



Cost of a Standard Hospital Stay

Methodology Notes

May 2023



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Definition

The Cost of a Standard Hospital Stay (CSHS) indicator provides the average cost in your facility for a hypothetical patient with a Resource Intensity Weight (RIW) of 1.

Methodology

The CSHS is calculated using data submitted to the Canadian MIS Database (CMDB) and Discharge Abstract Database (DAD) at the Canadian Institute for Health Information (CIHI). The financial and statistical data used in the calculation is submitted according to the *Standards for Management Information Systems in Canadian Health Service Organizations* (MIS Standards).

Note that Quebec data is mapped to the MIS Standards to ensure comparability.

The following adjustments are made to permit the use of Quebec data in this calculation:

- Equipment amortization expenses, which are reported in the Quebec data as undistributed amounts, are distributed to MIS functional centres. Data from MIS-submitting jurisdictions is used to inform this distribution.
- In Quebec, the employer's share of pension contributions is paid directly by the government; therefore, this component of expenses does not appear in that province's data. In MIS-compliant jurisdictions, this expense is found in secondary financial account 3 ** 44 (Provincial Pension Plan). Using information provided by Quebec, estimates of pension contributions were calculated for each functional centre in each organization and used in the CSHS analysis.
- As in other jurisdictions, Quebec data that was mapped to clearing accounts was distributed to absorbing functional centres as specified in the MIS Standards.

Specific adjustments for each grouping of functional centres are described in the sections for each grouping.

Minimum reporting

The minimum reporting level provides a national standard for data reporting, given that the types of services provided by health service organizations vary from one organization to another. Note that some health service organizations are able to report at a greater level of detail than the minimum reporting level and submit this detailed data to the CMDB.

The accounts in the MIS Standards are structured hierarchically. Data submitted by health service organizations that is more detailed than the minimum reporting level can be rolled up to the minimum reporting level. This allows data from different health service organizations to be compared consistently. An example of how data can be rolled up is provided in Table 1.

Table 1 MIS Standards account hierarchy

Account number	Description	Minimum reporting level	MIS Standards account hierarchy levels
71 2 ** ** **	Nursing Inpatient Services	Not applicable	Level 2
71 2 10 ** **	Medical Nursing Unit	Yes	Level 3
71 2 10 40 **	Cardiology Nursing Unit	Not applicable	Level 4
71 2 40 40 20	General Cardiology Nursing Unit	Not applicable	Level 5

As seen in Table 1, there are several reporting levels in the MIS Standards account hierarchy. For most functional centre accounts, the minimum reporting level is Level 3. Certain functional centres have minimum reporting at Level 4 or, in some rare instances, Level 5. [Appendix B](#) includes a detailed list of the functional centre accounts with a minimum reporting requirement at Level 4 or 5.

Minimum reporting methodology update

Cost allocations for the CSHS have historically been calculated based on the first 5 digits (Level 3) of the functional centre. At the time the CSHS methodology was developed, the available data did not support a lower level of allocation.

Starting in 2021, cost allocations for the CSHS are calculated at the minimum reporting level for each functional centre (Level 3, 4 or 5, depending on the functional centre). Below is a list of account names and Level 3 account numbers for the functional centres affected by the methodology update:

- Inpatient nursing units
 - Intensive Care Nursing Unit (71 2 40 **)
 - Obstetrics Nursing Unit (71 2 50 **)
 - Mental Health and Addiction Services Nursing Unit (71 2 75 **)
- Specified ambulatory care functional centres
 - Specialty Day/Night Care (71 3 40 **)
 - Specialty Clinics (71 3 50 **)

- Diagnostic and therapeutic functional centres
 - Diagnostic and Therapeutic Nursing (71 4 05 **)
 - Clinical Laboratory (71 4 10 **)
 - Medical Imaging (71 4 15 **)
 - Respiratory Services (71 4 35 **)
 - Pharmacy (71 4 40 **)
- Other hospital costs
 - Long-Term Care Nursing Unit (71 2 92 **)
 - Home Support (71 5 35 **)
 - Community Mental Health Services (71 5 70 **)
 - Community Addiction Services (71 5 75 **)
 - Residential Care Unit (71 5 92 **)

A full list of the Level 4 and 5 minimum reporting accounts can be found in [Appendix B](#).

The minimum reporting level cannot be used in certain cases; for example, when the minimum reporting level is Level 4, some organizations are unable to report at that detailed level. In those cases, the organization’s cost allocations are calculated at the next level at which it submits data in the MIS Standards account hierarchy (e.g., Level 3).

Determining full costs

1. The first step in calculating CSHS values is to determine the full inpatient cost for each individual hospital that reports data to the CMDDB. Most expenses in the CMDDB are used in this calculation; there are, however, some expenses in the hospital submissions that must be removed to facilitate comparability of CSHS values. The following adjustments are made:

Secondary financial account	Description	Action
1 2*	Recoveries	Net against expenses
3 10 85	Compensation — Management and Operational Support Personnel — Other Termination Benefits	Exclude
3 50 85	Compensation — Unit-Producing Personnel — Other Termination Benefits	Exclude
3 55 85	Compensation — Unit-Producing Personnel — Unclassified — Other Termination Benefits	Exclude
3 ** 85	Compensation — Unit-Producing Personnel — Defined Occupational Class — Other Termination Benefits	Exclude
3 90 **	Compensation — Medical Personnel	Exclude

Secondary financial account	Description	Action
9 50 20	Amortization — Undistributed Land Improvements [†]	Exclude
9 50 40	Amortization — Undistributed Buildings [†]	Exclude
9 50 60	Amortization — Undistributed Building Service Equipment [†]	Exclude
9 51	Net Gain or Loss on Disposal — Undistributed	Exclude
9 55 **	Interest on Long-Term Liabilities	Exclude

Notes

† Undistributed amortization is sometimes incorrectly reported rolled up as secondary financial account 9 50 00, so the portion applicable to land improvements, buildings and building service equipment cannot be ascertained. Nationally, CIHI has determined that 70% of the reported undistributed amortization applies to these types of assets, so this percentage is excluded and thus only the costs associated with Major Equipment Amortization — Undistributed will remain for allocation purposes.

Quebec data includes the cost of blood products, which is not reported in other jurisdictions. This data has been mapped to a special functional centre that is removed from the data set for this analysis.

2. Once these adjustments have been implemented, all remaining hospital costs must be assigned to 1 of the following 3 cost pools:
 - Inpatient Costs — Costs incurred through the direct care of hospital inpatients
 - Other Patient Costs — Costs incurred through the direct care of other hospital patients, such as clients
 - Non-Patient Costs — Costs that are incurred through non-patient care activities

To properly allocate hospital costs in the CMDDB to these cost pools, the costs in functional centres are assigned to the pool they best fit. This assignment is primarily based on the first 5 digits (Level 3) of the functional centre; however, certain functional centres have minimum reporting at the first 7 digits (Level 4) or, in some rare cases, at the first 9 digits (Level 5). The assignment can become complicated for functional centres whose services relate to more than one cost pool. To describe how these costs are identified, functional centres and accounting centres will be grouped into the following 9 logical sections and discussed separately:

- a) Nursing inpatient units
- b) Operating rooms and post-anesthetic recovery rooms
- c) Emergency departments
- d) Specified ambulatory care functional centres
- e) Diagnostic and therapeutic functional centres
- f) Mental health and rehabilitation functional centres
- g) Other patient care functional centres
- h) Other hospital costs
- i) Remaining functional centres and accounting centres

The sections below describe how the costs in each of these 8 groupings are allocated to the Inpatient Costs, Other Patient Costs and Non-Patient Costs pools. For additional detail on the statistical accounts used for allocations, please refer to [Appendix A](#).

a) Nursing inpatient units

The vast majority of costs reported in nursing inpatient units are expected to be inpatient costs. However, other patient activity is occasionally reported in nursing inpatient units in the form of workload or visits.

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 2 10*	Medical Nursing Unit	Yes	Potentially	No
71 2 20*	Surgical Nursing Unit	Yes	Potentially	No
71 2 30	Combined Medical/Surgical Nursing Unit	Yes	Potentially	No
71 2 40*	Intensive Care Nursing Unit	Yes	Potentially	No
71 2 50*	Obstetrics Nursing Unit	Yes	Potentially	No
71 2 70*	Pediatric Nursing Unit	Yes	Potentially	No
71 2 75*	Mental Health and Addiction Services Nursing Unit	Yes	Potentially	No
71 2 80*	Physical Rehabilitation Nursing Unit	Yes	Potentially	No
71 2 90	Palliative Nursing Unit	Yes	Potentially	No

To determine the amount of expenses that should be allocated to the Other Patient Costs pool, all of the above functional centres that report other patient visits are identified. These functional centres are passed through a 2-phase algorithm to determine an appropriate allocation to the Other Patient Costs pool.

Phase 1: All nursing inpatient functional centres with workload are passed through a statistical linear regression that uses their labour-adjusted cost per workload unit as the dependent variable and the fiscal year and functional centre as the independent variables.

All functional centres that pass this regression are deemed to demonstrate a reasonable relationship between total workload and labour-adjusted expenses; their allocation to the Other Patient Costs pool is based on their proportion of reported workload by category of service recipient.

Phase 2: All nursing inpatient functional centres with other patient visits and other patient workload are passed through 3 consecutive models of statistical linear regression, where only those functional centres that pass 1 model are passed on to the subsequent model. The independent variables for each model are the fiscal year and functional centre. The dependent variables are the following:

- Other patient workload per other patient visit
- Labour-adjusted expenses per other patient workload unit
- Other patient portion of labour-adjusted expenses per other patient visit

Those functional centres that pass all 3 regressions are deemed to demonstrate a reasonable relationship between the 3 variables and are used to calculate a national cost per other patient visit. This national cost per other patient visit is then scaled for each jurisdiction to reflect its own labour rates, and multiplied against the other patient visits of each functional centre that failed Phase 1.

Functional centres that reported workload and visits in service recipient categories that contradicted one another are deemed to consist of 100% inpatient expenses.

Quebec data that is mapped to MIS nursing inpatient functional centres is deemed to consist entirely of inpatient costs and is assigned 100% to the Inpatient Costs pool. The sole exception to this rule is the Quebec data mapped to the Obstetrics Nursing Unit functional centre (71 2 50*). These functional centres are adjudicated for reasonableness using a linear statistical regression. The independent variable of the model is the fiscal year. The dependent variable is the cost per individual treated in the functional centre. Those functional centres that pass the regression are deemed to demonstrate a reasonable relationship between expenses and individuals treated, and use the volume of individuals treated by category of service recipient to allocate their expenses to the Inpatient Costs and Other Patient Costs pools. Functional centres that fail this regression use a provincial allocation percentage based on those functional centres that passed.

b) Operating rooms and post-anesthetic recovery rooms

It is reasonable for operating rooms and post-anesthetic recovery rooms to contain a mix of expenses related to inpatients and other patients.

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 2 60*	Operating Room	Yes	Potentially	No
71 2 62	Combined Operating and Post-Anesthetic Recovery Room	Yes	Potentially	No
71 2 65*	Post-Anesthetic Recovery Room	Yes	Potentially	No
71 3 60	Day Surgery Operating Room	Potentially	Yes	No
71 3 62	Day Surgery Combined OR and PARR	Potentially	Yes	No
71 3 65	Day Surgery Post-Anesthetic Recovery Room	Potentially	Yes	No
71 3 69	Day Surgery Combined OR-PARR and Pre- and Post-Operative Care	Potentially	Yes	No

To determine the amount of expenses that should be allocated to the Other Patient Costs pool in these functional centres, all of the above functional centres that report workload and whose workload did not conflict in category of service recipient with their service activity statistics are identified. These functional centres are passed through a 2-phase algorithm to determine an appropriate allocation to the Other Patient Costs pool.

Phase 1: All operating room (OR) and post-anesthetic recovery room (PARR) functional centres that report workload are passed through a statistical linear regression that uses the labour-adjusted expenses per workload unit of the functional centre as the dependent variable and the fiscal year and functional centre as the independent variables. Regressions are conducted separately for the OR and PARR.

All functional centres that pass this regression are deemed to demonstrate a reasonable relationship between workload and labour-adjusted expenses; their allocation to the Other Patient Costs pool is based on their proportion of reported workload by category of service recipient. A national proportion of other patient workload to total patient workload based on the functional centres that passed the regression is applied to the functional centres that failed the regression and did not report service activity statistics in the functional centre. This national average is also used for functional centres whose workload conflicted in category of service recipient with their service activity statistics and for functional centres lacking both workload and service activity.

Phase 2: For OR and PARR functional centres that reported surgical visits, PARR visits or face-to-face visits and did not report workload, labour-adjusted national cost estimates are calculated for a surgical visit, a PARR visit and a face-to-face visit. These estimates are then applied against the service activity of the functional centres that are admitted to Phase 2 to derive an Other Patient Costs pool allocation.

Quebec data that is mapped to MIS OR functional centres is allocated to the Inpatient Costs and Other Patient Costs pools using a linear statistical regression. The independent variable of this regression is the fiscal year and the dependent variable is average cost per surgical hours. Those functional centres that pass the regression are deemed to demonstrate a reasonable relationship between expenses and surgical hours, and use the volume of surgical hours by category of service recipient to allocate their expenses to the Inpatient Costs and Other Patient Costs pools. Functional centres that fail this regression use a provincial allocation percentage based on those functional centres that passed.

c) Emergency departments

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 3 10*	Emergency	Potentially	Yes	No

Emergency functional centres may contain inpatient volume data as reflected by the service activity statistics *inpatient day* and *face-to-face visits — inpatient*. To estimate the costs of these volumes, the data is passed through a 2-phase algorithm.

Phase 1: Emergency functional centres that report workload are passed through a statistical linear regression that uses their labour-adjusted cost per workload unit as the dependent variable and the fiscal year and hospital cohort as the independent variables. Those functional centres that pass the regression use their own workload by category of service recipient to allocate expenses to the Inpatient Costs and Other Patient Costs pools.

Phase 2: For emergency functional centres that report inpatient service activity without workload, or with workload that conflicts with service activity due to the reported category of service recipient, labour-adjusted national cost estimates are calculated for inpatient days, inpatient visits and other patient visits. These estimates are multiplied by the service activity volumes of the functional centres without appropriate workload reporting to derive a proportion of inpatient activity to total activity. This proportion is then applied against the total expenses of the functional centre, resulting in Inpatient Costs and Other Patient Costs pool allocations.

Emergency functional centres that did not report service activity or workload are deemed to consist of 100% other patient costs.

Quebec data that is mapped to MIS emergency functional centres is deemed to consist entirely of other patient costs and is assigned 100% to the Other Patient Costs pool.

d) Specified ambulatory care functional centres

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 3 40*	Specialty Day/Night Care	Potentially	Yes	No
71 3 50*	Specialty Clinics	Potentially	Yes	No
71 3 55	Private Clinics	Potentially	Yes	No
71 3 67	Day Surgery Pre- and Post-Operative Care	Potentially	Yes	No

Other ambulatory care functional centres may contain inpatient volume data as reflected by the service activity statistics *inpatient day* and *face-to-face visits — inpatient*. To estimate the costs of these volumes, the ambulatory care functional centres specified above are passed through a 2-phase algorithm:

Phase 1: The specified ambulatory care functional centres that report workload are passed through a statistical regression that uses their labour-adjusted cost per workload unit as the dependent variable and the fiscal year and functional centre as the independent variables. Those functional centres that pass the regression use their own workload by category of service recipient to allocate expenses to the Inpatient Costs and Other Patient Costs pools.

Phase 2: For functional centres from this list that report inpatient service activity without workload, or with workload that conflicts with service activity in the category of service recipient, labour-adjusted national cost estimates are calculated for visits and inpatient days. These estimates are multiplied by the service activity volumes of the functional centres without appropriate workload reporting to derive a proportion of inpatient activity to total activity. This proportion is then applied against the total expenses of the functional centre, resulting in Inpatient Costs and Other Patient Costs pool allocations.

The functional centres from this list that did not report service activity or workload are deemed to consist of 100% other patient costs. Quebec data that is mapped to MIS ambulatory care functional centres is deemed to consist entirely of other patient costs and is assigned 100% to the Other Patient Costs pool.

e) Diagnostic and therapeutic functional centres

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 4 05*	Diagnostic and Therapeutic Nursing	Potentially	Potentially	No
71 4 10*	Clinical Laboratory	Potentially	Potentially	No
71 4 15*	Medical Imaging	Potentially	Potentially	No
71 4 20*	Radiation Oncology	Potentially	Potentially	No
71 4 25*	Electrodiagnostic Laboratories	Potentially	Potentially	No
71 4 30*	Non-Invasive Cardiology and Vascular Laboratories	Potentially	Potentially	No
71 4 35*	Respiratory Services	Potentially	Potentially	No
71 4 37	Perfusion Services	Potentially	Potentially	No
71 4 40*	Pharmacy	Potentially	Potentially	No
71 4 45	Clinical Nutrition	Potentially	Potentially	No
71 4 50	Physiotherapy	Potentially	Potentially	No
71 4 55*	Occupational Therapy	Potentially	Potentially	No
71 4 60*	Audiology and Speech/Language Pathology	Potentially	Potentially	No
71 4 65*	Rehabilitation Engineering	Potentially	Potentially	No
71 4 70*	Social Work	Potentially	Potentially	No
71 4 75*	Psychology	Potentially	Potentially	No
71 4 76	Genetic Counselling	Potentially	Potentially	No
71 4 80	Spiritual Care	Potentially	Potentially	No
71 4 85	Recreation	Potentially	Potentially	No
71 4 90	Child Life	Potentially	Potentially	No

It is expected that most (if not all) diagnostic and therapeutic functional centres will serve both inpatient populations and other patient populations. To determine the amount of expenses in these functional centres that should be allocated to the Inpatient Costs and Other Patient Costs pools, all of the above functional centres are passed through a 3-phase algorithm.

Phase 1: All diagnostic and therapeutic functional centres that report workload are entered into a statistical linear regression that uses their labour-adjusted cost per workload unit as the dependent variable and the hospital cohort as the independent variable. This regression is conducted for each type of diagnostic and therapeutic functional centre. All functional centres that pass this regression are deemed to demonstrate a reasonable relationship between workload and labour-adjusted expenses; their allocation to the Inpatient Costs and Other Patient Costs pools is based on their proportion of reported workload by category of service recipient.

Phase 2: All diagnostic and therapeutic functional centres that report service activity are entered into a statistical linear regression that uses their labour-adjusted cost per service activity unit as the dependent variable and the hospital cohort as the independent variable. This regression is conducted for each type of diagnostic and therapeutic functional centre. All functional centres that pass the Phase 2 regression are deemed to demonstrate a reasonable relationship between service activity and labour-adjusted expenses. Functional centres that were ineligible for Phase 1 or that failed Phase 1 use their reported service activity to allocate to the Inpatient Costs and Other Patient Costs pools by category of service recipient.

Phase 3: All diagnostic and therapeutic functional centres with service activity and workload are processed through 3 consecutive models of statistical linear regression, where only those functional centres that pass the prior model are passed on to the subsequent model. The models are as follows:

- Total patient workload per other patient service activity
- Labour-adjusted expenses per total workload unit
- Total patient portion of labour-adjusted expenses per total patient service activity

Those functional centres that pass all 3 regressions are used to calculate a national average inpatient-to-total workload percentage. This percentage is applied to each functional centre that failed Phase 1 and Phase 2 to determine Inpatient Costs and Other Patient Costs pool allocations.

Quebec data that is mapped to most MIS diagnostic and therapeutic functional centres is also allocated to the Inpatient Costs and Other Patient Costs pools via regression models. In essence, statistics pertinent to the specific functional centres are used in the model. For each model and for each functional centre, the independent variable of this regression is the fiscal year and the dependent variable is the cost per statistic. Those functional centres that pass the regression are deemed to demonstrate a reasonable relationship between expenses and the statistic, and use the volume of the statistic by patient category to allocate their expenses to the Inpatient Costs and Other Patient Costs pools. Functional centres that fail this regression are entered into regression models that use alternative types of statistics. If a functional centre fails all regression models, it uses an average inpatient percentage calculated from all Quebec functional centres that passed the initial regression model.

f) Mental health and rehabilitation functional centres

1. For those hospitals where the clinical data can be separated for mental health patients (e.g., when using a distinct institution number in the DAD or reporting to a different database; when the entire facility is a mental health facility), move any reported expenses from the Inpatient Costs pool in 71 2 75* (Mental Health and Addiction Services Nursing Unit) to the Other Patient Costs pool. For all diagnostic and therapeutic functional centres (71 4*) of these same hospitals, determine the portion of the Inpatient Costs pool expenses that belong to mental health inpatients (based on the mental health inpatient expenses as a proportion of the total Inpatient Costs pool expenses) and move this portion to the Other Patient Costs pool. This calculation is performed for the purposes of calculating an acute CSHS. In those cases where either the financial or clinical data for mental health services cannot be separated, the existence of some mental health expenses along with the associated mental health weighted cases should not make a material difference to the CSHS.
2. For those hospitals where the clinical data can be separated for rehabilitation patients (e.g., when using a distinct institution number in the DAD or reporting to a different database; when the entire facility is a rehabilitation facility), move any reported expenses from the Inpatient Costs pool in 71 2 80* (Physical Rehabilitation Services Nursing Unit) to the Other Patient Costs pool. For all diagnostic and therapeutic functional centres (71 4*) of these same hospitals, determine the portion of the Inpatient Costs pool expenses that belong to rehabilitation inpatients (based on the rehabilitation inpatient expense as a proportion of the total Inpatient Costs pool expenses) and move this portion to the Other Patient Costs pool. This calculation is performed for the purposes of calculating an acute CSHS. In those cases where either the financial or clinical data for rehabilitation services cannot be separated, the existence of some rehabilitation expenses along with the associated rehabilitation weighted cases should not make a material difference to the CSHS.

g) Other patient care functional centres

All remaining patient care–related functional centres in the nursing, ambulatory care and diagnostic and therapeutic framework are assigned to the Other Patient Costs pool.

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 2 76	Mental Health Long-Term Care Nursing Unit	No	Yes	No
71 2 92*	Long-Term Care Nursing Unit	No	Yes	No
71 2 96	Contracted-Out Surgical Services	No	Yes	No
71 2 97	Contracted-Out Inpatient Long-Term Care	No	Yes	No
71 3 14	Telephone Health Services	No	Yes	No
71 3 20	Poison and Drug Information Services	No	Yes	No
71 3 96	Contracted-Out Day Surgery Services	No	Yes	No
All 71 5* Accounts	Community Health Services	No	Yes	No

h) Other hospital costs

All expenses in the functional centres listed below are allocated to the Non-Patient Costs pool.

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 7*	Research	No	No	Yes
All 71 8* accounts other than 71 8 40* (In-Service Education)	Education	No	No	Yes
All 71 9* accounts	Undistributed	No	No	Yes

i) Remaining administrative and support functional centres

1. Redistribute Administration and Support Services (71 1*) functional centre expenses to the 3 cost pools (with the exception of 71 1 34, 71 1 75*, 71 1 80*, 71 1 82*, 71 1 85*, 71 1 90* and 71 1 95*), which are allocated to 1 or 2 cost pools depending on the most appropriate allocation, as indicated in Section G based on the share of total expenses for the hospital’s cost pool relative to the total expenses for the hospital.
2. Redistribute Accounting Centre (81 9*) and its share of 71 1* expenses to the 3 cost pools based on the share of total expenses for the hospital’s cost pool relative to the total expenses for the hospital.
3. Allocate In-Service Education (71 8 40*) expenses to the Inpatient Costs and Other Patient Costs pools based on each cost pools’ share of their combined sum at the hospital level.

Detail allocations are listed below.

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
All 71 1* accounts (excluding 71 1 34, 71 1 75*, 71 1 80*, 71 1 82*, 71 1 85*, 71 1 90* and 71 1 95*)	Administration and Support	Allocation	Allocation	Allocation
71 8 40*	In-Service Education	Allocation	Allocation	No
All 81 9* accounts	Undistributed	Allocation	Allocation	Allocation
71 1 34	Emergency Preparedness	No	No	Allocation
71 1 75*	Bio-Medical Engineering/ Medical Physics	Allocation	Allocation	No
71 1 80*	Registration	Allocation	Allocation	No
71 1 82*	Admission/Discharge Coordination	Allocation	No	No
71 1 85*	Service Recipient Transport	No	No	Allocation
71 1 90*	Health Records	Allocation	Allocation	No
71 1 95*	Service Recipient Food Services	Allocation	Allocation	No

4. Total the costs in the Inpatient Costs pool and use this figure to determine the CSHS.

Determining weighted cases

1. Obtain the hospital's acute, rehabilitation and mental health inpatient weighted cases from health records (that were calculated by CIHI using data from the DAD).
2. For cases with a length of stay greater than 365 days, calculate the proportion of the stay that occurred beyond 365 days ($365 \div \text{total length of stay}$). Multiply this proportion by the inpatient RIW and remove the result from the total RIW to adjust for the multi-year inpatient stay.
3. Remove the inpatient weighted cases for mental health inpatients for those hospitals that have matching calculated inpatient costs in functional centre 71 2 75* (i.e., those that are reporting mental health inpatient data to the Ontario Mental Health Reporting System or to the DAD using an institution number that is unique for mental health patients).
4. Remove the inpatient weighted cases for rehabilitation inpatients for those hospitals that have matching calculated inpatient costs in functional centre 71 2 80* (i.e., those that are reporting rehabilitation patient data to the National Rehabilitation Reporting System or to the DAD using an institution number that is unique for rehabilitation patients).

Calculating the CSHS

- a) Match the inpatient cost and weighted case data for each hospital.
- b) Calculate the CSHS:

$$\text{Cost of a Standard Hospital Stay} = \text{Total inpatient costs} \div \text{Total weighted cases}$$

Please note that weighted cases used in these methodologies are grouped using Case Mix Group+ (CMG+) 2022, CIHI's most recent case-mix grouping methodology at the time of this release.

Interpretation

CSHS is an indicator that measures the relative cost-efficiency of a hospital's ability to provide acute inpatient care. This indicator compares a hospital's total acute inpatient care expenses with the number of acute inpatient weighted cases related to the inpatients that it provided care for. The result is the hospital's average full cost of treating the average acute inpatient. A high CSHS indicates a relatively high cost of treating the average acute inpatient; a low CSHS indicates that the cost of treating the average acute inpatient is relatively lower.

Appendices

Appendix A: Allocation statistics used in CIHI’s CSHS methodology, 2020–2021

MIS primary account	Service activity statistic	Secondary statistical account: Inpatient proportion	Secondary statistical account: Total
Phase 1: Workload			
All accounts	Workload	1**1 (excluding 1901*)	1** (excluding 180* and 190*)
Phase 2: Service activity statistics			
71 2 ** (excluding 71 2 6*)	Visits — Face-to-Face	4501*	450*
71 2 6*	Surgical Visits, PARR Visits,	4371*	437*
71 3 6*	Visits — Face-to-Face	4391*	439*
		4501*	450*
71 3 ** (excluding 71 3 6*)	Inpatient Days, Visits — Face-to-Face	4031*	403*
		4501*	450*
71 4 05*	Visits — Face-to-Face	4501*	450*
71 4 10*	Laboratory Interventions, Contracted-Out Laboratory Interventions	4631*	463*
		4651*	465*
		8381*	838*
71 4 15*	In-House Exams —	4571*	457*
71 4 25*	Diagnostic/Therapeutic,	8361*	836*
71 4 30*	Contracted-Out In-House Exams — Diagnostic/Therapeutic		
71 4 20*	In-House Procedures — Therapeutic	4591*	459*
71 4 65*			
71 4 37	Procedures — Perfusion Services, Contracted-Out Procedures	4701*	470*
		8351*	835*

MIS primary account	Service activity statistic	Secondary statistical account: Inpatient proportion	Secondary statistical account: Total
71 4 35*	Attendance Days, Contracted-Out Attendance Days	4831*	483*
71 4 40*		8341*	834*
71 4 45			
71 4 50			
71 4 55*			
71 4 60*			
71 4 70*			
71 4 75*			
71 4 76			
71 4 80			
71 4 85			
71 4 90			

Appendix B: Levels 4 and 5 minimum reporting primary accounts

Table B1 Inpatient nursing units

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 2 40 10	Medical Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 20	Surgical Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 25	Trauma Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 30	Combined Medical/Surgical Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 35	Burn Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 40	Cardiac Surgery Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 45	Coronary Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 50	Neonatal Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 60	Neurosurgery Intensive Care Nursing Unit	Yes	Potentially	No

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 2 40 70	Pediatric Intensive Care Nursing Unit	Yes	Potentially	No
71 2 40 80	Respirology Intensive Care Nursing Unit	Yes	Potentially	No
71 2 50 20	Obstetrical Suite (Labour and Delivery)	Yes	Potentially	No
71 2 50 40	Ante/Postpartum Nursing Unit	Yes	Potentially	No
71 2 50 60	Combined Care Obstetrical Nursing Unit	Yes	Potentially	No
71 2 50 80	Nursery	Yes	Potentially	No
71 2 50 90	Labour, Delivery, Recovery, Postpartum Nursing Unit	Yes	Potentially	No
71 2 75 20	Mental Health General Nursing Unit	Yes	Potentially	No
71 2 75 40	Addiction Services Nursing Unit	Yes	Potentially	No
71 2 75 60	Mental Health Forensic Nursing Unit	Yes	Potentially	No
71 2 75 70	Mental Health Geriatric Nursing Unit	Yes	Potentially	No
71 2 75 80	Mental Health Crisis Nursing Unit	Yes	Potentially	No
71 2 75 90	Mental Health Rehabilitation Nursing Unit	Yes	Potentially	No
71 2 75 95	Mental Health and Addiction Services Combined Nursing Unit	Yes	Potentially	No

Table B2 Specified ambulatory care functional centres

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 3 40 05	General Specialty Day/Night Care	Potentially	Yes	No
71 3 40 10	Medical Specialty Day/Night Care	Potentially	Yes	No
71 3 40 35	Cardiac Specialty Day/Night Care	Potentially	Yes	No
71 3 40 37	Cardiac Catheterization Laboratory — Specialty Day/Night Care	Potentially	Yes	No
71 3 40 50	Diabetes Specialty Day/Night Care	Potentially	Yes	No

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 3 40 55	Endoscopy Specialty Day/Night Care	Potentially	Yes	No
71 3 40 60	Geriatric Specialty Day/Night Care	Potentially	Yes	No
71 3 40 65	Metabolic Specialty Day/Night Care	Potentially	Yes	No
71 3 40 70	Oncology Specialty Day/Night Care	Potentially	Yes	No
71 3 40 75	Palliative Specialty Day/Night Care	Potentially	Yes	No
71 3 40 80	Mental Health and Addiction Services Specialty Day/ Night Care	Potentially	Yes	No
71 3 40 82	Mental Health Specialty Day/Night Care	Potentially	Yes	No
71 3 40 84	Addiction Services Specialty Day/Night Care	Potentially	Yes	No
71 3 40 85	Renal Dialysis Specialty Day/Night Care	Potentially	Yes	No
71 3 40 90	Rehabilitation Specialty Day/Night Care	Potentially	Yes	No
71 3 50 10	Medical Specialty Clinic	Potentially	Yes	No
71 3 50 15	Surgical Specialty Clinic	Potentially	Yes	No
71 3 50 17	Combined Medical/Surgical Specialty Clinic	Potentially	Yes	No
71 3 50 20	Cardiac Specialty Clinic	Potentially	Yes	No
71 3 50 25	Family Practice Specialty Clinic	Potentially	Yes	No
71 3 50 30	Geriatric Specialty Clinic	Potentially	Yes	No
71 3 50 35	Gynecology Specialty Clinic	Potentially	Yes	No
71 3 50 40	Metabolic Specialty Clinic	Potentially	Yes	No
71 3 50 43	Endocrinology Specialty Clinic	Potentially	Yes	No
71 3 50 45	Neurology Specialty Clinic	Potentially	Yes	No
71 3 50 50	Obstetrics Specialty Clinic	Potentially	Yes	No
71 3 50 55	Oncology Specialty Clinic	Potentially	Yes	No
71 3 50 60	Ophthalmology Specialty Clinic	Potentially	Yes	No
71 3 50 65	Orthopedic Specialty Clinic	Potentially	Yes	No
71 3 50 70	Pediatric Specialty Clinic	Potentially	Yes	No
71 3 50 75	Plastic Specialty Clinic	Potentially	Yes	No

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 3 50 80	Mental Health and Addiction Services Specialty Clinic	Potentially	Yes	No
71 3 50 82	Mental Health Specialty Clinic	Potentially	Yes	No
71 3 50 84	Addiction Services Specialty Clinic	Potentially	Yes	No
71 3 50 85	Rehabilitation Specialty Clinic	Potentially	Yes	No
71 3 50 95	Rheumatology Specialty Clinic	Potentially	Yes	No

Table B3 Diagnostic and therapeutic functional centres

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 4 05 90	Diagnostic and Therapeutic Nursing — Other	Potentially	Potentially	No
71 4 05 15 05	General Medical Imaging Nursing	Potentially	Potentially	No
71 4 05 15 24	Interventional Radiology Nursing	Potentially	Potentially	No
71 4 05 15 25	Computed Tomography Nursing	Potentially	Potentially	No
71 4 05 15 55	Cardiac Catheterization Diagnostic Services Nursing	Potentially	Potentially	No
71 4 05 15 60	Positron Emission Tomography/Computed Tomography (PET/CT) Nursing	Potentially	Potentially	No
71 4 05 15 65	Medical Imaging Recovery Room Nursing	Potentially	Potentially	No
71 4 05 15 70	Magnetic Resonance Imaging Nursing	Potentially	Potentially	No
71 4 10 21	Pre/Post Analysis	Potentially	Potentially	No
71 4 10 25	Clinical Chemistry	Potentially	Potentially	No
71 4 10 30	Clinical Hematology	Potentially	Potentially	No
71 4 10 35	Transfusion Medicine	Potentially	Potentially	No
71 4 10 41	Anatomical Pathology	Potentially	Potentially	No
71 4 10 42	Cytopathology	Potentially	Potentially	No
71 4 10 43	Electron Microscopy	Potentially	Potentially	No
71 4 10 45	Clinical Microbiology	Potentially	Potentially	No
71 4 10 50	Immunology	Potentially	Potentially	No
71 4 10 60	Histocompatibility and Immunogenetics	Potentially	Potentially	No
71 4 10 85	Diagnostic Genetics	Potentially	Potentially	No

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 4 10 90	Multi-Functional Laboratories (Core Lab)	Potentially	Potentially	No
71 4 15 18	General Radiography	Potentially	Potentially	No
71 4 15 20	Mammography	Potentially	Potentially	No
71 4 15 24	Interventional Radiology	Potentially	Potentially	No
71 4 15 25	Computed Tomography	Potentially	Potentially	No
71 4 15 30	Ultrasound	Potentially	Potentially	No
71 4 15 35	Nuclear Medicine	Potentially	Potentially	No
71 4 15 55	Cardiac Catheterization Diagnostic Services	Potentially	Potentially	No
71 4 15 60	Positron Emission Tomography/Computed Tomography (PET/CT)	Potentially	Potentially	No
71 4 15 70	Magnetic Resonance Imaging	Potentially	Potentially	No
71 4 15 80	Multi-Functional Medical Imaging	Potentially	Potentially	No
71 4 35 20	Acute/Critical Care Respiratory Services	Potentially	Potentially	No
71 4 35 30	Hyperbaric Chamber	Potentially	Potentially	No
71 4 35 42	Pulmonary Function Laboratory	Potentially	Potentially	No
71 4 35 45 (inactive as of 2016)	Blood Gas Laboratory	Potentially	Potentially	No
71 4 35 50	Anesthesia Respiratory Services	Potentially	Potentially	No
71 4 35 60 (inactive as of 2016)	Perfusion	Potentially	Potentially	No
71 4 35 65	Continuing Respiratory Disease Services	Potentially	Potentially	No
71 4 35 70	Multi-Functional Respiratory Services	Potentially	Potentially	No
71 4 40 60	Clinical Pharmacy	Potentially	Potentially	No
71 4 40 70	Drug Procurement and Distribution	Potentially	Potentially	No

Table B4 Other hospital costs

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 2 92 10	Intermediate Long-Term Care Nursing Unit	No	Yes	No
71 2 92 20	Chronic Long-Term Care Nursing Unit	No	Yes	No
71 2 92 22	Combined Intermediate/Chronic Long-Term Care Nursing Unit	No	Yes	No
71 2 92 25	Secure Long-Term Care Nursing Unit	No	Yes	No
71 2 92 40 (inactive as of 2016)	Respite Long-Term Care Nursing Unit	No	Yes	No
71 5 35 10	Homemaking Services	No	Yes	No
71 5 35 20	Home Maintenance/ Adaptation Services	No	Yes	No
71 5 35 30	Personal Care Services	No	Yes	No
71 5 35 40	Respite Home Support	No	Yes	No
71 5 35 50	Homemaking and Personal Care Services	No	Yes	No
71 5 70 09	Mental Health Community Case Management	No	Yes	No
71 5 70 10	Mental Health Community Clinics/Programs	No	Yes	No
71 5 70 15	Mental Health Community Crisis Intervention	No	Yes	No
71 5 70 20	Mental Health Community Day/Night Care	No	Yes	No
71 5 70 32	Mental Health — Home Health	No	Yes	No
71 5 70 50	Mental Health — Health Promotion and Education	No	Yes	No
71 5 70 92	Mental Health Residential Care Unit	No	Yes	No
71 5 70 95	Mental Health — Housing and Support Services	No	Yes	No
71 5 75 09	Addiction Services Community Case Management	No	Yes	No
71 5 75 10	Addiction Services Community Clinics/Programs	No	Yes	No

Account number	Description	Inpatient Costs	Other Patient Costs	Non-Patient Costs
71 5 75 15	Addiction Services Community Crisis Intervention	No	Yes	No
71 5 75 20	Addiction Services Community Day/Night Care	No	Yes	No
71 5 75 32	Addiction Services Home Health	No	Yes	No
71 5 75 50	Addiction Services Health Promotion and Education	No	Yes	No
71 5 75 89	Withdrawal Management Services — Residential Treatment — Short-Term	No	Yes	No
71 5 75 90	Withdrawal Management Services Residential Care Unit	No	Yes	No
71 5 75 91	Addiction Services — Residential Treatment — Pre-Treatment Stabilization	No	Yes	No
71 5 75 92	Addiction Services Residential Care Unit	No	Yes	No
71 5 75 94	Addiction Services — Residential Treatment — Supportive Treatment	No	Yes	No
71 5 75 95	Addiction Services — Housing and Support Services	No	Yes	No
71 5 92 10	Intermediate Residential Care Unit	No	Yes	No
71 5 92 20	Chronic Residential Care Unit	No	Yes	No
71 5 92 22	Combined Intermediate/Chronic Residential Care Unit	No	Yes	No
71 5 92 25	Secure Residential Unit	No	Yes	No
71 5 92 30	Supervisory/Limited Personal Care Unit	No	Yes	No
71 5 92 40 (inactive as of 2016)	Respite Care Unit	No	Yes	No



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