CAR 2025

Working Together:
Radiology at the Heart of Care

April 3-6 avril 2025
Le Westin Montréal
Montréal, QC

PROGRAMME

Canadian Association of Radiologists
L'Association canadienne des radiologistes

#CAR2025
www.car.ca

caradiologists.bsky.social
info@car.ca

CAR 2025 Sponsors | Commanditaires du CAR 2025

PLATINUM | PLATINE

Bayer

BRACCO

GE HealthCare

HOLOGIC®

PHILIPS

GOLD | OR

Lilly

MD Financial Management

Scotiabank Healthcare+

SIEMENS Healthineers

SILVER | ARGENT

BARCO

BD

Canadian Radiological Foundation
Research and Education in Our Own Hands

Fondation radiologique canadienne
La recherche et l'éducation entre nos mains

Canon

CHRISTIE INNOMED

core:line

densitas

Eisai

FRESENIUS KABI

Gleamer

methapharm

Microsoft

MILVUE

nova scotia health authority

Optum

Rad AI

SECTRA

TD Insurance

VISAGE IMAGING

BRONZE

AGFA HealthCare

AIRS MEDICAL

AstraZeneca

Boehringer Ingelheim

MedCurrent

MedInformatix

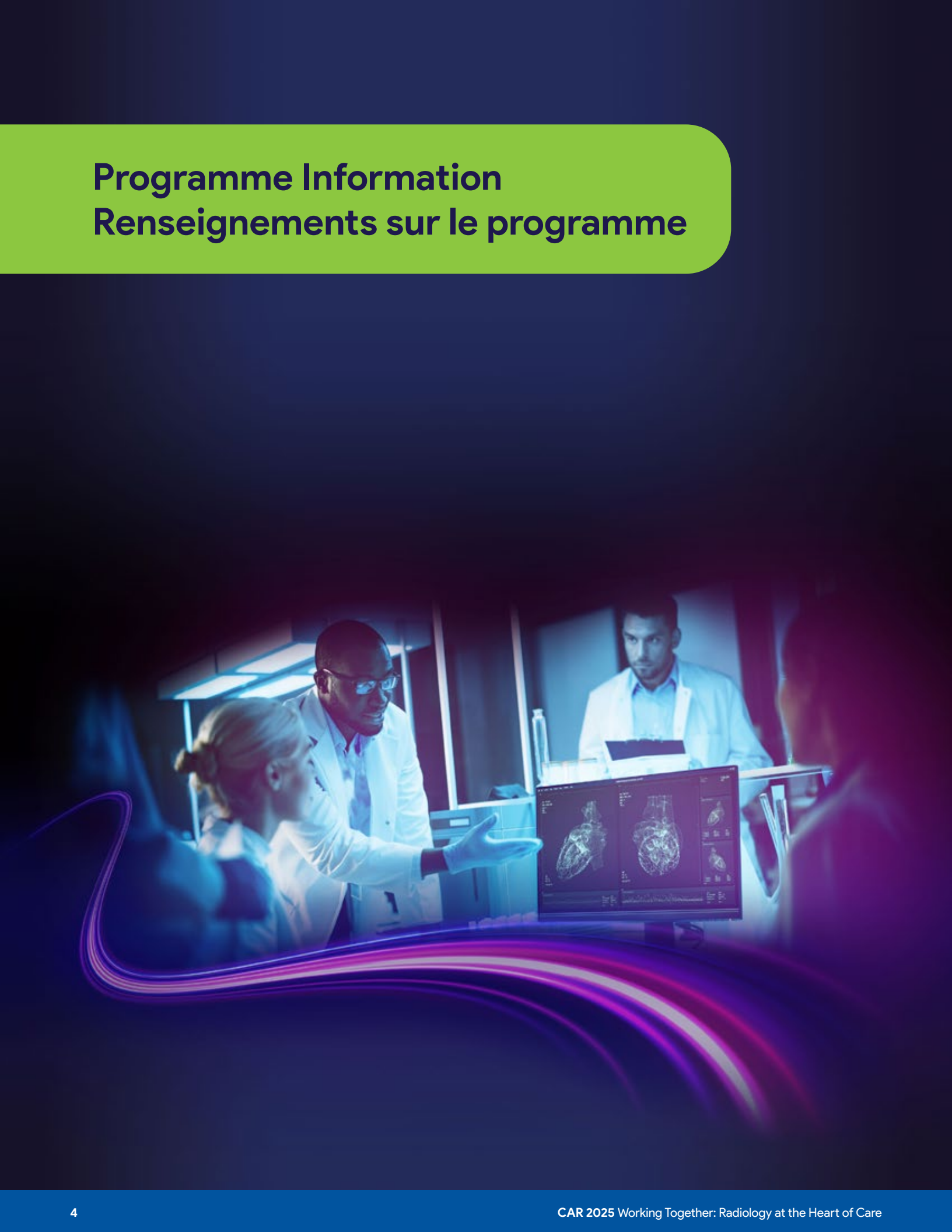
SAMSUNG

UpCare

Thank you for your support | Merci pour votre soutien

Table of Contents
Tables des matières

Programme Information
Renseignements sur le programme



The Canadian Association of Radiologists Annual Scientific Meeting (ASM) provides collaborative learning opportunities to enhance radiologists' knowledge and competencies in diagnostic and therapeutic medical imaging to help deliver optimal quality healthcare for patients and the Canadian public at large.

Accreditation and Designation Statements

The CAR 2025 Annual Scientific Meeting is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification (MOC) Program of the Royal College of Physicians and Surgeons of Canada and approved by the Canadian Association of Radiologists. The CAR 2025 scientific program is approved for a maximum of 12.5 credits (Section 1, Group Learning).

This event also features an accredited workshop. *Navigating Stroke Care: A Comprehensive Guide to Imaging, Classification, and Case Analysis* is approved for a maximum of 3.5 credits (Section 3, Simulation Based Activity).

CAR 2025 also features two accredited symposia, each approved for a maximum of 1.0 credit, under Section 1 (Group Learning), as defined MOC program of the Royal College and approved by the CAR.

AMA Accreditation Statement – Accreditation Information for US Residents

The meeting will be an accredited learning activity as defined by the Maintenance of Certification (MOC) Program of the Royal College of Physicians and Surgeons of Canada.

Through an agreement between the Royal College of Physicians and Surgeons of Canada and the American Medical Association, physicians may convert Royal College MOC credits to AMA PRA Category 1 Credits™. More information on the process to convert Royal College MOC credit to AMA credit.

This means you can convert credits earned to AMA PRA Category 1 credits.

UEMS-EACCME Accreditation Statement

Live educational activities recognized by the Royal College as Accredited Group Learning Activities (Section 1) are deemed by the European Union of Medical Specialists (UEMS) eligible for ECMEC.

Accredited Symposia

GE HealthCare co-Developed Symposium. *Theranostics in Action: Precision Medicine for Today and Tomorrow*. This accredited symposium offers a comprehensive introduction to theranostics, exploring its foundations in personalized medicine and current advances in trial research and target development. Participants will explore the operational and clinical framework of vertically integrated theranostics centers, with insights from the BAMF Health model. The discussion will focus on overcoming barriers in diverse care settings, enhancing access to precision oncology, and advancing clinical research through novel radiopharmaceutical trials. This symposium was co-developed with GE HealthCare and was planned to achieve scientific integrity, objectivity, and balance. This event is an Accredited Group Learning (Section 1) as defined by the Maintenance of Certification (MOC) program of the Royal College of Physicians ad Surgeons of Canada and approved by the Canadian Association of Radiologists. Physicians may claim a maximum of 1.0 hour.

Hologic co-Developed Symposium. *Innovations in Breast Imaging: Novel Strategies and Management Approaches*. This accredited symposium highlights advancements in breast imaging and management, including patient selection and biopsy techniques for Contrast-Enhanced Mammography, strategies for axillary management in breast cancer, and optimizing second-look ultrasound after MRI. Participants will gain practical insights into clinical staging, imaging techniques, and surgical considerations, enhancing their ability to integrate evolving practices into patient care. This symposium was co-developed with Hologic and was planned to achieve scientific integrity, objectivity, and balance. This event is an Accredited Group Learning (Section 1) as defined by the Maintenance of Certification (MOC) program of the Royal College of Physicians ad Surgeons of Canada and approved by the Canadian Association of Radiologists. Physicians may claim a maximum of 1.0 hour.

Certificate of Attendance

Following the event, participants will be provided with a link where the certificate of attendance can be downloaded following the completion of the conference evaluation.

Learning Objectives

After attending and actively participating in CAR 2025 activities, participants will be better able to:

1. Identify and implement practical strategies to improve patient management as part of a multidisciplinary team.
   CanMEDS roles: Collaborator, Communicator, Leader, Professional
2. Recognize, identify, and avoid common misinterpretation and blind spots in each of the following subspecialties: musculoskeletal, neuroradiology, cardiothoracic, abdominal (GI/GU), and pediatric imaging .
   CanMEDS roles: Professional, Scholar, Health Advocate
3. Discuss the differential diagnoses of common pathologies in a selection of multimodality, multidisciplinary cases.
   CanMEDS roles: Medical Expert, Scholar, Health Advocate
4. Adopt an evidence-based approach to common radiologic findings to enable the formulation of an appropriate differential diagnosis.
   CanMEDS roles: Medical Expert, Scholar
5. Discuss characteristic appearances and distinguishing imaging features in each of the following subspecialties: musculoskeletal, neuroradiology, cardiothoracic, abdominal (GI/GU), and pediatric imaging.
   CanMEDS roles: Medical Expert
6. Evaluate the use and application of advanced imaging techniques for various clinical scenarios.
   CanMEDS roles: Medical Expert

Presentations

Unless otherwise indicated under individual sessions, each presentation is scheduled for approximately 20 minutes. A designated Q&A section has been allotted at the end of each presentation for speakers to answer questions from the audience. Every session has been designed as an educational offering to advance practitioners' professional development and the profession.

Abstracts (Electronic Posters)

All abstract electronic posters are featured in the EventMobi app, in the 'Posters' section. Participants are encouraged to view the electronic posters during the ASM. Reading electronic posters is a Self-learning Activity, under Section 2 of the MOC Program of the Royal College and is eligible for a maximum of 1 credit per electronic poster.

Disclaimer

No responsibility is assumed by the CAR for any injury and/or damage to persons or property as a matter of product liability, negligence or otherwise, or from any use or operations of any methods, products, instructions, or ideas contained in materials distributed or described during presentations throughout CAR 2025. Because of rapid advances in the medical sciences, in particular independent verification of diagnoses and drug dosages should be made.

Although all advertising material available on the CAR 2025 event app is expected to conform to ethical (medical) standards, inclusion in this event does not constitute a guarantee or endorsement of the quality or value of such product or of the claims made of it by its manufacturer and representatives.

Disclosure of Conflict of Interest

The CAR has a formal policy regarding the need for authors and presenters to inform CAR attendees of any Conflict of Interest (COI). A COI includes, but is not limited to, employment, ownership of stock, membership on a standing advisory council or committee, or being on the board of directors or publicly associated with a company or its products. Other potential areas of real or perceived conflict of interest could include receiving honoraria, consulting fees, or grants.

Annual Scientific Meeting Standing Committees | Comités permanent du congrès annuel scientifique

CAR 2025 Annual Scientific Meeting Planning Committee

Tanya Chawla (Chair)
Scott Adams
Andreu Costa
Christopher Fung
Natalia Gorelik
Iain Kirkpatrick
Laurent Létourneau-Guillon
Kathleen MacMillan
Lindsay Milroy
Bruno Morin
Karl Narvacan
Joanna Ospel
Adnan Sheikh
Carolina Souza
Nina Stein

CAR 2025 ASM Scientific and Educational Competitions Judging Committee

Lindsay Milroy (Chair)
Scott Adams
Mostafa Alabousi
Tanya Chawla
Nika Elmi
Neetika Gupta
Ian Macdonald
Matthew McInnes
Nicolas Murray
Jai Shankar
Adnan Sheikh
Grant Stoneham
Mitch Wilson

Agenda
Sommaire du programme

CAR 2025 Agenda

- Plenaries | Séances plénières
- Educational Sessions | Séances éducatives
- Accredited Symposia | Symposiums accrédités
- Social Events | Événements sociaux
- Abstract Competition Presentations | Présentations du concours de résumés
- Workshop | Atelier
- Wellness Breaks | Pauses santé
- CAR & CRF AGMs | Assemblées générales de la CAR et de la FRC

Thursday, April 3

8:00 AM - 12:00 PM	**Navigating Stroke Care: A Comprehensive Guide to Imaging, Classification, and Case Analysis** (additional fees apply) St-Antoine (9th Floor) *Facilitator: Eduardo Portela de Oliveira* *Speakers: Adela Cora, Prakash Mathusami, Lindsay Milroy, Eduardo Portela de Oliveira*
4:30 PM - 5:30 PM	**CAR & CRF Annual General Meeting** St-Antoine (9th Floor)
5:30 PM - 6:30 PM	**Welcome Reception** Fortifications (9th Floor)

Friday, April 4

8:00 AM - 9:00 AM	Breakfast • Exhibit Hall (11th Floor)
9:00 AM - 9:05 AM	**Welcome Address** Fortifications (9th Floor) *Tanya Chawla*
9:05 AM - 10:00 AM	**Opening Plenary: Imaging of Intimate Partner Violence** Fortifications (9th Floor) *Bharti Khurana, introduction by Tanya Chawla*
10:00 AM - 10:30 AM	Break & Visit the Electronic Posters • Exhibit Hall & Foyer (11th Floor)

Friday, April 4 (continued)

10:30 AM - 12:00 PM	**Emergency Radiology & Wellness: Unravelling the Mystery** Fortifications (9th Floor) *Moderator: Adnan Sheikh*	**Mind Matters: Decoding White Matter Conundrums & Beyond** St-Antoine (9th Floor) *Moderator: Carlos Torres*	**Radiologist-in-Training Research Project Competition Presentations** Ville-Marie (9th Floor) *Moderator: Candyce Hamel*
	Building Resilience and Well-Being *Bharti Khurana*	Normal Pressure Hydrocephalus *Àlex Rovira*	*Judges:* *Scott Adams* *Shivaprakash Hiremath* *Ian Macdonald*
	Appendicitis Unveiled: The Latest Gossip from the Radiology Red Carpet! *Kelly Harper*	Spinal Cord Inflammatory Disease: Beyond Multiple Sclerosis *Carlos Torres*	
	Cholecystitis Chronicles: The Scoop and Scoot on Emergent Radiology! *Satheesh Krishna*	Neuromyelitis Optica and Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease: A Clinician Perspective *Giulia Fadda*	
	Diverticulitis Demystified: The Fresh Scoop from the Radiology Scene! *Gavin Sugrue*	White Matter Disease Differential Diagnosis: Not Always Demyelination *Laurent Létourneau-Guillon*	
	Bowel Ischemia Exposed: The Latest Buzz in Radiology Emergency! *Christopher Lindquist*		
12:00 PM - 1:30 PM	Lunch & Visit the Electronic Posters • Exhibit Hall & Foyer (11th Floor)		
1:30 PM - 2:30 PM	**Plenary: Update on Typical and Emerging Imaging Findings in Multiple Sclerosis** Fortifications (9th Floor) *Àlex Rovira, introduction by Carlos Torres*		
2:30 PM - 2:45 PM	Break • Exhibit Hall (11th Floor)		
2:45 PM - 4:15 PM	**MRI Pitfalls Uncovered: A Joint Odyssey from Shoulder to Knee** Fortifications (9th Floor) *Moderator: Adnan Sheikh*	**Pediatric Perspectives: From Headaches to Head Trauma** St-Antoine (9th Floor) *Moderator: Elka Miller*	**Quality Improvement Competition Presentations** Ville-Marie (9th Floor) *Moderator: Candyce Hamel*
	Knee Imaging: MRI Pitfalls *Vanessa Quinn-Laurin*	Review of Different Types of Headaches and Indications for Imaging *Caroline Lacroix & Ken Myers*	*Judges:* *Mona El Khoury* *Lindsay Milroy* *Grant Stoneham*
	Shoulder Imaging: MRI Pitfalls *Eric Pike*	Head and Spine Ultrasound in Neonates *Neetika Gupta*	
	Elbow Imaging: MRI Pitfalls *Bashiar Thejeel*	Head Trauma in Pediatric Patients *Makabongwe Tshuma*	
	Wrist Imaging: MRI Pitfalls *Marcos Sampaio*	Spine Trauma in Pediatric Patients *Julien Aguet*	
	Hip Imaging: MRI Pitfalls *Christine Mercier*		
4:15 PM - 5:45 PM	**Vendor Cocktail** • Exhibit Hall (11th Floor)		
5:45 PM - 7:45 PM	**Trainee & Early Career Reception** • Fortifications (9th Floor)		

Saturday, April 5

8:00 AM - 9:00 AM	Breakfast • Exhibit Hall (11th Floor)		
9:00 AM - 10:00 AM	**Plenary: Imaging with Impact in Suspected Ovarian Cancer** Fortifications (9th Floor) *Andrea Rockall, introduction by Tanya Chawla*		
10:00 AM - 10:30 AM	Break & Visit the Electronic Posters • Exhibit Hall & Foyer (11th Floor)		
10:30 AM - 12:00 PM	**Focus on Gyne-Oncology: How to Tackle Challenging Cases and Update on Right Lower Quadrant Pain** Fortifications (9th Floor) *Moderator: Tanya Chawla*	**Building Bridges in Radiology: Lessons in Leadership, Equity, and Mentorship** St-Antoine (9th Floor) *Moderator: Narinder Paul*	**Scientific Research Project Competition Presentations** Ville-Marie (9th Floor) *Moderator: Candyce Hamel*
	Tips and Pitfalls in O-RADS MRI *Andrea Rockall*	Lessons Learned in the First Year as a Chair *Michael Patlas*	*Judges:* *Scott Adams* *Neetika Gupta* *Lindsay Milroy*
	Implementing O-RADS on Ultrasound *Tanya Chawla*	Transformation of Academic Radiology: A Canadian Approach *Narinder Paul*	
	CAR Right Lower Quadrant Pain Guidelines: What You Need to Know *Iain Kirkpatrick*	Mid-Career: Challenges and Opportunities *Charlotte Yong-Hing*	
	Revisiting Leiomyosarcoma: Where Are We Now? *Caroline Reinhold*	Mentoring, Relations, and Commitments Map - Group Discussion *Faisal Khosa*	
12:00 PM - 1:30 PM	Lunch & Visit the Electronic Posters • Exhibit Hall & Foyer (11th Floor)		
12:15 PM - 1:15 PM	**GE HealthCare co-Developed Symposium** **Theranostics in Action: Precision Medicine for Today and Tomorrow** St-Antoine (9th Floor) *Moderator: Steven Burrell* **Current Indications and Upcoming Targets** *Patrick Veit-Haibach* **Expanding Access to Theranostics and Implementing Precision Oncology: Experience from a Comprehensive Vertically Integrated Theranostics Center** *Harshad Kulkarni*	**Hologic co-Developed Symposium** **Innovations in Breast Imaging: Novel Strategies and Management Approaches** Ville-Marie (9th Floor) *Moderator: Samantha Fienberg* **Contrast-Enhanced Mammography (CEM) and CEM Biopsy: Which Patients and What to Do** *Michael Morris* **Management of Axilla** *Carolyn Flegg* **Second Look Ultrasound after MRI** *Rachel Fleming*	
1:30 PM - 2:30 PM	**Plenary: Decoding Health Equity in Radiology** Fortifications (9th Floor) *Efrén Flores, introduction by Carolina Souza*		
2:30 PM - 3:00 PM	Break & Visit the Electronic Posters • Exhibit Hall & Foyer (11th Floor)		

Saturday, April 5 (continued)

3:00 PM - 4:30 PM	**Getting Started with AI in Radiology: Foundations and Practical Implementation** Fortifications (9th Floor) *Moderator: Laurent Létourneau-Guillon*	**Guidelines and Innovations in Chest Imaging: From Incidental Findings to Trauma** St-Antoine (9th Floor) *Moderator: Carolina Souza*	**Navigating Cancer Care: Multidisciplinary Perspectives on Complications with Shared Patient Journey** Ville-Marie (9th Floor) *Moderator: Tanya Chawla*
	Foundation Models and Large Language Models in Radiology *An Tang*	Non-screen Detected/ Incidental Pulmonary Nodules – Review of Current Guidelines *Jana Taylor*	Imaging of Hepatocellular Carcinoma: From Diagnosis to Prognosis Prediction *Sébastien Mulé*
	Ethical Considerations and Fairness in AI *Christopher Filippi*	2022 American Heart Association/American College of Cardiology Aortic Guidelines *Kate Hanneman*	Abdominal Manifestations of Therapy *Tanya Chawla*
	How to Implement an AI Tool in My Department *Jaron Chong*	Interstitial Lung Disease: Review of Current Guidelines *Cameron Hague*	Chest Complications & Side Effects of Therapy *Demetris Patsios*
	AI Roundtable	Chest Trauma: A Case-Based Approach *Efrén Flores*	Treatment-Induced Toxicity of the Central Nervous System *Carlos Torres*
5:15 PM - 5:45 PM	**CAR Awards Reception** • Foyer (9th Floor)		
5:45 PM - 6:45 PM	**CAR Awards Ceremony** • Fortifications (9th Floor)		

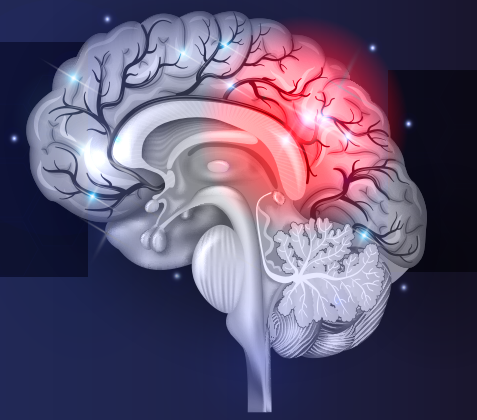
Sunday, April 6

8:00 AM - 9:00 AM	Breakfast • Foyer (9th Floor)
9:00 AM - 10:00 AM	**Best of the AIRP: Colorectal Cancer: A Radiologist's Perspective** Fortifications (9th Floor) *Perry Pickhardt, introduction by Tanya Chawla*
10:00 AM - 10:15 AM	Break • Fortifications (9th Floor)
10:15 AM - 11:55 AM	**Lessons I Have Learned** Fortifications (9th Floor) *Moderator: Prasaanthan Gopee-Ramanan*
	Avoiding Misdiagnosis in Abdominal Imaging: Review of Missed Cases *Perry Pickhardt*
	Oncologic Imaging Mistakes *Ameya Kulkarni*
	Missed Cases in MSK: Our Experience from Peer Learning *Rakesh Mohankumar*
	Things That Took Me Too Long to Understand in Head & Neck *Eric Bartlett*
	Lessons I Have Learned: Emergency and Trauma Radiology *Sarah Barrett*
11:55 AM - 12:00 PM	**Closing Remarks** Fortifications (9th Floor) *Christopher Fung*

CAR 2025

WORKSHOP

Navigating Stroke Care: A Comprehensive Guide to Imaging, Classification, and Case Analysis



Thursday, April 3, 2025 • 8am-12pm ET

The workshop is designed to provide an in-depth understanding of stroke imaging, focusing on both ischemic and hemorrhagic strokes, stroke mimics, and pediatric stroke. Through a combination of didactic lectures and hands-on PACS case reviews, attendees will gain practical knowledge and improve their skills in interpreting stroke imaging, enhancing their ability to make critical diagnostic and treatment decisions in clinical practice.

Target Audience

This workshop is designed for practicing radiologists, fellows, and residents. It is structured to simulate real-case reporting.

Agenda

TIME	TOPIC
08:00 – 08:10	**Welcome + Opening Remarks** *Eduardo Portela de Oliveira, Workshop Lead*
08:10 – 09:00	**Hemorrhagic Stroke** *Adela Cora*
09:00 – 09:50	**Ischemic Stroke** *Eduardo Portela de Oliveira*
09:50 – 10:10	Break
10:10 – 11:00	**Stroke Mimics** *Lindsay Milroy*
11:00 – 11:50	**Pedatric Stroke** *Prakash Muthusami*
11:50 – 12:00	**Wrap Up and End of Workshop** *Eduardo Portela de Oliveira*

Workshop Learning Objectives

Following active participation in this neuroradiology simulation workshop, participants should be better able to:

- Identify and classify different types of stroke, including ischemic, hemorrhagic, pediatric, and stroke mimics. (CanMEDS: Medical Expert)
- Explain the role of imaging techniques in the diagnosis and treatment planning of strokes. (CanMEDS: Communicator)
- Discuss current advances and best practices in neuroimaging relevant to stroke diagnosis. (CanMEDS: Scholar)
- Apply case-based learning methodologies to interpret stroke imaging findings effectively. (CanMEDS: Collaborator)

Accreditation and Designation Statements

This event is a Simulation Based Activity (Section 3) as defined by the Maintenance of Certification (MOC) Program of the Royal College of Physicians and Surgeons of Canada and approved by the Canadian Association of Radiologists. This workshop is approved for a maximum of 3.5 hours (credits are automatically calculated).

CAR 2025

ACCREDITED SYMPOSIUM

Innovations in Breast Imaging: Novel Strategies and Management Approaches

Saturday, April 5, 2025 • 12:15-1:15pm ET

Moderator:
Dr. Samantha Fienberg

Speakers:
Dr. Michael Morris
Dr. Carolyn Flegg
Dr. Rachel Fleming

This accredited symposium highlights advancements in breast imaging and management, including patient selection and biopsy techniques for Contrast-Enhanced Mammography, strategies for axillary management in breast cancer, and optimizing second-look ultrasound after MRI. Participants will gain practical insights into clinical staging, imaging techniques, and surgical considerations, enhancing their ability to integrate evolving practices into patient care.

The 60-minute multidisciplinary session will be followed by a 15-minute question and answer segment with the audience.

Needs Assessment

This session was developed following a review of objective data including practice data, consultation with experts in the field, survey data detailing the perceived and unperceived needs of members as well as the experience and expertise of the scientific planning committee.

Target Audience

This session is designed for general and subspecialty radiologists as well as radiology residents and fellows whose work focuses on the imaging interpretation, diagnosis, and imaging findings of mammography and breast cancer screening as part of their clinical practice.

Learning Objectives

By the end of this session, participants will be better able to:

- Evaluate and select appropriate patients for Contrast-Enhanced Mammography (CEM) based on clinical indications and patient-specific factors.
- Describe the procedural steps and management strategies for suspicious lesions identified through CEM biopsy to enhance diagnostic accuracy and patient outcomes.
- List the most important breast MRI sequences to review for second-look ultrasound
- Utilize landmarks on MRI to aid in breast lesion detection.
- Describe how breast lesion characteristics may change between the two modalities (MRI and second-look ultrasound).

Accreditation and Designation Statement

This symposium was co-developed with Hologic and was planned to achieve scientific integrity, objectivity, and balance. This accredited symposium has been approved for a maximum of 1.0 credit, under Section 1 (Group Learning), as defined MOC program of the Royal College and approved by the CAR.

HOLOGIC®

CAR 2025

ACCREDITED SYMPOSIUM

Theranostics in Action: Precision Medicine for Today and Tomorrow

Saturday, April 5, 2025 • 12:15-1:15pm ET

Moderator:
Dr. Steven Burrell

Speakers:
Dr. Patrick Veit-Haibach
Dr. Harshad Kulkarni

This accredited symposium offers a comprehensive introduction to theranostics, exploring its foundations in personalized medicine and current advances in trial research and target development. Participants will explore the operational and clinical framework of vertically integrated theranostics centers, with insights from the BAMF Health model. The discussion will focus on overcoming barriers in diverse care settings, enhancing access to precision oncology, and advancing clinical research through novel radiopharmaceutical trials.

The 60-minute multidisciplinary session will be followed by a 15-minute question and answer segment with the audience.

Needs Assessment

This session was developed following a review of objective data including practice data, consultation with experts in the field, survey data detailing the perceived and unperceived needs of members as well as the experience and expertise of the scientific planning committee.

Target Audience

This session is designed for general and subspecialty radiologists as well as radiology residents and fellows with an interest in theranostics and radiopharmaceuticals or whose clinical practice could benefit from their implementation into their work.

Learning Objectives

By the end of this session, participants will be able to:

- Describe the fundamentals of theranostics, including its applications in personalized medicine.
- Review the most relevant ongoing trials and summarize the current results in theranostics.
- Identify the key emerging targets for theranostic trials and discuss their potential impact on clinical practice.
- Describe the key components of a vertically integrated theranostics center and their role in delivering personalized care through molecular imaging, targeted radionuclide therapy, and advanced radiopharmacy services.
- Identify strategies to overcome barriers in community settings and explore opportunities for implementing and participating in novel radiopharmaceutical clinical trials to drive innovation and expand treatment options.
- Discuss how comprehensive theranostics centers can enhance patient outcomes by integrating diagnostics with therapeutics and collaborating with healthcare providers, industry, and research organizations.

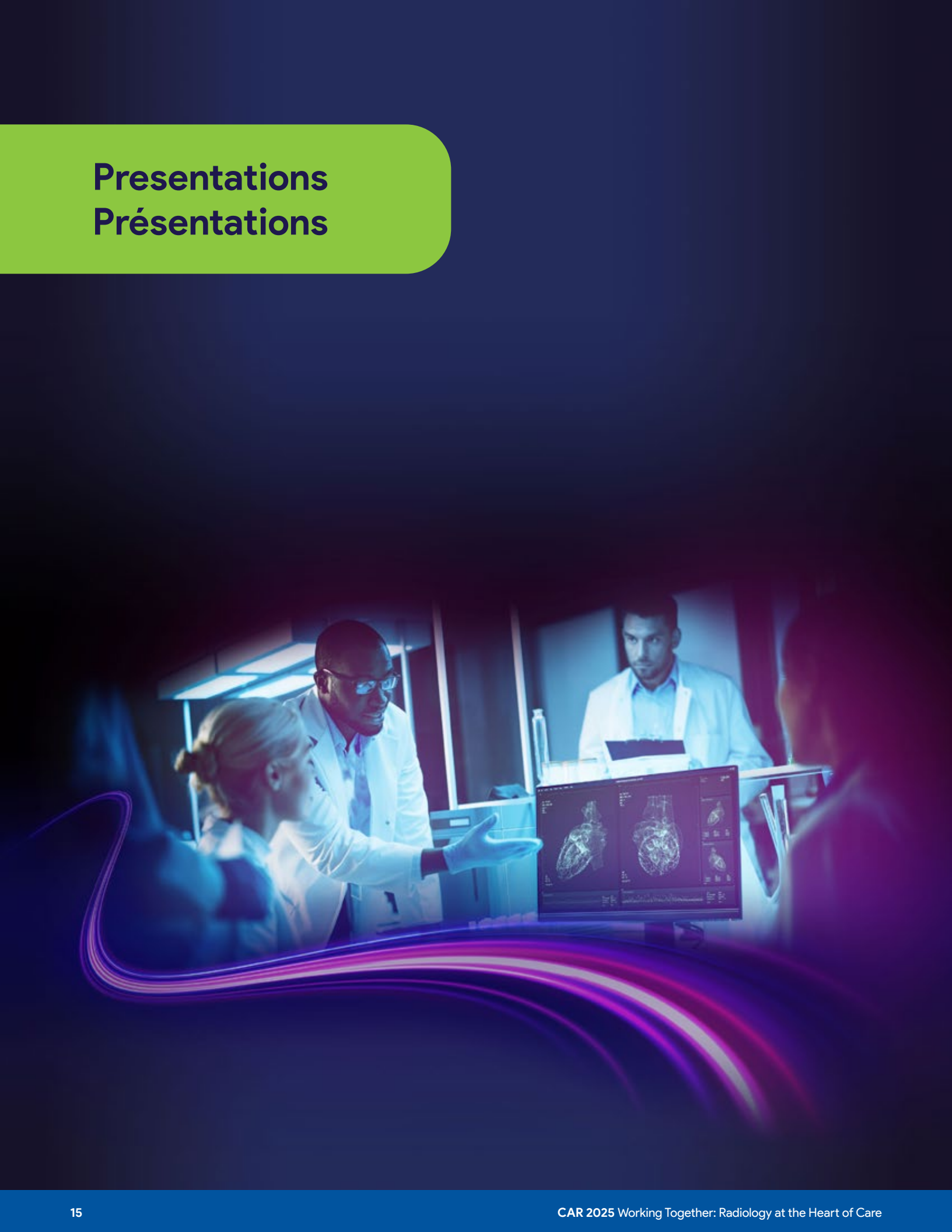
Accreditation and Designation Statement

This symposium was co-developed with GE HealthCare and was planned to achieve scientific integrity, objectivity, and balance. This accredited symposium has been approved for a maximum of 1.0 credit, under Section 1 (Group Learning), as defined MOC program of the Royal College and approved by the CAR.

CAR

GE HealthCare

Presentations
Présentations



THURSDAY, APRIL 3, 2025

8:00 AM – 12:00 PM

Workshop - Navigating Stroke Care: A Comprehensive Guide to Imaging, Classification, and Case Analysis

This workshop is designed to an in-depth understanding of stroke imaging, focusing on both ischemic and hemorrhagic strokes, stroke mimics, and pediatric stroke. Through a combination of didactic lectures and hands-on PACS case reviews, attendees will gain practical knowledge and improve their skills in interpreting stroke imaging, enhancing their ability to make critical diagnostic and treatment decisions in clinical practice.

Learning Objectives

Following active participation in this neuroradiology simulation workshop, participants should be better able to:

- Identify and classify different types of stroke, including ischemic, hemorrhagic, pediatric, and stroke mimics. (CanMEDS: Medical Expert)
- Explain the role of imaging techniques in the diagnosis and treatment planning of strokes. (CanMEDS: Communicator)
- Discuss current advances and best practices in neuroimaging relevant to stroke diagnosis. (CanMEDS: Scholar)
- Apply case-based learning methodologies to interpret stroke imaging findings effectively. (CanMEDS: Collaborator)

Target Audience

Radiologist, Fellows, Residents

Welcome & Opening Remarks

Eduardo Portela de Oliveira

Hemorrhagic Stroke

Adela Cora

Ischemic Stroke

Eduardo Portela de Oliveira

Stroke Mimics

Lindsay Milroy

Pediatric Stroke

Prakash Muthusami

Closing Remarks

Eduardo Portela de Oliveira

FRIDAY, APRIL 4, 2025

9:00 AM – 10:00 AM

Introduction by Tanya Chawla

Opening Plenary Lecture

Imaging of Intimate Partner Violence

Bharti Khurana

Intimate partner violence (IPV) is a highly prevalent public health issue with multiple adverse health effects. Radiologists are well suited to assessing a patient's likelihood of IPV. In this presentation, recognition of common IPV injury mechanisms and resulting target and defensive injury patterns on imaging and an understanding of differences between patients who have experienced IPV and those who have not with respect to the use of imaging will be reviewed to aid radiologists in accurate IPV diagnosis.

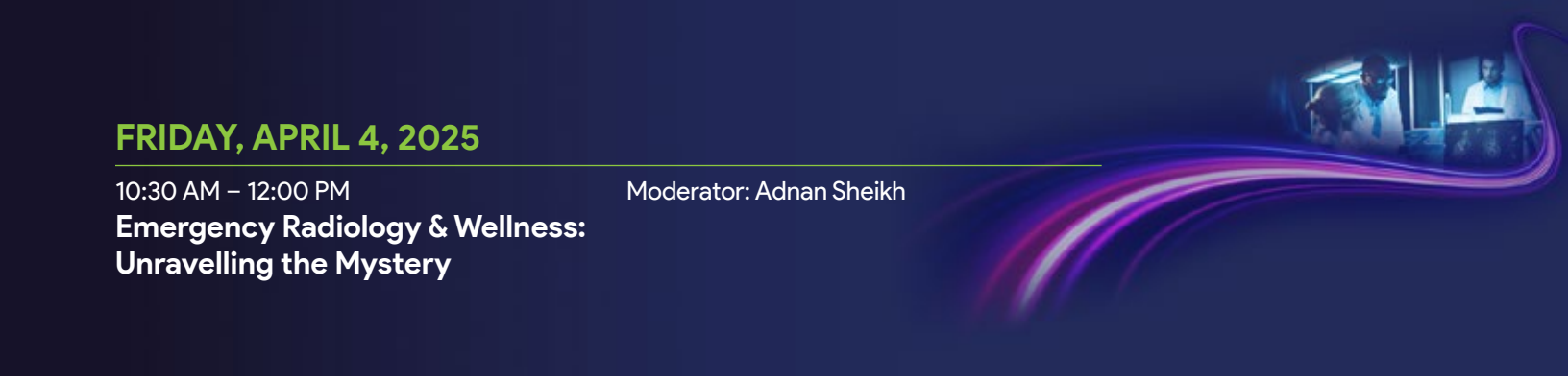
Learning Objectives:

At the end of this presentation, participants will be able to:

- Recognize the extent of intimate partner violence issues and unaddressed needs.
- Integrate intimate partner violence-related imaging expertise into clinical practice.
- Assess the role of multidisciplinary collaboration and machine learning in predicting intimate partner violence and offering targeted interventions.

Target Audience: Radiologist, Resident, Medical Student, Technologist, Healthcare Providers

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional



FRIDAY, APRIL 4, 2025

10:30 AM – 12:00 PM

Moderator: Adnan Sheikh

Emergency Radiology & Wellness: Unravelling the Mystery

Building Resilience and Well-Being

Bharti Khurana

Emergency radiologists often face intense workloads, high-stakes decision-making, and emotional challenges inherent to their role in patient care. We will explore practical strategies to foster resilience and promote well-being in the demanding environment of emergency radiology. Attendees will gain insights into recognizing burnout, managing stress, and cultivating habits that support mental and emotional health. By leveraging evidence-based practices, we will discuss the importance of self-care, effective communication, and building a supportive workplace culture to enhance both professional performance and personal satisfaction.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Identify the characteristics of burnout specific to emergency radiology and learn strategies to address it effectively, including stress management techniques and mindfulness practices.
- Develop actionable steps to create a collaborative and supportive environment that prioritizes well-being, peer support, and open communication within the radiology team.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Appendicitis Unveiled: The Latest Gossip from the Radiology Red Carpet!

Kelly Harper

This presentation will review the normal radiologic and histologic appearance of the appendix. Common and uncommon pathologies encountered in the ER, including when to suggest subspecialty referral, will also be discussed.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Identify the normal appendix and its variants.
- Integrate imaging findings and pathologic correlates to order a differential diagnosis.
- Assess for complications and sequelae of appendiceal pathologies.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Scholar, Professional

Cholecystitis Chronicles: The Scoop and Scoot on Emergent Radiology!

Satheesh Krishna

This presentation will discuss imaging of cholecystitis.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Recognize the key imaging features of acute cholecystitis, current diagnostic algorithms and strategies, and how to apply them in clinical practice to ensure accurate diagnosis.
- Review evidence-based guidelines and best practices for imaging the diagnosis of acute cholecystitis, including the role of ultrasound, CT, MRI, and hepatobiliary iminodiacetic acid scan.

Target Audience: Radiologist

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Diverticulitis Demystified: The Fresh Scoop from the Radiology Scene!

Gavin Sugrue

This presentation will provide an overview of the spectrum of acute diverticulitis, its complications, and the key findings essential for surgeons to understand.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Describe the typical and atypical imaging presentations of acute diverticulitis and its associated complications.
- Identify the critical information in radiology reports that is essential for surgical decision-making.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Scholar

Bowel Ischemia Exposed: The Latest Buzz in Radiology Emergency!

Christopher Lindquist

This talk will cover gastrointestinal ischemia, including a review of imaging protocols, dual energy CT, and the vascular and gastrointestinal findings associated with ischemia. We will discuss the important findings to report and convey to the surgeon, as well as recent literature on this topic.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Identify the vascular and gastrointestinal findings associated with bowel ischemia, formulate a comprehensive report covering these findings, and express these findings to emergency medicine and surgery colleagues.
- Develop imaging protocols for optimal detection of gastrointestinal ischemia and recognize the benefits of dual energy CT for bowel ischemia.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Scholar

FRIDAY, APRIL 4, 2025

10:30 AM – 12:00 PM

Moderator: Carlos Torres

Mind Matters: Decoding White Matter Conundrums & Beyond

Normal Pressure Hydrocephalus

Àlex Rovira

Normal Pressure Hydrocephalus (NPH) is a syndrome characterized by the triad of gait disturbance, mental deterioration, and urinary incontinence, accompanied by ventriculomegaly and normal cerebrospinal fluid (CSF) pressure. Although NPH is a significant cause of reversible and treatable dementia, it is frequently underdiagnosed. This underdiagnosis occurs because the clinical presentation can be atypical or incomplete and may be mimicked by other diseases, necessitating supplementary tests to predict postsurgical outcomes. These tests include various radiological techniques such as CT or MRI. According to international guidelines, CT or MRI are crucial for diagnosing NPH and selecting patients who may benefit from shunting. These imaging techniques provide essential morphological findings, including ventricular enlargement associated with tight high convexity and medial subarachnoid sulci, enlarged Sylvian fissures (disproportionately enlarged subarachnoid space hydrocephalus [DESH]), ballooning of frontal horns, reduction of the callosal angle, thinning of the corpus callosum, and widening of temporal horns not explained by hippocampal atrophy. Other imaging methods, such as radionuclide cisternography or cardiac-gated flow-sensitive phase-contrast cine MRI, are suitable for NPH diagnosis but do not yet offer improved accuracy for identifying shunt-responsive cases. In summary, morphological MRI features remain essential for diagnosing NPH and predicting positive clinical outcomes after shunting.

Learning Objectives:
At the end of this session, participants will be able to:

- Recognize the clinical features and diagnostic challenges of Normal Pressure Hydrocephalus (NPH).
- Describe the key imaging features associated with NPH.
- Recognize the challenges in predicting shunt responsiveness in NPH Patients.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert

Spinal Cord Inflammatory Disease: Beyond Multiple Sclerosis

Carlos Torres

This presentation will review the most relevant MRI spinal cord imaging findings in the setting of neuromyelitis optica spectrum disorder (NMOSD), myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) and acute disseminated encephalomyelitis (ADEM).

Learning Objectives:
At the end of this presentation, participants will be able to:

- Review the key imaging findings for diagnosing Neuromyelitis Optica Spectrum Disorder, Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease, and Acute Disseminated Encephalomyelitis.
- Describe the patterns of cord signal abnormalities that may suggest these diagnoses.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert

Neuromyelitis Optica and Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease: A Clinician Perspective

Giulia Fadda

This presentation will provide an in-depth overview of Neuromyelitis Optica Spectrum Disorder (NMOSD) and Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease (MOGAD), focusing on key presenting features, disease course, and prognosis. The session will highlight important differences from other demyelinating conditions and review the latest advancements in management strategies.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Differentiate between the clinical features of Neuromyelitis Optica Spectrum Disorder (NMOSD) and Myelin Oligodendrocyte Glycoprotein Antibody-Associated Disease (MOGAD), and other demyelinating disorders by identifying key diagnostic criteria and disease patterns.
- Recognize the implications of disease course and prognosis in NMOSD and MOGAD to support the selection of appropriate treatment strategies.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Collaborator, Health Advocate, Scholar

White Matter Disease Differential Diagnosis: Not Always Demyelination

Laurent Létourneau-Guillon

White matter lesions are frequently encountered in neuroimaging. This session will explore the differential diagnosis of white matter diseases beyond classical demyelinating disorders, highlighting key imaging patterns and clinical features that help distinguish between various etiologies, leading to more accurate diagnosis and appropriate patient management.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Differentiate between demyelinating and non-demyelinating white matter diseases using key imaging and clinical characteristics.
- Recognize the major categories of white matter disease mimics that can present similarly to Multiple Sclerosis/Neuromyelitis Optica Spectrum Disorder/Myelin Oligodendrocyte Glycoprotein Antibody Disorder.
- Apply an organized diagnostic approach to white matter lesions that integrates radiological findings with clinical context to avoid misdiagnosis.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Health Advocate, Scholar, Professional

1:30 PM – 2:30 PM
Plenary Lecture

Introduction by Carlos Torres

Update on Typical and Emerging Imaging Findings in Multiple Sclerosis

Àlex Rovira

Magnetic Resonance Imaging (MRI) plays a pivotal role in the diagnosis of multiple sclerosis (MS), particularly with the updated 2024 McDonald criteria. Recent advances have introduced new MRI features, such as the central vein sign (CVS) and paramagnetic rims, which have significantly enhanced diagnostic accuracy for MS by providing more specific biomarkers for lesion identification. The central vein sign, characterized by small perivenular lesions visible on T2*-weighted sequences, has emerged as a distinguishing feature, helping to differentiate MS lesions from mimics such as small vessel disease. Paramagnetic rim lesions, detected using susceptibility-based sequences, are associated with chronic active demyelinating plaques, reflecting ongoing inflammation and axonal damage. This presentation will explore the clinical utility of these emerging MRI markers, their pathophysiological significance, and their integration into the 2024 McDonald criteria. By incorporating CVS and paramagnetic rims into diagnostic workflows, clinicians can more effectively distinguish MS from other white matter diseases, thereby improving early and accurate diagnosis and guiding timely treatment decisions. In conclusion, the inclusion of advanced MRI features such as the central vein sign and paramagnetic rims in the 2024 McDonald criteria represents a significant advancement in neuroimaging for MS, enhancing diagnostic precision and providing valuable insights into disease activity. Although the 2024 revisions introduce a slightly more complex diagnostic algorithm, these innovations are expected to increase the criteria's applicability and utility in clinical practice.

Learning Objectives:
At the end of this session, participants will be able to:

- Analyze the role of emerging MRI features in Multiple Sclerosis (MS) diagnosis.
- Describe the pathophysiological significance of the central vein sign and paramagnetic rim lesions in MS.
- Apply the 2024 McDonald criteria for early and accurate MS diagnosis.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert

FRIDAY, APRIL 4, 2025

2:45 PM – 4:15 PM

Moderator: Adnan Sheikh

MRI Pitfalls Uncovered: A Joint Odyssey from Shoulder to Knee

Knee Imaging: MRI Pitfalls

Vanessa Quinn-Laurin

This presentation will highlight knee injuries that may be overlooked or undercalled on knee MRI.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Recognize and accurately report meniscal, capsular, and ligamentous knee injuries that can be frequently overlooked on knee MRI.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Communicator, Collaborator, Scholar, Professional

Shoulder Imaging: MRI Pitfalls

Eric Pike

MRI of the shoulder can be one of the more challenging joints reviewed by radiologists. To reduce and minimize these challenges and to avoid misdiagnoses, a thorough understanding of the normal anatomy of the shoulder, including knowledge of normal variants is required. This presentation will review the more relevant pitfalls that commonly occur in daily clinical practice involving tendons, ligaments, and osseous structures.

Learning Objectives:
At the end of the presentation, the participants will be able to

- Review and understand normal anatomy of the shoulder, including normal variants.
- Identify common pitfalls in the interpretation of tendon, ligament, and osseous structures to reduce errors and avoid misdiagnoses.

Target Audience: Radiologist, Resident, Medical Student, Orthopedic Surgeons, Sports Medicine Specialists

CanMEDS: Medical Expert, Collaborator, Professional

Elbow Imaging: MRI Pitfalls

Bashiar Thejeel

During this presentation the audience will learn how we image the elbow joint in MRI and the relevant anatomic and pathologic considerations.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Describe key MRI sequences used to image the elbow joint and the relevance of each sequence.
- Identify relevant anatomic considerations of the elbow joint to avoid diagnostic pitfalls.
- Assess pathologic considerations in the elbow joint.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert

Wrist Imaging: MRI Pitfalls

Marcos Sampaio

This presentation will cover typical and unusual MRI wrist pitfalls that may impact your clinical decisions.

Learning Objectives:
At the end of this presentation, participants will be able to:

- List and recognize MRI wrist pitfalls that may impact clinical decisions including magic angle, issues in fat suppression and Signal-to-Noise Ratio, anatomical variants and pathologies of bone, joints, ligaments, and tendons.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Communicator, Collaborator, Health Advocate, Professional

Hip Imaging: MRI Pitfalls

Christine Mercier

With advances in surgical treatment of hip pathologies, there has been an increase demand for MR imaging of the hips. MRI is the most accurate imaging method for internal derangement of the hips but there are potential pitfalls related to normal variants. This presentation will highlight some of the common sources of such pitfalls.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Identify normal anatomical variants that may mimic hip pathology on MRI.
- Discuss commonly overlooked pathologies on MRI of the hip.
- Develop strategies for avoiding pitfalls in MR imaging of the hips.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Scholar

FRIDAY, APRIL 4, 2025

2:45 PM – 4:15 PM

Moderator: Elka Miller

Pediatric Perspectives: From Headaches to Head Trauma

Review of Different Types of Headaches and Indications for Imaging

Caroline Lacroix & Ken Myers

This presentation will review the red flags for headache that suggest imaging is necessary to rule out a secondary cause. We will also provide a review of the clinical and imaging findings of a variety of pathologies that can be encountered in pediatric patients presenting with headaches.

Learning Objectives:
At the end of this presentation, delegates will be able to:

- Identify the red flags in pediatric patients presenting with headaches that necessitate imaging to exclude secondary causes.
- Recognize and describe the clinical manifestations associated with common pathologies encountered in pediatric patients with headaches.
- Interpret and describe imaging findings associated with common pathologies encountered in pediatric patients presenting with headaches.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Head and Spine Ultrasound in Neonates

Neetika Gupta

The goal of the presentation is to understand and highlight the role of neurosonography in the assessment of the pediatric head and spine, emphasizing its effectiveness as a cost-effective, real-time imaging modality that offers radiation-free evaluation with advanced image resolution. This presentation aims to provides an in-depth evaluation of the role of neurosonography in diagnosing and managing pediatric brain and spine pathologies.

Learning Objectives:
At the end of this session, participants will be able to:

- Recognize the applications of ultrasound as an effective adjunct to conventional neuroimaging (CT and MRI) in early diagnosis and management of pediatric head and spine abnormalities.
- Demonstrate optimal neurosonographic techniques and applications for evaluating the spectrum of pediatric neurological conditions.
- Address the challenges and limitations associated with pediatric neurosonography and explore effective strategies for their mitigation.

Target Audience: Radiologist, Resident, Medical Student, US technologist, Family Physicians, NICU physician

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Head Trauma in Pediatric Patients

Makabongwe Tshuma

This presentation will consist of a case based overview of pediatric trauma imaging.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Recognize common imaging patterns associated with pediatric traumatic brain injury.
- Identify imaging findings indicative of abusive head trauma in pediatric patients.
- Describe the role of imaging modalities in the evaluation of pediatric patients presenting with headaches.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Health Advocate, Scholar, Professional

Spine Trauma in Pediatric Patients

Julien Aguet

This presentation explores spine trauma in pediatric patients, emphasizing unique injury patterns and imaging needs in children. It reviews common injury mechanisms and covers common imaging modalities to guide diagnosis and management. Attendees will learn to recognize subtle injury signs, indications for advanced imaging, and critical red flags for urgent intervention.

Learning Objectives:
At the end of this session, participants will be able to:

- Identify common mechanisms and unique patterns of spine trauma in pediatric patients.
- Select appropriate imaging modalities, including X-ray, CT, and MRI, for diagnosing and managing pediatric spine trauma.
- Recognize key imaging indicators and red flags that necessitate urgent intervention in pediatric spine trauma cases.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

SATURDAY, APRIL 5, 2025

9:00 AM – 10:00 AM
Plenary Lecture

Introduction by Tanya Chawla

Imaging with Impact in Suspected Ovarian Cancer

Andrea Rockall

In this lecture, I will go through the role and impact of imaging in women who are suspected of having ovarian cancer. Early diagnosis, including the role of MRI in adnexal mass characterisation will be presented. Staging of disease with CT, as well as problem-solving with MRI, will be described and the impact on decision-making at the time of initial treatment planning.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Describe the ORADS-MRI scoring system and its application in the risk stratification of adnexal masses.
- Identify critical sites of disease on CT and MRI that impact treatment planning for ovarian cancer.
- Discuss emerging research developments that may improve risk stratification methods in the future, including the application of radiomics.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

SATURDAY, APRIL 5, 2025

10:30 AM – 12:00 PM
Building Bridges in Radiology: Lessons in Leadership, Equity, and Mentorship

Moderator: Narinder Paul

Lessons Learned in the First Year as a Chair

Michael Patlas

The transition to new leadership positions will be associated with beginner errors. The aim of this session will be to review common mistakes in administrative domains, and to allow frank discussion on strategies to reduce these errors.

Learning Objectives:
At the end of this session, participants will be able to:

- Describe common do's and don't for a new department chair.
- Recognize complexities of servant leadership.
- Understand the value of communication.

Target Audience: Radiologist, Resident, Radiology Managers

CanMEDS: Communicator, Leader, Professional

Transformation of Academic Radiology: A Canadian Approach

Narinder Paul

This presentation will highlight the current state of academic radiology across Canada, the need to radically change the current status, and the transformative change that has been initiated by the Canadian Heads of Academic Radiology in partnership with the Canadian Association of Radiology.

Learning Objectives:
At the end of this session, participants will be able to:

- Outline the partnership between the Canadian Heads of Academic Radiology and the Canadian Association of Radiologists.
- Describe new developments in diagnostic radiology education and training.
- Discuss new developments in diagnostic radiology research mentorship and the plan for multicentre trials.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Mid-Career: Challenges and Opportunities

Charlotte Yong-Hing

Mid-career represents a crucial turning point where radiologists face both heightened attrition risk and opportunities for leadership and growth. This session will explore the leaky pathway, its impact on the profession, and strategies for fostering resilience, advancing diversity and inclusion, and navigating career development.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Describe the leaky pathway and why mid-career is pivotal.
- Identify reasons for the leak and its impact on radiology and patients.
- Propose solutions to address the leaky pathway and promote diversity, equity, and inclusion.
- Assess methods for goal setting, networking, and leadership development.
- Recognize strategies for work-life integration and fostering resilience.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Professional

Mentoring, Relations, and Commitments Map - Group Discussion

Faisal Khosa

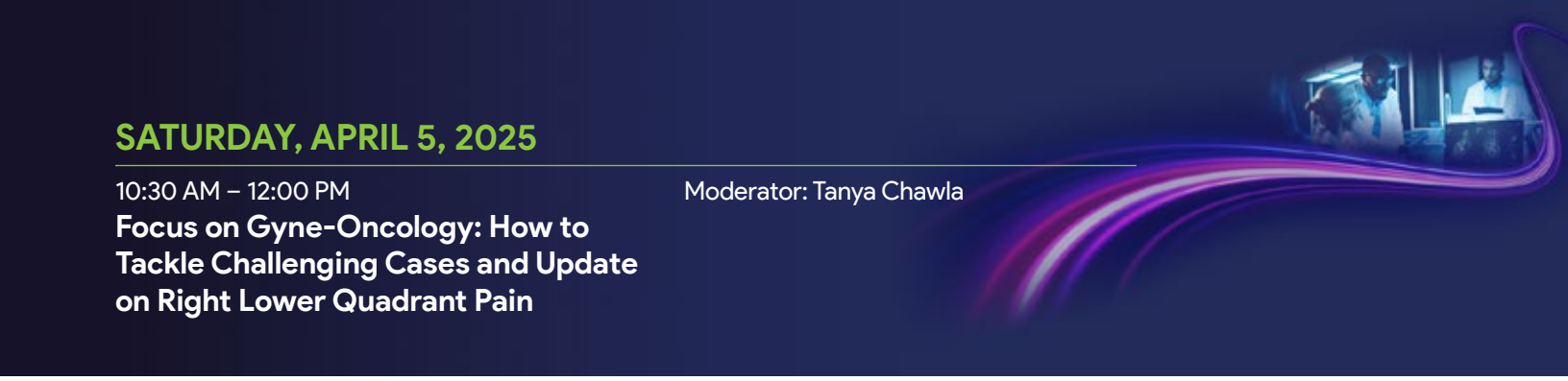
This presentation will review the importance of diverse networks, mentoring relationships, and the concepts of “Commitments versus Minority Tax”.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Recognize the importance of diverse networks and mentoring relationships in enhancing career development and inclusivity.
- Differentiate between professional commitments and the minority tax to recognize their impact on workload and career progression.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional



SATURDAY, APRIL 5, 2025

10:30 AM – 12:00 PM

Moderator: Tanya Chawla

Focus on Gyne-Oncology: How to Tackle Challenging Cases and Update on Right Lower Quadrant Pain

Tips and Pitfalls in O-RADS MRI

Andrea Rockall

In this lecture, a short description of the ORADS MRI scoring system will be provided. Following this, a series of case examples will illustrate some important pearls and pitfalls to help the radiologist to correctly assign the score and go further with signs that may point to a specific diagnosis.

Learning Objectives:
At the end of this session, participants will be able to:

- Explain the ORADS-MRI risk score and its role in clinical practice.
- Recognize common pitfalls in the application of the ORADS-MRI scoring system.
- Identify MRI findings that can lead to specific diagnoses of adnexal masses.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Implementing O-RADS on Ultrasound

Tanya Chawla

The efficacy of standardized reporting systems in radiology is well established. They allow clear communication with our clinical colleagues and facilitate evidence based management across a spectrum of disease processes. O-RADS is no exception and there is established and emerging data showing its utility and performance characteristics in both benign and malignant pathology. This case based review will reinforce tips and tricks for both experienced users and novices.

Learning Objectives:
At the end of this session, participants will be able to:

- Define the role of ultrasound in the standardized reporting of adnexal masses.
- Implement the ORADS classification system in your practice.
- Discuss potential tips and pitfalls when using the ORADS system and the scenarios where the classification system is not applicable.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Leader, Health Advocate, Professional

CAR Right Lower Quadrant Pain Guidelines: What You Need to Know

Iain Kirkpatrick

In 2024, the Canadian Society of Abdominal Radiology (CSAR) and the Canadian Emergency, Trauma, and Acute Care Radiology Society (CETARS) published practice guidelines on the imaging investigation of adults with right lower quadrant (RLQ) pain. These guidelines offered specific recommendations on how to handle scenarios which are often ambiguously presented in the literature, including which test to order when, specifics of imaging protocols, and managing pregnant patients who have RLQ pain—all from a Canadian perspective. This presentation will review those guidelines with an emphasis on material that could be considered new or controversial.

Learning Objectives:
At the end of this session, participants will be able to:

- Identify which imaging modality (US, CT, MRI) is most appropriate for patients presenting with right lower quadrant pain, taking into consideration age, sex, BMI and pregnancy status.
- Prescribe the most appropriate US, CT and MRI protocols for patients with right lower quadrant pain, including the key pulse sequences important in MRI.
- Discuss the special considerations present when a patient with right lower quadrant pain is pregnant, and how to address those - including issues of consent, operational workflow, modality/protocol and the use of contrast.

Target Audience: Radiologist, Resident, Medical Student, Technologists, Clinicians

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Revisiting Leiomyosarcoma: Where Are We Now?

Caroline Reinhold

This presentation will review the background, indications for imaging, and imaging findings of uterine leiomyosarcomas with a focus on MRI. The basic requirements for an MRI protocol will be reviewed. An MRI algorithmic approach for differentiating atypical fibroids from uterine leiomyosarcomas will be presented using a “how to”, case-based approach.

Learning Objectives:
At the end of this presentation, participants will be able to:

- Indicate the accuracy of cross-sectional imaging for diagnosing uterine leiomyosarcomas.
- List an optimal MRI protocol for imaging patients with suspected uterine leiomyosarcoma.
- Apply an MRI algorithm for diagnosing uterine leiomyosarcomas and differentiating them from atypical fibroids.

Target Audience: Radiologist, Resident, Medical Student, Technologists, Gynecologists, Genecology Trainees

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

SATURDAY, APRIL 5, 2025

13:30 – 14:30

Introduction by Carolina Souza

Plenary Lecture

Plenary: Decoding Health Equity in Radiology

Efrén Flores

We will discuss how integrating health equity principles can drive advancements in personalized radiology care, ensuring that imaging and diagnostic services are tailored to diverse patient populations. We will highlight the pivotal role radiologists can play in leveraging equity-driven innovation to transform care delivery, fostering a more just and patient-centered radiology practice.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Describe the role of health equity in driving personalized radiology care.
- Review evidence-based examples in radiology that integrate healthcare, community outreach, and public health.
- Discuss strategies for radiologists to integrate health equity principles into care delivery transformation in radiology.

Target Audience: Radiologist, Resident, Medical Student, Radiology trainees and workforce at all levels

CanMeds: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

SATURDAY, APRIL 5, 2025

15:15 – 16:45

Moderator: Laurent Létourneau-Guillon

Getting Started with AI in Radiology: Foundations and Practical Implementation

Foundation Models and Large Language Models in Radiology

An Tang

Radiologists analyze medical images and describe their content in text reports. Recent technical developments in deep learning models that connect images and text may facilitate radiology workflow. Foundation models refer to large-scale models trained on extensive multimodal datasets that incorporate various data types such as images, videos, audio, and text. They are designed to support many applications such as image recognition and language understanding. Large language models (LLM) are a narrower type of AI model trained on large amounts of text data to understand and generate human language. A well-known example is GPT. AI models are adaptable and can be “fine-tuned” to accomplish specialized tasks such as adopting a medical lexicon. Potential clinical applications of these models include automated medical image captioning, preliminary radiology report generation, impression creation, and generation of educational images.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Explain the difference between foundation and large language models.
- Describe key concepts of foundation model and large language model architectures.
- Recognize clinical applications of these models in radiology.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Scholar, Professional

Ethical Considerations and Fairness in AI

Christopher Filippi

This talk with explore ethical considerations and fairness in the development of Artificial Intelligence in imaging and healthcare. Issues of representation and generalizability will be discussed. Mathematical fairness and tools to uncover bias in algorithms will be given. At the end of the talk, a discussion of quality metrics (Quality Assurance and Quality Improvement) will be addressed and potential solutions for healthcare networks.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Define bias, ethics, and fairness in the setting of artificial intelligence in the context of clinical healthcare decision making in diagnostic radiology.
- Demonstrate familiarity with concepts of mathematical fairness and tools that can be used to mitigate bias in artificial intelligence algorithmic development.
- Acquire an understanding of the generalizability of artificial intelligence in clinical settings and explore strategies for governance to ensure the quality, fairness, and ethical deployment of AI tools in healthcare.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Professional

How to Implement an AI Tool in My Department

Jaron Chong

This presentation will provide a step-by-step approach to successfully integrating an AI tool within a radiology department. Attendees will gain insights into selecting appropriate tools, addressing operational challenges, and ensuring alignment with clinical workflows to optimize outcomes.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Identify key considerations in selecting and validating an AI tool for radiology practice.
- Develop a practical plan to integrate an AI tool into department workflows, including stakeholder engagement and performance monitoring.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Communicator, Leader, Health Advocate

AI Roundtable
All Faculty

15:15 – 16:45

Moderator: Carolina Souza

Guidelines and Innovations in Chest Imaging: From Incidental Findings to Trauma

Non-screen Detected/Incidental Pulmonary Nodules – Review of Current Guidelines

Jana Taylor

This talk will focus on incidental pulmonary nodules (IPN) found on CT chest. We will review the scope of the issue of over- and under-diagnosis of IPN, address how to report them, and give appropriate follow up recommendations. New tools for the diagnosis and management of PN will be discussed.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Assess the current status of reporting of incidental pulmonary nodules and its impact on patient care and the health care system.
- Acquire the knowledge of the current recommendations for reporting and follow up recommendations for incidental pulmonary nodules.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Health Advocate

2022 American Heart Association/American College of Cardiology Aortic Guidelines

Kate Hanneman

Discuss key guidelines related to aortic imaging and measurements from the 2022 American Heart Association/American College of Cardiology Aortic Guidelines.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Discuss recommended aortic imaging techniques.
- Apply aortic measurements and recommended guidelines for follow-up and management.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Communicator, Scholar

Interstitial Lung Disease: Review of Current Guidelines

Cameron Hague

This presentation will provide a review of the current guidelines for fibrotic interstitial lung disease (ILD). We will review the evolution of the usual interstitial pneumonia/idiopathic pulmonary fibrosis guidelines from 2011 to 2022, and cover the 2018 guidelines for fibrotic hypersensitivity pneumonitis. The talk will cover some of the pitfalls when applying these guidelines to everyday practice. We will also explore future directions for ILD diagnosis and classification. The goal is to familiarize the audience with the current guidelines for ILD diagnosis and demonstrate how these can be effectively applied in daily practice.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Review the currently published guidelines for interstitial lung disease.
- Apply the guidelines for usual interstitial pneumonia, idiopathic pulmonary fibrosis, and fibrotic hypersensitivity pneumonitis to the interpretation of high-resolution CT images.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Health Advocate, Scholar, Professional

Chest Trauma: A Case-Based Approach

Efrén Flores

This presentation provides a structured, case-based approach to imaging in chest trauma. Through a series of real-world trauma cases, we will explore key thoracic findings, and their specific characteristics appear on different imaging modalities. This interactive approach aims to enhance understanding of chest trauma imaging and improve diagnostic accuracy in complex cases.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Describe trauma imaging protocols and explain the importance of initial imaging review in guiding protocol selection and pattern recognition in chest trauma.
- Analyze thoracic trauma cases to identify key imaging findings across different imaging modalities.
- Recognize life-threatening thoracic injuries and determine when immediate intervention is required.

Target Audience: Radiologist, Resident, Medical Student, Trainees and other radiology workforce at all levels.

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

SATURDAY, APRIL 5, 2025

15:15 – 16:45

Moderator: Tanya Chawla

Navigating Cancer Care: Multidisciplinary Perspectives on Complications with Shared Patient Journey

Imaging of Hepatocellular Carcinoma: From Diagnosis to Prognosis Prediction

Sébastien Mulé

Imaging plays a pivotal role in the management of hepatocellular carcinoma (HCC), as contrast-enhanced CT and MRI allow non-invasive diagnosis for HCC by considering the association of imaging features in patients at high risk for HCC. In addition to its diagnostic role, imaging can help phenotype tumour biology and heterogeneity non-invasively. Some imaging signs are associated with pathological factors of poor prognosis such as tumour grade, subtype, or invasiveness. This presentation will explore how imaging techniques can be used to identify tumour phenotypes with varying levels of aggressiveness, offering valuable insights that complement histopathological and molecular data.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Identify the diagnostic value of imaging features for noninvasive diagnosis of hepatocellular carcinoma (HCC).
- Distinguish the potential of imaging features to provide useful prognostic information.
- Discuss the limitations of translating these prognostic imaging features into clinically applicable prognostic markers.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Communicator, Scholar, Professional

Abdominal Manifestations of Therapy

Tanya Chawla

In this presentation, a case-based approach will be employed to illustrate the impact of newer molecular and immunomodulatory therapy in a variety of organ systems in the abdomen. These treatment regimens result in local and systemic changes which in many cases are expected. Accurate characterization and discrimination from residual or recurrent disease are imperative to facilitate timely and appropriate management. A brief overview of radiation related complications will also be undertaken.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Explain the mechanisms of action of molecular targeted and immunomodulatory therapies.
- Discuss the spectrum of impact (adverse effects) on organ systems within the abdomen.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Leader

Chest Complications & Side Effects of Therapy

Demetris Patsios

Treatment induced pulmonary injury, and other intrathoracic complications are continuing challenges faced by Radiologists, Pulmonologists and Oncologists in the setting of managing patients undergoing cancer treatment. This presentation will address complications including drug-induced lung or other intrathoracic disease, drug-induced pulmonary toxicity, radiation-induced lung injury, and, in some cases, may reflect a multifactorial effect.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Identify common imaging patterns associated with treatment-related pulmonary injuries.
- Recognize medications linked to drug-induced pulmonary injury and distinguish imaging features of radiation-induced lung injury.
- Describe the most frequent imaging patterns observed in drug-induced pulmonary injury.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, Professional

Treatment-Induced Toxicity of the Central Nervous System

Carlos Torres

This presentation will review some of the common and rare imaging abnormalities affecting the central nervous system during and after cancer treatment.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Recognize common and rare imaging findings involving the brain and/or spinal cord secondary to cancer therapies.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Collaborator, Health Advocate, Professional

SUNDAY, APRIL 6, 2025

9:00 – 10:00 Introduction by Tanya Chawla

Plenary Lecture

Best of the AIRP: Colorectal Cancer: A Radiologist's Perspective

Perry Pickhardt

This talk will provide an update on colorectal cancer (CRC) from the radiologist's perspective, including risk factors, the rationale for CRC screening, available tests, and advantages for CT colonography will be discussed. The spectrum of clinical presentation of CRC and special considerations will also be covered.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Summarize the rationale for colorectal cancer screening to understand its role in early detection and prevention.
- Recite the advantages & disadvantages of colorectal cancer screening using CT colonography.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert

SUNDAY, APRIL 6, 2025

10:15 – 11:55 Moderator: Prasaanthan Gopee-Ramanan

Lessons I Have Learned

Avoiding Misdiagnosis in Abdominal Imaging: Review of Missed Cases

Perry Pickhardt

A series of instructive cases will be presented where the diagnosis was missed by the interpreting radiologist.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Evaluate critically the key abdominal imaging findings that were either missed or misinterpreted.
- Analyze challenging abdominal imaging cases to enable a timely and accurate diagnosis.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert

Oncologic Imaging Mistakes

Ameya Kulkarni

This presentation will aim to address some of the challenges that we face in oncology imaging in our daily practice. We will cover some challenges including, but not limited to, protocolling, scanning techniques, image interpretation, and results communication.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Identify perceptual errors, the most common type of radiologist interpretative error in oncologic imaging.
- Review other types of errors in oncologic imaging, including systems, communication, cognitive, and random errors.
- Explain strategies for preventing errors and minimizing diagnostic inaccuracies in oncologic imaging.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Collaborator, Health Advocate, Scholar, Professional

Missed Cases in MSK: Our Experience from Peer Learning

Rakesh Mohankumar

This presentation will review common mistakes we encounter in musculoskeletal imaging and how to minimize errors.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Recognize common errors in musculoskeletal radiology.
- Analyze the causes of errors and strategies for reducing errors in musculoskeletal radiology.
- Evaluate the role of peer learning in identifying and mitigating errors in musculoskeletal radiology.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Health Advocate, Scholar, Professional

Things That Took Me Too Long to Understand in Head & Neck

Eric Bartlett

In this presentation, we will discuss 3 topics in head and neck imaging that are frequently misunderstood: 1) sinus imaging, 2) vocal cord paralysis, and 3) lymph node assessment.

Learning Objectives:
At the end of the presentation, delegates will be able to:

- Diagnose acute sinusitis using evidence-based clinical criteria and imaging when appropriate.
- Identify and confirm the diagnosis of vocal cord paralysis through clinical examination and imaging.
- Implement a systematic approach to lymph node assessment in the head and neck, integrating clinical and imaging findings.

Target Audience: Radiologist, Resident

CanMEDS: Medical Expert, Communicator, Health Advocate

Emergency and Trauma Radiology

Sarah Barrett

This presentation will discuss tips and tricks to avoid common misinterpretations in emergency radiology using illustrative cases.

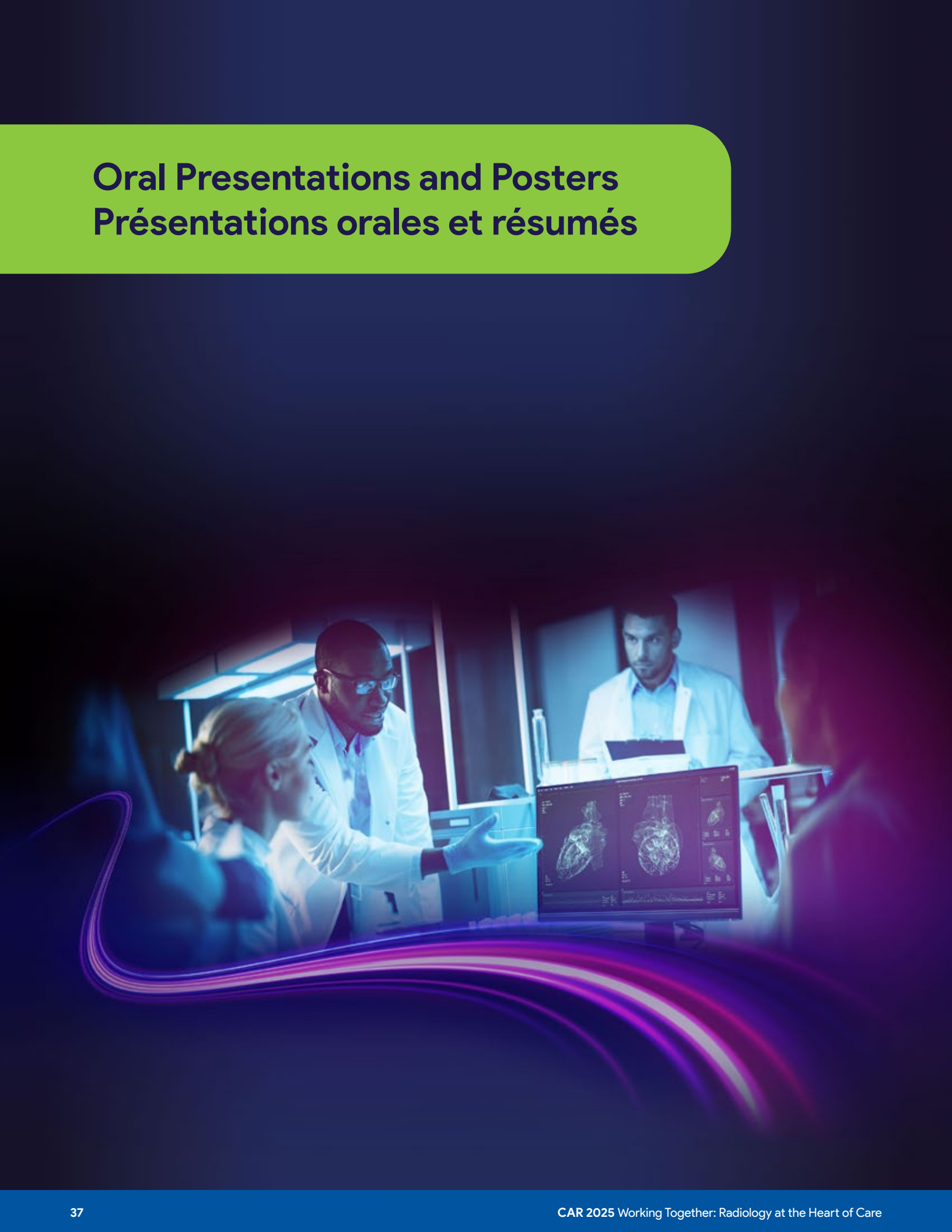
Learning Objectives:
At the end of the presentation, delegates will be able to:

- Recognize common interpretive errors encountered in emergency radiology and apply strategies to avoid these errors, improving diagnostic accuracy and patient care.

Target Audience: Radiologist, Resident, Medical Student

CanMEDS: Medical Expert, Communicator, Health Advocate, Professional

Oral Presentations and Posters
Présentations orales et résumés



111590

Sonographic Acetabular Angle Measurement in Anterior Hip Pain Following Total Hip Arthroplasty

John Karp, Levon Nazarian

Hospital of the University of Pennsylvania

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: Anterior hip pain is common after total hip arthroplasty (THA). The iliopsoas tendon extends directly over the THA acetabular component and is therefore vulnerable to impingement, especially if the acetabulum is pitched anteriorly. We evaluated the correlation between anterior hip pain and acetabular angle as measured by ultrasound.

METHODS: An IRB-approved retrospective analysis was conducted. Adult patients with ultrasound evaluation of ipsilateral hip pain post THA were identified through Nuance Montage. Manual US angle measurements of the THA acetabular component relative to the femoral head were performed. Iliopsoas tendon or bursal abnormalities were also recorded from the US reports. Statistical analysis was performed with two-tailed unpaired T-tests.

RESULTS / DISCUSSION: A total of 245 patients were initially identified with 119 patients meeting inclusion criteria, among which 100 (84%) had clearly visible acetabular components for measurement. Of these patients, 67% were female, with an average age of 64.8 years old (range 22-93). Anterior hip pain was reported in 72% of the cases. The average acetabular angle in patients with anterior hip pain was significantly greater (25.4°, SD = 5.9°) compared to the angle of patients with non-anterior hip pain (15.6°, SD = 5.4°), $P<0.0001$. The average acetabular angle of patients with ultrasound-demonstrated iliopsoas pathology (n=56) was 24.7°, SD = 6.7°, which was significantly greater compared to those with a normal iliopsoas ultrasound appearance (20.1°, SD = 7.1°), $P<0.001$.

CONCLUSION: Following THA, a larger acetabular angle as measured by ultrasound is associated with anterior hip pain and iliopsoas pathology.

112024

Leveraging Locally-Trained Large Language Models for Automated Synoptic Reporting in Pancreatic Ductal Adenocarcinoma Imaging

Zoe Hu, Umaseh Sivanesan, Shane Natalwalla, Jacob Peoples, Amber Simpson, Andrew Chung

Queen's University

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: Pancreatic ductal adenocarcinoma (PDAC) relies heavily on imaging to guide treatment decisions. However, the inconsistency in computed tomography (CT) reports makes extracting key imaging features for staging and resectability an ongoing challenge. Large language models (LLMs) show promise in extracting this data, but proprietary platforms such as ChatGPT may lack security. This study aims to develop a secure, locally trained LLM to automatically generate synoptic reports from original PDAC staging reports.

METHODS: 109 consecutive non-synoptic PDAC staging CT reports from Kingston Health Sciences Centre spanning 2018-2024 were retrospectively reviewed to establish the reference standard according to the joint consensus statement published by the Society of Abdominal Radiologists and the American Pancreatic Association. The Gemma-2 27B open-source LLM was fine-tuned to extract and automatically generate the 12 key synoptic features for determining staging and resectability. Extracted values were compared to the reference standard with 5-fold cross-validation to generate the associated performance metrics.

RESULTS / DISCUSSION: Mean area under the ROC curve (AUC) score of 0.95 was achieved with our trained LLM, with an associated positive predictive value of 0.90 and a negative predictive value of 0.81. AUC score varied when broken down into features associated with the pancreatic tumour (0.96), involved vasculature (0.92), and metastatic disease (0.96).

CONCLUSION: This study provides support for the use of locally trained open-source LLMs to securely generate synoptic reports which reduce variability in radiology reporting, ultimately improving treatment planning and patient outcomes in PDAC care.

112026

DeepSPINE: A Comprehensive Deep Learning Model for Multi-Task Lumbar Spine MRI Analysis

Kay Wu[1], Satvik Tripathi[2], Christopher Bridge[3], Stuart Pomerantz[4]

[1]University of Toronto Department of Medical Imaging, [2]University of Pennsylvania, [3]Athinoula A. Martinos Center for Biomedical Imaging, [4]Transparent Imaging

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: A lumbar spine MRI is vital for diagnosing persistent low back pain etiologies. Spinal MR interpretation is time-consuming and subject to inter-reader variability. We extend upon a deep learning model tailored for comprehensive, automated analysis of lumbar spine MRI to detect and grade nine degenerative spinal conditions.

METHODS: DeepSPINE was trained and evaluated on a dataset of 54739 T2-weighted lumbar MRI studies to predict the presence and severity of spinal pathologies: left (LFS) and right foraminal (RFS) and spinal canal stenosis (SCS), disc bulging (DB), disc osteophyte complex (DOC), left (LFA) and right facet arthropathy (RFA), ligamentum flavum thickening (LFT), and epidural lipomatosis (EL). Intervertebral level-by-level ground-truth labels of pathological processes from associated radiology reports were extracted. Intervertebral disc image volumes in axial and sagittal planes were extracted from the studies. Each was fed into a convolutional neural network based on ResNeXt to perform the classification tasks.

RESULTS / DISCUSSION: DeepSPINE demonstrated within-one class accuracies of 96.1%, 96.1%, and 97.0% and quadratic Cohen's kappa of 0.745, 0.750, and 0.781 in classifying the severity of LFS, RFS, and SCS, respectively. For binary DB, DOC, LFA, RFA, LFT, and EL classification, AUC scores were 0.861, 0.838, 0.628, 0.632, 0.669, and 0.638.

CONCLUSION: We successfully trained an efficient deep learning model to automatically predict and grade various spinal pathologic processes. DeepSPINE achieved strong performance across classification tasks at each spinal level. To our knowledge, this is the first model trained on such a large and robust dataset to generate more comprehensive, descriptive level-by-level predictions of lumbar spine disease.

112095

Impact of an AI Tool on the Diagnostic Performance of an Inexperienced Reader

Charles Liu[1], Alexandre Parpaleix[2], Narayan Sundaram[3]

[1]University of Chicago Pritzker School of Medicine, [2]Milvue TechCare, [3]University of Chicago Medicine

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Artificial intelligence (AI) has seen increasing use by radiologists and clinicians for timely and accurate fracture detection. This study assessed the impact of a commercial AI-based fracture detection software (TechCare Trauma, Milvue) on a medical student. The primary goal was to compare the diagnostic accuracy of the medical student with and without the aid of Milvue Techcare Trauma.

METHODS: 303 anonymized adult radiographs in a traumatic setting were ground-truthed by three US board-certified musculoskeletal radiologists, and subsequently read by an inexperienced learner (medical student), first without then with the AI tool, to assess for the presence or the absence of a fracture. Data collected included the number of false negatives, false positives, true negatives, and true positives. The diagnosis time was also monitored. Statistical analysis was conducted using R-software.

RESULTS / DISCUSSION: The mean age of the 303 patients was 59.9 years (range 21 - 90). Aided by the AI, the accuracy of the medical student for fracture detection significantly increased from 64.7% to 88.4%. Sensitivity rose from 0.51 (95% CI: 0.42 - 0.59) to 0.80 (95% CI: 0.74 - 0.87). Specificity was also significantly improved. The rate of false negatives and false positives decreased from 22.44% to 8.91%, and from 12.87% to 2.64% respectively ($p < 0.0001$). Diagnosis time decreased from 108 minutes without AI to 44 minutes with AI (59% reduction).

CONCLUSION: The results suggest that an AI tool to help identify fractures can also effectively increase the diagnostic performance of a non-expert reader.

112182

Improving Post-lung Biopsy Care: CT Chest at Chest X-ray Dose

Jonatas Favero Prietto Dos Santos, Farah Cadour, Felipe T. Sanchez, Sam Santiago, Eric Salomon, Sean Carey, Sonja Kandel, Patrik Rogalla

Joint Department of Medical Imaging (UHN, Sinai Health, Women`s College Hospital), University of Toronto

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: To evaluate the diagnostic accuracy and radiation dose of ultra-low dose CT (ULDCT) chest using deep-learning reconstruction (DLR) algorithms versus chest X-ray (CXR) in detecting complications after lung biopsies.

METHODS: 81 patients who underwent a CT-guided biopsy received an immediate ULDCT chest post biopsy with an additional 0.5 mm silver beam filter to rule out complications, and a subsequent CXR. CT images were post-processed as thoracic tomograms (TT, 2 cm thick slabs). Three blinded reporting radiologists evaluated the images for post-biopsy complications. The radiation doses and time for reporting were recorded.

RESULTS / DISCUSSION: The mean AUC for all 3 readers for detecting pneumothorax on TT was 0.87 (95%CI 0.82-0.91) versus 0.66 (95%CI 0.60-0.72) on CXR (p<.0001). The difference was also statistically significant when assessing hemothorax (p<.0001) and alveolar hemorrhage (p<.0001), with a mean AUC of 0.91 (95%CI 0.87-0.95) and 0.79 (95%CI 0.74-0.85) on TT versus 0.71 (95%CI 0.64-0.77) and 0.59 (95%CI 0.52-0.65), respectively. Inter-reader agreement was higher on TT versus CXR for pneumothorax (k=0.71 vs. 0.40), hemothorax (k=0.78 vs. 0.51), and alveolar hemorrhage (k=0.54 vs. 0.30). The mean and standard deviation (SD) of the effective dose for the TT and CXR among all patients were 0.12 (0.03) and 0.15 (0.06) mSv. The mean (SD) reading time (in seconds) for the TT and CXR was 33.7 (7.5) and 17.2 (5.3), p=1.0. All readers considered TT the preferred technique.

CONCLUSION: Ultra-low dose CT in dose parity with chest X-ray is an accurate method to detect post-lung biopsy complications. Thick-slab reconstructions help reduce the time for interpretation.

112220

The Yield of MRI – Transrectal US Fusion Prostate Biopsy in Men with Suspected Prostate Cancer

Ben Thompson, Kiyana Kamali, Mo Abdolell, Michael Rivers-Bowerman, Andreu Costa

Dalhousie University

PRESENTER'S LEVEL OF TRAINING: Undergraduate Student

OBJECTIVE: To determine the positive predictive value (PPV) of MRI-transrectal ultrasound fusion prostate biopsies at our institution, and to identify factors associated with a positive biopsy.

METHODS: With REB approval, we evaluated all MRI-TRUS fusion prostate biopsies at our institution from September 2022-July 2024. A true positive biopsy was defined as ISUP>1. PPVs were calculated overall and compared amongst the following subgroups (Fisher's test): PI-RADS 3-5; reporting radiologist (n=7); lesion size (<7mm,7-14mm,>14mm); lesion location (peripheral zone vs. anterior transition zone vs. posterior transition zone); ultrasound correlate (present/absent); prostate size (<60cc vs. >60cc); interval from MRI to biopsy (<6 months or not); and biopsy operator (two radiologists). A multivariable logistic regression (GLMM) was performed, predicting positive biopsy with these factors as fixed effects and reporting radiologist as random effect.

RESULTS / DISCUSSION: 224 patients (mean age, 67+/-7 years) with 317 lesions underwent biopsy. PPV was 180/317 (56.8%) overall and for PI-RADS 3-5, 18/46 (39.1%), 65/133 (48.9%), and 97/138 (70.3%), respectively (p=0.03). Significant differences in proportion of true positives were also found with reporting radiologist (p=0.002), lesion size (p=0.004), lesion location (p=0.02), ultrasound correlate (p<0.0001), and time interval (p=0.02). There was no association with prostate size (p=0.29) or biopsy operator (p=0.26). In GLMM analysis, higher PI-RADS score, presence of an ultrasound correlate, and timely interval to biopsy were associated with true positive biopsies (Table 1).

CONCLUSION: The yield for fusion prostate biopsies at our institution is high. A positive biopsy is associated with higher PIRADS score, presence of an ultrasound correlate, and timely biopsy.

112245

Leukoaraiosis Emerges from the Border Zone Regions of the Brain

Davy Vanderweyen[1], Samantha Cote[2], Julia Huck[3], Karim Fathy[4], Ann-Marie Beaudoin[5], Kevin Whittingstall[1]

[1]Department of Radiology, University of Sherbrooke, [2]Department of pediatrie, University of Sherbrooke, [3]Department of informatics, University of Sherbrooke, [4]Department of nuclear medicine and radiobiology, University of Sherbrooke, [5]Department of Neurology, University of Sherbrooke

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: Leukoaraiosis is frequently observed on brain imaging, especially in older patients. It is generally assumed to be ischemic due to small vessel disease. However, this assumption remains debated due to inconclusive histopathological studies. We hypothesized that if the etiology of leukoaraiosis is microvascular, white matter hyperintensities (WMH) would preferentially involve brain regions perfused by small vessels, such as border zone regions (BZR).

METHODS: We included 258 cognitively intact participants with no history of cerebral pathology. The arterial tree was automatically segmented by an artificial intelligence model on time-of-flight magnetic resonance angiography. BZR were defined as voxel planes equidistant from two arteries based on distance maps. WMH were segmented on FLAIR using an automated method. The intersection of WMH with BZR was computed and compared to WMH outside BZR.

RESULTS / DISCUSSION: Mean age of participants was 70.8 years (range: 42.7-92.3). WMH burden increased significantly with age, with an average volume of 5.3 mL in participants <70 years and 14.6 mL in participants ≥70 years ($p = 2.6e^{-18}$). WMH predominated in the BZR, with 70% of WMH within 1 cm of BZR centerplane. The amount of WMH decreased exponentially with increasing distance from the BZR. The proportion of WMH in BZR decreased significantly with age, from 71.1% in participants <70 years to 67.6% in participants ≥70 years ($p = 0.002$).

CONCLUSION: WMH demonstrated a spatial predilection for BZR, especially for younger patients. With increased age and WMH burden, non-BZR are increasingly involved. This suggests a vulnerability of BZR to ischemic insults, and supports the microvascular etiology.

112266

Link Between Pancreatic Steatosis, Metabolic Comorbidities, and Early Atherosclerosis Indicators in Children Living with Obesity: An Imaging-based Study

Kenza El Ghomari[1], Anna Voia[1], Jean-Baptiste Moretti[1], Anik Cloutier[2], Ramy El Jalbout[3]

[1]Université de Montréal, [2]Centre de recherche du CHU Sainte-Justine, [3]CHU Sainte-Justine

PRESENTER'S LEVEL OF TRAINING: Master's student

OBJECTIVE: This study aimed to evaluate the association between imaging-based findings of pancreatic steatosis and early metabolic and subclinical cardiovascular disease (CVD) markers in adolescents living with obesity.

METHODS: 23 adolescents (78% male, mean age 14.8 ± 1.7 years) underwent imaging and laboratory evaluations. Pancreatic volume, fat fraction, and paracardial fat thickness (PFT) were measured on mDixonQuant MRI sequences. Carotid ultrasound and elastography were performed to assess carotid intima-media thickness (IMT) among others. Insulin resistance was evaluated using the Homeostatic Model Assessment of Insulin Resistance (HOMA-IR). Spearman correlation and linear regression analyses were performed.

RESULTS / DISCUSSION: Significant associations were found between pancreatic fat fraction and volume with HOMA-IR ($\rho = 0.53$ p-value = 0.02 and $\rho = 0.65$ p-value = 0.003, respectively), indicating a link between pancreatic steatosis and insulin resistance. Pancreatic volume correlated with PFT ($r^2 = 0.44$; p-value = 0.003) and IMT/carotid diameter ($r^2 = 0.37$; p-value = 0.009). Pancreatic fat fraction was linked to PFT ($r^2 = 0.24$; p-value = 0.025). There was excellent inter and intra-observer agreement, and there were no significant associations between pancreatic measurements and liver steatosis or fibrosis. This suggests that pancreatic metrics contribute to early vascular changes, supporting its role as an early indicator of metabolic dysfunction and cardiovascular risk.

CONCLUSION: Pancreatic steatosis, as measured by MRI, is associated with increased insulin resistance and subclinical CVD markers in adolescents with obesity. These findings underscore the need for larger studies to validate these associations and explore targeted interventions to address pancreatic fat accumulation and mitigate long-term cardiometabolic risks.

112014

Optimizing Workflow and Resource Allocation: An Audit of Thyroid Fine-needle Aspiration Biopsy Cancellations at a Tertiary Healthcare Center in Ontario

Ismina Papadhima[1], Vibhuti Kalia[2], Vishal Kalia[2]

[1]Schulich School of Medicine & Dentistry, Western University, [2]Department of Medical Imaging, St. Joseph's Health Care

PRESENTER'S LEVEL OF TRAINING: Medical Student

BACKGROUND / OBJECTIVE: Since the introduction of the Thyroid Imaging Reporting and Data System (TI-RADS), thyroid nodule biopsy requests have increased. At our center, patients referred for biopsy undergo a preliminary ultrasound followed by FNA in the same setting. However, many same-day biopsy cancellations occur after the preliminary ultrasound, leading to inefficient workflow, resource wastage, and longer wait times. To address this challenge, we conducted an audit to identify the primary reasons for cancellations and guide quality improvement interventions. Our proposed initiative will aim to reduce thyroid FNA cancellations by 90% by June 2025.

METHODS: We retrospectively reviewed all thyroid biopsies cancelled after a preliminary ultrasound at our center between January 2022 and March 2024. Audit phase 1 investigated patient demographics, nodule characteristics, reasons for cancellation, and initial ultrasound location.

RESULTS / DISCUSSION: Of 147 cancelled biopsies, 102 (69.4%) did not meet TI-RADS guidelines, 23 (15.6%) showed no discrete nodules, 12 (8.2%) revealed no changes in nodule characteristics compared to prior imaging, 4 (2.7%) required further imaging, and 1 (0.7%) was technically challenging. 5 appointments (3.4%) were cancelled due to patient factors. Notably, 93.2% (n=137) of cancellations involved patients with initial ultrasounds at external facilities. Audit findings revealed that most thyroid biopsy cancellations were associated with downgraded TI-RADS scores and referrals from external facilities, highlighting the challenge of interobserver variability in scoring thyroid nodules. Audit results were shared with stakeholders, whose feedback informed the proposed intervention: offering preliminary ultrasounds at our center two weeks prior to scheduled biopsy. If ultrasound findings do not support biopsy, the FNA appointment will be cancelled. Ongoing reaudits will guide future Plan-Do-Study-Act cycles.

CONCLUSION: Same-day thyroid FNA cancellations resulted in 119.25 hours of misused healthcare provider and procedure room time. The proposed initiatives will allow sufficient time for cancellations to be replaced with other diagnostic ultrasounds, thereby reducing wait times and healthcare costs.

112131

When Time Is of the Essence: Optimizing Trauma Radiograph Workflow to Decrease Time to CT

Brendan Kelly, Jessica Kwok, Morgan O'Neill, Brett Mador, Christopher Fung

University of Alberta

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: Time to intervention is a critical metric in trauma care with increased length of stay in the Emergency Department (ED) being directly associated with increased patient mortality. Computed tomography (CT) is heavily relied on in this setting to rapidly diagnose life-threatening injuries that require urgent management. At our center, transfer to CT has at times been delayed due to excessive time spent perfecting patient positioning or repeating radiographs in the trauma room despite acute findings being evident on single or incomplete views. Therefore, the objectives of this study were to optimize trauma radiograph workflow to decrease the time taken to complete radiographs and transfer the patient to CT.

METHODS: The initiative team included Technologists, Radiologists, Trauma Surgeons, and Emergency Medicine Physicians. After consultation with stakeholders, it was determined trauma room radiograph workflow be altered to instead perform limited radiograph series prior to transfer to CT with delay of additional views until after CT is complete. A memorandum outlining these changes was distributed on April 25, 2023 with changes effective May 1, 2023. The standard of practice was defined as follows: chest/pelvis radiographs should be completed within 15 minutes, extremity radiographs should be completed within 25 minutes, and patients should be transferred to CT within 60 minutes of arrival in the ED. The target was set at 85%.

RESULTS / DISCUSSION: The target was not achieved for any of the outcome measures pre-intervention. Targets were achieved post-intervention with the standard being met for 96% of chest/pelvic radiographs, 85% of extremity radiographs, and 87% for patient transfer time to CT. The average time taken to complete each outcome measure was also significantly decreased.

CONCLUSION: The target was achieved for all outcome measures through a relatively simple initiative which could be adopted by other institutions facing similar delays during trauma patient management.

112134

Cervical Spine MR Facet Joint Arthropathy Reporting Rates

Ryan Spychka[1], Shane Hoeber[2], Sukhvinder Dhillon[1]

[1]University of Alberta Radiology and Diagnostic Imaging Department, [2]University of Alberta Department of Medicine

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: Neck pain is a common complaint in the clinical environment. Facet joint arthropathy can be a contributing factor to neck pain for which management options exist. Determine the local MR cervical spine facet joint arthropathy reporting rate. The standard of cervical spine MR reporting is to comment on the facet joints if pathology is present or not. Target: 100% of all cervical spine MR reports will include a comment about the facet joints.

METHODS: 150 Cervical spine MRs were randomly queried via AGFA IMPAX search across four local MRI sites between January 2023-2024. No more than 3 studies/day were included, and the reporting radiologist was alternated. Expert opinion from a Physiatrist was compiled from a focused interview to determine end-user satisfaction with reports. Results were presented at the local quality improvement day, disseminated amongst residents and fellows, discussed with individual subgroups and brought up at site meetings. A post-intervention cycle is currently underway.

RESULTS / DISCUSSION: The local reporting rate of cervical spine MR facet joint arthropathy was 49%. The reporting rate when another significant finding was present was 42%. An MSK radiologist reviewed and graded the 76 MRs which did not comment on the facet joints: 32% had some degree of facet arthropathy present, with 7% having at least one severe facet arthropathy. Commenting on facet joint arthropathy in MR reports should be the standard of care. Locally facet joint arthropathy is underreported. The discussion will be expanded upon with the post-intervention cycle data.

CONCLUSION: Reporting on facet joints allows the clinician to determine if the facet joints may be contributing to the patient's symptoms for which pain management options exist.

112231

"Hot Read" Checklist-based Template Reporting of CT in Trauma: To Guide Critical Injury Search Pattern, Accurate Communication, and Trainee-staff Efficiency

Kanika Diwan, Blair Macdonald, Joseph O'Sullivan, Marcos Sampaio, Peter Glen, Eduardo Portela de Oliveira, Momina Mateen, Fatma Eldehimi

The Ottawa Hospital

PRESENTER'S LEVEL OF TRAINING: Fellow

BACKGROUND / OBJECTIVE: Studies have highlighted the importance of first identifying life-threatening injuries, followed by assessing the need for damage control surgery, and then addressing other injuries and surgical needs in Trauma CT (Computed Tomography). Checklist reporting for trauma CT scans ensures effective communication with the trauma team with a focus on critical clinical concerns.

METHODS: Following the Plan-Do-Study-Act (PDSA) cycle, a two-step reporting workflow was developed for trauma whole-body CT through a literature review and interdisciplinary consensus. To evaluate the new checklist and assess user confidence, 106 surveys were distributed to radiology and trauma teams using Microsoft Forms. After incorporating feedback through iterative refinements, the structured template was integrated into the reporting workflow using the department's existing speech recognition system and is now actively utilized during emergency shifts.

RESULTS / DISCUSSION: The workflow consists of a "hot read" checklist highlighting critical and life-threatening injuries across the head, spine, chest, abdomen, and pelvis, followed by a comprehensive structured reporting template for the final staff report. The "hot read" checklist ensures the reporting of life-threatening and primary critical injuries in trauma CT, following a structured anatomic approach, as part of the preliminary report provided by the radiology resident. The final report builds upon this preliminary template by confirming the critical findings and adding non-critical and incidental findings in the designated fields by the staff radiologist. Relevant discrepancy banners are included in the final report and communicated to the trauma team according to their level of importance.

CONCLUSION: Checklist reporting serves the radiology trainees to establish a consistent and targeted search pattern for critical injuries and ensures prompt and precise report communication. This approach streamlines the workflow from the "hot read" to the final report, benefiting trainees and staff radiologists alike by enhancing efficiency and accuracy.

112275

Transition from Peer Review to Peer Learning in our Department: Initiation to Current State

Gercois Human, Ania Kielar, Felipe Torres

University of Toronto

PRESENTER'S LEVEL OF TRAINING: Fellow

BACKGROUND / OBJECTIVE: A peer learning guide was published by CAR in 2022, and implemented in our institution in 2023, replacing peer review.Peer learning is non-punitive, focusing on promoting life-long learning. It seeks to disseminate learning opportunities and areas for systems improvement compared to traditional peer review.

METHODS: A minimum of 1 peer learning (PL) case was to be submitted monthly by each abdominal radiologist to the radiologist coordinator. Submitted cases arose during review of prior imaging studies, from multidisciplinary case conferences (MDC), and review of on call cases. Engagement of staff was measured.Cases submitted included errors, learning opportunities from MDC and "good calls". Anonymized divisional PL rounds were conducted every 3-4 months.QI REB was obtained. Six months after implementing PL, a survey assessed users' experience of the new system compared to Peer Review. Compliance with submission of cases was evaluated over 1 year.

RESULTS / DISCUSSION: 242 cases were submitted since implementation in December, 2023. 30 cases (12%) were submitted as good calls.Monthly radiologist case submissions for the abdominal division varied between 67% - 93% (median 79%). 0-6 cases were submitted monthly per radiologist. Survey responses from 58 participants of 94 radiologists (62% response rate)- 16 participants from the abdominal division (51% participation rate).51% of participants believe that PL facilitates a just culture and 75.9% agrees that PL identifies opportunities for continued learning. 66.1% of participants felt that PL is better than Peer Review and only 14.29% felt it was worse than Peer Review.

CONCLUSION: Since implementing PL, participation levels in the abdominal division are high and there is a positive group learning environment, which includes showing "good calls" Participants are in favour of peer learning over peer review. Future work includes creating QI projects to build on these PL lessons.

111357

Why Are Some Radiologists More Affected Than Others? Exploring Who Experiences More Discrimination & Bullying in Radiology Based on Demographics and Socioeconomic Factors

Sonali Sharma[1], Charlotte Yong-Hing[2]

[1]University of British Columbia, 2BC Cancer Agency

PRESENTER'S LEVEL OF TRAINING: Graduate Student

OBJECTIVE: Bullying and discrimination are prevalent issues faced by physicians and trainees, specifically in medical specialties that are less gender diverse such as radiology. The purpose of this study was to investigate: The relationship between demographic factors and socioeconomic factors with experiencing bullying and discrimination and reporting such experiences in Canadian radiologists.

METHODS: French and English surveys were distributed via email through radiology associations/social media. Frequency counts of demographic variables were calculated, and chi-square and Fisher's Exact tests were performed to explore the relationships between demographic characteristics and experience with bullying and discrimination.

RESULTS / DISCUSSION: 491 responses were included in the analysis. 75.6% of responses were from practicing radiologists featuring nearly equal gender distribution. The data revealed high rates of verbal (75.8%) and emotional (74.7%) bullying as the most prevalent forms of maltreatment. Discrimination was also significant, with workplace (89.4%), gender (63.5%), and ethnic discrimination (46.7%) being the most reported. South Asian and Southeast Asian respondents notably faced disproportionately high levels of ethnic discrimination, showing a strong statistical significance ($p<0.001$). Women and early-career professionals, particularly residents, were found to be more susceptible to both bullying and discrimination compared to men and mid-career radiologists. Reporting behaviours showed that women and radiology residents were more likely to report incidents.

CONCLUSION: The study highlights significant gender, ethnicity and age disparities in incidences of workplace bullying and discrimination within radiology, indicating a particular vulnerability among women and ethnic minorities. These findings call for a tailored approach to interventions aimed at cultivating a more inclusive and respectful work environment.

111366

Evaluating AI Effectiveness in Detecting Misinformation and Simplifying Breast Imaging Modality, Biopsy and Screening Guidelines Information: A Comparative Study of Large Language Models

Sonali Sharma[1], Charlotte Yong-Hing[2]

[1]Department of Radiology, University of British Columbia, [2]Diagnostic Imaging, BC Cancer

PRESENTER'S LEVEL OF TRAINING: Graduate Student

OBJECTIVE: This study evaluated the effectiveness of two AI language models, ChatGPT4 and Perplexity, in simplifying complex breast imaging modality, biopsy and screening information and identifying misinformation, with the goal of improving patient comprehension.

METHODS: A total of 100 complex statements, originally at a College Graduate readability level, were simplified by both models to a target grade 6-8 level. Outputs were evaluated using the Flesch-Kincaid model and reviewed by radiologists for clinical accuracy and comprehensibility. Additionally, both models were tasked with classifying 100 true and 100 false statements.

RESULTS / DISCUSSION: ChatGPT4 simplified 36% of statements to Grade 7 and 20% to Grade 8-9, meeting the readability target for 56% of cases. However, 44% of its outputs exceeded this range, including 14% at Grade 10-12, 18% at College, and 12% at College Graduate levels. Perplexity simplified only 6% to Grade 7 and 14% to Grade 8-9, achieving the target in just 20% of cases, with the majority at higher readability levels, including 40% at College and 18% at College Graduate.In identifying misinformation, ChatGPT4 accurately classified 100% of true and false statements, while Perplexity identified 100% of true statements but only 96% of false statements.

CONCLUSION: Many patients struggle to navigate highly technical or unclear medical content. Complex breast imaging information and the presence of misinformation can significantly affect patient understanding, ultimately impacting breast screening rates. This study demonstrated that ChatGPT4 outperformed the Perplexity model in both tasks, showcasing its potential to counter misinformation and enhance the readability of breast imaging, biopsy and screening information.

111557

Analyzing the Prevalence of Injury and Violence in Transgender Patients Using Radiology Reports

Rohan Chopra, Bharti Khurana

Trauma Imaging Research and Innovation Center, Brigham and Women's Hospital

PRESENTER'S LEVEL OF TRAINING: Student

OBJECTIVE: The study aims to investigate the prevalence of injuries and violence disparities between transgender female and cisgender female patients by analyzing radiology reports.

METHODS: We utilized our institution's Research Patient Data Registry to identify 263 transgender female patients and 525 age, race, and ethnicity-matched cisgender women. Adjusted incidence rate ratios (aIRR) and Odds ratios were calculated to compare imaging and injury patterns. Two radiologists blinded to the purpose assessed the likelihood of intimate partner violence (IPV) based on radiology reports. EMR was reviewed for violence documentation in all patients with radiologically evident injuries.

RESULTS / DISCUSSION: In our cohort, 25.4% (67/263) of cases sustained 141 injuries, compared to 14.7% (77/525) of controls with 98 injuries. Injury rates were higher in cases (aIRR: 3.3[2.5-4.3] P<0.0001), especially for cranial (7.8[2.1-29.1] P<0.0001), facial (36.4[8.6-153.8] P<0.0001), and thoracic injuries (4.9[1.4-17] P=0.01), with 78.9% of facial fractures (15/19) involving the midface. The percentage of imaging studies in the emergency departments among cases was significantly higher in cases than in controls (OR=5.3[3.3, 8.3]) (P<0.0001). A higher number of cases with radiologically evident injuries reported experiencing IPV (OR 4.0;[2.6-10.2]; P=0.003) and other types of violence (OR=4.8[2.1-7.7]; P=0.010) compared to controls with only 14.9% of cases denying violence compared to 39% of controls.

CONCLUSION: Transgender females experience significantly higher injury rates, particularly to the head, face, and chest, with frequent presentations to the emergency departments, indicating an elevated risk of violence and gaps in preventive care. By recognizing these patterns, radiologists can help identify at-risk patients and facilitate timely IPV screening and support.

111671

Clinical Determinants of White Matter Hyperintensities in a Population-Based Cohort

Yash Patel[1], Jean Shin[2], Richard Zou[1], Alexandre Boutet[3], Tomas Paus[2,4], Zdenka Pausova[2,5]

[1]University of Toronto, [2]Centre hospitalier universitaire Sainte-Justine, University of Montreal, [3]Krembil Research Institute, Toronto Western Hospital, University Health Network, [4]Departments of Psychiatry and Neuroscience, Faculty of Medicine, University of Montreal, [5]Department of Pediatrics, Faculty of Medicine, University of Montreal

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: White matter hyperintensities (WMH) are structural lesions white matter appearing hyperintense on T2/FLAIR MRI. They are associated with a higher risk of stroke, dementia, and with vascular risk factors, such as hypertension. Herein, we aim to characterize the relative effects of common clinical and bloodwork-based measures on WMH.

METHODS: We used data from 36,320 individuals from the UK Biobank, with an average age of 64 years (range 45 - 81 years). WMH were quantified from FLAIR MRI using a convolutional neural network-based tool (segcsvd-WMH). A multivariable linear regression model was used to assess the effect of age, sex, BMI, systolic blood pressure (BP), diastolic-BP, HbA1c, total triglycerides, low-density lipoprotein (LDL), high-density lipoprotein (HDL), and smoking status on WMH. The 'relaimpo' R package was used to calculate the relative variance explained for each of the predictors using the averaging over orders method ('lmg').

RESULTS / DISCUSSION: In a multivariable linear model, we explain a total of 24% of variation in total WMH, with age contributing to 19%, while systolic BP, HbA1c, and diastolic BP explaining 3.30%, 0.67%, 0.53% of additional variation. These findings do not vary as a function of regional WMH, but these models explain the lowest variance in WMH within the occipital (R2 = 19.3%) and temporal (R2 =14.5%) white matter.

CONCLUSION: In summary, WMH are predominately associated with age, but also with modifiable risk factors such as systolic BP and glycemic control (HbA1c). These associations do not substantially vary with brain region, suggesting a common etiology regardless of regional variation.

112262

Opportunistic Lung Cancer Screening During Breast MR Imaging

Nathan Lucchese Bellé[1], Matheus Zanon[2], Julia Martha[2], Stephan Altmayer[3], Bruno Hochhegger[4]

[1]McGill University Health Centre, [2]Pontifical Catholic University of Rio Grande Do Sul, [3]Stanford Hospital, Stanford University Medical Center, [4]University of Florida

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: To investigate the potential of opportunistic lung cancer screening for patients undergoing breast MR imaging.

METHODS: In this prospective 48-month study, outpatients undergoing elective contrast-enhanced breast MRI scans were recruited. All breast MRI scans were performed on either 3.0 T or 1.5 T scanner, with prone positioning and a dedicated breast coil. To evaluate the thorax, we included an axial postdynamic 3D ultrafast gradient-echo acquisition to the standard breast MRI protocol. In the same prone position, breast coils were switched off, and a body array coil was placed onto the back of the patient. Two general radiologists independently reviewed the MR images.

RESULTS / DISCUSSION: Additional mean time was 27s and 20s for 1.5T and 3.0T scanners, respectively. A total of 419 subjects met the inclusion criteria. Mean age was 50 years (SD ± 12). Most patients underwent breast MRI for evaluation of breast cancer (n = 236; 61.9%) or breast nodule (n = 96; 25.2%). Most were never smokers (n = 220; 73.1%). The studies that had major artifacts compromising diagnostic quality were excluded (1.5T scanner, n = 32, 7.6%; 3.0T scanner, n = 6; 1.4%). Most cases were negative for lung cancer screening (Lung-RADS 1: n=340,89.24%; and Lung-RADS 2: n=31;8.14%). Between the positive scans, the Lung-RADS scores found were 3 (n=7;1.84%), 4A (n=2;0.52%), and 4x (n=1;0.26%). None of these findings could be seen in the standard breast MR sequences.

CONCLUSION: Inclusion of a full-chest sequence during breast MRI is fast and can be used to screen lung cancer.

112263

Improving Adherence to CAR Guidelines for Incidental Hepatobiliary Findings: Evaluating Large Language Models with Retrieval-Augmented Generation

Nicholas Dietrich[1], Brett Stubbert[2]

[1]Temerty Faculty of Medicine, University of Toronto, [2]Schulich School of Medicine & Dentistry, Western University

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Large language models (LLMs) have the potential to support clinical decision-making but often lack access to the most updated imaging guidelines. Retrieval-augmented generation (RAG) may enhance guideline adherence by dynamically integrating external information. This study evaluates the performance of two LLMs, GPT-4o and o1-mini, with and without RAG, in adhering to CAR guidelines for incidental hepatobiliary findings in adults.

METHODS: A customized RAG pipeline (Figure 1) was developed using current CAR guidelines for incidental hepatobiliary findings across various imaging modalities. Guideline-based clinical cases were constructed and used to prompt GPT-4o and o1-mini models, with and without RAG. Two blinded reviewers independently assessed outputs for guideline adherence using a standardized scoring metric. Inter-rater reliability was calculated using Cohen's kappa (κ). Adherence rates were compared across models using the Kruskal-Wallis test, with Dunn's post-hoc test for pairwise comparisons.

RESULTS / DISCUSSION: A total of 319 clinical cases were evaluated. Inter-rater reliability for guideline adherence scoring was excellent (pooled $\kappa=0.96$). Adherence rates were 81.7% for GPT-4o, 97.2% for GPT-4o+RAG, 79.3% for o1-mini, and 95.1% for o1-mini+RAG. Significant differences were observed between groups (Kruskal-Wallis, $p<0.001$). Pairwise comparisons showed that RAG-enabled models significantly outperformed their standalone counterparts (adjusted $p<0.001$). However, there was no significant difference in adherence rates between GPT-4o+RAG and o1-mini+RAG (adjusted $p=0.81$), or between GPT-4o and o1-mini without RAG (adjusted $p=0.73$).

CONCLUSION: RAG improved LLM adherence to radiology guidelines by nearly 20%, demonstrating its potential to enhance evidence-based decision-making. By providing access to domain-specific information, RAG-enabled tools could strengthen clinical decision support and improve patient care.

112265

Canadian Recommendations on Optimal Breast Biopsy Practices Developed Using a Modified Delphi Panel

Caitlin Ward[1], Afsaneh Alikhassi[2], Mary Beth Bissell[1], Anita Bane[3], Erin Cordeiro[1], Zina Kellow[4], Gary Ko[3], Zuzana Kos[5], Ameya Kulkarni[6], Kavita Dhaminaskar[3], Jennifer Jessup[5], Ryan Kirwan[7], Tetyana Martin[5], Christophe Cloutier Lambert[8], Elaine McKevitt[9], Silma Solorzano[10], Saly Zahra[11]

[1]University of Ottawa, [2]Sunnybrook Hospital, [3]University Health Network, [4]Nova Scotia Health, [5]BC Cancer, [6]McMaster University, [7]University of Calgary, [8]University of Montreal, [9]Providence Health Care, [10]McGill University, [11]Horizon Health Network

PRESENTER'S LEVEL OF TRAINING: Radiologist

OBJECTIVE: There are few recommendations in Canada to assist clinicians in selecting appropriate biopsy techniques (fine-needle aspiration, core-needle biopsy, vacuum-assisted biopsy, vacuum-assisted excision) and imaging technologies (mammography, ultrasound, magnetic resonance imaging, contrast-enhanced mammography) for biopsy guidance. To address this gap, 17 experts participated in a modified Delphi panel to reach consensus on biopsy-related topics and provide recommendations. These consensus recommendations intend to offer general recommendations to help standardize and improve practices across Canada and should be evaluated in the context of each individual case and emerging evidence.

METHODS: A two-round modified Delphi process was used. Informed by a literature review and initial participant survey, a questionnaire was developed for first-round voting. The questionnaire included Likert-scale, multiple-choice, and ranking questions to gather expert opinions. Prior to voting, consensus and appropriateness criteria were clearly defined for each question type . First-round voting was held remotely before any interaction among panelists and following dissemination of the literature review. Following first-round voting, an in-person meeting was held. At the end of the in-person meeting, panelists were invited to participate in the second and final round of voting.

RESULTS / DISCUSSION: Overall, 347 individual items were included in the final analysis, 286 (82%) of which achieved consensus, the results of which are summarized in the attached table. Consensus findings covered and were achieved on a wide range of topics, including recommendations for initial biopsy technique based on lesion type and imaging modality, patient management or re-biopsy considerations after the initial biopsy, procedural recommendations (i.e., gauge size, number of samples), and patient considerations (i.e., drug allergies, anticoagulation, pregnancy).

CONCLUSION: A consensus panel of expert physicians provided recommendations for image-guided breast biopsy. These recommendations are designed to provide general guidance and standardize practices across Canada, but should be evaluated considering the unique circumstances of each case, site-specific resource availability, and emerging evidence.

112306

Process-based Quality Indicators for Patients Undergoing Interventional Radiology Procedures

Victor Lee[1], Helena Bentley[1], Jaspreet Bajwa[1], Véronique Caty[2], Surinder Dhaliwal[3], Anastasia Hadjivassiliou[1], Anirudh Mirakhur[4], Nicolette Sinclair[5], Alanna Supersad[6], Jason Wong[4], Erin Davidson[7], Tamara Bollinger[7], Nevin de Korompay[1], Gerald Legiehn[1]

[1]University of British Columbia, [2]Université de Montréal, [3]University of Manitoba, [4]University of Calgary, [5]University of Saskatchewan, [6]University of Toronto, [7]Vancouver Coastal Health

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Modern healthcare systems increasingly rely on interventional radiology (IR) procedures, yet there remains no standardized means to assess the quality of care for these patients. We sought to develop process-based quality indicators (QIs) for patients undergoing IR procedures.

METHODS: QIs were developed using a modified Delphi technique based on RAND-UCLA Appropriateness Methodology. A national expert panel comprising 12 members, including interventional radiologists and multidisciplinary healthcare professionals, reviewed and rated candidate QIs during two rounds of independent ratings. After the initial round, a synchronous meeting of the expert panel was held, during which collated ratings were discussed. Final selection of the QIs was based on the median ratings of validity and feasibility and the level of disagreement, as measured by a disagreement index, during the final round of ratings.

RESULTS / DISCUSSION: Fifty candidate QIs were initially identified through a structured review of published literature and interviews with national leaders, encompassing four domains: departmental processes, pre-procedural, peri-procedural, and post-procedural patient care. In the first round of independent ratings, the expert panel deemed 40 of the 50 candidate QIs to be valid and feasible without disagreement. After modifications to the QIs, which were informed by the synchronous meeting, the second round of independent ratings resulted in the selection of 47 final QIs.

CONCLUSION: This landmark study employs a validated methodology to develop process-based QIs for patients undergoing IR procedures. These QIs provide a standardized approach to assessing the quality of care for patients undergoing IR procedures and may serve as a critical tool in quality improvement initiatives.

111166

A Case of Anti-N-Methyl-D-Aspartate (Anti-NMDA) Receptor Encephalitis in a 23-Year-Old Female

Alexandra Hodder, Brandon Collins, Joseph Yang, Paul Jeon, Mark Stefanelli

Memorial University of Newfoundland

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- To identify the presenting symptoms of anti-NMDA receptor encephalitis and to understand various complications in the diagnosis which may cause it to be misidentified as a primary psychiatric issue.
- To identify the appearance of anti-NMDA receptor encephalitis on imaging, and to highlight the importance and desired sequence of imaging to obtain a proper diagnosis.
- To highlight the potentially fatal outcomes that can result from a delayed or missed diagnosis of anti-NMDA receptor encephalitis, such as hypoventilation and coma.
- To emphasize the need for a multidisciplinary approach to diagnosis and management of suspected anti-NMDA to facilitate timely treatment and prevent associated morbidity or mortality. This may include radiology, neurology, psychiatry, surgical specialties or others.
- To promote awareness of anti-NMDA receptor encephalitis among radiologists, allowing for an increased number of clinicians to have a higher index of suspicion for the diagnosis in clinical presentations of a neuropsychiatric nature.

BACKGROUND: Anti-N-methyl-D-aspartate (anti-NMDA) receptor encephalitis is an immune-mediated disease, which manifests with a complex neuropsychiatric syndrome and is often associated with ovarian teratoma. It is often misdiagnosed as a primary psychiatric disorder. If untreated, it can progress to hypoventilation and coma. This case discussion of a 23-year-old South Korean female with the condition who experienced extensive associated morbidity outlines the need for awareness, thorough imaging and an interprofessional approach to management.

CONCLUSION: Radiologists, imaging technicians and other allied healthcare providers must be vigilant in their suspicion of anti-NMDA receptor encephalitis with associated ovarian teratoma in patients with a complex array of psychiatric and neurological symptoms. Our case of a young, previously well female outlines the pressing need for early detection and treatment of this condition in light of the severe symptoms and deleterious outcomes. The condition is highly responsive to treatment, and much of the potential associated morbidity can be avoided if it is recognized in a timely fashion. Further research is necessary in this area to increase awareness among healthcare organizations so that a timely, multidisciplinary approach to screening, diagnosis and treatment can be initiated.

111325

Not Again: Errors and Misses in Emergency Neuroradiology

Mark Manganaro, Rahim Ismail, Alex Kessler

University of Rochester Medical Center

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Discuss the modified Renfrew classification using the chart below.
- Familiarize radiologists and residents with common and uncommon vascular related neuroradiology misses.
- Categorize each miss into a group(s) by the modified Renfrew classification to better understand the reasoning behind why each miss had occurred.
- When applicable, instill pertinent teaching points to help prevent radiologists and residents from missing these in the future.
- Discuss common cognitive biases in emergency vascular neuroradiology and how to avoid them.

BACKGROUND: Errors and misses in Diagnostic Radiology are a cause of extreme stress for the radiologist and ultimately potentially detrimental for the patient and healthcare facility. We aim to shed more light on the common and uncommon errors and misses in vascular related neuroradiology based on the Modified Renfrew Classification.

CONCLUSION: Unfortunately, all radiologists will make errors and miss critical findings over the course of their careers. In this exhibit we will highlight these various types of errors and misses as detailed by the Modified Renfrow Classification and when applicable provide key teaching points to help prevent these in the future. We hope this will ultimately help radiologists, particularly residents and junior attending radiologists, to ultimately help diagnose critical findings easier and prevent future morbidity/mortality to these patients.

111384

Noninvasive Imaging of Coronary Artery Disease in People Living with HIV

Li Xin Zhang[1], Manel Sadouni[2], Baroukh Benaim[2], Patrick Bourgouin[2], Anne Shu-Lei Chin[1], Gilles Soulez[1], Madeleine Durand[1], Carl Chartrand-Lefebvre[1]

[1]University of Montreal Medical Center (CHUM), [2]Research Center of the University of Montreal Medical Center (CRCHUM)

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Review and understand the cardiovascular risk associated with HIV infection.
- Discuss noninvasive imaging techniques for evaluating subclinical coronary artery disease in people living with HIV (PLWH).
- Present coronary plaque characteristics in PLWH compared to the general population.
- Examine the link between epicardial fat and coronary atherosclerosis in PLWH.

BACKGROUND: People living with HIV (PLWH) now experience a markedly extended life expectancy, while facing earlier age-related conditions such as cardiovascular disease (CVD). Studies indicate a heightened risk of myocardial infarction among PLWH compared to the general population, likely related to increased CVD risk factors, persistent immune activation, chronic inflammation, and antiretroviral therapy. Research on coronary artery disease in PLWH has shown conflicting results regarding coronary calcification, while recent studies highlight a greater prevalence of non-calcified plaque in this group. Additionally, increased epicardial fat in PLWH is associated with coronary plaque volume and vulnerability. This review focuses on noninvasive imaging characterization of subclinical coronary atherosclerosis in PLWH.

CONCLUSION: Coronary CT angiography shows promise as a tool for studying subclinical coronary atherosclerosis in PLWH within research settings. Findings indicate a higher prevalence of non-calcified, high-risk coronary plaques in asymptomatic HIV+ individuals compared to the general population. This suggests a potential anatomical basis for an increased cardiovascular risk in PLWH.

111387

Fibrodysplasia Ossificans Progressive (FOP)

Nfally Badji[1]

[1]Université Cheikh Anta Diop de Dakar

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Extremely rare genetic disease
- Essentially clinical diagnosis
- Imaging detects early ossifications and identifies mature ossifications

BACKGROUND: Fibrodysplasia ossificans progressiva (FOP) or myositis ossificans is an extremely rare progressive genetic disease that affects one in a million people. The mode of inheritance of FOP is autosomal dominant. A mutation in the ACVR1/ALK2 gene has been identified. We report a case of FOP in a 5-year-old child who was seen for suspicion of exostosing disease. Clinical examination reveals a deformation of the skeleton in the craniocaudal and proximo-distal direction. The damage affects the shoulders, lower back, hips and limbs. A shortening and hallux valgus deformation of the first ray and the 5th ray of the feet and hands. In front of this table an x-ray of the skeleton was carried out and made it possible to objectify bone castings in bands of the cervico-dorso-lumbosacral soft parts and also at the costal level and at the level of the arms creating a split appearance of the bones and real bony bridges . On the feet, a characteristic appearance of the big toe (short and stocky in hallux valgus), of the first metatarsals which have narrowed and deviated ends inwards; hypoplasia of the middle phalanges of the 2nd to 5th ray and aplasia of the distal phalanges of the 5th ray. We note a shortness of the metacarpus and the proximal phalanx of the thumbs, hypoplasia of the middle phalanges of the 2nd and 5th ray. Bone maturation was delayed with a bone age estimated at 4 years. Faced with these characteristic clinical and radiographic appearances, progressive osseous fibrodysplasia was suggested and retained. ACVR1/ALK2 gene mutation and alkaline phosphatase assay were not performed.

CONCLUSION: Fibrodysplasia ossificans progressiva is an extremely rare genetic disease whose diagnosis is essentially clinical, characterized by skeletal deformities in the craniocaudal and proximo-distal direction, differentiating it from other congenital bone pathologies. Its progression is towards (respiratory) complications that are life-threatening.

111390

A Sound Approach to Stay on the Ball with Scrotal Pathologies - A Pictorial Review of Scrotal Pathologies on Ultrasound Imaging

Jeffrey Lam Shin Cheung, Mousumi Bhaduri

Western University

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Review normal scrotal anatomy and common anatomical variants.
- Evaluate the strengths and limitations of ultrasound for scrotal imaging.
- Develop an approach to scrotal pathologies.
- Describe key sonographic imaging findings to differentiate common and rare scrotal pathologies.

BACKGROUND: Scrotal imaging findings may range from benign anatomical variants to severe conditions requiring immediate intervention to preserve normal physiology. Scrotal assessments can therefore be daunting for radiologists who are unfamiliar with the typical anatomy and expected imaging characteristics of common pathologies. To address this challenge, this pictorial review aims to provide a practical approach to scrotal findings using a plethora of ultrasound imaging examples. Particular emphasis is placed on describing the clinical presentation, imaging findings, and recommended management for: anatomical variants, infectious/inflammatory conditions, vascular pathologies, traumatic findings, cystic lesions, and testicular neoplasms.

CONCLUSION: Understanding scrotal anatomy and knowing how to describe the ultrasound imaging findings for scrotal pathologies will allow radiologists to confidently provide an appropriate differential diagnosis and suggest next steps to optimize patient care.

111406

Misfolded Ribbons, Fading Focus: A Case of Creutzfeldt-Jakob Disease in a 71-year-old Male Presenting with Blurring of Vision

John Anthony Yuag

Perpetual Succour Hospital

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- To discuss a case of a 71/M presenting with rapidly progressing dementia, myoclonus and blurring of vision highlighting the challenges encountered in diagnosing CJD and its prognosis.
- To discuss the characteristic neuroimaging findings in CJD and differential diagnoses based on neuroimaging and clinical findings.

BACKGROUND: Creutzfeldt-Jakob disease, a rare and fatal neurodegenerative disorder due to abnormal folded prion proteins, characterized by progressive dementia and myoclonus. Definitive diagnosis requires pathologic demonstration of prion isoforms in brain specimens. It is considered rare in the Philippines due to diagnostic challenges and under-recognition of its clinical features.

A case of a 71-year-old male presenting one month to admission with blurring vision, followed by rapid dementia and myoclonus. Initially, he was managed for viral encephalitis, but tests revealed normal CSF studies and unremarkable meningitis panel. Further workup revealed an MRI showing gyriform increased restriction on DWI and hyperintense FLAIR signals in the cerebral cortex (cortical ribboning). Additionally, increase restriction on DWI in both putamen and caudate nuclei. EEG showed abnormal intermittent sharp wave complexes in the frontoparietooccipital regions. However, due to financial constraints, the patient's family opted for conservative management.

CONCLUSION: The diagnosis of CJD entails good clinical suspicion and paraclinical correlations. Our study underscores the need for increased awareness and education to improve diagnosis and management of this untreatable disease.

111433

Renal Angiomyolipoma - Importance of Diagnosis and Prompt Referral

Pinky Dhangana, Alessandro Furlan

University of Pittsburgh Medical Center

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Renal angiomyolipoma (AMLs) are the most common fat containing benign renal lesions, found incidentally.
- Renal AML can mimic renal cell carcinoma (RCC). Most renal AMLs do not calcify, an important imaging finding which can help differentiate from RCC.
- Prompt consultation to interventional radiology and urology and treatment with embolization or surgical removal of renal AMLs ≥ 4 cm is necessary to avoid life threatening hemorrhage.

BACKGROUND: Renal angiomyolipoma (AML) is a common benign renal neoplasm, encountered both sporadically and as part of a phacomatosis, most commonly tuberous sclerosis. They are the most common fat containing renal lesions of the kidney and are often discovered incidentally. We present a case of a patient with renal AML who presented with a large saddle pulmonary embolism (PE).84-year-old female with past medical history of COPD on home oxygen, known right renal AML presented with two days of worsening shortness of breath, found to have massive saddle PE with right heart strain and left lower lobe infarction. She was started on heparin infusion. The following day, condition C was called overnight for acute-onset severe right upper and lower quadrant abdominal pain, hypotension, lactic acidosis, and leukocytosis prompting CTA abdomen and pelvis. CT of the abdomen and pelvis (AP) from year 2020 demonstrated incidental finding of ~4cm right renal AML. AML remained relatively stable in size on CTs through 2023 performed for other reasons. CTA AP performed during current admission demonstrated large right perinephric hematoma, measuring approximately 13 cm with active extravasation most likely arising from known ~4 cm AML in the upper/mid portion of the right kidney. Interventional Radiology was consulted, and Patient underwent glue embolization of the bleeding right AML. Following embolization, the patient remained in shock despite aggressive volume resuscitation with crystalloid and blood products. She was subsequently made comfort measures only (CMO) and unfortunately passed away.

CONCLUSION: Prompt consultation to IR and urology and treatment with embolization or surgical removal of renal AMLs ≥ 4 cm is necessary to avoid life threatening hemorrhage.

111536

Welcome to the "Virtual Angiography Suite": A Comprehensive Online Interventional Radiology Educational Resource for Medical Students

Dany Croteau[1], David Li[2], Helena Bentley[3], Victor Lee[4], Nika Elmi[5], Michael Cowap[6], William Wei[4], Michael Xie[7], Anastasia Hadjivassiliou[4], Gilles Soulez[1]

[1]Université de Montréal, [2]Department of Medical Imaging, Western University, [3]Department of Radiology, University of British Columbia, [4]University of British Columbia, [5]Department of Medical Imaging, McMaster University, [6]University of Manitoba, [7]University of Alberta

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- To enhance learning opportunities for medical students by providing a unique and immersive virtual environment allowing medical students to explore a virtual angiography suite and to gain knowledge of the various instruments of interventional radiology;
- To improve interventional radiology educational resources through filling a critical gap and improving the accessibility of available interventional radiology educational resources for medical students;
- To facilitate career exploration by increasing medical students' exposure to interventional radiology.

BACKGROUND: For many medical students initial experiences in an angiography suite may be daunting. There remains no standardized national interventional radiology curriculum for medical students in Canada. Few medical schools in Canada offer elective rotations in interventional radiology and many medical students in Canada do not receive direct clinical exposure to interventional radiology during medical school. Moreover, there remain few interventional radiology educational resources for medical students encompassing the various instruments of interventional radiology and key principles in the specialty.

CONCLUSION: We developed a comprehensive online interventional radiology educational resource for medical students. The "Virtual Angiography Suite" comprises two components. First, using Matterport technology, which encompasses 3 dimensional cameras and a virtual tour software platform, we developed an immersive virtual environment allowing medical students to explore a virtual angiography suite. Second, completing a structured review of published literature, we curated information on the various instruments of interventional radiology and key principles in the specialty that medical students are able to access as they navigate through the virtual environment. This curated information encompasses puncture needles, catheters, wires, sheaths, stents, fluoroscopy techniques, radiation safety and more. The "Virtual Angiography Suite" will be accessible remotely through a webpage and will be available to medical students worldwide.The "Virtual Angiography Suite" is a comprehensive online educational resource for medical students. This educational resource promotes excellence in interventional radiology education and positively contributes to the successful ongoing growth of the specialty.

111668

Aberrant Abdominal Abnormalities - A Case Series of Uncommon Presentations of Common Conditions

Jeffrey Lam Shin Cheung, Vishal Kali[1], Vibhuti Kalia

Western University

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- Recognize atypical imaging presentations for commonly encountered pathologies to ultimately avoid unnecessary investigations such as imaging-guided or surgical interventions.
- Develop a differential diagnosis for hepatic, uterine, and mesenteric masses in an appropriate clinical context.
- Review appropriate tests to work up atypical abdominal masses.

BACKGROUND: Abdominal pathologies occasionally demonstrate uncharacteristic imaging findings that can stump unprepared radiologists. Understanding the patient's clinical history and having a strong foundational knowledge of common abdominal pathologies can help radiologists begin with a broad differential diagnosis and work toward suggesting an accurate final diagnosis. Using these principles, this case series examines the clinical and imaging findings for: 1) hepatic focal fatty infiltration in an unusual perivascular distribution mimicking masses; 2) dropped gallstone causing multifocal infection presenting as peritoneal nodules mimicking peritoneal carcinomatosis and 3) a cotyledonoid dissecting leiomyoma with invasive features mimicking a leiomyosarcoma.

CONCLUSION: Exposure to unusual case presentations can help radiologists maintain a broad differential and suggest appropriate follow-up steps to ultimately ensure that patients receive an accurate diagnosis and optimal treatment.

111700

Demystifying CaRMS Applications: Selection Process for Diagnostic Radiology Residency at the University of Montreal

Charles Antoine Beaulieu, Isabelle Trop, Alain Mauricio Vergara

University of Montreal Health Centre (CHUM)

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- To understand the components of the Canadian Resident Matching Service (CaRMS) selection process for Diagnostic Radiology at the University of Montreal.
- To recognize the importance of a standardized, objective scoring system in residency admissions, with emphasis on the 100-point grading scale used to evaluate applicants across various criteria.
- To identify the potential benefits and limitations of the current selection process, including the need for further evaluation to optimize effectiveness and assess the correlation between selection components and resident performance.

BACKGROUND: The article provides an overview of the Canadian Resident Matching Service (CaRMS) selection process for the Diagnostic Radiology Residency Program at the University of Montreal, detailing the steps of applicant evaluation and selection implemented since 2021. It aims to promote transparency and offer a model for best practices in residency admissions.The program, like others nationwide, adapted to online interviews due to the COVID-19 pandemic. The selection process includes a review of application files, followed by two interview components: a traditional panel interview and a simulation exercise. A stepwise scoring system ensures objectivity, with a maximum score of 100 points allocated across various evaluation components.

CONCLUSION: The admissions committee, composed of radiologists and residents, evaluates each application component with the goal of ensuring fairness. A 100-point grading system is employed, incorporating both objective and subjective criteria in the final deliberations. The simulation exercise, introduced post-pandemic, has demonstrated greater reliability in assessing applicants' day-to-day decision-making capabilities compared to the previously used radiology quiz.The article acknowledges the potential for subjectivity in certain evaluations, despite efforts to standardize scoring. Furthermore, additional data are required to validate the effectiveness of the current system in predicting long-term success of selected candidates.

111725

Imaging Spectrum of Scrotal Emergencies & Mimics

Vijayanadh Ojili[1], Sriram Jaganathan[1], Aastha Sharadkumar Bhatt[1], Arpit Nagar[2], Devendra Kumar[3]

[1]UT Health San Antonio, [2]Ohio State University Wexner Medical Center, [3]Al Wakra Hospital

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- To describe the imaging manifestations of scrotal emergencies and discuss the clinical manifestations of specific imaging findings.
- To discuss the diagnostic strategy in patients with suspected scrotal emergencies and their mimics.
- To discuss the role of imaging in the management of these patients.

BACKGROUND: Scrotal emergencies are common and can result in significant morbidity and mortality. Imaging plays a vital role in the management of these emergencies by identifying the condition and also aids in the detection of complications. The purpose of this exhibit is to provide a detailed review of a wide spectrum of scrotal emergencies that that can present to the emergency department and to discuss the role imaging, particularly color Doppler sonography in the evaluation of these patients. Sometimes tuberculosis and tumors may also present to the emergency room and may mimic other acute scrotal pathologies and the role of imaging in differentiating these conditions will be highlighted.

CONCLUSION: Imaging plays a key role in the evaluation of patients presenting with scrotal emergencies. Knowledge of various entities and their imaging features can help the emergency radiologist to promptly triage the patients, thereby facilitating appropriate management.

111766

Enhanced Detection and Diagnosis of Pancreatic Conditions: The Evolving Impact of Dual-Energy CT (DECT) Imaging

Mohammadhossein Ghasempourabadi[1], Alison Harris[2], Nicolas Murray[2], Hazel O'Neill[2], Gavin Sugrue[2]

[1]Laval University, [2]University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- To explore how Dual-Energy CT (DECT) revolutionizes pancreatic tumor detection, including its ability to enhance tumor-to-background contrast and improve the differentiation of subtle lesions, such as PDAC and neuroendocrine tumors.
- To investigate the advanced use of iodine quantification and virtual monoenergetic imaging (VMI) in DECT for precise differentiation between hemorrhage, necrosis, and enhancement in acute pancreatitis, improving patient management strategies.
- To delve into DECT's transformative role in trauma imaging, with real-world examples demonstrating its ability to detect subtle pancreatic lacerations and contusions, while minimizing artifacts from surgical materials.
- To assess how DECT optimizes radiation safety while enhancing diagnostic accuracy, providing a critical balance of reduced radiation exposure with increased diagnostic confidence in complex pancreatic cases.

BACKGROUND: Dual-energy computed tomography (DECT) has quickly become a critical modality in abdominal imaging. In the context of pancreatic pathologies, DECT allows for more precise tumor detection, including pancreatic ductal adenocarcinoma (PDAC), enhanced visualization of traumatic injuries, and clearer identification of necrosis in acute pancreatitis (AP). With its superior contrast resolution, reduced artifacts, and optimized radiation management, DECT is highly valuable in both cancer and trauma care. The use of virtual monoenergetic imaging (VMI) and iodine quantification further increases diagnostic precision, minimizes artifacts, and reduces radiation doses. This presentation highlights DECT's technical and clinical contributions to pancreatic imaging.DECT proves to be an essential tool for assessing pancreatic tumors, trauma, inflammation, and vascular conditions. As demonstrated, it contributes crucial insights in the assessment of various pancreatic pathologies, enhancing options for patient management.

CONCLUSION: In tumor identification, DECT enhances tumor-to-background contrast and improves tumor differentiation, with case examples provided for PDAC and neuroendocrine tumors. For trauma evaluation, DECT offers clearer distinction and offers superior delineation of pancreatic lacerations and contusions. In acute pancreatitis cases, DECT more accurately defines necrotic regions, differentiates hemorrhage from enhancement on virtual non-contrast images, and supports clinical outcome predictions. Detection of small pseudoaneurysms is improved on iodine maps. In chronic pancreatitis, DECT can evaluate severity using iodine density measurements.

111802

Imperative for a Health Centered Focus on Climate Change in Radiology

Omar Taboun[1], Chloe DesRoche[2], Kate Hanneman[3]

[1]Schulich School of Medicine & Dentistry, Western University, [2]Queens University, Department of Diagnostic Radiology, [3]University of Toronto, Department of Medical Imaging, Joint Department of Medical Imaging, University Medical Imaging Toronto, University Health Network and Sinai Health System

PRESENTER'S LEVEL OF TRAINING: Medical Studentà

LEARNING OBJECTIVES:

- Understand the health impacts of climate change
- Explore environmental impact of radiology services
- Recognize the intersection of climate change and health equity

BACKGROUND: Climate change adversely affects individual and population health through poor air quality, extreme heat, and the spread of infectious diseases. These health impacts may lead to increased healthcare use and higher medical imaging volumes. Radiology also results in the emission of greenhouse gases, contributing to climate change, which may disproportionately worsen health disparities among vulnerable communities. Addressing these challenges requires implementing mitigation strategies to reduce the environmental footprint of radiology while promoting equitable access to care.

CONCLUSION: Addressing climate change in radiology requires a health-centred approach that aims to build resilience through mitigation and adaptation strategies. Climate change directly impacts human health and health services including radiology. Radiologists can lead in planetary health adopting sustainable practices and promoting equitable access to imaging services.

111818

Penile Trauma - What the Radiologist Needs to Know

John Marinos[1], Raphaële Renard Penna[2], Julien Letendre[1,3], Alexandre Dugas[1,3]

[1]University of Montreal, [2]Sorbonne University, Pitié-Salpétrière Hospital, [3]CEMTL-HMR

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Review penile anatomy and the phenomenon of penile fracture (clinical presentation, management), as well as other traumatic penile injuries that may occur concurrently or in isolation (differential diagnosis).
- Clarify the diagnostic approach and review the role and performance of two different imaging modalities (MRI and ultrasound).
- Propose a diagnostic algorithm based on current literature.

BACKGROUND: Penile fracture (PF) is a clinical entity rarely observed in daily practice but constitutes a urological emergency requiring rapid surgical management to ensure the best postoperative outcomes. The diagnostic approach remains poorly understood in practice and controversial in the literature. Pre-operative imaging is important to confirm the presence of a fracture, identify its location (which influences the scope of surgical management), and detect associated secondary injuries.Penile fracture is defined as a rupture of the tunica albuginea of the corpora cavernosa, often secondary to injury during sexual activity or vigorous manipulation. Clinical symptoms of this condition include hematoma, detumescence, and pain, often following an audible cracking sound.Penile fracture can also include a variety of associated injuries, including intra- or extra-muscular hematomas (intra or extra-cavernosal), venous rupture, and urethral trauma, as well as later vascular complications such as arteriovenous and arterio-lacunar fistulas.

CONCLUSION: Penile MRI demonstrates higher sensitivity in diagnosing PF and confidently identifying the site of focal tear and is the preferred modality, if available, when there is a high clinical suspicion of penile fracture, when the initial ultrasound examination is equivocal, or in the context of surgical planning.With its high specificity and relatively high sensitivity, penile ultrasound remains the first line imaging modality and is a reasonable option for patients with a low risk of PF to exclude a breach in the tunica albuginea or in context of limited resources. However, penile ultrasound may be limited in the presence of a large hematoma, which could mask subtle defects.

111849

MR Imaging of Uterine Incarceration in the Nongravid Patient

Lisa Renaud, Brooke Cairns

University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical School Graduate

LEARNING OBJECTIVES:

- Describe the clinical manifestations of uterine incarceration.
- Present the radiologic findings of uterine incarceration, highlighting characteristic MRI features.
- Understand some of the complications that can arise from untreated uterine incarceration.
- Summarize some of the treatment options which might be available for treatment of non-gravid incarcerated uterus.

BACKGROUND: Uterine incarceration is a rare condition where the uterus becomes trapped between the sacral hollow and pubic symphysis, commonly associated with gravid patients but less frequently reported in nongravid patients. Incarceration of the uterus often presents clinically with urinary retention, which may require catheterization or cystoscopy for definitive management. Urinary retention results from urethral elongation and compression due to mass effect, and causes can be identified on imaging. Timely identification and management reduces the risk of complications.

CONCLUSION: Timely recognition of uterine incarceration and its imaging features is essential for accurate diagnosis. Early intervention is crucial to alleviate symptoms and prevent complications.

111901

Constipation on Radiographs: More than Just a Gut Feeling

Sabreena Moosa[1], Ania Kielar[2], Dilkash Kajal[2], Nasir Jaffer[2]

[1]University of Toronto, [2]University Health Network

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Understand the role of abdominal radiographs in identifying and quantifying severity of constipation.
- Develop an approach to radiographs for the diagnosis of constipation.
- Review the differential diagnostic considerations when identifying constipation on radiographs.
- Review the appropriate terminology to provide the appropriate clinical direction related to constipation findings on radiographs.

BACKGROUND: Constipation is a common clinical presentation in patients of all ages and various inpatient and outpatient settings. Abdominal radiographs provide a cost-efficient, quick and accessible method of assessing constipation while offering anatomic information to guide diagnosis and clinical management. Currently, no standardized method exists for reporting the severity of constipation. In this review, we emphasize the role of abdominal radiographs and now, tomograms in diagnosing constipation, suggest an objective severity grading scale, and discuss key differentials to consider.

CONCLUSION: Abdominal radiographs are a valuable, cost-effective tool for diagnosing constipation, providing essential anatomical insights that aid in clinical decision-making. The variability in reporting the degree of constipation underscores the need for a grading scale to increase diagnostic accuracy. By considering key differential diagnoses, radiologists can help guide the identification and management of constipation in diverse patient populations.

111907

Gaps in Radiation Safety Education and What We Can Do About It: A Creative Radiation Safety Curriculum

Rushali Gandhi[1], Matthew Mueller[2], Aida Ahrari[2], Tiffany Ni[2], Mao Ding[3], Aly Fawzi[2], David Li[4], Eray Yilmaz[4], Quinn Dakota Krahn[5]

[1]Faculty of Medicine and Health Sciences, McGill University, [2]Temerty Faculty of Medicine, University of Toronto, [3]Cumming School of Medicine, University of Calgary, [4]Schulich School of Medicine & Dentistry, Western University, [5]Faculty of Medicine, University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Outline the current radiation safety curriculums across Canada.
- Discuss gaps in medical education regarding teaching radiation safety for medical students and early-stage trainees.
- Introduce a standardized radiation safety presentation that can be showcased at grand rounds and as part of the institutional trainee orientation package.
- Present easy-to-follow infographics about radiation safety in the angiography suite and specific considerations for minimizing radiation exposure to women.
- Showcase a step-by-step video tutorial for trainees to properly use personal protective equipment.

BACKGROUND: Radiation safety is important for interventional radiologists and trainees. While its importance is frequently acknowledged, there is no standardized approach shared between institutions across Canada that ensures radiation safety is adequately taught to trainees. In practice, guidelines may not be followed for various reasons, including busy schedules, lack of availability of protective equipment, and improper fitting lead. Implementing creative solutions to teach radiation safety to staff and trainees in a standardized way would be of value.

CONCLUSION: To raise awareness for the gap in medical education regarding radiation safety and actively implement changes to the current practice, the Canadian Association for Interventional Radiology (CAIR) Residents and Fellows Radiation Safety Subcommittee has developed a series of multi-modal resources to improve education for trainees, including 1) presentation, 2) infographics, and 3) video tutorial to showcase a standard approach to minimize radiation exposure in the angiography suite.

111990

Bridging the Gap: Streamlining Radiology Fellowship Training, Application Processes, and DEI Initiatives

Alex Sy[1], Sonali Sharma[2], Charlotte J Yong-Hing[2,3]

[1]University of Ottawa, Faculty of Medicine, [2]Department of Radiology, Faculty of Medicine, University of British Columbia, [3]Diagnostic Imaging, BC Cancer

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Examine common challenges in the radiology fellowship application and selection processes, including administrative and communication barriers.
- Identify the key positive and negative factors influencing one's choice of radiology fellowship program and the decision-making process among radiology fellowship applicants.
- Explore the importance of wellness and diversity, equity, and inclusion (DEI) programs in supporting trainees, the work environment, and the radiology workforce.
- Discuss actionable strategies to streamline fellowship application procedures, improve efficiency, and reduce the frustration experienced by radiology fellowship applicants.

BACKGROUND: Fellowship training plays a pivotal role in the professional development of radiologists. Within these programs, DEI education, support systems, and wellness have increasingly become a priority. This educational exhibit focuses on the factors influencing choices of radiology fellowship programs, the application and selection processes, program development, DEI initiatives, and wellness programs. This exhibit aims to examine the current literature, identify current challenges and best practices, and provide comprehensive recommendations for improving fellowship programs, thereby enhancing their function and inclusivity.

CONCLUSION: Canadian and U.S. radiology residents value a variety of factors when choosing fellowships, including: career prospects, program reputation, support, and mentorship opportunities. Applicants frequently experience frustration with perceived inefficiencies within the application and selection process, limited communication from programs, and a lack of constructive feedback. Moreover, there exist difficulties with representation and burnout amongst trainees. This exhibit also provides a roadmap for fostering more effective, inclusive, and applicant-friendly fellowship programs. Actionable strategies for improvement include: standardizing application processes, enhancing program-applicant communication, incorporating formal mentorship programs, and integrating DEI and wellness initiatives within the programs themselves. Ultimately, streamlining and improving fellowship programs will benefit trainees and enable institutions to cultivate a well-prepared, diverse, and resilient workforce capable of advancing diagnostic radiology standards.

111991

Heart of Darkness - Intramyocardial Hemorrhage and Microvascular Obstruction: Imaging Findings and Prognostic Implications

Rushali Gandhi[1], Farah Cadour[2], Felipe Tijmes[2], Laura Jimenez-Juan[3], Felipe Torres[2], Kate Hanneman[2], Elsie Nguyen[2]

[1]Faculty of Medicine and Health Sciences, McGill University, [2]University Medical Imaging Toronto, Peter Munk Cardiac Centre, Toronto General Hospital, University Health Network, Department of Medical Imaging University of Toronto, [3]St. Michael's Hospital, Unity Health Toronto, University of Toronto

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- CMR is the gold standard for detecting IMH and MVO.
- MVO, also known as "no-reflow", is related to severe microcirculatory alterations with obstructed microvasculature and can occur alone or concomitantly with IMH.
- IMH is a reperfusion injury, related to extravasation of erythrocytes through severely damaged endothelial walls.
- Both IMH and MVO are associated with worse prognosis following acute MI.

BACKGROUND: Microvascular injury, including microvascular obstruction (MVO) and intramyocardial hemorrhage (IMH) can occur in patients with myocardial infarction (MI) following reperfusion. Recognition of IMH and MVO are clinically important as they are associated with worse outcomes. We review the pathophysiology of IMH, demonstrate CMR imaging and prognostic features of IMH, and its connection with microvascular obstruction (MVO).

CONCLUSION: CMR is the gold-standard for detection of IMH and MVO in the setting of acute MI. There is evolving knowledge on the pathophysiology and evolution of IMH and its connection with MVO. IMH and MVO are associated with larger MI and confer worse prognosis.

111993

Enhancing Diagnostic Accuracy in Emergency Radiology: The Role of Dual Energy CT in Diagnosing Ovarian Torsion

Sonali Sharma[1], Lujain Hefni[2], Sarah Barrett[2], Farzaneh Shobeirian[2]2

[1]Department of Radiology, University of British Columbia, [2]University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Graduate Student

LEARNING OBJECTIVES:

- Understand the clinical presentation and urgency of diagnosing ovarian torsion.
- Identify the key imaging features of ovarian torsion using Dual Energy CT (DECT).
- Recognize the advantages and limitations of DECT in the emergency diagnosis of ovarian torsion.

BACKGROUND: Ovarian torsion is a critical gynecological emergency involving ovary rotation, potential vascular occlusion and loss of function. Traditional diagnosis relies on ultrasound. However, non-specific symptoms like sudden severe pelvic pain, nausea, and vomiting often delay diagnosis. Many patients undergo CT in the ER before ultrasound. DECT, leveraging dual X-ray energies, improves the detection of impaired blood flow, offering rapid and accurate diagnostic clarity without further imaging. First-line imaging for severe abdominal pain in the ED is often with CT. DECT serves as a transformative diagnostic tool in this setting; while previously ovarian torsion could not be definitively diagnosed using single energy CT alone, we have found DECT excels. It can identify specific features indicative of torsion, such as asymmetric ovarian enlargement and the whirlpool sign of a twisted vascular pedicle. It can confidently differentiate abnormal enhancement from internal hemorrhage. If correctly identified, this obviates the need for a subsequent ultrasound. If acted upon, it can preserve ovarian function. DECT can also differentiate ovarian torsion from other gynecologic pathologies such as pelvic inflammatory disease, ovarian cysts, fibroid torsion and ovarian neoplasm.

CONCLUSION: The advantage of DECT over conventional CT in the diagnosis of ovarian torsion is under-recognized. DECT enables rapid, precise diagnosis and avoids delays associated with additional imaging. Faster definitive treatment, preserving fertility and preventing complications underscores its value. There are challenges, including availability, costs, radiation exposure, and lack of awareness. Addressing these barriers through advancements and education is vital to maximize the opportunity to make a definitive diagnosis in emergency gynecological imaging and improve patient outcomes.

112000

Optimizing Radiation Dose in Medical Imaging with Artificial Intelligence

Alyssia Naran, David Koff

McMaster University Department of Medical Imaging

PRESENTER'S LEVEL OF TRAINING: Undergraduate Research Assistant

LEARNING OBJECTIVES:

- Investigate how Artificial Intelligence (AI) can reduce radiation doses in medical imaging workflows.
- Analyze patient-specific models that adjust radiation dose based on individual characteristics using AI.
- Understand the role of AI in precisely automating patient positioning to minimize radiation exposure
- Explore AI-driven methods for image reconstruction and denoising to improve quality at lower doses.

BACKGROUND: Exposure to ionizing radiation from CT scans and x-rays poses long-term health risks, particularly for chronically ill patients who require frequent imaging and for pediatric patients. High cumulative radiation dose has been linked to an increased risk of developing cancer. This review synthesizes current AI methodologies that allow for decreased radiation exposure to improve safety and achieve diagnostic accuracy in medical imaging. AI-powered models enable patient-specific dose estimation, automated patient positioning in scanners, and enhanced image quality at lower doses.

CONCLUSION: Using AI for radiation dose optimization improves clinical practice by enabling safer, more personalized imaging protocols. Personalized radiation dose estimation using AI tailors dosimetry by analyzing patient-specific characteristics, incorporating organ sensitivity, and dynamically adjusting imaging parameters in real-time. Automated patient positioning improves alignment accuracy, reduces radiation exposure, and enhances the quality of diagnostic images. Additionally, advanced AI-driven image reconstruction methods, including Deep Learning Image Reconstruction, enable the production of high-quality diagnostic images at lower radiation doses, outperforming traditional techniques. These advancements align with radiology's "as low as reasonably achievable" (ALARA) principle. As AI tools integrate into the radiology workflow, they support the broader shift toward personalized medicine, ultimately improving patient outcomes.

112028

Physics Insights into Liver MRI: Educational Guidance for Protocol Optimization

Jérémy Dana[1], Khaled Alanazi[1], Véronique Fortier[1], Evan McNabb[2], Akiyo Takada[1], Caroline Reinhold[1], Simon Gauvin[1]

[1]McGill University, [2]McGill University Health Centre

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- MRI quality can be defined by the signal-to-noise ratio, contrast-to-noise ratio, and spatial resolution.
- Signal-to-noise ratio is inversely proportional to spatial resolution and proportional to scan time, leading to necessary clinically relevant compromises.
- Field-of-view should be adjusted to the patient's width to improve spatial resolution, for instance conspicuity of the biliary tree, while maintaining the matrix size and being time neutral.
- Conventional T2 TSE should be preferred over radial TSE or HASTE/SSFSE to achieve optimal liver contrast-to-noise ratio, especially for tumoral characterization or detection.
- Acceleration techniques come with specific artifacts. The higher the acceleration factor, the higher the risk of artifact.

BACKGROUND: The purpose of this educational exhibit is to provide a reading map to the radiologist to analyze the quality of liver MRI images and the necessary lexicon to work side-by-side with MR physicists and technologists. We aim: -To provide the clinical impact of key technical parameters (field-of-view, matrix size, slice thickness, averages, etc.) on MRI quality and scan time (section 1). In this section, we will review the definition of MRI quality (with respect to contrast-to-noise ratio, signal-to-noise ratio, and spatial resolution) and key technical parameters impacting MRI quality. We will also provide practical step-by-step guidance to optimize MRI quality.-To review the various types of pulse sequences and their applications in liver MRI with respect to their strengths and limitations (section 2). We will propose a reference liver MRI protocol. -To review the ancillary considerations when performing a liver MRI (section 3): patient's breathing, different fat suppression techniques, acceleration techniques, phase oversampling, dielectric effect, and MRI quality control.

CONCLUSION: Diagnostic capabilities of liver MRI strongly rely on optimal acquisition parameters and the adequate selection of imaging parameters. Poorly acquired images or inadequate choice of parameters can result in misdiagnosis (e.g., incorrect signal characterization) and medical errors (e.g., missed lesions). Quality control and feedback are a daily challenge in collaboration with MR physicists and technologists.

112046

Saving Lives with Computed Tomography (CT): Role in Enhancing Hypovolemic Shock Complex Assessment

Lulu Liu, Sobhan Mardan, Waqas Ahmed, Savvas Nicolaou

Department of Radiology, Vancouver General Hospital, University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Recognize the common CT findings associated with hypovolemic shock and their relevance to clinical decision-making, impacting trauma management.
- Understand the limitations of current scoring systems in detecting early hypovolemic shock, and how CT can complement these systems.
- Develop an integrated approach that combines clinical evaluation with advanced imaging to support timely, evidence-based interventions aimed at improving trauma patient outcomes.

BACKGROUND: Hypovolemic shock is a critical, often fatal condition, particularly in trauma patients, and remains a leading cause of death in severely injured individuals. Traditional methods for identifying hypovolemic shock-such as clinical signs and scoring systems-are often insufficient, especially in the early stages when interventions are most beneficial. Imaging, specifically computed tomography (CT), is emerging as a valuable tool for early detection of circulatory compromise and for guiding trauma management in the resuscitation phase. Recent studies have highlighted key CT findings, such as a flat Inferior Vena Cava (IVC), shock bowel, and adrenal enhancement, that are indicative of early hypovolemic shock and can guide timely interventions.

CONCLUSION: Hypovolemic shock remains a significant threat in trauma care, but incorporating CT during the resuscitation phase has proven to be a valuable tool in enhancing early detection and management. By providing real-time, detailed imaging of circulatory compromise and injury sites, CT aids in reducing delays in critical interventions. As trauma management continues to evolve, the early use of CT, in conjunction with clinical assessments, can offer a more comprehensive, life-saving approach to managing hypovolemic shock in polytrauma patients.

112089

Easy to Swallow Strategies for Reducing Radiation Doses in Upper GI Studies

Jay Chen[1], Ashmita Singh[2], Dilkash Kajal[3], Nasir Jaffer[3]

[1]University of Toronto, [2]Northern Ontario School of Medicine, [3]Joint Department of Medical Imaging, University of Toronto

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Discuss strategies in reducing radiation doses in upper GI studies.
- Review the technique of pulsed fluoroscopy and how it can reduce radiation dose.
- Highlight the importance of a tailored examination to the clinical question and possible differential diagnosis in reducing radiation dose.

BACKGROUND: Upper GI studies are effective for screening of structural/functional conditions in patients with upper GI symptoms, though there has been declining utility partially due to concerns with higher radiation doses. Although pulsed fluoroscopy has allowed for decreased radiation, this still requires judicious use and sound technique. This can be achieved through various radiation-reducing strategies, which will be discussed in detail in this review. Radiologists performing GI studies can still acquire diagnostic images while using these strategies.

CONCLUSION: Multiple important and simple strategies can be employed when performing fluoroscopic studies to minimize radiation to patients, which can allow for more effective use of upper GI studies as a screening tool.

112102

Balancing the Scales: A Radiologist's Guide to Acid-Base Abnormalities

Muhayman Sadiq[1], Andrew Yen[2]

[1]UTHealth Houston, [2]UCSD

PRESENTER'S LEVEL OF TRAINING: Research Fellow

LEARNING OBJECTIVES:

- Explain the pathophysiological mechanisms behind acid-base disturbances and their relevance to interpreting radiological studies in various clinical contexts.
- Describe the imaging patterns commonly associated with respiratory and metabolic acid-base disturbances and how they reflect physiological changes.
- Demonstrate the practical application of combining ABG data with imaging findings to enhance diagnostic precision in complex cases.
- Outline strategies for radiologists to collaborate effectively with multidisciplinary teams, using integrated biochemical and imaging findings to guide clinical decision- making.

BACKGROUND: Acid-base disturbances are useful indicators of underlying pathophysiological processes,often reflecting dysfunction in the respiratory, renal, or gastrointestinal systems. The arterialblood gas (ABG) is a cornerstone of biochemical evaluation, providing insights intodisturbances to these systems. This educational exhibit highlights the clinical relevance ofacid-base disturbances in radiology, providing a cohesive framework to understand theirmanifestations on imaging studies and how imaging can help predict potential acid-basedisturbances. Focusing on the interplay between ABG results and imaging offers acomprehensive perspective on leveraging these useful diagnostic tools. Radiological imaging, including radiographs, CT, MRI, and ultrasound, is pivotal inevaluating the structural and functional implications of acid-base abnormalities. For example,respiratory ABG disturbances often correlate with imaging patterns reflecting changes inventilation or gas exchange, whereas metabolic disturbances may reveal organ-specificabnormalities, such as in the kidneys or adrenal glands. Understanding these associationsenables radiologists to refine differential diagnoses, particularly in complex cases.

CONCLUSION: The chronic sequelae of acid-base disturbances, such as nephrocalcinosis or osteopenia,highlight the importance of early recognition on imaging. Integrating ABG and imagingfindings facilitates a multidisciplinary approach, encouraging collaboration betweenradiologists and other clinicians to improve patient care. This exhibit emphasizes the value ofsynthesizing biochemical and imaging findings, enabling radiologists to view acid-basedisturbances not merely as biochemical phenomena but as diagnostic tools that reveal thebroader systematic context of disease.

112115

Advanced MRI Techniques Aid Imaging Characterisation of Parotid Tumours

Hannah Woodford, Ian R. Macdonald, Jay Nair, Jan Casselman, Jens Heidenreich

Dalhousie University Department of Diagnostic Radiology, Neuroradiology Division

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- To highlight the role of MR perfusion as an advanced imaging technique in the characterisation of parotid tumours
- To understand the principles of perfusion imaging, and how the imaging is processed
- To illustrate the application of the perfusion maps to parotid lesions and demonstrate the differentiation of several malignant and benign pathologies

BACKGROUND: Perfusion MRI is an imaging technique that assesses blood flow within tumours, providing valuable information about tumour vascularity – a crucial factor in differentiating benign from malignant lesions. Perfusion imaging uses dynamic contrast-enhanced MRI (DCE-MRI) to track the distribution of contrast agents within the tissue, allowing for the calculation of perfusion parameters such as blood volume, flow, and permeability. These parameters provide insight into the microvascular environment of parotid tumours, and combined with other MRI techniques, enhance diagnostic accuracy.

CONCLUSION: We illustrate an advanced use of perfusion MRI, forming perfusion time curves to enhance the diagnostic accuracy of parotid lesions - conventionally a diagnostic challenge radiologically. This is a method which has potential to contribute true value to clinical decisions on treatment strategies, biopsy targeting and prognosis.

112127

A Brief History of Neuroimaging: How the Beatles, Hounsfield and the Computer Sparked an Imaging Revolution

Jessica Matschek, Lawrence Stein

McGill University

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Discuss the history of neuroimaging before the advent of the CT scanner.
- Explore Hounsfield's role in the development of the CT scanner.
- Evaluate the funding behind the CT scanner's development, particularly The Beatles' role.

BACKGROUND: Early 20th century, neuroimaging was limited by the poor visualization of brain tissues on radiographs. While techniques such as ventriculography and pneumoencephalography allowed for visualization of select cerebral structures, these methods were often invasive and uncomfortable. These problems were addressed directly by Godfrey Hounsfield, the inventor of the EMI scan, known today as Computerized Tomography (CT). Many have heard the popular tale that the CT scanner may have gotten by "with a little help from [its] friends", the popular band, The Beatles. It is commonly believed that the CT scan was the Beatles' gift to medicine and that the profits from their music funded the research behind the CT. This exhibit explores the history of neuroimaging, focusing on the life of Godfrey Hounsfield, inventor of the CT scan, and evaluates the funding behind the CT scanner.

CONCLUSION: In the 1960s, Hounsfield, working for EMI, developed the concept of the CT scanner after a conversation with a physician who complained about the inadequacy of traditional brain imaging. Despite initial setbacks, Hounsfield's project progressed with funding from EMI and the UK Department of Health and Social Security (DHSS). However, when it became time to build the first clinical prototype, EMI backed out, forcing Hounsfield to restructure financial agreements. While the Beatles definitely did not fund the CT scan directly, as the urban legend would have you believe, the profits from their albums likely played a role in allowing EMI to fund the initial £17,996 needed for Hounsfield's avant-garde project. As the Beatles once sung, "you say you want a revolution, well, you know, we all wanna change the world" - and they did just that.

112129

Pelvic Puzzles: Unraveling Female Emergencies for Radiologists

Namita Sharma

University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Review key pelvic anatomy as it pertains to imaging evaluation in emergency settings.
- Summarise the spectrum of common female pelvic emergencies.
- Develop an approach to common female pelvic emergencies based on symptoms and biochemistry with an emphasis on imaging features, including ultrasound, computed tomography and magnetic resonance imaging modalities.
- Review common imaging mimics.

BACKGROUND: The evaluation of female pelvic emergencies often presents a diagnostic dilemma due to neighbouring pelvic structures, overlapping symptoms, variable imaging findings, and a wide spectrum of potential pathologies. These cases require radiologists to quickly and accurately identify life-threatening conditions while ruling out mimics that may complicate the diagnostic process. Ultrasound is often the first-line modality, computed tomography plays a complementary role, particularly in atypical presentations or when non-gynaecologic causes are suspected, and magnetic resonance imaging is reserved for work-up of complex and inconclusive cases. A structured review of these emergencies and possible mimics enhances diagnostic accuracy and clinical confidence. This educational exhibit aims to provide radiologists with a comprehensive guide to imaging and clinical assessment of female pelvic emergencies, offering practical strategies to navigate complex cases.

CONCLUSION: This educational exhibit equips radiologists with tools to address the complexities of female pelvic emergencies, offering a detailed review of key imaging features and practical strategies for accurate interpretation. By consolidating critical diagnostic insights, the exhibit empowers radiologists to overcome pitfalls and deliver timely, life-saving guidance in urgent clinical scenarios.

112132

Impact of Diffuse Liver Disease on Liver Lesion Detection and Characterization

Bhavana Shyamanur, Khaled Elbanna

University Medical Imaging Toronto, University of Toronto

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Understand how diffuse liver diseases, such as steatosis, cirrhosis, and fibrosis, affect imaging and interpretation of focal liver lesions.
- Recognize imaging features of benign liver lesions, such as hemangiomas, focal nodular hyperplasia (FNH), and adenomas, in the setting of diffuse liver disease.
- Identify imaging characteristics of malignant liver lesions, including hepatocellular carcinoma (HCC), cholangiocarcinoma, and hepatic metastases, in the context of diffuse liver disease.
- Differentiate true focal lesions from mimics, such as regenerative nodules, nodular steatosis, and focal confluent hepatic fibrosis.

BACKGROUND: Diffuse liver diseases, including steatosis, cirrhosis, and fibrosis, introduce parenchymal and architectural changes that can obscure or mimic focal liver lesions on imaging. These alterations complicate the detection and characterization of lesions, requiring a systematic and nuanced approach to interpretation on imaging modalities such as ultrasound, CT, and MRI.

CONCLUSION: Content Overview: 1. Benign Lesions: Hemangiomas and FNH may appear atypical in the setting of steatosis, mimicking malignancy. Inflammatory adenomas, often associated with steatosis, can present with altered signal behavior. 2. Malignant Lesions: Focal liver malignancies, including HCC, cholangiocarcinoma, and metastases, may exhibit atypical imaging features due to background liver disease. 3. Mimics and Pitfalls: Findings such as regenerative nodules, nodular steatosis, and focal confluent fibrosis can simulate focal lesions, underscoring the need for careful differentiation. Conclusion:Diffuse liver disease affects the imaging characteristics of both benign and malignant liver lesions, posing challenges in detection and characterization. Recognizing these alterations and distinguishing true lesions from mimics are crucial for accurate diagnosis and optimal patient care.

112133

Unlocking the Potential of CT Perfusion Imaging: A Practical Guide for Radiology Residents and Radiologists

Syed Naqvi, Fahad Butt, Thanansayan Dhivagaran

Western University

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- Understand the principles and acquisition techniques of CT perfusion (CTP) imaging and its applications in clinical practice.
- Develop a systematic approach to interpreting CTP maps, including identifying normal and pathological patterns.
- Explore the role of CTP in acute stroke, oncology, and other conditions, with an emphasis on its impact on clinical decision-making.

BACKGROUND: CT perfusion imaging is a powerful tool that provides quantitative and qualitative data on tissue blood flow, aiding in the evaluation of ischemia, tumor vascularity, and other perfusion-related abnormalities. Its primary role is in acute ischemic stroke, where it informs decisions about thrombolysis and thrombectomy. However, variability in interpretation and limited familiarity with advanced applications can hinder its optimal utilization.This exhibit will provide a comprehensive, case-based overview of CT perfusion imaging, from acquisition to clinical application: – Principles of CTP: Overview of key parameters (cerebral blood flow [CBF], cerebral blood volume [CBV], mean transit time [MTT], and time-to-peak [TTP]). – Systematic Interpretation: Step-by-step evaluation of perfusion maps, with a focus on identifying ischemic core vs. penumbra in stroke. – Clinical Applications: a. Acute stroke: Examples illustrating core-penumbra mismatch and how it guides intervention. b. Oncology: Using CTP to assess tumor vascularity and response to therapy. c. Other applications: Perfusion deficits in trauma and vasospasm. – Artifacts and Pitfalls: Common challenges in CTP interpretation, including motion artifacts and incorrect thresholds.

CONCLUSION: CT perfusion imaging is a transformative tool in acute stroke care and beyond. Mastery of CTP interpretation enables radiologists to provide actionable insights that guide timely, evidence-based clinical decisions. Understanding its principles and potential expands its applications across neurological, oncological, and vascular pathologies, enhancing diagnostic confidence and patient outcomes.

112139

Understanding Pediatric Gastrostomy: Essential Insights for Radiologists

Mert Koroglu[1], Harun Yildiz[2], George Chiramel[1]

[1]The Hospital for Sick Children, [2]Cekirge Children's Hospital

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- List the indications and techniques for inserting a radiologic gastrostomy tube.
- Compare each approach in terms of advantages and disadvantages in different clinical contexts.
- Describe the steps of the procedure for each approach to the stomach (antegrade vs retrograde) using illustrations and radiological images.
- Recognize different catheter types and complications on radiological images.

BACKGROUND: The demand for percutaneous gastrostomy insertion referrals has been rising in hospitals worldwide. As one of the more complex interventional radiology procedures, it is crucial for all radiologists to be well-versed in the techniques, imaging characteristics and potential complications associated with gastrostomy.This educational exhibit describes indications, insertion techniques, technical success, potential complications and how to identify them. Illustrations and radiologic images are provided to enhance understanding and provide a visual context. This knowledge is essential for interpreting related imaging studies effectively.A good understanding of the different methods is essential to minimize complications and improve outcomes. Prior planning and preparation will reduce the rate of complications. By being able to identify these complications, interventional radiologists can help mitigate risks and enhance patient safety.

CONCLUSION: The planning and execution of gastrostomy insertion present unique advantages and disadvantages, making the choice of methodology critical based on the specific indication and anatomical considerations. Understanding the various types of gastrostomy tubes and their associated complications is essential for both diagnostic and interventional radiologists. This educational exhibit will equip you with the knowledge necessary to navigate these complexities confidently, ensuring better radiological reports and safer procedures.

112148

Advanced MRI Techniques as a Promising Diagnostic Marker for Ménière's Disease

Hannah Woodford[1], Ian R. Macdonald[2], Jay Nair[1], Jens Heidenreich[1], David Morris[3], Jan Casselman[1]

[1]Dalhousie University Department of Diagnostic Radiology, Neuroradiology division, [2]Dalhousie University Department of Diagnostic Radiology, [3]Dalhousie University Division of Otolaryngology, Head and Neck Surgery

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- To highlight the role of MRI in the diagnosis of Meniere's disease
- To review the inner ear anatomy, and the technique of using caipirinha and double dose contrast to differentiate perilymph and endolyph using MRI
- To illustrate the application of this advanced imaging technique in a spectrum of patients with varying severity of disease, demonstrating the suggested grading system
- To review factors which may impact the reliability and consistency of imaging results - highlighting the need for standardised imaging techniques, and improved clinical criteria for Meniere's disease

BACKGROUND: Diagnosis of Menière's disease presents a significant challenge due to its variable clinical presentation and the absence of a single definitive test. MRI has emerged as a diagnostic tool, enabling clinicians to visualise vestibular hydrops and perilymphatic enhancement. These are key indicators of Menière's disease, as it suggests abnormal fluid dynamics and dysfunction in the affected ear. As a promising diagnostic marker, there are limitations. These highlight the need for standardised imaging techniques, and improved clinical criteria.

CONCLUSION: We illustrate an advanced use of MRI in the diagnosis of Menière's disease, representing an emerging diagnostic marker.

112186

A Multi-Modality Pictorial Review of Suspected Acute Appendicitis

Fatima Shahbaz[1], Arnold D. Hill[1], Hayley Briody[2], Mark Sheehan[2], Aoife Lee[1], Dermot Bowden[2], Ruth Dunne[2], Michael J. Lee[2], Jack Alderson[2], Martina M. Morrin[2]

1Royal College of Surgeons in Ireland, Dublin, 2Department of Radiology, Beaumont Hospital

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Recognize the imaging features of acute appendicitis on ultrasound, CT, and MRI.
- Differentiate between complicated and uncomplicated acute appendicitis on imaging.
- Identify alternate causes of right iliac fossa pain that may mimic appendicitis on imaging.

BACKGROUND: Acute appendicitis is the most common abdominal surgical emergency worldwide. Imaging plays a critical role in timely diagnosis and differentiation between uncomplicated versus complicated appendicitis with implications on management decisions. Atypical presentations can lead to diagnostic uncertainty and delays in treatment with patients often undergoing a variety of radiological tests including ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI). Familiarity with the imaging appearance of acute appendicitis on each radiological study is therefore paramount. This multi-modality pictorial review aims to illustrate characteristic imaging findings of acute appendicitis and its complications while providing reference examples of the normal appendix and alternate pathologies.

CONCLUSION: Prompt and accurate imaging interpretation is essential in confirming suspected acute appendicitis. Differentiating uncomplicated from complicated appendicitis ensures appropriate treatment, reducing unnecessary interventions and limiting complications. Additionally, recognizing alternate causes of right iliac fossa pain reduces diagnostic delay and promotes timely management. This study highlights the role of ultrasound, CT, and MRI in the diagnosis of acute appendicitis.

112188

Imaging Presentations of Unusual Breast Cancer Pathologies

Afsaneh Alikhassi

Sunnybrook Health Science Centre

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- Breast cancer is a heterogeneous group of diseases with different biological, histopathological features, clinical presentation, response to treatment, and outcome.
- Uncommon types of breast cancer may not show typical imaging appearance of breast cancers.
- Reviewing the clinical history, being familiar with these entities and using appropriate biopsy techniques are critical steps for diagnosis.
- Uncommon types of breast cancer range from tubular carcinoma, the most indolent clinical course to metaplastic carcinoma the most unfavorable outcome.

BACKGROUND: Breast cancer (BC) is very heterogeneous with different histopathology subtypes and receptor status. The two most common histopathology types of breast cancer are invasive ductal and invasive lobular. Invasive ductal carcinoma (IDC) accounts for approximately 75% of breast malignancies whereas invasive lobular carcinoma (ILC) accounts for approximately 5 to 10%. The remaining cases of breast cancer are classified as special types. These histological types of breast cancer are associated with their epidemiology, clinical presentation, and prognosis.The most common way of diagnosing breast cancers is through dedicated breast imaging modalities such as mammography, ultrasound, or MRI. IDC and ILC often display desmoplastic reactions, which cause classic imaging features like spiculation or architectural distortion. Calcifications are also a well-known feature of common breast cancers. However, special uncommon subtypes of breast cancer may not exhibit these classic features. IDC and ILC usually is isointense on T2 MRI sequence, whereas uncommon pathologies might show bright T2 signal. Current treatment for IDC and ILC is similar and primarily based on receptor status, such as estrogen, progesterone, and human epidermal growth factor 2. It is difficult to conduct large or randomized studies for other subtypes of breast cancer because of their rare incidence. Here is a list of uncommon subtypes of breast cancers: Lymphoma, Metaplastic Carcinoma, sarcoma, Medullary Cancer, Tubular Cancer, Metastasis, Phyllodes , Mucinous carcinoma, Neuroendocrine Carcinoma.

CONCLUSION: Imaging characteristics, specific clinical presentation and histopathological features of the unusual breast cancer pathologies from our academic tertiary centre database will be discussed to facilitate the breast imager in making the correct diagnosis.

112189

Stress, Insufficiency, and Osteoporotic Fractures in the ER: Advancing Diagnostic Precision and Patient Outcomes

Mohammadhossein Ghasempourabadi[1], Nicolas Murray[2]

[1]Laval University, [2]University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Differentiate the imaging features of stress, insufficiency, and osteoporotic fractures to enhance diagnostic precision in emergency settings.
- Apply the graded diagnostic approach-X-Ray (XR) → CT → MRI → Bone scan-for effective and streamlined fracture evaluation.
- Integrate imaging findings into clinical decision-making to support timely interventions and improved patient outcomes.

BACKGROUND: Fractures such as stress, insufficiency, and osteoporotic types frequently present in emergency settings and require accurate, timely diagnosis to reduce complications and improve patient outcomes. Stress fractures, often seen in athletes, arise from repetitive loading, whereas insufficiency fractures occur in weakened bones, typically in osteoporotic or elderly patients. Osteoporotic fractures, especially those affecting the vertebrae, hip, and wrist, are associated with significant morbidity and mortality if not promptly diagnosed and managed.The graded imaging sequence ensures an efficient and systematic diagnostic process. X-Ray (XR) serves as the first-line imaging modality, detecting overt fractures but often missing subtle or early-stage abnormalities. CT offers greater structural detail, aiding in complex cases such as pelvic and femoral fractures. MRI, with its high sensitivity to early marrow changes and soft tissue involvement, is indispensable for detecting fractures missed by XR or CT. Bone scintigraphy complements these modalities, particularly for distinguishing benign insufficiency fractures from pathological ones caused by malignancy. This structured approach allows emergency radiologists to make precise and informed decisions.

CONCLUSION: Emergency radiologists play a vital role in fracture management by employing a graded diagnostic approach to optimize patient care. X-Ray provides a rapid overview, CT enhances the visualization of structural details, MRI identifies early changes invisible to other modalities, and bone scintigraphy offers metabolic insights critical for differentiating complex fracture types. This protocol ensures precise diagnoses, minimizes mismanagement, and supports evidence-based therapeutic decisions. By integrating these imaging strategies into multidisciplinary care frameworks, radiologists significantly improve outcomes, reducing morbidity and supporting recovery across diverse patient populations.

112214

Radiological Manifestations of Vertebrobasilar arterial Compression of Pons and Medulla Oblongata

Ambreen Zahoor[1], Iram Zaheer[2], Farah Jabeen[3], Muhammad Tayyab Ijaz[4], Haseeb Mukhtar[5]

[1]McMaster University, [2]Farooq Hospital Lahore, [3]Services Hospital, Lahore, [4]CMH Lahore Medical and Dental College, [5]Mayo Clinic

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Describe the importance of the anatomical relationship between vertebral arteries, the basilar artery, and brainstem parts, including the implications of compression on neurological function.
- Highlight the clinical manifestations of brainstem compression and how these symptoms relate to specific brain stem structures.
- Recognize the imaging modalities and different techniques used to diagnose aberrant courses of vertebrobasilar arteries, including MRI and CTA, with their respective advantages and limitations.
- Analyze case studies demonstrating varying degrees of brainstem compression, discussing the implications for management strategies, including observation for asymptomatic cases and intervention for symptomatic presentations.

BACKGROUND: The anatomical relationship between the intracranial part of vertebral arteries, basilar artery, and parts of the brainstem (pons and medulla) could be a cause of many symptoms and various types of Neurovascular compression syndromes. In this review, imaging findings of brainstem compression of variable severity by normal caliber but deviant and tortuous vertebrobasilar arterial system as well as dolichoectatic arteries are illustrated through different cases. In a few patients, it can be asymptomatic and presents as an incidental finding on imaging, and in others it may present with various symptoms depending upon the part of the brain that is compressed. It could range from dizziness, central sleep apnea, vertigo, ataxia, hydrocephalus, ischemic stroke, motor deficits, trigeminal neuralgia, other cranial nerve deficits, hemifacial spasm as well as brainstem compression syndrome due to pulsatile compression by these vessels. We further discussed different imaging modalities and techniques to diagnose this condition including MRI, and CTA with their respective advantages and limitations.

CONCLUSION: The anatomical variation in the course of vertebrobasilar arterial has significant clinical implications and can cause symptoms of variable severity. That is why radiology residents and general radiologists should be able to identify it correctly and correlate the symptoms, if present, for prompt management accordingly.

112221

Physiologic and Non-Physiologic Measurements in POCUS: Quantifying Physiologic Norms in the ICU and ER

Jacinta Specht, Christopher Fung, Brian Buchanan

University of Alberta

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Describe measures that can be obtained using POCUS
- Define which physiological measures may be of importance in guiding clinical decision-making
- Describe why these physiological measures are important to critical care environments such as the ICU and ED
- Describe how to acquire these measures and incorporate them into routine workflow
- Describe the limitations of POCUS-obtained physiological measures and their use as a clinical decision-making tool.

BACKGROUND: Besides the stethoscope, point-of-care ultrasound (POCUS) is one of the few tools that can provide clinicians with an almost "superhuman ability" to aid, quickly and efficiently, in rapid diagnostic decision-making. Due to its real-time functionality and ability to rule in or out specific diagnoses, over the years, POCUS has become an increasingly vital tool in emergency departments (ED) and intensive care units (ICU). Besides its diagnostic prowess, it has become increasingly popular to use POCUS to evaluate physiological measures. Although primarily obtained for research purposes, these physiological measures are obtained with the objective of better guiding clinical decision-making with improved outcomes, especially in high-risk critical care medicine. Therefore, the goal of the educational exhibit will be to highlight non-physiological and physiological measures, such as optic sheath diameter to detect increased intracranial pressure, that may be useful in ICU and ED environments and outline how to acquire these measures.

CONCLUSION: Recognizing how to use POCUS to obtain various physiological and non-physiological measures relevant to critical care environments may help trainees and clinicians add another "tool" to their diagnostic "toolbox." By understanding the strengths and limitations of these values, POCUS may be able to provide clinicians with another "data point" to aid in faster and more efficient decisions in high-risk care environments.

112222

Multimodality Cross-Sectional Imaging Spectrum of Anorectal and Perineal Emergencies - Common, Rare and Exotic

Vijayanadh Ojili[1], Sriram Jaganathan[1], Devendra Kumar[2], Arpit Nagar[3], Pankaj Nepal[4], Sree Harsha Tirumani[5]

[1]UT Health San Antonio, [2]Al Wakra Hospital, [3]Ohio State University Wexner Medical Center, [4]Inova Fairfax Hospital, [5]University Hospitals Cleveland Medical Center

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- To describe the imaging manifestations of anorectal and perineal emergencies and discuss the clinical manifestations of specific imaging findings.
- To discuss the diagnostic strategy in patients with suspected anorectal and perineal emergencies.
- To discuss the role of imaging in the management of these patients.

BACKGROUND: Anorectal and perineal emergencies are common and can result in significant morbidity. Imaging plays a vital role in the management of these emergencies by identifying the condition and also aids in the detection of complications. The purpose of this exhibit is to provide a detailed review of a wide spectrum of anorectal and perineal emergencies that that can present to the emergency department and to discuss the role of imaging in the evaluation of these patients.

CONCLUSION: Imaging plays a key role in the evaluation of patients presenting with anorectal and perineal emergencies. Knowledge of various entities and their imaging features can help the emergency radiologist to promptly triage the patients, thereby facilitating appropriate management.

112240

"Tiny Tummies in Trouble": Imaging Approach to Neonatal High and Low Bowel Obstructions

Rajat Khurana[1], Parikha Rampal[1], Melissa Sam Soon[2]

[1]Children's Hospital of Eastern Ontario, [2]University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- To review normal and abnormal bowel gas patterns on plain radiographs in the neonates, highlighting common interpretation challenges in neonates.
- To familiarize radiologists with typical and atypical causes of high and low bowel obstructions in neonates.
- To review various imaging presentations of bowel obstructions in neonates on sonography and flouroscopy studies.
- To provide tips to avoid potential diagnostic errors.

BACKGROUND: Bowel obstruction in neonates can be categorized into high and low obstructions. High obstructions occur proximal to the jejunum and are often caused by congenital conditions such as esophageal, gastric, duodenal, or jejunal atresia; duodenal stenosis due to annular pancreas or duodenal web; malrotation with or without midgut volvulus; and congenital cysts or masses in the abdominopelvic region. In contrast, low obstructions occur distal to the jejunum and are associated with conditions like ileal or colonic atresia, anorectal malformations, Hirschsprung's disease, or congenital abdominopelvic cysts or masses. Other contributing factors include meconium ileus or functional immaturity of the colon. Differentiating between high and low bowel obstructions is particularly important for guiding subsequent management steps.Plain radiography serves as the primary imaging tool for evaluating suspected gastrointestinal issues in neonates and children, followed by ultrasound and fluoroscopy. We exhibit a case review of various causes of bowel obstruction in neonates frequent encountered in pediatric radiology, particularly their characteristic presentation on radiographs, ultrasound and fluoroscopy.

CONCLUSION: A systematic radiographic approach centered on initial assessment of abdominal radiographs followed by appropriate of US and fluoroscopy, combined with a solid understanding of the common causes and imaging findings of bowel obstructions in neonates is crucial. This knowledge enables timely and appropriate intervention while minimizing unnecessary investigations.

112250

The Forgotten Organ: Diagnostic Approach to the Focal Splenic Lesion

Will Warnica

McMaster University

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- Review the anatomy and function of the spleen
- Explore the spectrum of common and uncommon focal lesions of the spleen, both nonneoplastic and neoplastic
- Present key imaging features that enable differentiation of focal splenic lesions

BACKGROUND: Focal splenic lesions are frequently encountered in radiology practice, often incidentally. A broad spectrum of disease processes can manifest as focal splenic lesions, including congenital and acquired cysts, infection, trauma, and neoplasms (both primary and secondary as well as benign and malignant), among other conditions. The spleen is an organ often underappreciated, however it is important to be able to distinguish between focal splenic lesions as several of these entities are clinically important.

CONCLUSION: Focal splenic lesions encompass a wide range of pathologies, some of which are clinically important, and imaging plays a crucial role in distinguishing between these entities.

112252

An MRI Pattern Recognition Diagnostic Approach to Adult-onset Leukodystrophies

Roy Tianyu Shi, Roberta La Piana

McGill University

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Develop a diagnostic approach to adult-onset leukodystrophies based on MRI patterns to narrow down the differential diagnosis and reduce diagnostic delays.
- Identifying key imaging features to distinguish adult-onset leukodystrophy phenotypes from acquired demyelinating disorders.
- Offer optimal order of additional diagnostic testing.

BACKGROUND: Adult-onset leukodystrophies are broadly classified according to the white matter signal on T1- and T2-weighted MR imaging into hypomyelinating disorders and other leukodystrophies (i.e. demyelinating, leuko-vasculopathies, cavitating). We here propose an MRI-based diagnostic algorithm based on the following major differentiating features: nature of involvement, type of affected fibres, and regional predominance. Further subcategorizations are made based on the associated involvement of specific extra-white matter structures and findings in additional sequences (Diffusion-Weighted Imaging, MR Spectroscopy, and CT scan).

CONCLUSION: With the increasing discovery of novel genetic white matter conditions driven by advanced genetic and imaging techniques, the need for a comprehensive MRI pattern recognition diagnostic approach has become prominent. Our diagnostic flowchart using major MR features helps radiologists in narrowing down the differential diagnosis of adult-onset leukodystrophies. Additional diagnostic testing, such as genetic or biochemical testing, should then be used to confirm the MRI-based diagnosis.

112261

Demystifying Magnetic Resonance Spectroscopy: A Practical Approach

Jana Khanafer, Rokhshid Aflaki, Syed Naqvi

Western University

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Outline the fundamental principles of magnetic resonance spectroscopy (MRS), including its role in tissue metabolite evaluation.
- Develop a systematic approach to interpreting MRS spectra and identifying common patterns associated with specific pathologies.
- Discuss clinical applications of MRS in oncology, neurology, and metabolic disorders.

BACKGROUND: Magnetic resonance spectroscopy (MRS) is a non-invasive imaging modality that complements MRI by quantifying tissue metabolites. It provides metabolic insights into pathological processes, such as tumor grading, neurodegenerative disorders, and inborn errors of metabolism. Despite its diagnostic potential, MRS remains underutilized due to perceived complexity and variability in interpretation. A structured approach to understanding and applying MRS can bridge the gap between advanced imaging and clinical utility. Key components of this exhibit will include: – Principles of MRS: Explanation of spectral peaks for metabolites like choline, N-acetylaspartate (NAA), lactate, and myo-inositol, with focus on their physiological relevance. – Clinical Cases: Illustrated examples of MRS in brain tumors (e.g., tumor recurrence versus radiation necrosis), hepatic encephalopathy, and neurodegenerative cases. – Strategies to identify spectral patterns and resolve common pitfalls.

CONCLUSION: A systematic approach to MRS interpretation can simplify its adoption, enabling radiologists to provide precise, non-invasive insights into complex diseases. Incorporating MRS into routine practice can enhance diagnostic accuracy and enhance patient care.

112270

Isolated Vascular Abnormalities of the Gastrointestinal Tract in a Patient with Possible Hereditary Hemorrhagic Telangiectasia: A Case Presentation

Ali Ramji[1], Dickson Leung[1], Brendan Halloran[1], Sergio Zepeda-Gomez[1], Shawn Wasilenko[5], Jimmy Guo[1], Dilini Vethanayagam[1], Karim Samji[2]

[1]Department of Medicine, University of Alberta, [2] Department of Diagnostic Imaging, University of Alberta

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Highlight the role of a radiologist in recognizing vascular abnormalities seen with HHT.
- Emphasize the importance of remaining vigilant in identifying vascular manifestations of HHT in less commonly involved organ systems.
- Review vascular abnormalities of the gastrointestinal tract in HHT.

BACKGROUND: Hereditary Hemorrhagic Telangiectasia (HHT) is a genetic disorder characterized by multisystem vascular abnormalities commonly affecting the pulmonary, cerebral and liver vasculature. Radiologists are vital in diagnosing and preventing complications of HHT by identifying a variety of HHT-related vascular abnormalities, with arteriovascular malformations (AVMs) being the most common. The aim of this discussion is to highlight the relatively uncommon occurrence of AVMs in the gastrointestinal tract (GIT), and to review HHT-related GI vascular abnormalities on imaging.

CONCLUSION: We discuss the case of a 33-year-old male with a history of epistaxis since age 8, prior GI bleeding and mucocutaneous telangiectasias, with possible HHT as defined by the Curaçao criteria, presenting with rectal bleeding. Endoscopic procedures showed no culprit lesions, and despite prior imaging showing no evidence of vascular abnormalities in the pulmonary, hepatic and cerebral vasculature, multiphasic CT enterography (CTE) revealed an AVM in the proximal small bowel, confirmed by video capsule endoscopy. This is a unique instance of HHT whereby an AVM was identified in the GIT in isolation as opposed to being present in commonly involved organ systems. The atypical nature of this case increases the risk of critical complications due to missed findings, such as life-threatening bleeds caused by AVMs. This discussion reviews vascular manifestations of HHT in the GIT on imaging, and highlights the vital role of radiologists in identifying HHT-related vascular abnormalities in an atypical organ system as it pertains to accurate risk stratification and management of potential complications in this patient population.

112274

Adrenal Vein Sampling: A Study in Diverging Practices and Approaches for Primary Aldosteronism Treatment

Rushali Gandhi[1], Louis-Martin Boucher[2]

[1]Faculty of Medicine and Health Sciences, McGill University, [2]Department of Diagnostic Radiology, McGill University

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Briefly summarize the variation in current AVS practices.
- The use of both pre-ACTH and post-ACTH with simultaneous bilateral AVS has the potential to maximize accurate identification of surgical candidates with PA in comparison to other methods with data from our institution.
- A comprehensive and interdisciplinary approach to PA treatment is necessary, including AVS, CT abdomen, demographics of the patient, available resources at the tertiary care hospital, and expert advice from endocrinologists and general surgeons.

BACKGROUND: Primary aldosteronism (PA) is a frequent and treatable form of primary hypertension. The increase of aldosterone in the bloodstream can be due to unilateral or bilateral adrenal overproduction. Currently, unilateral aldosterone hypersecretion can only be differentiated from bilateral hypersecretion with bilateral adrenal venous sampling (AVS). However, there is no standardized protocol for AVS and varies by institution.

CONCLUSION: There is a need to standardize the protocol for AVS to appropriately treat patients with PA. Pre-ACTH and post-ACTH with simultaneous bilateral AVS has the potential to accurately and precisely identify surgical candidates with results from our institution. Endocrinologists and surgeons rely on accurate AVS results, demonstrating the value of interventional radiology.

112277

Crisis in the Abdomen: Imaging the Spectrum of Oncologic Emergencies

Rodrigo Borrero-Leon, Kheng Song Leow, Camilo Barragan-Leal, Claudia Ortega, Sebastian Mafeld, Vanessa Murad

University of Toronto

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- To identify the spectrum of intraabdominal oncologic emergencies and their clinical significance.
- To review key imaging features that enable prompt diagnosis and guide management.
- To understand the complementary roles of diagnostic and interventional radiology in managing oncologic emergencies.

BACKGROUND: Oncologic emergencies within the abdomen range from subtle findings to life-threatening events, such as bowel perforation, obstruction, hemorrhage, and abscess formation. Immediate recognition and intervention are crucial to prevent significant morbidity or mortality. Accurate diagnosis relies on understanding these conditions in the oncologic context. Additionally, interventional radiology (IR) frequently plays a key role in delivering minimally invasive, image-guided therapies to manage complications and stabilize patients.Imaging Findings or Procedure Details:This exhibit employs a multimodality approach (CT, MRI, and ultrasound) to review intraabdominal oncologic emergencies, including malignant bowel obstruction, tumor rupture, ischemia, neutropenic enterocolitis, and intratumoral hemorrhage. Representative cases highlight key imaging findings and mimickers, such as inflammatory pseudomasses or post-treatment changes. The role of IR in management is emphasized, including techniques like percutaneous abscess drainage, embolization for hemorrhage control, and stent placement for obstructions. Practical imaging protocol tips and reporting phrases for emergent communication with clinicians and interventional teams are provided.

CONCLUSION: Intraabdominal oncologic emergencies require a collaborative diagnostic and therapeutic approach. The integration of diagnostic imaging and interventional radiology ensures timely, effective management. This educational poster enhances radiologists' ability to identify these emergencies, communicate findings, and facilitate patient-centered, interdisciplinary care in oncology.

112283

Systematic Approach to Cardiac and Pericardial Assessment in Non-Gated Chest CT

Paula Patino, Francisco Calle

University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- To provide general radiologists with a systematic approach for evaluating the normal appearance, imaging pitfalls, and common cardiopericardial pathologies in non-gated chest CT. The approach involves a systematic method for assessing cardiopericardial an
- To review the anatomy and normal imaging characteristics of each segment, along with a detailed examination of common pathologies, illustrated with examples obtained from non-gated chest CT protocols.
- To offer a rationale for recommending further assessment using the appropriate imaging methods.

BACKGROUND: Advancements in image resolution have enabled the detection of cardiac and pericardial pathologies in non-gated chest CT scans, traditionally reserved for echocardiography, ECG-gated cardiac CT, or MRI. Cardiovascular pathologies often clinically overlap with pulmonary conditions, and non-gated chest CT can reveal signs of cardiopericardial diseases, aiding in early diagnosis and treatment. While multimodal imaging is ideal for confirming diagnoses, general radiologists can identify findings on non-gated chest CT to suggest underlying cardiac conditions, facilitating timely clinical management.

CONCLUSION: Non-gated chest CT can reveal imaging signs that aid in the early detection of cardiac and pericardial diseases. By using a five-step systematic approach, a general radiologist can effectively evaluate both the normal and abnormal appearances of the heart and pericardium, suggest a diagnosis, and recommend the appropriate imaging modality for further evaluation.

112284

Development of an Anatomical Radiology Online Case-Based Learning Resource

Charlotte Langley, Elena Adela Cora

Dalhousie University

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- To develop an accessible and highly interactive case base digital radiology learning resource
- To increase student knowledge and understanding of radiologic principles and use of different imaging modalities to inform clinical decision making
- To improve students' skills in interpreting radiological images and recognizing normal anatomy

BACKGROUND: There is a significant need to improve radiology education in undergraduate medical programs. Across Canada, students continue to report limited exposure to radiology despite strong interest in the field. The increasing transition to digitalization in medical education, along with constraints in resources and limited preceptor availability, highlight the potential for online resources to enhance education. As such, we aimed to develop interactive anatomical radiology modules using an online PACS (Picture Archiving and Communication System) software to supplement the existing undergraduate medical curriculum. We created seven modules covering different topics, including principles of radiology and imaging appropriateness, as well as various anatomical systems, see Table 1. For each module, we extracted and uploaded fully anonymized, non-pathological DICOM (Digital Imaging and Communication in Medicine) images from PACS to an online platform, PacsBin.com. These images were then annotated such that students can view the scans with labels toggled on and off. In addition, descriptions of important structures were attached along with links to outside resources. We plan to continue expanding on cases provided with ongoing impact assessment by pre- and post- module evaluations. Through exposure to diverse cases, practice correlating anatomical structures with their appearance on imaging, and opportunities for self-assessment, this online radiology resource aims to engage students in active learning, retention, and cultivate interest in diagnostic imaging.

CONCLUSION: This represents an important area of focus in radiology education, as increased exposure to the field has been shown to have positive benefits on student's self-reported knowledge, confidence in decision making regarding imaging modalities, as well as interest and perception of radiology. Addressing these gaps in education is essential in preparing students for future careers in healthcare, supporting appropriate resource utilization, and ultimately improving patient care.

112285

Cross-Sectional Imaging Spectrum of Peritoneal, Omental and Mesenteric Pathologies – Common, Rare and Exotic

Vijayanadh Ojili[1], Sriram Jaganathan[1], Arbind Kumar Raut[1], Arpit Nagar[2], Devendra Kumar[3]

[1]UT Health San Antonio, [2]Ohio State University Wexner Medical Center, [3]Al Wakra Hospital

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- To describe the imaging manifestations of peritoneal, omental and mesenteric pathologies and discuss the clinical manifestations of specific imaging findings.
- To discuss the diagnostic strategy in patients with suspected peritoneal, omental and mesenteric disorders.
- To discuss the role of imaging in the management of these patients.

BACKGROUND: Peritoneal, omental and mesenteric pathologies are common and can result in significant morbidity. Imaging plays a vital role in the management of these pathologies and also aids in the detection of complications. The purpose of this exhibit is to provide a detailed review of a wide spectrum of peritoneal, omental and mesenteric disorders and discuss the role of imaging in the evaluation of these conditions.

CONCLUSION: Imaging plays a key role in the evaluation of patients presenting with peritoneal, omental and mesenteric pathologies. Knowledge of salient anatomy, various pathologies and their imaging features can help the radiologist to promptly triage the patients, thereby facilitating appropriate management.

112293

Pelvic Venous Disease: The Central Role of Radiologists in Diagnosis, Management, and Empowering Interdisciplinary Collaboration

Tiffany Ni[1], Inbar Friedman[2], Jessica Smith[1], Brian Liu[1], Andrew Brown[1]

[1]University of Toronto, [2]Royal College of Surgeons in Ireland

PRESENTER'S LEVEL OF TRAINING: Resident

LEARNING OBJECTIVES:

- Define pelvic venous disease (PeVD) and its clinical significance in chronic pelvic pain (CPP).
- Review the Symptoms-Varices-Pathophysiology (SVP) classification system for standardized assessment of PeVD.
- Discuss the role of non-invasive imaging modalities, including duplex ultrasound, CT, and MRI, in evaluating PeVD.
- Highlight how interventional radiologists contribute to PeVD management through endovascular embolization and fostering interdisciplinary collaboration.

BACKGROUND: PeVD is an often underdiagnosed cause of CPP due to limited awareness and inconsistent diagnostic practices. This exhibit provides a comprehensive review of the SVP classification system, which more accurately characterizes the diverse patient presentations and standardizes reporting. Moreover, we discuss advancements in the role of non-invasive imaging, such as ultrasound, CT, and MRI to enable precise disease evaluation and stratification of disease severity. Finally, we highlight the key role of interventional radiologists in PeVD treatment, such as endovascular embolization, and in educating our obstetrics and gynecology surgical colleagues about these new advancements.

CONCLUSION: Radiologists are central to caring for patients with PeVD, from the initial diagnosis to treatment. Education of OBGYNs and forging collaboration across specialties ensure improved disease identification, patient stratification for tailored interventions, and enhanced patient outcomes for this often underrecognized condition.

112295

Multimodality Cross-Sectional Imaging Spectrum of Acute and Subacute Ovarian Emergencies – Common, Rare and Exotic

Vijayanadh Ojili[1], Sriram Jaganathan[1], Arpit Nagar[2], Devendra Kumar[3], Sree Harsha Tirumani[4]

[1]UT Health San Antonio, [2]Ohio State University Wexner Medical Center, [3]Al Wakra Hospital, [4]University Hospitals Cleveland Medical Center

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- To describe the imaging manifestations of acute and subacute ovarian emergencies and discuss the clinical manifestations of specific imaging findings.
- To discuss the diagnostic strategy in patients with suspected ovarian emergencies and their mimics.
- To discuss the role of imaging in the management of these patients.

BACKGROUND: Ovarian emergencies are common and can result in significant morbidity and mortality. Imaging plays a vital role in the management of these emergencies by identifying the condition and also aids in the detection of complications. The purpose of this exhibit is to provide a detailed review of a wide spectrum of acute and subacute ovarian emergencies that that can present to the emergency department and to discuss the role imaging in the evaluation of these patients.

CONCLUSION: Imaging plays a key role in the evaluation of patients presenting with ovarian emergencies. Knowledge of various entities and their imaging features can help the emergency radiologist to promptly triage the patients, thereby facilitating appropriate management.

112296

Quadricuspid Pulmonary Valve Associated with Pulmonary Artery Aneurysm

Abdullah Alkhamis, Mobeen Ahmed, Mona Alhammad

London Health Sciences Center

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Illustration of possible ancillary findings and potential complications of quadricuspid pulmonary valve.
- Demonstrate the challenges of diagnosis of QPV with echocardiography.
- Emphasis on importance of advanced imaging (CT and MRI) in diagnosis of QPV to enhance clinical outcomes

BACKGROUND: Quadricuspid pulmonary valve (QPV) is a rare congenital anomaly with a prevalence of less than 0.1% in the general population. Typically asymptomatic, it is often incidentally discovered through imaging or post-mortem. Here, we present a case of a 60-year-old male with a known history of hypertension, hypercholesterolemia, congenital pulmonary stenosis, congenital renal agenesis, and chronic inflammatory demyelinating polyneuropathy (CIDP) presenting with dyspnea and peripheral edema. Cardiac imaging revealed a QPV with moderate stenosis and regurgitation, accompanied by a large pulmonary artery aneurysm. This case highlights the importance of advanced imaging modalities in diagnosing rare anomalies and their associated complications.

CONCLUSION: This case underscores the clinical significance of rare congenital anomalies like QPV, particularly when associated with complications such as PAA. Advanced imaging modalities such as CT scan and MRI play a pivotal role in diagnosis, and depiction of ancillary findings as well as potential complications which can enhance clinical outcomes and guide management.

112298

Approach to White Matter Diseases of the Brain: A Practical Approach

Rokhshid Aflaki, Jana Khanafer, Syed Naqvi

Western University

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Understand the spectrum of white matter diseases (WMDs) and their classifications, including demyelinating, dysmyelinating, and vascular etiologies.
- Develop a systematic imaging-based approach to differentiating WMDs using MRI.
- Highlight key imaging patterns and practical diagnostic pearls for radiologists.

BACKGROUND: White matter diseases (WMDs) encompass a broad spectrum of pathologies affecting the brain's white matter, ranging from acquired demyelinating diseases like multiple sclerosis (MS) to hereditary leukoencephalopathies. Advanced imaging modalities, particularly magnetic resonance imaging (MRI), are critical in evaluating these conditions. Characteristic patterns of white matter involvement on MRI, combined with clinical history and laboratory findings, enable accurate diagnosis. However, subtle distinctions between overlapping imaging findings often present challenges. This exhibit aims to streamline the diagnostic process by focusing on radiological hallmarks of common and rare WMDs. Key topics include: – MRI Sequences and Key Findings: Review of T1, T2, FLAIR, diffusion-weighted imaging (DWI), susceptibility-weighted imaging (SWI), and advanced techniques such as diffusion tensor imaging (DTI). – Pattern-Based Approach: Identification of lesion distribution, symmetry, and enhancement patterns to narrow differential diagnoses. – Illustrative Case Examples: Diagnostic insights into conditions such as MS, acute disseminated encephalomyelitis (ADEM), progressive multifocal leukoencephalopathy (PML), leukodystrophies, and CADASIL.

CONCLUSION: A structured approach emphasizing imaging patterns can demystify the evaluation of white matter diseases for radiologists. Mastery of these radiologic techniques and findings enhances diagnostic accuracy, supporting tailored clinical management.

112299

Imaging-Based Approach to Chronic Pelvic Pain: A Spotlight on Pelvic Venous Disease

Vaneeza Moosa[1], Tiffany Ni[2], Inbar Friedman[3], Andrew Brown[2]

[1]University of Calgary, [2]University of Toronto, [3]Royal College of Surgeons in Ireland

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Understanding the diverse etiologies of chronic pelvic pain (CPP) and the role of imaging in narrowing differential diagnoses.
- Review the pathophysiology of Pelvic Venous Disease (PeVD) as a contributor to CPP.
- Understand the role of various imaging modalities and pertinent imaging features in diagnosing and evaluating CPP, and specifically PeVD.

BACKGROUND: CPP is a complex and multifactorial condition that presents significant diagnostic challenges, often involving multiple causative factors. A thorough clinical history and physical examination are essential to guide targeted imaging investigations, which are pivotal in narrowing the differential diagnoses. PeVD is an often underdiagnosed cause of CPP, and disproportionately affects women with risk factors such as multiparity, hormonal fluctuations, and anatomical abnormalities. This educational exhibit provides a review of imaging modalities used to evaluate CPP, focusing on assessing PeVD, incorporating a step-by-step approach to the imaging workup of CPP, integrating a pictorial overview of the key clinical and anatomical features of PeVD, and demonstrating the complementary roles of ultrasound, CT, and MRI.

CONCLUSION: Recognizing the common causes of CPP and the role of imaging in their evaluation is essential for accurate diagnosis and management. This exhibit provides a step-by-step approach to investigating CPP, focusing on PeVD, aiming to enhance diagnostic accuracy and guide effective clinical care.

112301

Cross-Sectional Imaging Spectrum of Complications of Uterine Interventions

Vijayanadh Ojili[1], Sriram Jaganathan[1], Devendra Kumar[2], Arpit Nagar[3]

[1]UT Health San Antonio, [2]Al Wakra Hospital, [3]Ohio State University Wexner Medical Center

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- To describe the imaging manifestations of complications following uterine interventions and discuss the clinical manifestations of specific imaging findings.
- To discuss the diagnostic strategy in patients with suspected complications following uterine procedures.
- To discuss the role of imaging in the management of these patients.

BACKGROUND: Complications following uterine interventions are common and can result in significant morbidity and mortality. Imaging plays a vital role in the detection of these complications and facilitates patient management. The purpose of this exhibit is to provide a detailed review of complications following various uterine interventions such as dilatation and curettage, hysteroscopy, caesarean section, radiotherapy, and hysterectomy etc. and to discuss the role imaging in the evaluation of these patients.

CONCLUSION: Imaging plays a key role in the evaluation of patients presenting with complications after uterine procedures. Knowledge of various entities and their imaging features can help the radiologist to promptly triage the patients, thereby facilitating appropriate management.

112302

Medical Student Guide to Radiology: A Comprehensive Educational Resource

Ahsas Nagee[1], Rebecca Peterson[2], Ammar Alam[2], Milin Patel[1], Alyssa Minhas[1], Marlise P dos Santos[2], Carolina Souza[2], Sakib Kazi[2]

[1]Faculty of Medicine, University of Ottawa, [2]Department of Radiology, Radiation Oncology and Medical Physics, University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Provide a foundational overview of the specialty of radiology and its role in healthcare
- Review basic imaging modalities including physics, use cases, advantages, and limitations
- Describe basic normal radiologic anatomy via common modalities and views
- Highlight high-yield radiologic findings and approaches to common pathologies by organ system
- Provide a basic introduction to common interventional radiology procedures

BACKGROUND: There is a significant lack of exposure to the field of radiology during medical training. An overwhelming majority of students across Canada reported inadequate exposure to the field during their medical training despite also reporting image interpretation skills as crucial for success during residency and future practice. Only 1 of 17 Canadian medical schools require a radiology rotation in their curriculum while rotations typically consist of only 1-2 weeks on the service. As a result, only a small portion of medical students are truly exposed to the specialty.There also remains a lack of level-appropriate resources for medical students to learn basic radiology despite limited confidence in interpreting basic x-rays by the end of medical school. While there is a wide array of resources available online, there is no distinct resource that proves useful for students in particular. This challenge is present for students at all stages whether they are learning radiology out of interest, preparing for electives, or studying for examinations and non-radiology rotations.We present an overview of the Medical Student Guide to Radiology, developed to address these challenges by bridging the knowledge gap and providing more widespread exposure to the field. This guide can serve as a concise learning resource covering foundational and high-yield radiology content, with a focus on providing a basic approach to common diagnostic imaging as well as an introduction to interventional radiology.

CONCLUSION: Wide dissemination of the Medical Student Guide to Radiology will offer an all-in-one resource that will address the lack of exposure to radiology and provide foundational knowledge and skills that are currently missing in medical school curricula.

112309

Association Between Breast Arterial Calcifications and Increased Cardiovascular Risk: Clinical Implications and Role in Preventive Care

Kaitlin Zaki-Metias[1], Hayley McKee[2], Roisin Heaney[2], Kate Hanneman[2], Charlotte Yong-Hing[3], Jean Seely[4], Elsie Nguyen[2]

[1]Western University, [2]University of Toronto, [3]University of British Columbia, [4]University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Understand the association between BAC on mammography and cardiovascular risk.
- Review the various methods to identify, quantify, and grade BAC including visual binary assessment, subjective severity grading, digital measurement and quantification, and artificial intelligence-based models.
- Discuss the awareness and attitudes surrounding BAC of radiologists, referring physicians, and patients over the past 5 years.
- Describe the current gaps, next steps, and challenges in implementation of BAC reporting and clinical management guidelines, including the necessity of interdisciplinary collaboration.

BACKGROUND: Cardiovascular disease (CVD) is the second-leading cause of premature death in Canadian women and has a high cost burden on healthcare systems. However, the majority of women are unaware of their personal risk status. Breast arterial calcifications (BAC) are associated with an increased risk of CVD, incident CVD events, and correlate with other methods of cardiovascular risk stratification. BAC also positively correlate with multiparity, menopausal status, metabolic syndrome, hyperlipidemia, hypertension, diabetes, and chronic renal disease. The CanadianSociety of Breast Imaging released BAC reporting guidelines in January 2023, the first BAC guidelines published in North America. However, there are no other reporting guidelines or clinical management guidelines for BAC detected on mammography. The purpose of this exhibit is to review the association of BAC and CVD, reporting methods, and the most recent perceptions of radiologists, referring physicians, and patients. Implementing a standardized BAC reporting model may allow for supplementary screening for CVD on screening and diagnostic mammography, leading to earlier identification of asymptomatic women at a high risk for adverse cardiac events and allowing for more targeted preventative care.

CONCLUSION: Given the overlap in populations of postmenopausal women and those undergoing screening mammography, there is opportunity to identify patients at risk for unsuspected CVD. Similar to standardized breast density notification, BAC reporting allows for autonomy and may empower patients to modify their lifestyle and other cardiovascular risk factors. However, more work is needed to determine the optimal method of BAC grading and subsequent management recommendations.

112311

Unraveling the Young Athlete's Heart: Insights from Advanced Cardiac Imaging

Subin Kuruvilla Thomas, Romina Dsouza, Israel Valverde, Mike Seed

Hospital for Sick Children

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Familiarize the audience with the morphological sub-types of exercise induced cardiac remodeling in children and their distinction from the adult phenotype.
- Delineate the diagnostic role of imaging, particularly cardiac MRI - basic to advanced CMR tools (volume, function, mapping, late gadolinium enhancement, strain, perfusion, coronary assessment).
- Outline the diagnostic challenges of this consequential entity and discuss its differential diagnoses.
- Highlight the importance of an accurate and timely imaging diagnosis of athlete's heart.

BACKGROUND: The pediatric "athlete's heart" encompasses a complex interplay of physiological adaptations to intense long-term physical training. These changes, including increased cardiac chamber dimensions, wall thickness, and enhanced diastolic function, allow the heart to meet the increased demands of athletic performance. Differentiating between these benign adaptations from pathological entities, such as hypertrophic cardiomyopathy, is critical to ensuring cardiac safety in childhood sporting activities. Advanced cardiac imaging provides a robust invaluable toolkit capable of evaluating these structural and functional changes. We aim to showcase the diagnostic role of cardiovascular magnetic resonance (CMR), in the evaluation of this unique patho-anatomy. We will raise awareness of the morphological subtypes of exercise-induced cardiac remodelling in children through a series of case studies. Quantitative data will substantiate the visual assessment, outlining the importance of sport-specific and individualized assessment. We will explore advanced CMR techniques that enable precise depiction of myocardial architecture, tissue characterization, and early markers of myocardial fibrosis, which may remain undetected by conventional methods. We will highlight distinguishing features between physiological remodelling and pathological findings, aiding in clinical decision-making.

CONCLUSION: This exhibit aims to equip healthcare providers with the knowledge to utilize advanced imaging effectively, ensuring accurate diagnosis and promoting safe athletic participation. By integrating state-of-the-art imaging into pediatric sports medicine, clinicians can foster a balanced approach to physical activity and cardiovascular health in young athletes.

112313

Framework for Engaging Trainees in Sustainability Initiatives Using a National Survey

Aleena Malik[1], Sonali Sharma[2], Charlotte Yong-Hing[2]

[1]University of Toronto, [2]University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical Student

LEARNING OBJECTIVES:

- Engaging trainees: - Highlight the significance of involving trainees in sustainability efforts from the beginning of their medical education. - Discuss the potential long-term impact of engaging trainees in sustainability initiatives on their future prac
- Assessing impact on trainees: - Explore current trainee attitudes and aspirations towards sustainability in radiology departments using national survey. - Describe methods for evaluating the effectiveness of sustainability initiatives on trainees' knowled
- Integrating sustainability: - Explore strategies for incorporating sustainability principles into radiology curriculum and training programs based on a needs-assessment.
- Importance of sustainability in radiology

BACKGROUND: Sustainability is increasingly recognized as a critical priority in healthcare, particularly in radiology, which is associated with significant energy consumption and waste. Radiology departments have a unique opportunity to lead in reducing the environmental footprint of healthcare while maintaining quality patient care. Engaging radiology trainees early in their careers is essential to fostering a culture of sustainability and preparing future leaders to implement impactful changes. By incorporating sustainability principles into radiology training, departments can influence long-term practices and instill values that align with the broader goals of environmentally responsible healthcare.

CONCLUSION: Integrating sustainability into radiology education is a vital step toward reducing healthcare's environmental impact while equipping trainees with the tools to lead these efforts. Through targeted engagement, hands-on training, and feedback-driven refinements, radiology departments can create programs that enhance trainee knowledge and professional development while promoting systemic change. By fostering this culture of sustainability, radiology can contribute meaningfully to environmentally responsible healthcare while positioning trainees as leaders in sustainable practice. These efforts not only improve the profession but also ensure radiology's role in shaping a sustainable future for healthcare.

112314

Endometriosis: A Hidden Disease, Unveiled by Radiology

Ambreen Zahoor[1], Muhammad Luqman Roshan Khurshid[2], Iram Zaheer[3], Muhammad Tayyab Ijaz[2], Nayab Motasim[4], Farah Jabeen[5], Kaukab Naeem Syed[6]

[1]Faculty of Health sciences, McMaster University, [2]CMH Lahore Medical and Dental College, [3]Farooq Hospital Lahore Pakistan, [4]Hayatabad Medical Complex Peshawar, [5]Services Hospital, Lahore, [6]Quaid-e-Azam International Hospital

PRESENTER'S LEVEL OF TRAINING: Fellow

LEARNING OBJECTIVES:

- Learn the pathophysiology, types and complications of endometriosis.
- Highlight the role of imaging and different modalities used in the management of endometriosis.
- Illustrate the typical imaging appearances of endometriosis and complications on each imaging modality.

BACKGROUND: Endometriosis is a chronic condition characterized by the presence of endometrial glands and endometrial tissue outside the uterus, affecting 5-15% of women worldwide. It is frequently associated with severe pain, infertility, and gastrointestinal or urinary symptoms. The condition's pathophysiology involves hormonal, inflammatory, and pain pathways, requiring a multidisciplinary approach for management. Endometriosis is often categorized into three subtypes: superficial endometriosis (SE), ovarian endometriosis (OE) (also known as endometrioma), and deep endometriosis (DE). Despite its prevalence, it remains under-diagnosed, leading to delayed care and neglect of its broader impacts on patients' lives. Imaging plays a crucial role in diagnosing and managing endometriosis, particularly through advanced techniques that enhance accuracy and surgical planning. Transvaginal ultrasound (TVUS) is highly specific for detecting ovarian endometriomas and deep infiltrating endometriosis, while magnetic resonance imaging (MRI) remains a cornerstone for diagnosing deep endometriosis. Imaging also plays a vital role in postoperative care, monitoring residual disease and identifying complications. While advancements in imaging have transformed endometriosis management, challenges such as detecting superficial lesions emphasize the need for continued research. The primary purpose of this educational exhibit is to illustrate the imaging appearances of different types of endometriosis on TVUS and MRI in order to increase the learners ability to diagnose the endometriosis and its complications.

CONCLUSION: Use of imaging for endometriosis improves diagnosis and management of disease. It aids in surgical planning and the enhances patient outcomes.

112315

Pearls and Pitfalls of Genitourinary Trauma Imaging

Nicolas Murray[1], Aiden Mitrevski[2]

[1]Vancouver General Hospital, [2]University of British Columbia Faculty of Medicine

PRESENTER'S LEVEL OF TRAINING: Radiologist

LEARNING OBJECTIVES:

- Describe the advantages of imaging investigations specific to renal traumas, including arterial, venous, and delayed CT acquisition.
- Describe imaging findings suggestive of renal injuries, including clinical pearls to assist interpretation.
- Classify renal injuries according to the American Association for the Surgery or Trauma (AAST) Organ Injury Scale (OIS) grading system.
- Recommend the use of CT cystogram protocol when bladder injuries are suspected.

BACKGROUND: Genitourinary injuries are often overlooked in trauma due to subtle findings or concomitant distracting injuries. Without early diagnosis and intervention, they can contribute to future complications such as kidney damage and incontinence. Findings may not be detectable on conventional CT, making specific imaging protocols like dual-phase imaging and CT cystogram crucial to diagnosis. Kidneys are the most common genitourinary organ to be affected by trauma, with motor-vehicle collisions being the leading cause. Contextual understanding can help tailor imaging recommendations.

CONCLUSION: Recognizing subtle radiologic features during routine trauma imaging is important to assess the need for further diagnostic investigations. Classifying traumatic renal injuries according to standardized scales assists clinical decision-making and management.

111319

Assessment of Experience, Satisfaction, and Career Impact of Abdominal Imaging Fellows at the University of Toronto - University Health Network: A Survey-based Study

Ciara O'Brien, Vanessa Murad

University of Toronto - UHN - UMIT

PRESENTER'S LEVEL OF TRAINING: Radiologist

BACKGROUND / OBJECTIVE: Fellowship programs are crucial in shaping the careers of radiologists by providing specialized training and fostering professional development. This study assesses the experience, satisfaction, and career impact of fellows from the Abdominal Imaging Fellowship Program at the University of Toronto - University Health Network (UHN) over the past two years (2022-2024).

METHODS: A cross-sectional survey was distributed to former fellows, capturing demographic data, fellowship experiences, satisfaction levels, and career outcomes. The structured questionnaire assessed various aspects of the fellowship, including training quality and career preparedness.

RESULTS / DISCUSSION: Among the 22 respondents, 71.4% reported that their expectations were met, and overall satisfaction was high, with 81% feeling that the fellowship effectively prepared them for their careers. Notably, 85% indicated that the fellowship positively influenced their career progression, with many securing positions in abdominal imaging. The survey highlighted strengths in clinical training, particularly in MRI and CT, which received positive ratings. Additionally, fellows appreciated the supportive work environment and manageable work-life balance, contributing to their overall satisfaction. However, feedback also revealed areas for improvement, such as the need for increased hands-on training in ultrasound and additional dedicated rotations in advanced imaging techniques.

CONCLUSION: The findings underscore the program's success while providing valuable insights for ongoing enhancements. By contributing to the limited literature on fellowship training in radiology, this study aims to stimulate discussions about the importance of fellowship education and its role in career advancement. Future research will expand to include multiple institutions, allowing for comparisons across different training environments. This broader perspective will enhance understanding of fellowship effectiveness and further refine educational strategies, ensuring that fellowship programs continue to meet the evolving needs of trainees in the field of radiology.

111359

Rate of Energy Conservation Practices in Breast Screening Imaging Equipment: Are We Doing Enough to Improve CO2 Emission Reductions and Cost Efficiency?

Sonali Sharma[1], Charlotte Yong-Hing[2], Maura Brown[3]

[1]Department of Radiology, University of British Columbia, [2]Diagnostic Imaging, BC Cancer, [3]BC Cancer

PRESENTER'S LEVEL OF TRAINING: Graduate Student

BACKGROUND / OBJECTIVE: This study evaluates the overnight energy conservation practices employed in 24 breast screening centers in BC, Canada, to identify potential areas for standardized sustainable operations, emphasizing the clinical and environmental implications of such practices.

METHODS: A survey was conducted across breast screening centers with varying machine vendors (Hologic, Siemens, GE) to assess overnight practices for technologist acquisition workstations (AWS), mammography machines, and radiologist review workstations. Responses were analyzed to determine the prevalence of different energy conservation modes, such as power shutdown, standby mode, and equipment remaining on.

RESULTS / DISCUSSION: The majority of centers use Hologic equipment, with substantial variation in energy-saving practices. The most frequent AWS practice was powering off the monitor only, noted in 10 centers. For mammography machines, most centers (17) chose to power off the machine while leaving the generator switch on, indicating a preference for partial energy conservation. Radiologist workstations most commonly remained fully operational overnight in 8 centers, suggesting a potential area for increased energy savings. Barriers identified include delays in startup in the morning, routine quality control runs at early hours, and resistance from radiologists due to potential compliance issues and software glitches. While there is a clear preference for partial energy conservation, the variability and the identified barriers suggest that there is significant room for implementing standardized procedures. Suggestions for overcoming these barriers include improving startup protocols, ensuring that necessary system updates do not impede morning operations, and engaging radiologists in the development of energy conservation practices to enhance buy-in.

CONCLUSION: The study highlighted the significant variability in energy management practices among breast screening centers.Efficient energy use in medical imaging not only reduces operational costs but also minimizes the environmental impact of healthcare, aligning with the growing imperative for sustainability in medicine. By reducing energy consumption, radiology departments can decrease their carbon footprint.

111949

Stroke Endovascular Thrombectomy - Time Delays of Repeated Imaging

Tyler Yan[1], Manraj Heran[1], William Guest[1], Samuel Yip[1], Lourdes Cua[2], Mahmoodur Rahman[3]

[1]University of British Columbia, [2]Vancouver Coastal Health Authority, [3]Provincial Health Services Authority

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: The purpose of this initiative was to evaluate the potential time delays of performing repeated imaging (as opposed to proceeding direct-to-angiography) among patients transferred from an outside institution to a comprehensive stroke centre (CSC) for endovascular thrombectomy (EVT). Canadian stroke guidelines recommend a target door-to-groin puncture time of less than 60 minutes, and the decision to re-image is a possible time saving factor controllable by the radiologist and multidisciplinary stroke care team.

METHODS: A retrospective review of all patients transferred to the local CSC from an outside institution for stroke EVT from September 1, 2022 to August 31, 2024 was performed. Those who underwent repeated computed tomography (CT) imaging upon arrival to the CSC emergency department was compared to those who were brought directly to the neurointerventional angiography suite. The primary outcome was the time from CSC arrival to groin puncture. Patient demographics and additional time-based datapoints (stroke onset, imaging timing, time of day) were also analyzed.

RESULTS / DISCUSSION: A total of 146 patients met inclusion criteria, of which 107 (73%) underwent repeated imaging prior to EVT. There was an average time delay of 43 min from CSC arrival to groin puncture for those with repeated imaging compared to those brought direct-to-angio (93 vs. 50 min, respectively). In the repeated imaging group, most of the delay (81%) occurred between the time from repeated imaging acquisition to groin puncture.

CONCLUSION: Repeated imaging for stroke transfers results in a significant time delay, largely driven by a delay between CT acquisition and being brought to the angiography suite for groin puncture. The decision to re-image is complex, particularly given a paradigm shift in perfusion-based stroke treatment, though this project has sparked conversation and future quality initiatives among the local multidisciplinary team about opportunities at both the radiologist-level and system-level to improve time to treatment.

112308

Undergraduate Radiology Bootcamp for Clerkship and Beyond: Lessons from a Full Cycle

Abd-Ur-Rafay Mughal[1], Joseph Steinman[1], Ibrahim Nadeem[2], Zonia Ghumman[2]

[1]Michael G. DeGroote School of Medicine, McMaster University, [2]McMaster University, Department of Medical Imaging

PRESENTER'S LEVEL OF TRAINING: Medical Student

BACKGROUND / OBJECTIVE: Radiology plays a vital role in clinical decision-making, yet pre-clerkship imaging exposure is often limited. To bridge this gap, a 1-week radiology bootcamp was designed to equip pre-clerkship medical students with foundational knowledge and basic diagnostic skills. This quality improvement project evaluates the bootcamp's long-term benefits and seeks participant feedback to refine the program for future learners.

METHODS: A mixed-methods survey of bootcamp alumni post-clerkship assessed confidence in imaging interpretation and application. The survey was completed by nine out of 28 participants after two cycles. Quantitative data measured self-reported skills, while qualitative feedback explored strengths, clerkship impact, peer comparison, and improvement suggestions. Most non-qualitative questions used a six-point Likert scale converted from original categories to numerical values, ranging from Strongly Disagree (value 1) to Strongly Agree (value 6). Mean Likert scores were calculated across the nine participants for each question, and a t-test was performed to assess whether the mean was greater than three (Slightly Disagree), indicating a positive effect.

RESULTS / DISCUSSION: 7/9 participants reported that the bootcamp prepared them to order imaging during clerkship, with a mean Likert score of 4.33 (95% CI: 3.47 - 5.19, $p < 0.01$). For transitioning into residency, all participants reported a score of at least 4 in terms of confidence in interpreting or ordering medical imaging (Figure 1).

CONCLUSION: A previous publication by our group assessed participant surveys immediately before and after the bootcamp. This was the first analysis of a survey following the completion of all core clerkship rotations. The bootcamp boosted participants' confidence and skills in imaging interpretation, aiding their transition to clerkship and residency. Its strengths include early exposure to imaging concepts and practical skills. Based on the feedback from our survey, future enhancements should address imaging challenges, procedural training, and longitudinal learning to meet evolving medical training demands and maintain its clinical impact.

110911

Evaluating an AI software for Opportunistic Low Bone Mineral Density Screening: A Validation Study

Milin Patel, Angela Auriat, Richard Aviv

Faculty of Medicine, Department of Radiology, Radiation Oncology and Medical Physics, University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Osteoporosis is a significant health condition affecting over 2.3 million Canadians. Rho™ is an artificial intelligence software that can identify individuals at risk of low bone mineral density and osteoporosis using radiographs but has yet to be externally validated in a real-world setting.

METHODS: We conducted a retrospective study of 4,853 patients at the Ottawa Hospital over the age of 50 years with dual energy x-ray absorptiometry (DXA) acquired within 1 year of a radiograph between January 1, 2013, and December 31, 2022. The area under the curve (AUC) was calculated to evaluate the performance of Rho in identifying patients at risk for low bone mineral density (T-Score <-1) and osteoporosis (T-Score <=-2.5). Further subgroup analyses was performed based on radiograph location, sex, and marginalized versus non-marginalized populations.

RESULTS / DISCUSSION: The overall AUC for predicting low BMD was 0.840 (95% CI: 0.831-0.848), with an optimal Rho score threshold of 6. For osteoporosis prediction, the AUC was 0.815 (95% CI: 0.806-0.824), with an optimal Rho score threshold of 7. When evaluating the Rho performance by location, pelvic radiographs yielded the highest diagnostic performance for both low BMD (AUC = 0.892) and osteoporosis (AUC = 0.876). Marginalized populations demonstrated slightly higher AUCs for low BMD (AUC = 0.873) and osteoporosis (AUC = 0.865) compared to non-marginalized populations.

CONCLUSION: Rho demonstrated high diagnostic performance in identifying patients at risk for low BMD and osteoporosis. The findings support Rho as an opportunistic screening tool and may fill a clinical gap in marginalized communities lacking access to DXA.

111247

The Effects of Treatment in Childhood with Anthracyclines on Breast Tissue Density

Kaitlin Zaki-Metias[1], Rabeeh Fares[2], Anat Kornecki[1]

[1]Western University [2]Assuta Medical Center

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: Anthracyclines are a group of chemotherapeutic agents which are used to treat several childhood malignancies and are known to be associated with a higher risk of developing breast cancer, prompting earlier screening. Anecdotally, it has been noted at our institution that patients previously treated with anthracyclines in childhood have a lower breast density than expected given their age. The aim of this study is to evaluate if patients treated with anthracyclines in childhood have lower breast density relative to the general population of a similar age group.

METHODS: A retrospective cross-sectional study analyzing patients who had undergone previous treatment with anthracyclines and who underwent breast imaging at our institution between January 2015 and January 2024 was performed. The ACR BI-RADS® breast density category was collected. These metrics were compared to previously published data of breast density in younger patients.

RESULTS / DISCUSSION: 33 patients who had undergone previous treatment with anthracyclines and screening for breast cancer were identified. Mean age at first breast imaging study was 32 ± 5.2 years. 60.6% (20/33) had non-dense breast tissue (ACR BI-RADS® category A or B) compared to 19% of the general population in patients who are 40 years of age or younger. This may be due to involution of the fibroglandular tissue secondary to ovarian suppression.

CONCLUSION: Patients treated with anthracyclines during childhood exhibit lower breast density compared to the general population in the same age group. This has the potential to impact risk stratification and screening strategies in this specific population.

111268

Subgroup Analysis of Patient and Procedural Characteristics Associated with Fluoroscopy Guided Post-dural Puncture Headaches

Rahim Ismail, Denes Szekeres, Timothy Hoang, Alexander Kessler

University of Rochester Medical Center

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: Post-dural puncture headache (PDPH) is a common complication of dural puncture procedures and has been reported up to 40% of patients. This study aims to analyze the impact of a wide variety of clinical and procedural factors effecting the incidence of PDPH and utilizes post hoc analysis to further parse the influence of subgroup factors within these variables.

METHODS: Patient characteristics such as age, sex, body mass index (BMI), relevant medical history, and procedural characteristics such as needle type, gauge, spinal level, and number of punctures were collected from electronic medical record. Univariate analysis and multivariate logistic regression were used to analyze the impact of patient and procedural characteristics on PDPH. Further analysis was carried out to identify possible interaction between variables which lost significance between univariate and multivariate analysis.

RESULTS / DISCUSSION: 1237 procedures from 1005 patients were included. The mean age was 57 years. 53% of patients were female and average BMI was 31 kg/m2. The most common indication for lumbar puncture was myelogram, and the most common needle choice was an atraumatic needle. The overall incidence of PDPH was 7.87%. The likelihood of PDPH was significantly positively associated with both patient characteristics such as female sex BMI above 25, and history of chronic headaches, as well as procedural characteristics such as decreasing gauge , and higher opening pressure.

CONCLUSION: This retrospective study of 1237 fluoroscopy-guided dural puncture procedures shows that the incidence of PDPH is significantly associated with certain patient and procedural characteristics and further elucidates several subgroup interactions between variables.

111292

Analyzing the Concept of Menstrual Leave in Radiology Training Programs Across Canada: A Questionnaire Survey

Naomie Conde[1], Joseph Najjar[1], Josephine Pressacco[2], Tharshanna Nadarajah[1], Karl Muchantef[2], Jean-Pierre Pelage[2], Charlotte J. Yong-Hing[3]

[1]McGill University, [2]McGill University Health Center, Department of Radiology, [3]Department of Radiology, Faculty of Medicine, University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: With the increasing number of menstruating trainees in Canada, new challenges arise. Menstrual leave policies have been implemented in countries like Japan, China, South Korea, and Spain. This study aims to assess the awareness, needs, and challenges of menstrual leave in Canadian radiology training programs.

METHODS: A quantitative survey was distributed to menstruating and non-menstruating radiology residents, fellows, and attending staff across Canada, via the CAR. Participants provided informed consent, and the study received IRB approval. The survey, developed in Qualtrics XM, included seven multiple-choice questions, and was analyzed using SPSS. The study adhered to STROBE guidelines.

RESULTS / DISCUSSION: A total of 120 participants (n=120) responded: 34% were under 30, 56% were aged 30-50, and 10% were over 50. Respondents included 59% residents, 14% fellows, and 26% attending staff. Of the participants, 64% were unfamiliar with menstrual leave. 39% viewed it as fair, 30% as unfair, and 30% were neutral. 68% thought 1-2 days off were reasonable, while 30% preferred zero days. Regarding the potential impact of menstrual leave on women in radiology, 40% viewed it positively, 39% negatively, and 21% were unsure.

CONCLUSION: This pan-Canadian survey shows that menstrual leave is an unexplored and controversial concept. While it aims to improve well-being, opinions are divided regarding its fairness, benefits and harms. Variations in cultural or generational perspectives on menstruation, along with logistical challenges, may influence both the perceived need and feasibility of implementing such policies. Further research and discussion are needed to explore the broader implications of menstrual leave.

111356

The Influence of BI-RADS & Breast Density Scores on the Implementation of Supplemental Imaging Modalities by Primary Care Providers in British Columbia

Sonali Sharma[1], Charlotte Yong-Hing[2]

[1]Department of Radiology, University of British Columbia, [2]Diagnostic Imaging, BC Cancer

PRESENTER'S LEVEL OF TRAINING: Graduate Student

OBJECTIVE: The primary objective of this study was to evaluate how primary care providers in British Columbia (BC) utilize BI-RADS density scores reported on normal screening mammograms of average-risk, asymptomatic patients in their clinical practice.

METHODS: A cross-sectional survey was conducted with family physicians (FPs) and nurse practitioners (NPs) practicing in BC. Descriptive statistics were calculated using percentages and further stratified by participant demographics. P values were derived from Fisher's exact test and results were regarded as statistically significant at P <.05.

RESULTS / DISCUSSION: 98 participants (85 FPs, 13 NPs) responded to the survey. The percentage of participants who ordered supplemental testing based on BI-RADS density scores alone was 8% for BI-RADS score D, 37% for BI-RADS scores C or D, and 2% for BI-RADS scores B, C, or D. Forty-eight percent of female participants and 45% of male participants would order supplemental testing based on BI-RADS density scores alone (P =1). 49% of FPs and 39% of NPs would order supplemental testing based on BI-RADS density scores (P =.56). Only 57% of participants were aware of the increased risk of breast cancer with higher breast density.

CONCLUSION: Variations exist in how primary care providers in BC utilize the BI-RADS density scores reported on normal screening mammography of average risk, asymptomatic patients in their clinical practice. Further research is needed to establish clearer clinical guidelines to educate and inform primary care providers on supplemental testing for patients with dense breasts and to improve resources for breast cancer screening in BC.

111386

New Directions in Patient-centered Care: A Quantitative Analysis of Radiology Journal Publications

Rod Parsa, Yudhvir Bhatti, Alex Cen, Prasaanthan Gopee-Ramanan, Sriharsha Athreya

McMaster University

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Radiology has seen a shift towards patient-centered care (PCC) over the past decade, wherein a holistic approach empowers patients to influence their own treatment. Concurrently, there has been an explosion of research across new directions and radiology subspecialties concerning PCC. This study presents a quantitative overview of PCC-related publications in radiology journals, highlighting topics of ongoing investigation and promoting further exploration.

METHODS: PubMed was searched for articles related to PCC within a global list of radiology journals. Two screeners identified original research articles, which were then categorized by radiology subspecialty, journal, country of authorship, and theme. Trends in data were described quantitatively and thematically.

RESULTS / DISCUSSION: 172 articles were retrieved, of which 149 (87%) were published in the past decade. The majority focused on general radiology (55%), followed by breast imaging (16%), nuclear medicine (8%) and neuroradiology (5%). 23 journals had more than one publication, a significant growth from 5 journals a decade prior. Most studies originated in the USA (61%), followed by Canada (10%) and the Netherlands (8%). The most common themes were (1) optimization of patients' access to reports and images, (2) patients' experience in undergoing imaging and, (3) radiologists meeting with patients. Notably, there was a prevalence of research evaluating the use of artificial intelligence and telehealth in improving patient experience.

CONCLUSION: PCC-related research in radiology continues to grow rapidly, although with significant variation and concentration across regions, specialties, and journals. Radiology research continues to prioritize topics which promote patient engagement in their own healthcare, and strengthen the physician-patient relationship.

111391

'R/O path' - A Quality Improvement Study of Emergency Department Imaging Requests During On-Call Hours

Jeffrey Lam Shin Cheung[1], Victor Lam Shin Cheung[2], Mousumi Bhaduri[1]

[1]Western University, [2]Toronto Western Hospital

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: To assess the medical imaging requests for emergency department (ED) patients and the corresponding radiological outcomes.

METHODS: Two researchers independently reviewed all CT, MRI, and ultrasound scans ordered from January 1 to December 30, 2022 by ED physicians during on-call hours at a major hospital network with an estimated catchment population of 2.5 million. Scan indications were evaluated for: 1) containing any clinical history and 2) providing a clinical question and/or specific differential diagnosis to rule out. Radiology report impressions were categorized as either: 1) normal (including chronic and/or stable findings); 2) positive for the differential diagnosis provided; 3) positive for a condition that could reasonably explain the provided clinical history/question; or 4) only containing incidental findings unrelated to the indication.

RESULTS / DISCUSSION: Among 85,066 scans ordered by ED physicians in 2022, 18,201 met inclusion criteria including 248 (1.4%) MRI, 3587 (19.7%) US, and 14,366 (78.9%) CT scans. Most requests (74.2%) provided clinical history and a differential diagnosis; a minority provided only clinical history (15.0%) or only a clinical question (10.7%). Most imaging studies contained only normal or chronic findings (62.4%); approximately 12.5% of studies were positive for the specified differential diagnosis, 4.2% were positive for a condition that possibly explained the provided clinical history/question, and 20.9% identified unrelated incidental findings.

CONCLUSION: A suboptimal number of imaging requests provided necessary clinical information. A prudent use of medical imaging is expected to reduce the strain on radiology departments, yield a higher percentage of positive scans, and ultimately streamline ED patient care.

111563

Differentiating Between GPT-Generated and Human-Written Feedback for Radiology Residents

Zier Zhou[1], Arsalan Rizwan[2], Nick Rogoza[3], Andrew Chung[2], Benjamin Kwan[2]

[1]Queen's School of Medicine, [2]Queen's Department of Diagnostic Radiology, [3]Logike Inc.

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Recent CBME implementation within Canadian radiology programs has required faculty to conduct more frequent assessments. The rise of narrative feedback in the CBME era, coinciding with the rise of LLMs, raises questions about their potential to generate informative comments and the associated challenges. This study compares human-written feedback for radiology residents to feedback generated by GPT-3.5, and how well raters can differentiate between these sources.

METHODS: Assessments were completed by 28 faculty members for 10 residents within the Queen's Diagnostic Radiology program (2019-2023). Comments were extracted from Elentra, de-identified, and parsed into individual sentences, of which 110 were randomly selected for analysis. Another 11 were randomly provided to GPT-3.5, generating 110 synthetic comments that were mixed with actual comments. Two faculty raters and GPT-3.5 were then asked to read each comment to judge whether it was human-written or GPT-generated.

RESULTS / DISCUSSION: Compared to GPT-generated comments, human-written comments were often longer and more specific, especially when describing physical procedures, patient interactions, and clinical challenges. Source differentiation was more difficult when both types were similarly vague. Low agreement (kappa=-0.237) between responses provided by GPT-3.5 and human raters was observed. Human raters were also more accurate (80.5%) at identifying actual and synthetic comments than GPT-3.5 (50%).

CONCLUSION: Currently, GPT-3.5 cannot replace human experts in delivering specific and nuanced feedback for radiology residents. Compared to humans, GPT-3.5 also performs worse in distinguishing between actual and synthetic comments. These insights are useful for guiding the eventual development of more sophisticated algorithms to produce higher-quality feedback and support faculty development.

111605

Virtual Reality vs. Conventional Segmentation of the Internal Carotid Artery

Steven Le[1, 2], Vered Tsehmaister-Abitbul[2], Richard Aviv[1], Angela Auriat[1, 2], Samuel Hamilton[1, 2], Teresa Flaxman[2]

[1]University of Ottawa, [2]The Ottawa Hospital Research Institute

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Compare a novel virtual reality (VR)-based manual segmentation program to a conventional manual segmentation program, assessing usability and segmentation accuracy.

METHODS: 40 carotid stenosis cases were randomly chosen from a database of 500+ head and neck CT images. A physician and student user were responsible for manually segmenting the total carotid artery, unobstructed lumen, calcification, and carotid bifurcation point using both 3DSlicer and ElucisVR programs. Usability (speed, user preference) were measured by timing case completion times and administering a Likert-scale questionnaire respectively. Accuracy was measured by comparing the spatial overlap (Dice Score Coefficient; DSC), deviation distance (Hausdorff Distance), and Δvolume.

RESULTS / DISCUSSION: User-preference: Questionnaire results indicated preference for ElucisVR. Users report a smaller learning curve, and increased confidence in navigating program functions.Speed: Intra-user time analysis shows that the VR program was 29% and 56% quicker than non-VR program for physician and student user, respectively. Inter-user analysis shows no difference in VR segmentation time between users. Accuracy: Mean overlap (DSC) is higher for lumen (0.746-physician, 0.678-student) and total artery (0.540, 0.737) as compared to calcification (0.409, 0.427). Mean deviation (Hausdorff) is 0.58mm-1.18mm for all structures. VR detected less lumen volume (-7.3%, -19.9%), more total artery volume (+34.7%, +4.0%), and more calcification volume (+86.6%, +58.1%).

CONCLUSION: User-preference and speed favoured VR as compared to non-VR software irrespective of experience level. Accuracy studies highlight discrepancies in calcification segmentations, favouring increased structural detection using VR. Our confirmation of VR segmentation accuracy and usability has allowed us to apply this technique to a larger database, analyzing plaque characteristics.

111611

Implementation of a Biparametric Prostate MRI Protocol with a Recall System for Intravenous Contrast: An Analysis of Recall Rates and Comparison of PI-RADS Category Distribution

John-David Brown[1], Jennifer Payne[2], Sharon Clarke[2]

[1]Dalhousie University, [2]Dalhousie University, Department of Diagnostic Radiology

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: The protocol for prostate MRI was changed from a multiparametric MRI (mp-MRI) to a non-contrast biparametric (bp-MRI) protocol at a single centre in March 2023. Criteria for recall with contrast included peripheral zone PI-RADS 3 reassessment. This study aimed to evaluate this change in protocol.

METHODS: This was a retrospective descriptive study. In Part 1, a sequential sample of all prostate bp-MRIs following the change in protocol (April 1, 2023 to May 23, 2024) was used to determine the proportion of bp-MRIs recalled, the indications for recall, the proportion of subjects whose PI-RADS category changed after recall, and the median time until recall. Part 2 compared a subset of these prostate MRIs to a sequential sample immediately prior to the change in protocol to compare the distribution of PI-RADS categories.

RESULTS / DISCUSSION: Of the 549 subjects who underwent prostate bp-MRI between April 1, 2023 and May 23, 2024, 36 (6.6%) were recalled for reassessment with contrast. Most recalls were for PI-RADS 3 reassessment (33/36, 91.7%). PI-RADS categories were upgraded in 19/36 (52.8%) subjects. The median time between initial and recall MRI was 37 days. The distribution of PI-RADS categories in 225 subjects before and after implementation of the bp-MRI protocol was unchanged ($p = 0.09$, Figure 1).

CONCLUSION: In conclusion, 6.6% of bp-MRI subjects were recalled for reassessment with contrast and of those, 52.8% resulted in an upgraded PI-RADS category. There was no statistically significant difference in the distribution of PI-RADS categories following implementation of the bp-MRI protocol.

111672

White Matter Hyperintensities in Progressive Supranuclear Palsy and Parkinson's Disease

Yash Patel[1], Nathaniel Bendahan[2,3], Sarah Zaheer[2,3], Maziar Emamikhah[2,3], Richard Zou[1], Mikail Malik[1], Nicole Owsicki[1], Alexandre Boutet[3,4,5]

[1]University of Toronto, [2]Division of Neurology, Toronto Western Hospital, [3]University Health Network, [4]Krembil Research Institute, [5]Toronto Western Hospital

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Progressive supranuclear palsy (PSP), is a form of parkinsonian syndrome that may be difficult to distinguish from Parkinson's disease, especially in the early stages of the disease. Here, we assess the difference in white matter hyperintensity (WMH) burden between PSP and PD patients, in the hopes of aiding clinical diagnosis and understanding pathogenesis.

METHODS: We evaluated the MRI scans of 67 PSP, and 67 age and sex-match PD patients from the Movement disorders clinic and the Rossy PSP Centre, Krembil Brain Institute, Toronto Western Hospital, Toronto Canada. The total sample consisted of 134 patients with a mean age 70 years, 67% males and 33% females. WMH were quantified from FLAIR MRI using a convolutional neural network-based tool (segcsvd-WMH). Linear regression was used to test difference in WMHvol/ICV between PSP and PD, while accounting for age, sex, MR field strength and MR manufacturer.

RESULTS / DISCUSSION: Patients with PSP had a significantly higher WMH burden than PD (0.55% vs 0.29% of total ICV, respectively, Wilcoxon rank sum p-value=0.001, Figure 1b). Multivariable linear regression confirmed the main effect of diagnosis (beta estimate=0.28, se=0.079, p=0.00041, PSP>PD), and age (beta=0.09, se=0.04, p=0.017) on WMH volume (Figure 1c).

CONCLUSION: In summary, we found greater WMH volumes in PSP patients compared with PD, suggesting an increased role of white matter structural abnormalities in PSP. These findings may provide a supportive role in diagnosis as well as expand an understanding of pathogenesis including a proposed association between PSP and hypertension.

111674

More Than A Cup of Coffee - Understanding Radiology Trainee Sense of Belonging

Henry Wiebe, Ania Kielar, Andrea Doria, Ciara O'Brien

University of Toronto

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: A sense of belonging at work is strongly correlated with positive outcomes and workforce retention. However, the one-sided power dynamic between trainee and staff, the increasingly remote reporting-from-home, and the pressure of growing worklists can create barriers between trainees and teaching staff. Anecdotally, trainee sense of belonging, morale, and well-being has declined in recent years. We set out to objectively measure this trend, with the goal of eventually improving our learning environment.

METHODS: An online anonymized survey was distributed to radiology residents and fellows with the aim of understanding how trainees feel at work, how they relate to their colleagues, and their support systems at work. This survey was distributed to trainees in October 2023 and May 2024.

RESULTS / DISCUSSION: There were 35 (58%) and 31 (52%) resident respondents in October 2023 and May 2024 respectively. Overall, responses in May 2024 demonstrated a worsening pattern of belonging compared to the earlier October 2023. In both sets of data, the majority of respondents report feeling like an outsider in radiology (28/35, 80% and 25/31, 81%), that they do not have someone they can rely on at work (24/35, 69% and 18/31, 58%). Two thirds of respondents reported feeling more isolated during the daytime work hours as opposed to in the afterhours/overnight call period.

CONCLUSION: Radiology trainee's sense of belonging is low, and has worsened through this academic year. Ultimately, this requires broad-based institutional culture change; a process which may take many years. Nevertheless, understanding the scope of the problem is an impactful first step.

111699

Osteolysis of the Ulnar Styloid Following Isolated Distal Radius Fracture: Prevalence and Characteristics

Charles Antoine Beaulieu[1], Véronique Freire[1], Charlotte Rose Deshaies[2],

[1]University of Montreal Health Centre (CHUM), [2]University of Montreal

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: The objective of this study is to determine the prevalence and characteristics of ulnar styloid osteolysis post-isolated distal radius fractures and assess for associated risk factors.

METHODS: This retrospective single-center study reviewed imaging and electronic medical records of all adults (age ≥ 18 years) with an isolated distal radius fracture imaged between July 1, 2019, and June 30, 2020. The study was approved by the Institutional Review Board of the University of Montreal Health Center (CHUM). Exclusion criteria included ulnar styloid fracture, renal failure, hyperparathyroidism, septic arthritis, gout, rheumatoid arthritis, and seronegative arthritis. Ulnar styloid osteolysis was evaluated independently by a third-year radiology resident and a fellowship-trained musculoskeletal radiologist with more than 10 years of experience.

RESULTS / DISCUSSION: A total of 144 fracture cases were included. Ulnar styloid osteolysis was observed in 24 cases (16.7%). Patients with osteolysis exhibited higher rates of comminuted fractures (83% versus 60%, $p = 0.0274$), higher rates of impaction (67% versus 18%, $p < 0.0001$), greater displacement (33% versus 10%, $p = 0.0020$), and increased dorsal angulation (79% versus 24%, $p = 0.0046$). Additionally, patients with osteolysis required surgical intervention more frequently (50% versus 20%, $p = 0.0258$).

CONCLUSION: Distal radius fractures are common, and osteolysis of the ulnar styloid process is not infrequent (>15% in our study). Concomitant osteolysis of the ulnar styloid process is associated with increased fracture severity and surgical intervention. To date, few studies have focused on this phenomenon, despite osteolysis being well-documented in other trauma cases, such as in the distal clavicle.

111701

A Comparison of Complication Rates between Transhepatic and Transperitoneal Percutaneous Cholecystostomy Routes in the Treatment of Gallbladder Pathologies

Alexandra Hodder, Rebecca Hopkins, Andrew Dalton

Memorial University of Newfoundland

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: This study compared transperitoneal (TP) and transhepatic (TH) routes for percutaneous cholecystostomy (PC) as treatment options for gallbladder pathologies in poor surgical candidates. Its purpose was to determine if any significant differences exist in complication rates between these approaches.

METHODS: A retrospective chart review was conducted including patients who underwent PC at two Canadian institutions from 2018 to 2022. The Picture Archiving and Communication System database was searched using the key term "EH GALL BLADDER DRAINAGE PERC" from interventional radiology images. Radiological reports and images were used to identify the PC route for each patient (TP versus TH). Data on complications including repeat PC, catheter dislodgement, sepsis, and more were compiled using the local electronic medical record database, Meditech. Statistical analysis was performed with IBM SPSS using Fisher's exact test.

RESULTS / DISCUSSION: 101 patients (TP: N=63; TH: N=38) were included in the final analysis. A between-subjects analysis yielded no statistically significant differences in rates of any complications between TH and TP routes (all p-values ≥0.05). This suggests that the route of PC used may not be associated with any differences in complications, opposing pre-existing research which postulates that the TH route may be associated with fewer complications.

CONCLUSION: PC route is often chosen at the discretion of the interventional radiologist based on individual preference, patient anatomy, and clinical circumstances. This study highlights the need for further research to help inform the choice of PC route. This may support future quality improvement guidelines on limiting procedural complications or a standardized approach to PC route choice.

111771

AAA In Vivo Deformation: A Comparison Between Ultrasound and ECG-gated Computed Tomography

Charlotte Rose Deshaies[1], Vincent Bonnardeaux[1], Pedro Vianna[2], Simon Lessard[2], Ariana Forneris[3], Elena Di Martino[4], Guy Cloutier[2], Gilles Soulez[2]

[1]Université de Montréal, [2]CRCHUM, [3]University of Calgary, [4]ViTAA Medical

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: The aim of this study is to compare wall strain computed from 2D B-mode ultrasound with strain from dynamic CT scan acquisitions to assess the potency of B-mode imaging in evaluating biomechanical deformation in AAA.

METHODS: 27 AAA patients (75±6 years, 22 males) underwent multiphase electrocardiogram-gated CT angiography imaging. In parallel, multiple 2D US B-mode (E2B) scans were performed along the aorta to span the AAA in its entirety. Regions of interest were segmented in a semi-automated manner and then subjected to motion tracking methods to estimate strain fields using a sparse model strain estimator for US and optical flow derived voxel velocities for CT. Segmentation reproducibility between the operators was measured using the Dice score. Peak systolic strains were extracted from the fields, with mean and maximum values being calculated. They were then correlated between the two modalities using multiphase CT as a gold standard.

RESULTS / DISCUSSION: Maximum and average strain values were estimated at 14.5 ± 4.2% and 2.5 ± 0.7%, respectively, for CT; and 32.9 ± 14.6% and 7.3 ± 1.8% for E2B. The correlation between the two readers was 0.78 ($p<0.001$). A significant correlation coefficient was obtained for the maximum deformations (0.73, $p = 2e\text{-}4$) and a lesser one for the average deformations (0.65, $p = 1e\text{-}3$) between E2B and CT.

CONCLUSION: AAA strain analysis using ultrasound would offer significant advantages regarding cost, accessibility and ionizing radiation, as compared with CT. Further follow-up imaging at 6-months and 12-months will help determine if those strains are good predictors of diameter change.

111905

Insights from a National Survey on Gaps and Opportunities for Curriculum Improvement in Breast Imaging Education in Canadian Radiology Residency Programs

Aleena Malik[1], Kaitlin Zaki-Metias[2], Sri Sannihita Vatturi[3], Hayley McKee[1], Silma Solorzano[4], Jean Seely[3], Supriya Kulkarni[5], Zina Kellow[6], Raman Verma[7]

[1]Temerty Faculty of Medicine, University of Toronto, [2]Department of Medical Imaging, Schulich School of Medicine and Dentistry, Western University, [3]Department of Radiology, Radiation Oncology and Medical Physics, University of Ottawa, [4]Department of Radiology, McGill University, [5]Joint Department of Medical Imaging, Toronto General Hospital, [6]Department of Radiology, Dalhousie University, [7]Department of Medical Imaging, The Ottawa Hospital, University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To evaluate the breast imaging curriculum in residency programs across Canada to identify opportunities for improvement and standardization.

METHODS: An anonymous 45-question survey was emailed to program directors of all 16 Canadian diagnostic residency programs. The survey was open from March through May 2024, following local institutional ethics approval.

RESULTS / DISCUSSION: Twelve (12/16, 75%) program directors across 7 provinces responded. Survey responses reveal significant variability in program structures and resources. Procedural exposure varies, with 67% (8/12) of programs reporting that residents rarely or never participate in MRI-guided breast biopsies while simulation sessions for breast imaging procedures are offered in only 33% (4/12) of programs. Only 33% (4/12) of programs offer three elective months, with others providing as little as one month. These elective months could allow additional breast imaging exposure, addressing gaps in procedural training. Furthermore, 75% (9/12) of programs do not involve residents in multidisciplinary breast tumor boards, limiting collaborative care training. Regarding screening mammography, 25% (3/12) of programs do not provide residents with experience in interpretation. The presence of breast imaging fellows was noted to reduce procedural opportunities for residents in 25% (3/12) of programs. Assessment methods lack uniformity, with only 17% (2/12) of programs using post-rotation tests, and all relying on subjective evaluations.

CONCLUSION: These survey findings highlight the need to address disparities and enhance standardization to improve breast imaging education for residents across Canada.

111986

Translating Human Resource Efficiencies into Financial Savings with Portable MRI in a Tertiary Care ICU: A Cost-Benefit Analysis

Supriya Khatri[1], Sijyl Fasih[1], Nathan Tompkins[2], Omar Islam[1]

[1]Queen's University, [2]Kingston Health Sciences Center

PRESENTER'S LEVEL OF TRAINING: Medical Student

BACKGROUND / OBJECTIVE: Transporting critically-ill patients to CT and MRI in radiology departments poses significant patient safety risks, logistical challenges, and high personnel costs. Portable MRI (pMRI), by bringing the imaging to the patient, offers a solution by eliminating the need for patient transport and optimizing human resource allocation. The purpose of this project is to evaluate the operational costs and savings associated with the introduction of pMRI in a tertiary ICU. The goal is to develop a framework for institutions to consider when planning or evaluating the implementation of pMRI at their facility.

METHODS: The proposed pMRI requires no infrastructure or storage modifications and utilizes existing X-ray staff. Our data includes projected costs (machine purchase, maintenance, training, salaries with 2.8% annual inflation) and savings from reduced transport needs by ICU staff, for an estimated 216 scans annually. The calculation for 'savings' includes the salaries of human resource (HR) personnel, including registered nurses (RNs), respiratory therapists (RTs), and porters.

RESULTS / DISCUSSION: Our results are divided into two categories: costs and HR hours saved during transportation by using pMRI. The total cost over six years was $895,980.10, which includes the machine purchase fee of $649,000, a yearly maintenance fee of $30,000 (paid from years 2-6), booking clerk costs, technologist training and operation costs. The savings from reallocation of HR hours come from the time needed to transfer ICU patients to and from fixed MRI and CT scanners. This amounts to $723,119.93 over six years, and includes RN salaries ($331,984.80), RT salaries ($317,779.37), and porter salaries ($73,356.48.)

CONCLUSION: With a usage rate of 18 scans/month, projected savings could significantly offset the operational costs of pMRI. These savings could be redirected to support other hospital services or reduce overtime expenses.The next steps involve exploring potential revenue sources (i.e. government funding) and assessing hidden, intangible, and productivity-related benefits of pMRI.

111992

How Accessible is Online Information on Dense Breasts in North America?

Alex Sy[1], Sonali Sharma[2], Charlotte J Yong-Hing[2,3]

[1]University of Ottawa, Faculty of Medicine, [2]Department of Radiology, Faculty of Medicine, University of British Columbia, [3]Diagnostic Imaging, BC Cancer

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: This study evaluated the presence, readability, multilingual availability, and accessibility of information on dense breasts on internet websites across North America.

METHODS: Three independent reviewers analyzed 62 websites (12 Canadian and 50 American) for public information on dense breasts. This study investigated website readability using the Flesch-Kincaid Grade Level (FKGL), linguistic diversity, and accessibility features.

RESULTS / DISCUSSION: On average, information on dense breasts was written between a 10th and 11th-grade reading level for both the Canadian (FKGL Mean = 10.78, SD = 1.21) and American (FKGL Mean = 11.76, SD = 1.52) websites. Inclusive design features were identified in 50% of Canadian websites (6 out of 12) and 66% of American websites (33 out of 50), enhancing accessibility for a diverse user base. Furthermore, translation capabilities were more comprehensive on American websites, with 62% (31 out of 50) offering such functionality, including 87% with multilingual options and 13% with exclusive Spanish translation. In contrast, 75% of Canadian websites (9 out of 12) provided translation capabilities, but exclusively in French.

CONCLUSION: To better support patients in making educated choices about breast health, improvements in the availability and presentation of online information on dense breasts must be made. Enhancing readability, expanding language options, and ensuring website accessibility are key steps to ensure equitable breast cancer care and understanding across diverse populations.

112001

Beyond the Mammogram: The Cost of MRI Screening for Extremely Dense Breasts

Natasha Vatcher, Connie Hapgood

Memorial University of Newfoundland and Labrador

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Patients with extremely dense breasts have an increased breast cancer risk, independent of family or personal history. Mammography's reduced sensitivity in dense tissues leads to missed detections. Despite the heightened risk, supplemental breast MRI screening is not available to patients with extremely dense breasts in some provinces of Eastern Canada. This project aims to quantify the number of patients who qualify for supplemental breast MRI screening and to evaluate the financial implications of integrating this practice into the existing healthcare system in an Eastern Canadian province.

METHODS: This study uses a quantitative approach to analyze the costs associated with supplemental breast MRI screening for patients with extremely dense breasts. A retrospective audit of diagnostic mammograms performed in 2023 at a hospital in Eastern Canada was conducted using the Picture Archiving and Communication System (PACS). This study identifies the number of patients eligible for MRI screening and estimates the associated costs.

RESULTS / DISCUSSION: Out of 9,509 mammograms, 579 cases (6.09%) were classified as having extremely dense breasts. The estimated total cost for providing supplemental breast MRI screening for these patients would amount to $192,146.94, with each MRI costing $331.86.

CONCLUSION: This study provides valuable insights into the financial implications of offering supplemental MRI screening for patients with extremely dense breasts in Eastern Canada and underscores the need for equitable access to advanced screening technologies to mitigate health disparities. Adopting supplemental MRI screening could significantly enhance breast cancer detection and reduce mortality, aligning with best practices and global recommendations.

112015

Medical Student Awareness and Perception of Interventional Radiology – A Canadian Survey

Rokhshid Aflaki[1], Syed Naqvi[1], David Leswick[2], Rahman Ladak[1], Jamil Addas[3], Abdullah Alenezi[3]

[1]Western University, [2]University of Saskatchewan, [3]Windsor Regional Hospital

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: This study aims to evaluate Canadian medical students' perception and interest in Interventional Radiology (IR) and effectiveness of undergraduate medical education in this field.

METHODS: A 10-minute survey in English and French was distributed to the Canadian medical students via the assistance of Undergraduate Medical Education staff of various Canadian medical schools. The survey assessed participants' knowledge of and interest in IR. The collected data was analyzed to identify trends and deficits in IR education.

RESULTS / DISCUSSION: A total of 163 medical students from eleven medical schools completed the survey. Most respondents (61%) had never attended IR lectures or workshops, and 66% rated their knowledge of the field as below average. Additionally, 70% were unsure or uninterested in pursuing a career in IR, with 23% citing insufficient knowledge as the primary reason. While 34% gained information about IR through self-directed research, 28% had no exposure at all, and 23% lacked awareness of IR career prospects.Despite these challenges, there is clear interest in the specialty, with 80% of students supporting mandatory radiology training and 85% expressing willingness to undertake a 2-week IR elective during clerkship. Given the growing demand for minimally invasive procedures, IR physicians play an essential role in modern healthcare. Addressing these deficits through curriculum changes and increased exposure to IR is crucial to attract and prepare future specialists in this evolving field.

CONCLUSION: Addressing knowledge gaps through mandatory IR education and electives is crucial to prepare students and meet growing specialty demands.

112016

Impact of the Iodinated Contrast Media Shortage on the Radiological Diagnosis of Acute Diverticulitis

Yudhvir Bhatti[1], Dane Gunter[2], Prasaanthan Gopee-Ramanan[3]

[1]Michael G. DeGroote School of Medicine, McMaster University, [2]McMaster University, [3]Hamilton Health Sciences, McMaster University

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To evaluate how the 2022 iodinated-contrast media (ICM) shortage impacted radiologists' ability to definitively diagnose acute diverticulitis, and assess limitations of using non-contrast CT scans as first line imaging.

METHODS: A retrospective study was conducted using all emergency department-requested CT scans performed during the ICM shortage (April-August 2022) and a comparable pre-contrast shortage period in 2021. Cases mentioning 'diverticulitis' in the radiology report impression section were included. Each case was assessed for patient demographics, scan type and indication, definitive diagnosis or exclusion of diverticulitis, evidence of diverticulitis complications, and follow-up imaging requests. Descriptive statistics were performed where applicable.

RESULTS / DISCUSSION: 158 cases met the inclusion criteria. Contrast-enhanced CT scans were performed for 96% (82/85) cases in the pre-contrast shortage group, compared to 52% (38/73) in the shortage group ($p<0.0001$). No significant differences were identified between the two groups in definitively diagnosing or excluding acute diverticulitis ($p=0.627$), identifying complications ($p=0.511$) or requesting follow up imaging ($p=1.00$)

CONCLUSION: Although non-contrast CT scans have been used for diverticulitis diagnosis during the ICM shortage, prior studies have not evaluated the impact on diagnostic accuracy. This study found no significant difference in ability to definitively diagnose or exclude diverticulitis with non-contrast vs. contrast-enhanced CT, likely due to key features like colonic wall thickening and inflammatory fat stranding being visible without ICM. These findings may support revising imaging protocols to consider non-contrast CT as a viable option in cases of ICM limitations, such as allergies, renal impairment, or future shortages.

112021

Climate-Conscious Radiology: Assessing Radiologists' Knowledge and Attitudes on their Carbon Footprint

Hasan Jamil[1], Kate Hanneman[2], David Leswick[1]

[1]University of Saskatchewan, [2]University of Toronto

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To assess radiologists' and radiology residents' knowledge and attitudes on the environmental impact of medical imaging.

METHODS: A survey was distributed via SurveyMonkey to all radiologists and radiology residents at a Canadian academic centre. Respondents used a 5-point Likert scale to evaluate ten statements on climate change and radiology. Descriptive statistics were calculated and stratified by age group. Knowledge of healthcare's contribution to climate change was assessed via multiple-choice questions and ranking of the perceived top 5 contributors within radiology to greenhouse gas (GHG) emissions.

RESULTS / DISCUSSION: 32 of 70 (46%) individuals responded (18 radiologists, 14 residents; 14 younger than 35, 10 between 35 and 50, 8 older than 50). 91% agreed or strongly agreed that climate change was real; 47% indicated climate change is a top priority now (21% of <35 and 75% of 50+) and 87% thought that it should be a top priority. 38% agreed or strongly agreed that radiology is a significant contributor to climate change. 72% were motivated to implement actions to decrease climate impact. 56% of respondents correctly selected 4-8% as the estimated healthcare-related GHG emissions in Canada. MRI and CT were the most frequent options selected as top contributors to radiology's GHG emissions.

CONCLUSION: Respondents displayed moderate understanding of radiology's contribution to climate change. Younger respondents were more pessimistic about current societal prioritization of climate change, although motivation to adapt was similar across age groups. Knowledge and perception of radiology as a driver of climate change was imperfect, showcasing the need for targeted education.

112029

What is the Carbon Footprint from Patients Seeking MRI Services Outside their Nearest Hospital? An Evaluation of Patient Travel and CO2 Emissions

Jessica Thompson, Joseph Silburt, Andreu Costa, Stephanie Schofield, Michael Rivers-Bowerman

Dalhousie University

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To assess the added carbon footprint of outpatients undergoing MRI examinations outside of their nearest hospital.

METHODS: This study was performed on all adult outpatients undergoing MRI examinations in 2023 in our province. The following data were collected from the Picture Archiving Communication System (PACS): age; sex; home address; address of hospital where MRI was performed; and address of the patient's nearest hospital with MRI service. Using a Google API key, we calculated the following distances traveled: distance from home to hospital where MRI was performed (actual distance); and distance from home to nearest hospital with MRI (nearest distance). The added carbon footprint was calculated as (actual distance - nearest distance) / nearest distance. We estimated the added carbon dioxide (CO2) emissions using an online calculator (carbonfootprint.com) that estimates CO2 emissions based on average vehicle size and consumption.

RESULTS / DISCUSSION: Of 29,055 patients, 19.5% traveled beyond their nearest hospital for MRI resulting in a 36.4% increase in total travel. The mean distance traveled was 53 +/- 64 km and the mean nearest distance was 34 +/- 36 km. The mean excess distance travelled was 19 km +/- 54km. We estimate that the additional distances patients traveled added 92 metric tons of CO2 to our atmosphere negatively impacting the carbon footprint of healthcare in our province.

CONCLUSION: Our findings highlight the large environmental cost of limited accessibility to timely medical imaging. Strategic interventions are required to reduce unnecessary travel and mitigate the carbon footprint associated with MRI service delivery.

112057

Biochemical Metrics for Parathyroid Scintigraphy in the Pre-Surgical Evaluation of Hyperparathyroidism

Ryan Smith, Victoria Linehan, Ian Macdonald, Steve Burrell

Dalhousie University

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: To compare parathyroid scintigraphy results with patient biochemistry, surgery, and pathology to inform appropriateness criteria and assess biochemical metrics in the imaging workup of hyperparathyroidism (HPT).

METHODS: Our retrospective study included 421 patients who underwent parathyroid scintigraphy from 2016 to 2020. Patients were grouped based on study indication (primary vs. secondary HPT) and their clinical profiles were reviewed for scan result, parathyroid-related blood work, surgical results, and pathology. Performance metrics of scintigraphy were analyzed. Demographics and bloodwork were compared between positive and negative scans using univariate analysis. Positive scintigraphy, patient HPT group, and bloodwork were analyzed with two-way ANOVAs. Multivariate regression analysis was employed to identify predictors of positive scans. ROC analysis was conducted to evaluate the performance of biochemistry in predicting scan results.

RESULTS / DISCUSSION: Positive tests (52% of patients) were associated with higher parathyroid hormone and corrected calcium (Ca) but not phosphorus. Sensitivity of scintigraphy was 80% for pathology-proven adenomas and 70% for hyperplasia but decreased to 67% and 38% when considering concordant surgical location. The overall positive predictive value of scintigraphy was 100%, however, the negative predictive value was 13%. On multivariate analysis, Ca was most predictive of a positive scan with an OR of 1.28 for every 0.1 mmol/L increase. Ca had an AUC of 0.628; a cutoff of 2.65 mmol/L maximized scintigraphic sensitivity (78.9%) and specificity (41.6%).

CONCLUSION: In this large retrospective cohort, Ca was the principal biochemical metric predictive of a positive study. Scintigraphy was highly sensitive in primary HPT but performance decreased for identifying all sites of hyperplasia in secondary HPT. The groups also differed significantly in laboratory metrics suggesting independent approaches to workup/selection for imaging are warranted. Scintigraphy has a very high positive predictive value but the low negative predictive value indicates further investigation into complementary imaging techniques (US, 4D-CT) is warranted.

112100

The Impact of Artificial Intelligence on Radiology Specialty Preferences Among Canadian Medical Students and Residents

Michael Atalla[1], Pascal N Tyrrell[2], Eray Yilmaz[3], Adrian Chan[4], Mohammad Damer[5], Natasha Larocque[6], Rachel Fleming[7], Alexander Bilbily[8]

[1]St. George's University [2]Department of Medical Imaging, University of Toronto, [3]Schulich School of Medicine & Dentistry, Western University, [4]Faculty of Medicine, Dalhousie University, [5]Department of Radiology, University of Ottawa, [6]Department of Radiology, McMaster University, [7]University of Toronto, Joint Department of Medical Imaging - University Health Network, Sinai Health System, Women's College Hospital, [8]Department of Diagnostic Imaging, Division of Nuclear Medicine, The Hospital for Sick Children

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Artificial intelligence (AI) is transforming medical imaging and has major implications for radiology. This study aims to assess Canadian medical trainees' views on AI's impact on radiology and its influence on career choices.

METHODS: A survey sent to all 17 Canadian medical schools received 396 responses from medical students (90.5%) and radiology residents (9.5%). It assessed AI knowledge, familiarity with AI applications, and attitudes about AI in radiology. AI-savvy students were those who answered all AI-related questions correctly and had formal education from academic institutions or informal education from radiology communities. Chi-square tests compared group differences, with significance set at $p < 0.05$.

RESULTS / DISCUSSION: AI-savvy respondents (n = 157) were significantly more likely than non-savvy students (n = 239) to believe AI enhances radiologists' efficiency (97.3% vs. 88.2%, $p = 0.002$). Both groups showed low agreement that AI would reduce the need for radiologists (20.1% vs. 20.5%, $p = 0.926$). More AI-savvy students emphasized the importance of ethical scrutiny in AI (87.2% vs. 82.1%), but this difference was not statistically significant ($p = 0.180$). Significantly more AI-savvy students felt discouraged from pursuing radiology as a specialty due to uncertainty about AI's future (45.5% vs. 28.4%, $p < 0.001$).

CONCLUSION: AI-savvy students recognize AI's potential to enhance radiology practice but voice concerns about its uncertain long-term career implications, which discourages them from pursuing the specialty. These findings highlight the need for targeted AI education from trusted radiology sources to address misconceptions, reduce anxiety about AI's role, and preserve radiology's appeal as a specialty.

112109

Utility of Short-Interval Follow-up Post Benign Concordant Breast Biopsy

Michele Bastianelli, Alyssa Minhas, Mary Beth Bissell

University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Radiologist

OBJECTIVE: There are no established guidelines for follow-up after benign breast biopsies and practices across Canada are widely variable; ranging from 6-month follow-up to none. These follow-up examinations utilize valuable resources and can cause unnecessary patient anxiety. We assess the necessity of dedicated imaging follow-up after benign stereotactic and ultrasound-guided breast biopsy by determining institutional repeat biopsy and false negative biopsy rates (FN).

METHODS: IRB-approved single-center retrospective review of all consecutive benign stereotactic and ultrasound-guided breast biopsies was performed between September 1, 2020, and August 31, 2021. Only biopsies with imaging-pathology review deemed concordant by the performing radiologist were included. Data collected included target lesion characteristics, BI-RADS assessment category, need for repeat biopsy or surgical excision and results, or stability at imaging follow-up (2 years).

RESULTS / DISCUSSION: A total of 900 benign breast biopsies were performed during the study period, with 849(94%) BI-RADS category 4A and 4B assessments. Repeat tissue sampling or surgical consultation was recommended for 51(5.7%) patients over the 2-year follow-up period. Of these, 33(3.7% of all biopsies) underwent repeat biopsy, and 7(0.8% of all biopsies) surgical excisions were performed with the remaining 11(1.2% of all biopsies) patients electing for ongoing imaging follow-up. 5(0.6% all biopsies) were upgraded to high-risk lesions, however at final surgical pathology or 2-year follow-up, no malignancies were identified (FN=0).

CONCLUSION: Short-interval follow-up after benign ultrasound and stereotactic breast biopsy results in additional unnecessary interventions and is resource-intensive. Routine breast imaging after benign concordant breast biopsy is safe.

112126

Radiology Bootcamp: Systematic and Interactive Learning for New Residents

Imran Ladak[1], Zafir Syed[2], Daniel McCarthy[1], Lubna Siddiqi[3], Mousumi Bhaduri[1]

[1]University of Western Ontario, [2]Brantford General Hospital, [3]McMaster University

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: The purpose of this initiative was to develop a curriculum for new radiology residents at Western University. New residents reported that early learning in radiology was heterogeneous, based largely on cases they saw during the early months of training. Senior residents and staff developed a curriculum with interactive, scrollable cases that new residents could practice reporting, along with relevant didactic material. This curriculum, called the Radiology Bootcamp, ran for 5 weeks over 4 months, with both in-person and self-directed components.

METHODS: Quantitative measures of the Bootcamp's impact included scores on multiple pre-test and post-text exams (including locally-developed multiple choice questions, simulated assessments, and nationally-utilized junior resident exams). The simulated assessments included 8 CT cases to be dictated in a timed setting. For each scan, the dictation time was measured, and reports were reviewed by senior residents for clinically-significant changes between pre-test and post-test reports. Qualitative measures included small focus groups and self-assessments of trainee confidence throughout the curriculum.

RESULTS / DISCUSSION: Both quantitative and qualitative metrics demonstrated that the Radiology Bootcamp increased resident knowledge, efficiency, and confidence. Likert scale ratings of trainee self-confidence increased in 75% of residents between the pre-test and post-test. The time taken to dictate for the 8 sample cases decreased overall, from an average of 104.5 minutes on the pre-test to an average of 93.0 minutes on the post-test, although this trend differed between cases. When dictation reports were reviewed, clinically significant changes were seen between pre-test and post-test for approximately 50% of reports.

CONCLUSION: The results highlighted the utility of the bootcamp, which is entering its third year of use. It standardizes early learning, provides practice cases for residents, and is both sustainable and adaptable. It has provided a new framework for early resident learning at our institution: blending didactic and interactive learning.

112128

Anticoagulation Post-transplant in Pediatric Portal Vein Interventions: How Standardized is the Approach?

Hayley Good[1], Dimitri Parra[2]

[1]University of Toronto, [2]SickKids Hospital

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Children undergoing liver transplant are at risk of portal vein stenosis (PVS) and thrombosis (PVT), which may ultimately lead to graft failure. Management options include angioplasty, stenting, and Meso-rex bypass; however, evidence is limited. Few studies suggest post-procedure anticoagulation guidelines, a critical factor in maintaining portal vein patency following intervention. Therefore, we aimed to determine the presentation, management, and course of patients undergoing interventional management of vascular complications, with emphasis on post-procedure anticoagulation.

METHODS: Single center, retrospective study of pediatric patients with portal vein complications post-liver transplantation, referred for interventional management between 2002 and 2023. History, procedure details, and post-intervention management and follow-up were collected.

RESULTS / DISCUSSION: 17 patients were included. Average age at transplant was 3.21 years and the most common indication was biliary atresia (n=13, 76.5%). PVS and PVT were seen in 14 (82.4%) and 5 (29.4%) patients, respectively. 40 procedures were performed at a mean time of 2.20 years post-transplant, with an average number of 2.35 interventions per patient. Of these, the majority were angioplasty (n=33, 82.5%). Long-term sonographic patency was obtained in 12 (70.7%) patients, at a mean duration of 5.6 years. Various post-procedure anticoagulation protocols were used, though UFH followed by LMWH was most common (50%).

CONCLUSION: Angioplasty is effective in pediatric PVS management, providing long-term patency in most cases. There is variability in the approach to post-procedure anticoagulation in this patient population. Therefore, it is unclear the type and level of anticoagulation required, highlighting the need for additional studies such as registries and metanalyses.

112136

Implementation of Synthetic Mammography and Digital Breast Tomosynthesis with AI-augmented Thick Dlices for Screening Patients at Intermediate and High Risk of Breast Cancer and its Effects on Performance Metrics

Andrea Sarah Lo[1], François Michaud[1], Mona El Khoury[2], Maude Labelle[2], Isabelle Trop[2], Matthew Seidler[2]

[1]Université de Montréal, [2]Centre hospitalier de l'Université de Montréal

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: The advantages of combined full-field digital mammography (FFDM) + digital breast tomosynthesis (DBT) over FFDM alone have been extensively documented in the literature. There is less data comparing FFDM to synthetic mammography (SM) + DBT using AI-augmented thick slices. The purpose of this study was to compare the performance of FFDM with SM + DBT with AI-augmented thick slices following implementation of this modality.

METHODS: SM + DBT using 6 mm AI-augmented thick slices was implemented at our institution for all patients undergoing screening mammography, completely replacing FFDM. Following IRB approval, we identified all patients undergoing screening mammography in two successive six-month periods pre- (November 2022 - May 2023) and post- (May - November 2023) implementation of SM + DBT. Performance metrics were compared between the two modalities.

RESULTS / DISCUSSION: A total of 576 FFDM and 1 296 SM + DBT examinations were included. In both periods, the most common screening indication was personal history of breast cancer. Dense breast tissue was present in 54.1% of the FFDM group and in 58.3% of the SM + DBT group. The recall rate was 17.2% (99/576) for FFDM and 13.3% (173/1 296) for SM + DBT (p = 0.034). CDR was 17.36/1 000 (10/576) for FFDM and 6.94/1 000 (9/1 296) for SM + DBT (p = 0.067).

CONCLUSION: Implementation of SM + DBT using AI-augmented thick slices results in a lower recall rate compared to FFDM. Differences in CDR were not statistically significant, however further research is needed to determine whether CDR improves over time.

112138

Cholangioplasty Outcomes in Liver Transplant Patients with Benign Biliary Strictures: A Retrospective Study

Sabreena Moosa[1], Eran Shlomowitz[2], Cathal O'Leary[2]

[1]University of Toronto, [2]University Health Network

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: Biliary anastomotic strictures have been described as the Achilles heel of liver transplantation, more commonly with living than deceased donor. Limited comparisons are available in cholangioplasty outcomes for living and deceased donor transplants. This study evaluated the outcomes of percutaneous cholangioplasty of benign anastomotic strictures post liver transplant, comparing living and deceased donors.

METHODS: Retrospective review of 37 liver transplants in 35 patients (mean age 52; 65.7% male) who underwent percutaneous cholangioplasty at a single tertiary hospital from Aug 2009 to Aug 2024. Cholangioplasty involved 1-4 sessions with balloon diameter of 8-12 mm. Clinical success was defined as successful drain removal. Associations between patient and treatment factors and outcomes were analyzed using Chi-square, Fisher's exact test, and multinomial logistic regression.

RESULTS / DISCUSSION: Table 1 summarizes the subgroups. The average duration of biliary drain was 10.48 months (SD 35.18). Drain exchanges were required at a mean interval of 6 weeks. Strictures recurred in 35.3% (12/34). Mean time to recurrence was 37.8 months (SD 33.6). Recurrent strictures were treated with cholangioplasty 83.3% (9/12) or surgical revision 16.7% (3/12). There was no difference in cholangioplasty outcomes between living and deceased donor subgroups.

CONCLUSION: Percutaneous cholangioplasty has a high success rate for biliary anastomotic strictures post liver transplant, both living and deceased donor. Limitations include duration with a biliary drain, frequent drain exchanges, and high medium term recurrence rates. Future treatment paradigms should focus on minimizing duration with a biliary drain, e.g. biodegradable biliary stent use, while maximizing long-term patency.

112140

Reporting Quality of Diagnostic Accuracy Studies: A Systematic Review and Meta-analysis of Investigations on Adherence to STARD 2015

Sakib Kazi[1], Mohammed Kashif Al-Ghita[2], Haben Dawit[3,4], Hoda Osman[5], Danyaal Ansari[5], Nabil Islam[2], Eric Lam[4], Daniël A. Korevaar[5], Jérémie F. Cohen[6], Patrick M. Bossuyt[7], Matthew D.F. McInnes[1,4]

[1]Department of Radiology, University of Ottawa [2]Faculty of Medicine, University of Ottawa [3]Faculty of Medicine, University of Toronto, [4]Ottawa Hospital Research Institute, [5]University of Ottawa, [5]Department of Respiratory Medicine, Amsterdam University Medical Centers, University of Amsterdam, [6]Department of Pediatrics Inserm UMR 1153 (Centre of Research in Epidemiology and Statistics), Necker-Enfants Malades Hospital, Assistance Publique - Hôpitaux de Paris, Université de Paris, [7]Epidemiology and Data Science, Amsterdam Public Health Research Institute, Amsterdam UMC, University of Amsterdam

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: To evaluate adherence of primary diagnostic test accuracy (DTA) studies to the STAndards for Reporting of Diagnostic Accuracy Studies (STARD) 2015 30-item checklist.

METHODS: We searched databases for reviews that used STARD 2015 to evaluate the completeness of reporting of DTA studies in humans in any field of research. We excluded reviews that did not report mean data. A random-effects meta-analysis was done to determine the overall mean and 95% confidence intervals (CI) of adherence to STARD 2015 and to generate a forest plot.

RESULTS / DISCUSSION: 11 reviews evaluating 1002 primary DTA studies were included. The range of primary DTA studies evaluated in each review was 27-158. Included reviews were from Canada (5), Germany (3), Australia (1), USA (1), and South Korea (1). Maximum STARD 2015 score assigned by each review was 100% (7), 97% (2), 90% (1), and 87% (1). The forest plot in figure 1 shows the overall mean STARD 2015 adherence: 51.50% (95%CI: 42.79-60.2); this represents 15.45 (95%CI: 12.8-18.1) out of 30 items. There was notable heterogeneity across reviews (I2 = 99.6%).

CONCLUSION: Adherence of primary DTA studies to STARD 2015 was determined to be incomplete. These findings are limited by heterogeneity across reviews. Ongoing knowledge translation strategies, such as journals implementing adherence checklists during the peer-review process, are needed to improve completeness of reporting of DTA studies.

112146

Augmenting Low-Cost Point of Care Ultrasound with Interpretable Artificial Intelligence for Diagnosis of Pediatric Wrist Fracture

Michael (Kai Yue) Xie, Yuyue Zhou, Vincent Man, Steel McDonald, Cassandra Gallant, Jessica Küpper, Abhilash Hareendranathan, Jacob Jaremko

University of Alberta

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To create an artificial intelligence (AI) model to enable low cost, pocket-sized ultrasound (US) probes supported by a custom US viewing application to identify presence of pediatric wrist fractures with efficacy comparable to gold-standard radiographs.

METHODS: Minimally-trained users (medical and graduate students) imaged the distal upper limbs of 136 patients in an ethics-approved prospective study at Stollery Children's Emergency Room and Cast Clinic. We used Telemed MicrUs Pro-L40S probes connected to Android tablets. 469 total scans were sparsely labeled by manual segmenters and collated into a dataset to train a convolutional neural network (CNN), ResNet34, using cross-entropy and dice loss and optimized by stochastic gradient descent. The model produces both an interpretable segmentation mask and a diagnostic prediction of fracture at the slice, video, or patient level. Predictions were evaluated against ground-truth diagnostic impressions from X-Ray reports.

RESULTS / DISCUSSION: Displaced and angulated wrist fractures were identified with per-scan accuracy of 0.98 +/- 0.08 , with 100% sensitivity and 97% specificity. This compares favorably to sensitivities of 0.89 and 0.97 achieved on ultrasound and radiography respectively by human experts. Including subtle non-displaced or healing fractures lowered model accuracy and sensitivity to 0.86 +/- 0.08 and 85%, with 100% specificity.

CONCLUSION: Our point-of-care ultrasound (POCUS) system integrated with predictive artificial intelligence achieved diagnostic sensitivity comparable to gold-standard radiograph in pediatric wrist injuries, detecting all displaced or angulated fractures. This suggests that screening by AI-enhanced POCUS could be a viable tool to supplement conventional care pathways, with potential to improve imaging access, wait times, and costs.

112147

The Non-Bifurcating Cervical Carotid Artery (NBCCA): A Systematic Review

Ahsas Nagee[1], Momina Mateen[2], Ammar Alam[2], Marlise P dos Santos[2], Manraj Heran[3]

[1]Faculty of Medicine, University of Ottawa [2]Department of Radiology, Radiation Oncology and Medical Physics, University of Ottawa, [3]Department of Radiology, University of British Columbia Faculty of Medicine

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: A NBCCA is an anomaly where the CCA does not bifurcate and ascends as a single vessel supplying the ECA branches before continuing as the ICA. Current understanding of the anomaly and its clinical significance is limited. We aim to provide a comprehensive review of the radiological findings, epidemiology, presentation, and management.

METHODS: Medline, Embase, and Pubmed were searched with "non-bifurcating cervical carotid artery" and related search terms. All case reports and cited reports published in English from inception to August 7th, 2024 were included.

RESULTS / DISCUSSION: 35 cases were included. Average age was 60.7 years old. 25 patients (71.4%) were male.Nine (25.7%) were diagnosed by conventional angiography, eight (22.9%) by MRA, seven (20%) by CTA, five (14.3%) by DSA, and three (8.6%) by US. 19 (54.3%) were left-sided, 15 (42.9%) right-sided, and one (2.9%) bilateral.18 (51.4%) were incidentally discovered while ten (28.6%) had pathologies related to the anomaly. Carotid plaque was noted in six (17.1%) cases. Three (50%) were treated with carotid endarterectomy, one with carotid artery stenting, and two with antiplatelet therapy.28 of the cases (80%) were proposed to be formed via agenesis of the proximal ICA and four via agenesis of the ECA (11.4%). 23 of the cases (65.7%) were reported in Japan.

CONCLUSION: The NBCCA shows a predilection for males, displays no lateralization, and consensus of etiology supports agenesis of the proximal ICA. It is often detected incidentally through multiple types of angiography but may be underrecognized as a cause of pathology.

112150

Barriers to Research in Pediatric Radiology Across Canada: Insights from a Multi-Institutional Survey

Rafay Mughal[1], Luca Panetta[2], Rayan Boukhari[2], Rahman Ladak[3], Mareen Kraus[4], Eman Marie[5], Andrea Doria[6], Tahani Ahmad[4]

[1]Michael G. DeGroote School of Medicine, McMaster University, [2]Université de Montréal [3]Schulich School of Medicine & Dentistry, Western University, [4]Department of Diagnostic Radiology, IWK Health Centre, Dalhousie University, [5]Department of Diagnostic Radiology, McMaster University, [6]Department of Diagnostic & Interventional Radiology, The Hospital for Sick Children, University of Toronto

PRESENTER'S LEVEL OF TRAINING: Medical Student

BACKGROUND / OBJECTIVE: Pediatric radiology plays a crucial role in diagnosing and managing childhood illnesses. However, research in this field encounters significant challenges across Canada. This multi-institutional survey aimed at identifying barriers to research by analyzing responses from radiologists, program directors, and department chiefs.

METHODS: An anonymous online survey was distributed to pediatric radiology departments across Canadian institutions. Data were collected on participant roles (e.g., radiologists, program directors, and department chiefs), institutional demographics, and provincial representation. The survey focused on questions on barriers to research, availability of resources, and systemic challenges.

RESULTS / DISCUSSION: The survey garnered 16 responses from 14 institutions across 8 provinces, with the highest participation from Ontario (n=4, 27%), Alberta (n=3, 20%), and Quebec (n=3, 20%). Most respondents (n=15, 93.75%) represented academic centers. Figure 1 summarizes the perceived barriers to research. Key challenges included time constraints (n=13, 100%) and limited funding (n=8, 62%). Administrative hurdles, such as Research Ethics Board (REB) processes and data-sharing limitations, were noted by 63.6% (n=7) of respondents. While 86% (n=12) of respondents reported access to allied research personnel, only 36% (n=5) indicated the availability of a dedicated research manager or coordinator, and just 9% (n=1) had access to startup funding. Despite these obstacles, 62% (n=8) of respondents were affiliated with departments publishing five or more research articles per year. Furthermore, 62% of participants acknowledged the availability of regular research education within their institutions. Encouragingly, 92% (n=12) expressed strong interest in fostering research education for trainees, highlighting a commitment to cultivating a supportive research environment despite resource limitations.

CONCLUSION: This survey highlights the significant barriers facing pediatric radiology research in Canada, including excessive workloads, limited resources, and insufficient funding. Despite these challenges, the willingness of institutions to engage in research and their commitment to educating future researchers provide an optimistic outlook for advancing the field.

112202

Radiologic Features Predicting Local Recurrence After Stereotactic Body Radiation Therapy in Patients with Primary Lung Cancer and Lung Metastasis

Asutosh Sahu[1], Anastasia Oikonomou[1], Lan-Chau Kha[1], Christian Houbois[1], Yee Chung Ung[2], Chantelle Lin[3], Binita Chacko[1]

[1]Sunnybrook Health Sciences Centre, Department of Medical Imaging, [2]Sunnybrook Health Sciences Centre, Odette Cancer Centre, [3]University of Toronto, Dalla Lana School of Public Health

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: To differentiate local recurrence from post radiation changes in patients treated with Stereotactic Body Radiation Therapy (SBRT) for lung cancer or metastasis based on CT findings.

METHODS: Eighty patients with lung cancer or metastasis treated with SBRT (January 2016-December 2021) were retrospectively evaluated for CT features suggestive of local recurrence in confirmed recurrence (n=40) and non-recurrence cases (n=40). Local recurrence was confirmed based on biopsy, PET-CT, or follow-up CT over at least one year. Evaluated CT features included enlarging opacity (any size increase at the SBRT site), sequential enlargement (growth on two or more scans over 1 year), bulging margins, air bronchogram loss, vascular changes, linear margin disappearance, and enhancing nodule. Logistic regression was performed for CT features, with ROC analysis identifying recurrence prediction time cut-offs for enlarging opacity.

RESULTS / DISCUSSION: Enlarging opacity was the most common CT feature (85% vs. 65%, p=0.0198) and strongly associated with local recurrence (OR=2.53, 95%CI: 1.20-2.68). False positives predominated within 19 months, while true recurrence was more likely after 32 months post-SBRT. Sequential enlargement, though less frequent, had the highest sensitivity (0.700). Air bronchogram loss and bulging margin were less predictive. Enhancing nodule, though an infrequent feature, was diagnostically relevant. Linear margin disappearance and vascular changes were rare.

CONCLUSION: Our findings underscore the challenge of distinguishing recurrence from post-radiation changes and suggest time based cut-offs in follow-up assessments to enhance diagnostic accuracy of radiologists, based on enlarging opacity, which was the most common CT feature in our study.

112205

The Impact of the Radiology Community in Continuing Professional Development and Research in Canada and Quebec - Evolution of Gender Representation

Rui Ning Gong[1], Liza Amrani[1], Amirali Shahi[1], Johanna Dahan[1], Isabelle Trop[1], François Côté[2], Maxime Noël-Lamy[3], Jean-Pierre Pelage[4], Kim-Nhien Vu[1], An Tang[1], Carl Chartrand-Lefebvre[1]

[1]Université de Montréal, [2]Université Laval, [3]Université de Sherbrooke, [4]Université McGill

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: Analyze trends and contributions in research and professional development within Canadian faculties, with an emphasis on gender diversity.

METHODS: Review of guest and scientific presentations at Société de Radiologie du Québec (SRQ) and the Canadian Association of Radiologists (CAR) conferences from 2013 to 2023, categorized by author affiliation, gender, and topics.

RESULTS / DISCUSSION: Guest Presentations: The CAR hosted a total of 673 presentations, with 83% of the presenting physicians from Canadian faculties, 10% from international centers and 6% from Canadian non-academic centers. Men represented 59% of speakers, with increasing female representation in recent years. Main topics included abdominal and cardiothoracic imaging. The SRQ hosted a total of 369 presentations, with 70% of the presenting physicians from Quebec faculties, 13% from other Canadian faculties, 9% from Canadian non-academic centers and 8% from international centers. Women represented 54% of the speakers. The main topics included abdominal imaging and neuroradiology. Scientific Presentations: At CAR conferences, 85% of the first authors were from Canadian faculties, with 59% of men and a growing trend in female representation. The main topics included abdominal imaging and neuroradiology. At SRQ conferences, 99% of the first authors were from Quebec faculties, 56% of whom were men, showing a stable trend. The topics were similar to CAR conferences.

CONCLUSION: This study highlights the importance to promote gender diversity, conversion to publication and representation of Canadian faculties at conferences.

112210

Portable Dual-Energy Subtraction Radiography and User Experience in Detecting Pathology in Cardiovascular Intensive Care Unit Patients

Maria Gladkikh[1], Sandra Monteiro[1], Craig Ainsworth[2], David Koff[2]

[1]McMaster University, [2]Hamilton Health Sciences

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: Dual-energy subtraction radiography (DESR) can improve the detection of thoracic pathology on standard chest images by differentiating soft tissues from bones. However, adoption of this new technology by radiology departments necessitates the demonstration of tangible benefits to the clinical staff. This study measured the perceived value and confidence of radiologists and intensivists when using a novel portable DESR technology for diagnosing chest pathology and identifying support apparatus.

METHODS: A retrospective chart review was performed between March 2023 and October 2023 on 200 patients who were admitted to the cardiovascular intensive care unit at Hamilton General Hospital and had chest radiographs acquired via the portable DESR technique. 75 images were selected and diagnosed by ten radiologists and ten cardiovascular staff for the presence of a pneumothorax or inserted life supported lines. Each participant diagnosed 15 cases. Participants were asked to indicate whether they believed DESR improved their ability to detect lines or influenced their diagnosis. Participants were also asked to rate their confidence of each diagnosis on a scale of 1 to 10.

RESULTS / DISCUSSION: Some participants were more convinced of the benefit of DESR than others. Four participants were very favorable towards DESR as they indicated an increased ability to see lines, and felt their confidence increased by 50% or more for several (5 or more) cases. Of those, 3 also felt that DESR influenced their diagnosis.

CONCLUSION: There is perceived improvement in user detection of chest pathology with the portable DESR technique. However, more work can examine how DESR supports diagnostic accuracy.

112256

Posterior Lumbar Subcutaneous Edema: Longitudinal Insights and Treatment Associations

Lucy Hui[1], Nathan Jee[2], Angela Auriat[3], Richard Aviv[3]

[1]Faculty of Medicine, University of British Columbia, [2]Faculty of Science, University of Toronto, [3]Faculty of Medicine, University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Low back pain (LBP) is a leading cause of disability, significantly impacting quality of life and the economy. Magnetic Resonance Imaging of patients with persistent LBP has identified posterior lumbar subcutaneous edema (PLSE) as a distinct condition, yet its prevalence, progression, and associations with spinal conditions remain underexplored. This study aims to analyze longitudinal PLSE changes, its correlation with clinical traits, and the impact of local treatments on its progression.

METHODS: A retrospective review of 3561 lumbar spine MRI scans conducted between 2022 and 2024 identified 1391 eligible cases after excluding prior surgeries, missing data, and unrelated findings. Key variables analyzed included PLSE presence, location, and severity, along with patient demographics (age, sex, BMI) and spinal conditions such as degenerative changes and disc disease. Patients were interviewed prospectively on their usage of local treatments for back pain. Univariate and multivariate regression analyses were performed to associate PLSE and each explanatory variable. Statistical analyses included t-tests, chi-square tests, and ANOVA to assess associations.

RESULTS / DISCUSSION: PLSE was present in 41.59% of cases. Higher BMI and age were strongly associated with its presence ($p < 0.001$). Female sex and specific spinal conditions, including canal stenosis and foraminal narrowing, were significantly correlated with PLSE. Progression was observed in 20.7% of patients with follow-ups, while 8.81% showed regression. Increased BMI was linked to more severe PLSE.

CONCLUSION: This study provides insights into the progression of PLSE, highlighting its associations with spinal factors and treatment modalities. Findings suggest that weight management and targeted spinal interventions may mitigate PLSE progression.

112269

Assessing the Appropriateness of CTA in the Emergency Department

Kathleen MacMillan[1], Donovan Cassidy-Nolan[2], Adela Cora[1], Ian MacDonald[1]

[1]Dalhousie Radiology, [2]Dalhousie University Faculty of Medicine

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: Over several years, there has been a general growth in imaging studies requested from the emergency department. In particular, requests for neurovascular imaging now seem common for a range of indications. However, there is a paucity of relevant guidelines and objective metrics for these studies. The primary objective was to investigate the added value of neurovascular head and neck CT Angiogram (CTA) studies in our tertiary care center emergency department.

METHODS: REB approval was waived by the NSHA Research Ethics Board. Eligible patients were those who obtained a neurovascular CTA scan from September 2023 to September 2024 while under the care of the Emergency Department. Patients were excluded if they were part of the dedicated Stroke Activation or Trauma Team Activation Protocols. Patient demographics, provided clinical histories, and imaging findings were assessed. All cases were screened for findings elucidated by CTA.

RESULTS / DISCUSSION: 571 neurovascular CTA studies were performed for the Emergency Department at the Halifax Infirmary. Analysis assessing CTA indications and the relevant findings was performed. Of the 571 eligible studies, the mean age was 60 (95% CI 57.9, 62.1), and 262 were female (45.9%). The data showed that the most common indication for ordering a neurovascular CTA in the emergency department was headache 140 (24.5%). The most common finding overall was significant extracranial stenosis (Table 1). Of the 571 CTA scans performed, only 172 (30.1%) displayed positive, clinically relevant findings or incidentals. Of these, 115 were vascular findings, 47 were nonvascular findings, and another 10 had both vascular and nonvascular findings.

CONCLUSION: Neurovascular CTA is requested for a range of indications in our emergency department. This preliminary work will help to guide the indications in which neurovascular CTA can be most impactful. This knowledge may reduce the need for additional, unnecessary studies being requested in the future.

112280

AI Directed AAA Segmentation, Utilizing Low-Dose Non-enhanced CT Scans for Pre-op Planning and Evaluation

Abdullah Mirza[1], Mohamed Amine Ghenai[2], Simmon Lessard[3], Charlotte Rose Deshaies[2], Gilles Soulez[1]

[1]Hospital center of the University of Montreal (CHUM), [2]University of Montreal, [3]CHUM research center

PRESENTER'S LEVEL OF TRAINING: Fellow

BACKGROUND / OBJECTIVE: While enhanced CT guidance is the mainstream method used in abdominal aortic aneurysms (AAA) diagnosis, evaluation, and pre-op planning. Non-enhanced CT-scans are used only for follow-ups, aimed to reduce radiation and contrast associated risks. The application of Artificial-intelligence (AI) is emerging as an accurate, and reliable assisting tool. We sought to buildup and validate a module, programmed to evaluate AAAs, overcoming situations where lack of contrast enhancement is inevitable; In addition, facilitating and unifying management and pre-op planning.

METHODS: We retrospectively reviewed 68 non-enhanced CT-scan measurements (57 patients). All patients had been confirmed to have AAA on contrasted modality (CT/MRI), with no history of collagen vascular disease or surgical aortic interventions. Image processing and AAA measurements were performed by PRAEVAorta-software of NUREA, a complete automatic decision-assisting solution. Utilizing a trained AI algorithm that automatically reconstructs and analyze the arterial tree. In addition to imaging report measurements, a blinded measurements validation was performed by an IR fellow with 8-years of imaging experience, using Terarecon image-processing software.

RESULTS / DISCUSSION: Available exam reports by NUREA were compared to validation data using T-test, reproducibility R and R2. 35/38 exams (3 outlier measurements) AAA max-diameter (Mean 54.04 mm, CI 95% [2.19, 0.88], R .98); 33 exams of infrarenal abdominal aorta length (Mean 125.44 mm; CI 95% [-2.72,-9.32], R .88); 63 exams of common-illiac arteries lengths (Mean: right 59.94 mm R .61, left 60.78 mm R .61; CI 95% [10.9,1.12]). Significant similarities in aneurysmal diameter and infrarenal-aortic length measurements are noted. Decreased concordance levels in the common-illiacs is attributed to various segmentation-related difficulties, as tortuosity and similar surrounding structures proximity. More data should be included, to further validate and solidify the results.

CONCLUSION: The presented fully-automated AI tool, using non-enhanced CT-scans, shows reproducible and comparable measurement to manual/semi-automatic methods with promising preliminary results for pre-operative planning and evaluation of AAA.

112286

Effectiveness of Bronchial Artery Embolization in the Management of Malignant Hemoptysis: A Single Institution Experience

Goncalo Dos Santos, Silverton Buraundi, Stephen Ryan, Adnan Hadziomerovic, Ashish Gupta

University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: To evaluate the technical success and clinical effectiveness of bronchial artery embolization (BAE) in the management of malignancy-related hemoptysis.

METHODS: A retrospective analysis of all BAE procedures performed at a single tertiary center over a 10-year period between January 2013 and December 2023 was performed. Rates of technical success, clinical success, complication, need for repeat embolization, and overall survival were calculated from patient chart review.

RESULTS / DISCUSSION: A total of 43 patients had a BAE for malignant hemoptysis at our institution within the study period. 88.4% (38/43) of these had a pathological diagnosis of primary lung malignancy, with the remaining being due to metastatic lung disease. Technical success was reported in all cases. Clinical success rate was achieved in 76.7% (33/43) of patients. Total complication rate was 4.6% (2/43) with one patient suffering a minor complication (inconsequential dissection of bronchial artery) and another patient suffering a major complication (non-targeted embolization leading to cord ischemia). Three patients (7.0%) required repeat embolization within 30 days. Eight patients (18.6%) died during the same hospital admission, 7 of which were due to respiratory arrest related to ongoing hemoptysis. Median overall survival was 107.5 days (SD 566 days) following BAE, with a six-month survival rate of 40.0%.

CONCLUSION: BAE is a safe, technically feasible, and clinically effective option for the management of malignancy-related hemoptysis, despite the high rate of post-procedural all-cause mortality due to patient's clinical status and terminal illness.

112287

Teaching Artificial Intelligence in Radiology - Equity, Diversity & Inclusive Principles: A Systematic Review

Rushali Gandhi[1], Sonali Sharma[2], Elsie Nguyen[3], Jackie Cheung[4], Charlotte Yong-Hing[2,5]

[1]Faculty of Medicine and Health Sciences, McGill University, [2]Department of Radiology, Faculty of Medicine, University of British Columbia, [3]Joint Department of Medical Imaging, Toronto General Hospital, University of Toronto, [4]School of Computer Science, McGill University, [5]Diagnostic Imaging, BC Cancer Vancouver

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Artificial intelligence (AI) is rapidly transforming medical imaging and radiology. Incorporating AI into radiology education is essential to prepare trainees for its evolution, but educational strategies must align with the principles of Equity, Diversity, and Inclusion (EDI), ensuring that the learning environment is safe, accessible, and equitable for all.

METHODS: Following the Preferred Reporting Items for Systematic reviews and Meta-Analysis (PRISMA) framework, a systematic review was conducted by searching two databases (Embase and MEDLINE) for articles from inception to October 2024. Two reviewers independently screened the studies and conducted a Risk of Bias assessment using a Mixed Methods Appraisal Tool. Inclusion criteria focused on studies that discuss EDI principles in radiology education. The following data was extracted: aim of study, type of AI and its implementation, EDI principles involved, and ethical use of AI in radiology education.

RESULTS / DISCUSSION: Of 380 studies screened, 6 met the inclusion criteria. Three of the studies mentioned ethical concerns for the use of AI in radiology education. Five studies describe accessibility of AI resources, and one study mentions the possible discrimination and bias of AI. Five studies had a moderate to high risk of bias. This review highlights the lack of EDI consideration when implementing AI into radiology education for trainees. Additionally, we outlined a comprehensive approach to incorporating EDI principles.

CONCLUSION: Ethical and equitable incorporation of AI into radiology education is essential to train competent future radiologists and safely serve a diverse patient population with future research focusing on larger longitudinal studies to study long-term impact.

112288

Characterizing the Preferred Neuroradiology Report Structure Across Physician Specialties

Jimin Lee[1], Paula Alcaide-Leon[2]

[1]University of Toronto, [2]JDMI - Toronto Western Hospital

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To examine how physicians read radiology reports and their preferences for neuroradiology report structures across specialties.

METHODS: The RedCap survey was exempt from quality improvement committee review and was distributed to department heads, who were asked to share it with their teams. Responses were anonymously collected from radiologists and physicians in specialties that read neuroradiology reports across the Greater Toronto Area between March and July 2024. Physicians were asked about their practice settings, satisfaction with current reports, and preferences for report structures in seven studies: MRI Lumbar Spine, Sella, Dementia, Glioma, Brain Metastasis, CTA Head and Neck, and CT Unenhanced Brain. Sample reports in both free-text and structured formats were provided for reference.

RESULTS / DISCUSSION: 89 responses were received across family medicine (4.5%), emergency medicine (16.9%), geriatrics (5.6%), neurology (13.5%), neurosurgery (3.4%), medical oncology (2.2%), radiation oncology (13.5%), and radiology (36%). For each study, physicians across all specialties preferred structured reports over free-text reports. Notably, a large proportion (37/44, 84.1%) preferred structured reports for CTA Head and Neck. MRI Brain for Glioma had mixed preferences, with some preferring free-text (8/24, 33.3%) over structured reports (13/24, 54.2%). Ease in finding information was the most commonly selected reason for physicians' preference in structured reports. Respondents who preferred free-text most commonly cited fewer unnecessary sections as their reason.

CONCLUSION: This study highlights an area of improvement for information organization and standardization in radiology as structured reports were consistently selected over free-text reports. Our study will aid in creating guidelines to optimize radiological reports and enhance inter-specialty communication.

112292

Unveiling the Variability: Histological Heterogeneity in PI-RADS 4 Prostate Cancers

Hazel O'Neill[1], Yilin Zhang[1], Kevin An[2], Sobhan Mardan[3], Miles Mannas[4], Silvia Chang[1]

[1]Department of Radiology, University of British Columbia, [2]Faculty of Medicine, University of British Columbia, [3]Department of Radiology, Vancouver General Hospital, [4]Department of Urological Sciences, University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: This retrospective cohort study aimed to assess the predictive value of prostate MRI in identifying suspicious lesions, later confirmed as clinically significant prostate cancer (CSPCa) histologically. We hypothesize that there is a difference in detection rate of CSPCa between lesions demonstrating outright suspicious MRI features (PIRADS 4) versus lesions assigned PIRADS 4 status due to abnormal contrast enhancement (PIRADS 4(3+1)). This suspicion has arisen previously in the literature; we aimed to produce definitive data using the largest recorded dataset available.

METHODS: Patients who underwent prostate MRI from May 2020 to February 2023 showing a suspicious lesion assigned a PIRADS score of 4 or of 3 and upgraded to PIRADS 4(3+1), and underwent biopsy were included. Analysis of corresponding clinical records was performed.

Outcomes:

- Presence of CSPCa in PIRADS 4 versus PIRADS 4(3+1) cohorts.
- Correlation between clinical factors and the presence of CSPCa.

RESULTS / DISCUSSION: 217 patients were included. Detection rate for CSPCa was significantly higher for the PIRADS 4 group (42%) versus the PIRADS 4(3+1) group (25%) (p value <0.05). Further analysis demonstrated the impact of clinical factors on predicting positivity for CSPCa in the PIRADS 4(3+1) group.

CONCLUSION: The detection rate of CSPCa is significantly lower for PIRADS 4(3+1) versus PIRADS 4 lesions. This study substantiates the theory that the PIRADS 4 category is heterogenous and that further stratification of patients into PIARDS 4(3+1) and PIRADS 4 groups is merited. This additional stratification could offer Canadian radiologists a novel strategy for prioritizing patients for biopsy where service provision is limited

112303

Bibliometric Analysis of Publications from the Department of Radiology, Radiation Oncology, and Nuclear Medicine at a Canadian University between 2019-2023

Simone Mayrand-Thibert, Carl Chartrand-Lefebvre, An Tang, Eve-Lyne Marchand

Université de Montréal

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Bibliometrics, the statistical analysis of publications, provides tools to measure research productivity and impact using standardized methods. This study aimed to document and analyze the scientific output of the Department of Radiology, Radiation Oncology, and Nuclear Medicine (DRROMN) at the [Institution name withheld to preserve blinding] from 2019 to 2023.

METHODS: A retrospective study was conducted. Data were collected from three online platforms: Scopus, Web of Science, and Google Scholar. Data was retrieved for all department members, including publication count, h-index, citation number, article types, and open access status. Key journals and their impact factors were identified with the Journal Citation Reports. Descriptive statistics were reported. We explored the association between bibliometric indicators and individual characteristics, such as age, gender, and specialty.

RESULTS / DISCUSSION: Between 2019 and 2023, 59% of DRROMN members had at least one publication. The median h-index for authors who published was 9. The type of articles published remained stable over time, with 54% being original research. Open-access publications increased from 39% in 2019 to 47% in 2023. No significant gender-related differences were found in overall productivity metrics. However, women were underrepresented in the top 5% of researchers with the highest h-index, number of publications and citations.

CONCLUSION: This bibliometric analysis provides a detailed overview of DRROMN's academic output. These results highlight the importance of consistent bibliographic practices and suggest further exploration of gender disparities in research productivity.

112305

Positive Finding Rates and Indications of CTA Arch-to-Vertex Exams Requested by the SPH Emergency Department

Ryan Dragoman[1], Nikola Pupic[2], Colin Jamieson[2]

[1]UBC, [2]UBC Medical School

PRESENTER'S LEVEL OF TRAINING: Resident

BACKGROUND / OBJECTIVE: Given the increasing utilization of neuroimaging in emergency departments, CTA arch-to-vertex has become a fast-growing modality frequently requested to the radiology department. However, non-indicated CTA arch-to-vertex exams are not without consequence; they result in unnecessary radiation exposure, can lead to contrast-related reactions, propagate the cascade of investigations towards incidental asymptomatic findings, and contribute to growing healthcare costs. To better understand the role CTA arch-to-vertex studies play in relation to the rate of clinically significant events and scan positivity, we conducted a retrospective study on CTA arch-to-vertex exams ordered alongside non-contrast head CTs from the St. Paul's Hospital (Vancouver, BC) department.

METHODS: All CT head NC and CTA arch-to-vertex exams requested from the SPH emergency department from 2010 to 2023 were counted. Retrospective analysis over a three month sample period on all CTA arch-to-vertex exams ordered by the ED in conjunction with a non-contrast head CT (ranging from August to October 2024, n = 244) with indications and positive acute findings broadly categorized and quantified.

RESULTS / DISCUSSION: Quantification of exams ordered from 2010 to 2023 revealed a sharp increase (approximately 500% increase over the previous decade) in the number of requests with a steady reduction in rate of acute findings present. Studies ordered as STAT (compared to Urgent) were completed faster and demonstrate a higher positivity rate for acute findings. Furthermore, a large proportion of completed non-indicated CTA studies yielded ambiguous results, that would have been present on initial non-contrast head CT examination.

CONCLUSION: There has been consistent increasing utilization of CTA arch-to-vertex exams requested by the SPH emergency department over the last 14 years, with a trend of decreasing positive rate for acute findings. There is large variation in ordering practice between individual physicians with respect to CT head noncontrast to CT angiogram arch-to-vertex ratios

110639

Outcomes of Screening with Digital Breast Tomosynthesis vs Digital Mammography in a Biennial Organized Screening Program

Sadie Burns, Petrina Causer, Gilbert Chow

[1]NYGH

PRESENTER'S LEVEL OF TRAINING: Undergraduate Science Student

OBJECTIVE: Compare performance of digital breast tomosynthesis (DBT) to digital mammography (DM) in an organized biennial screening program.

METHODS: Retrospective analysis of 5 years of DM (March 2014-March 2019) and DBT (May 2019-May 2024) for average risk women. Recall rates (RCR), cancer detection rates/1000 women (CDR) and positive predictive value for recalls (PPV1) were calculated. Data collected for the breast cancers included patient, imaging and pathology details. Cancer prognostic factors were compared between the two groups.

RESULTS / DISCUSSION: 102 cancers in 15,180 DM and 121 cancers in 14,429 DBT examinations were diagnosed. CDR and PPV1 were higher for DBT than DM (CDR: 8.3 vs 6.7/1000, p=0.097; PPV1: 7.8% vs 6.4%, p=0.12, respectively), although not statistically significant. RCR was similar (DBT: 10.7% vs DM: 10.5%, p=0.49). Mean invasive cancer (IC) size was similar for DBT and DM (1.56 cm vs 1.54 cm, respectively, p=0.9). Mean age of DM cancer patients was slightly younger than DBT (65.5 years vs 67.4 years respectively, p=0.06). DBT showed a significantly lower lymph node positive (LN+) rate vs DM (8% (7/83) vs 22% (18/81), p=0.014) and lower rates of the following vs DM: IC (69% (83/120) vs 79% (81/102), p=0.083); advanced cancer (AC) (29% (24/83) vs 36% (29/81), p=0.34) respectively, although not statistically significant. AC rate diagnosed within the recommended 24-month screening interval was significantly lower for DBT than DM (8% (7/83) vs 26% (21/81) respectively, p=0.0029).

CONCLUSION: DBT improved CDR, PPV1, LN+ and AC rates without affecting RCR compared with DM at a single institution screening average risk women.

111381

Evaluating Visual Diagnostic Capabilities of Multimodal Models on Breast Imaging Reporting and Data System Images

Sonali Sharma[1], Charlotte Yong-Hing[2]

[1]Department of Radiology, University of British Columbia, [2]Diagnostic Imaging, BC Cancer

PRESENTER'S LEVEL OF TRAINING: Graduate Student

OBJECTIVE: As large language models (LLMs) become more accessible, patients may increasingly rely on them for medical interpretation, despite limitations and risks. With multimodal capabilities and continuous training, LLMs can now process images, but their ability to diagnose BI-RADS categories for breast cancer risk and density remains unclear. This study evaluates ChatGPT and Perplexity's accuracy in classifying BI-RADS categories to mammograms.

METHODS: We uploaded 100 mammogram images, that were classified into BI-RADS risk assessment and density ratings into both ChatGPT4 and Perplexity with specific prompts to determine their classification accuracy. The prompts were crafted to guide the LLMs to ascertain the appropriate BI-RADS category and breast density from the mammographic descriptions provided.

RESULTS / DISCUSSION: The analysis revealed that Perplexity generally exhibited higher correct classification rates across the BI-RADS categories. For risk assessment, while Perplexity was more accurate in lower-risk categories, ChatGPT4 displayed enhanced performance in higher-risk categories. Notably, in the highest risk category (BI-RADS 5), ChatGPT4 achieved a 40% accuracy rate compared to Perplexity's 85%. In breast density classification, ChatGPT4 showed greater accuracy in categorizing denser breast tissues.

CONCLUSION: The study demonstrated a significant variation in the accuracy of ChatGPT4 and Perplexity when classifying BI-RADS categories and breast densities. Although Perplexity performed commendably across various classifications, the difference in accuracy between the two models highlights the limitations of LLMs in medical diagnostic applications. As patients increasingly consider using LLMs for a "second opinion" on their medical imaging, it is crucial to communicate to them that these technologies are not yet fully reliable for standalone use.

111538

Comparing Artificial Intelligence and Traditional Regression Models in Lung Cancer Risk Prediction

Sierra Leonard[1], Meet Patel[1], Zili Zhou[1], Ha Le[1], Prosanta Mondal[1], Scott Adams[1,2]

[1]University of Saskatchewan, College of Medicine, [2]Royal University Hospital, Department of Medical Imaging

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Accurately identifying individuals at high risk of lung cancer is critical to enhance the efficiency of screening with low-dose CT (LDCT). We sought to compare the performance of traditional regression models and artificial intelligence (AI)-based models in predicting future lung cancer risk, hypothesizing that AI models will outperform traditional regression models.

METHODS: A systematic review and meta-analysis were conducted with reporting according to PRISMA guidelines. We searched MEDLINE, Embase, Scopus, and CINAHL databases for studies reporting the performance of AI or traditional regression models for predicting lung cancer risk. Two researchers screened articles, and a third researcher resolved conflicts. Model characteristics and predictive performance metrics were extracted. Quality of studies was assessed using the PROBAST tool. A meta-analysis assessed discrimination performance, based on area under the receiver operating characteristic curve (AUC). REB approval was not required.

RESULTS / DISCUSSION: One-hundred-forty studies met inclusion criteria including 185 traditional and 64 AI-based models. Of these, 16 AI models and 65 traditional models have been externally validated. The pooled AUC of external validations of AI models was 0.82 (95% confidence interval [CI], 0.80-0.85), while the pooled AUC for traditional models was 0.73 (95% CI, 0.72-0.74). In a subgroup analysis, AI models including LDCT had a pooled AUC of 0.85 (95% CI, 0.82-0.88). Overall risk of bias was high for both AI and traditional model validations.

CONCLUSION: AI-based models, particularly those using imaging data, show promise for improving lung cancer risk prediction over traditional regression models. Future research should focus on prospective validation of AI models in diverse populations.

111745

Orbital Imaging Parameters As Predictors Of Thyroid Eye Disease: A Case Control Retrospective Study

Muhammad Danish Sarfraz[1], Sobhan Mardan[1], Jason Chang[2], Mattew Stewart[2], Daniel Lyndon[1], Savvas Nicolaou[1]

[1]Vancouver General Hospital, [2]University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: Imaging plays an important role in assessing severity of the thyroid eye disease (TED) and directing management. Our study compared several orbital parameters on computed tomography in order to suggest possible thresholds that can help in prediction of TED.

METHODS: We retrospectively collected data on orbital characteristics of TED cases and matched controls including extraocular muscles volumes [inferior rectus (IR), superior rectus (SR), lateral rectus (LR), medial rectus (MR)], lacrimal gland (LG) volumes, and proptosis measurements. Area under curve (AUC) and diagnostic performance metrics were reported.

RESULTS / DISCUSSION: 50 patients with TED were matched by 50 controls. The population under study consisted of 60 (60%) females and 40 (40%) males with a median age of 51 (IQR:40,57) years. Those with TED had higher interzygomatic distance compared to the matched control by median of 4.1 mm (95% CI: 3.0 to 5.3, p-value <0.001). AUCs for detecting TED with 95% CI were 0.90 (0.85-0.96) for IR, 0.74 (0.64-0.84) for SR, 0.79 (0.70-0.89) for LR, 0.85 (0.77-0.92) for MR and 0.98 (0.92-1.00) for LG. For MR, a threshold of above 0.62 cm3 had accuracy of 81% (73%-88%), for IR 0.43 cm3 had accuracy of 82% (75%-89%), for SR 0.50 cm3 had accuracy of 70% (61%-79%), for LR 0.58 cm3 had accuracy of 75% (66%-83%), and for LG 0.22 cm3 had accuracy of 98% (94%-100%).

CONCLUSION: IR showed similar accuracy to MR but at lower volumes and LG had the highest accuracy. This may suggest that IR and LG volumes could be used as early predictors of TED.

111979

Optimizing Musculoskeletal Imaging Referrals: Making Wise Choices a Knee-Jerk Reaction

Natalia Gorelik[1], Courtney Green[2], Candyce Hamel[3], Anne-Marie LeBlanc[4], Bheeshma Ravi[5], Danielle R. Frost[6], Hugue Ouellette[7], Kuan-chin Jean Chen[8], Lisa Liang[9], Nitai Gelber[10], Reza Mirza[11], Kawan Rakhra[8]

[1]McGill University, [2]Canadian Association of Radiologists, [3]Public Health Agency of Canada, [4]River Valley Medical Clinic, [5]University of Toronto, [6]University of Saskatchewan, [7]University of British Columbia, [8]University of Ottawa, [9]South Oakville Medical Group, [10]Toronto Western Family Health Team, [11]McMaster University

PRESENTER'S LEVEL OF TRAINING: Radiologist

OBJECTIVE: To develop Choosing Wisely Canada (CWC) recommendations for musculoskeletal (MSK) imaging, informed by the 2024 Canadian Association of Radiologists (CAR) Musculoskeletal System Diagnostic Imaging Referral Guideline.

METHODS: A Steering Committee of clinical MSK experts was formed to guide the development of recommendations aimed at reducing unnecessary imaging in Canada. Using a two-round Delphi method, the committee selected the top three scenarios deemed most impactful for addressing overuse from the CAR MSK referral guidelines. Recommendations based on these scenarios were then drafted in the CWC format.

RESULTS / DISCUSSION: The three recommendations developed are:1. Don't order MRI without first considering ultrasound for the assessment of rotator cuff pathology and bursitis.2. Don't order MRI of the hip just based on x-ray features of femoroacetabular impingement unless there are clinical signs and symptoms of joint impingement.3. Don't order MRI of the hip or knee when x-ray demonstrates greater than mild osteoarthritis, unless recommended by a musculoskeletal specialist.The primary target audience for these recommendations are healthcare professionals involved in the referral process to medical imaging, as their choices significantly influence the appropriate use of imaging resources.

CONCLUSION: The CAR is updating its diagnostic imaging referral guidelines, and the MSK imaging guideline revision is now complete. In collaboration with CWC, a knowledge translation campaign will support the dissemination of the guideline's recommendations. This project strengthens the relationship between CAR and CWC and establishes a method for developing CWC imaging recommendations, which can be applied across subspecialties as additional CAR referral guidelines are published.

112002

Quantitative Whole-body MRI Assessment of Muscle Diffusion and Fat Infiltration in Inflammatory Myopathy and Oculopharyngeal Muscular Dystrophy

Sono Khan[1,2], Fadi Esttaifo[1,2], Gerd Melkus[2,3,4,5], Kaitlynn Meier-Ross[1,2], Ian Smith[2,6], Jodi Warman-Chardon[1,2,6,7], Marcos Sampaio[2,3,4,6]

[1]Faculty of Medicine, University of Ottawa, [2]Ottawa Hospital Research Institute, [3]Department of Radiology, Radiation Oncology and Medical Physics, University of Ottawa, [4]Department of Surgery - Division of Orthopedic Surgery, University of Ottawa, [5]Department of Physics, Carleton University, [6]Eric Poulin Centre for Neuromuscular Disease, The Ottawa Hospital, [7]Department of Medicine - Division of Neurology, University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Whole-body MRI (WBMRI) is emerging as a promising muscle disease biomarker. We used WBMRI to compare relationships between fat fraction (FF), apparent diffusion coefficient (ADC), and intravoxel incoherent motion (IVIM) metrics to assess their ability to differentiate oculopharyngeal muscular dystrophy (OPMD) from inflammatory myopathies (IM) and uncover disease-specific patterns of muscle pathology.

METHODS: In this REB-approved single-centre study, 26 patients (13 OPMD, 13 IM) underwent WBMRI using 2-point Dixon-based imaging for FF quantification, diffusion-weighted imaging (DWI) for ADC, and mid-thigh IVIM sequences to measure microvascular diffusivity (D), perfusion (f), and pseudo-diffusion (D*) coefficients. Using the ITK-SNAP software, 97 muscles were manually segmented in Dixon and DWI, with 24 mid-thigh muscles in IVIM for all patients. FF, ADC, and IVIM metrics were extracted and evaluated between OPMD and IM.

RESULTS / DISCUSSION: OPMD exhibited more significant negative ADC-FF correlations (52/97 muscles) than IM (41/97), particularly in the shoulder, lumbar, and calf levels. The inverse correlation between FF and ADC was stronger in OPMD ($r=-0.55$, $p<0.0001$) than IM ($r=-0.42$, $p<0.0001$), suggesting more pronounced fat infiltration and diffusion restriction in OPMD. IVIM analysis revealed disease-specific microvascular changes in f and D*, with f correlating positively with FF in IM ($r=0.40$, $p<0.0001$) but not in OPMD ($r=0.03$, $p>0.05$). Muscle-specific differences were identified, with 17 muscles differing significantly in FF and 11 in ADC between OPMD and IM ($p<0.05$).

CONCLUSION: WBMRI-derived metrics such as FF, ADC, and IVIM reveal distinct patterns of muscle degeneration in OPMD and IM, providing valuable biomarkers for disease quantification and differentiation.

112011

Evaluation of Imaging Research Adherence to the STARD 2015 Reporting Guideline: Update 9 Years After Implementation and Baseline Assessment

Mohammed Kashif Al-Ghita[1], Haben Dawit[2], Sakib Kazi[3], Robert Adamo[1], Nabil Islam[1], Sebastian Karpinski[1], Jean-Paul Salameh[3], Eric Lam[4], Hoda Osman[1], Danyaal Ansari[1], Daniël Korevaar[5], Patrick Bossuyt[6], Matthew McInnes[3]

[1]University of Ottawa, [2]University of Toronto, [3]The Ottawa Hospital, [4]Ottawa Hospital Research Institute, [5]Amsterdam University Medical Centers, [6]University of Amsterdam

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: The objective of this study was to evaluate the adherence of diagnostic accuracy studies recently published in imaging journals to STARD 2015 to assess for changes in the level of adherence relative to the baseline study.

METHODS: Diagnostic accuracy studies from a select group of imaging journals were assessed over the previous ~12 months; the timespan was modulated to achieve a sample size of 100-150 included studies. Overall and item-specific adherence to STARD 2015 was evaluated, in addition to associations with journal, journal STARD adoption status, impact factor, country, imaging modality, study design, and subspecialty area. Formal comparison to the baseline study from 2016 was also performed.

RESULTS / DISCUSSION: Of the 126 included studies, average adherence to STARD 2015 was 61% (18.3/30 items; SD=3.1), improved compared to the baseline study (55%; 16.6/30 items; SD=2.2; $p<0.0001$). Infrequently reported items (reported by <33% of studies) were for example: study setting and location, reference standard details, how missing and indeterminate data were handled, intended sample size, adverse events, and protocol details. Studies published in higher impact factor journals reported more items than those in lower impact factor journals (20.6 vs. 18.4 items, p-value <0.0001). There was no correlation between the other study or journal characteristics and reporting completeness.

CONCLUSION: Recently published diagnostic accuracy studies showed an improvement in STARD 2015 adherence compared to studies published in 2016, but is still not optimal. The small change in the completeness of reporting of STARD items over 9 years indicates that the current knowledge translation strategies employed are insufficient.

112020

Near or Far: Assessing the Environmental Savings from Local Scanning at Rural Ultrasound Clinics

Hasan Jamil[1], Kate Hanneman[2], David Leswick[1]

[1]University of Saskatchewan, [2]University of Toronto

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To assess the carbon emissions saved from reduced patient commute by scanning patients at local rural ultrasound clinics.

METHODS: A survey was printed and distributed to the patients of two rural ultrasound clinics over the course of one month. Questions assessed patients' commute method and distance to the clinic and what the commute would have been to their nearest urban centre instead. Emissions were estimated using the National Resources Canada calculator. A question regarding potential bundling of other activities on trips for imaging at larger centres was included.

RESULTS / DISCUSSION: 301 patients responded (response rate 38%) across both sites; 52 responses were excluded due to incorrect formatting or unclear responses. The average patient saved 184 km of return-trip travel by being scanned in a rural centre instead of their nearest urban centre, approximately 42 kg of CO2 emissions saved per visit. Extrapolated to one year, these two small rural ultrasound clinics alone saved approximately 1.9 million km of driving and 384 tons of CO2 emissions, equivalent to the emissions of 90 Canadian homes' energy for one year. Respondents indicated that 73% of potential trips to the larger centres may have been bundled with other activities, but even excluding these potentially bundled trips would save at least 104 tons of CO2 annually.

CONCLUSION: Scanning patients locally at rural ultrasound clinics can significantly reduce greenhouse gas emissions and save patients time and money. Canada's large rural population makes patient travel and local provision of services important factors to consider in making radiology a more sustainable field.

112027

Hepatocellular Carcinoma Risk Stratification Using a Non-contrast Abbreviated MRI-based Deep Learning Model in Patients with Compensated Advanced Chronic Liver Disease

Jérémy Dana[1], David Nassim[1], Benjamin Rehany[1], Daniel Di Giovanni[1], Evan McNabb[2], Véronique Fortier[1], Alexandre Bone[3], Nicolas Padoy[4], Rita Zakarian[1], Akiyo Takada[1], Amine Benmassaoud[1], An Tang[5], Caroline Reinhold[1]

[1]McGill University, [2]McGill University Health Centre, [3]Guerbet, [4]IHU Strasbourg, [5]Université de Montréal

PRESENTER'S LEVEL OF TRAINING: Radiologist

OBJECTIVE: To develop an automated multi-etiology deep learning (DL) model for hepatocellular carcinoma (HCC) risk stratification based on a non-contrast abbreviated MRI in patients with compensated advanced chronic liver disease (cACLD).

METHODS: This retrospective single-centre study consecutively included patients with non-viral or controlled/healed B/C viral cACLD who underwent complete characterization liver MRI in a screening setting (2012-2023), then categorized into two groups: cases (early-stage -BCLC 0/A- HCC) and a control group (no HCC at inclusion and after 1-year imaging follow-up). Non-contrast abbreviated MRI (T2-weighted imaging fat-suppressed, T1-weighted imaging in/out-of-phase and Diffusion-weighted imaging with ADC map) was simulated, the sequences automatically co-registered, and slices containing HCC excluded by a fellowship-trained radiologist. A DenseNet121 model was trained/validated and tested on an independent dataset randomly split and stratified by potential confounders. The endpoint was the model performance for HCC risk stratification assessed by performance metrics.

RESULTS / DISCUSSION: The training/validation set included 244 patients and the testing set included 27 patients (18 men) with a median age of 67 years (IQR 58-72), adequately balanced between cases (14) and controls (13). The model achieved a test accuracy of 0.74 (95CI 0.54-0.89), sensitivity of 0.57 (95CI 0.29-0.82), specificity of 0.92 (95CI 0.64-1.00), and an AUC of 0.77 (95CI 0.57-0.91). A patient predicted at high risk of HCC development by the model had an odds ratio of HCC development reaching 16.00 (95CI 1.61-159.32; p=0.02).

CONCLUSION: This DL model achieved good diagnostic performances for HCC risk stratification, paving the way for personalized HCC screening programs including abbreviated screening MRI.

112067

Scoring Radiography Collimation: Quantifying Background Impact Using Neural Networks

Viktor Osadsky

Exeter High School

PRESENTER'S LEVEL OF TRAINING: High School Student

OBJECTIVE: X-Ray collimation significantly impacts both radiologist performance and model predictions. Excess or lack of image made by technologist errors are still prevalent in practice where radiographs are made hastily or in high-volume settings. This study aims to develop a scoring mechanism capable of identifying and quantifying these features, and perform image-manipulation in case of excessive background. It provides enhanced images to radiologists and feedback to technologists on improving collimation for future studies.

METHODS: A function for superficially annotating images was developed, generating masks to be passed through a model. The model used a combination of 1,448 images from the FracAtlas dataset and 4,821 images from Stanford's MURA dataset, split into 70% training, 22.5% testing, and 7.5% validation. A U-Net model with an EfficientNetB4 base provided predicted masks for a background collimation-scoring equation. To identify over-crop conditions, the segmentation output corrected excessive background on the RSNA Bone-Age dataset, using the same split. From these images, 50% were randomly cropped in a range of 50px to simulate poor collimation, which were fed into a ResNet50 model. The output of this pipeline provides technologists with suggestions through the collimation-score and over-crop identification.

RESULTS / DISCUSSION: Quantitative analysis of the U-Net model on the test set revealed a dice coefficient of 0.94, IoU of 0.7963, precision of 0.7485, and recall of 0.9308 on the test-set. The ResNet over-crop model achieved an accuracy of 0.8465, AUC of 0.9094, and loss of 0.3819.

CONCLUSION: The analysis highlighted the model's strengths and weaknesses, establishing it as a capable system for collimation scoring.

112130

Code-Free Deep Learning in Classifying Radiographic Images for Knee Osteoarthritis and Pediatric Pneumonia

Andrew Farah, Peter Joseph Mounsef, Matthew Bilson, Wassim Elmasry, James Tsui, Natalia Gorelik

McGill University

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: To evaluate the feasibility of using code-free deep learning (CFDL) to classify radiographic images, by (1) comparing its performance against state-of-the-art (SOTA) models for grading knee osteoarthritis and (2) assessing its accuracy in distinguishing between types of pediatric pneumonia.

METHODS: Medical students with no prior programming experience utilized CFDL to develop models for classifying knee osteoarthritis (KOA) severity and pediatric pneumonia subtypes. The public KOA dataset, obtained from the NIH, includes 9,786 radiographic images annotated with Kellgren-Lawrence (K-L) severity scores (2,578 minimal, 1,286 moderate, 295 severe). The public pneumonia dataset, sourced from Guangzhou Women and Children's Medical Center, consists of pediatric 5,856 chest radiographs labeled as normal (1,582), viral (1,494), or bacterial (2,780). Google Cloud AutoML Vertex AI, a plug-and-play platform that automates model building and hyperparameter tuning, was used to develop classification models. The datasets were split into training, validation, and testing sets (70:10:20 for KOA as per SOTA, and 80:10:10 for pneumonia). Performance was evaluated using accuracy from the test set. For KOA, results were compared to SOTA models, while for pediatric pneumonia, only the accuracy was reported, as no direct comparisons were available.

RESULTS / DISCUSSION: Vertex AI achieved an accuracy of 86.3%, compared to the reported SOTA performance of 89.0% in classifying KOA images. For pediatric pneumonia, the model reached an accuracy of 83.2%.

CONCLUSION: Vertex AI performed comparably to SOTA for the classification of KOA severity and better than chance regarding pediatric pneumonia. CFDL democratizes AI, enabling clinicians without programming experience to achieve near-expert performance.

112159

Prioritization of Pneumothorax Diagnosis in Management: Automating a Severity-Based Urgency List System with Deep Learning

Viktor Osadsky

Exeter High School

PRESENTER'S LEVEL OF TRAINING: High School Student

OBJECTIVE: Pneumothorax poses a grave risk to a patient's life if not promptly addressed, and may not be immediately clinically apparent. Radiograph evaluation often fails to account for the urgency of an unseen pneumothorax, placing cases into an interpretation list based on time of acquisition rather than pathology. This study aimed to prioritize urgent pneumothorax cases using an automated, timely system.

METHODS: A machine learning pipeline was developed to highlight pneumothorax, quantify case severity, and return urgency-list outputs for prioritization. The SIIM Pneumothorax-Segmentation dataset was used, containing 10675 RLE annotated chest x-rays including 22% pneumothorax patients. The dataset was split into 95% training, 4% testing, and 1% validation. U-Net with primary EfficientNetB4 layers was trained to highlight pneumothorax in the pleural cavity; a concept of urgency was established by creating a severity score through a volume measurement of every predicted mask. These results were organized by severity.

RESULTS / DISCUSSION: The model reached a 0.8038 dice coefficient accuracy, 0.9305 IoU, 0.7477 precision, 0.8 recall, and 0.812 anomaly detection accuracy. When graphing these predicted severity scores with true severities taken from the test dataset, the calculated R^2 value was 0.9023. The pipeline was efficient, taking just 15 seconds to annotate and organize 50 cases by severity.

CONCLUSION: Metrics prove the model's ability to create well-defined masks, while enforcing its accuracy in severity scoring. 90.23% of the variance in the predicted severity scores are explained by the true severity scores. Thus, this pipeline can decrease the harmful effects of delayed treatment of pneumothorax in healthcare with life-saving potential.

112176

AI's Impact on Mammographic Positioning Quality in a Low- and Middle-income Country: A Natural Experiment

Georgia Spear[1], Mo Abdolell[2], Victoria Mango[3], Erica Pollack[4], Daniel Mollura[5], Jamie Surratt[6], Stephen Surratt[6], Manisha Dindial[6], Vidyanand Hemraj[7], Samantha Singh[7], Elle Spear[8]

[1]Endeavor Health Medical Group, [2]Dalhousie University, [3]Memorial Sloan Kettering Cancer Center, [4]University of Colorado School of Medicine, [5]RAD-AID International, [6]RAD-AID Guyana, [7]Georgetown Public Hospital Corporation, [8]College of the Holy Cross

PRESENTER'S LEVEL OF TRAINING: Radiologist

OBJECTIVE: To evaluate the impact of artificial intelligence (AI) on mammographic positioning in a mammography facility in a low- and middle-income country (LMIC).

METHODS: In a retrospective cross-sectional study, AI processed 5,131 mammograms across pre-adoption, post-adoption active use, and post-adoption inactive use periods in the LMIC, and 32,965 mammograms in the pre-adoption period in a high-income country (HIC). Five common unmet positioning criteria rates (UPCRs) were compared pre and post AI adoption in the LMIC facility, and between the LMIC and HIC facilities prior to AI software adoption (baseline). Two-proportion z-test with Bonferroni correction was used to compare rates across periods in the LMIC facility, and to compare baseline rates across the LMIC and HIC facilities ($\alpha = 0.05$). Interviews with RAD-AID radiologists provided insights into their AI adoption experience.

RESULTS / DISCUSSION: AI integration in the LMIC facility improved medical imaging technologists performance with relative percentage difference in UPCRs dropping 20-44% (<0.05). Baseline UPCRs in the LMIC were comparable to ($p>0.05$) or exceeded that of the HIC ($p<0.05$). Communication between radiologists and MITs was facilitated and objective training feedback provided. IT network and cloud interruptions in the LMIC disrupted AI software availability and aligned with the loss of positioning improvements made with initial AI adoption.

CONCLUSION: This study highlights the potential of AI in LMICs to help improve mammographic positioning as well as its susceptibility to unreliable IT/cloud access, and shows LMIC facility baseline positioning rates may be comparable to those of HIC facilities.

112179

Multicentre Study of Mammography Positioning Quality During the COVID-19 Pandemic: Resilience and Variability

Georgia Spear[1], Laurie Margolies[2], Jennifer Payne[3], Sian Iles[4], Jean Seely[5], Nisha Sharma[6], Sylvia Heywang-Köbrunner[7], Toni Vomweg[8], Mo Abdolell[3]

[1]Endeavor Health Medical Group, [2]Mount Sinai Health System, [3]Dalhousie University, [4]Nova Scotia Health, [5]The Ottawa Hospital, [6]Leeds Teaching Hospital NHS Trust, [7]Referenzzentrum Mammographie München, [8]Radiologisches Institut Dr. von Essen Köblenz

PRESENTER'S LEVEL OF TRAINING: Radiologist

OBJECTIVE: This multicentre study evaluated the impact of the COVID-19 pandemic on mammography positioning quality and the relative variability of unmet positioning criteria rates (UPCRs) by week and by mammography unit (MU) across seven breast screening services (BSSs) in North America and Europe.

METHODS: 249,817 screening mammograms from seven BSSs, collected between December 1, 2019, and February 28, 2021, were included. Nineteen positioning and compression criteria were assessed for all mammograms using AI algorithms. UPCRs were evaluated using a subset of 50,000 mammograms taken 10 weeks prior to March 15, 2020, and 10 weeks after services resumed following the first wave of COVID-19; differences in UPCRs in the two periods were assessed using Chi-square tests with Bonferroni adjustments applied to correct for multiple testing. Relative variability of UPCRs was assessed using the Coefficient of Variation (CV) within BSSs computed for positioning criteria by week, and for positioning criteria by MU.

RESULTS / DISCUSSION: There were 0-6 statistically significant changes in the UPCRs before and after the initial COVID-19 wave within BSSs (p-values < 0.05). Wide-ranging CVs were observed in UPCRs across BSSs. CC/MLO posterior tissues missing and MLO cutoff error rates have the greatest weekly CVs across BSSs. CC nipple not in profile, MLO pec shape, and MLO cut off have the greatest MU CVs across BSSs.

CONCLUSION: Despite the disruptions caused by the COVID-19 pandemic, mammography positioning quality within the BSSs remained consistent with pre-pandemic levels. But, the relative variability in UPCRs, both weekly and by MU, ranged widely across BSSs.

112183

Fluoroscopy Guided Biopsy of Lung Lesions: Diagnostic Sampling and Pneumothorax Rate for Targets Smaller Versus Larger than 1 cm

Arwa Almutairi, Heli Rueda Chaparro, Sonja Kandel, Patrik Rogalla

Joint Department of Medical Imaging, Toronto General Hospital

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: Objective:To evaluate the difference in CT-fluoroscopy guided core biopsies of smaller versus larger than 1 cm targets with respect to the diagnostic sampling and pneumothorax rate.

METHODS: Materials and methods:403 CT-guided percutaneous transthoracic lung biopsies, performed under CT-fluoroscopic guidance by two radiologists between January 2018 and August 2024 were analyzed. The final pathology, the rate of pneumothorax as defined on the one-hour post-biopsy X-ray, and patient risk factors were compared between patients with pulmonary nodules smaller than 1 cm (group I) and nodules larger than 1 cm (group 2) using logistic regression.

RESULTS / DISCUSSION: Results:The final pathology report of 377/403 biopsies (93.5%) indicated adequate material for a confident diagnosis. The successful diagnostic sampling rates in group I and group II were 90.1% and 94.7% respectively (p=0.103). The overall pneumothorax rate was 16.4%, with 15.9% in group I and 16.5% (p=0.893). Emphysema in the lung tissue traversed with the biopsy needle (HU ≤ -860) was the most important risk factor for pneumothorax with an odd ratio of 3.79 (95% CI, 2.14-6.74; p<0.001). Significant differences in pneumothorax rates were observed with increased needle depth sizes at 1-, 2-, 3-, 4- and 5-cm cut-offs with the greatest significance seen at 1 cm depth (odds ratio, 3.79 (95% CI, 1.87-7.69; p<0.001).

CONCLUSION: Conclusion:Core biopsy using CT-fluoroscopy of lesions smaller than 1 cm does not impact the diagnostic sampling or pneumothorax rate. Emphysema remains the most important risk factor for pneumothorax both for smaller and larger than 1 cm lung targets.

112237

Comparing the Added Value of Supplemental Breast MRI vs Ultrasound in Women with a Personal History of Breast Cancer (PHBC) and Dense Breast Tissue

Ananya Toal, Jean M Seely, Fatma Eldehemi, Mary Beth Bissell

University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Comparing the effectiveness of supplemental breast MRI vs. ultrasound(US) in detecting breast cancers in women 30-69 years with personal history of breast cancer(PHBC) and dense breasts, after normal surveillance.

METHODS: This REB approved retrospective study included women 30-69 years with PHBC and ACR BI-RADS categories C or D, with biennial supplemental screening with MRI or US between 01/2020 and 01/2024, after normal annual mammography. Electronic health records and PACS were reviewed to determine cancer detection rates(CDR), BI-RADS categories, and positive predictive values(PPV3) for biopsy. Chi-square tests were used to compare categorical variables with significance set p<0.05. In women with multiple screens, analysis was done per screen.

RESULTS / DISCUSSION: 1,193 women(mean age 50.8 years +/-11.7) were included, 1381 screens were done with MRI, 330 with US. Incremental CDR in the MRI group was 20/1381(14.5/1000) breast cancers detected, compared to 4/330(12/1000) in the US group(p=.743). The MRI group had a PPV3 of 28.6%(20/70 biopsies), while the US group had a PPV3 of 16%(4/25 biopsies)(p=.214). Among MRI-detected cancers, 26.1%(6/20) were DCIS, 55%(11/20) were T1N0M0, 3.7%(1/20) were T1N1M0 and 7.4%(2/20) were T2N0M0. For US-detected cancers, 75%(3/4) were T1N0M0 and 25%(1/4) were T1N1M0; no in situ cancers were detected.

CONCLUSION: In women with PHBC and dense breast tissue, supplemental screening with MRI and US had high incremental CDR of 14.5 and 12/1000, respectively. MRI had a non-statistically significant higher PPV3. These findings support the preferential use of MRI for supplemental screening in this high-risk group, consistent with ACR guidelines.

112242

Value of CT Neck Angiography and the Expanded Denver Criteria in the Assessment of Blunt Cerebrovascular Injury (BCVI) in the Setting of Blunt Cervical Trauma, Assaults, and Strangulation

Niousha Parsa[1], Hala Mahdi[1], Islam Ahmed[2], Edouardo Portela De Oliveira[2]

[1]University of Ottawa Faculty of Medicine, [2]The Ottawa Hospital

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: The objective of this research is to investigate the value and clinical utility of neck CTA and the Expanded Denver Criteria in cases of blunt cervical trauma, assaults, and strangulation.

METHODS: A retrospective review of 748 patients who underwent CTA for blunt cervical trauma, assaults, and strangulation (2013-2023) was conducted. After excluding duplicates, non-applicable cases, and those with incomplete records, 344 reports were analyzed. Inclusion criteria were adults (≥18 years) undergoing CTA for these trauma presentations with complete medical records. Exclusions included penetrating neck injuries, preexisting cerebrovascular abnormalities, and missing CTA in diagnostic workups. Data sources included angiographic images, reports, and clinical presentations.

RESULTS / DISCUSSION: In 344 analyzed CTA reports, 38 cases (11%) revealed BCVI, predominantly grade I (55%) by Biffl classification. Posterior circulation vessels were most affected (71%), followed by internal carotid arteries (36.8%). Eight patients (21%) did not meet Expanded Denver Criteria (EDC) but had BCVIs detected via CTA, with 7 linked to MVCs. MVCs accounted for 68% of BCVIs, followed by falls (29%, 21% high-impact). No BCVI cases were identified in assaults or suicide attempts. Incidence was similar in males (47%) and females (53%), with males showing more falls (33%) than females (25%).

CONCLUSION: MVCs and falls account for most BCVI cases, with high-impact mechanisms like MVCs often bypassing Extended Denver Criteria. Adjusting CTA protocols to include these cases may improve detection. Conversely, limiting CTA use for assaults and strangulations could reduce costs. However, further multi-center studies are needed to validate these findings.

112264

Radiological Assessment Comparing 2-Point DIXON and 6-Point PDFF Fat Fraction Analyses on Full Body Muscle MRI Scans in Patients with Oculopharyngeal Muscular Dystrophy (OPMD)

Fadi Esttaifo[1,2], Sono Khan[1,2], Kaitlynn Meier-Ross[1,2], Gerd Melkus[2,3,4,5], Marcos L. Sampaio[2,3,4,6], Ian C. Smith[2,6], Jodi Warman-Chardon[1,2,6,7]

[1]Faculty of Medicine, University of Ottawa, [2]Ottawa Hospital Research Institute, [3]Department of Radiology, Radiation Oncology and Medical Physics, University of Ottawa, [4]Department of Surgery - Division of Orthopedic Surgery, University of Ottawa, [5]Department of Physics, Carleton University, [6]Eric Poulin Centre for Neuromuscular Disease, The Ottawa Hospital, [7]Department of Medicine - Division of Neurology, University of Ottawa

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: Oculopharyngeal muscular dystrophy (OPMD) is an inherited disorder which features fat infiltration of proximal limb musculature. Studies have shown that quantitative 2-point fat fraction MRI muscle analysis can be utilized to assess disease progression, but none have explored 6-point proton density fat fraction (PDFF) in OPMD patients. This study aims to compare muscle fat fractions (FF) obtained using the 2-point DIXON (2ptFF) and a newly implemented 6-point PDFF (6ptFF) MRI sequences in OPMD patients.

METHODS: 2ptFF and 6ptFF analyses were conducted on 15 OPMD patients, each imaged with a full body axial muscle MRI scan. 97 muscles were cross-sectionally segmented on the in-phase MRI images using ITK-SNAP. FF maps were reconstructed and FF values were extracted from the overlaid segmentation masks. Analyses were conducted comparing the 2ptFF and 6ptFF values.

RESULTS / DISCUSSION: The mean difference between 6ptFF and 2ptFF values was 0.028, with 6ptFF being lower. 2ptFF was significantly higher than 6ptFF for FFs in the mid-ranges, with the peak difference seen when FF was 30% by 6ptFF vs 45% by 2ptFF. These differences between the two FF values may be a result of relaxation times.

CONCLUSION: Differences between 2ptFF and 6ptFF may be helpful for OPMD assessments at different disease stages. At earlier stages with lower fat infiltration, 2ptFF measures might be more sensitive, aiding in diagnosis; whereas, 6ptFF could provide more accurate data on disease progression and muscle changes. Additionally, future work incorporating clinical data in relation to FF and examining longitudinal relationships will improve diagnostic and prognostic utility of FF MRI.

112276

mDixon-Quant Imaging for Bone Mineral Density Quantification on Adolescents Living with Obesity and Liver Steatosis : An Observational Study of Feasibility, Reproductibility and Correlation with DXA

Camille Letissier, Ramy El-Jalbout, Amélie Damphousse, Léna Ahmarani, Kenza El Ghomani

Sainte Justine

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: To assess the reliability of measuring BMFF and T2* of the lumbar vertebral marrow using mDixon-Quant sequence on adolescents living with obesity and liver steatosis.

METHODS: Prospective observational study on adolescents living with obesity and liver steatosis in which anthropometric measurements were obtained. Participants underwent abdominal mDixon-Quant imaging on 1,5T Philips MRI, MR elastography and DXA. Regions of interest (ROIs) were drawn on central L1 to L4 on fat and T2* maps. Image J was used to measure total visceral fat area (VAT) and total abdominal fat area. Descriptive analyses, Intra-Class correlation coefficient and correlation studies were obtained between anthropometric, adiposity measures and BMFF, T2* on SPSS.

RESULTS / DISCUSSION: 23 adolescents with body mass index (BMI) > 95th percentile were recruited, mean age = 14,7, n = 18 (78%) were boys. BMFF and T2* measurements were successful in 100 % of cases. The intra-operator reproducibility of the BMFF and T2*measurements was excellent (ICC = 0.99 and ICC = 0.99 respectively). The inter-operator ICC was good for BMFF (ICC = 0,89) and moderate for T2* (ICC = 0.66). Only BMFF was inversely correlated with vertebral-BMD (r = -0.67; p = 0.0009). However, T2* measurements showed a positive linear relationship with total body fat-tissue% measured by DXA (r = 0.48; p=0.03) and total fat area (r = 0.45; p = 0.04). No correlation was found between MR liver measurements, BMFF and T2* (r = 0,06 and r = 0,25).

CONCLUSION: mDixon-Quant could be a potential reliable biomarker for bone health assessment in adolescent living with obesity.

112279

Mortality Trends in the Pediatric Population with Congenital Anomalies – A CDC Wonder Database Analysis from the Year 1999 till 2020

Ambreen Zahoor[1], Fayyaz Ahmad[2], Iram Zaheer[3], Muhammad Tayyab Ijaz[4], Nayab Motasim[5], Ambreen Zahoor[1]

[1]Faculty of Health sciences, McMaster University [2]Security Forces Hospital Dammam, [3]Farooq Hospital Lahore, [4]CMH Lahore Medical and Dental College, [5]Hayatabad Medical Complex Peshawar

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: Congenital anomalies are a leading cause of pediatric mortality, yet long-term trends remain underexplored. This study analyzes mortality trends in US from 1999 to 2020 to identify disparities and inform healthcare strategies.

METHODS: Pediatric death data (ages <1 to 14 years) from congenital anomalies between 1999 and 2020 were extracted from the CDC WONDER database using ICD-10 codes Q00-Q99. The data were exported to Microsoft Excel, and age-adjusted mortality rates (AAMRs) per 100,000 population were calculated using Joinpoint regression. Temporal trends were assessed by determining the average annual percent change (AAPC) in AAMRs over the study period.

RESULTS / DISCUSSION: The AAMR for pediatric deaths decreased from 13.3 in 1999 to 9.8 in 2020 (APC: –1.36; 95% CI: 9.5 to 13.9). Males consistently had higher AAMRs than females from 1999 to 2020 (males: 12.1, females: 11.3; 95% CI: 10.1-13.6 and 9.3-12.8, respectively). Non-Hispanic African American children had the highest AAMRs, followed by other racial/ethnic groups. All groups showed a decline from 1999 to 2020, with a brief rise in AAMRs among non-Hispanic Black or African American children from 2014 to 2018, followed by a sharp drop. The South consistently had the highest AAMRs (APC: -1.02), while the Northeast had the lowest throughout the study period (APC -1.83).

CONCLUSION: Pediatric mortality from congenital anomalies decreased significantly from 1999 to 2020, though regional and racial disparities persist, with the highest rates seen in non-Hispanic Black children and the Southern U.S., emphasizing the need for targeted interventions in these groups.

112291

CT-guided Lung Biopsies: Impact of the Operator on Accuracy and Complication Rate

Heli Rueda-Chaparro, Arwa Almutairi, Patrik Rogalla

Joint Department of Medical Imaging, University Health Network, University of Toronto

PRESENTER'S LEVEL OF TRAINING: Fellow

OBJECTIVE: To establish a relationship between the operator's performance and the procedure outcome.

METHODS: The medical electronic chart records of attempted and completed CT-guided lung biopsies from July 2022 to July 2024 were reviewed. The operators were anonymized, and operators with less than 20 procedures within the period were excluded. Procedural complications (pneumothorax, pleural effusions, use of coils or thoracostomy, hemoptysis, pneumomediastinum, death/arrest) were recorded and analysed using ROC-AUC; Krustal-Wallis test followed by Dunn's post-hoc test were applied for pairwise comparisons.

RESULTS / DISCUSSION: 573 CT guided lung biopsies (w:m, 289:284, median age, 70y) were performed. 8 operators were included in the study. The predominant biopsy location and position were the right upper lobe (21.8%, n=125) and prone position (51.7%, n=296). Malignancy, benign entities, non-diagnostic rate, and blood only were 429 (74.8%), 102 (17.8%), 33 (5.7%) and 9 (1.6%). Operator 3 had the highest complication rate (15/27 patients, 55.56%), whereas operator 4 had the lowest rate (20/95 patients, 21.05%), p=0.001. Overall, the most common complication was pneumothorax (22.51%, n=129) followed by hemoptysis (6.28%, n=36). 14 patients (2.44%) required pneumothorax aspiration and 23 (4.01%) required chest tube insertion.

CONCLUSION: Operator experience and technique is associated with procedural success, adequate tissue sample acquisition, and the complication rate.

112294

Principles of Patient-Centred Care in AI-Related Reporting Guidelines

Sierra Leonard[1], Scott J. Adams[1], Florence Doo[2], Chad Hammond[1]

[1]College of Medicine, University of Saskatchewan, [2]School of Medicine, University of Maryland

PRESENTER'S LEVEL OF TRAINING: Medical Student

OBJECTIVE: The integration of artificial intelligence (AI) in radiology has the potential to impact patient-centred care (PCC). Various guidelines have been developed to standardize reporting of AI models. We sought to evaluate the extent to which current AI-reporting guidelines incorporate principles of PCC, hypothesizing that most guidelines would lack in PCC element inclusion.

METHODS: Two assessors reviewed 16 guidelines for reporting AI studies in radiology to identify inclusion of items aligned with PCC. We assessed the guidelines against a model integrating current PCC literature and PCC frameworks, including aspects such as patient engagement, risk and harms assessment, algorithm/code transparency, and patient preferences. Descriptive statistics were used to quantify the primary outcome, which was the number of patient-centred care items included in each guideline. REB approval was not required.

RESULTS / DISCUSSION: Out of 16 guidelines assessed, 3 did not include any items related to PCC, while 9 incorporated a single item reflecting PCC principles. Among all guidelines, FUTURE-AI stood out with 9 out of 32 checklist items (28%) aligned with patient-centred priorities, including items regarding patient engagement, user experience, data security, ethical issues, and societal implications. The most frequently addressed PCC elements across all guidelines were algorithmic transparency, represented in 10 of 16 (63%), and patient safety/harm and patient engagement, each included in 4 of 16 (25%) guidelines.

CONCLUSION: Principles of PCC are not strongly represented in most standard AI reporting guidelines. This study will serve as a resource for future development of AI reporting guidelines in radiology, highlighting areas where PCC elements can be incorporated.

112307

Effectiveness of Percutaneous Biliary Transhepatic Drainage by Interventional Radiology in Cases of Cholangitis Secondary to Neoplasms of the Hepatic Parenchyma and Biliary Tract, Experience in a Tertiary Care Center

Carlos Andres Calderon Valderrama

Universidad Nacional Autonoma de Mexico, Hospital Juarez de Mexico

PRESENTER'S LEVEL OF TRAINING: Resident

OBJECTIVE: To determine the resolution rate of cholangitis cases through percutaneous biliary transhepatic drainage secondary to infiltrative processes affecting the hepatic parenchyma and biliary tract; as well as to characterize the most frequent neoplastic lesion that led to the development of cholangitis.

METHODS: This is a cross-sectional study of patients who underwent percutaneous biliary transhepatic drainage for cholangitis secondary to hepatobiliary infiltrative processes between 2023-2024 in a tertiary care center in Mexico city, Mexico.

RESULTS / DISCUSSION: A total of 12 patients with a mean age of 55 years (37 to 69 years), 58.3% male, were included in the analysis. Of the 12 cases of cholangitis, 10 cases (83.3%) successfully resolved after percutaneous biliary drainage. The most frequent infiltrative process found was hepatocellular carcinoma (50%) as the underlying cause of the cholangitic process.

CONCLUSION: Percutaneous biliary drainage by interventional radiology is a safe, minimally invasive, low-cost procedure. The complications are low with high successful rates for resolving cholangitis secondary to infiltrative processes affecting the hepatic parenchyma and biliary tract.

112312

How the Radiologist Can Help: A Sentiment Analysis Assessing Fear & Misinformation About Mammograms From An Online Breast Cancer Forum

Aleena Malik[1], Sonali Sharma[2], Charlotte Yong-Hing[2]

[1]University of Toronto, [2]University of British Columbia

PRESENTER'S LEVEL OF TRAINING: Medical Student

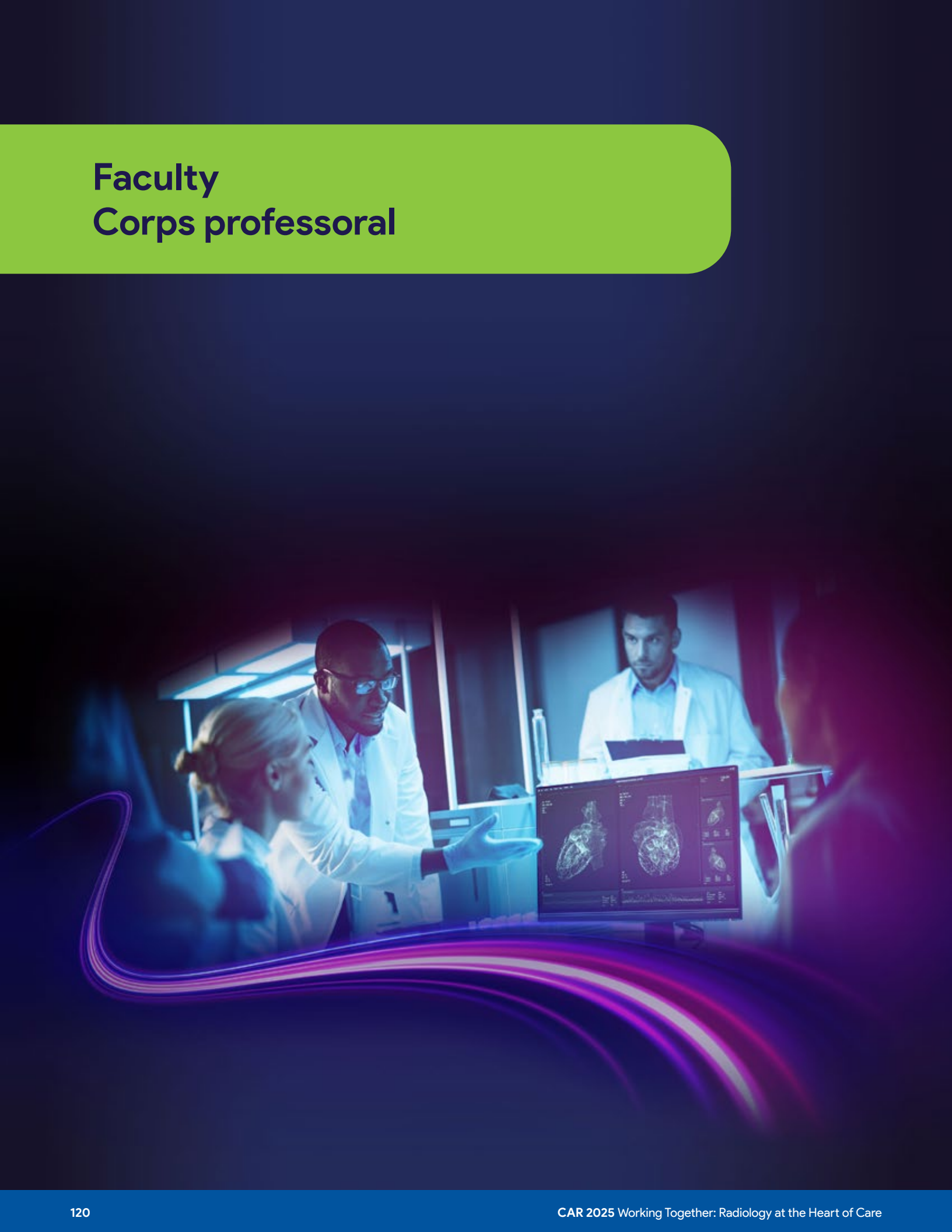
OBJECTIVE: Mammography screenings are instrumental in identifying potentially malignant abnormalities at the earliest stages, allowing for timely intervention and more effective treatment options. This study investigates the role of social media in shaping perceptions and decisions regarding breast cancer screening technologies. Understanding online narratives is crucial for assessing the impact of digital platforms on health-related information dissemination and the impact radiologists can have on these perceptions.

METHODS: A sentiment analysis was performed on discussions within the "Breastcancer.org" support group, focusing on posts related to "fear of mammograms." A total of 298 comments from female users were analyzed, categorizing them as "negative" or "positive" based on tone and language. Additionally, the study observed the number of users who had previously undergone mammography to gauge their influence on perceptions.

RESULTS / DISCUSSION: Predominantly negative sentiment (95%) among users expressing fear, particularly those who had not undergone mammograms before. Concerns included fear of pain and potential harm to breast implants. Positive comments mainly stemmed from women who had experienced pain-free mammograms.

CONCLUSION: Comments on screening frequency varied, with some expressing concerns about side effects and psychological impacts of frequent screenings, such as anxiety from false positives. Online support groups serve as influential platforms for sharing experiences and shaping health behavior and decision-making among women considering mammography. Negative comments on social media, particularly from women lacking knowledge of screening devices, spread misinformation and unnecessary fear surrounding mammograms. Radiologists can combat misinformation and promote informed decision-making about breast cancer screening by engaging with online communities and collaborating with advocacy groups.

Faculty
Corps professoral



Dr. Julien Aguet
The Hospital for Sick Children

Dr. Sarah Barrett
Vancouver General Hospital (VGH)

Dr. Eric Bartlett
JDMI

Dr. Steven Burrell
QEII Health Sciences Centre

Dr. Andrew Chan
JDMI

Dr. Tanya Chawla
JDMI University of Toronto

Dr. Jaron Chong
Western University

Dr. Adela Cora
Queen Elizabeth II
Health Sciences Centre

Dr. Giulia Fadda
University of Ottawa

Dr. Samantha Fienberg
Ontario Health

Dr. Christopher Filippi
Hospital for Sick Children

Dr. Carolyn Flegg
Saskatchewan Health Authority

Dr. Rachel Fleming
PSMI

Dr. Efrén Flores
Massachusetts General Hospital

Dr. Christopher Fung
MIC Medical Imaging

Dr. Prasaanthan Gopee-Ramanan
Juravinski Hospital and Cancer Centre

Dr. Neetika Gupta
CHEO

Dr. Cameron Hague
University of British Columbia

Dr. Kate Hanneman
University Medical Imaging Toronto,
Department of Medical Imaging,
University of Toronto

Dr. Kelly Harper
University of Ottawa, The Ottawa Hospital

Dr. Faisal Khosa
Vancouver General Hospital

Dr. Bharti Khurana
BWH

Dr. Iain Kirkpatrick
University of Manitoba

Dr. Satheesh Krishna
University of Toronto

Dr. Ameya Kulkarni
McMaster University

Dr. Harshad Kulkarni
BAMF Health

Dr. Caroline Lacroix
Montreal Children's Hospital

Dr. Laurent Létourneau-Guillon
Centre Hospitalier de Université
de Montréal (CHUM)

Dr. Christopher Lindquist
St Boniface General Hospital

Dr. Christine Mercier
Hôtel-Dieu de Levis

Dr. Elka Miller
Hospital for Sick Children

Dr. Lindsay Milroy
Western University

Dr. Rakesh Mohankumar
University Health Network

Dr. Michael Morris
Banner University Medical Center Phoenix

Prof. Sébastien Mulé
Henri Mondor University Hospital

Dr. Prakash Muthusami
The Hospital for Sick Children

Dr. Kenneth Myers
Montreal Children's Hospital

Dr. Michael Patlas
University of Toronto

Dr. Demetris Patsios
JDMI Toronto

Dr. Narinder Paul
Western University

Dr. Perry Pickhardt
University of Wisconsin

Dr. Eric Pike
NL Health Services

Dr. Eduardo Portela de Oliveira
The Ottawa Hospital, University of Ottawa

Dr. Vanessa Quinn-Laurin
CISSS-CA Hôtel-Dieu de Lévis

Dr. Caroline Reinhold
McGill University

Prof. Andrea Rockall
Imperial College London

Dr. Àlex Rovira
Hospital Vall d'Hebron

Dr. Marcos Sampaio
University of Ottawa, The Ottawa Hospital

Dr. Adnan Sheikh
University of British Columbia

Dr. Carolina Souza
Ottawa Hospital

Dr. Gavin Sugrue
Vancouver General Hospital

Dr. An Tang
Université de Montréal

Dr. Jana Taylor
McGill University Health Centre

Dr. Bashiar Thejeel
University of Calgary

Dr. Carlos Torres
University of Ottawa, The Ottawa Hospital

Dr. Makabongwe Tshuma
BC Children's Hospital

Dr. Patrick Veit-Haibach
UHN

Mr. Marc Venturi
Canadian Association of Radiologists

Dr. Charlotte Yong-Hing
BC Cancer Vancouver