S&P Healthcare Economic Professional Services Indices Methodology

May 2012
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Index Family</td>
<td>4</td>
</tr>
<tr>
<td>Partnership</td>
<td>4</td>
</tr>
<tr>
<td>Index Rationale</td>
<td>4</td>
</tr>
<tr>
<td>Index Construction</td>
<td>7</td>
</tr>
<tr>
<td>Index Levels and Monthly Percentage Changes</td>
<td>7</td>
</tr>
<tr>
<td>Medicare and Commercial Professional Services Indices</td>
<td>8</td>
</tr>
<tr>
<td>Adjustment to Medicare Professional Services Indices</td>
<td>9</td>
</tr>
<tr>
<td>Monthly Input Data</td>
<td>13</td>
</tr>
<tr>
<td>Restatements</td>
<td>19</td>
</tr>
<tr>
<td>Base Dates</td>
<td>19</td>
</tr>
<tr>
<td>Index Maintenance</td>
<td>20</td>
</tr>
<tr>
<td>Annual Rebalancing</td>
<td>20</td>
</tr>
<tr>
<td>Glossary</td>
<td>25</td>
</tr>
<tr>
<td>Index Data</td>
<td>28</td>
</tr>
<tr>
<td>Index Governance</td>
<td>30</td>
</tr>
<tr>
<td>Index Committee</td>
<td>30</td>
</tr>
<tr>
<td>Index Policy</td>
<td>31</td>
</tr>
<tr>
<td>Announcements</td>
<td>31</td>
</tr>
<tr>
<td>Holiday Schedule</td>
<td>31</td>
</tr>
<tr>
<td>Recalculation Policy</td>
<td>31</td>
</tr>
<tr>
<td>Index Dissemination</td>
<td>32</td>
</tr>
<tr>
<td>Tickers</td>
<td>32</td>
</tr>
<tr>
<td>FTP</td>
<td>32</td>
</tr>
<tr>
<td>Web site</td>
<td>33</td>
</tr>
<tr>
<td>Appendix</td>
<td>34</td>
</tr>
</tbody>
</table>
Introduction

In an environment of increased awareness and regulation of the healthcare industry, it is important to understand and monitor current changes in healthcare costs. Such monitoring could help reduce uncertainty for the general public, insurers, employers and other market participants, in addition to helping private and government organizations better understand the primary components driving increases in healthcare costs.

The S&P Healthcare Economic Professional Services Indices (the Indices) are intended to reflect the rate of change in allowed claim costs for the Medicare and Commercial Health Insurance populations over time. More specifically, the Indices are designed to estimate the per capita change in revenues accrued by physicians and other healthcare professionals each month for services provided to patients covered under traditional Medicare and Commercial Health Insurance programs in the United States. In turn, since patient service revenues accrued by physicians are analogous to the claim costs incurred by patients (through their copayments) and their benefit plans for services rendered by physicians, the Indices also seek to estimate the per capita change in Total Allowed Claim Costs.

This methodology describes the S&P Healthcare Economic Professional Services Index (the Professional Services Index), the S&P Healthcare Economic Medicare Index (the Medicare Index) and the S&P Healthcare Economic Professional Services Commercial Index (the Commercial Index), which are designed to estimate per capita changes in professional service claims incurred by these two major segments of the insured population.
Index Family


<table>
<thead>
<tr>
<th>COMPOSITE</th>
<th>Healthcare Provider:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HOSPITAL</td>
</tr>
<tr>
<td></td>
<td>S&amp;P Healthcare Economic Composite Index</td>
</tr>
<tr>
<td></td>
<td>S&amp;P Healthcare Economic Hospital Index</td>
</tr>
<tr>
<td>MEDICARE</td>
<td>PROFESSIONAL SERVICES</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Medicare Index</td>
<td></td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Hospital Medicare Index</td>
<td></td>
</tr>
<tr>
<td>COMMERCIAL</td>
<td></td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Commercial Index</td>
<td></td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Hospital Commercial Index</td>
<td></td>
</tr>
</tbody>
</table>

Partnership

The development of the S&P Healthcare Economic Indices is the result of collaboration between S&P Indices and Health Index Advisors (HIA), a joint venture between Aon Hewitt and Milliman Inc. The index methodology for this series was derived in part from Milliman’s proprietary Health Cost Index™ (HCI) model which Milliman has been publishing for its clients since 1987.

Index Rationale

The Indices are designed to provide an independent, timely estimate of the change in the principal cost components of the U.S. healthcare market. In 2009, U.S. national health expenditures (NHE) totaled US$ 2.49 trillion, of which US$ 2.09 trillion (or 84%) was attributable to personal healthcare expenses (PHC). Professional services, the approximate scope for the Indices in this methodology, represented nearly 30% of PHC. Another 40% were related to various hospital expenditures, the approximate scope for the Hospital Indices. Together, these two categories represented the largest components of national health expenditures, comprising nearly 70% of PHC and about 55% of NHE. The remaining 30% and 45%, respectively, is fragmented among several categories.
(prescription drugs, dental services, home healthcare, etc.) none of which represents more than 10% of NHE\(^1\). As such, the S&P Healthcare Economic Indices seek to reflect changes in the two largest components of healthcare expenditures in the United States.

The methodology for this index family was adapted from the HCI, an index that estimates the aggregate change in healthcare cost trends, which Milliman introduced to the healthcare market more than 20 years ago. Then, as now, there were no other sources of public data which provided direct measurement of the monthly claim costs incurred by either the Medicare or Commercial Health Insurance populations in the United States. As such, the HCI indices were developed from an economic model based on publicly available data which have a logical relationship to patient service revenues. For more than 20 years, the original HCI model has been broadly used as one of the primary benchmarks in the healthcare industry.

Prior to the development of the S&P Healthcare Economic Indices, the healthcare and actuarial experts at HIA refined the HCI calculation model and tested the resulting pro-forma history against quarterly Medicare records, historical HCI results, and sample employer and insurer claims data provided to HIA. While the tests produced high correlations, it should be noted that the Indices are market indicators, not actual measures of professional services patient service revenues. In reconciling potential differences between the Indices and a market participant’s individual experience, healthcare insurers, providers and users must recognize the impact of regional, industry, or firm-specific differences in determinants of supply and demand.

The economic model comprises two major phases. The first phase estimates changes in professional services service revenues and the second phase segments these changes into Medicaid/Uninsured, Commercial, and Medicare (more calculation detail is available in the Index Construction section, which follows).

The logic underlying the first phase rests on the assumption that patient service revenues are highly correlated to changes in healthcare professional services employment, wages and benefits. This assumption is based on the following insights into the professional services industry:

- The average prices physicians receive for patient services vary yearly, but are often fixed through Medicare fee schedules or multi-year contracts between professional service providers and commercial plans. This means that apart from negotiated contractual price increases, patient service revenues are largely influenced by fluctuations in the quantity or type of services provided.
- Due to the labor-intensive nature of healthcare services, changes in the quantity or type of services provided are closely correlated with changes in employment, wages and benefits.

Overall employee compensation is the largest cost component in the professional services industry, representing approximately 70% of expenditures\textsuperscript{2}.

Changes in employment, wages and benefits are, therefore, used as a predictor of change in professional services patient revenues. Intuitively, other cost components, such as the fixed costs associated with infrastructure, are not included since (1) their inflexible nature makes it unlikely to track with short-term changes in patient service revenues; and (2) the addition or contraction of real estate or equipment can result in related changes to employment.

There are many factors that affect the general supply and demand for patient services and the resulting revenue in the healthcare professional services industry. Such factors include changes in utilization (the rate at which services are used by the population), new services and technology, changes in benefit coverage, and contractual reimbursement provisions. The S&P Healthcare Economic Professional Services Indices do not try to account directly for all of these factors. Rather, they are designed to capture material changes to supply and demand in the professional services industry by incorporating economic variables and other adjustments described herein and as applied to the aggregate healthcare professional services industry.

*Please refer to the Glossary for a list of defined terms used throughout this document.*

Index Construction

Index Levels and Monthly Percentage Changes

The use of indices to measure changes of different variables over time is well established in economics and finance. Common examples include the S&P 500® for the U.S. stock market and the Consumer Price Index (CPI), published by the U.S. government. Formally, one speaks of an index number or index level and calculates changes over a period of time from this level. For example, the value of the S&P 500 at the end of March 2010 was 1169.43 and at the end of April 2010 was 1186.69. These figures are calculated from stock prices and related information about companies included in the index. From this, the percentage change from the end of March to the end of April is calculated as:

\[
\frac{1186.69}{1169.43} - 1 = 0.015
\]

or, in symbols:

\[
\frac{X_t}{X_{t-1}} - 1 = \text{Change}
\]

where:
- \(X_t\) is the index level at time \(t\)
- \(X_{t-1}\) is the index level at time \(t-1\)

The value (0.015) can also be stated as 1.5%. The 0.015 is sometimes termed a decimal percent to distinguish it from 1.5%.

In a similar manner, one can calculate the percentage change over any time period given the value for the index level at the start and end of the period. The above equation can be rearranged to calculate the final level from the previous level and the change:

\[
X_t = (1 + \text{change}) \times X_{t-1}
\]

These Indices are calculated by first calculating the Change, as described later in this document and, then, building the index levels by repeated use of the equation given
above. The end result is a series of index levels that can be used to calculate changes between any month and any other month in the given index.

**Medicare and Commercial Professional Services Indices**

The objectives of the S&P Healthcare Economic Professional Services Medicare Index (the Professional Services Medicare Index) and the S&P Healthcare Economic Professional Services Commercial Index (the Professional Services Commercial Index) are to use publicly available data to estimate the per capita change in revenues accrued by physicians and other healthcare professionals for services provided to patients covered under the traditional Medicare and commercial insurance programs. As revenues accrued by professional services are analogous to the claim costs incurred by patients and their benefit plans, the Indices also estimate the per capita change in Total Allowed Claim Costs for the Medicare and commercial insurance populations (including the self-insured).

*As described previously, throughout this methodology the indices refer to month-over-month percent changes in total allowed claim costs per capita (Total Allowed Claim Costs). When published, the indices are presented as levels or annual rates of change.*

The monthly change in Total Allowed Claim Costs (hereafter referred to as X) is comprised of (1) a Commercial Health Insurance component, the Professional Services Commercial Index (hereafter referred to as SPMDEPC), (2) a Medicare component, the Professional Services Medicare Index (hereafter referred to as SPMDEPM), and (3) a Medicaid and Uninsured component (hereafter referred to as Y). Publicly available data make it possible to estimate monthly percent changes in both the Total Allowed Claim Cost trends and the Medicare component of the cost trends. From there we derive the commercial component.

*Please note, more specific detail on input variables in this methodology can be found in the section titled Monthly Input Data.*

The index which estimates the monthly change in the S&P Healthcare Economic Professional Services Medicare Index (SPMDEPM) is developed from the following formula:

\[
\text{Monthly change to SPMDEPM} = (1 + PSE) \times (1 + MPSFU) \times (1 + (PSM \times 0.13)) \times (1 + P & I) \times (1 + IWD) \times (1 + (PI \times 0.5))
\]

where:

- **PSE** = Professional Services Employment monthly growth rate
- **MPSFU** = Medicare Professional Services Fee Update monthly growth rate
- **PSM** = Professional Services Malpractice monthly growth rate
  
  [note: only included when PSM is greater than 0]
- **P & I** = Pneumonia and Influenza monthly growth rate.
- **IWD** = Incurred Working Days monthly growth rate
- **PI** = Personal Income monthly growth rates
The Professional Services Employment growth rate is measured as the rate of growth in the ratio of total medical professional services employees compared to the total U.S. population.

The Medicare Professional Services Fee Update is the percentage change in the reimbursement rates received by physicians and other healthcare professionals from Medicare for patient services.

Professional Services Malpractice growth rate measures the month-over-month change in premiums paid by physicians for liability insurance. In this model, for every dollar the malpractice rates increase, total Medicare costs are increased by 13 cents, or a multiplicative factor of 0.13. However, the model only takes this into account when malpractice rates are rising. In other words, it is assumed that if malpractice rates go down, professional service providers will not reduce their services; but if rates go up, they may increase their services resulting in an increase in consumer healthcare utilization. The multiplicative factor used in the equation is, therefore, a measure of the impact of a change in malpractice premiums on Medicare professional service claims utilization which are not reflected in Medicare rates defined in Medicare Professional Service Fee Update.

The Pneumonia and Influenza (P&I) Incidence growth rate measures the monthly variation in flu seasons, since more severe flu seasons cause increased medical care. This variable is the ratio of flu deaths to the total number of deaths from all diseases in the sample data. The mortality ratio is used because increased death rates from P&I are correlated with increases in more severe flu cases, which require treatment from a professional services facility.

The Incurred Working Days growth rate reflects the variability in working day by month, which causes changes in relative claim costs due to the mix of weekends, holidays, etc., over the course of a given month.

The Personal Income growth rate reflects changes in real personal income, less transfer payments and taxes. Personal Income is used as a measure of the relationship between the utilization of professional services and the level of economic prosperity. The multiple of 0.5 is based on an estimate of how changes in personal income impacts changes in healthcare costs.

Adjustment to Medicare Professional Services Indices

The Professional Services Medicare Index (SPMDEPM) is subject to an additional adjustment to account for a Medicare Preventative Benefit provision. Under health care reform, certain preventive services (physical exams) are covered without requiring

---

1 This assumption is drawn from the study Malpractice Liability Costs And The Practice Of Medicine In The Medicare Program, by Katherine Baicker, Elliott S. Fisher, and Amitabh Chandra.

4 This estimate has been developed by Milliman, Inc. and is based on their proprietary Health Cost Index Report.
copayments or deductibles from the patient. This benefit provision went into effect in January 2011.

The monthly change in Total Allowed Claim Costs ($X$) is developed from the following formula:

$$\text{Monthly Change to Total} = X = (1 + PSWEB)*(1 + PSE)*(1 + P & I)*(1 + IWD)$$

where:

- $PSWEB$ = Professional Services Wages and Employee Benefits monthly growth rate
- $PSE$ = Professional Services Employment monthly growth rate
- $P & I$ = Pneumonia and Influenza monthly growth rate
- $IWD$ = Incurred Working Days monthly growth rate

*Growth rates in Professional Services Wages and Employee Benefits* together with those of the Consumer Price Index and Malpractice Insurance make up the compensation component of the index.

*The Professional Services Employment growth rate* is measured as the rate of growth in the ratio of total medical professional services employees to the total U.S. population.

*The Pneumonia and Influenza (P&I) Incidence variable growth rate* measures the monthly variation in flu seasons, since more severe flu seasons cause increased hospital and physician use. This variable is the ratio of flu deaths to the total number of deaths from all diseases in the sample data.

*The Incurred Working Days variable* reflects the variability in working day by month, which causes changes in relative claim costs due to the mix of weekends, holidays, etc., over the course of a given month.

Once the Medicare (SPMDEPM) and Total Allowed Claim Cost ($X$) indices are derived, the effects of Medicaid and Uninsured ($Y$) are removed from $X$ in order to calculate the Commercial and Medicare composite index (hereafter referred to as SPMDEP). The effects of SPMDEPM are, then, removed from SPMDEP to derive a preliminary Commercial Index. This Commercial Index is then adjusted based on information derived from the Patient Protection and Affordable Care Act (PPACA) and the American Recovery and Reinvestment Act (ARRA), both of which instituted changes to the healthcare system. These index changes resulted in an increase in the commercially insured population. Once incorporated, these index adjustments result in the final Commercial Index (SPMDEPC).

---

Please note, more specific detail on the adjustment can be found in the section titled Monthly Input Data.

As stated above, the Professional Services Commercial Index (SPMDEPC) is developed in three stages; first removing the Medicaid and Uninsured (Y) from the Total (X), leaving Medicare and Commercial (SPMDEP); second, removing the Medicare component (SPMDEPM) from this variable to arrive at the preliminary Professional Services Commercial Index; and finally adjusting the Professional Services Commercial Index based on the PPACA and ARRA.

The first step of removing Medicaid and Uninsured proceeds as follows:

Monthly Change to Professional Services Medicare and Commercial Index (SPMDEP) = \[
\frac{X - (Y \times W_{MCD})}{1 - W_{MCD}}
\]

where \(W_{MCD}\) is the weight of Medicaid and Uninsured components of the index relative to the Total (Medicaid, Uninsured, Medicare, and Commercial) and is calculated as:

\[
W_{MCD} = \frac{(Medicaid + Uninsured)}{(Medicaid + Uninsured + Medicare + Commercial)}
\]

Please note: These weights are based on dollars spent in each component and are reviewed and updated annually by HIA. They are further described in the section Index Maintenance.

The next stage removes Medicare from the combined Medicare and Commercial index:

Monthly Change to Professional Services Commercial Index (preliminary) = \[
\frac{SPMDEP - (SPMDEPM \times W_{M})}{1 - W_{M}}
\]

where \(W_{M}\) is the weight of the Medicare component of the index relative to the sum of Medicare and Commercial and is calculated as:

\[
W_{M} = \frac{(Medicare)}{(Medicare + Commercial)}
\]

The final stage makes an adjustment to the Professional Services Commercial Index. These commercial trends are adjusted further to reflect two provisions in the Patient Protection and Affordable Care Act (PPACA) and the American Recovery and Reinvestment Act (ARRA). Under the PPACA, children can extend coverage under their
parent’s healthcare plan to age 26. These enrollees might have otherwise been uninsured, but are now covered under commercial insurance. The department of Health and Human Services estimated a 2.37 million person enrollment increase resulting from this provision of the reform act. Coverage became available in September 2010, but many insurers instituted the change earlier, in June 2010. This provision has a dampening impact on commercial growth trends, since the newly insured segment has a significantly lower claim costs than the originally insured, likely due to the fact that younger people are relatively healthier than older adults. Both hospital and professional services commercial trends are affected by this change.

The second provision affecting commercial healthcare costs stems from the American Recovery and Reinvestment Act (ARRA), which provided a COBRA subsidy for individuals whose employment terminated between March 2009 and May 2010. Under this provision, qualifying individuals were eligible for a federal subsidy paying 65% of the COBRA premium. The reduced premium was available to those eligible prior to May 2010 for a 15-month period. COBRA administrator, Ceridian Services, reported an increase in COBRA enrollment from 12.4% to 17.7% of eligible participants after the 65% COBRA subsidy was included in the stimulus plan. Individuals who opted for COBRA coverage were typically up to two times the average per capita cost, because only the sickest took this coverage due to the high cost. The subsidy encouraged a significant increase in those selecting this option in 2009 relative to normal rates, but this still represented only a small percentage of those who were eligible. This increase in enrollment is being phased out as the subsidy ends.

---

Monthly Input Data

The input variables used in estimating the S&P Healthcare Economic Professional Services Medicare and Commercial Indices are detailed below. Not all variables are used in both indices.

1. Professional Services Wages, Employee Benefits and Other Revenue Proxies

Professional Services wages and employee benefits together with the Consumer Price Index and Malpractice Insurance components measure the total compensation of professional services employees, and are used to estimate patient services revenue.

*The Wage Component* is derived as the weighted average of the average weekly earnings of production workers, weighted by the number of employees for each type of professional services offices. Both the weekly earnings and the number of employees are published monthly by the Bureau of Labor Statistics (BLS). For the purposes of these calculations, five different categories of offices, defined by the BLS, are used.

Professional services wages are estimated using the average weekly earnings of production and nonsupervisory employees and total employment in:

- Medical and diagnostic laboratories
- Offices of other health practitioners
- Offices of physicians
- Other ambulatory health care services
- Outpatient care centers

Average professional services earnings per employee are calculated as the weighted average of the average weekly earnings of production workers for each professional services type and their corresponding employees:

\[
\text{Average Professional Services Earnings} = \frac{\text{Total Professional Services Weekly Earnings}}{\text{Total Professional Services Employees}}
\]

where

\[
\text{Total Professional Services Weekly Earnings} = \sum_{n=1}^{5} (\text{Weekly earnings}_n \times \text{employees}_n)
\]

\[
\text{Total Professional Services Employees} = \sum_{n=1}^{5} \text{employees}_n
\]

\(n = \text{professional services type,}
\)

1. Medical and diagnostic laboratories
2. Offices of other health practitioners
3. Offices of physicians
4. Other ambulatory health care services
5. Outpatient care centers

The Benefit Component is the total benefit cost per hour worked for professional and related occupations reported by the BLS on a quarterly basis. There is no benefits series for physicians or medical practitioners, so this category represents the closest proxy. The monthly values are obtained by interpolation of the quarterly values. Furthermore, a three-month lag is used because of the lag in reporting.

Wages and benefits picks up the salaries and benefits of physicians and their staff in a physician's practice. However, there are other practice expenses (such as medical equipment, medical supplies, office supplies, etc.) that are not reflected in those data. In our model, we assume the costs of these other components to increase at the same rate as inflation (CPI less food and energy), thus we use this CPI measure as part of the revenue proxy. The Consumer Price Index series used in the models is that of All Items less Food and Energy published monthly by the Bureau of Labor Statistics.

The Malpractice Component is described under item 4 below.

These four series – wages, benefits, CPI and malpractice – are stated as indices and combined using a weight in the tables found in the Index Maintenance section. The weights are based on research by HIA, as further defined in the following section.

2. Professional Services Employment, Adjusted for the Medicare and Commercial Population

The total number of professional services employees is calculated as described in (1) above. The growth rate in professional services employment is discounted by the growth rate in the total U.S. population, which is based on postcensal monthly estimates, and can be found on the Census Bureau's Web site.

3. Medicare Professional Services Fee Update

Medicare reimburses professional services claims using updates to the Physician Fee Schedule, a listing of payments for all professional services. Medicare Professional Services Fee Updates are published by the Office of the Federal Register (Federal Register) with a preliminary estimate and, then, a final regulation published, according to law, well before the start of the update period. These updates can be overridden by Congress, or are subject to technical corrections. Changes made and effective are incorporated into the model as soon as practical. Revisions are generally included in the index, but the nature of the change may first require further analysis before a final decision is made by the Index Committee. Any additional legislative changes that affect Medicare costs, reimbursement or utilization are taken from the notice in the Federal Register or from legislative cost estimates, if Federal Register notice is not available.
Such changes are included in the index as soon as possible after they become effective.

4. Professional Services Malpractice

Malpractice insurance provides liability coverage for doctors and hospitals in the event of a malpractice suit. This variable reflects professional liability premium cost data for professional services, published by the Centers for Medicare and Medicaid Services (CMS). It can be found on the CMS Web site.

These data are published quarterly. Monthly values are derived by the interpolation of the quarterly values. The malpractice series used in the model is calculated with month-to-month comparisons of the interpolated index values. It is applied to the model with a 13% weight, but is not applied when premium growth rates are less than zero\(^\text{11}\). This variable is intended to represent the impact of defensive medicine on professional services costs. These data are lagged nine (9) months in the model, due to the timing of the CMS publication.

5. Medicaid and Uninsured vs. Total Hospital PPI (used as proxy for Medicaid Professional Services Fees vs. Total Professional Services Fees)

The Producer Price Index (PPI) is a measure of wholesale prices received by domestic producers and is published monthly by the BLS. To estimate the Medicaid and Uninsured effect, a ratio of the monthly growth rates of Medicaid Patient PPI to Total Hospital PPI is calculated. This ratio seeks to approximate Medicaid and Uninsured cost changes relative to total hospital cost changes. The hospital ratio is used as a proxy for professional services since similar data does not exist for professional services. In addition to using this measure for Medicaid itself, the Medicaid Patient PPI is also used as a proxy for professional service costs of the uninsured population. This ratio is assumed to approximate Medicaid and Uninsured cost changes relative to total professional services cost changes.

The costs attributed to the Medicaid and Uninsured population are, then, removed from the Total Allowed Claim Costs as shown in the Medicare and Commercial Professional Services Indices section above.

6. Pneumonia and Influenza

This variable is the ratio of deaths caused by pneumonia and influenza (P&I) in 122 U.S. cities relative to the number of deaths from all diseases in the same cities. These deaths are tracked weekly in the Morbidity and Mortality Weekly Report (MMWR) published by the Centers for Disease Control and Prevention (CDC). Current and recent historical volumes of the MMWR are available on the CDC Web site.

The model requires converting the weekly data into a monthly statistic. For example, the month of December, 2008 includes six days from the week ending December 6th, the full

\(^\text{11}\) This determination is drawn from the study *Malpractice Liability Costs And The Practice Of Medicine In The Medicare Program*, by Katherine Baicker, Elliott S. Fisher, and Amitabh Chandra.
weeks ending December 13th, 20th, and 27th, and four days from the week ending January 3rd 2009. These weeks had 840, 832, 791, 533, and 693 deaths due to P&I, respectively. The total number of deaths caused by P&I for the month of December, 2008 is calculated as:

\[
\left[840 \times \left(\frac{6}{7}\right)\right] + 832 + 791 + 533 + \left[693 \times \left(\frac{4}{7}\right)\right] = 3,272
\]

Total deaths are prorated in a similar manner.

The changes in P&I costs use a three-year base period for comparison (January 2006 to December 2008). First a monthly variation in the influenza costs relative to this baseline is determined. During each month of the base period, the number of deaths due to pneumonia and influenza was compared to the total number of deaths from all diseases reported by the CDC. An average ratio was, then, calculated for each one of the 12 months based on the monthly values from each relevant year of this three-year period. For example, the January ratio is the average of January 2006, 2007 and 2008 and the February ratio is the average of February 2006, 2007, and 2008. Following this, the percentage of P&I deaths for each month is compared to the average rate in the entire January 2006 to December 2008 period. For example, in January 2009, the percentage of P&I deaths was 7.15% and the January three-year average rate was 7.37%, resulting in a ratio of 0.9701. Therefore, the January 2009 rate was 2.99% below average.

\[
\left(\frac{0.0715}{0.0737}\right) - 1 = 0.9701 - 1 = -0.0299 = -2.99\%
\]

Quarterly influenza cost weights are, then, applied to the monthly death rate relative to the baseline (January 2006 to December 2008). Because influenza costs vary seasonally, with the first quarter of each calendar year usually being highest and the third quarter the lowest, the excess or deficiency for each month is multiplied by an estimated quarterly percentage of pneumonia and influenza costs. Using January 2009 again as an example, the deficiency of 2.99% is offset a bit, as it is multiplied by the first quarter influenza cost weight of 1.3% (see the table below), resulting in an adjusted influenza ratio of 0.9996. The month-over-month change in this index provides the variable used in the model.

\[
\left(\frac{0.0715}{0.0737}\right) - 1 \times 0.013 = \left[0.9701 - 1\right] \times 0.013 = -0.00039 = -0.039\%
\]

These influenza costs are developed by Milliman using three years of quarterly Medicare allowed charge data for Professional Services care (January 2006 - December 2008). The weights below were used for all years of the index to date, since this research was recently completed and earlier data weren’t readily available. These P&I weights will be updated by Milliman every three years beginning with the January Index in 2013.
<table>
<thead>
<tr>
<th>Quarter</th>
<th>Medicare Weight</th>
<th>Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>2</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>3</td>
<td>0.8%</td>
<td>0.8%</td>
</tr>
<tr>
<td>4</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

These factors are calculated and updated by Milliman once every three years.

7. Incurred Working Days

The mix of working days in a month can have a significant impact on relative accrued patient service revenues, especially on a monthly and quarterly basis. The annual impact is much less. For example, physician revenues derived from claims incurred on Mondays are about 25-30% above the average, with claims declining during the rest of the week to less than half of the average on some weekends and holidays. Also, holidays vary with Thanksgiving and Christmas being the lowest claim cost days of the year; some holidays are more like weekends (e.g., Independence Day and Memorial Day), while others have minimal impact.

The holidays included in the analysis are:

1. New Year’s Day
2. Martin Luther King Day
3. Presidents’ Day
4. Memorial Day
5. Independence Day
6. Labor Day
7. Thanksgiving Eve
8. Thanksgiving
9. Day after Thanksgiving
10. Christmas Eve
11. Christmas
12. Day after Christmas
13. New Year’s Eve

Milliman has calculated a weight, or relative value factor, for each day and holiday in each month. Each of the holidays above has a relative value factor lower than its normal day of the week equivalent. Excluding holidays, all other days of the week have their own average factor.

The incurred days adjustment is applied to the change in total professional services costs. For example, a change in days of 2.4% in a given month along with a change in total professional services costs of 7.1% results in a day-adjusted cost change of \((1.024 \times 1.071) - 1 = 9.67\%\) for that month.
8. Personal Income

This variable reflects real personal income less transfer payments and taxes. The data used in the model are published by the Bureau of Economic Analysis. It reflects the increase in utilization of professional services as wealth increases in the economy. In the Medicare model there is no direct measure for the increasing use of medical technology and the associated increasing proportion of more-expensive specialists. This variable is used as a proxy. In the Commercial Model, this impact is reflected directly in the total revenue estimates, and this variable is not needed.

Transfer payments and personal taxes are removed from the monthly personal income data. The model converts the variable to real dollars per capita, using the total US population. Since the increased use of medical technology lags income growth, this variable is lagged in the model, and is applied with a 50.0% weight. The 50% multiple is an estimate of how changes in personal income impact changes in healthcare costs.\(^{12}\)

9. Medicare Adjustment for the Commercial Index (SPMDEPC)

In order to derive the Professional Services Commercial Index (SPMDEPC), the impact of Medicare on the combined Medicare and Commercial Index is removed. This is accomplished by measuring the percentage that Medicare represents of the combined index as the ratio of Medicare expenditures to combined expenditures (including estimated copayments and deductibles). This ratio is derived annually by HIA from the National Health Expenditure (NHE) data.

Subsequent to 2008, the weights derived each year were applicable to each month in the calendar year. However, the severity of the economic recession that took hold in 2008 had an adverse impact on the population covered by commercial insurance. The increase in Medicaid and Uninsured rolls were much greater compared to past recessions. This movement of the insured segment into other groups (Medicaid, Uninsured, etc.) meant that the weights derived annually needed to change monthly to reflect the change in mix amongst the different groups, especially since they are covered at different per member costs. Data published by the Employee Benefits Research Institute (EBRI) provides a population cross section by type of insurance, which makes it possible to calculate the allocation of healthcare dollars amongst each category for each month. The monthly weights are calculated from these new monthly dollar amounts.

To account for the fact that the Indices seek to measure total allowed claims which include the claim amount patients will pay in the form of copayments and deductibles, the NHE Professional Services Medicare payments are converted to Medicare allowed dollars by grossing up the Medicare NHE by the ratio of allowed dollars to paid dollars from the Medicare 5% Sample for Part B Physician Services. This product is divided by the total NHE Professional Services Expenditures excluding Other Private Funds and Medicaid.

\(^{12}\) This estimate has been developed by Milliman, Inc. and is also used in their proprietary Health Cost Index Report.
The January 2011 Medicare weight is calculated as follows, using Medicare as a percentage of Medicare plus Commercial costs:

$$\left[\frac{170,112}{(170,112 + 334,750)}\right] = 0.3369$$

The Professional Services Medicare impact is, then, removed from the combined Medicare and Commercial index using a method identical to the one for removing Medicaid and Uninsured effects from the Total, as shown in the prior section.

**Restatements**

The indices are published monthly on the third Thursday of each month with an approximate 7-week lag. Each monthly publication will include restated historical index levels in addition to the most recent calculation month.

As described earlier, the calculation model incorporates data from several government sources. This data is often restated by the government as new information is received. The restatement of historical government data used in the index calculation model will therefore result in the restatement of the historical index levels.

**Base Dates**

The Indices levels are based to 100 in January 2003, the inception of the pro-forma history.
Index Maintenance

Annual Rebalancing

Index weights are reviewed annually by the Index Committee and are updated, when needed, once a year in January, when HIA updates proprietary weights and growth rates used in the model as follows below. Other statistics may be updated by their original sources or by HIA at times noted below.

1. Professional Services Wages, Employee Benefits, and Other Revenue Proxies

The Professional Services Wages, Employee Benefits, CPI, and Malpractice data used in this model are combined linearly using the weights displayed in the following table.

<table>
<thead>
<tr>
<th>Update Year</th>
<th>Wages</th>
<th>Employee Benefits</th>
<th>CPI</th>
<th>Malpractice</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>56.6%</td>
<td>14.6%</td>
<td>25.6%</td>
<td>3.2%</td>
</tr>
<tr>
<td>2004</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2005</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2006</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2007</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2008</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2009</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2010</td>
<td>56.5%</td>
<td>14.6%</td>
<td>25.0%</td>
<td>3.9%</td>
</tr>
<tr>
<td>2011</td>
<td>57.6%</td>
<td>9.8%</td>
<td>28.3%</td>
<td>4.3%</td>
</tr>
<tr>
<td>2012</td>
<td>57.6%</td>
<td>9.8%</td>
<td>28.3%</td>
<td>4.3%</td>
</tr>
</tbody>
</table>

These weights are monitored by HIA on an annual basis and updated as needed. Please note that the 2003 weights were obtained from a prior year’s market basket. The changes in weights occurring in 2011 are largely due to new data sources received by the CMS to calculate physician benefit costs.

Professional Services wages and benefits as a percent of total compensation are drawn from the Centers for Medicare and Medicaid Services (CMS) Market Basket, reflecting price inflation facing providers. Approximately every five years, CMS rebases the market
The market basket data are available on the CMS Web site.

For example, if the changes in Professional Services Wages, Professional Services Employee Benefits, the CPI, and Malpractice are 3.0%, 4.0%, 5.0%, and 6.0%, respectively, the weighted change in Professional Services Wages and Employee Benefits would equal:

\[(0.03 \times 0.565) + (0.04 \times 0.146) + (0.05 \times 0.25) + (0.06 \times 0.039) = 3.76\%\]

2. Professional Services Employment, Adjusted for the Medicare and Commercial Population

Periodically, the population and employment statistics are revised or rebased by the Bureau of Labor Statistics. The most recent data were used in the development of this model.

3. Professional Services Malpractice

The weight for this variable is drawn from the study *Malpractice Liability Costs And The Practice Of Medicine In The Medicare Program*, by Katherine Baicker, Elliott S. Fisher, and Amitabh Chandra. It will only be updated if a credible published study becomes available that indicates a need to change the current weight of 13%.

4. Medicaid and Uninsured vs. Total Hospital PPI

The weights for the Medicaid and Uninsured costs are updated annually in January by HIA. The Medicaid and Uninsured weight is developed from the National Health Expenditures (NHE), published by the CMS. The weight for Medicaid and Uninsured is developed by combining the total dollar amount for Medicaid, Medicaid State Children’s Health Insurance Program (SCHIP) Expansion Federal Funds, all State and Local Funds (with the exception of Workers’ Compensation), and Other Private Funds (which represents endowments and other charitable revenues) and dividing this sum by total dollars spent on Hospital Care. Due to reporting frequency and revisions, these data use a three year lag.

Subsequent to 2008, the weights derived each year were applicable to each month in the calendar year. However, the severity of the economic recession that took hold in 2008 had an adverse impact on the population covered by commercial insurance. The increase in Medicaid and Uninsured rolls were much greater compared to past recessions. This movement of the insured segment into other groups (Medicaid, Uninsured, etc.) meant that the weights derived annually needed to change monthly to reflect the change in mix amongst the different groups, especially since they are covered at different per member costs. Data published by the Employee Benefits Research Institute (EBRI) provides a population cross section by type of insurance, which makes it possible to calculate the allocation of healthcare dollars amongst each category for each month. The monthly weights are calculated from these new monthly dollar amounts.
The Medicaid and Uninsured weight for January 2011 is calculated as follows, using Medicaid plus Uninsured as a percentage of Total (Commercial + Medicaid + Uninsured + Medicare):

\[
\frac{(54,849 + 35,886)}{(334,750 + 54,849 + 35,886 + 170,112)} = 0.1523
\]

<table>
<thead>
<tr>
<th>Month Year</th>
<th>Medicaid and Uninsured Weight</th>
<th>Medicare and Commercial Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2011</td>
<td>15.2%</td>
<td>84.8%</td>
</tr>
<tr>
<td>February 2011</td>
<td>15.2%</td>
<td>84.8%</td>
</tr>
<tr>
<td>March 2011</td>
<td>15.1%</td>
<td>84.9%</td>
</tr>
<tr>
<td>April 2011</td>
<td>15.1%</td>
<td>84.9%</td>
</tr>
<tr>
<td>May 2011</td>
<td>15.0%</td>
<td>85.0%</td>
</tr>
<tr>
<td>June 2011</td>
<td>15.0%</td>
<td>85.0%</td>
</tr>
<tr>
<td>July 2011</td>
<td>14.8%</td>
<td>85.2%</td>
</tr>
<tr>
<td>August 2011</td>
<td>14.7%</td>
<td>85.3%</td>
</tr>
<tr>
<td>September 2011</td>
<td>14.6%</td>
<td>85.4%</td>
</tr>
<tr>
<td>October 2011</td>
<td>14.5%</td>
<td>85.5%</td>
</tr>
<tr>
<td>November 2011</td>
<td>14.4%</td>
<td>85.6%</td>
</tr>
<tr>
<td>December 2011</td>
<td>14.3%</td>
<td>85.7%</td>
</tr>
</tbody>
</table>

These weights are calculated and updated by HIA on a monthly basis.

5. Pneumonia and Influenza

The influenza costs are developed by Milliman using three years of quarterly Medicare allowed charge data for professional services care (January 2006 - December 2008). The weights detailed in the prior section were used for all years of the index to date, since this research was recently completed and earlier data were not readily available. These P&I weights will be updated by Milliman every three years beginning with the January Index in 2013.

6. Incurred Working Days

The mix of working days in a month can have a significant impact on relative levels of patient services revenue accrued by healthcare providers, especially on a monthly and quarterly basis. As such, the model incorporates working day factors, to adjust for the
relative number of holidays and weekends in each month. The weights of these factors will be updated by Milliman every three years starting with the publication of the January 2013 index.

7. Medicare Adjustment for the Commercial Index (SPMDEPC)

The weights for the Professional Services Medicare and Commercial Indices are updated annually in January. This is accomplished by measuring the percentage that Medicare represents in the combined index as the ratio of Medicare expenditures to combined Medicare and commercial expenditures (including estimated copayments and deductibles). This ratio is derived annually by HIA from National Health Expenditure (NHE) data.
The details of the calculations were presented in the prior section. All weights are shown in the table below.

<table>
<thead>
<tr>
<th>Month Year</th>
<th>Medicare Weight</th>
<th>Commercial Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2011</td>
<td>33.7%</td>
<td>66.3%</td>
</tr>
<tr>
<td>February 2011</td>
<td>33.7%</td>
<td>66.3%</td>
</tr>
<tr>
<td>March 2011</td>
<td>33.7%</td>
<td>66.3%</td>
</tr>
<tr>
<td>April 2011</td>
<td>33.6%</td>
<td>66.4%</td>
</tr>
<tr>
<td>May 2011</td>
<td>33.6%</td>
<td>66.4%</td>
</tr>
<tr>
<td>June 2011</td>
<td>33.6%</td>
<td>66.4%</td>
</tr>
<tr>
<td>July 2011</td>
<td>33.6%</td>
<td>66.4%</td>
</tr>
<tr>
<td>August 2011</td>
<td>33.5%</td>
<td>66.5%</td>
</tr>
<tr>
<td>September 2011</td>
<td>33.4%</td>
<td>66.6%</td>
</tr>
<tr>
<td>October 2011</td>
<td>33.4%</td>
<td>66.6%</td>
</tr>
<tr>
<td>November 2011</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>December 2011</td>
<td>33.3%</td>
<td>66.7%</td>
</tr>
</tbody>
</table>

These weights are calculated and updated by HIA on a monthly basis.
Glossary

**Accrued Revenue.** The expected revenues based on published (Medicare) or pre-negotiated (commercial insurance) rates with benefit programs. They represent the total amount due to the provider from both the patient (through copayments) and the benefit program.

**Adjusted Professional Services Employment.** The measure of healthcare professional services employment relative to the total U.S. population (including both Commercial and Medicare populations). Calculated as follows:

\[
\text{Total professional services employees} = \frac{\text{Total US population}}{\text{Total professional services employees}}
\]

where total professional services employees are in:
- Medical and diagnostic laboratories
- Offices of other health practitioners
- Offices of physicians
- Other ambulatory health care services
- Outpatient care centers

**Commercial Health Insurance.** Commercial health insurance plans include major insurance providers and health benefit programs sponsored by large self-funded employer groups. Commercial health insurance plans for Medicare or for Medicaid and Medicare supplements are not included in the Indices.

**Fee-For-Service.** Traditional insurance where providers are paid for each service on an individual fee basis.

**Health Cost Index™.** This is the proprietary Milliman healthcare cost index that was first published in 1987. It seeks to represent healthcare costs for the non-Medicare population (including Medicaid and Uninsured). The Health Cost Index estimates revenues that providers receive from healthcare payers. Similar to other indices, its numerical value at each point in time is relative to a base period.

**Hospital Producer Price Index (Hospital PPI).** The hospital PPI is a measure of wholesale prices for hospitals. The specific hospital category monitored in the model is *General Medical and Surgical Hospitals*. Within this category, a breakdown by payer is available for *Medicare Patients, Medicaid Patients, and All Other Patients*. 

---

*S&P Indices: S&P Healthcare Economic Professional Services Indices Methodology*  
25
Medicare. A US government sponsored health insurance program administered by the Centers for Medicare and Medicaid Services (CMS). It provides health insurance for persons 65 and older as well as those meeting certain eligibility criteria.

Medicare Professional Services Fee Updates. These are the annual updates to Medicare reimbursement schedules for various healthcare professional services.

Medicaid. A US State run health insurance program providing healthcare coverage for low income families. It is funded by both the State and Federal Governments. Eligibility for Medicaid coverage is means based, but qualification may also be available for people with certain disabilities.

Medicaid SCHIP. Medicaid State Children’s Health Insurance Program is similar to Medicaid, but provides matching funds to states for health insurance to families with children. The program was designed with the intent to cover uninsured children in families with incomes that are modest but too high to qualify for Medicaid.

Professional Services. Services performed by health care professionals including physicians, nurses, and other licensed practitioners who bill for services independently of a hospital facility.

Professional Services Claims. This refers to either (1) patient service revenues accrued by physicians or other health care professionals or (2) the total allowed claim costs incurred by patients and their benefit plans for services rendered by physicians and other health care professionals.

Professional Services Employment and Wages. These measure the number of professional services workers used for the model and their related wages. The data used in these models are published by the Bureau of Labor Statistics.

Producer Price Index (PPI). A monthly economic statistic published by the US Bureau of Labor Statistics (BLS). The Producer Price Index measures the prices received by domestic producers for their output, also known as wholesale prices.

Professional Services Malpractice Insurance. Malpractice insurance protects health care providers against lawsuits alleging negligence. Medicare tracks the increase in malpractice premiums/costs as part of their process for updating physician fees.

S&P Healthcare Economic Commercial Index (SPMDEC). The Index is designed to reflect the per capita change in monthly hospital and physician claims (reflecting both estimated payer and patient liabilities) for the Commercial Health Insurance population. The Index is published monthly.
S&P Healthcare Economic Composite Index (SPMDE). The Index is designed to reflect the per capita change in monthly hospital and physician claims (reflecting both estimated payer and patient liabilities) for services provided to patients covered under the traditional Medicare and commercial health insurance programs. The Index is published monthly.

S&P Healthcare Economic Hospital Index (SPMDEH). The Index is designed to reflect the per capita change in monthly hospital inpatient and outpatient claims (reflecting both estimated payer and patient liabilities) for services provided to patients covered under the traditional Medicare and commercial health insurance programs. The Index is published monthly.

S&P Healthcare Economic Medicare Index (SPMDEM). The Index is designed to reflect the per capita change in monthly hospital and physician claims (reflecting both estimated payer and patient liabilities) for the traditional Medicare health insurance population. The Index is published monthly.

S&P Healthcare Economic Professional Services Index (SPMDEP). The Index is designed to reflect the per capita change in monthly physician and other healthcare professionals’ claims (reflecting both estimated payer and patient liabilities) for services provided to patients covered under the traditional Medicare and commercial health insurance programs. The Index is published monthly.

Self-Insured Employers: Employers who bear the direct risk of their employees’ health insurance costs. The employer will usually have sufficient employees, experience and the financial resources to withstand fluctuations in the costs from year to year.

Total Allowed Claim Costs. This is the approved maximum reimbursement from benefit programs to healthcare providers after negotiated discounts. The value of copayments and deductibles paid by patients is included in the total allowed amount.

Total U.S. Population. The total U.S. population is based on postcensal monthly estimates, and can be found on the Census Bureau’s Web site.

Traditional Medicare. Coverage is split between Part A (hospital inpatient services), Part B (hospital outpatient and professional services) and Part D (prescription drug services) Medicare. It does not include coverage under the Medicare Advantage program, which allows private health insurance plans to offer an alternative to the traditional Medicare program.

Utilization: A measure of the extent to which medical services are used by patients. Examples of utilization are hospital admissions, hospital days, office visits, etc.

Working Days: Medical care utilization varies by the day of the week due to the work schedules of the various providers. Historically Monday has been the highest used day of the week. Weekends and holidays tend to have the lowest utilization levels. The mix of these days within a month creates an effect on the observed changes in claim costs.
Index Data

Publicly Available Data Used in the Model

Bureau of Economic Analysis

1. Personal Income
2. Transfer Payments
3. Taxes


   a. Offices of physicians
   b. Offices of other health practitioners
   c. Outpatient care centers
   d. Medical and diagnostic laboratories.
   e. Other ambulatory health care services

2. Current Employment Statistics: All Employees
   a. Offices of physicians
   b. Offices of other health practitioners
   c. Outpatient care centers
   d. Medical and diagnostic laboratories
   e. Other ambulatory health care services
   f. Total nonfarm

3. Employer Cost for Employee Compensation: Total Benefits
   a. Professional and related occupations

4. Producer Price Index
   a. General medical and surgical hospitals by payer type: Medicaid patients
   b. General medical and surgical hospitals

1. Professional Liability Physician Premium Survey
2. 5% Sample

Centers for Disease Control, http://www.cdc.gov/mmwr

1. Morbidity and Mortality Weekly Report
   a. Notifiable Diseases and Mortality Tables, Table III


1. Professional Services Payment Update


1. Total U.S. Population
   a. Postcensal Monthly Estimates
Index Governance

Index Committee

The S&P Healthcare Economic Indices are maintained and governed by the S&P Healthcare Indices Committee. The Index Committee members are drawn from S&P Indices and Health Index Advisors; the majority of the members and the Index Committee Chairman are employees of S&P Indices.

The Index Committee has complete discretion to determine how the indices are calculated. In addition, the Index Committee may revise index policy covering rules for selecting economic or other indicators to be used in the model.

S&P Indices considers information about changes to the S&P Healthcare Economic Indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.
Index Policy

Announcements

Announcements of index data are made at 09:00 AM Eastern Time, on the third Thursday of each month. Press releases are posted at www.indices.standardandpoors.com, and are released to major news services.

There is no specific announcement time for the S&P Healthcare Economic Indices except for the monthly release of index data, as indicated above.

Holiday Schedule

The monthly indices are published on the third Thursday of each month. In the event this falls on a holiday, the data will be published at the same time on the next business day.

Recalculation Policy

Each month the data are recalculated and published in their entirety, incorporating any revisions to historic input variables that might have occurred over the month.
Index Dissemination

The 12-month moving average of the S&P Healthcare Economic Indices index levels are available through S&P Indices’ Web site at www.standardandpoors.com/indices, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Within the Healthcare industry, the most used measure of changes in claims costs is the comparison of a full 12 months of costs versus the same 12 months of the prior year. As such, S&P Indices published each monthly index’s 12-month moving average to compare it with the same 12-month time period of the prior year, which provides an indication of the annual growth rate of claims costs.

Tickers

<table>
<thead>
<tr>
<th>Index</th>
<th>Bloomberg</th>
<th>Reuters</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P Healthcare Economic Composite Index (12-month moving average)</td>
<td>SPMDEA</td>
<td>.SPMDEA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Commercial Index (12-month moving average)</td>
<td>SPMDECA</td>
<td>.SPMDECA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Medicare Index (12-month moving average)</td>
<td>SPMDEMA</td>
<td>.SPMDEMA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Hospital Index (12-month moving average)</td>
<td>SPMDEHA</td>
<td>.SPMDEHA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Hospital Commercial Index (12-month moving</td>
<td>SPMDEHCA</td>
<td>.SPMDEHCA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Hospital Medicare Index (12-month moving</td>
<td>SPMDEHMA</td>
<td>.SPMDEHMA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Professional Services Index (12-month</td>
<td>SPMDEPA</td>
<td>.SPMDEPA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Professional Services Commercial Index</td>
<td>SPMDEPCA</td>
<td>.SPMDEPCA</td>
</tr>
<tr>
<td>S&amp;P Healthcare Economic Professional Services Medicare Index (12-month moving average)</td>
<td>SPMDEPMA</td>
<td>.SPMDEPMA</td>
</tr>
</tbody>
</table>

FTP

The index levels for the S&P Healthcare Economic Professional Services Indices, described in this document, the S&P Healthcare Economic Hospital Indices and the S&P Healthcare Economic Composite Indices are available for subscription via FTP on a fee basis.
Web site

Appendix

HIA Data

The following is a list of data calculated by HIA and used within the model: General details on the calculations can be found in the *Index Construction* and *Index Maintenance* sections.

- Employee Wage, Benefits, CPI and Malpractice Premium Weights
- Incurred Working Day Factors*
- Medicaid and Uninsured PPI Weights
- Medicare Expenditure Ratio
- Pneumonia & Influenza Cost Weights*

* Data which are proprietary to and calculated by Milliman Inc.
S&P Contact Information

Index Management

David M. Blitzer, Ph.D. – Managing Director & Chairman of the Index Committee
david_blitzer@standardandpoors.com  +1.212.438.3907
Gouri Seetharam – Director
gouri_seetharam@standardandpoors.com  +1.212.438.8642

Product Management

Glenn Doody – Vice President, Index Innovation
glenn_doody@standardandpoors.com  +1.212.438.1861

Media Relations

David Guarino – Communications
dave_guarino@standardandpoors.com  +1.212.438.1471

Index Operations & Business Development

index_services@standardandpoors.com
U.S.  +1.212.438.2046
EMEA  +44.20.7176.8888
China  +86.10.6569.2905
Japan  +813.4550.8564
Australia  +61.2.9255.9802
Canada  +1.416.507.3200
Dubai  +971.4.3727131
Disclaimer

This document does not constitute an offer of services in jurisdictions where Standard & Poor’s or its affiliates do not have the necessary licenses. All information provided by Standard & Poor’s is impersonal and not tailored to the needs of any person, entity or group of persons. Standard & Poor’s receives compensation in connection with licensing its indices to third parties. Any returns or performance provided within are for illustrative purposes only and do not demonstrate actual performance. Past performance is not a guarantee of future investment results.

It is not possible to invest directly in an index. Exposure to an asset class is available through investable instruments based on an index. Standard & Poor’s and its affiliates do not sponsor, endorse, sell, promote or manage any investment fund or other vehicle that is offered by third parties and that seeks to provide an investment return based on the returns of any Standard & Poor’s index. There is no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. Standard & Poor’s is not an investment advisor, and Standard & Poor’s and its affiliates make no representation regarding the advisability of investing in any such investment fund or other vehicle. A decision to invest in any such investment fund or other vehicle should not be made in reliance on any of the statements set forth in this document. Prospective investors are advised to make an investment in any such fund or other vehicle only after carefully considering the risks associated with investing in such funds, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer of the investment fund or other vehicle. Inclusion of a security within an index is not a recommendation by Standard & Poor’s or its affiliates to buy, sell, or hold such security, nor is it considered to be investment advice.

These materials have been prepared solely for informational purposes based upon information generally available to the public from sources believed to be reliable. No content (including ratings, credit-related analyses and data, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor’s. The Content shall not be used for any unlawful or unauthorized purposes. Standard & Poor’s, its affiliates, and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an “as is” basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT’S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

In addition, S&P and its affiliates provide a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate or otherwise address.

Copyright © 2012 by Standard & Poor’s Financial Services LLC, a subsidiary of The McGraw-Hill Companies. All rights reserved. Redistribution, reproduction and/or photocopying in whole or in part is prohibited without written permission.