

# The Future of Radiotherapy

**Caitlin Gillan MRT(T) MEd, PhD, FCAMRT**  
**Cancer Education Day – Radiotherapy**  
**Erie St Clair Regional Cancer Program**

**Friday, January 13, 2023**

 @kikicait



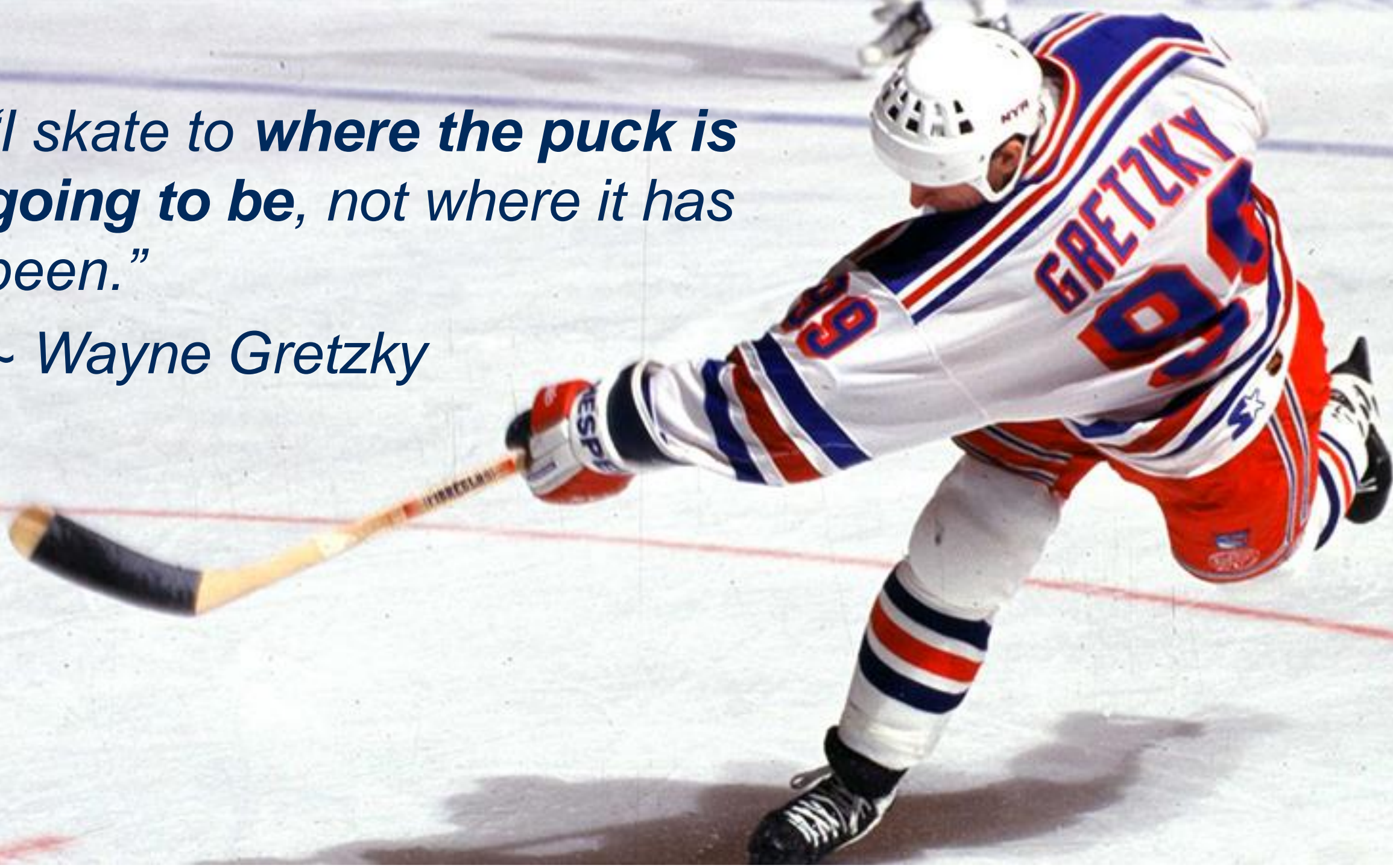
# Disclaimers



- 1) I don't have a crystal ball
- 2) I don't work in radiation therapy anymore

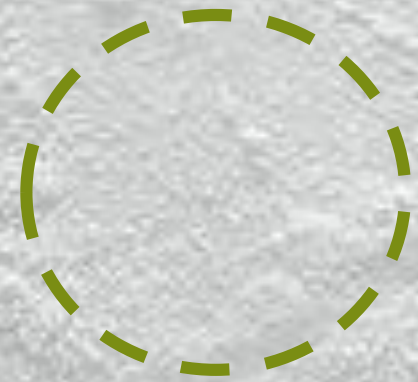
*“I skate to where the puck is going to be, not where it has been.”*

*~ Wayne Gretzky*





*Current Practice*



*Future Practice*

- Artificial Intelligence
- MR-Guided RT
- Protons
- Equity / Accessibility
- Virtual Care
- Theranostics
- FLASH
- Immunotherapy
- Advanced Practice & Creative Staffing

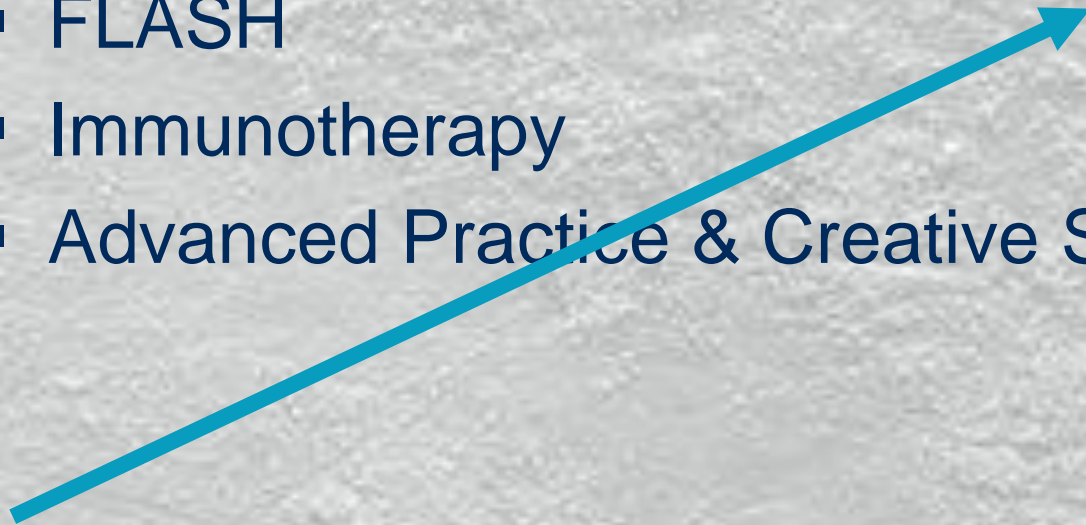


Radiation  
Professional

*Current Practice*



*Future Practice*



## ***The Play***

- We are **strapped** for resources – time and HHR
- We are **drowning** in repetitive, rule-based tasks
- We are **plateauing** in optimizing therapeutic ratio and tumour targeting
- We are **underleveraging** emerging data to personalize management



TSpace Repository / School of Graduate Studies - Theses / Doctoral Theses (2009 - )

Title:

Healthcare Professional Association Agency in Preparing for Complex Technological Interventions: A Multiple-case Study of Artificial intelligence in Radiation Medicine and Medical Imaging

Author:

Gillan, Caitlin Fiona Jane

Advisor:

Dobrow, Mark

Department:

Health Policy, Management and Evaluation

Keywords:

artificial intelligence; complex intervention; health professions; medical imaging; professional identity; radiation medicine

Issue Date:

Nov-2022

Abstract (summary):

As artificial intelligence (AI) is increasingly integrated in healthcare, associated impact on employment, education, ethics, and professional regulation requires consideration. It is incumbent on healthcare professional associations (HPAs) to assist their memberships in preparing for related change. HPAs hold

Files

Gillan\_Caitlin\_Fiona  
Jane\_202211\_PhD\_thesis.pdf

Permanent link

https://hdl.handle.net/1807/125631

Show complete metadata

Show Statistics 📊

2017: Started PhD



1961

2022

# Tech is only as good as the people around it...

*“those prepared for the change will likely prosper, but those unprepared or unwilling may get left behind”*

~ French & Chen 2019 (JMIRS)

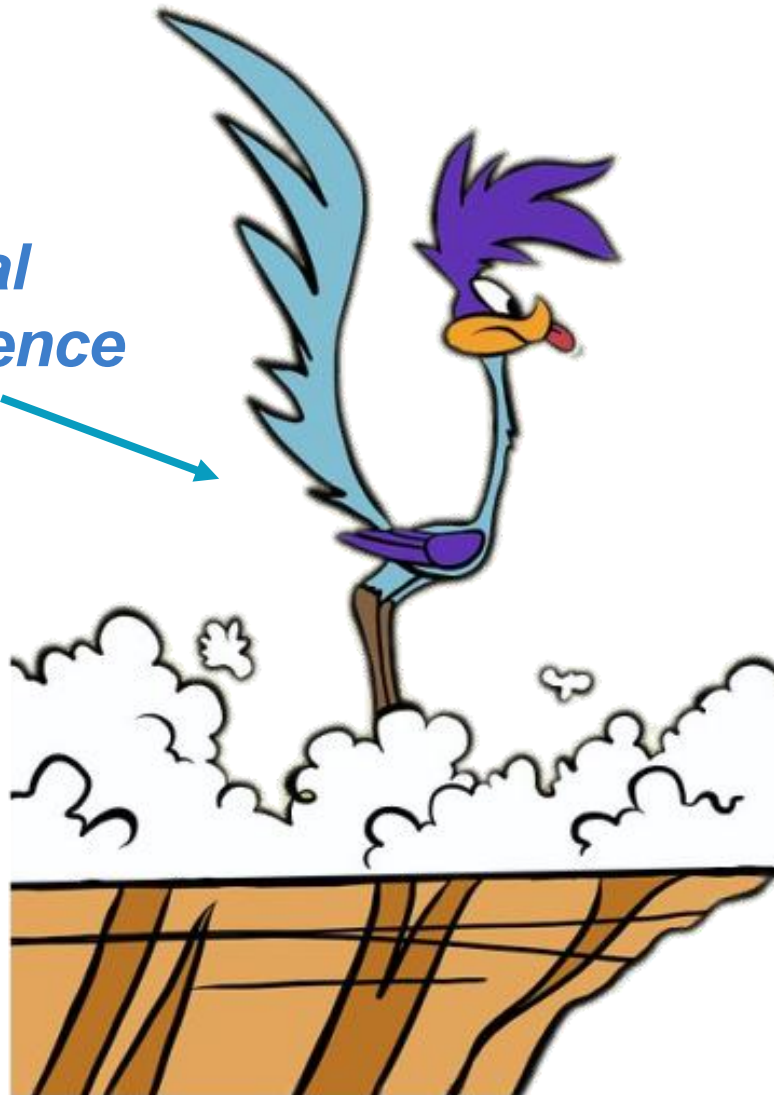
*“the haphazard adoption of [IMRT] provides a compelling harbinger of how AI could similarly be integrated into clinical practice in a piecemeal fashion, which may be driven in part by skepticism, bias, or early challenges”*

~ Thompson et al 2019 (Radiation & Oncology)





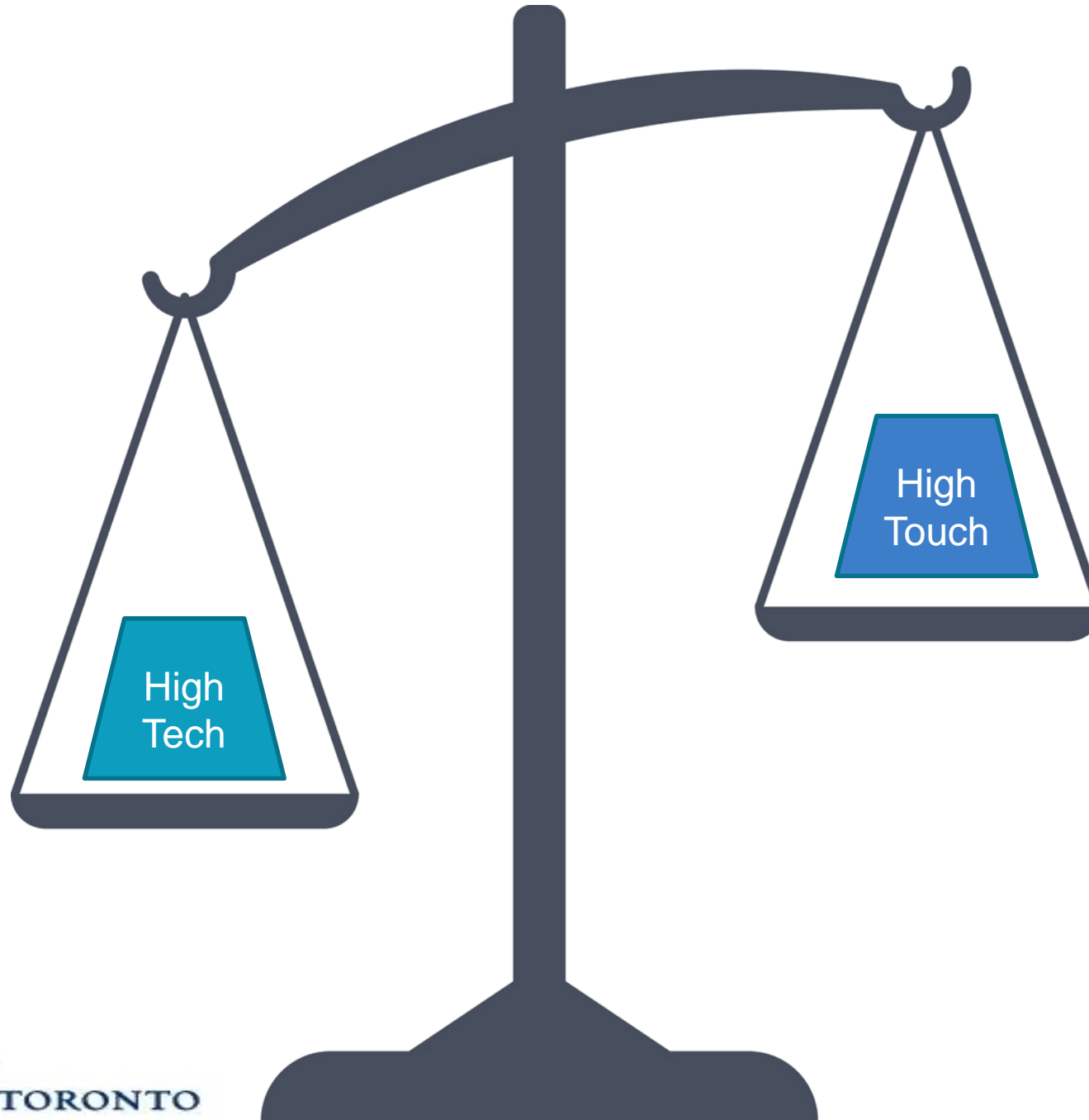
*Artificial Intelligence*



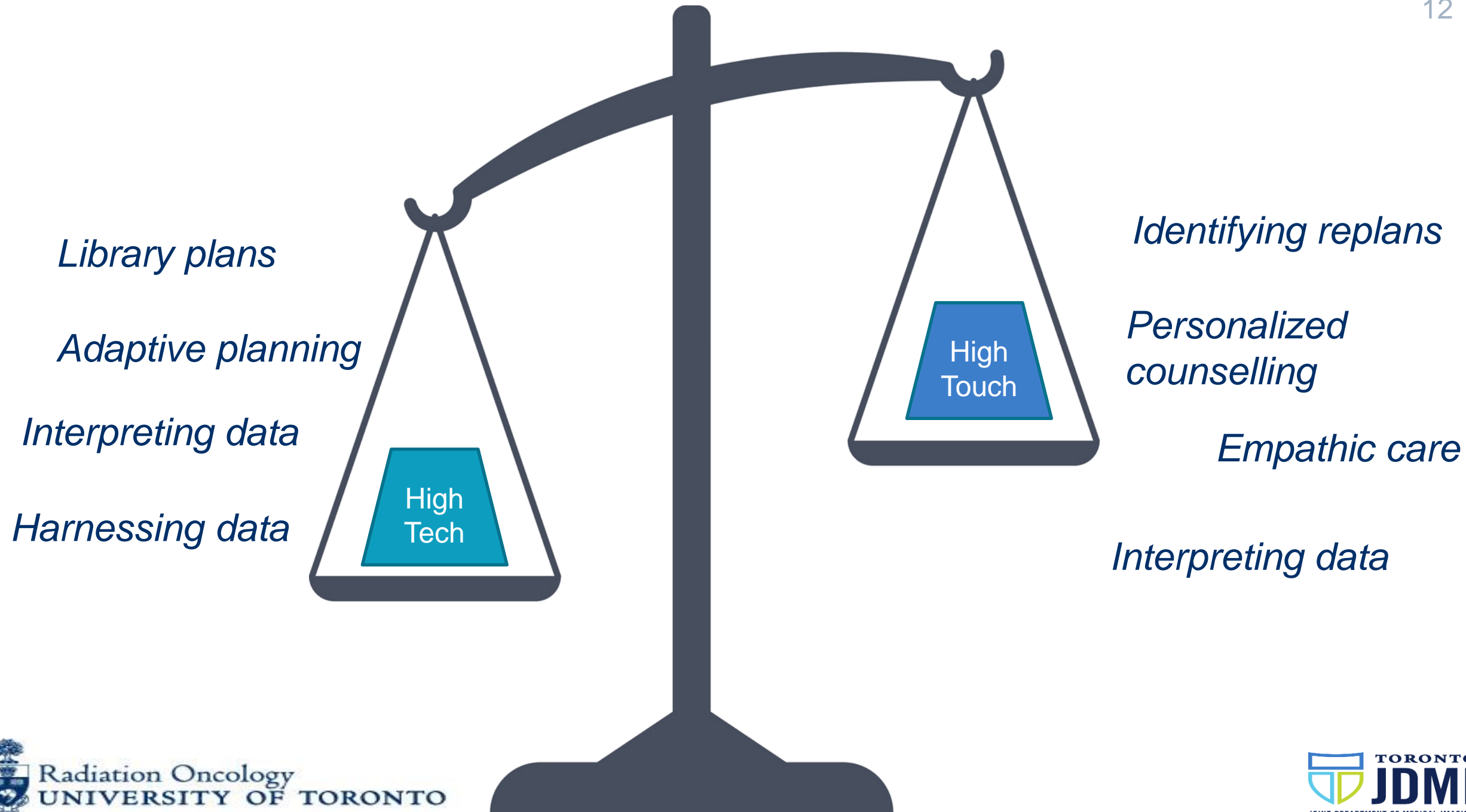
*Health Professions*



*More patients?*

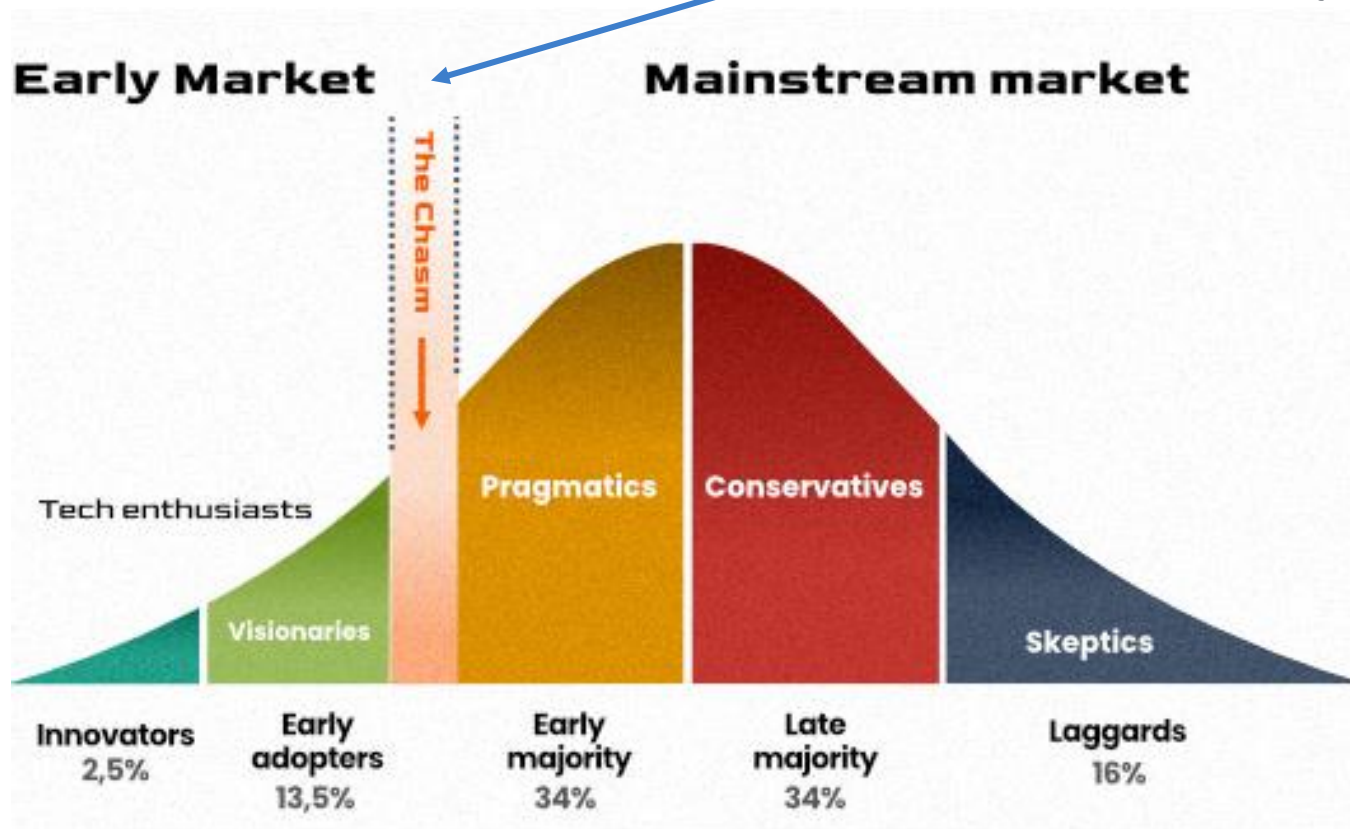


*More time with patients?*



# How to Prepare?

How do we cross this chasm as individuals, as professions, as departments, as a field?



Tools?





# Collaboration - CADRA



- Promote and increase awareness
- Collaboration space and resource harmonization
- Develop and champion best practice guidelines
- Explore future opportunities

- Artificial Intelligence
- MR-Guided RT
- Protons
- Equity / Accessibility
- Virtual Care
- Theranostics
- FLASH
- Immunotherapy
- Advanced Practice & Creative Staffing

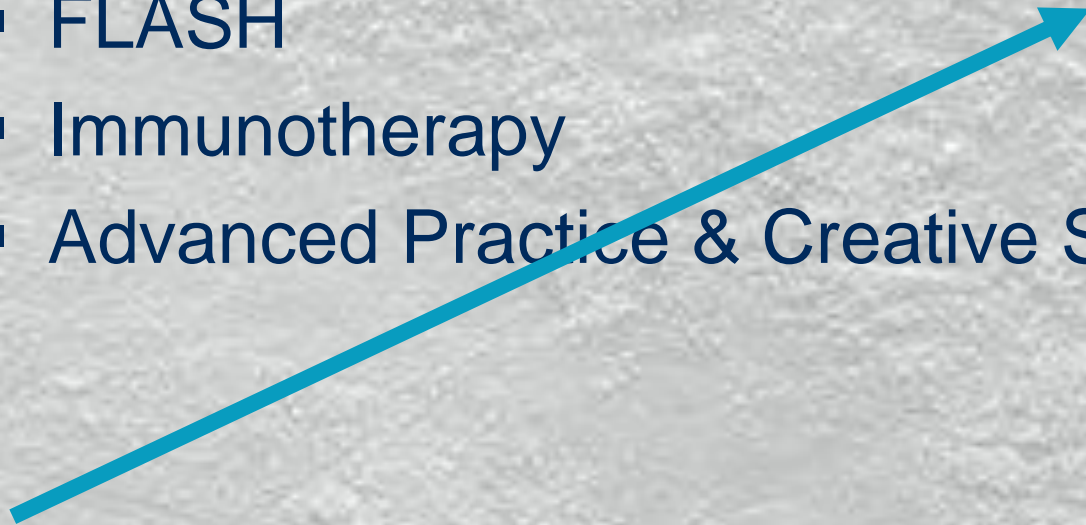


Radiation  
Professional

*Current Practice*



*Future Practice*





# First MRgRT (2015)



Who was shooting the puck?

Could the people they were shooting it to even SKATE?

# MR-integrated Radiation Therapy Training Program

- International faculty
- Clinical experience
- Online learning
- High fidelity simulated learning

**UOFT.ME/MRiRT**



Launching  
2022



**SEE**  
the  
**FUTURE**

# Protons



Search UHN.ca

University Health Network ▶ Princess Margaret Cancer Centre ▶ Health Professionals ▶ Programs & Departments ▶ Radiation Medicine Program ▶ Proton Therapy Consultation Service

## Radiation Medicine Program

[About the Radiation Medicine Program](#) | 
 [RMP Leadership Team](#) | 
 [RMP Site Groups](#) | 
 [RMP Clinical Programs](#) | 
 [Quality Standards & Technology](#) | 
 [Research](#) | 
 [Education & Professional Development](#) | 
 [Collaborative Partnerships](#) | 
 [Connexions Newsletter](#) | 
 **Proton Therapy Consultation Service**

## Proton Therapy Consultation Service



A Vision for  
**PROTON  
THERAPY**  
in Ontario

## Proton Beam Therapy for Cancer in Children and Adults

Publication date: May 2021 Status: **Final recommendation**

### Final Recommendation

- Ontario Health, based on guidance from the Ontario Health Technology Advisory Committee, recommends publicly funding proton beam therapy for pediatric cancers and a subset of adult cancers requiring curative radiation therapy

[Read the final recommendation report](#)

### NEWS RELEASE

## Ontario Building a Stronger, More Resilient University Health Network

\$17.1 million investment will expand lifesaving cancer treatment and improve access to care

April 01, 2022

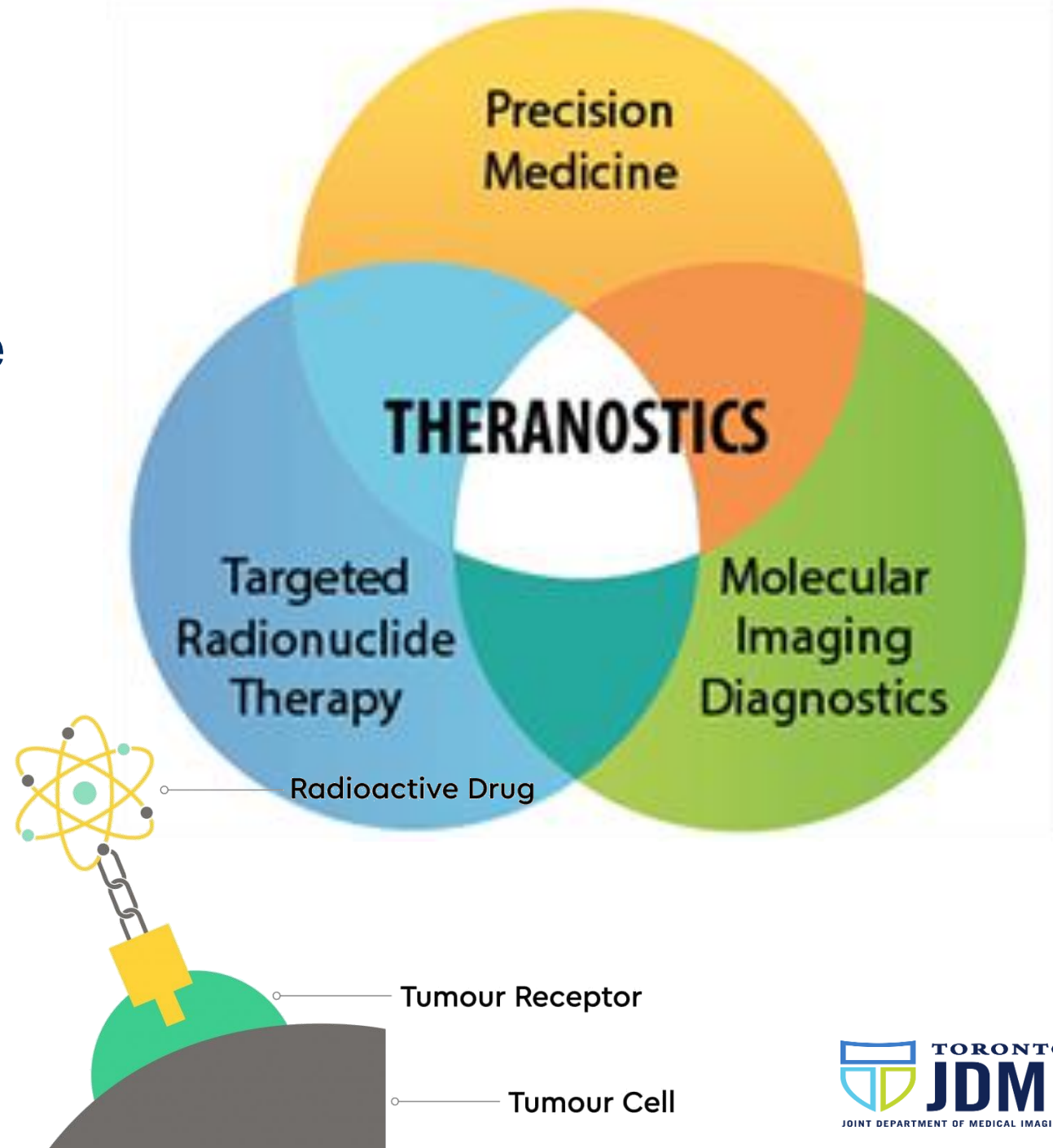
[Health](#)

TORONTO — As part of its plan to build a stronger, more resilient health care system that is better prepared to respond to crisis, the Ontario government is investing \$17.1 million to expand health care services at University Health Network (UHN). This investment includes up to \$5 million to plan for Canada's first-ever hospital-based proton beam therapy facility, which will provide innovative lifesaving cancer treatment to patients.

"Our government is building a stronger, more resilient health care system that ensures all Ontarians have access to the high-quality care they need and deserve," said Christine Elliott, Deputy Premier and Minister of Health. "By investing in UHN's new proton beam therapy facility, we are bringing innovative new technology to Ontario, making it easier and more convenient for patients to receive treatment close to home."

# Theranostics

- Combination of imaging and molecular radiotherapy
- Who will inform and deliver the highest quality care as this emerging field grows in importance?



# Equity / Patient Voice



## Queering Cancer

Inclusive Cancer Care

*Journal of Medical Imaging and Radiation Sciences* 53 (2022) 534–537

Commentary

### Weight bias: A consideration for medical radiation sciences

Megan Brydon

*5850/5980 University Ave, Halifax, NS B3K 6R8*

EDITORIAL | VOLUME 114, ISSUE 2, P195-197, OCTOBER 01, 2022




Purchase

Subscribe

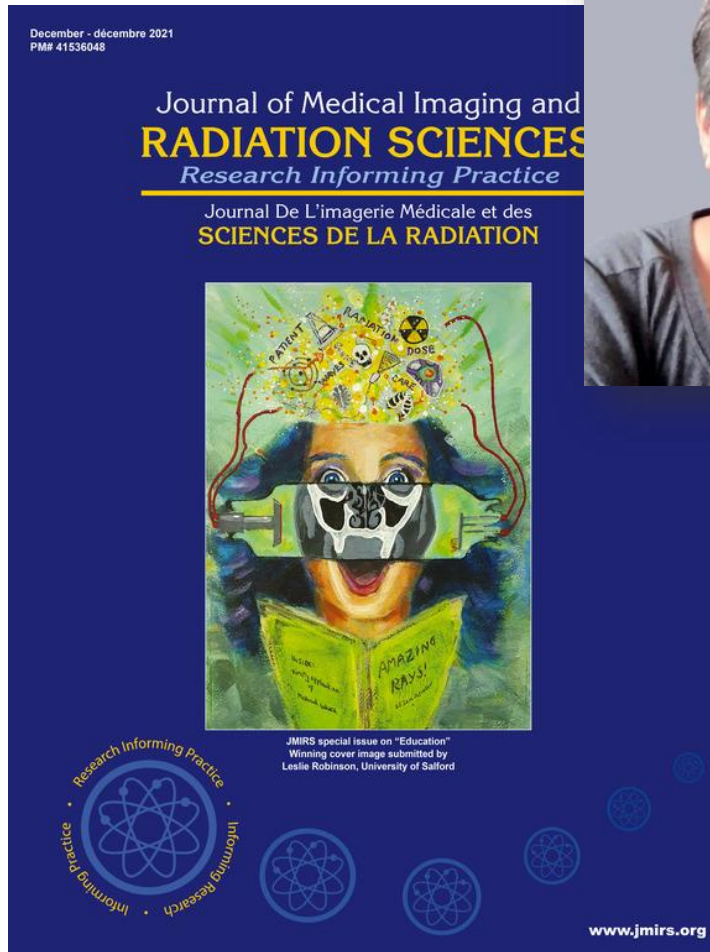
### Achieving Health Equity in Radiation Oncology—Moving From Awareness to Action

Ryan J. Hutten • Bismarck Odei • Amanda Rivera • Gita Suneja  

DOI: <https://doi.org/10.1016/j.ijrobp.2022.06.065> •  Check for updates



# Challenging the Status Quo



## *Patient Engagement*

- Patient partner on JMIRS editorial board
- Coaching for patient authors

## *Accessibility*

- Simplified submission process
- Podcasts, LinkedIn, Facebook
- Novel formats - 2/10 top JMIRS downloads = narratives

# Challenging the Status Quo



ELSEVIER

Journal of Medical Imaging and Radiation Sciences xxx (xxxx) xxx

Medical Radiation Sciences Narratives

Recognising and mitigating the potential for diabetic emergencies in MRI

Lelainia Lloyd<sup>b,\*</sup> and Belinda Godwin<sup>a</sup>

<sup>a</sup> Advanced Radiographer Princess Alexandra Hospital| Metro South Health 199 Ipswich Rd, Woolloongabba QLD 4102, Australia

<sup>b</sup> JMIRS Patient Partner, Port Moody, British Columbia, Canada

Available online xxx

Journal of Medical Imaging  
and Radiation Sciences

Journal de l'imagerie médicale  
et des sciences de la radiation

[www.elsevier.com/locate/jmir](http://www.elsevier.com/locate/jmir)

## Patient Engagement

- Patient partner on JMIRS editorial board
- Coaching for patient authors

## Accessibility

- Simplified submission process
- Podcasts, LinkedIn, Facebook
- Novel formats - 2/10 top JMIRS downloads = narratives



- Artificial Intelligence
- MR-Guided RT
- Protons
- Equity / Accessibility
- Virtual Care
- Theranostics
- FLASH
- Immunotherapy
- Advanced Practice & Creative Staffing

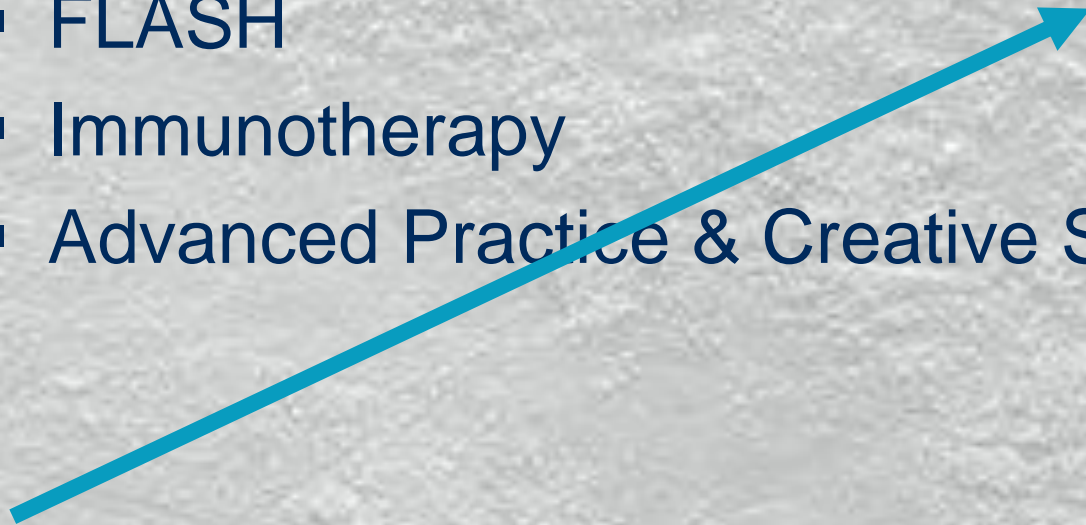


Radiation  
Professional

*Current Practice*



*Future Practice*





# Time to Roll Up our Sleeves?

- What do **I** think is important in radiation therapy?
- What do **I** want \_\_\_ to be responsible for?
- Where do **I** want to be positioned in future practice?
- What do **I** want the \_\_\_\_ profession to look like?



[www.pixabay.com](http://www.pixabay.com)

*“You miss 100% of the shots  
you don’t take.”*

*~ Wayne Gretzky*

Caitlin.Gillan@uhn.ca

 @kikicait



WHAT IF ALL  
IT TAKES TO CHANGE  
RADIATION THERAPY IS ~~YOU?~~  
ME