December 13, 2025

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Diabetes-Associated Lower Limb Amputations

Equity Perspective by Canadian Institute for Health Information (CIHI)

DATA ANALYSIS REVIEW

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This report used pan-Canadian data from 2020–2021 , 2021 to 2022 and 2022–2023 to examine equity in diabetes care, with a focus on lower limb amputations (i.e., amputations of the leg, ankle, foot or toe).

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Diabetes-associated lower limb amputations are largely **preventable**, and they have **high health system and societal costs**.

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Lower limb amputations among those with diabetes are commonly preceded by foot ulcers or infected wounds.

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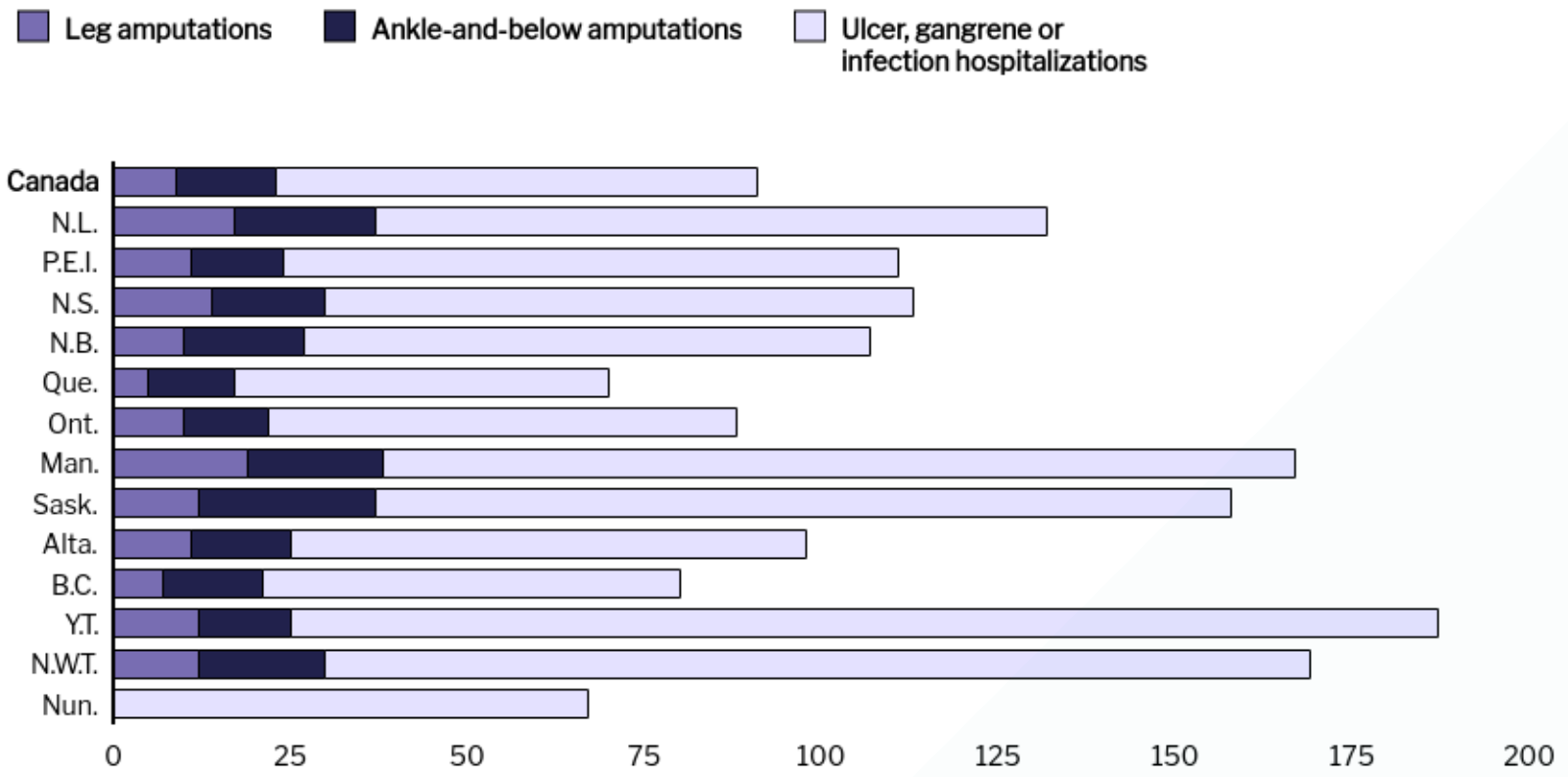
Rates of lower limb complications vary by province/territory

Age-standardized rates of diabetes-associated lower limb complications per 100,000 people by province/territory, 2020–2021 to 2022–2023



Stacked horizontal bar chart showing age-standardized rates of diabetes-associated lower limb complications per 100,000 people by province/territory. Rates of complications vary between provinces/territories.

Notes

Analyses of diabetes-associated lower limb amputations exclude Nunavut residents to suppress small numbers of discharges.
The age-standardized hospitalization rate was calculated using the 2011 Canadian population as the standard population.
Rates were calculated using a general population denominator for those age 18 and older.

Sources

Discharge Abstract Database, National Ambulatory Care Reporting System and Hospital Morbidity Database, 2020–2021 to 2022–2023, Canadian Institute for Health Information.

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Costs in Canada	2020-2021	2021-2022	2022-2023
Ulcer/Infection	$473 million	$493 million	$527 million
Leg Amputation	$144 million	$141 million	$152 million
Ankle, Foot, Toe Amputations	$102 million	$111 million	$110 million

Costs in Ontario	2020-2021	2021-2022	2022-2023
Ulcer/Infection	$165 million	$160 million	$185 million
Leg Amputation	$52 million	$47 million	$55 million
Ankle, Foot, Toe Amputations	$27 million	$26 million	$29 million

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Evidence suggests that diabetes-associated amputations disproportionately affect equity-seeking populations.

This analysis focused on inequalities defined by age; recorded sex or gender (referred to here as “sex”); neighborhood-level measures of income, high school completion and social deprivation; and rurality/remoteness, as derived using patients’ postal codes.

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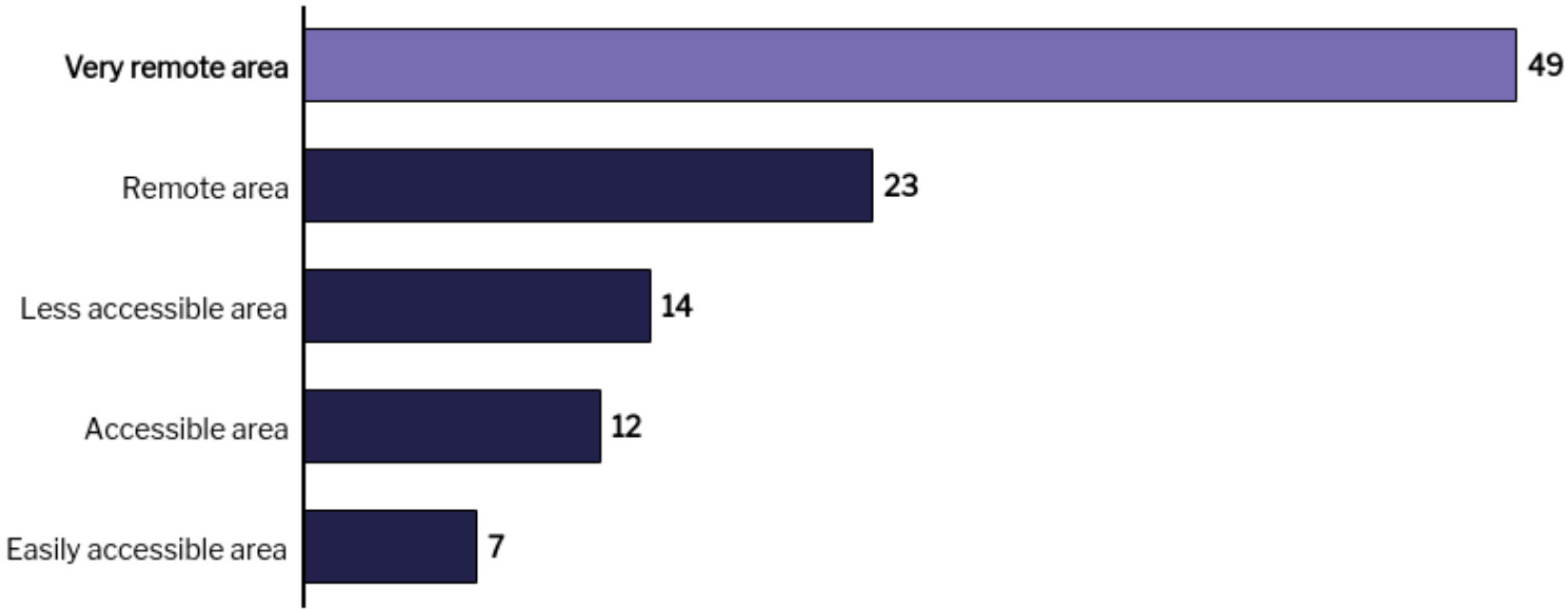
Leg amputation rates rise with increasing remoteness

Age-standardized rates of diabetes-associated leg amputations per 100,000 people by remoteness index category, 2020–2021 to 2022–2023



Horizontal bar chart showing the age-standardized rates of diabetes-associated leg amputations per 100,000 people by remoteness index category. Leg amputation rates rise with increasing remoteness.

Notes

Remoteness index categories were assigned based on the patient's residential postal code and Statistics Canada's 2021 Index of Remoteness, which takes into account travel cost and population size.
Analyses of diabetes-associated lower limb amputations exclude Nunavut residents to suppress small numbers of discharges.
The age-standardized hospitalization rate was calculated using the 2011 Canadian population as the standard population.
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Index of Remoteness, 2021, Statistics Canada.

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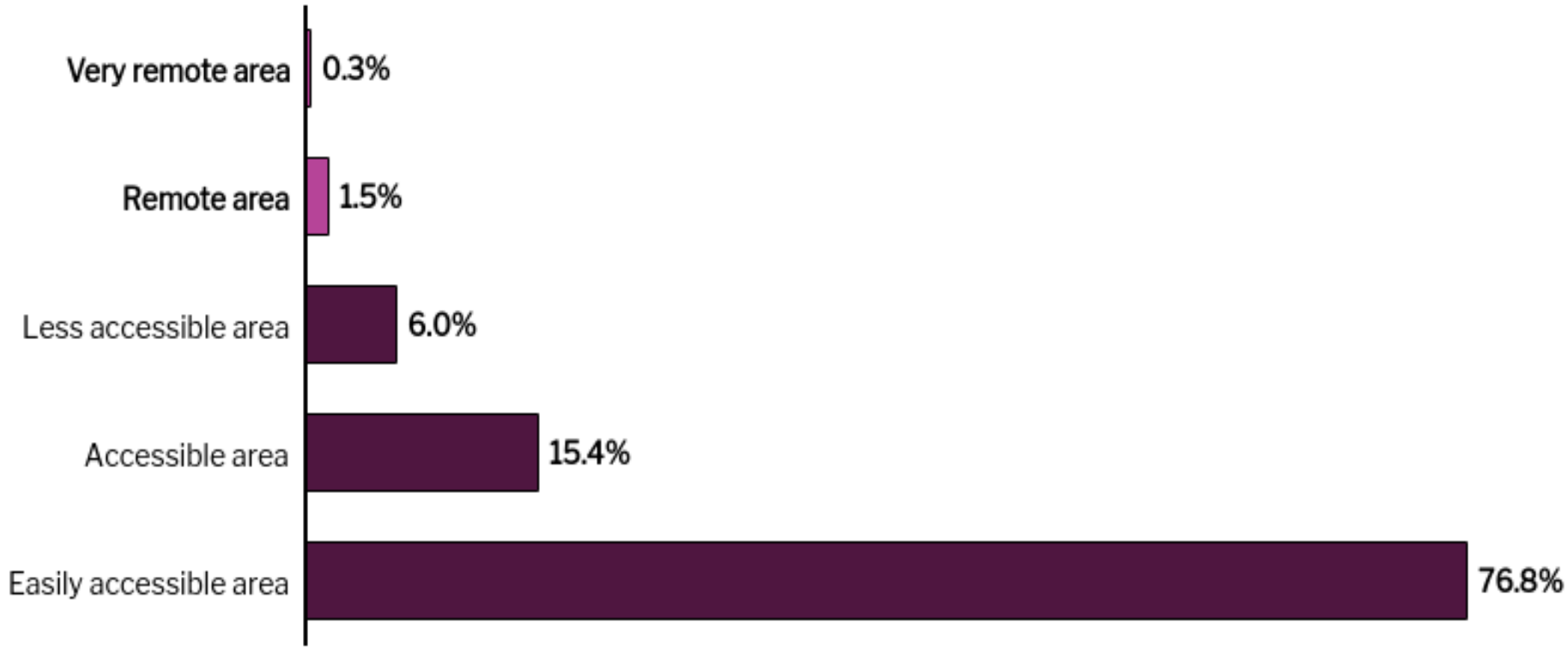
About 2% of the population in Canada live in either remote or very remote areas

Percentage of total population in Canada, 2021



Horizontal bar chart showing the percentage of the general population age 18 and older by remoteness index category. About 2% of the population in Canada live in either remote or very remote areas.

Note
Remoteness index categories were assigned based on the patient's residential postal code and Statistics Canada's 2021 Index of Remoteness, which takes into account travel cost and population size.
Source
Index of Remoteness, 2021, Statistics Canada.

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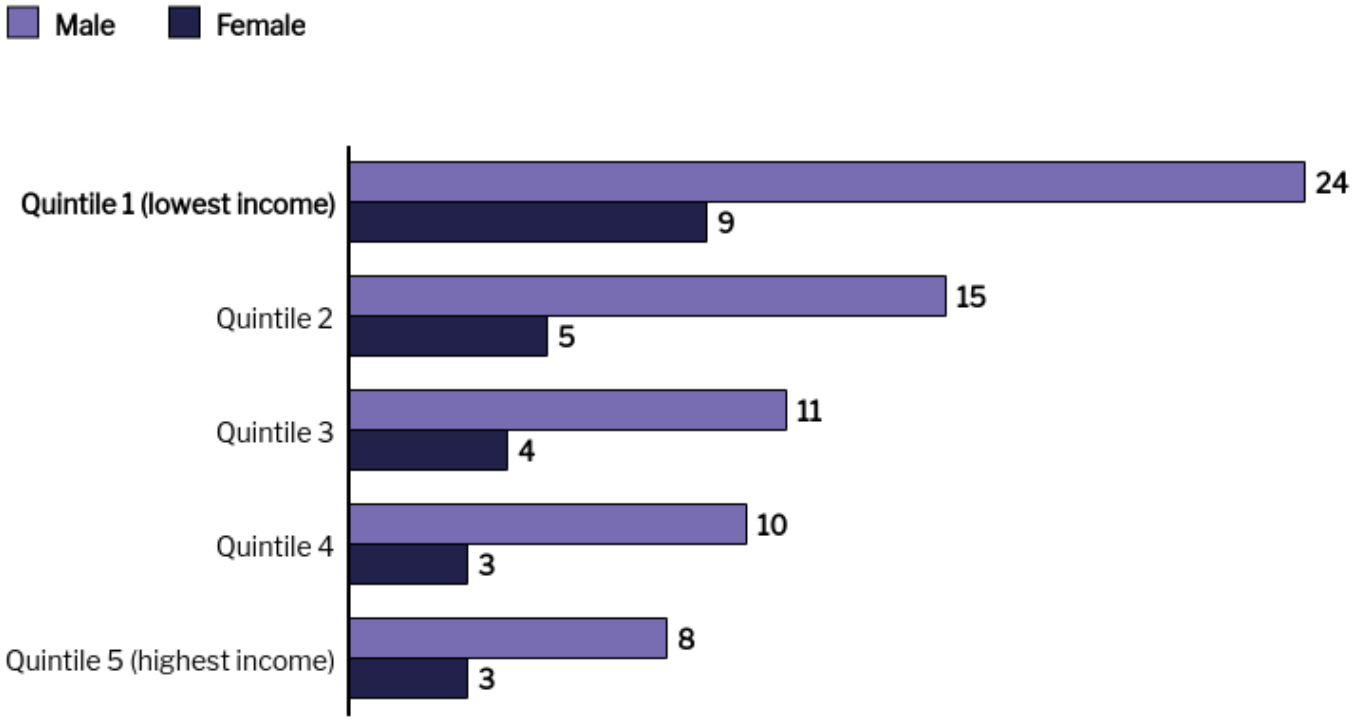
Leg amputation rates are high among males living in lower-income neighbourhoods

Age-standardized rates of diabetes-associated leg amputations per 100,000 people by neighbourhood-level income and sex, 2020–2021 to 2022–2023



Horizontal bar chart showing the age-standardized rates of diabetes-associated leg amputations per 100,000 people, by sex. There is a high rate of amputation among males living in lower-income neighbourhoods.

Notes

Income is defined at the neighbourhood level using the patient's residential postal code and Statistics Canada's Postal Code Conversion File+ (PCCF+) tool.
Analyses of diabetes-associated lower limb amputations exclude Nunavut residents to suppress small numbers of discharges.
The age-standardized hospitalization rate was calculated using the 2011 Canadian population as the standard population.
Rates were calculated using a general population denominator for those age 18 and older.

Sources

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Leg amputation rates are high among individuals age 65+ living in lower-income neighbourhoods

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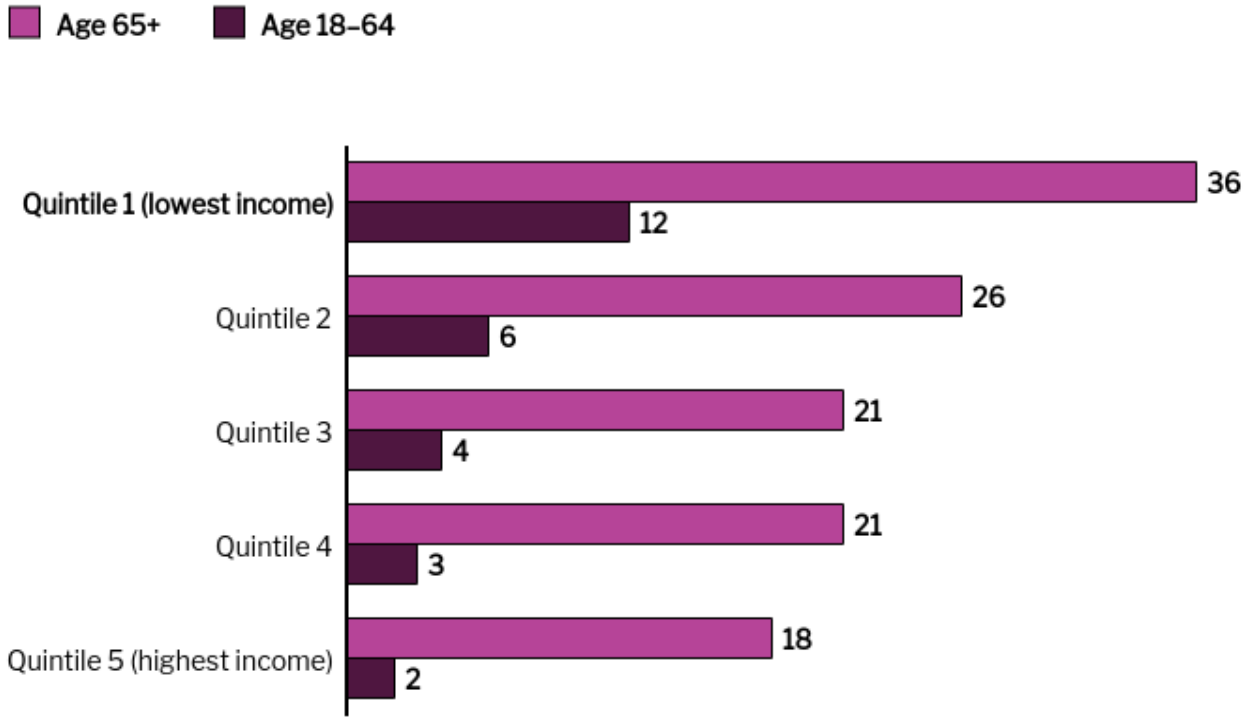
Age-standardized rates of diabetes-associated leg amputations per 100,000 people by neighbourhood-level income and age, 2020–2021 to 2022–2023



Horizontal bar chart showing the age-standardized rates of diabetes-associated leg amputations per 100,000 people, by age. There is a high rate of amputation among individuals age 65 and older living in lower-income neighbourhoods.

Notes

Income is defined at the neighbourhood level using the patient's residential postal code and Statistics Canada's Postal Code Conversion File+ (PCCF+) tool.
Analyses of diabetes-associated lower limb amputations exclude Nunavut residents to suppress small numbers of discharges.
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Leg amputations

associated with diabetes

3x higher for males

- **14** per 100,000 people — Males
- **5** per 100,000 people — Females

3x higher for those living in lowest-income neighbourhoods

- **16** per 100,000 people — Lowest income
- **5** per 100,000 people — Highest income

4x higher for those living in neighbourhoods with lowest high school completion

- **21** per 100,000 people — Lowest completion
- **5** per 100,000 people — Highest completion

3x higher for those living in neighbourhoods with highest social deprivation

- **15** per 100,000 people — Highest social deprivation
- **6** per 100,000 people — Lowest social deprivation

Hospitalization costs exceed $750 million annually

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Every year between 2020–2021 and 2022–2023, there were about **31,220** hospitalizations

for lower limb complications associated with diabetes

Hospitalizations	**23,500** for lower limb ulcers, gangrene or infections that did not involve amputation	**4,640** for ankle, foot and toe amputations	**3,080** for leg amputations	Up to 85% of leg amputations are preventable
Cost per hospital stay	**$21,000**	**$23,000**	**$47,000**	4× the cost of a hip or knee replacement

$750 million

in hospital costs, excluding physician, rehabilitation and other costs

Represents only a fraction of total system costs

Most patients require ongoing care (e.g., rehabilitation, prosthetics)

Patients are at high risk of readmission

Risk of death is high

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Key Findings

Each year from 2020–2021 to 2022–2023, there were about 7,720 hospitalizations for lower limb amputations associated with diabetes. **3,080 of these involved a leg amputation.**

There were also **23,500 diabetes-associated hospitalizations** for treatment of ulcers, gangrene or infections.

Together, these hospitalizations accounted for approximately **$750 million annually;** however, this reflects a fraction of the total system costs associated with diabetic foot ulcers and amputations.

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Key Findings

Patients who received a leg amputation spent about 19 days in hospital. These patients often require multiple procedures during their stay and have a high risk of readmission and in-hospital death. Costs for these hospitalizations were high at about $47,000 per stay.

About 43% of amputations occurred among those age 40 to 64.

Males with diabetes were 2 to 3 times more likely than females to have an amputation or to be hospitalized with a lower limb complication.

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Key Findings

- Lower limb complications were also more common for those living in neighborhoods with lower income, lower high school completion and higher social deprivation, as well as in rural and remote communities.

- Inequalities among population groups and variation among the provinces and territories appear related to both diabetes prevention and management.

Unmet Care Needs Can Lead to Amputation

For those living with diabetes, the lifetime risk of developing a foot ulcer is **about 15% to 25%.**

This means that roughly **550,000 to 920,000 Canadians** currently living with diabetes are predicted to experience some degree of foot complication, putting them in need of specialized services and at greater risk of a lower limb amputation if their care needs are not met.

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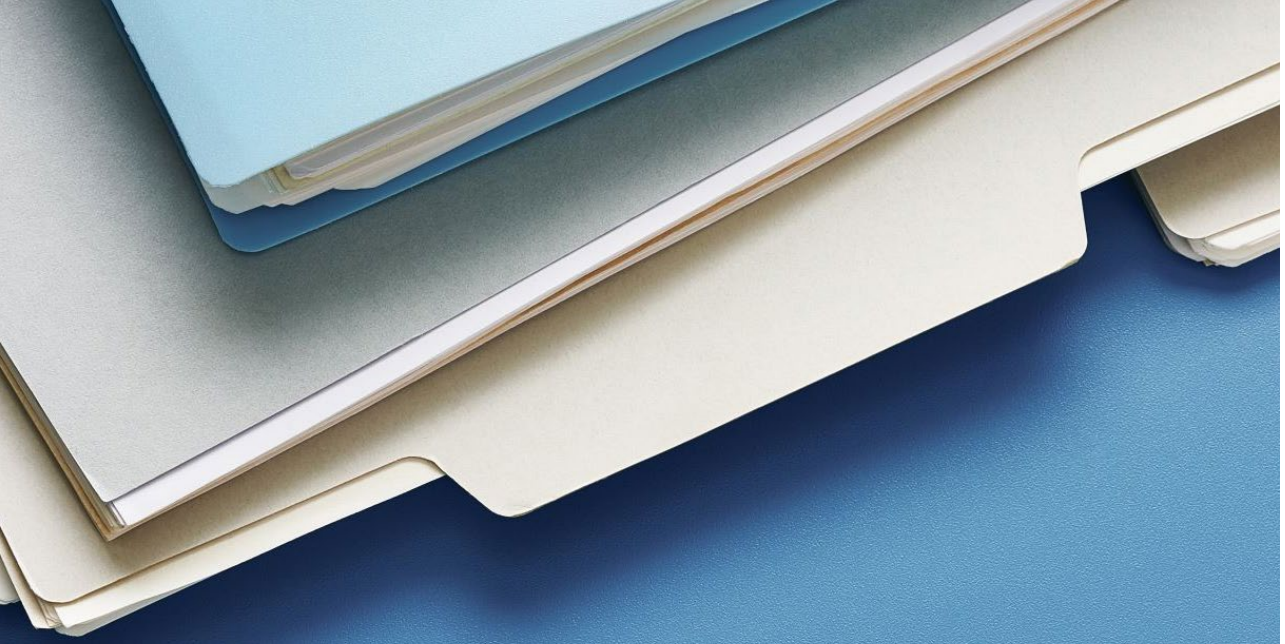
Approach begins with primary care services for early detection and screening and extends to specialized services for foot and wound care.

What Can Health Systems Do?

Health systems can use this information to support strategies that **improve access to primary care** and **early intervention** for patients at higher risk of diabetes complications.



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What Does This Data Mean For Our College?

- Maintaining the status quo will not improve outcomes.
- The status quo has led to this outcome.
- Demonstrates insufficient numbers of chiropodists and podiatrists in Ontario to adequately treat lower limb ailments.
- Higher numbers of chiropodists and podiatrists will ensure greater and more timely assess to highly qualified care and treatment that will keep patients out of hospital and reduce lower limb amputations.
- The College's **duty** is to share this messaging widely, particularly with the Ministry of Health to ensure proper steps are taken to address the need for footcare in the province.

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REFERENCES

Examining diabetes-associated lower limb amputations from an equity perspective | CIHI