

Genomics-Informed Oncology Nursing

Oncology nurses make vital contributions to the delivery and continuity of high-quality, evidence-informed cancer care. In Canada and other countries, genomic-based technologies are widely integrated across oncology services (Konstantinopoulos et al., 2020; Liu et al., 2022). The results of genomic testing are used to increase the accuracy of diagnosis and targeted therapy selection and to reduce the burden of cancer treatments (Konda et al., 2023; Weymann et al., 2021). Test results also help predict the risks of cancer and other diseases and identify individuals with an inherited predisposition to cancer who may benefit from prevention and risk-reducing measures (Garutti et al., 2023). However, people in Canada can only experience these benefits when they have timely, appropriate, and equitable access to accurate genomics information, testing, and follow-up care.

With the increased applicability and public awareness of genomics in oncology, the Canadian genomics workforce is struggling to meet public demands for genomics-informed cancer services (Dragojlovic et al., 2023). Mainstreaming of genomics in cancer settings, where non-genetic specialists such as nurses are involved in genomics-informed care pathways, has improved timely genomic testing for certain cancers and standardized patient education (Bokkers et al., 2022; Hamilton et al., 2021; Loughrey et al., 2024; Monje-Garcia et al., 2023; O'Shea et al., 2023). However, barriers including long wait times, restrictive eligibility criteria, limited publicly funded genomic testing, and a lack of post-testing care pathways persist (Tindale et al., 2022). Certain populations, such as Indigenous peoples, racial minorities, older adults, people experiencing lower socioeconomic status, and those residing in rural Canada, are disproportionately burdened by cancer (Canadian Partnership Against Cancer, 2020). Therefore, strategic efforts must ensure the safe and equitable integration of genomics into oncology services in ways that foster trust in cancer care and genomics, and avoid widening existing cancer disparities (Limoges et al., 2024a, 2024b, 2025).

Oncology nurses are well-positioned to optimize genomics-informed care by practising collaboratively with patients and members of interdisciplinary teams, including genetic counsellors, geneticists, oncologists, and pharmacists. Oncology nurses have the scope of practice and competencies (e.g., collecting family history, conducting a personal risk assessment, teaching, coaching, and administering medication) to help patients and families navigate decisions on genetic testing and the use of test results. Oncology nurses have multiple points of contact with patients, which can enhance the accessibility of education and support navigating test results, lifestyle changes, and precision/targeted treatments (Diez et al., 2022, 2024). In addition, oncology nurses with advanced scopes of practice can provide comprehensive cancer genomic risk assessments, order and return genetic test results to patients, and provide specialized high-risk follow-up care (Dowling et al., 2024; Mahon, 2022). Optimizing nurses' contributions to care delivery and coordination in alignment with genomics-informed care pathways requires an awareness of the distinct and overlapping scopes of

practices of all healthcare providers engaged in genomics services. This will enable nurses to understand their responsibilities and accountabilities for autonomous practice, when to refer to other healthcare providers such as genetic counsellors, and when care is best delivered within an interprofessional context.

Patients in Canada are turning to nurses with questions related to genomics (Limoges et al., 2024b). Canadian oncology nurses have suggested that position statements, competencies, practice standards, education and curriculum frameworks, best practice guidelines and evidence-informed pathways are required to delineate the responsibilities and practices of nurses delivering genomic services (Chiu et al., 2024c). Leadership and Canadian-focused research are required to guide policy and practice advancements and to address the unique implementation facilitators and barriers across the country (Chiu et al., 2024a; Limoges et al., 2024a, 2024b, 2025). As an immediate step toward filling the gap in policy infrastructure (Chiu et al., 2024b; Puddester et al., 2023), CANO/ACIO is issuing this position statement to outline oncology nursing beliefs and values related to genomics and to inform directions for policy and practice developments that assist oncology nurses to engage in the technical and relational aspects of genomics-informed care.

It is the position of CANO/ACIO that:

1. All people in Canada should have inclusive, equitable, evidence-informed genomic services across the cancer care continuum. This includes information regarding their hereditary cancer risk, genomic-informed options for screening, and recommendations for preventative measures, diagnosis, treatment options, or end-of-life support.
2. Evidence-informed cancer genomic services must be provided through holistic, person and family-centred approaches that are sensitive to the diverse safety, emotional, ethical, and relational needs of people receiving genomic information.
3. Comprehensive and equitable genomics-informed cancer care relies on a collaborative, interprofessional approach that includes oncology nurses, genetic counsellors, physicians, pharmacists, molecular scientists, medical geneticists, and social workers. As vital members of the cancer care team, oncology nurses are positioned to deliver and lead high-quality, continuous care for patients and their families.
4. Oncology nurses require clear policy guidance (e.g., genomics practice guidelines, standards, and competencies) about the scope of genomics-informed nursing practice and accountabilities for providing genomics-informed cancer care across various levels of nursing roles¹ across the spectrum of cancer care.
5. Active nursing engagement is essential in shaping policies, practices, and care pathways that promote equitable, culturally safe genomics-informed care that recognizes the unique and variable care contexts across Canada, from rural or remote settings to large tertiary centres.
6. Oncology nurses must have access to interprofessional education to increase their genomic literacy. Collaboration between professional associations, educational institutions, and employers is essential to provide learning resources, professional development, and mentorship to meet evolving patient needs and genomic advancements.
7. Nurses should receive foundational genomics education at the undergraduate level and receive the support of their employers to engage in more specialized cancer genomic education to develop the necessary genomic literacy to provide evidence-informed care.
8. Nurses must be provided education on the complexities of genomics, such as the rapid pace of discoveries and the unique ethical, cultural safety, and legal implications during undergraduate, graduate, and continuing education courses. With strong foundations in genomics, oncology nurses in leadership positions (e.g. nurse managers and clinical educators) can drive health system transformation, ensure sustainable, equitable, and ethical implementation of genomic technologies and support workforce development across the cancer care continuum.

¹ [CANO-Nursing Knowledge and Practice Framework](#)

9. Oncology nurses are crucial in advocating at the patient, health system, provincial, federal, and First Nations levels to ensure individuals, families, and communities receive equitable access to genomic testing and genomics-informed services.
10. Oncology nurses need sustainable funding to support genomics research and knowledge mobilization that can improve patient outcomes, and opportunities to collaborate with interdisciplinary research teams to enhance knowledge development.
11. Oncology nurses must collaborate across sectors with partners in the broader genomics community to remove silos and ensure the workforce remains agile and responsive to the changing landscape.
12. Oncology nurses should strengthen collaboration and share resources with oncology nurses from different countries and with nurses outside of oncology to accelerate the integration of genomics and prevent the duplication of efforts by harmonizing resources that can be readily adapted for different contexts.

Definitions

Genetics involves the study of the role of genes in disease inheritance (National Human Genome Research Institute, 2025a).

Genetic Counsellors are master's-prepared healthcare providers with an education in genetics and counselling (Sick Kids, 2022).

A Genetic variant is a change or alteration in one's genetic material (DNA or RNA). Clinical implications of variants can vary and are classified as pathogenic, benign, or have uncertain significance (CANO/ACIO, 2024).

Genomics is the field of biology that studies all an organism's DNA, encompassing the entire set of genes (the genome). This includes examining the interactions between genes and the environmental and functional elements of the genome (National Human Genome Research Institute, 2025b; National Health Service, 2023).

Genomic literacy refers to knowing genomics and the competence to apply said knowledge to inform healthcare decisions (Maghfiroh, 2023).

A Germline variant is a genetic variant inherited from one's parents and present in every cell in the body (CANO/ACIO, 2024).

A Somatic variant refers to a genetic alteration found in any cell of the body other than sperm and egg cells. While these variants can impact the individual, they are not transmitted to offspring (ONS, 2025).

Acknowledgements

We thank the nurses from across Canada who shared their perspectives and experiences to facilitate the development of this consensus-based position statement. We also thank the interdisciplinary working group that contributed ideas to ensure this position statement enables collaborative practice. Funding for the development of this position statement was provided by the Canadian Institute for Health Research.

Position Statement Development

1. The need for a position statement was identified through research with Canadian oncology nurses.
2. A panel of nurses with expertise in genomics developed the first draft of the position statement. CANO/ACIO leadership provided feedback on the initial draft.
3. The content was amended and validated through several rounds of consultation with oncology nurses and through an interdisciplinary working group composed of people with expertise in genomics.
4. Finally, the CANO/ACIO membership-at-large was consulted for additional contributions and to obtain consensus on this position statement.

Oncology Nurses interested in genomics are encouraged to join the CANO/ACIO Oncology Genomics Special Interest group.

Approval by CANO/ACIO Board

Date: May 2, 2025

Citation:

Canadian Association of Nurses in Oncology/Association canadienne des infirmières en oncologies. (2025). Position statement on Genomics-Informed Oncology Nursing. https://www.cano-acio.ca/page/position_statements

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