FindaDoctor

Costs. Quality. Choices.

Cost Estimation Methodology

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Background

The goal of this document is to provide transparency in how the cost estimates are calculated from claims data for the Find a Doctor website. Methodologies for the calculation were audited by an external vendor, Metastar, to ensure fairness in evaluation. The goal of the cost estimation is to provide consumers with directional information as to what typical costs for several typical procedures are at various locations throughout the Alliance network.

For questions and comments please contact The Alliance.

High Level Summary

Cost is estimated for outpatient procedures in seven major steps from a rolling year of Alliance member administrative claim data as the primary data source.

1. Determine which Triggering Procedures that have enough volume to report
2. Determine all associated costs for incurred that day
3. Group the service day costs into major categories of services
4. Aggregate Median costs from each category of service and roll up the median costs to the location where the main procedure was performed
5. For locations performing at least 1 but fewer than a threshold number of episodes per triggering procedure, inject provider group level results into that location
6. Indicate whether the cost results of any individual code are considered volatile (highly variable)
7. Calculate cost tiers compared to other locations/facilities with enough volume
8. Attribution of physicians to location cost information
9. Repeat steps 2-5 for a set of claims data from a statewide All Payer Claims Database after applying Alliance contracted rates to the claims.
10. Semi-annual review of procedure codes approved for website and methodology

If we have evidence of performance of a Triggering Procedure but not enough volume with Alliance claims data to perform a cost estimate, the Alliance will apply contracted Alliance rates to a statewide All Payer Claims Database to estimate the cost at that location using the same methodology.

More details on each of the steps:

1. For each distinct date of service that an Alliance member received care in an outpatient setting the most costly procedure the patient received on that day that was billed on a professional (An Electronic 837 Professional or CMS-1500 paper) claim is determined. This most costly procedure will be referred to as the "Triggering Procedure". The Triggering Procedure is uniquely identified by the CPT code and whether or not the procedure performed was a bilateral procedure. This is repeated for all distinct outpatient episodes over a rolling year of Alliance claims data and the total numbers of distinct claims, patients, and providers are tabulated for each triggering procedure. If the volume meets or exceeds the following thresholds the triggering procedure is considered for inclusion into cost estimate results:
    - Distinct Claim Volume: >=25 claims

- Distinct Patient Volume: >= 3 patients
- Distinct Provider Groups Rendering Care: >= 3 provider groups
- The Triggering Procedure is the highest cost Procedure in at least 40% of the episodes that it occurs
- One of ~200 CPT codes, hand selected as likely high volume or high cost

2. Costs (allowed amounts) incurred by the patient that day within an outpatient setting are tabulated. The triggering procedure must be performed by a provider within our Web Directory but the total cost calculation can include services rendered by any provider, regardless of their Web Directory status. These costs indicate a total picture of the care received for the patient that day and define an episode.
3. Each claim line incurred for the episode is evaluated and assigned one of the following 6 categories of service:
   - Facility Fees
   - Anesthesia Services
   - Pathology Services
   - Radiology Services
   - Professional Services
   - Ancillary Services

   The total costs for each category, along with the aggregate cost for the episode is calculated.

4. Then, for each distinct provider group, location, and triggering procedure, percentile rankings are calculated indicating the discrete 10^{th}, 25^{th}, 50^{th}, 75^{th}, and 90^{th} percentile cost for each category of service. Independently of this calculation, the discrete percentile rankings for distinct provider group and triggering procedure combinations are determined independent of location.

5. When the volume of episodes for a given triggering procedure, provider group and location are fewer than a threshold number of procedures, the results from the provider group level percentiles are injected into that low volume (but at least 1) location. The current threshold indicating that the provider group results would not be injected at a specific low volume location is:
   - Minimum number of trigger procedures at location for locations specific costs: >= 4
     - Otherwise provider group level results are injected

   Additionally, if the entire provider group performs fewer than a threshold number of trigger procedures the cost estimation results are not included for any locations within that provider group for that triggering procedure
   - Minimum number of trigger procedures across provider group: >=4
     - Otherwise cost estimate results are not included for any locations within that provider group

6. Results are evaluated to determine some indication of cost volatility (how much variance there is in cost). A volatility index (V) is calculated as

V = (AggregateCostPercentile75th-AggregateCostPercentile25th)/AggregateCostPercentile50th

and thresholds are set indicating the volatility of the score based on V as:

0	Price Variation Highly Volatile	1<V
1	Price Variation Somewhat Volatile	0.66<V<=1
2	Price Variation Somewhat Stable	0.33<V<=0.66
3	Price Variation Highly Stable	V<=0.33

7. For all distinct triggering procedures, cost tiers are calculated indicating cost performance for a given location relative to other locations with cost results. The cost tiers (1-4) are determined on the basis of the sum of the Median Costs for each category of service and only determined when there are a qualifying number of distinct locations rendering care
   - Minimum number of locations needed for cost tier calculations to be included for a triggering procedure: >=8
     - Otherwise no Cost Tier information is produced

   For procedures which have a cost tier calculated but there is low variation in cost, the cost tiers are removed. The definition of low variation here is that the low cost of a provider location pairing in cost tier 4 is compared against the high cost of a provider location pairing in tier 1. The difference is calculated as a percent of the higher cost. If the cost difference is less than a threshold dollar amount and less than a threshold percentage, the cost tierings are removed.
   - Threshold dollar amount for removal: <$100 AND
   - Threshold percentage difference for removal: 15%

   In practice it has been observed that these threshold remove cost tiers for <5% of procedures.

   The primary results displayed to an end user would be an icon display if the cost tier was 1 indicating a low cost choice and the sum of the median costs of each category of care.

8. Procedures are separated into two categories:
   a. Procedures that would be scheduled through a facility and
   b. Procedures that would be scheduled through a physician

   For procedures that are scheduled through a facility the location level results are pulled directly from the results obtained above. Then, any locations that have a demonstrated history of performing the service but not enough volume to form a cost estimate are pulled without any assigned cost data.

   For procedures that would be scheduled through a physician, results are returned for all physician/location pairings that might be expected to perform the service. First, all of the locations that the physician has performed the service based on Alliance claims data are returned. Additionally, if the physician at a specific location has a specialty and degree indicating they could be reasonably expected to perform the service even with no prior demonstrated history, that physician location pairing is returned. Of all the physician location pairings returned, costs are prescribed based on the location returned and the calculated location from step 1-7. If no cost

information is available, the physician location pairing is still returned, just without cost information.

9. The Alliance is a purchaser of the Wisconsin Health Information Organization's (WHIO's) DataMart Versions (DMVs) which provide purchasers with access to claims data from most commercial healthcare purchasers in the state of Wisconsin. The Alliance uses this dataset to produce cost estimates where we have at least one Episode performed but fewer than the 4 required to produce as cost estimate. These Trigger Procedure and location combinations will be referred to as "Low Volume Procedure Locations". In general, the same steps are used in computing a cost estimate as identified in steps 2-5 above with the following adjustments:

    a. WHIO's listing of services are first grouped into medical claims and attributed to Alliance Contracts. This Contract Assignment Process uses a hierarchical matching process using available Tax Identification Numbers, National Provider Identifiers, Claim Types, and Services Rendered from both WHIO and The Alliance data sets.
    b. After Contract Assignment, a set of up to 100 available commercial Episodes for each Low Volume Procedure Location is extracted from the most recent year of WHIO data.
    c. Because of Provider Network variation across healthcare purchasers, Episodes that have and service rendered out of The Alliance Network are removed.
    d. Dates of service for those procedures are moved forward to ensure current contractual reimbursement terms are being applied and charges and increased by a flat annualized 5% to account for potential changes in billing practices.
    e. Episodes are repriced using The Alliance Contracts and any Episode resulting in a Claim Error or Claim Pend indication are removed from consideration. These 'bad' Episodes reflect fewer than 5% of episodes. Bad Episodes were reviewed to ensure artifacts of the WHIO data or contract assignment were minimized.
    f. From these repriced claims, cost estimates are produced as in steps 2-5 in this document. Note: Steps (a) – (f) were performed both for Low Volume Procedure Locations and for Procedure Locations where The Alliance was already producing a Cost Estimates. This latter process was performed as a means of validation of the methodology.
    g. Estimates for Low Volume Procedure Locations were reviewed against cost estimates produced for all Providers rendering the Triggering Procedure and for the few Episodes with Alliance Member receiving the Triggering Procedure at the Low Volume Procedure Location. When comparing Low Cost Volume Procedure Locations against other Cost Estimates produced with Alliance Data for the same Triggering Procedure, estimates that were lower than 110% of the lowest cost estimate or higher than 90% of the highest cost estimate were required to be manually reviewed and validated by Provider Relations staff to ensure accuracy. Estimates produced within these low and high cost guardrails were spot checked to ensure accuracy.
    h. While the Alliance Cost Estimates are performed on a weekly basis, the cost estimates produced with WHIO data are produced not more often than

quarterly as WHIO data is updated twice a year and updates to contracts with providers are infrequent.

10. Within our process The Alliance periodically evaluates the data being produced, assesses possibilities to add new Triggering Procedures and reviews our methodology with outside vendors. In late April 2014, in addition to internal audits of code, the methodology was audited by an outside firm, Metastar, to evaluate the code for any potential issues.

    All updates and modifications to code from this date have been commented and included in a change log document for future review and periodic audits.

Potential Future Application:

Additionally, an overall location cost tier (1-4) is calculated. This score is based on the average cost tier for all triggering procedures for which cost tier information at that location is available. This aggregate score is subject to exclusions if there are not enough triggering procedures performed with cost tier information

- Minimum number of triggering procedures with cost tier information to calculate a location level cost tier: >=6

Finally, similar to the above, an overall provider group cost tier (1-4) is calculated. This score is based on the average cost tier for all triggering procedures for which cost tier information at the provider group. This aggregate score is also subject to exclusions if there are not enough triggering procedures performed with cost tier information.

- Minimum number of triggering procedures with cost tier information to calculate a provider group level cost tier: >=10