Real world health care experiences
from over 150 million unique individuals since 1993

Optum Research Data Assets

Administrative
- Affiliated health plans
- Optum employer customer health plans
- Optum payer customer health plans

Clinical
- Medical groups’ EMR/EHRs
- Integrated delivery networks’ EMR/EHRs
- Hospitals’ EMR/EHRs

Linkages
- Social Security Administration death file
- Consumer socioeconomic database
- Self-reported health risk assessments
Optum’s research data assets originate from providers’ EMR/EHR systems, as well as from the administrative claims and enrollment systems of both affiliated and non-affiliated health plans. Well over 150 million unique lives are available from across all payer types.

In 2014, approximately 19% of the US population in commercial health plans, 19% of those in Medicare Advantage plans, and 24% of those in Medicare PDP only plans were represented in Optum’s administrative data assets. In addition, 7% of the US population with any healthcare utilization, regardless of insurance, were represented in Optum’s clinical data assets.
Annual and cumulative membership, 1993-2014

Cumulative Total: 63.1M

Minimum available continuous enrollment\textsuperscript{11}, millions of members, through 2014

Age groups\textsuperscript{16}, 2014

Gender\textsuperscript{16}, 2014

Census region\textsuperscript{16}, 2014

<table>
<thead>
<tr>
<th>Medical Claims\textsuperscript{12}</th>
<th>Pharmacy Claims\textsuperscript{13}</th>
<th>Lab Results\textsuperscript{14,15}</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with 1 or more, all time</td>
<td>86%</td>
<td>75%</td>
</tr>
<tr>
<td>Per member per year, all time</td>
<td>10.0</td>
<td>9.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>West</th>
<th>Midwest</th>
<th>South</th>
<th>Northeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optum\textsuperscript{17}</td>
<td>2.8M</td>
<td>3.3M</td>
<td>5.3M</td>
<td>2.5M</td>
</tr>
<tr>
<td>US Est.\textsuperscript{6}</td>
<td>23%</td>
<td>23%</td>
<td>35%</td>
<td>19%</td>
</tr>
</tbody>
</table>
Affiliated Health Plans, Commercially Insured
Population with Medical Benefits Only

Annual and cumulative membership, 1993-2014
Cumulative Total: 39.4M

Minimum available continuous enrollment, millions of members, through 2014
Avg. months enrolled: 35.3

Utilization and densities through 2014
<table>
<thead>
<tr>
<th>Medical Claims</th>
<th>Lab Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with 1 or more, all time</td>
<td>76%</td>
</tr>
<tr>
<td>Per member per year, all time</td>
<td>11.8</td>
</tr>
<tr>
<td>Record volume in 2014</td>
<td>108.1M</td>
</tr>
</tbody>
</table>

Age groups, 2014

Gender, 2014

Census region, 2014

optum.com
Affiliated Health Plans, Medicare Advantage Population with Medical and Pharmacy Benefits\textsuperscript{9,10}

Administrative Data

Annual and cumulative membership, 1993-2014

Minimum available continuous enrollment\textsuperscript{11}, millions of members, through 2014

Optum US and Census region, 2014

Utilization and densities through 2014

Optum 1\textsuperscript{7}

US Est.\textsuperscript{18,19}

Gender\textsuperscript{16, 2014}

Census region\textsuperscript{16, 2014}

Medical
Claims\textsuperscript{12}
Pharmacy
Claims\textsuperscript{13}
Lab
Results\textsuperscript{14,15}

% with 1 or more, all time
94%
83%
50%

Per member per year, all time
25.0
28.9
28.3

Record volume in 2014
77.6M
72.0M
78.5M

optum.com
Affiliated Health Plans, Medicare PDP
Population with Pharmacy Benefits Only

ADMINISTRATIVE DATA

Annual and cumulative membership, 2006-2014

Minimum available continuous enrollment, millions of members, through 2014

Utilization and densities through 2014

Pharmacy Claims

% with 1 or more, all time 89%
Per member per year, all time 41.9
Record volume in 2014 207.5M
Affiliated Health Plans, Linkages

Note: Not all linkages are available in all affiliated segments. See footnotes for details.

 Benefit plan design data, annual and cumulative membership, 2001-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Benefit Plan Design Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>'01</td>
<td>5.8M</td>
</tr>
<tr>
<td>'02</td>
<td>7.1M</td>
</tr>
<tr>
<td>'03</td>
<td>9.0M</td>
</tr>
<tr>
<td>'04</td>
<td>11.1M</td>
</tr>
<tr>
<td>'05</td>
<td>13.6M</td>
</tr>
<tr>
<td>'06</td>
<td>19.3M</td>
</tr>
<tr>
<td>'07</td>
<td>20.3M</td>
</tr>
<tr>
<td>'08</td>
<td>19.6M</td>
</tr>
<tr>
<td>'09</td>
<td>19.4M</td>
</tr>
<tr>
<td>'10</td>
<td>19.5M</td>
</tr>
<tr>
<td>'11</td>
<td>19.9M</td>
</tr>
<tr>
<td>'12</td>
<td>20.8M</td>
</tr>
<tr>
<td>'13</td>
<td>20.7M</td>
</tr>
</tbody>
</table>

Cumulative Total: 65.0M

 STD, LTD and WC benefits, annual and cumulative membership, 2001-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>STD, LTD and WC Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>'01</td>
<td>0k</td>
</tr>
<tr>
<td>'02</td>
<td>1k</td>
</tr>
<tr>
<td>'03</td>
<td>6k</td>
</tr>
<tr>
<td>'04</td>
<td>33k</td>
</tr>
<tr>
<td>'05</td>
<td>352k</td>
</tr>
<tr>
<td>'06</td>
<td>433k</td>
</tr>
<tr>
<td>'07</td>
<td>654k</td>
</tr>
<tr>
<td>'08</td>
<td>794k</td>
</tr>
<tr>
<td>'09</td>
<td>629k</td>
</tr>
<tr>
<td>'10</td>
<td>700k</td>
</tr>
<tr>
<td>'11</td>
<td>620k</td>
</tr>
<tr>
<td>'12</td>
<td>600k</td>
</tr>
<tr>
<td>'13</td>
<td>598k</td>
</tr>
<tr>
<td>'14</td>
<td>407k</td>
</tr>
</tbody>
</table>

Cumulative Total: 2,348k

10.3% have short term disability, long term disability, or workers' compensation cases.

Socioeconomic data, annual and cumulative membership with at least one valid, non-missing socioeconomic attribute, 2007-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Socioeconomic Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>'07</td>
<td>20.1M</td>
</tr>
<tr>
<td>'08</td>
<td>19.6M</td>
</tr>
<tr>
<td>'09</td>
<td>19.0M</td>
</tr>
<tr>
<td>'10</td>
<td>18.9M</td>
</tr>
<tr>
<td>'11</td>
<td>19.3M</td>
</tr>
<tr>
<td>'12</td>
<td>19.7M</td>
</tr>
<tr>
<td>'13</td>
<td>20.0M</td>
</tr>
<tr>
<td>'14</td>
<td>18.9M</td>
</tr>
</tbody>
</table>

Cumulative Total: 45.9M

Availability of selected socioeconomic attributes:

- Education: 100%
- Language: 99%
- Race/ethnicity: 96%
- Net worth: 92%
- Home ownership: 78%
- Household income: 69%
Affiliated Health Plans, Linkages

Note: Not all linkages are available in all affiliated segments. See footnotes for details.

### Oncology management data, 2008-2014

**Cumulative Total:** 91.6k

- 2008: 5k
- 2009: 7k
- 2010: 13k
- 2011: 22k
- 2012: 21k
- 2013: 19k
- 2014: 15k

#### Tumor types:
- Breast: 59%
- Lung: 14%
- Prostate: 12%
- Colon: 11%
- Rectal: 4%

### Health risk assessments, 2009-2014

**Cumulative Total:** 3.1M

- 2009: 0.3M
- 2010: 0.7M
- 2011: 0.8M
- 2012: 1.2M
- 2013: 1.2M
- 2014: 1.0M

#### Health status:
- 100%

#### Height, weight, BMI, BSA:
- 99%

#### Stress:
- 98%

#### Tobacco use:
- 98%

#### Alcohol use:
- 98%

#### Pain:
- 94%

#### Physical/emotional problems:
- 90%

#### Sleep:
- 84%

### Clinical information from EMRs/EHRs during health plan enrollment, 2007-2014

**Cumulative Total:** 4.1M

- 2007: 0.9M
- 2008: 1.1M
- 2009: 1.2M
- 2010: 1.4M
- 2011: 1.7M
- 2012: 1.8M
- 2013: 1.8M
- 2014: 1.6M

#### Availability of selected clinical attributes during health plan enrollment:
- Is notes eligible: 83%
- Has diagnosis: 68%
- Has lab result: 67%
- Has vital sign measurement: 57%
- In an IDN: 55%
- Has RX administration: 19%
**Affiliated Health Plans, Linkages**

Note: Not all linkages are available in all affiliated segments. See footnotes for details.

**Mortality**, full date of annual and cumulative deaths during enrollment, 1993-2014

Cumulative Total: 1,890k

**Primary data collection population** as of January 31, 2015

- **Gender:** M 51%, F 49%
- **Age:**
  - 00-17: 20%
  - 18-34: 27%
  - 35-44: 17%
  - 45-54: 18%
  - 55-64: 15%
  - 65+: 3%
- **Census region:**
  - West: 23%
  - Midwest: 25%
  - South: 45%
- **Race/ethnicity:**
  - White: 62%
  - Hispanic: 13%
  - Black: 10%
  - Asian: 5%
  - Unknown: 10%

4.7M available for prospective data collection including direct-to-patient survey, medical chart review, medical device information, NDI link, etc., as of January 31, 2015.

Availability of direct-to-patient contact methods:

- Phone number: 66%
- Opt-in email address: 8%
Provider-based Clinical EMR/EHR Systems
34 EMR/EHR Systems Contributing

Annual and cumulative patients, 2007-2014

Minimum available clinical observation periods, millions of patients, through 2014

Utilization and densities through 2014

Gender

Census region

optum.com
Provider-based Clinical EMR/EHR Systems
Linked to Health Plan Data

**Annual and cumulative patients, 2007-2014**

Cumulative Total: 5.8M

<table>
<thead>
<tr>
<th>Year</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>2.0M</td>
</tr>
<tr>
<td>2008</td>
<td>2.3M</td>
</tr>
<tr>
<td>2009</td>
<td>2.7M</td>
</tr>
<tr>
<td>2010</td>
<td>3.1M</td>
</tr>
<tr>
<td>2011</td>
<td>3.5M</td>
</tr>
<tr>
<td>2012</td>
<td>3.6M</td>
</tr>
<tr>
<td>2013</td>
<td>3.6M</td>
</tr>
<tr>
<td>2014</td>
<td>3.2M</td>
</tr>
</tbody>
</table>

**Minimum available clinical observation periods**, millions of patients, through 2014

Avg. months observed: 41.0

<table>
<thead>
<tr>
<th>Observation Period</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Time</td>
<td>5.8M</td>
</tr>
<tr>
<td>Most Recent 5 Years</td>
<td>5.3M</td>
</tr>
<tr>
<td>1 Day</td>
<td>3.9M</td>
</tr>
<tr>
<td>12+ Months</td>
<td>3.4M</td>
</tr>
<tr>
<td>24+ Months</td>
<td>3.0M</td>
</tr>
<tr>
<td>36+ Months</td>
<td>2.4M</td>
</tr>
<tr>
<td>48+ Months</td>
<td>1.8M</td>
</tr>
<tr>
<td>60+ Months</td>
<td>0.5M</td>
</tr>
</tbody>
</table>

**Utilization and densities through 2014**

<table>
<thead>
<tr>
<th>Category</th>
<th>Vital Signs 35</th>
<th>Drug Admins 36</th>
<th>Lab Results 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with 1 or more, all time</td>
<td>70%</td>
<td>24%</td>
<td>61%</td>
</tr>
<tr>
<td>Per patient per year, all time</td>
<td>10.7</td>
<td>2.2</td>
<td>20.1</td>
</tr>
<tr>
<td>Record volume in 2014</td>
<td>49.1M</td>
<td>12.2M</td>
<td>76.5M</td>
</tr>
</tbody>
</table>

**Age groups**, 2014

<table>
<thead>
<tr>
<th>Age Group</th>
<th>% of Optum</th>
<th>US Est.</th>
<th>Optum US</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>7%</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>10-17</td>
<td>7%</td>
<td>10%</td>
<td>49%</td>
</tr>
<tr>
<td>18-24</td>
<td>8%</td>
<td>8%</td>
<td>38%</td>
</tr>
<tr>
<td>25-34</td>
<td>7%</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>35-44</td>
<td>12%</td>
<td>14%</td>
<td>17%</td>
</tr>
<tr>
<td>45-54</td>
<td>14%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>55-64</td>
<td>17%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>65-74</td>
<td>16%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>75+</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
</tr>
</tbody>
</table>

**Gender**, 2014

<table>
<thead>
<tr>
<th>Gender</th>
<th>Optum</th>
<th>US Est.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>1.0M</td>
<td>47%</td>
</tr>
<tr>
<td>F</td>
<td>1.3M</td>
<td>53%</td>
</tr>
</tbody>
</table>

**Census region**, 2014

- **West**: 11%
- **Midwest**: 49%
- **South**: 38%
- **Northeast**: 2%

- **Optum**: West 97k, Midwest 428k, South 331k, Northeast 15k
- **US Est.**: West 24%, Midwest 21%, South 37%, Northeast 18%
Optum Payer Customers’ Health Plans\textsuperscript{42,43}
Commercially Insured Population with Medical and Pharmacy Benefits
14 data contributors

**Annual and cumulative membership, 2004-Q3 2014**

![Graph of annual and cumulative membership, 2004-Q3 2014](https://example.com/graph)

**Minimum available continuous enrollment\textsuperscript{11}, millions of members, through Q3 2014**

![Graph of minimum available continuous enrollment](https://example.com/graph)

**Utilization and densities through Q3 2014**

<table>
<thead>
<tr>
<th></th>
<th>Medical Claims\textsuperscript{12}</th>
<th>Pharmacy Claims\textsuperscript{13}</th>
<th>Lab Results\textsuperscript{14,15}</th>
</tr>
</thead>
<tbody>
<tr>
<td>% with 1 or more, all time</td>
<td>82%</td>
<td>68%</td>
<td>11%</td>
</tr>
<tr>
<td>Per member per year, all time</td>
<td>11.8</td>
<td>9.4</td>
<td>25.2</td>
</tr>
<tr>
<td>Record volume in 2014</td>
<td>13.0M</td>
<td>7.8M</td>
<td>2.3M</td>
</tr>
</tbody>
</table>

**Age groups\textsuperscript{16}, 2014**

![Graph of age groups](https://example.com/graph)

**Gender\textsuperscript{16}, 2014**

![Graph of gender distribution](https://example.com/graph)

**Census region\textsuperscript{16}, 2014**

![Graph of census region distribution](https://example.com/graph)
Optum Payer Customers’ Health Plans\textsuperscript{42,43}
Commercially Insured Population with Medical Benefits Only
13 data contributors

Annual and cumulative membership, 2004-Q3 2014

Minimum available continuous enrollment\textsuperscript{11}, millions of members, through Q3 2014

Utilization and densities through Q3 2014

Administrative Data

Age groups\textsuperscript{16}, 2014

Gender\textsuperscript{16}, 2014

Census region\textsuperscript{16}, 2014
Optum Employer Customers’ Health Plans 45, 46
Commercially Insured Population with Medical and Pharmacy Benefits
57 data contributors

Annual and cumulative membership, 2001-Q2 2014

Minimum available continuous enrollment 11, millions of members, through Q2 2014

Utilization and densities through Q2 2014

Age groups 16, 2014

Gender 16, 2014

Census region 16, 2014

optum.com
Footnotes

1. Optum Payer administrative data includes commercial members, Medicaid members (1.6M not shown elsewhere in this document), and Medicare members (438k not shown elsewhere in this document) through Q3 2014. Optum Employer administrative data includes commercial members through Q2 2014. All other sources through Q4 2014. Affiliated health plan administrative data includes commercial members over time. Members do not appear in multiple administrative segments because they can move between segments over time. Members do not appear in multiple administrative segments during the same period of time. Enrollment periods are combined if separated by 32 days or less.

2. Areas are mutually exclusive and not to scale. Curved labels denote counts for the entire circle. Each discrete area formed by the overlapping circles is also labeled with its mutually exclusive count.

3. Optum Payer and Employer member counts exclude members where an affiliated health plan is the payer.

4. Members that have multiple discreet enrollment periods are categorized in the segment where they have the longest continuous period of enrollment. Enrollment periods are combined if separated by 32 days or less.

5. Administrative population segments include commercial and Medicare members of affiliated plans, and commercial members of Optum Employer customers’ and Optum Payer customers’ health plans who were enrolled any time in 2014. Optum clinical population includes unique patients who had clinical activity any time in 2014.


10. Members counted here may also be counted in other administrative segments because they can move between segments over time. Members do not appear in multiple administrative segments during the same period of time.

11. The longest continuous period of enrollment is selected for members that have multiple discreet enrollment periods. Enrollment periods are combined if separated by 32 days or less.

12. A medical claim is defined as a unique combination of member, provider, and service date.

13. A pharmacy claim is defined as a unique combination of member, valid NDC code, and fill date.

14. A lab result is defined as a unique combination of member, valid LOINC code, and result date.

15. Lab results per member per year calculated for members with at least one result.

16. Includes members enrolled at any time in 2014.

17. Excludes members where attribute is unknown.


20. Pharmacy benefit design data can be linked for members with pharmacy benefits in a subset of affiliated health plans.

21. Short term disability (STD), long term disability (LTD), and workers’ compensation (WC) cases can be linked for members employed by Optum Employer customers using affiliated health plans.

22. Additional STD, LTD, and WC case data (not shown) are available for members employed by Optum Employer customers using non-affiliated health plans.

23. STD, LTD and WC cases available through June 30, 2014.

24. Includes members with at least one clinical data point during active health plan enrollment.

25. Additional linked clinical data (not shown) is available for members employed by Optum Employer customers using non-affiliated health plans.

26. Oncology management data can be linked to fully insured members in affiliated commercial health plans.

27. Health risk assessment (HRA) data can be linked to members in affiliated commercial health plans.

28. Additional linked HRA data (not shown here) is available for members employed by Optum Employer customers using non-affiliated health plans.

29. The Social Security Administration began restricting reported deaths available in their Death Master File in November 2011.

30. Death data can be linked to members in all affiliated health plans, except Medicare PDP plans.

31. Shows cumulative and annual counts of members with at least one valid, non-missing attribute. Socioeconomic data can be linked to members in all affiliated health plans, except Medicare PDP plans.

32. Primary data collection can be performed with fully insured members in affiliated commercial health plans.
28. Patients without sufficient clinical data to meet a minimum quality threshold are excluded.
29. The minimum available clinical observation period for each patient is determined by the earliest and latest dates of clinical activity.
30. A vital sign is defined as a unique combination of patient ID, observation date and valid clinical observation of height, weight, BMI, blood pressure, heart rate, temperature, spirometry tests, ejection fraction measurements, or T&Z scores.
31. A drug administration is defined as a unique combination of patient ID, administration date, and valid NDC code for a drug administration given by a provider or at a provider’s location.
32. A lab result is defined as a unique combination of patient ID, lab result date, and valid LOINC code.
33. Includes patients with at least one clinical observation at any time in 2014.
36. Population includes linked patients that have both clinical activity and health plan enrollment any time between 2007 and 2014.
38. Members are not linked with any other sources, however members from affiliated health plans have been excluded at the plan level.
41. Counts exclude members where an affiliated health plan is the payer.
42. An STD, LTD, and WC case is defined as a unique combination of member and incident date. Percent with at least one case, and cases per member per year are calculated based on the subset of employers that contribute this type of data.
43. An HRA is defined as a unique combination of member and HRA completion date. Percent with at least one HRA, and HRAs per member per year are calculated based on the subset of employers that contribute this type of data.

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