

Collaboration and Partnerships: Forging New Opportunities for Nurses with Genomic Literacy

Canadian Association of Nursing
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We are speaking to you from the traditional land of the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and from lands that are now home to many diverse First Nations, Inuit and Métis peoples We honour Indigenous history and culture and are committed to moving forward in the spirit of reconciliation and respect with all First Nation, Metis and Inuit people.

Please use the chat if you wish to make a land acknowledgement

Acknowledgements

Canadian Nursing and Genomics (CNG) Steering Committee Members:

April Pike PhD RN

Ann Meyer PhD

Sarah Dewell PhD RN

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Ontario Genomics

Objectives

1. To understand the concept of genomic literacy and genomics informed nursing practice.
2. To review case studies highlighting the role of genetics and genomics spanning the cancer care trajectory.
3. To envision the leadership opportunities for oncology nurses in advancing genomic literacy in practice.
4. Explore intra and interprofessional collaboration strategies to advance nursing knowledge and practice.





Nurses are Asking for Genomic Literacy and to Engage in Genomics Informed Healthcare

How can I use **pharmacogenomics** to make medication administration safe?

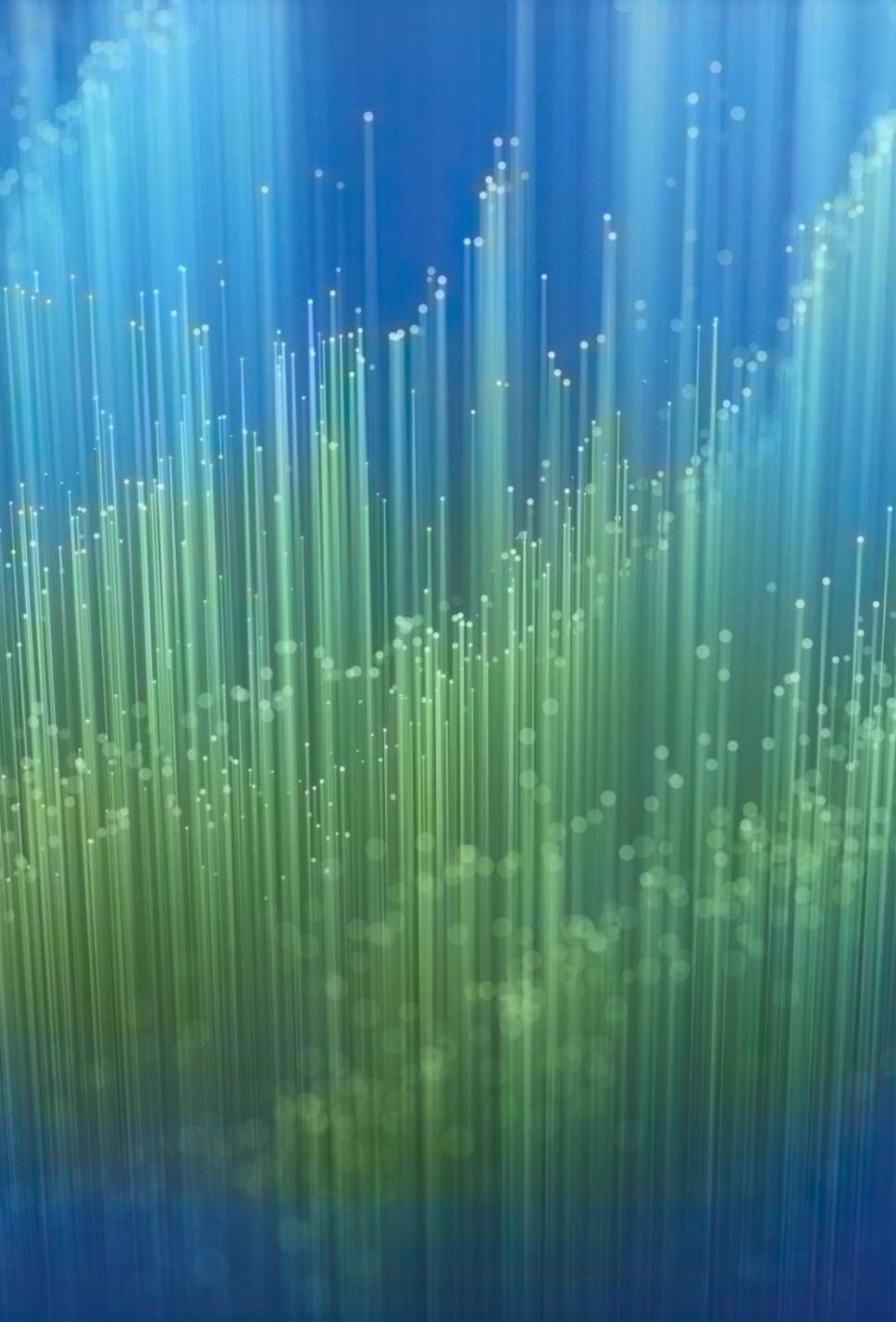
What are the **ethical and equity issues** with genetic testing and genomics?

How can I enhance **patient outcomes** with genomics?

What is the **nurses' role** with genomics and precision healthcare?

Where can I find **resources** to learn and teach about genomics?

Where is the **nursing research** to guide practice?



Nurses with genomic literacy can address equity issues associated with genomics and promote social justice

Enable equitable access to genetic testing and counselling services for underrepresented groups, and address disparities driven by social or geographical barriers.

Guard against disability discrimination, eugenic ideals, and fear associated with genetic testing.

Nurses represent 40% of the healthcare workforce, with 91% of regulated Canadian nurses identifying as women, thus enhancing nurses' involvement in genomics and precision healthcare promotes gender and professional diversity.

Nurses with Genomic Literacy have the Knowledge and Skill to Address Ethical Issues associated with Genomics

Ethical Issue

- Reconciling individual and relational autonomy
- Promoting fair and equitable access to genetic testing
- Promoting trust in health care and healthcare professionals
- Providing culturally safe care in genomics

Possible strategy

- Respect for autonomy while supporting informed decision making
- Advocate for policy, consider social determinants of health
- Provide accurate information and appropriate referrals
- Acknowledge historical and ongoing trauma

2.9 Nurses maintain a person's right to give and withdraw consent to access their personal, health and genetic information. They protect the use, privacy and confidentiality of genetic information and human genome technologies.

Engagement Framework Overview

Steering Committee: Jacqueline Limoges, PhD RN (co-lead); Lindsay Carlsson PhD(c) RN (co-lead); April Pike PhD RN; Sarah Dewell PhD RN; Ann Meyer PhD

Aim of Canadian Nursing and Genomics

Support nurses to:

- Develop genomic literacy
- Integrate genomics into nursing practice
- Participate in inter-professional collaborative care and research
- Implement precision healthcare
- Address equity issues related to genomics

Building the Engagement Framework



Conducted a literature review to identify strategies known to support genomic literacy



Engaged nurses from all domains of practice and from across Canada to understand needs



Completed an environmental scan to identify gaps and opportunities



Gathered input from international genomics experts to learn about best practices

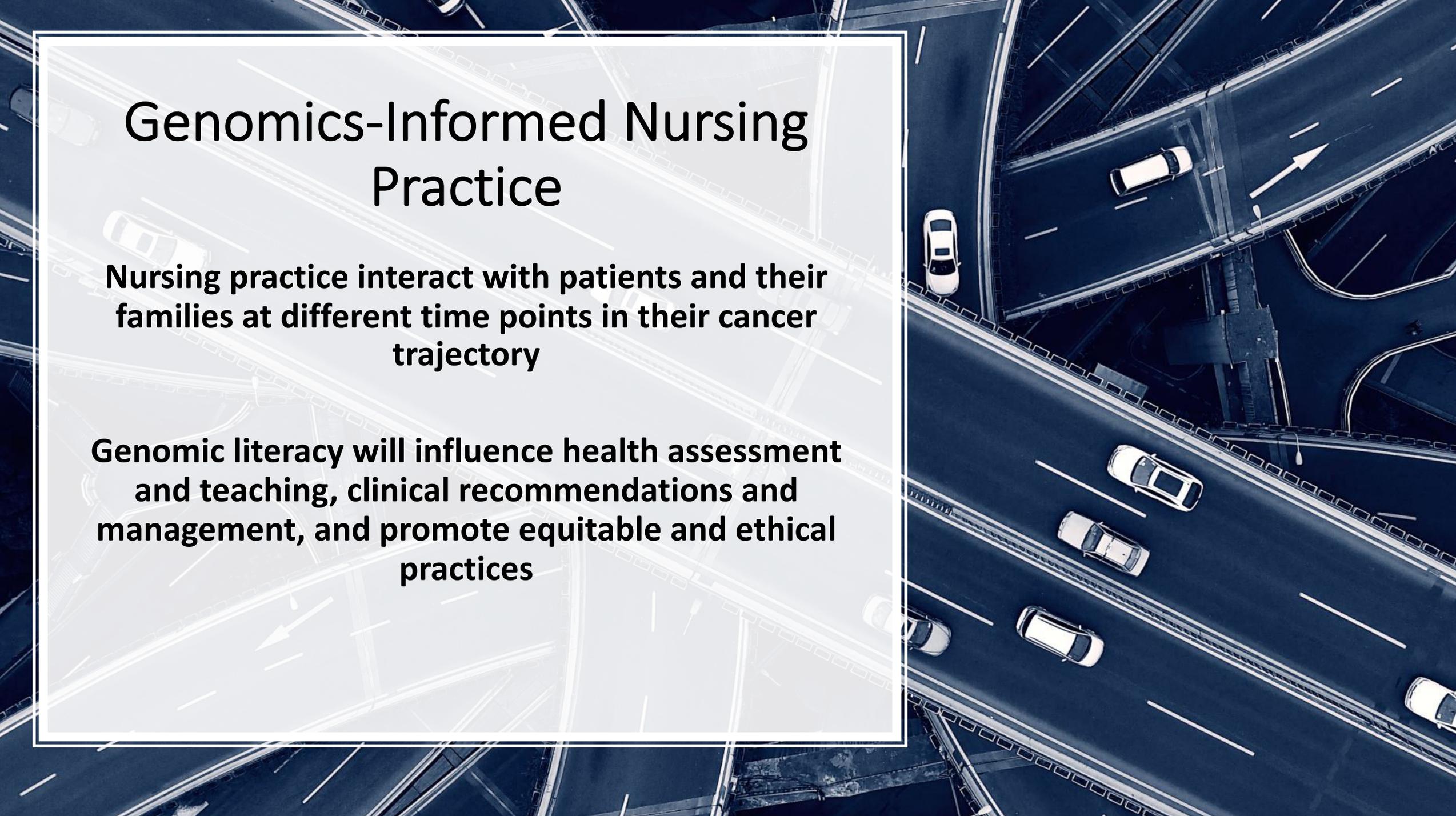


Rationale for an Engagement Framework

- Nurses are key to the integration of genomics and precision healthcare for enhanced health
- Clear priorities and concerted leadership strategies can accelerate the integration of genomics into nursing practice
- Developing infrastructure with collaboration between nurses from point of care, education, research, administration, and policy is crucial to enhancing nurses' contributions to genomics

Key Priorities for Nursing

- Engage nurses to see clinical relevance of genomics
- Clarify nurses' unique and overlapping roles in genomics
- Develop knowledge for nursing practice through research
- Provide education and workforce development
- Support innovation and new care pathways with leadership
- Create infrastructure to support professional practice in genomics



Genomics-Informed Nursing Practice

Nursing practice interact with patients and their families at different time points in their cancer trajectory

Genomic literacy will influence health assessment and teaching, clinical recommendations and management, and promote equitable and ethical practices

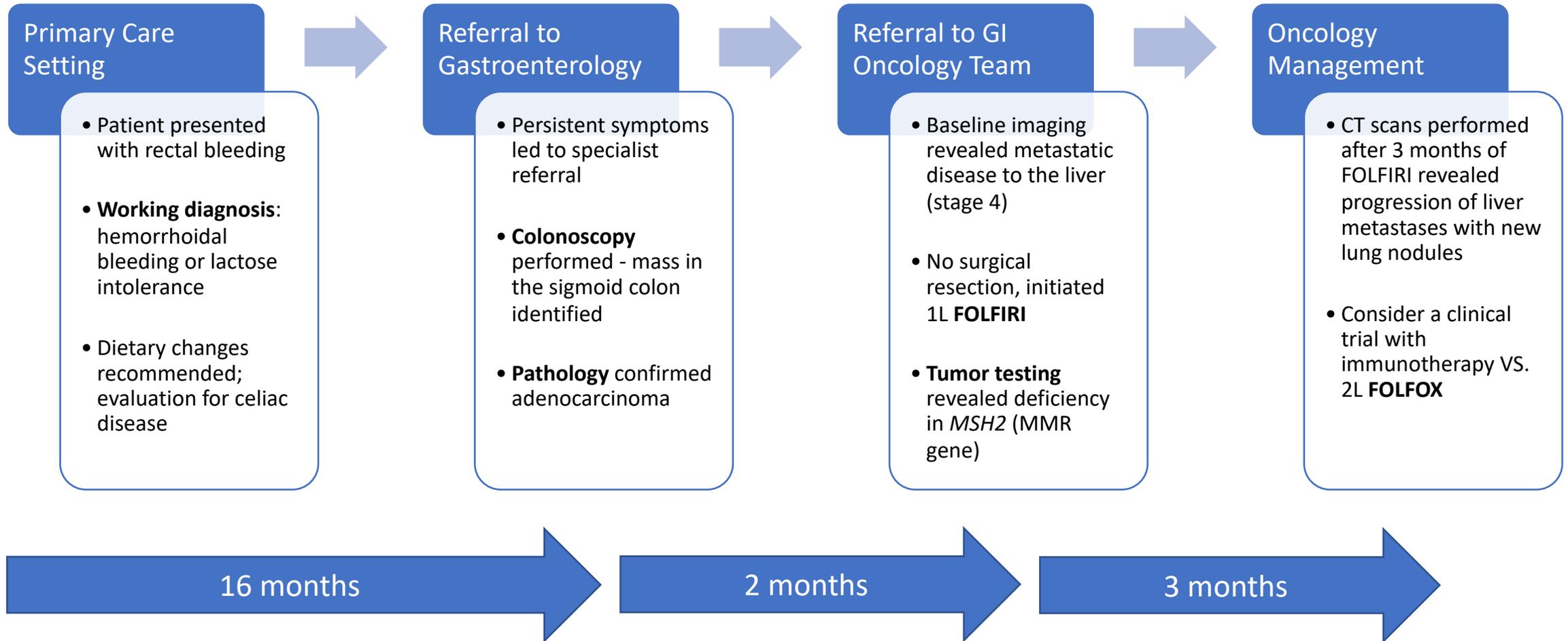


Clinical Scenario*

Patient Details: 42yo male diagnosed with colorectal cancer (KRAS mutant)

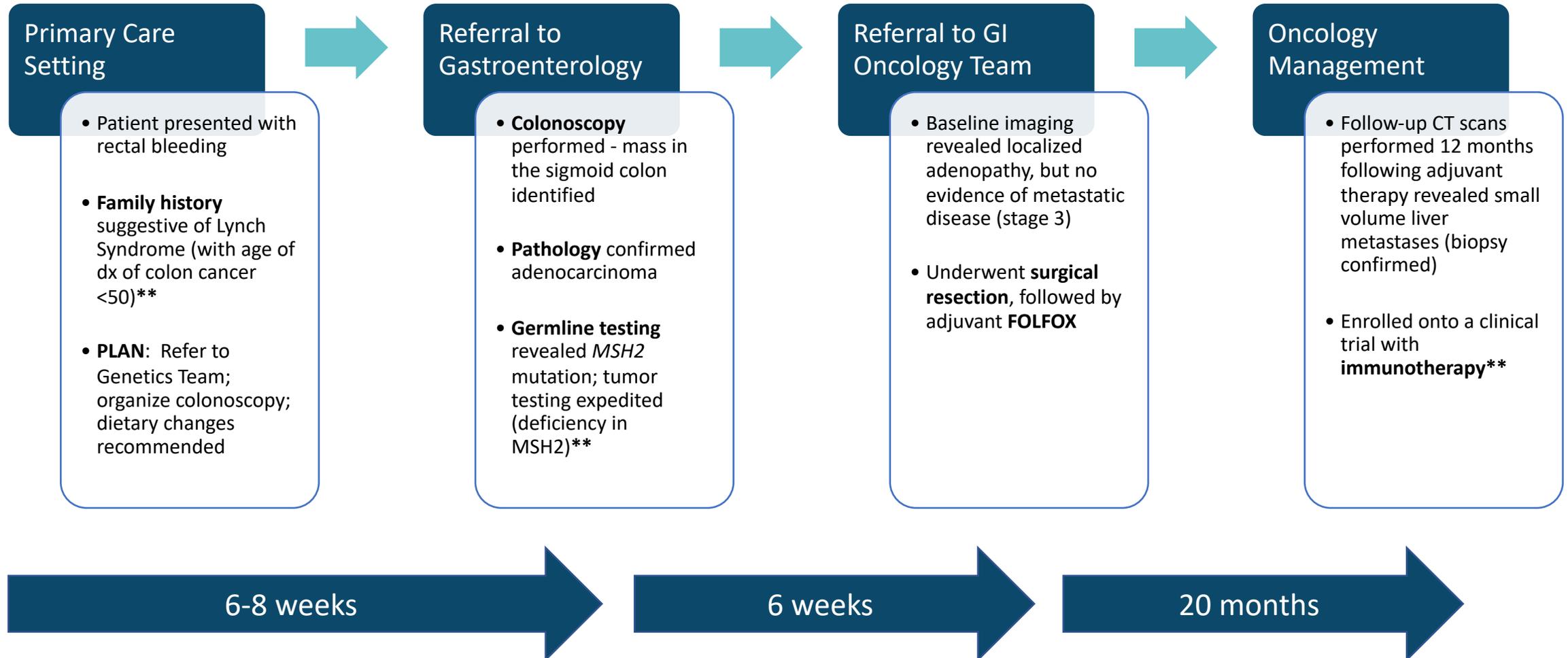
Family History (maternally) includes 2 aunts with endometrial cancer, grandmother with ovarian cancer, 1 uncle colon and 1 cousin with gastric cancer. Limited awareness of his paternal family history.

**Not a real case*

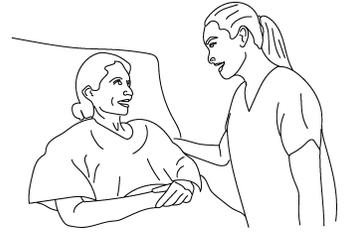


The Patient Journey

The Impact of Genomic Literacy on the Patient Journey



Patients Trust Nurses to Answer Questions about Genetics and Genomics



Nurses with genomic literacy would feel confident in these situations and give trustworthy answers

Are my children at risk of getting the same cancer as me?

I have my genetic tests results, what should I do about screening and lifestyle change and what is my overall cancer risk?

The doctor said I should get genetic testing. What do you think?

If I agree to genetic testing, can the results be used against me somehow?

The doctor just told me I have a genetic variant and I didn't understand what she said, can you explain it to me?

What is a polygenic risks score?

I am now in the palliative phase of cancer treatment; how can I get genetic testing so that my family can benefit?

Clinical Scenario*

Patient Details: 47yo woman recently diagnosed with locally advanced breast cancer (ER/PR-; HER2-). Currently completing neo-adjuvant chemotherapy.

Family and Genetic Testing History: Strong family history of breast and ovarian cancer on her maternal side. Previously underwent *BRCA* testing – negative result.



**Not a real case*

The Impact of Genomic Literacy on the Patient Journey

High Risk Genetic Testing

- Family history suggestive of **Hereditary Breast and Ovarian Cancer**
- Prior **BRCA** testing at age 35 (negative result)
- Calculated **lifetime risk** of developing breast cancer >25%

Primary Care Setting

- Enrolled in **high-risk screening program** and received routine mammography and breast MRI
- Consideration of **risk reduction surgery** based upon age and family planning

Oncology Management

- Role for **multi-gene panel testing** in the context of locally advanced triple-negative breast cancer
- Implications of **CHEK2** mutation for **clinical decision-making**

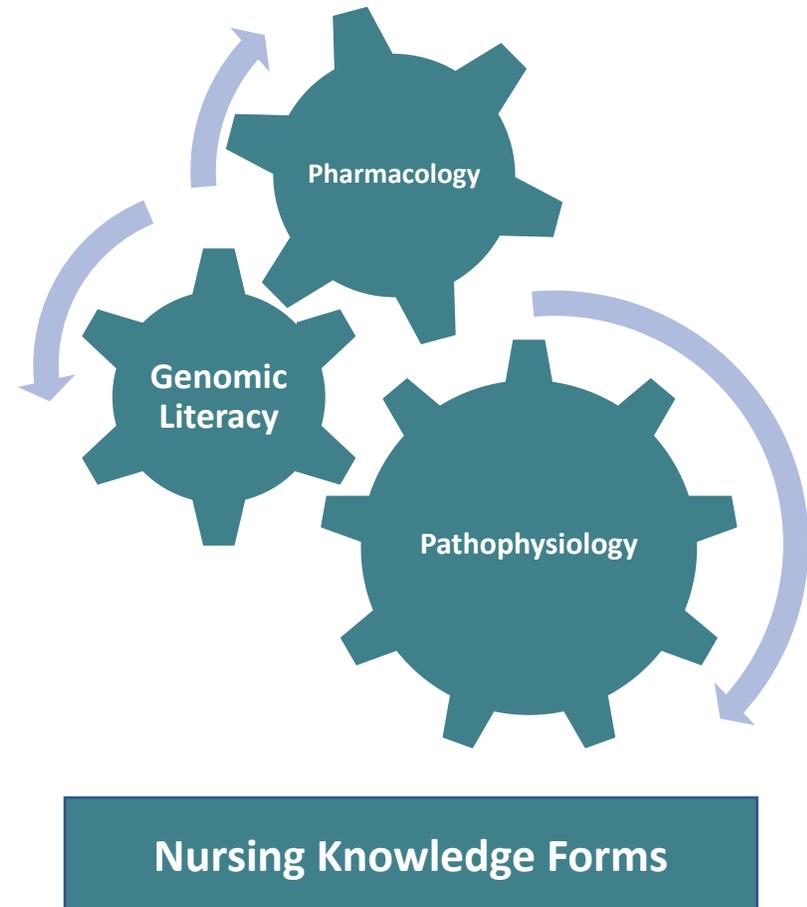
Familial Implications

- **Communication** of panel test results to family members to ensure appropriate **cascade testing**
- Anticipate possible **ethical and equity considerations** and variable testing decisions amongst family members

Case study in Review: Outcomes

Genomic literacy will directly impact nursing practice and patient outcomes.

1. Captured accurate and actionable family history
2. Appropriate referrals to genetic counselling and clinical interventions
3. Understanding of familial and individual implications of germline and somatic testing results
4. Care coordination with interprofessional collaboration
5. Empowered patients and families to make informed decisions
6. Addressed equity issues such as access to genetic testing, trust and racism during care



Clinical and Genomic Considerations

- How can we integrate family history into our baseline **assessment** to identify individuals who have genetic risks and who should be **referred** to genetic testing?
- Where can we find **educational resources** to learn about multi-gene panel testing and the implications of pathogenic variants?
- What **informational and psychosocial supports** do people need as they navigate genetic test results?
- How can you **collaborate** with the clinical team and empower the patient to make an informed decisions?

Clinical Practice

Nurse Educators

Nursing Research

Leadership & Administration

Oncology Nursing is at the Forefront of Genomics



Oncology nurses are uniquely positioned to translate genomic research and technologies into clinical care and shape precision health.

Genomics Advancements are on the Horizon:

- I. Mainstreaming of whole-genome and whole-exome sequencing into routine care.
- II. Integration of artificial intelligence to manage and filter enormous datasets associated with genome sequencing.
- III. Transition towards liquid biopsies and improve the clinical utility of ctDNA.

Oncology Nurses: Opportunities for Leadership

CLINICAL PRACTICE:

- Provide patient education that translates scientifically complex genomic data to enable patients and families to participate in cancer screening, prevention, and treatment decisions.
- Collaborate with the multidisciplinary care team to ensure care plans and clinical programs are adaptive and responsive to genetic and genomic data.

EDUCATION:

- Clinical Nurse Educators can partner with genomic champions within nursing to develop educational programs.
- Post-Secondary Nursing Programs can create pathways for undergraduate and graduate degrees with a focus on genomics.

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Oncology Nurses: Opportunities for Leadership

POLICY:

- Support policy formation and communication campaigns that educate the public around genetic testing and support access to counselling services
- Contribute to policy recommendations surrounding funding for genetic services and staff, as well as the genomic analyses approved for different cancer diagnoses.

RESEARCH:

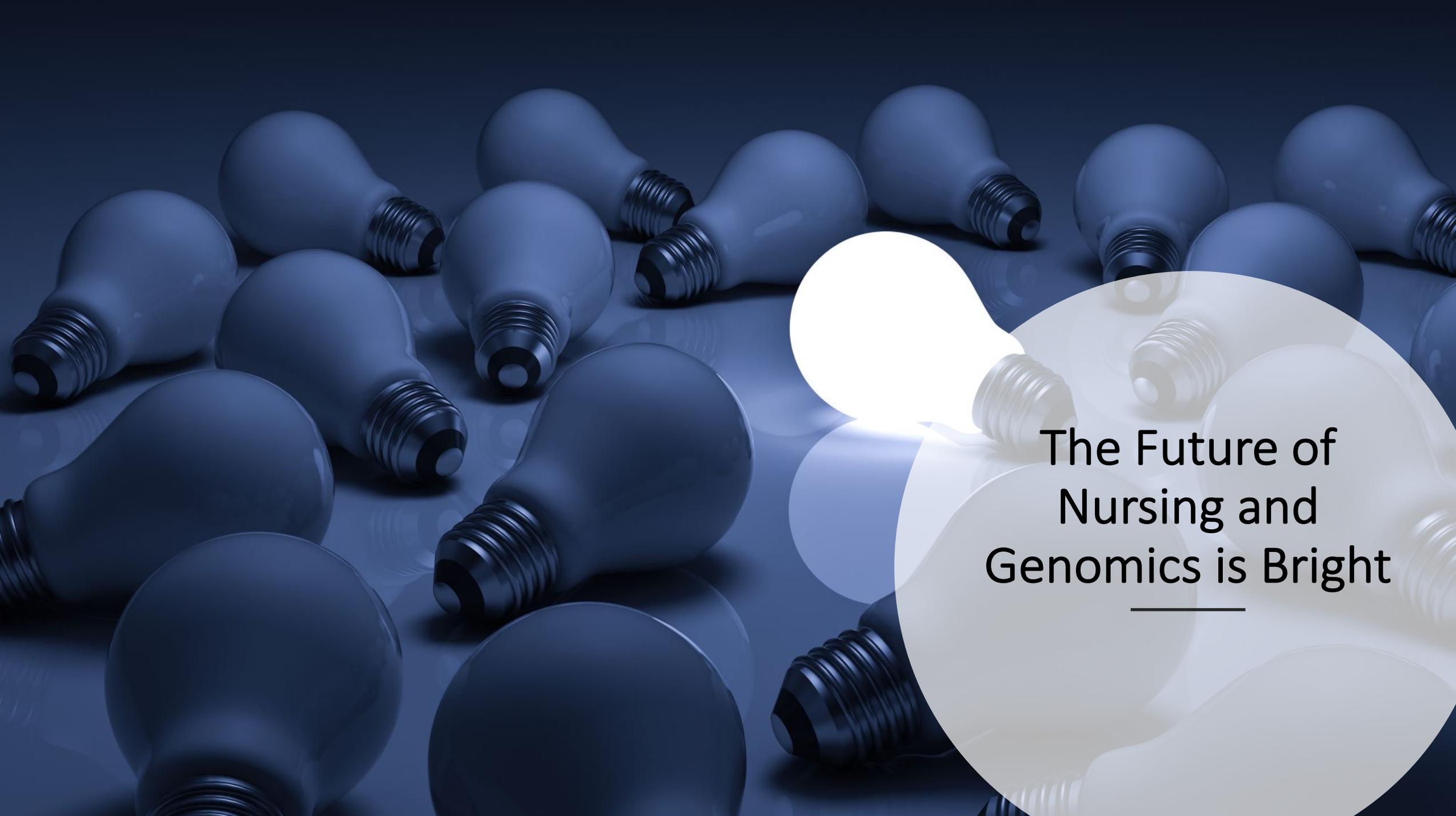
- Academic institutions and health organizations need to build research capacity in genomics by supporting Masters and PhD prepared nurse leaders.
- Forge interdisciplinary research partnerships to create large databases and biobanking initiatives.

ADMINISTRATION:

- Nursing organizations and regulatory bodies need to prioritize the integration of genetics and genomics into nursing curriculum, care pathways and competencies for genomic literacy.
- Support clinical innovation and the development of infrastructure and resources to support genomic literacy efforts within oncology nursing.

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The Future of
Nursing and
Genomics is Bright

What Steps Can YOU Take?

- I. Visit online resources
 - I. <https://www.nursingandgenomics.com/>
 - II. <https://www.ons.org/>
 - III. <https://www.g2na.org/>
 - IV. <https://www.isong.org/>
- II. Read an article about nursing and genomics
- III. Engage with the CNG or related organizations (ISONG or G2NA)
- IV. Advocate within your organization to support genomic literacy and genomics informed nursing practice

Questions?

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