HEALTHMAP
Health Evaluation and Action through
Long-Term Trends and Modeling for Prevention

projet HEALTHMAP
projet HEALTHMAP d'évaluation et d'action en matière de santé
par la modélisation des tendances à long terme axée sur la prévention



Projected Patterns of Illness in Ontario's Public Health Units: Baseline Report

1st Revision: November 2026

Public Health Ontario | Santé publique Ontario

Dalla Lana School of Public Health

UNIVERSITY OF TORONTO
DALLA LANA SCHOOL OF PUBLIC HEALTH

HEALTHMAP

HEALTHMAP (Health Evaluation and Action through Long-Term Trends and High-Impact Modeling & Analysis for Prevention) is a multi-year collaboration between Public Health Ontario and the Dalla Lana School of Public Health (DLSPH) at the University of Toronto focused on advancing chronic disease prevention and population health planning in Ontario. Anchored in the Ontario Disease Burden Model (ODBM)—a forecasting tool developed by DLSPH researchers and adapted to Ontario's population, disease trends, and health system context—the initiative projects how chronic disease patterns will evolve over time.

By integrating prevention and policy indicators, including Prevention System Quality Index (PSQI) measures, HEALTHMAP will explore how different scenarios can change the trajectory of chronic disease and quantify the long-term impact of public health action. This initiative will generate insights at provincial, regional, and public health unit levels to support evidence-informed policy and program planning, guide local public health action, strengthen accountability, and identify priority areas for improving population health. Through a phased approach, HEALTHMAP aims to expand the use of data and analytics in prevention planning while building enduring partnerships across Ontario's health system.

Public Health Ontario

Public Health Ontario (PHO) is an agency of the Government of Ontario dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. PHO links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world. For more information about PHO, visit publichealthontario.ca.

Dalla Lana School of Public Health

The Dalla Lana School of Public Health at the University of Toronto is Canada's leading school of public health, recognized for excellence in research, education, and public health leadership. The school brings together interdisciplinary expertise to address major population health challenges through research, training, and partnership. Its work spans areas such as epidemiology, biostatistics, social and behavioural health sciences, health policy, and global health, with a shared focus on generating evidence to inform policy and practice, advance health equity, and improve the health of populations. The contents of this report were contributed by the Population Health Analytics Lab (https://pophealthanalytics.com/).

Disclaimers

Dalla Lana School of Public Health

This document was prepared by the Dalla Lana School of Public Health at the University of Toronto. It is intended to support knowledge sharing and inform public health planning and discussion. The content reflects the evidence and analysis available at the time of publication. The interpretation and use of this document are the responsibility of the user.

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Summary of Revisions

Date of Implementation	Description of Major Changes	Page
August 25, 2026	Updated Ontario's top 5 most prevalent conditions in 2040, including revised rankings and prevalence estimates.	7
August 25, 2026	Updated Ontario's top 5 fastest-growing conditions (2020–2040), including revised rankings and growth estimates.	10
August 25, 2026	Updated terminology and wording for consistency and accuracy.	Document-wide

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Abbreviations

CIHI: Canadian Institute for Health Information

CHF: Congestive heart failure

CIHR: Canadian Institutes of Health Research

CMAJ: Canadian Medical Association Journal

COPD: Chronic obstructive pulmonary disease

DLSPH: Dalla Lana School of Public Health

HEALTHMAP: Health Evaluation and Action through Long-Term Trends and High-Impact Modeling & Analysis for Prevention

ICES: Institute for Clinical Evaluative Sciences

MI: Myocardial infarction

MLTC: Ministry of Long-Term Care

MOH: Ministry of Health

ODBM: Ontario Burden of Disease Model

OH: Ontario Health

OHA: Ontario Hospital Association

PHO: Public Health Ontario

PHU: Public Health Unit

U of T: University of Toronto

Executive Summary

Ontario is entering a period of substantial demographic and epidemiologic change. Over the coming decades, without system change, the province will see continued growth in the number and proportion of older adults, alongside rising levels of chronic disease and multimorbidity. These trends have important implications for population health, but their future impact is not fixed: it can be influenced by effective public health action, prevention strategies, and cross-sector efforts to address the determinants of health. For Ontario, understanding how patterns of illness are expected to evolve locally is essential for setting prevention priorities and planning services. This report presents projections of population demographics, multimorbidity, and specific chronic conditions across Ontario's PHUs from 2020 to 2040 The projections were generated using the Ontario Burden of Disease Model, which draws on historical chronic disease trends and demographic projections to estimate future patterns of illness. In addition to reporting on individual conditions, the analysis groups the population into three morbidity categories (no illness, some illness, and major illness).

The findings show that Ontario's chronic illness burden is projected to rise substantially, with more people living with some illness and major illness by 2040. Across the province, the number of people living with some illness and major illness is expected to increase, while the number living with no illness will decline. These changes reflect both population aging and the earlier and wider distribution of chronic illness across the life course. Growth in major illness is expected across all age groups, but the highest prevalence will remain among older adults. At the same time, increases in some illness are projected to be concentrated among younger and middle-aged adults, signalling an expansion of the morbidity burden across the life course.

The report also shows that these trends will not be evenly distributed across Ontario. All PHUs are expected to experience growing morbidity, but the magnitude and profile of illness will vary across regions. Northern and Southwestern PHUs are projected to face a particularly high burden of major illness, while several other PHUs, especially in the Greater Toronto Area and Ottawa, are projected to have a lower prevalence of selected chronic conditions than other areas. This variation underscores the need for locally tailored planning and prevention strategies that reflect the distinct demographic, epidemiologic, and health system realities of different communities. By 2040, the most prevalent chronic conditions in Ontario are projected to be mood and anxiety disorders, osteo- and other non-rheumatoid arthritis, hypertension, diabetes, and asthma, although the ranking and growth of conditions will vary across PHUs. Constipation, common among older adults and closely linked to chronic disease and medication burden, also appears among the most prevalent conditions. Rapid increases are also projected for conditions such as kidney disease and failure, substance use disorders, myocardial infarction (MI), and Crohn's and colitis, alongside continued growth in age-related conditions such as dementia and hearing loss. These patterns point to a future burden of illness shaped by both aging and increasing complexity in chronic disease and mental health needs.

Overall, this report provides a forward-looking evidence base to support public health decision-making and health system collaboration in Ontario. The future burden of illness will be larger, more complex, and differently distributed across PHUs than it is today. For public health leaders and practitioners, these findings can inform local priority setting, prevention strategies, partnership planning, and resource allocation in the decades ahead.

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How to Use This Report

This report can be used as a planning tool to anticipate how population health needs are likely to change over time and to strengthen prevention where it can have the greatest impact. For PHUs, the projections can support priority setting, help target prevention, health promotion, and early intervention strategies to the conditions and population groups most likely to experience growing burden. In addition, the projections can guide community-based action on the broader determinants of health. More broadly, the report can inform collaboration among public health, health system, municipal, and community partners around shared planning and resource allocation. Used well, it can help decision-makers move from reacting to current patterns of illness to taking proactive, locally responsive action to prevent illness, reduce future burden, and improve population health over time.

Background

Ontario is undergoing a substantial demographic transition, characterized by continued growth in the number and proportion of older adults, particularly those aged 65 years and older and 85 years and older.[2] This demographic shift coincides with an upward trend in chronic diseases[3] and multimorbidity,[4] with significant implications for population health, health equity, and the organization of preventive, community, and health care services.[5,6] For public health leaders and practitioners, timely and locally relevant evidence on these trends is critical to informing prevention priorities, population health planning, and resource allocation. In 2024, the Ontario Hospital Association (OHA) research collaboration led by the Dalla Lana School of Public Health, published projections[1] of the burden of illness in Ontario's adult population from 2022 to 2040, based on historical chronic disease trends and demographic projections from the Ontario Ministry of Finance.[7] This report extends that work to the level of Ontario's Public Health Units (PHUs), summarizing trends in population demographics, multimorbidity, and chronic disease to support local public health strategy, planning, and decision-making.

Methodological Approach

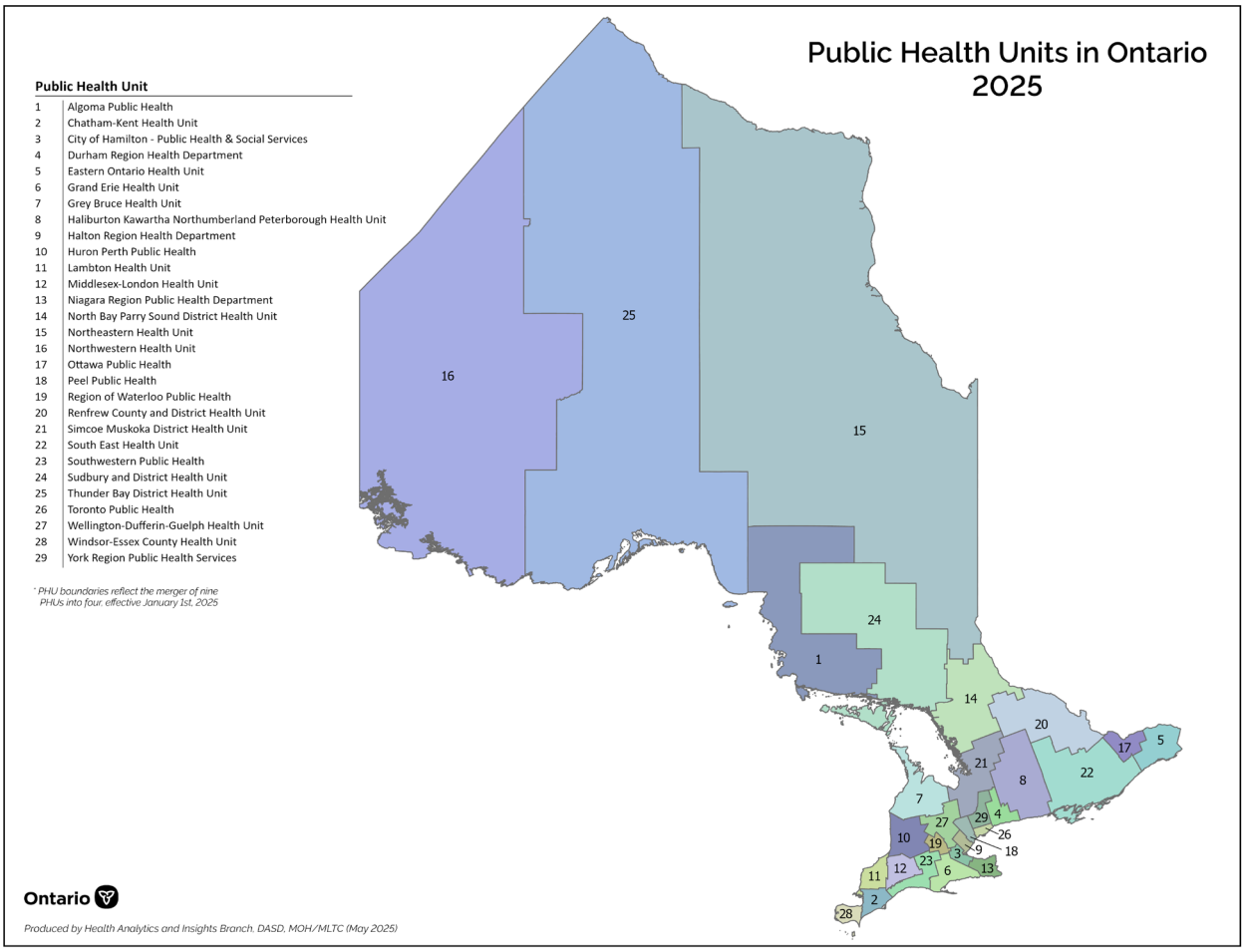
Projections were generated using the Ontario Burden of Disease Model (ODBM), which was developed in 2024 and is based on historical chronic disease trends between 2002 and 2022 and demographic projections between 2023 and 2040. More details about this model are available in the original report, published at https://www.oha.com/communications/projected-patterns-of-illness-in-ontario. A detailed description of the methodological approach is available in the **Technical Appendix**, available at: https://pophealthanalytics.com/wp-content/uploads/2026/05/ODBM-Technical-Appendix.pdf.

The data underlying this report include projections for 22 individual chronic conditions, annually from 2023 to 2040: cardiac arrythmia, asthma, cancer, congestive heart failure (CHF), chronic obstructive pulmonary disorder (COPD), chronic coronary syndrome, Crohn's and colitis, dementia, diabetes, epilepsy, hearing loss, hypertension, kidney disease and failure, mood and anxiety disorders, schizophrenia and other psychotic disorders, substance use disorders, acute myocardial infarction (MI), osteo- and other non-rheumatoid arthritis, osteoporosis, rheumatoid arthritis, and stroke (see technical appendix for definitions and details).

Projections were generated for three morbidity groups within the Ontario population: no illness, some illness, and major illness. Individuals were categorized into morbidity groups based on their personal history of chronic disease, with disease weights defined by the conditions' historical associations with health system and mortality outcomes[8].

PHU populations were defined according to official geographic boundaries, which are shown in Figure 1. Ontario residents were assigned to a PHU population based on postal code information available in health administrative data.

Figure 1. Geographic boundaries of the Public Health Units in Ontario, labelled. Source: [Ministry of Health]

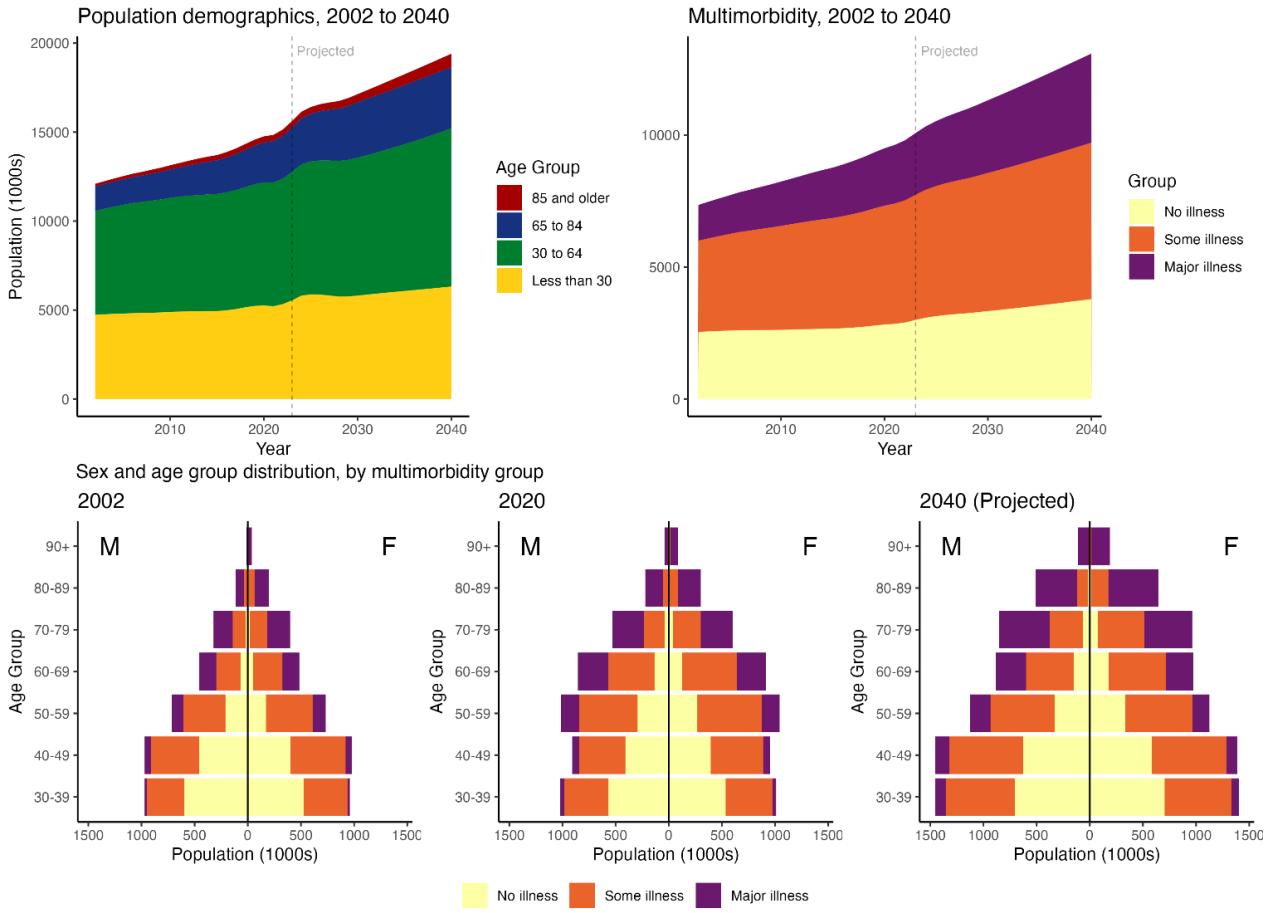


Note About Figure Labels

This report uses geographic boundaries and naming conventions as defined in the Ontario Ministry of Health map. Some health unit labels do not reflect current operating names. The following name updates should be noted: City of Hamilton – Public Health & Social Services (now Hamilton Public Health Services); Haliburton Kawartha Northumberland Peterborough Health Unit (now Lakelands Public Health); Lambton Health Unit (now Lambton Public Health); Niagara Region Public Health Department (now Niagara Region Public Health); Northeastern Health Unit (now Northeastern Public Health); South East Health Unit (now Southeast Public Health); Sudbury and District Health Unit (now Public Health Sudbury & Districts); Region of Waterloo Public Health (now Region of Waterloo Public Health and Paramedic Services); Wellington-Dufferin-Guelph Health Unit (now Wellington-Dufferin-Guelph Public Health); Grand Erie Health Unit (now Grand Erie Public Health); Grey Bruce Health Unit (now Grey Bruce Public Health); and York Region Public Health Services (now York Region Public Health). Future iterations will reflect these updated titles.

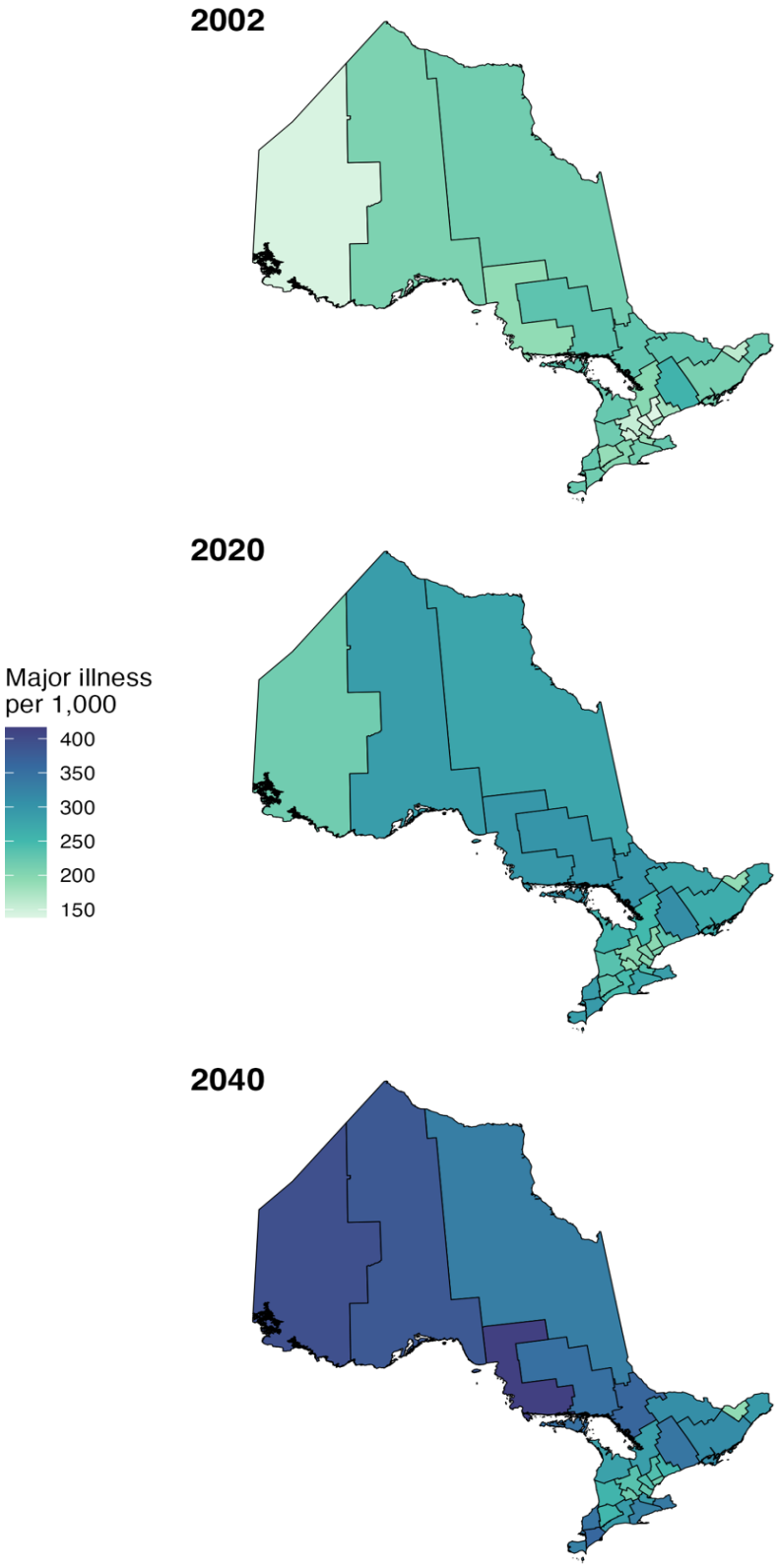
Multimorbidity Over Time in Ontario

Figure 2. Demographic and morbidity trends in the Ontario population.



The number of people in Ontario living with some or major illness will grow rapidly (Figure 2) and all PHUs will experience an increase in morbidity. This is the result of both population aging and an earlier onset of chronic illness. Increases in major illness will be greatest among adults aged 70 and older; however, increases in some illnesses will be concentrated among younger adults aged 30 to 49, resulting in an expansion of morbidity. The geographic distribution of illness is changing (Figure 3). Overall in Ontario, the number of people living with major illness is projected to increase by approximately 55%; however, PHU-level estimates of change range nearly fivefold across regions. This variation is driven by a combination of factors, including population growth, age structure, and baseline burden. PHUs in the Greater Toronto Area and surrounding regions, such as Peel, York, Ottawa, and Simcoe Muskoka are projected to see among the largest absolute increases in the number of people with major illness, reflecting rapid population growth. Several Northern PHUs face smaller absolute increases but are projected to have the highest proportion of people living with major illness, with regions such as Northwestern, Algoma, and Thunder Bay already carrying a disproportionate burden. This combination of growing numbers and rising prevalence points to a future where both high-growth urban PHUs and lower-growth Northern and Southwestern PHUs face significant but distinct pressures, underscoring the need for region-specific planning.

Figure 3. Major illness in Ontario over time, by Public Health Unit.



Key Findings

- The number of people living with major illness in Ontario is projected to rise by 55% between 2020 and 2040. Across the province, more people are expected to be living with some illness or major illness, pointing to a growing overall burden of chronic disease and multimorbidity.
- An earlier onset and expansion of morbidity is projected in the population. Younger adults are expected to experience the largest increase in the absolute number of people living with some illness, suggesting that chronic illness will affect more people earlier in life, not only in older age.
- The future burden of illness will vary meaningfully across PHUs. Major illness is projected to increase across all age groups and remain highest among older adults, but the scale and profile of morbidity will differ across PHUs, underscoring the need for locally tailored planning and prevention.
- Ontario's future burden of illness will be both larger and more complex, underscoring the urgent need for prevention. In addition to continued growth in common chronic conditions, the province is projected to see rapid increases in conditions such as kidney disease and failure, substance use disorders, and dementia, highlighting the need for prevention and planning approaches that address both aging and the increasing complexity of care needs.

Next Steps for HEALTHMAP

HEALTHMAP will focus on moving from initial engagement to local implementation and broader system use of findings from the baseline report. In the near term, this means continuing to refine the model and indicators, quantifying key prevention inputs, and strengthening reporting so findings are actionable for both provincial and local partners. A parallel priority will be deepening engagement with PHUs and other stakeholders to support uptake, interpretation, and application in real-world planning.

Over the following phase, HEALTHMAP can support more tailored local implementation by helping partners use the projections and prevention scenarios to inform priority setting, program planning, and quality improvement. This work should also broaden engagement across the health system so that the evidence generated through HEALTHMAP can inform shared action across chronic disease prevention and population health.

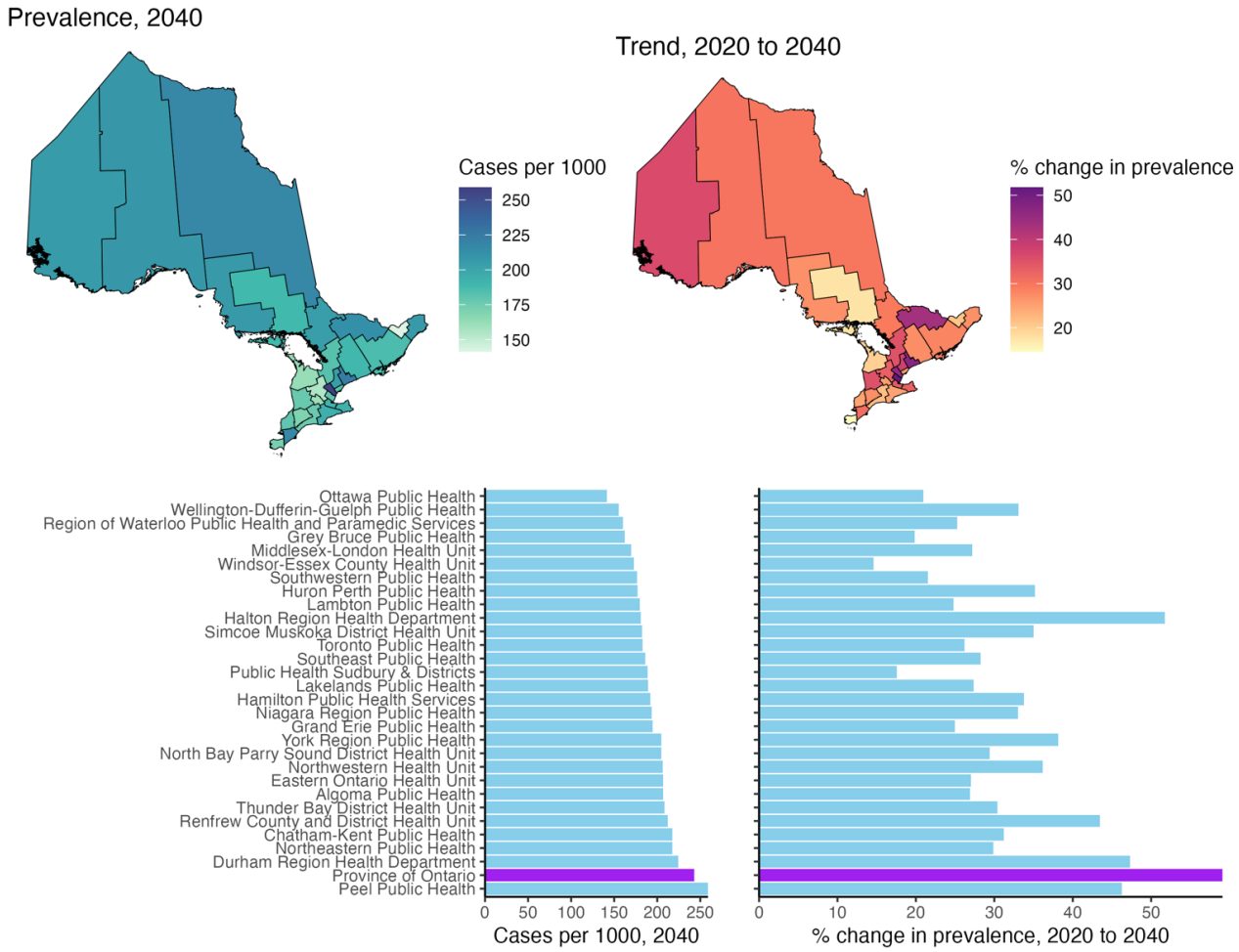
Over time, the goal is for HEALTHMAP to contribute to accountability and stronger system integration by embedding these analytics into regular reporting, planning and decision-making processes. The goal is to support collaboration and align provincial and local action around improving population health in Ontario.

Chronic Conditions Over Time

Top 5 Most Prevalent Conditions in 2040

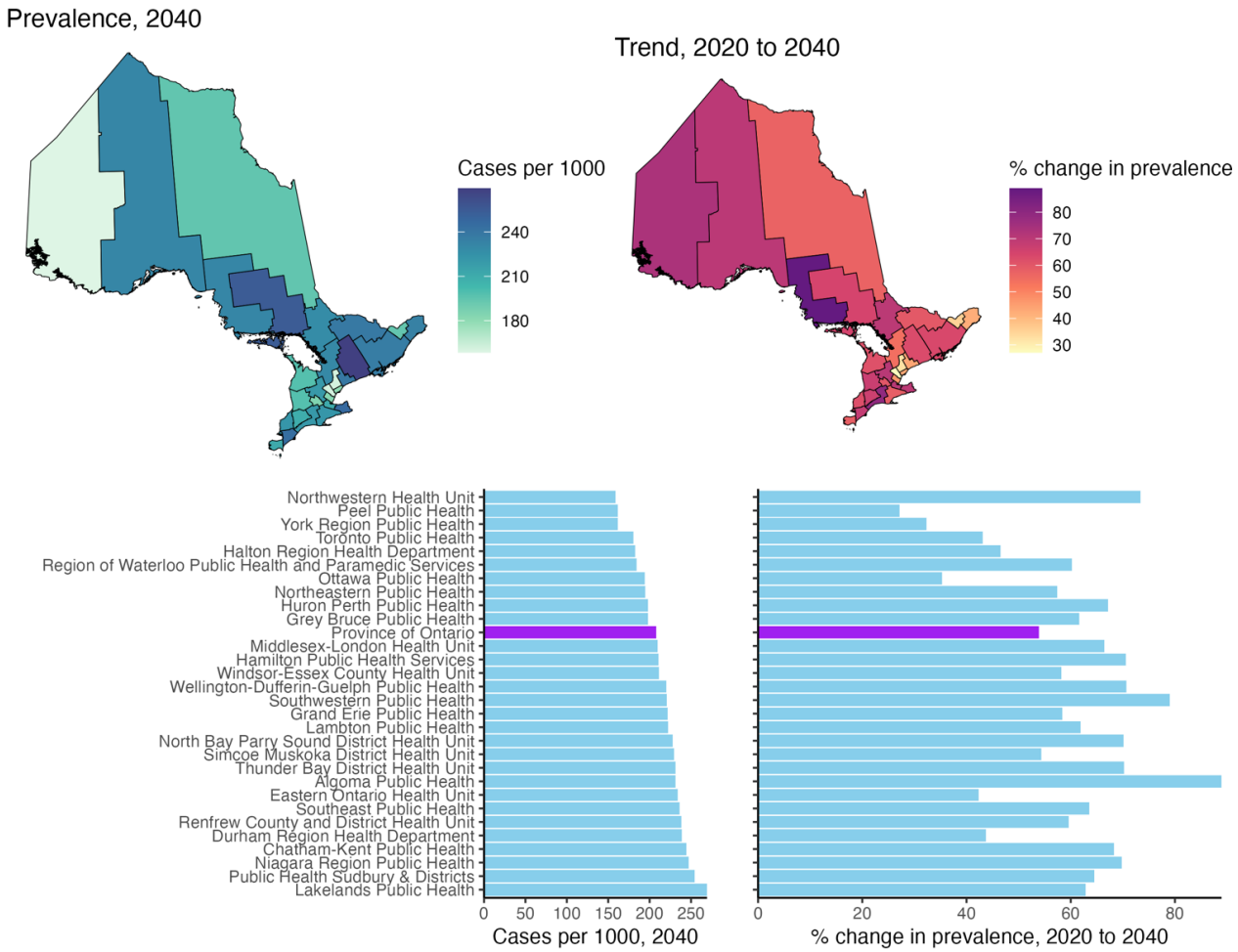
Based on the projections, the top 5 most prevalent conditions in Ontario in 2040 are expected to be mood and anxiety disorders, osteo- and other non-rheumatoid arthritis, hypertension, diabetes, and asthma. Several of these conditions also consistently rank among the top conditions across nearly all PHUs. While this core pattern is highly stable province-wide, several PHUs and chronic conditions show notable deviations.

Figure 4. Projected prevalence (2040) and trend over time (2020 to 2040) of diabetes in Ontario, by Public Health Unit.



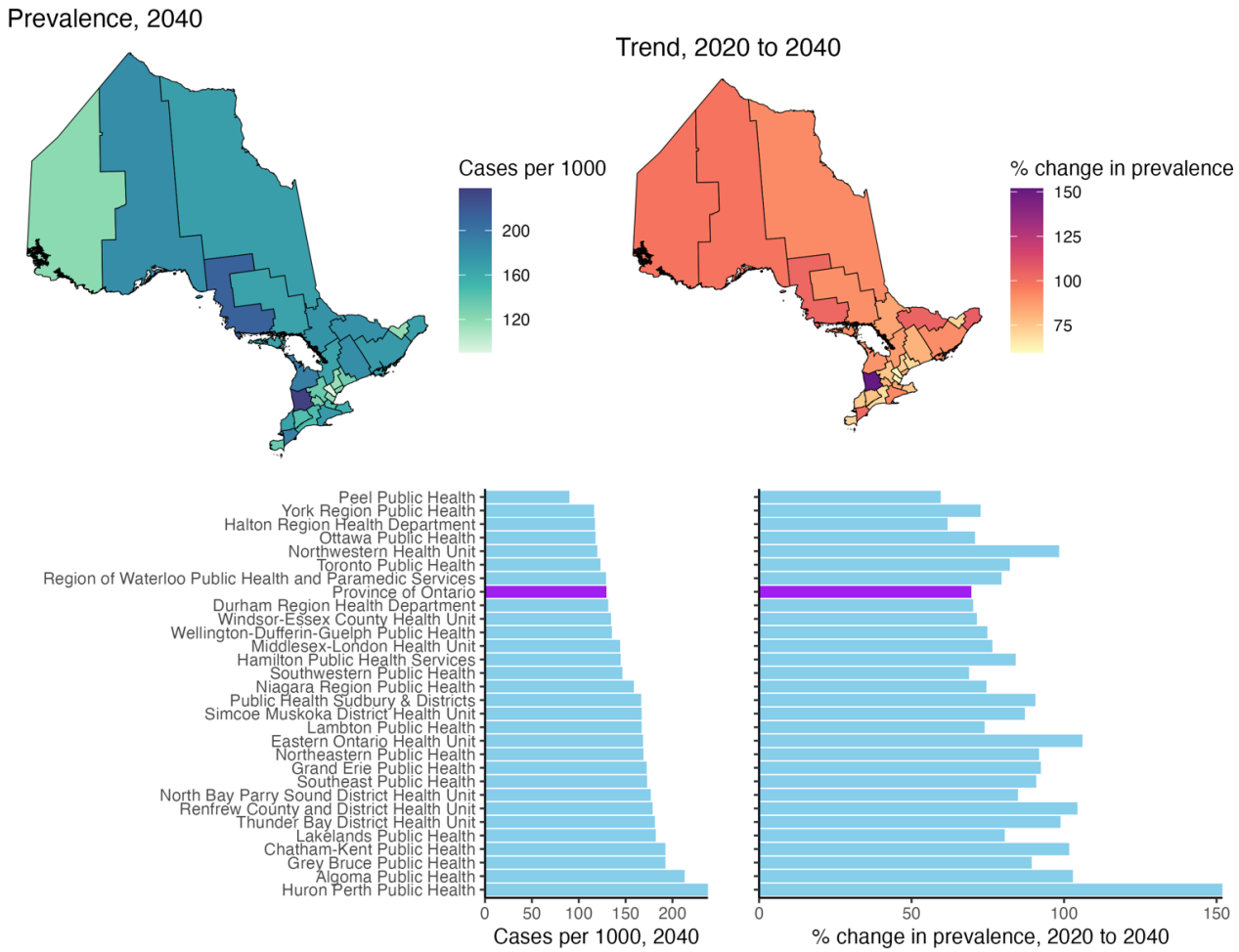
The high projected prevalence of osteo- and other non-rheumatoid arthritis and hypertension in 2040 is not unexpected, given that these have historically been among the most common conditions. Other conditions, such as diabetes, have increased significantly over the past decade, and are expected to continue to do so (Figure 4). Diabetes prevalence is expected to be highest in Peel and Durham regions in Southern Ontario, and in Northeastern Public Health in Northern Ontario, although rates of diabetes are expected to grow rapidly in northwestern Ontario and throughout the Greater Toronto Area.

Figure 5. Projected prevalence (2040) and trend over time (2020 to 2040) of asthma in Ontario, by Public Health Unit.



The pattern seen in diabetes across PHUs is not consistent with other conditions that will be common in 2040. Asthma prevalence (Figure 5) is projected to be high across much of Ontario, though lower within the Greater Toronto Hamilton Area. The highest projected prevalence is observed in Lakelands Public Health, Public Health Sudbury & Districts, Niagara Region Public Health, Chatham-Kent Public Health, and Durham Region Health Department.

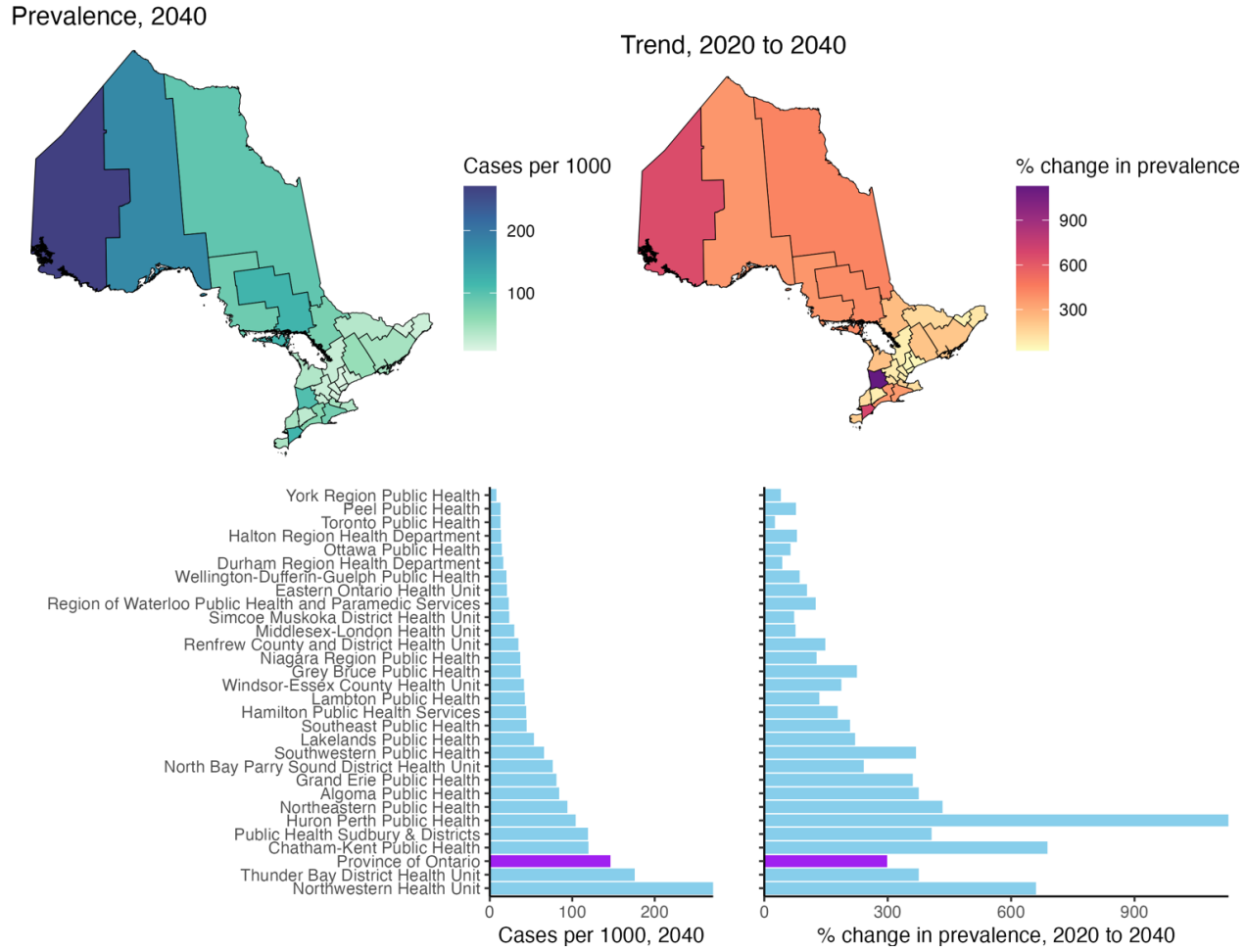
Figure 6. Projected prevalence (2040) and trend over time (2020 to 2040) of cancer in Ontario, by Public Health Unit.



Top 5 Fastest Growing Conditions, 2020 to 2040

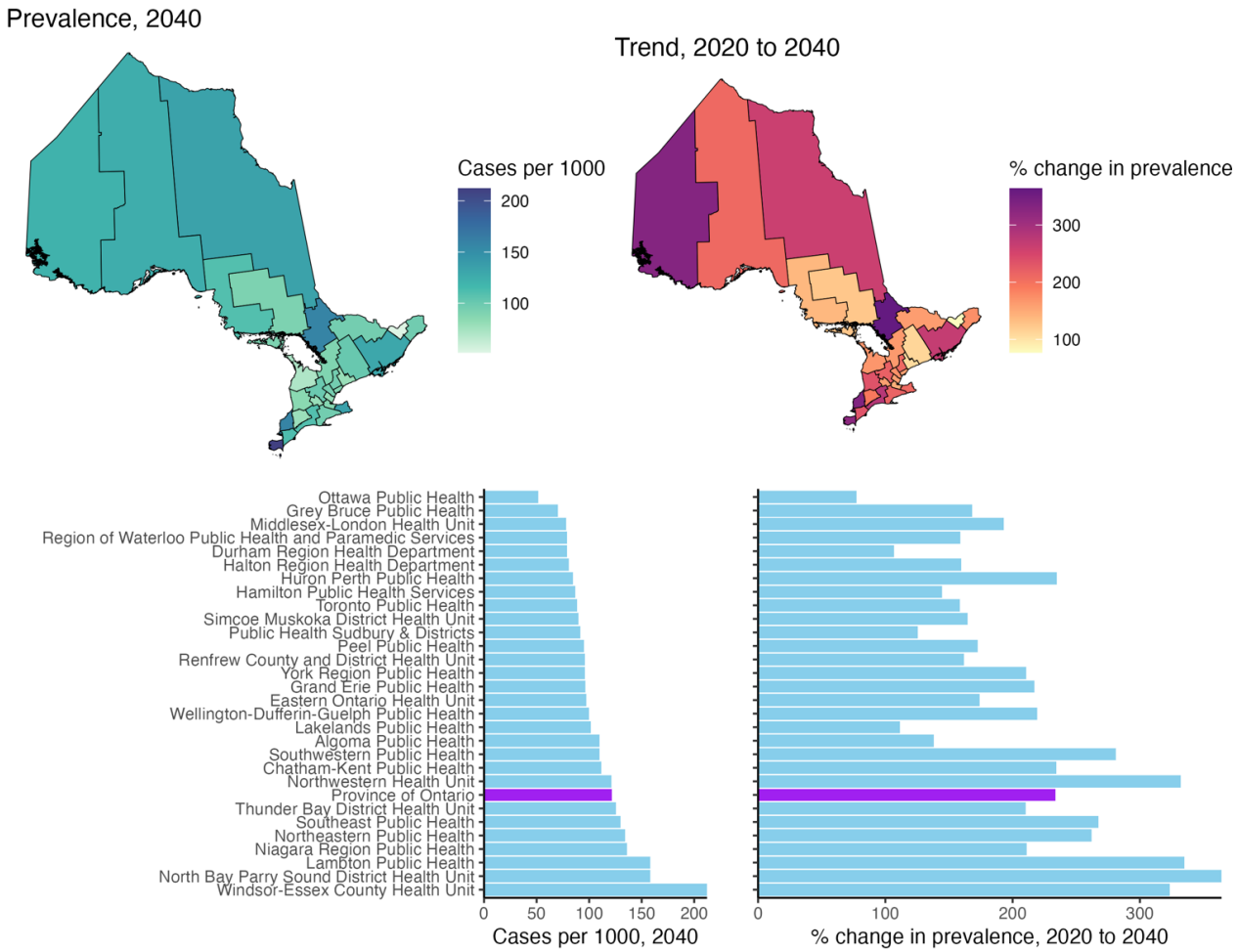
In addition to the most common conditions, the 5 chronic conditions that are expected to grow the fastest across Ontario between 2020 and 2040 (as measured by % change in the projected number of cases) are constipation, acute myocardial infarction (MI), substance use disorders, kidney disease and failure, and schizophrenia and other psychotic disorders. Other chronic conditions expected to see large growth include age-related conditions such as hearing loss and dementia, as well as Crohn's and colitis and rheumatoid arthritis. There is variation in the fastest growing conditions across Ontario's public health units, with other conditions (including epilepsy and diabetes) showing localized importance rather than a consistent provincial signal.

Figure 7. Projected prevalence (2040) and trend over time (2020 to 2040) of substance use disorders in Ontario, by Public Health Unit.



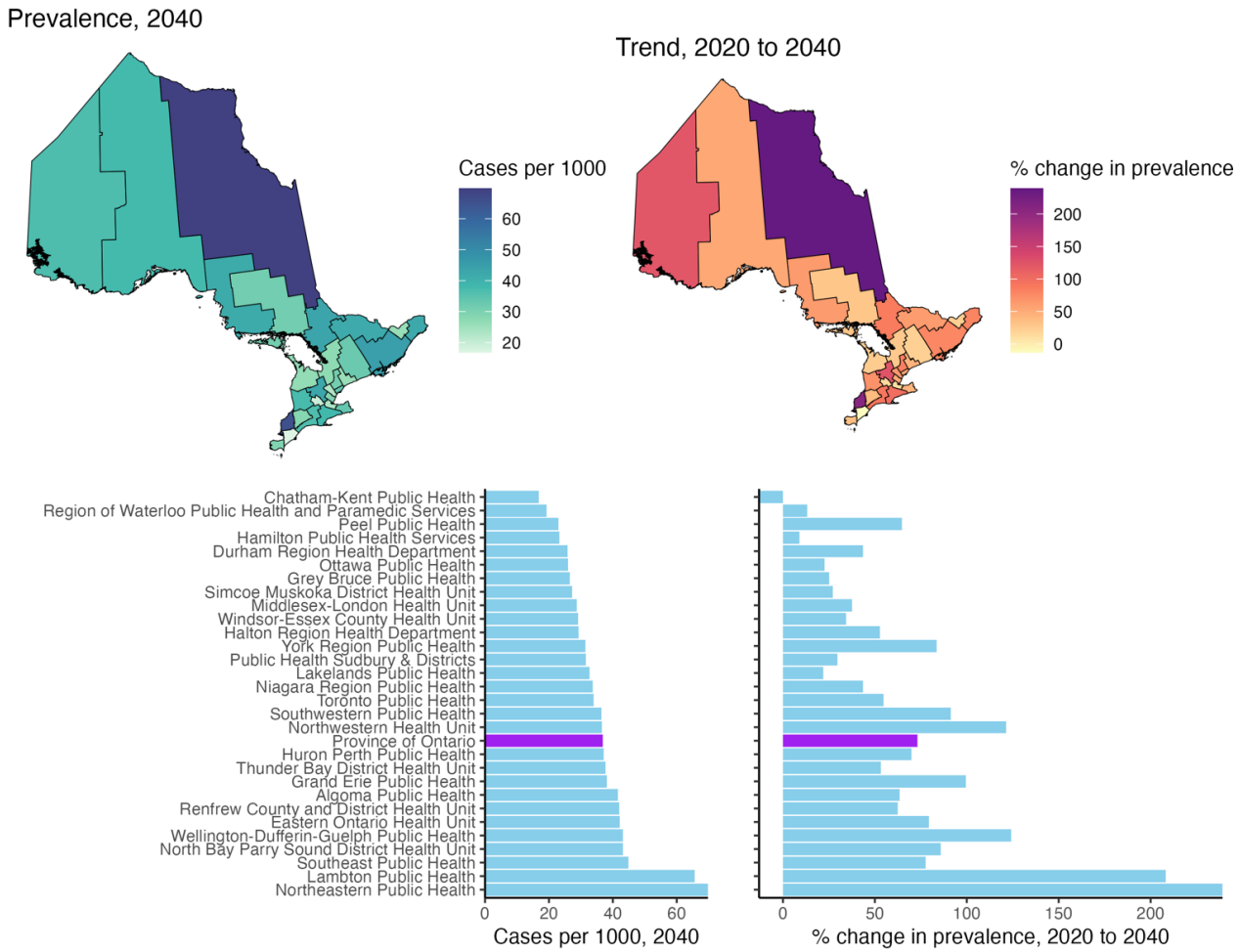
Substance use disorders (Figure 7) and kidney disease and failure (Figure 8) rank consistently in the fastest growing conditions across most PHUs, and there are notable similarities in their geographic patterns. Both are projected to grow in northern and southwestern Ontario. Conversely, cancer prevalence (Figure 6) is projected to be concentrated outside the Greater Toronto Hamilton Area, with the highest rates in Huron Perth Public Health, Algoma Public Health, Grey Bruce Public Health, Chatham-Kent Public Health, and Lakelands Public Health.

Figure 8. Projected prevalence (2040) and trend over time (2020 to 2040) of kidney disease and failure in Ontario, by Public Health Unit.



Other fast-growing conditions, such as dementia (Figure 9), are likely the result of population aging and clearly reflect demographic patterns across Ontario's PHUs. Dementia prevalence is expected to increase in northeastern Ontario, including Northeastern Public Health and North Bay Parry Sound District Health Units, as well as in rural areas of southern Ontario, including Lambton and Wellington-Dufferin-Guelph.

Figure 9. Projected prevalence (2040) and trend over time (2020 to 2040) of dementia in Ontario, by Public Health Unit.



Key Findings for Ontario

- The number of people living with major illness in Ontario is projected to increase by approximately 55% between 2020 and 2040.
- **Top 5 most prevalent conditions in 2040 are projected to be:** mood and anxiety disorders, osteo- and other non-rheumatoid arthritis, hypertension, diabetes, and asthma.
- **Top 5 fastest growing conditions between 2020-2040 are projected to be:** constipation, acute myocardial infarction (MI), substance use disorders, kidney disease and failure, and schizophrenia and other psychotic disorders.
- Projected patterns of chronic illness are highly variable across PHUs, for both future prevalence and expected changes over time.

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