



CQO:
The Health Care
Supply Chain

Supply Expense Per Case Mix Index (CMI) Adjusted Discharge



Purpose:

May be used to measure supply expense on a volume basis. Case mix index (CMI) adjusts to account for patient acuity.

Value:

Enables the organization to measure and trend supply expense that is adjusted for volume and patient acuity.

Equation:

Use if you **have** the Number of CMI Adjusted Discharges available:

Total supply expense ÷ Number of CMI Adjusted Discharges = **Supply expense per CMI adjusted discharge**

Note: it is favorable to have a lower value for this Key. The lower the value the better.

Example:

Source data, a hospital that has:

- Total supply expense: \$1,000,000
- Number of CMI Adjusted Discharges: 96,000

$$\begin{array}{r}
 \$1,000,000 \text{ Total Supply Expense} \\
 \div \\
 96,000 \text{ Number of CMI Adjusted Discharges} \\
 = \\
 \$10.42 \text{ Supply expense per CMI adjusted discharge}
 \end{array}$$

Equation:

Use if you **don't have** the Number of CMI Adjusted Discharges available:

See the previous equation on how to obtain the '**Total supply expense**'. Next, divide your Gross outpatient revenue by your Gross inpatient revenue to derive your '**Adjustment**'. Next, multiply this '**Adjustment**' by the Number of inpatient discharges to derive your '**Adjusted discharges**'. Then, multiply the '**Adjusted discharges**' by the Case Mix Index (CMI) to derive '**Number of CMI Adjusted Discharges**'. Lastly, simply divide the total supply expense by the Number of CMI Adjusted Discharges to calculate the Key.



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Gross outpatient revenue / Gross inpatient revenue = **Adjustment**
 Adjustment x Number of inpatient discharges = **Adjusted discharges**
 Adjusted discharges x CMI = **Number of CMI Adjusted Discharges**

Total supply expense ÷ Number of CMI Adjusted Discharges = **Supply expense per CMI adjusted discharge**

Note: it is favorable to have a lower value for this Key. The lower the value the better.

Example:

Source data, a hospital that has:

- Total supply expense: \$1,000,000
- Gross inpatient revenue: \$10,000,000
- Gross outpatient revenue: \$8,000,000
- Inpatient discharges: 60,000
- CMI: 2.0

Gross outpatient revenue \$8,000,000 / Gross inpatient revenue \$10,000,000 = **0.8** Adjustment
 0.8 x Number of inpatient discharges 60,000= **48,000** adjusted discharges
 48,000 x CMI of 2.0 = **96,000** CMI Adjusted Discharges

Total supply expense \$1,000,000 ÷ 96,000 = **\$10.42** supply expense per CMI adjusted discharge

Input Descriptions and Sources:

Input Name	Includes	Excludes
Total supply expense	All medical, non-medical, inventory and direct-ship/on-consignment supply expense. For medical, include expenses for Surgery, Cath Lab, EP Lab, Interventional Radiology and Interventional GI departments. For non-medical, include Office Supplies, Purchased Services, Facilities, Information Technology, Maintenance, etc. For consignment expenses, include freight, standard distribution costs and sales-and-use tax (minus rebates). Refer to AHRMM/HFMA supply categories for further details.	Purchased services, labor and labor-related expenses and services (salaries, bonuses), real estate, physician payments, capital, utilities, some tangible items that are frequently provided as part of service costs (e.g. toner that is part of a print contract), taxes, reimbursements to individuals or contractors, insurance, bad debt, depreciation.



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Gross outpatient revenue	All gross outpatient Revenue such as Medicare, Commercial Insurance or self-pay that includes all deductibles such as Adjustments, Reimbursements, Rebates, etc. Refer to AHRMM/HFMA supply categories for further details.	Contractual allowances, Charity care, Bad debt, Labor-related expenses and services, Some tangible items that are frequently provided as part of service costs (e.g. toner that is part of a copier contract), Purchased services
Gross inpatient revenue	All gross inpatient Revenue such as Medicare, Commercial Insurance or self-pay that includes all deductibles such as Adjustments, Reimbursements, Rebates, etc. Refer to AHRMM/HFMA supply categories for further details.	
Number of inpatient discharges	This is the total inpatient discharges for the month.	
Case Mix Index (CMI)	Case Mix Index (CMI) is a standardized formula that is driven by diagnostic related group (DRG) mix of inpatients. Input the index here.	
Number of Case Mix Index (CMI) adjusted discharges	The total inpatient discharges for the month, adjusted with the Case Mix Index (CMI).	

Points of Clarification:

- The adjusted equivalent discharge calculation takes into account net inpatient revenue (which is measured as gross patient service revenue minus contractual allowances, charity care and bad debt) and outpatient revenue. The result of this formula allows outpatient activity to be factored into the volume statistic.
- CMI adjustment gives additional weight to the volume statistics for high acuity patients. CMI is a standardized formula that is driven by diagnostic related group (DRG) mix of inpatients.
- CMI index is not always reflective of the supply utilization patterns for hospitals with a high volume of complex, technology heavy surgical or interventional cases. They would benefit by calculating supply cost per surgical case or procedure in addition to supply cost per adjusted equivalent discharge.

References:

- [Adjusted Discharges Supported](#)