household Component (HC): Use

• MEPS Pharmacy Component (PC): Payments

  ▶ Identify fills missing payment data and price outliers. In 2019,
    
    - 56% complete payment data
    - 28% OOP payments but **missing** third party payments ("partial payment data")
    - 16% **no** payment data

  ▶ Imputing payments from donor fills with complete data to fills missing payment data and those with outlier prices
• Current editing: average wholesale unit price (AWUP)
  ▶ Drug list price per unit from wholesalers to retail pharmacies
  ▶ A growing divergence between AWUP and retail unit prices

• Alternative benchmark prices
  ▶ National Average Drug Acquisition Cost (NADAC) per unit
    – Average collected in a survey of pharmacies, excluding dispensing fee, likely lower than average retail prices
    – Not available for those dispensed by specialty pharmacies
  ▶ Wholesale acquisition unit cost (WAUC)
    – Drug list price per unit for drugs sold by manufacturer to wholesalers
    – Appears more strongly linked to retail unit price than AWUP
To account for diversity of prices across products, we assess the plausibility of within product variation using price ratios. E.g.,

- Retail Unit Price (RUP) divided by AWUP for current editing
- **PRATION** (a ratio calculated as RUP divided by NADAC per unit; PRATIOW (RUP divided by WAUC) for the new editing

In the MEPS PC

- 93% of fills with NADAC per unit available
- 98% of fills with WAUC available
- 100% of fills with AWUP available

AWUP: average wholesale unit price; NADAC: national average drug acquisition cost; WAUC: wholesale acquisition unit cost
Current Price Editing Rules

• Developed based on validation study with 2006/2007 Medicare Part D data and benchmarking to 2007 MarketScan data

• Identify price outliers in RUP relative to AWUP
  ► The threshold for upper outliers: RUP ≥ 10 times AWUP
  ► The thresholds for lower outliers vary with
    - Type of drug (single source, originators, generics)
    - Whether discounts or coupons reported for the fill
    - Whether the fill was for Medicare Part D and in the donut hole
    - Completeness of the payment data
      ▪ Fills with third party payments>0 are rarely flagged as lower outliers
      ▪ A small fraction of fills with partial payment data flagged as complete, most are imputed a third party payment
      ▪ Impute prices for fills with outlier prices from donor fills not flagged as outliers

RUP: retail unit price; AWUP: average wholesale unit price
2019 MarketScan Commercial Claims data

- Randomly selected a 10% sample of the retail or mail-order prescription claims
- Performed data reconciliation to deal with claim reversals, reentries or incomplete claims; Rolled up claims data to the person-service date-NDC event level: ~16.3 million drug fills

- Retail drug price: allowed amount
  - Sum of payments from insurers and out-of-pocket payments from enrollees

NDC: National Drug Code
Findings
PRATION Distributions in Edited MEPS PC and MarketScan Fills for Single Source Brand Name Drugs

Edited MEPS PC: post-edit Medical Expenditure Panel Survey Pharmacy Component data;
PRATION: a ratio calculated as Retail Unit Price (RUP) divided by National Average Drug Acquisition Cost (NADAC);
Note: 2% and 3% of single source drug fills have a PRATION>2.0 in MarketScan and in edited MEPS PC data, respectively
Edited MEPS PC: post-edit Medical Expenditure Panel Survey Pharmacy Component data;
PRATION: a ratio calculated as Retail Unit Price (RUP) divided by National Average Drug Acquisition Cost (NADAC);
Note: 2% and 6% of generic drug fills have a PRATION>20 in MarketScan and in edited MEPS PC data, respectively
PRATION Distributions in Unedited MEPS PC Fills with Partial Payment Data and MarketScan for Single Source Brand Name Drugs

MEPS Partial PC: Medical Expenditure Panel Survey Pharmacy Component data with partial payment information; PRATION: a ratio calculated as Retail Unit Price (RUP) divided by National Average Drug Acquisition Cost (NADAC); Note: 2% and 1% of single source drug fills have a PRATION>2 in MarketScan and in MEPS Partial PC data, respectively.
PRATION Distributions in Unedited MEPS PC Fills with Partial Payment Data and MarketScan for Generics

MEPS Partial PC: Medical Expenditure Panel Survey Pharmacy Component data with partial payment information; PRATION: a ratio calculated as Retail Unit Price (RUP) divided by National Average Drug Acquisition Cost (NADAC); Note: 2% and 0.3% of generic drug fills have a PRATION>20 in MarketScan and in MEPS Partial PC data, respectively.
Fills paid by OOP payment

Percentage of drug fills paid entirely out-of-pocket payment

<table>
<thead>
<tr>
<th>Data Source/ Type of Drugs</th>
<th>Single Source</th>
<th>Generic</th>
</tr>
</thead>
<tbody>
<tr>
<td>MarketScan</td>
<td>7.7%</td>
<td>47.1%</td>
</tr>
<tr>
<td>Edited MEPS Pharmacy Component data</td>
<td>8.5%</td>
<td>38.3%</td>
</tr>
<tr>
<td>Unedited MEPS with Complete Payment Data</td>
<td>13.3%</td>
<td>44.7%</td>
</tr>
</tbody>
</table>

- For single source brand name drugs,
  - Edited MEPS PC similar to MarketScan → current approach works well
- For generics,
  - Unedited MEPS with complete payments similar to MarketScan
  - Current MEPS editing rules may have imputed third party payments to too many fills with missing payment information
    - Edited MEPS PC: 38% compared with 47% in MarketScan
Other Drug Characteristics Investigated

• Brand name originators – somewhere between single source and generics
• Biologics – the distribution was similar to that of single source brand name
• Liquids – have a thicker tail in the PRATION distribution
• Other forms – did not differ from pills
• Drugs with orphan indications – difficult to assess because many had orphan and non-orphan indications
Potential New Editing Rules in MEPS

• The **Lower** Threshold for **PRATION** by Type of Drugs

<table>
<thead>
<tr>
<th></th>
<th>Single Source</th>
<th>Generic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete payments and (in donut hole or discounts reported)</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Complete payments and not in donut hole and no discounts reported*</td>
<td>.85</td>
<td>.01</td>
</tr>
<tr>
<td>Partial payments and not in donut hole</td>
<td>.95</td>
<td>.42</td>
</tr>
<tr>
<td>Partial payments in donut hole</td>
<td>.45</td>
<td>.42</td>
</tr>
</tbody>
</table>

• The **Upper** Threshold for **PRATION** by Type of Drugs
  - 8 for single source liquid drugs, 50 for generics and 4 for all other drugs

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PRATION: a ratio calculated as Retail Unit Price (RUP) divided by National Average Drug Acquisition Cost (NADAC);
Note: the donut hole thresholds for brand name drugs are approximations to 50% discounts on negotiated prices.
*This drug fill is likely missing a third party payment
Potential New Editing Rules in MEPS

• In MEPS Pharmacy Component data with partial payment information, because very low prices need to be edited, we also use a lower threshold for *price per fill*:
  
  ► $4 for generics, $10 for originators, and $50 for single source brand name drugs

  ► The lower price per fill threshold does not apply to partial fills of less than 6 pills or over-the-counter drugs
Limitations

- MarketScan data represent large private-sector employers who comprise more than 50% of all workers in the U.S. and are not nationally representative.
- MEPS Pharmacy Component data are not nationally representative.
Future Work

• Assess the impact of new editing rules if they had been used on 2019 data
  ► Distribution of imputed PRATIONs relative to MarketScan
  ► Average prices
  ► Total drug expenditures overall and relative to
    – National Health Expenditure Accounts
    – IQVIA

• Refine editing rules as needed

• Consider implementing the new rules for the 2020 data

PRATION: a ratio calculated as Retail Unit Price (RUP) divided by National Average Drug Acquisition Cost (NADAC)