

Quality Standards

Indicator Technical Specifications for the Quality Standard *Hip Fracture: Care for People With Fragility Fractures*

Technical Appendix

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**Health Quality
Ontario**

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This technical appendix is intended to accompany Health Quality Ontario's Quality Standard *Hip Fracture*. Early in development of each quality standard, a few health outcomes are chosen as the most important measures of success for the entire standard. These outcomes are mapped to indicators that reflect the goals of the standard. These outcomes and associated indicators guide development of the quality standard so that every statement within the standard aids in achieving the chosen outcomes. This appendix includes information on definitions and technical details of indicators listed below and includes data sources for indicators that can be consistently measured across providers and at the provincial level. For information on the process and structural indicators identified to support the standard, please see the clinical guide to the Quality Standard.

Outcome Indicators for Measuring Success

- Percentage of patients who undergo surgery for hip fracture who die within 30 days or within 90 days of surgery (Table 1)
- Percentage of patients who undergo surgery for hip fracture who return to prefracture functional status within 90 days or by 6 months after surgery (Table 2)
- Percentage of patients who undergo surgery for hip fracture who achieve weight bearing as tolerated within 24 hours of surgery (Table 3)
- Percentage of patients who undergo surgery for hip fracture who are readmitted to hospital within 30 days or within 90 days of surgery (Table 4)
- Percentage of previously community-dwelling patients who undergo surgery for hip fracture who return to the community (Table 5)

Outcome Indicators

Table 1: Percentage of patients who undergo surgery for hip fracture who die within 30 days or within 90 days of surgery

GENERAL DESCRIPTION	Indicator description	Percentage of adults who undergo surgery for fragility hip fracture who die within 30 days or within 90 days of surgery Directionality: Lower percentages are better
	Indicator status	Measured
	Dimensions of quality	Safety, effectiveness
	Type	Outcome
DEFINITION AND SOURCE INFORMATION	Calculation	<p>Denominator Total number of adults admitted to hospital with primary diagnosis of fragility hip fracture who undergo surgery for hip fracture</p> <p>Inclusions <i>Age ≥ 18</i> <i>Diagnosis codes</i> S72.0 Fracture of neck of femur</p> <ul style="list-style-type: none"> • S72.01 Fracture of base of femoral neck (cervicotrochanteric) <ul style="list-style-type: none"> ○ S72.010 (closed) ○ S72.011 (open) • S72.08 Other fracture of femoral neck (includes intracapsular and subcapital fracture of femur) <ul style="list-style-type: none"> ○ S72.080 (closed) ○ S72.081 (open) • S72.09 Unspecified fracture of neck of femur (includes transcervical fracture of femur) <ul style="list-style-type: none"> ○ S72.090 (closed) ○ S72.091 (open) <p>S72.1 Pertrochanteric fracture (includes intertrochanteric, multiple pertrochanteric, and trochanteric fractures)</p> <ul style="list-style-type: none"> • S72.10 Intertrochanteric fracture <ul style="list-style-type: none"> ○ S72.100 Intertrochanteric fracture (closed) ○ S72.101 Intertrochanteric fracture (open) • S72.19 Unspecified trochanteric fracture <ul style="list-style-type: none"> ○ S72.190 Unspecified trochanteric fracture (closed) ○ S72.191 Unspecified trochanteric fracture (open) <p>S72.2 Subtrochanteric fracture</p> <ul style="list-style-type: none"> ○ S72.200 Subtrochanteric fracture (closed) ○ S72.201 Subtrochanteric fracture (open) <p>Exclusions</p> <ul style="list-style-type: none"> • Fracture of upper femoral epiphysis (ICD-10-CA diagnosis code S72.00) • Cases where hip fracture is only a secondary diagnosis • Cases where surgery is not provided as treatment

		<p>Numerator Number of people in denominator who died</p> <ul style="list-style-type: none"> • Within 30 days of surgery OR • Within 90 days of surgery <p>Method Numerator ÷ Denominator × 100</p>
	Data sources	DAD, RPDB, Vital Statistics
	Risk adjustment, age/sex standardization	Reported as crude rates. Risk adjustment needs further investigation
GEOGRAPHY AND TIMING	Timing and frequency of data release	Annual
	Levels of comparability	Provincial, regional, provider level, and patient characteristics
ADDITIONAL INFORMATION	Limitations	
	Comments	
	Alignment	Provincial Hip Fracture Score Card

Abbreviations: DAD, Discharge Abstract Database; ICD-10-CA, enhanced Canadian version of 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*; RPDB, Registered Persons Data Base.

Table 2: Percentage of patients who undergo surgery for hip fracture who return to prefracture functional status within 90 days or by 6 months after surgery

GENERAL DESCRIPTION	Indicator description	Percentage of adults who undergo surgery for fragility hip fracture who return to their prefracture functional status within 90 days or by 6 months after surgery Directionality: Higher percentages are better
	Indicator status	Developmental
	Dimensions of quality	Effectiveness, patient-centred
	Type	Outcome
DEFINITION AND SOURCE INFORMATION	Calculation	<p>Denominator Total number of adults admitted to hospital with primary diagnosis of fragility hip fracture who undergo surgery for hip fracture</p> <p>Inclusions <i>Age ≥ 18</i> <i>Diagnosis codes</i> S72.0 Fracture of neck of femur</p> <ul style="list-style-type: none"> • S72.01 Fracture of base of femoral neck (cervicotrochanteric) <ul style="list-style-type: none"> ○ S72.010 (closed) ○ S72.011 (open) • S72.08 Other fracture of femoral neck (includes intracapsular and subcapital fracture of femur) <ul style="list-style-type: none"> ○ S72.080 (closed) ○ S72.081 (open) • S72.09 Unspecified fracture of neck of femur (includes transcervical fracture of femur) <ul style="list-style-type: none"> ○ S72.090 (closed) ○ S72.091 (open) <p>S72.1 Pertrochanteric fracture (includes intertrochanteric, multiple pertrochanteric, and trochanteric fractures)</p> <ul style="list-style-type: none"> • S72.10 Intertrochanteric fracture <ul style="list-style-type: none"> ○ S72.100 Intertrochanteric fracture (closed) ○ S72.101 Intertrochanteric fracture (open) • S72.19 Unspecified trochanteric fracture <ul style="list-style-type: none"> ○ S72.190 Unspecified trochanteric fracture (closed) ○ S72.191 Unspecified trochanteric fracture (open) <p>S72.2 Subtrochanteric fracture</p> <ul style="list-style-type: none"> ○ S72.200 Subtrochanteric fracture (closed) ○ S72.201 Subtrochanteric fracture (open) <p>Exclusions</p> <ul style="list-style-type: none"> • Fracture of upper femoral epiphysis (ICD-10-CA diagnosis code S72.00) • Cases where hip fracture is only a secondary diagnosis • Cases where surgery is not provided as treatment

		<p>Numerator Number of people in denominator who return to their prefracture functional status within 90 days or by 6 months after surgery</p> <p>Method $\text{Numerator} \div \text{Denominator} \times 100$</p>
	Data source	Developmental
	Risk adjustment, age/sex standardization	Not currently reported
GEOGRAPHY AND TIMING	Timing and frequency of data release	
	Levels of comparability	
ADDITIONAL INFORMATION	Limitations	
	Comments	Currently not measured. Postfracture functional status might be available through rehabilitation data sources, but current collection of data on prefracture status is unreliable
	Alignment	

Abbreviation: ICD-10-CA, enhanced Canadian version of 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*.

Table 3: Percentage of patients who undergo surgery for hip fracture who achieve weight bearing as tolerated within 24 hours of surgery

GENERAL DESCRIPTION	Indicator description	Percentage of adults who undergo surgery for fragility hip fracture who achieve weight bearing as tolerated within 24 hours of surgery Directionality: Higher percentages are better
	Indicator status	Developmental
	Dimensions of quality	Effectiveness, safety
	Indicator type	Outcome
DEFINITION AND SOURCE INFORMATION	Calculation	<p>Denominator Total number of adults admitted to hospital with primary diagnosis of fragility hip fracture who undergo surgery for hip fracture</p> <p>Inclusions Age ≥ 18 Diagnosis codes S72.0 Fracture of neck of femur</p> <ul style="list-style-type: none"> • S72.01 Fracture of base of femoral neck (cervicotrochanteric) <ul style="list-style-type: none"> ○ S72.010 (closed) ○ S72.011 (open) • S72.08 Other fracture of femoral neck (includes intracapsular and subcapital fracture of femur) <ul style="list-style-type: none"> ○ S72.080 (closed) ○ S72.081 (open) • S72.09 Unspecified fracture of neck of femur (includes transcervical fracture of femur) <ul style="list-style-type: none"> ○ S72.090 (closed) ○ S72.091 (open) <p>S72.1 Pertrochanteric fracture (includes intertrochanteric, multiple pertrochanteric, and trochanteric fractures)</p> <ul style="list-style-type: none"> • S72.10 Intertrochanteric fracture <ul style="list-style-type: none"> ○ S72.100 Intertrochanteric fracture (closed) ○ S72.101 Intertrochanteric fracture (open) • S72.19 Unspecified trochanteric fracture <ul style="list-style-type: none"> ○ S72.190 Unspecified trochanteric fracture (closed) ○ S72.191 Unspecified trochanteric fracture (open) <p>S72.2 Subtrochanteric fracture</p> <ul style="list-style-type: none"> ○ S72.200 Subtrochanteric fracture (closed) ○ S72.201 Subtrochanteric fracture (open) <p>Exclusions</p> <ul style="list-style-type: none"> • Fracture of upper femoral epiphysis (ICD-10-CA diagnosis code S72.00) • Cases where hip fracture is only a secondary diagnosis • Cases where surgery is not provided as treatment

		<p>Numerator Number of people in denominator who achieved weight bearing as tolerated within 24 hours of surgery</p> <p>Method $\text{Numerator} \div \text{Denominator} \times 100$</p>
	Potential data sources	Local data collection, chart audit
	Risk adjustment, age/sex standardization	Not currently reported
GEOGRAPHY AND TIMING	Timing and frequency of data release	
	Levels of comparability	
ADDITIONAL INFORMATION	Limitations	
	Comments	Currently not measured, and would rely on local chart collection
	Alignment	

Abbreviation: ICD-10-CA, enhanced Canadian version of 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*.

Table 4: Percentage of patients who undergo surgery for hip fracture who are readmitted to hospital within 30 days or within 90 days of surgery

GENERAL DESCRIPTION	Indicator description	Percentage of adults who undergo surgery for fragility hip fracture who are readmitted to hospital within 30 days or within 90 days of surgery Directionality: Lower percentages are better
	Indicator status	Measurable
	Dimensions of quality	Effectiveness, safety
	Indicator type	Outcome
DEFINITION AND SOURCE INFORMATION	Calculation	<p>Denominator Total number of adults admitted to hospital with primary diagnosis of fragility hip fracture who undergo surgery for hip fracture</p> <p>Inclusions Age ≥ 18 Diagnosis codes S72.0 Fracture of neck of femur</p> <ul style="list-style-type: none"> • S72.01 Fracture of base of femoral neck (cervicotrochanteric) <ul style="list-style-type: none"> ○ S72.010 (closed) ○ S72.011 (open) • S72.08 Other fracture of femoral neck (includes intracapsular and subcapital fracture of femur) <ul style="list-style-type: none"> ○ S72.080 (closed) ○ S72.081 (open) • S72.09 Unspecified fracture of neck of femur (includes transcervical fracture of femur) <ul style="list-style-type: none"> ○ S72.090 (closed) ○ S72.091 (open) <p>S72.1 Pertrochanteric fracture (includes intertrochanteric, multiple pertrochanteric, and trochanteric fractures)</p> <ul style="list-style-type: none"> • S72.10 Intertrochanteric fracture <ul style="list-style-type: none"> ○ S72.100 Intertrochanteric fracture (closed) ○ S72.101 Intertrochanteric fracture (open) • S72.19 Unspecified trochanteric fracture <ul style="list-style-type: none"> ○ S72.190 Unspecified trochanteric fracture (closed) ○ S72.191 Unspecified trochanteric fracture (open) <p>S72.2 Subtrochanteric fracture</p> <ul style="list-style-type: none"> ○ S72.200 Subtrochanteric fracture (closed) ○ S72.201 Subtrochanteric fracture (open) <p>Exclusions</p> <ul style="list-style-type: none"> • Fracture of upper femoral epiphysis (ICD-10-CA diagnosis code S72.00) • Cases where hip fracture is only a secondary diagnosis • Cases where surgery is not provided as treatment • Cases where patients died before they could have been re-admitted

		<p>Numerator Number of people in denominator who are nonelectively readmitted to hospital within 30 days or within 90 days of their surgery</p> <p>Method Numerator ÷ Denominator × 100</p>
	Data source	DAD
	Risk adjustment, age/sex standardization	Reported as crude rates. Risk adjustment needs further investigation
GEOGRAPHY AND TIMING	Timing and frequency of data release	
	Levels of comparability	
ADDITIONAL INFORMATION	Limitations	
	Comments	Currently not reported
	Alignment	

Abbreviations: DAD, Discharge Abstract Database; ICD-10-CA, enhanced Canadian version of 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*.

Table 5: Percentage of previously community-dwelling patients who undergo surgery for hip fracture who return to the community

GENERAL DESCRIPTION	Indicator description	Percentage of adults who undergo surgery for fragility hip fracture who were community dwelling before their fracture and who return to the community after surgery Directionality: Higher percentages are better
	Indicator status	Measurable
	Dimension of quality	Effectiveness
	Indicator type	Outcome
DEFINITION AND SOURCE INFORMATION	Calculation	<p>Denominator Total number of adults admitted to hospital from community with primary diagnosis of fragility hip fracture who undergo surgery for hip fracture</p> <p>Inclusions <i>Age ≥ 18</i> <i>Diagnosis codes</i> S72.0 Fracture of neck of femur</p> <ul style="list-style-type: none"> • S72.01 Fracture of base of femoral neck (cervicotrochanteric) <ul style="list-style-type: none"> ○ S72.010 (closed) ○ S72.011 (open) • S72.08 Other fracture of femoral neck (includes intracapsular and subcapital fracture of femur) <ul style="list-style-type: none"> ○ S72.080 (closed) ○ S72.081 (open) • S72.09 Unspecified fracture of neck of femur (includes transcervical fracture of femur) <ul style="list-style-type: none"> ○ S72.090 (closed) ○ S72.091 (open) <p>S72.1 Pertrochanteric fracture (includes intertrochanteric, multiple pertrochanteric, and trochanteric fractures)</p> <ul style="list-style-type: none"> • S72.10 Intertrochanteric fracture <ul style="list-style-type: none"> ○ S72.100 Intertrochanteric fracture (closed) ○ S72.101 Intertrochanteric fracture (open) • S72.19 Unspecified trochanteric fracture <ul style="list-style-type: none"> ○ S72.190 Unspecified trochanteric fracture (closed) ○ S72.191 Unspecified trochanteric fracture (open) <p>S72.2 Subtrochanteric fracture</p> <ul style="list-style-type: none"> ○ S72.200 Subtrochanteric fracture (closed) ○ S72.201 Subtrochanteric fracture (open) <p>Exclusions</p> <ul style="list-style-type: none"> • Fracture of upper femoral epiphysis (ICD-10-CA diagnosis code S72.00) • Cases where hip fracture is only a secondary diagnosis • Cases where surgery is not provided as treatment

		<ul style="list-style-type: none"> Cases where patients were transferred to or admitted to hospital from long-term care homes <p>Numerator Number of people in denominator who return to community after hip fracture surgery</p> <p>Method $\text{Numerator} \div \text{Denominator} \times 100$</p>
	Data sources	DAD, NRS (for patients who receive inpatient rehabilitation before being discharged)
	Risk adjustment, age/sex standardization	Reported as crude rates. Risk adjustment needs further investigation
GEOGRAPHY AND TIMING	Timing and frequency of data release	
	Levels of comparability	
ADDITIONAL INFORMATION	Limitations	
	Comments	Not currently reported
	Alignment	

Abbreviations: DAD, Discharge Abstract Database; ICD-10-CA, enhanced Canadian version of 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*; NRS, National Rehabilitating Reporting System.