

Health Quality Ontario

The provincial advisor on the quality of health care in Ontario

Indicator Technical Specifications for the Quality Standard *Diabetic Foot Ulcers: Care for Patients in All Settings*

Technical Appendix

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Technical Appendix Overview: Diabetic Foot Ulcer

This technical appendix accompanies Health Quality Ontario's Quality Standard *Diabetic Foot Ulcers: Care for Patients in All Settings*. Early in the development of each quality standard, a small number of performance indicators are chosen to measure the success of the entire standard. These indicators guide the development of the quality standard so that every statement within the standard aids in achieving the standard's overall goals. This appendix includes information on the definitions and technical details of the indicators listed below, including data sources for indicators that can be consistently measured across providers, across the sectors of health care, and at the provincial level.

- Percentage of patients with a new diabetic foot ulcer in a 6-month period (incidence)
- Percentage of patients with a diabetic foot ulcer in a 6-month period (prevalence)
- Percentage of patients with a closed diabetic foot ulcer in a 12-week period
- Percentage of patients with a healed diabetic foot ulcer who were diagnosed with a secondary diabetic foot ulcer within 1 year (recurrence)
- Percentage of patients with a diabetic foot ulcer who had a lower-extremity amputation in a 6-month period
- Percentage of patients with a diabetic foot ulcer in a 12-month period who reported high satisfaction with the care provided

Indicators are categorized as:

- Currently measurable in Ontario or similar health systems (the indicator is well defined and validated); or
- Developmental (the indicator is not well defined, and data sources do not currently exist to measure it consistently across providers and at the system level).

Quality Standard Scope

This quality standard focuses on care for people who are at risk of developing or who have developed a diabetic foot ulcer (neuropathic, ischemic, or neuroischemic). The scope of the standard covers all settings, including primary care, home care, long-term care, and acute care. It also provides guidance on care when a person is transitioned between these settings—for example, when someone is discharged from a hospital to their home or a long-term care home. It is one of three quality standards related to wound care; the other two are for pressure injuries and venous leg ulcers.

In this quality standard, the term *patient* includes community care clients and residents of long-term care homes.

Questions or Comments?

Please email: info@HQOntario.ca

Currently Measureable Indicators

The following three indicators are currently measureable in at least one sector (acute care) of Ontario’s health care system:

- Percentage of patients with a new diabetic foot ulcer in a 6-month period (incidence)
- Percentage of patients with a diabetic foot ulcer in the previous 6 months (prevalence)
- Percentage of patients with a diabetic foot ulcer who had a lower-extremity amputation in a 6-month period

Methodological details are as follows:

Table 1: Percentage of patients with a new diabetic foot ulcer in a 6-month period (incidence)

GENERAL DESCRIPTION	Indicator description	The percentage of patients with diabetes who developed a diabetic foot ulcer in a 6-month period Directionality: A lower percentage is better
	Indicator status	Measureable in acute care and acute inpatient rehabilitation Developmental in primary care, home care, long-term care, and complex continuing care
	Dimensions of quality	Effective
DEFINITION & SOURCE INFORMATION	Calculation: General	Denominator Number of patients with a diagnosis of diabetes (any type) Numerator Number of patients with a diagnosis of diabetes (any type) with a newly diagnosed diabetic foot ulcer within the prior 6 months <i>Exclusions</i> Patients with any hospitalization within the past 6 months with a diabetic foot ulcer diagnosis Method $\text{Numerator/denominator} \times 100$
	Calculation: Acute care	Denominator Total number of patients discharged from an acute care facility within the past 6 months with a diagnosis of diabetes <i>Inclusions</i> Diagnosis code in ICD-10-CA: E10.0^, E10.1^, E10.63, E10.64, E10.9^, E11.0^, E11.1^, E11.63, E11.9^, E13.0^, E13.1^, E13.63, E13.9^, E14.0^, E14.1^, E14.63, E14.9^, E11.64, E13.64, E14.64, E14.9 Numerator Number of patients in the denominator with a diagnostic code for diabetic foot ulcer within a 6-month period

		<p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> • E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene • E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene • E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p><i>Exclusions</i> Patients with a pre-admit (diagnosis type 1 or 2) diabetic foot ulcer</p> <p>Method Numerator/denominator × 100</p> <p>Data source: Discharge Abstract Database</p>
Calculation: Acute rehabilitation		<p>Denominator Total number of patients with diabetes discharged from an acute inpatient rehabilitation care facility within the past 6 months</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA: E10.0[^], E10.1[^], E10.63, E10.64, E10.9[^], E11.0[^], E11.1[^], E11.63, E11.9[^], E13.0[^], E13.1[^], E13.63, E13.9[^], E14.0[^], E14.1[^], E14.63, E14.9[^], E11.64, E13.64, E14.64, E14.9</p> <p>Numerator Number of patients in the denominator with a post-admit comorbid health condition diagnostic code for diabetic foot ulcer</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> • E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene • E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene

		<ul style="list-style-type: none"> • E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene • E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p><i>Exclusions</i> Patients with a diabetic foot ulcer (coded as most responsible health condition or pre-admit comorbid health condition) on their previous assessment or visit</p> <p>Method Numerator/denominator × 100</p> <p>Data source: National Rehabilitation Reporting System</p>
	Calculation: Home care	<p>Denominator Total number of patients with diagnosed diabetes who have received home care services for at least 6 months</p> <p>Numerator Number of patients in the denominator with diagnostic code for diabetic foot ulcer</p> <p><i>Exclusions</i> Patients with a diabetic foot ulcer on their previous assessment Patients whose diabetic foot ulcer formed while in another care setting, e.g., in acute care</p> <p>Method Numerator/denominator × 100</p> <p>Data source: local data collection; could be identified by linking diagnosis coding in the Client Health and Related Information System (CHRIS)</p> <p>Potential adjustments: Home care: activities of daily living (ADL) impairment (ADL hierarchy score = 4, 5, 6 vs. 0, 1, 2, 3)</p>

<p>Calculation: Long-term care and complex continuing care</p>	<p>Calculation: Long-term care and complex continuing care</p>	<p>Denominator Total number of long-term care residents or complex continuing care patients</p> <p>Numerator Number of patients in the denominator with a diagnostic code for diabetic foot ulcer</p> <p><i>Exclusions</i> Patients with a diabetic foot ulcer on their previous assessment Patients whose diabetic foot ulcer formed while in another care setting, e.g., in acute care</p> <p>Method Numerator/denominator × 100</p> <p>Data source: Continuing Care Reporting System</p> <p>Potential adjustments: Resource utilization group (RUG), late loss activities of daily living (ADL), standardization with the case mix index (CMI)</p>
<p>Calculation: Primary care</p>	<p>Calculation: Primary care</p>	<p>Denominator Total number of unique patients rostered who you have seen in your practice within the past 6 months</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA: E10.0^, E10.1^, E10.63, E10.64, E10.9^, E11.0^, E11.1^, E11.63, E11.9^, E13.0^, E13.1^, E13.63, E13.9^, E14.0^, E14.1^, E14.63, E14.9^, E11.64, E13.64, E14.64, E14.9</p> <p>Numerator Number of patients in the denominator with a comorbid health condition diagnostic code for diabetic foot ulcer</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> • E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene • E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene • E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*)

		<ul style="list-style-type: none"> • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p><i>Exclusions</i> Patients with a diabetic foot ulcer in the previous 6 months</p> <p>Method Numerator/denominator × 100</p> <p>Data source: Ontario Health Insurance Plan Claims Database</p>
GEOGRAPHY & TIMING	Levels of comparability	Overall province, LHIN, sub-LHIN region, patient characteristics (subject to sample size)
ADDITIONAL INFORMATION	Comments	<p>The indicator only captures new diabetic foot ulcers. If a patient develops a secondary diabetic foot ulcer while the first injury has not healed or within 6 months of a previous ulcer, this will not be counted in the indicator.</p> <p>This indicator measures incidence, so it is a measure of prevention, not treatment.</p> <p>Patients with undiagnosed diabetes are not captured in the denominator.</p>

Abbreviations: ICD, International Classification of Diseases; LHIN, local health integration network.

Table 2: Percentage of patients with a diabetic foot ulcer in a 6-month period (prevalence)

GENERAL DESCRIPTION	Indicator description	The percentage of patients with diabetes and a diabetic foot ulcer in the previous 6 months Directionality: A lower percentage is better
	Indicator status	Measureable in acute care and acute inpatient rehabilitation Developmental in primary care, home care, long-term care, and complex continuing care
	Dimensions of quality	Effective
DEFINITION & SOURCE INFORMATION	Calculation: General	<p>Denominator Total number of patients with diabetes</p> <p>Numerator Number of patients with diabetes with a documented diabetic foot ulcer within the prior 6 months</p>

		<p><i>Exclusions</i> Patients with a diabetic foot ulcer on their previous assessment</p> <p>Method Numerator/denominator × 100</p>
Calculation: Acute care	<p>Denominator Total number of patients discharged from an acute care facility within the past 6 months with a diagnosis of diabetes</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA: E10.0^, E10.1^, E10.63, E10.64, E10.9^, E11.0^, E11.1^, E11.63, E11.9^, E13.0^, E13.1^, E13.63, E13.9^, E14.0^, E14.1^, E14.63, E14.9^, E11.64, E13.64, E14.64, E14.9</p> <p>Numerator Number of patients in the denominator with a pre- or post-admit diagnostic code for diabetic foot ulcer</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> • E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene • E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene • E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p>Method Numerator/denominator × 100</p> <p>Data source: Discharge Abstract Database</p>	
Calculation: Acute rehabilitation	<p>Denominator Total number of patients with diabetes discharged from an acute inpatient rehabilitation care facility within the past 6 months</p>	

		<p><i>Inclusions</i> Diagnosis code in ICD-10-CA: E10.0^, E10.1^, E10.63, E10.64, E10.9^, E11.0^, E11.1^, E11.63, E11.9^, E13.0^, E13.1^, E13.63, E13.9^, E14.0^, E14.1^, E14.63, E14.9^, E11.64, E13.64, E14.64, E14.9</p> <p>Numerator Number of patients in the denominator with a most responsible health condition, pre-admit comorbid health condition or post-admit comorbid health condition diagnostic code for diabetic foot ulcer</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> • E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene • E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene • E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p>Method Numerator/denominator × 100</p> <p>Data source: National Rehabilitation Reporting System</p>
	<p>Calculation: Home care</p>	<p>Denominator Total number of patients with diabetes who have received home care services for at least 6 months</p> <p>Numerator Number of patients in the denominator with a diabetic foot ulcer</p> <p>Method Numerator/denominator × 100</p>

		<p>Data source: local data collection; could be identified by linking diagnosis coding in the Client Health and Related Information System (CHRIS)</p> <p>Potential adjustments: Home care: activities of daily living (ADL) impairment (ADL hierarchy score = 4, 5, 6 vs. 0, 1, 2, 3)</p>
Calculation: Long-term care and complex continuing care		<p>Denominator Total number of long-term care residents or complex continuing care patients</p> <p>Numerator Number of patients in the denominator with a diagnostic code for diabetic foot ulcer</p> <p>Method Numerator/denominator × 100</p> <p>Data source: Continuing Care Reporting System</p> <p>Potential adjustments: Resource utilization group (RUG), late loss activities of daily living (ADL)</p>
Calculation: Primary care		<p>Denominator Total number of patients rostered in your practice with diabetes within the past 6 months</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA: E10.0[^], E10.1[^], E10.63, E10.64, E10.9[^], E11.0[^], E11.1[^], E11.63, E11.9[^], E13.0[^], E13.1[^], E13.63, E13.9[^], E14.0[^], E14.1[^], E14.63, E14.9[^], E11.64, E13.64, E14.64, E14.9</p> <p>Numerator Number of patients with a documented diabetic foot ulcer</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> • E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene • E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene • E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene

		<ul style="list-style-type: none"> E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p>Method Numerator/denominator × 100</p> <p>Data source: Ontario Health Insurance Plan Claims Database</p>
GEOGRAPHY & TIMING	Levels of comparability	Overall province, LHIN, sub-LHIN region, patient characteristics (subject to sample size)
ADDITIONAL INFORMATION	Comments	<p>This indicator includes patients with a diabetic foot ulcer on their previous assessment.</p> <p>The indicator only captures 1 diabetic foot ulcer per person, so a patient with more than 1 diabetic foot ulcer will only be counted once in the numerator.</p> <p>This indicator measures prevalence, so it is a measure of both prevention and treatment.</p> <p>Patients with undiagnosed diabetes are not captured in the denominator.</p>

Abbreviations: ICD, International Classification of Diseases; LHIN, local health integration network.

Table 3: Percentage of patients with a diabetic foot ulcer who had a lower-extremity amputation in a 6-month period

GENERAL DESCRIPTION	Indicator description	The percentage of patients with a diabetic foot ulcer who had a lower-extremity amputation in a 6-month period Directionality: A lower percentage is better
	Indicator status	Measureable
	Dimensions of quality	Effective
DEFINITION & SOURCE INFORMATION	Calculation	<p>Denominator Number of patients with a diagnosis of a diabetic foot ulcer</p> <p><i>Inclusions</i> Diagnosis code in ICD-10-CA:</p> <ul style="list-style-type: none"> E10.51 Type 1 diabetes mellitus with peripheral angiopathy with gangrene E10.71 Type 1 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene E11.51 Type 2 diabetes mellitus with peripheral angiopathy with gangrene E11.70 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic)

		<ul style="list-style-type: none"> • E11.71 Type 2 diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E13.51 Other specified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) • E13.71 Other specified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.71 Unspecified diabetes mellitus with foot ulcer (angiopathic) (neuropathic) with gangrene • E14.51 Unspecified diabetes mellitus with peripheral angiopathy with gangrene (I79.2*) <p>Numerator Number of patients in the denominator who had a lower-extremity amputation</p> <p><i>Inclusions</i> Procedure code in CCI:</p> <ul style="list-style-type: none"> • 1VQ93 Amputation, tibia and fibula • 1VC93 Amputation, femur • 1VG93 Amputation, knee joint • 1WA93 Amputation, ankle joint • 1WE93 Amputation, tarsal bones and intertarsal joints [hindfoot, midfoot] • 1WI93 Amputation, first metatarsal bone and first metatarsophalangeal joint • 1WJ93 Amputation, tarsometatarsal joints, metatarsal bones and metatarsophalangeal joints [forefoot] • 1WK93 Amputation, first phalanx of foot • 1WL93 Amputation, phalanx of foot • 1WM93 Amputation, interphalangeal joints of toe • 1WN93 Amputation, first interphalangeal joint of toe <p><i>Exclusions</i> Exclude if any of the following ICD-10 codes (any diagnosis type) appears on the same record:</p> <ul style="list-style-type: none"> • C402 Malignant neoplasm of long bones of lower limb • C403 Malignant neoplasm short bones of lower limb • C461 Kaposi's sarcoma of soft tissue • C472 Malignant neoplasm of peripheral nerves of lower limb, including hip • C492 Malignant neoplasm of connective and soft tissue of lower limb, including hip • D162 Benign neoplasm of long bones of lower limb • D163 Benign neoplasm of short bones of lower limb • D212 Other benign neoplasm of connective and other soft tissue of
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		<p>lower limb, including hip</p> <ul style="list-style-type: none"> • S74 Injury of nerves at hip and thigh level • S75 Injury of blood vessels at hip and thigh level • S76 Injury of muscle and tendon at hip and thigh level • S77 Crushing injury of hip and thigh • S78 Traumatic amputation of hip and thigh • S82 Fracture of lower leg, including ankle • S84 Injury of nerves at lower leg level • S85 Injury of blood vessels at lower leg level • S86 Injury of muscle and tendon at lower leg level • S87 Crushing injury of lower leg • S88 Traumatic amputation of lower leg • S89 Other and unspecified injuries of lower leg • S97 Crushing injury of ankle and foot • S98 Traumatic amputation of ankle and foot • T0230 Fractures involving multiple regions of one lower limb, closed • T0250 Fractures involving multiple regions of both lower limbs, closed • T0260 Fractures involving multiple regions of upper limb(s) with lower limb(s), closed • T0270 Fractures involving thorax with lower back and pelvis with limb(s), closed • T0281 Fractures involving other combinations of body regions, open • T0290 Multiple fractures, unspecified, closed • T033 Dislocations, sprains and strains involving multiple regions of lower limb(s) • T039 Multiple dislocations, sprains and strains, unspecified • T043 Crushing injuries involving multiple regions of lower limb(s) • T044 Crushing injuries involving multiple regions of upper limb(s) with lower limb(s) • T047 Crushing injuries of thorax with abdomen, lower back and pelvis with limb(s) • T048 Crushing injuries involving other combinations of body regions • T049 Multiple crushing injuries, unspecified • T053 Traumatic amputation of both feet • T054 Traumatic amputation of one foot and other leg [any level, except foot] • T055 Traumatic amputation of both legs [any level] • T056 Traumatic amputation of upper and lower limbs, any combination [any level] • T058 Traumatic amputations involving other combinations of body regions
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		<ul style="list-style-type: none"> • T059 Multiple traumatic amputations, unspecified • T132 Dislocation, sprain and strain of unspecified joint and ligament of lower limb, level unspecified • T133 Injury of unspecified nerve of lower limb, level unspecified • T134 Injury of unspecified blood vessel of lower limb, level unspecified • T135 Injury of unspecified muscle and tendon of lower limb, level unspecified • T136 Traumatic amputation of lower limb, level unspecified • T138 Other specified injuries of lower limb, level unspecified • T139 Unspecified injury of lower limb, level unspecified • T1420 Fracture of unspecified body region, closed • T1421 Fracture of unspecified body region, open • T143 Dislocation, sprain and strain of unspecified body region • T144 Injury of nerve(s) of unspecified body region • T145 Injury of blood vessel(s) of unspecified body region • T146 Injury of muscles and tendons of unspecified body region • T147 Crushing injury and traumatic amputation of unspecified body region • T148 Other injuries of unspecified body region • T149 Injury, unspecified <p>Method Numerator/denominator × 100</p>
	Data source	Discharge Abstract Database
GEOGRAPHY & TIMING	Levels of comparability	Overall province, LHIN, sub-LHIN region, patient characteristics (subject to sample size)
ADDITIONAL INFORMATION	Limitations	It is possible that the amputation is not due to the diabetic foot ulcer but due to the underlying condition of diabetes.
	Comments	

Abbreviations: CCI, Canadian Classification of Health Interventions; ICD, International Classification of Diseases; LHIN, local health integration network.

Developmental Indicators

Given the difficulty of capturing diabetic foot ulcers in current Ontario administrative data sources, the majority of the indicators selected rely on local data collection in most care settings. The following three indicators are currently developmental and rely on local data collection for reporting:

- Percentage of patients with a closed diabetic foot ulcer in a 12-week period
- Percentage of patients with a healed diabetic foot ulcer who were diagnosed with a secondary diabetic foot ulcer within 1 year (recurrence)
- Percentage of patients with a diabetic foot ulcer in a 12-month period who reported high satisfaction with the care provided

Methodological details are as follows:

Table 4: Percentage of patients with a closed diabetic foot ulcer in a 12-week period

GENERAL DESCRIPTION	Indicator description	The percentage of patients with a diabetic foot ulcer that closed within a 12-week period Directionality: A higher percentage is better
	Indicator status	Developmental
	Dimensions of quality	Effective
DEFINITION & SOURCE INFORMATION	Calculation	<p>Denominator Number of patients with a diagnosis of a diabetic foot ulcer</p> <p>Numerator Number of patients in the denominator whose diabetic foot ulcer closed within 12 weeks</p> <p><i>Exclusions</i> Patients with a non-healable diabetic foot ulcer</p> <p>Method $\text{Numerator/denominator} \times 100$</p>
	Data source	Local data collection
ADDITIONAL INFORMATION	Limitations	Although the majority of closed diabetic foot ulcers eventually heal, this indicator would not capture diabetic foot ulcers that reopen beyond 12 weeks due to poor assessment or care.
	Comments	If a patient has more than 1 diabetic foot ulcer, the indicator should capture the most severe diabetic foot ulcer.

Table 5: Percentage of patients with a healed diabetic foot ulcer who were diagnosed with a secondary diabetic foot ulcer within 1 year (recurrence)

GENERAL DESCRIPTION	Indicator description	The percentage of patients with a healed diabetic foot ulcer who were diagnosed with a secondary diabetic foot ulcer within 1 year Directionality: A lower percentage is better
	Indicator status	Developmental
	Dimensions of quality	Effective
DEFINITION & SOURCE INFORMATION	Calculation	<p>Denominator Number of patients with a healed diabetic foot ulcer</p> <p>Numerator Number of patients in the denominator with a newly diagnosed diabetic foot ulcer within 1 year</p> <p>Method $\text{Numerator/denominator} \times 100$</p>
	Data source	Local data collection
ADDITIONAL INFORMATION	Limitations	
	Comments	This indicator measures the recurrence of a diabetic foot ulcer. If someone develops a secondary diabetic foot ulcer before the first heals, or beyond the 1-year interval, it would not be included in this indicator.

Table 6: Percentage of patients with a diabetic foot ulcer in a 12-month period who reported high satisfaction with the care provided

GENERAL DESCRIPTION	Indicator description	The percentage of patients with a diabetic foot ulcer in a 12-month period who reported high satisfaction with the care provided Directionality: A higher percentage is better
	Indicator status	Developmental
	Dimensions of quality	Patient-centred
DEFINITION & SOURCE INFORMATION	Calculation	<p>Denominator Number of patients with a diagnosis of a diabetic foot ulcer</p> <p>Numerator Number of patients with a diagnosed diabetic foot ulcer (or their caregivers) who reported that their satisfaction with the wound care they received was “excellent” or “very good” in their most recent assessment within the prior 12 months</p> <p>Suggested survey question: Overall, how would you rate the wound care services you received from the individuals who provided care to you?</p> <p><i>Inclusions</i> Caregivers should be surveyed in place of patients in the event that either (1) the patient is < 12 years of age at time of sample selection or (2) the patient is identified as cognitively incapable.</p> <p><i>Exclusions</i> Patients and caregivers who were unable to complete the survey (e.g., comatose, language barrier)</p> <p>Method $\text{Numerator/denominator} \times 100$</p>
	Data source	Local data collection
ADDITIONAL INFORMATION	Limitations	<p>A patient or caregiver may feel they cannot respond honestly because of risk to their services. This can be mitigated by the survey not being conducted by the provider.</p> <p>The patient’s response may be influenced by other health care services being provided, in addition to the wound care.</p>
	Comments	
	Alignment	Aligns with the Client and Caregiver Experience Evaluation (CCEE) Survey, conducted in all LHINs

Abbreviations: LHIN, local health integration network.