VOL. 1

INSIDE IMAGING MAGAZINE

TRANSFORMING IMAGING AND THERAPY IN KENYA.

THE FUTURE OF AI IN IMAGING

EXPERT REVIEW ON AI'S IMPACT ON DIAGNOSTICS AND TREATMENT

PROFESSIONAL HIGHLIGHTS & ACHIEVEMENTS

OUTSTANDING RADIOGRAPHERS IN KENYA

RESEARCH

CASE 18846

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EVOLUTION LANDSCAPE OF RADIOLOGY

CURRENT TRENDS AND FUTURE PROSPECTS

Grapes and Cancer Risk Reduction.
The power of grapes in cancer prevention.

PACORI- 2025
The 2025 Pan African Congress of Radiology and Imaging to be held in Nairobi, Kenya.

Business & Innovation
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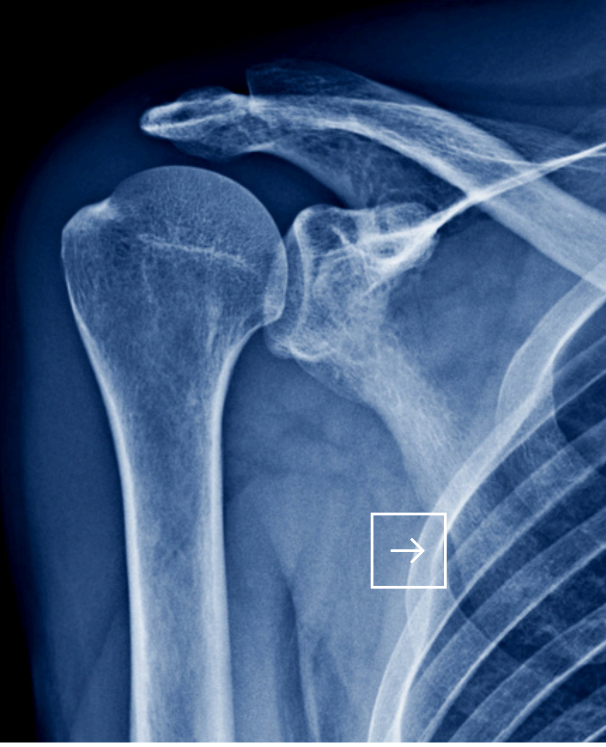
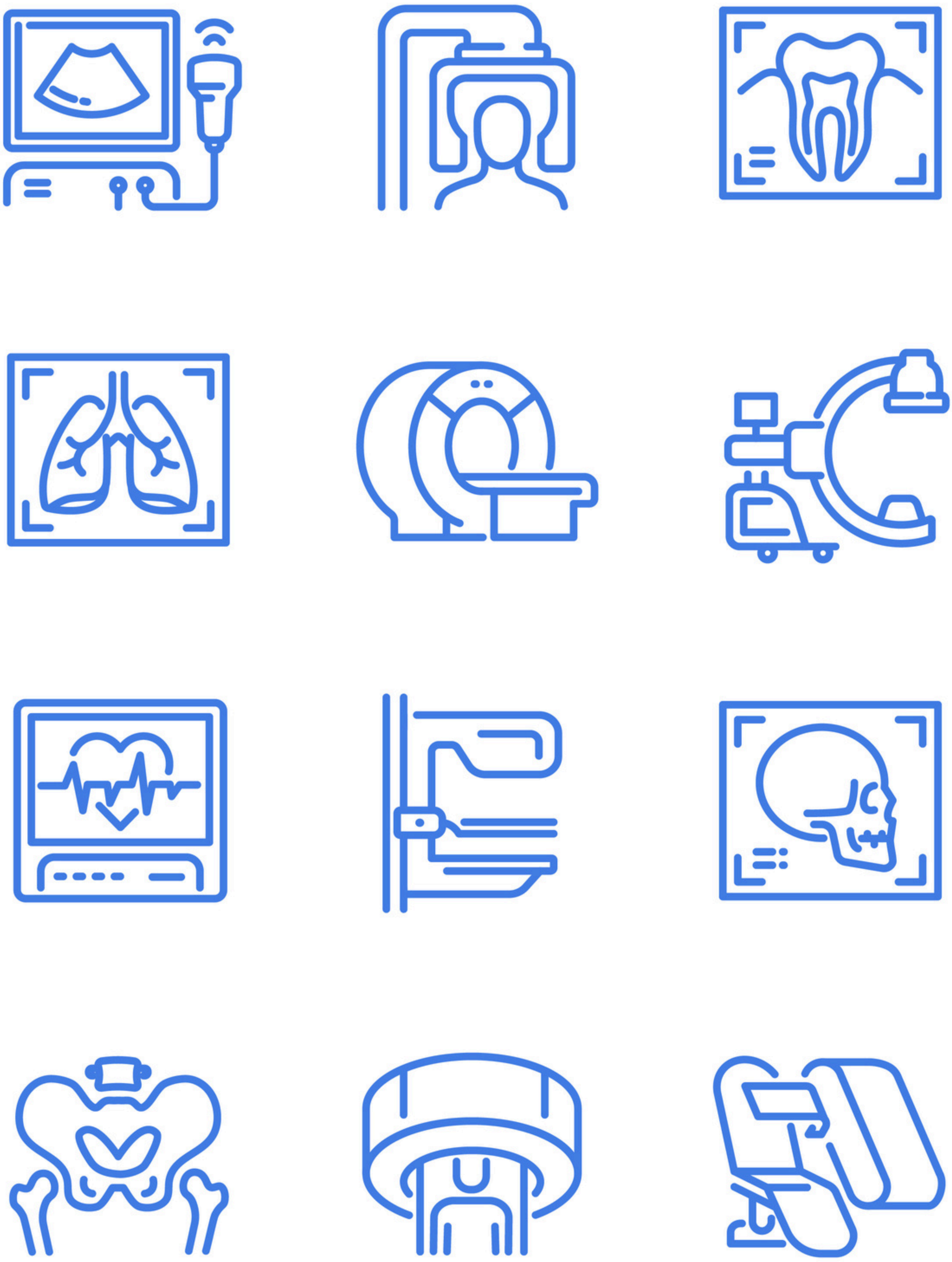


ARTICLES

Inside Imaging



At Inside Imaging, we make the complex world of medical imaging easy to understand for everyone. Whether you're preparing for an MRI, X-Ray, trying to figure out what an ultrasound involves, or curious about cutting-edge nuclear medicine techniques like PET or SPECT scans, we've got you covered.

Our mission is simple: to provide clear, reliable, and accessible information about medical imaging for patients, caregivers, healthcare professionals, and innovators alike. We aim to demystify the complexities of medical imaging, empowering people to make informed decisions about their health and well-being.

Our vision is to be the leading platform that bridges the knowledge gap between medical imaging technology and everyday life. We envision a world where everyone understands the role and benefits of imaging, fostering a community that embraces innovation and promotes better health outcomes through informed decision-making.

Most recently, we introduced The Exposure Button Series where we go live on Google Meet, bringing you engaging conversations with radiographers, radiotherapists, radiologists, researchers, industry sales experts, equipment suppliers, students, lecturers, hospitals, and even patients who've benefited from imaging and radiotherapy services. We dive deep into both professional practice and social life, making this the most authentic, informative, and entertaining space for anyone in the field!

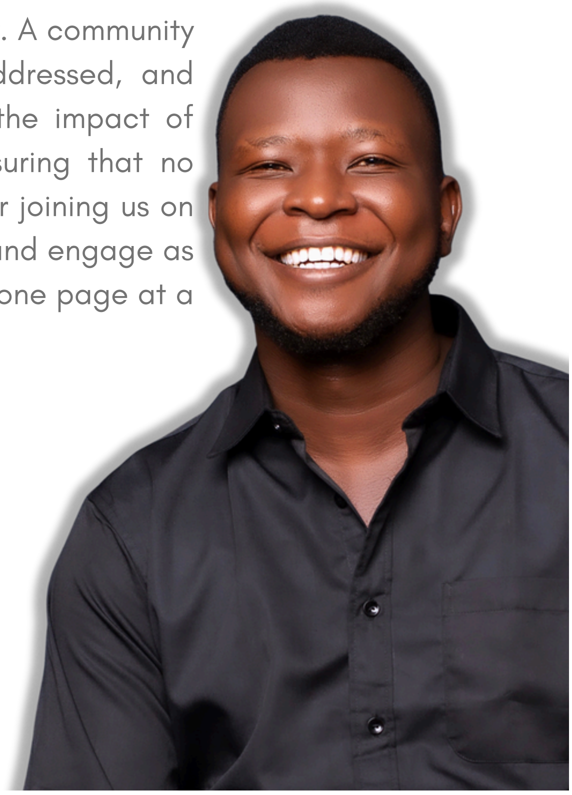
MESSAGE FROM THE EDITOR-IN-CHIEF

Dear Reader,

Welcome to the inaugural issue of Inside Imaging Magazine, a publication that celebrates the remarkable world of radiography and radiotherapy. As the Editor-in-Chief, I am truly honored to introduce this platform, which is designed to inform, inspire, and connect everyone passionate about advancing imaging and radiotherapy in Africa and beyond. This magazine represents a shared vision: to highlight the critical role of medical imaging and radiotherapy in improving patient outcomes, driving innovation, and fostering collaboration across healthcare, education, and industry.

At Inside Imaging, our mission has always been to bridge the gap between knowledge and practice. We strive to empower healthcare professionals, researchers, and institutions by providing accessible, accurate, and engaging content. This magazine is a testament to that goal; a space where groundbreaking innovations, impactful research, and inspirational stories come to life. From spotlighting outstanding radiographers to discussing advancements in technology and safety, we aim to create a resource that speaks to all stakeholders, including hospitals, equipment manufacturers, educators, and students.

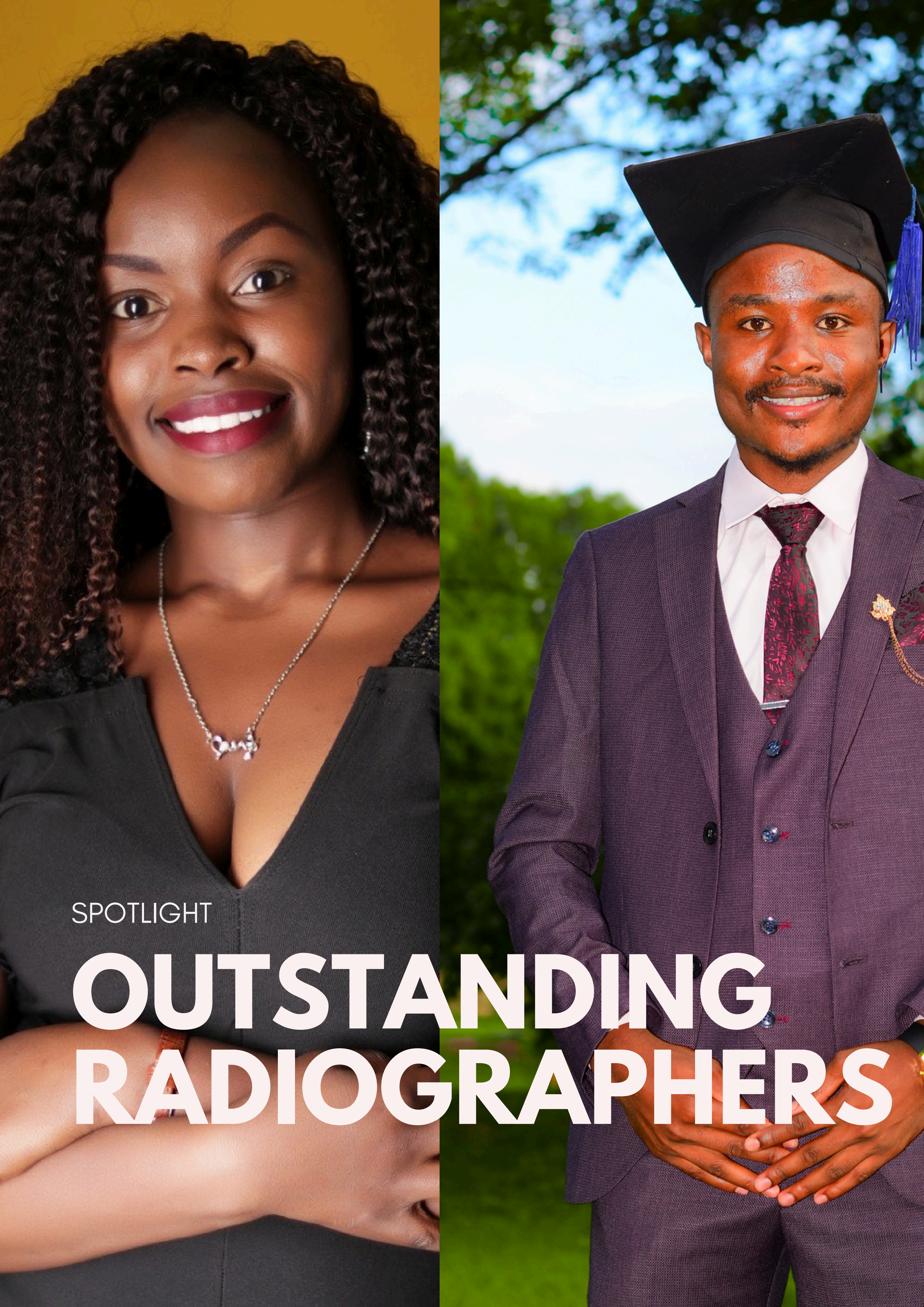
This is more than just a magazine—it's a community. A community where ideas are exchanged, challenges are addressed, and solutions are shared. Together, we can amplify the impact of radiography and radiotherapy across Africa, ensuring that no patient or professional is left behind. Thank you for joining us on this exciting journey. I invite you to explore, learn, and engage as we work toward transforming healthcare imaging, one page at a time.



Warm regards,

Cliff Oguk

Founder - Inside Imaging
Editor-in-Chief, Inside Imaging Magazine



SPOTLIGHT

OUTSTANDING RADIOGRAPHERS

EXCELLENCE IN RADIOGRAPHY:

“MY JOURNEY AS A VALEDICTORIAN AND BEYOND"

Introduction

My name is Mbuya Benjamin; I had the honor to be named the valedictorian of the JKUAT 41st Graduation Ceremony held in December 2023. I hold a Bachelors of Radiography (Radiotherapy option). I am deeply fascinated with healthcare and technology; that motivated me to pursue Radiography. As I grew up, I looked up to how vital radiologists and radiographers were in diagnosing and saving lives through their expertise in imaging; that was the path I wanted to follow. At JKUAT, though challenging to navigate, I met many obstacles and opportunities that spearheaded my growth. Being the valedictorian is not only a personal success but also a bigger testament to the never-ending encouragement from my family, peers and mentors.

Academic Journey and Key Milestones

Being a Radiography student at JKUAT was intellectually stimulating and emotionally demanding at the same time. As medical technologies became more complex, mastering the coursework was quickly overshadowed by the requisite of learning how to use these complex, life-saving technologies. An early hurdle I hit was to have to make up the difference between academic work and acquiring hands-on experience through clinical placements and internships. However, these real-world experiences are some of the most rewarding experiences I have had where I could use theoretical knowledge in the clinical setting. Besides this, I had the opportunity to embark on cutting-edge research to evaluate the implications of radiotherapy treatment for patients with head and neck tumors. This project was tremendously gratifying for the achievement and my love for innovativeness in healthcare.

My clinical placements were attended at KNH, and my internship was at Nakuru Regional Cancer Centre. This gave me invaluably diverse exposure to how radiotherapy was practiced worldwide, and the firsthand experience was exactly how things like technology make for a more accurate diagnosis and better therapy. My involvement in community outreach programmes also gave me an understanding of how radiography and healthcare services affect the community.


Benjamin Mbuya (Valedictorian)

I have adapted to sudden change by learning to make the most of the time and persevere. The more challenges and each obstacle faced helped shape the person I am today, and I discovered and appreciated what it meant to excel in practice and theory. At JKUAT I developed leadership skills through serving in various leadership capacities such as; College Representative for the Coll ege of Health Sciences, School Student Representative for the School of Biomedical Sciences and also the Chairperson for the KYGN JKUAT Chapter.

am excited to enter the profession at such a time of technology-altering healthcare. I am also happy to join a dynamic and changing field for the better. The opening of new frontiers for more accurate and efficient diagnoses, such as artificial intelligence (AI), 3D imaging, digital radiography and Advanced Radiotherapy Techniques comes through such advances. Seeing these works being adopted in major medical centres in Kenya allows us to take a step in the right direction and continue providing good quality patient care.

From what I see, the profession still needs constant reinforcement of the continuing education and professional development. Thus, healthcare technology will develop, and radiographers will need to keep up to date and ahead of the new rates of technology to be able to use these new methods correctly. Moreover, more specific radiography fields, for example, Forensic, Industrial or Veterinary Radiography still require further expertise.

However, emphasis should be placed on integrating radiography education with primordial experience. Partnerships with hospitals, research institutions, and technology providers will be needed to ensure students are prepared for the rapidly changing healthcare environment. A bridge between the needs of patients and healthcare providers and the learning of future radiographers will assist in bridging the gap between academia and industry.

Advice to Aspiring Radiographers

Stay curious and learn for those who hope to become radiographers. It can be a demanding field, but offering equally rewarding prospects. Radiographers are essential to patient care, and success in this profession depends on mastering both the technical and interpersonal sides of the profession.

Networking is another critical factor. Form relationships with your lecturers, mentors and fellow students; your peers today could be your colleagues and collaborators tomorrow. You will get new inspirations by participating in conferences, workshops, and online forums with professionals who are familiar with radiography.

Conclusion

Finally, the journey to excellence in radiography is individualized. This is about committing to becoming a master of technical skills, continuing to learn for a lifetime, and being passionate about improving the outcomes of the patients. In our role as young professionals, we have a responsibility to continue upholding the high standards of profession not only in our education but by contributing to furthering healthcare in the country and improving upon it wherever possible. I urge all those who wish to become radiographers to keep pushing for excellence, embrace new challenges, and feel a sense of pride at the profound impact we can have on the health and well-being of others.

IMAGING IN TRAUMA

THE CRITICAL ROLE OF RADIOLOGY IN EMERGENCY CARE

Neville Ochieng’ **Bsc. Rad**

INTRODUCTION

When someone is badly injured in an accident, doctors must quickly figure out what’s wrong so they can provide the right treatment. Trauma is a leading cause of injury, responsible for about 4.4 million fatalities annually, or 8% of all deaths, according to WHO. Quick, accurate medical imaging is crucial in trauma care, enabling doctors to rapidly diagnose injuries, choose the right treatment, and prevent complications from delayed diagnoses.

Using readily available imaging such as x-rays, CT scans and ultrasounds can greatly minimize trauma-related death and complications, improving care.

Common Imaging Methods Used in Trauma Care

General x-ray imaging

General x-rays are the first method used in trauma care. They are widely available and provide quick images to check for:

- ·Broken bones in the body.
- ·Chest injuries like collapsed lung

(pneumothorax), blood in the chest or rib fracture.

- Foreign objects like if a patient has been shot or stabbed, x-rays help locate bullets or other objects inside the body.

CT Scan (Computed Tomography)

CT scan give more detailed images than an x-ray. It is used when doctors suspect serious and/or complex internal injuries, such as:

- Internal bleeding inside the brain, chest, or abdomen cavities.
- Organ damage: They assess organ injuries.
- Complex fractures like broken bones, especially in areas like the skull or spine.

The patient lies on a table that moves through a circular scanner like 'a big doughnut' as the machine takes complex images from different angles

FAST Ultrasound (Focused Assessment with Sonography for Trauma)

FAST is a quick bedside ultrasound exam to detect free fluid (such as blood) in the abdominal region that may indicate internal bleeding that may be life-threatening. For example, in a stabbing injury, it quickly shows hidden bleeding in the abdomen. It involves checking fluid around the heart, right upper quadrant around the liver and right kidney, left upper quadrant around the spleen and left kidney and the pelvis.

Challenges in Trauma Imaging

- ·Delayed imaging due to Crowded ERs, patient instability, and the time required for CT scans.
- ·Equipment Limitations as they costly or outdated imaging that can hinder diagnosis.
- ·Triage protocols in trauma cases, especially during mass casualties, prioritize critical patients, delaying imaging for others.
- ·CT scans and x-rays expose patients to radiation, which can be harmful in high doses (Brenner & Hall, 2007).
- ·A shortage of radiologists and technologists can delay imaging, slowing treatment.
- ·Lack of sufficient staff training given the advancing technology can hinder trauma care.

Future Advancements in Trauma Imaging

- Medical imaging is constantly evolving, and new technologies are making trauma diagnosis faster, more accurate, and more accessible.

- ·Portable imaging devices like portable x-rays, handheld ultrasounds, and mobile CT scanners reduces delays. For example, Butterfly iQ, a handheld ultrasound device that connects to a smartphone (Haines et al., 2023).
- ·Use of AI assisted diagnosis enhances trauma imaging by quickly detecting fractures, bleeding, and organ injuries. Tools like qXR identify chest fractures in under a minute (Shen et al., 2020).
- ·Use of CT dose limitation techniques.
- ·3D Imaging and Virtual Reality (VR) for Trauma Planning to provide detailed models of injuries and helps in easing complex procedures during management.
- ·Teleradiology allows remote image interpretation, addressing staff shortages and reducing trauma care delays. For example, during the COVID-19 pandemic, a global teleradiology network helped rapidly interpret lung CT scans in hospitals with limited staff (Jalal et al., 2021).

Conclusion

Trauma imaging is vital for quick diagnosis and treatment. While X-ray, CT, and ultrasound have improved care, delays, equipment limits, and staff shortages remain challenges. Innovations like portable imaging, AI, 3D imaging, and teleradiology are making trauma imaging faster, more accessible, and precise.

To further enhance trauma care, healthcare systems must adopt better imaging strategies. This includes:

- ·Equiping emergency departments with portable X-rays, handheld ultrasounds, and AI-powered tools for efficiency.
- ·Use of mobile imaging units and teleradiology to improve trauma care in remote areas.
- ·Educating staff on advanced imaging techniques.
- ·Supporting research into new imaging technologies for better trauma management.

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Neville Ochieng’ is a dedicated professional attaining a Bachelor’s degree in Diagnostic Radiography from Jomo Kenyatta University of Agriculture and Technology (JKUAT), where he developed his expertise in medical imaging. Passionate about radiation protection, he holds certifications from the International Atomic Energy Agency (IAEA), reflecting his commitment to patient safety and the highest standards in diagnostic radiography. Neville is a patient-centered caregiver, always ready to adapt to advancements in the field, ensuring he delivers cutting-edge, compassionate care while advocating for safe and effective medical imaging practices in his community and beyond.

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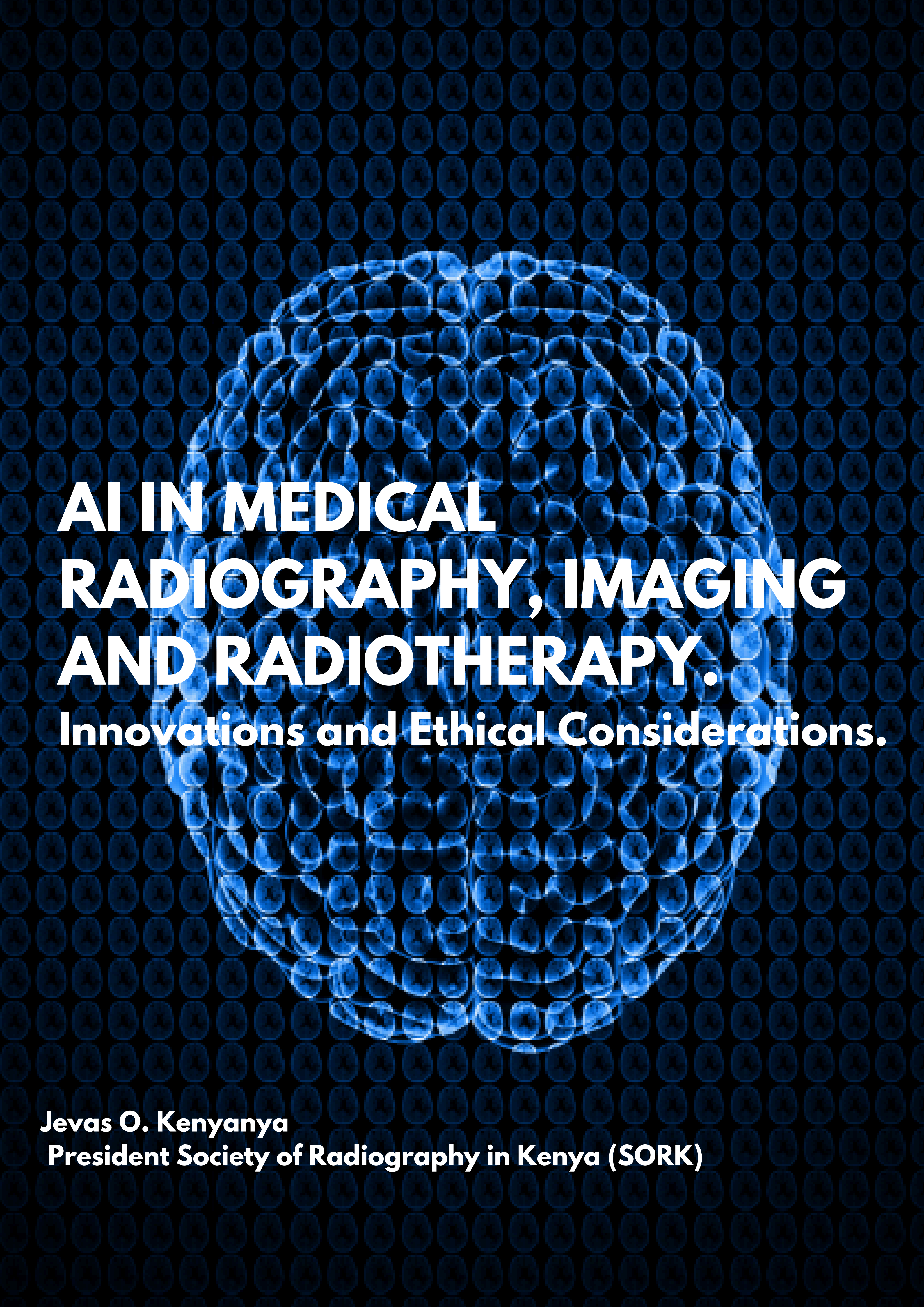

AI IN MEDICAL RADIOGRAPHY, IMAGING AND RADIOTHERAPY.

Innovations and Ethical Considerations.

Jevas O. Kenyanya
President Society of Radiography in Kenya (SORK)

AI IN MEDICAL RADIOGRAPHY, IMAGING AND RADIOTHERAPY:

Innovations and Ethical Considerations

Author: Jevas Kenyanya
President Society of Radiography in Kenya (SORK)

INTRODUCTION

Artificial Intelligence (AI) uses computers to model intelligent behaviors with minimal human intervention, enabling tasks such as decision-making and prediction (Ayorinde et al., 2024). As a data-driven paradigm, AI aligns seamlessly with technology-driven fields like radiography (Hardy & Harvey, 2020). Radiographers are members of the multidisciplinary healthcare team, educated, clinically competent, and legally authorized to perform radiography, medical imaging, and radiotherapy procedures for diagnostic, therapeutic, and research purposes using ionizing radiation, sound waves, magnetically induced signals, or radioactive materials (International Society of Radiographers and Radiological Technologists, 2021). Radiographers bridge technology and patient care by operating advanced imaging and radiotherapy equipment while ensuring patient safety, positioning them as key agents in AI integration (Akudjedu et al., 2023; Stogiannos et al., 2025). The vast patient data generated in radiography practices supports big data analytics and machine learning, driving the development of AI-driven diagnostic tools. This expertise makes radiographers essential in implementing AI to enhance diagnostic accuracy, efficiency, and overall healthcare delivery (Hardy & Harvey, 2020).

The Future of AI in Medical Radiography, Imaging, and Radiotherapy

The increase in the burden of lifestyle diseases, rising healthcare costs, and challenges such as pandemics, conflicts, and workforce shortages globally is driving the need for AI-driven interventions (ShiftMed Team, 2024). Therefore, the application of AI in medicine has come to revolutionize and fast-track the achievement of the quadruple aims of healthcare: to improve population health, enhance patient care, support providers, and reduce healthcare costs (Colvin, 2020). For example, AI is transforming medical imaging and radiotherapy by enhancing diagnostics, optimizing workflows, reducing errors, and improving efficiency (Bajwa, 2021). AI tools can analyze large datasets generated in clinical areas, predict outcomes, and recommend treatments with greater accuracy (Colvin, 2020). The incorporation of AI insights in medical imaging and radiotherapy has supported better diagnosis, treatment protocols, workflow efficiency, and referral systems (Bajwa, 2021). From a radiographer's perspective, AI applications span the entire imaging workflow, from pre-examination planning to image acquisition and post-processing and beyond (Akudjedu et al., 2023). This underscores the surge of AI applications into the radiographers' clinical practice.

The following are some of the basic applications of AI in imaging and radiotherapy.

Pre-examination assessment

Radiographers play an essential role in patient care before, during, and after imaging or radiotherapy procedures. While AI cannot replace these responsibilities, it enhances efficiency by automating patient queue management, vetting referrals, and validating clinical indications against appropriate imaging modalities and techniques. Additionally, AI interacts with electronic health records to verify patient identification, streamlining workflows and improving overall radiographer efficiency.

Examination planning

AI optimizes patient parameters through intelligent systems, supporting personalized healthcare during imaging planning. AI aids radiographers in carrying out their roles, like patient positioning, contrast administration, and protocol selection, subsequently enhancing precision and efficiency in imaging procedures.

Image acquisition

Selecting the appropriate imaging protocol based on patient presentation, clinical questions, and the region of interest is a key responsibility of radiographers. However, protocols vary across hospitals, imaging modalities, and individual radiographers. Automating imaging protocols and dose optimization through AI software will help standardize the practices, reduce turnaround times, and enhance patient safety.

Image processing

AI enhances medical imaging by automating post-processing, improving image quality, segmenting anatomical structures, and detecting abnormalities, reducing radiographers' workload. It aids in triaging by flagging critical cases for faster review, improving workflow efficiency. Machine learning models identify disease patterns, supporting early detection and decision-making. AI-driven synthetic modality transfer enables the conversion of images between modalities (e.g., CT to MRI), thereby minimizing radiation exposure and reducing the need for repeat scans. Additionally, AI ensures consistency in image interpretation, standardizes quality control, and eliminates interpersonal variability across healthcare facilities (Mohammad et al., 2024; Colvin, 2020)

The Paradigm to Radiographers’ Perceptions of AI

Several studies have been conducted globally to explore radiographers' levels of knowledge, perspectives, and expectations regarding AI applications in radiography, imaging, and radiotherapy. According to Akudjedu et al. (2023), a lack of AI applications’ education and training among radiographers is the leading cause of poor utilization, perception, and knowledge globally. Equally, Ayorinde et al. (2024) allude that a lack of understanding of inputs and algorithms for AI and AI outputs among healthcare workers contributes to low radiographers' perception and utilization of AI. Radiographers should fully understand the benefits and risks of AI to be able to make informed choices about its integration into radiography practices. The negative perceptions of a significant section of radiographers toward AI are compounded by their suspicion that it might take or substitute their jobs (Stogiannos et al. 2025).

Shinners et al. (2019) found that a lack of trust in AI delivering healthcare and improving patient outcomes among a section of healthcare practitioners also contributed to a negative perception of AI. Furthermore, Akudjedu et al. (2023) found that the lack of or poor AI regulatory and governance framework and alignment across different countries or geopolitical settings has affected full utilization or uptake of AI applications among professionals like radiographers.

According to Stogiannos et al. (2025), radiographers in Europe have not yet fully embraced AI integration in their practice. However, with increasing knowledge and training, the perception that AI will replace their roles is gradually diminishing. The fear of the unknown among radiographers has contributed to a slowerthan-expected adoption of AI. Additionally, Ayorinde et al. (2024) note that the integration of AI in radiography faces challenges related to the implementation of innovations. A study by Mohammad et al. (2024) indicated that although there is generally a positive attitude among radiographers and radiologists toward learning AI and its integration into practice, there are barriers such as a lack of training in AI, and exposure to resources is the greatest setback to radiology AI integration. The UK radiographers, according to Rainey et al. (2024), expressed mixed feelings about AI in radiography practice, with some feeling that AI will kill the profession, while others feel AI brings better professional prospects and synergies.

According to Sezgin (2023), AI is complementing radiographers by enhancing their skills rather than replacing them, leading to a paradigm shift in healthcare. As AI becomes an essential component of modern healthcare, organizations must invest in the necessary infrastructure, training, resources, and partnerships to facilitate its successful adoption and ensure equitable access for all.

Ethical Considerations in AI Use in Medical Radiography, Imaging, and Radiotherapy

AI integration in Radiography, Medical imaging, and Radiotherapy holds great promise by enhancing, not replacing, Radiographers. However, its adoption must be guided by strong ethical principles, including transparency, accountability, patient safety, data privacy, and equitable access (Sezgin, 2023). Furthermore, according to Davenport and Kalakota (2019), as smart machines begin to assist in clinical decision-making, a range of ethical implications must be carefully considered. These include concerns around accountability for decisions made or influenced by AI, the transparency of algorithms and processes, the need for informed consent when AI tools are involved in patient care, and the protection of patient privacy and data security.

Addressing these ethical challenges is essential to ensure that the integration of AI in healthcare upholds trust, equity, and professional integrity. Ensuring that AI systems are used responsibly requires clear guidelines to protect patient rights and uphold ethical standards in clinical practice. To ensure responsible integration of AI, healthcare organizations and the professionals must invest in proper infrastructure, training, and oversight, prioritizing human dignity and ethical standards in all AI-supported care.

AI Ethical Considerations in Radiography and Radiotherapy.

Beneficence (Do-no-harm)

The ethical integration of AI in healthcare, particularly in radiography, Imaging, and Radiotherapy, must be grounded in core principles such as respecting human rights and freedoms, ensuring transparency and accountability, and maintaining human control and responsibility over clinical decisions (Varkey 2020). As AI systems inevitably impact diagnosis and treatment, it becomes essential to define clear accountability frameworks for errors or unintended consequences, ensuring that responsibility is not obscured by technological complexity. The Radiographers' goal should be to maximize value through the ethical use of AI, prioritizing patient welfare and clinical integrity while resisting the lure of financial gain from unethical exploitation of data or AI tools (Geis et al., 2019). This calls for ongoing ethical oversight, institutional governance, and a commitment to uphold professional standards in the face of rapid technological advancement.

Foundational Truth

The development of AI in healthcare relies heavily on vast amounts of validated, real-world patient data, which must be treated as foundational truth for algorithm training (Brady; Davenport & Kalakota, 2019). However, this process raises significant ethical concerns, particularly around patient confidentiality and data security. Furthermore, there is a risk of algorithmic bias when AI systems developed in one context based on specific factors such as race, gender, environment, or disease patterns, are used in a different setting without proper adaptation. This can lead to unfair decisions, resulting in unequal treatment and potential harm to certain groups of patients (Geis et al., 2019). To ethically harness AI's potential, healthcare must prioritize transparency, accountability, and the protection of human rights, while resisting the misuse of radiological data for unethical or purely financial purposes. According to Geis et al. (2019), much of AI operates in a "black box," making it essential to ensure interpretability (the ability to understand how AI systems reach decisions), explainability (the ability to communicate these decisions to non-experts), and transparency (the ability for third parties to review and understand the decision-making process).

Radiographers have an ethical duty to understand the clinical validity of datasets used to develop AI algorithms and how these algorithms process data in clinical settings. They must also ensure that the data reflects the patient population accurately, as biases in the data can negatively affect patient care.

Ethics of data ownership and privacy

Handling AI data in healthcare is complex internationally, as different countries balance personal rights and collective social welfare in varying ways (Geis et al., 2019). While radiology and radiotherapy departments typically own the imaging and treatment data, patients still retain the legal right to a copy of their data and maintain ownership and control over their personal and sensitive information, including both medical and non-medical data. Therefore, explicit patient consent is required for sharing or using this data to develop AI algorithms. Exploitation, mining, and misuse of patients' data for financial gain without consent borders unethical conduct (Davenport & Kalakota, 2019). Radiographers must ensure that patients' data is consented to before it is used to develop AI algorithms.

Lack of Empathy

The Code of Conduct for Radiographers emphasizes the importance of compassion, professionalism, and ethical conduct in patient care. Radiographers are expected to prioritize patient well-being, communicate clearly, and offer emotional support, especially when delivering life-changing news. (Health and Care Professions Council (HCPC). (2016). These human qualities, respect, dignity, empathy, effective communication, and professionalism, are essential in healthcare and cannot be replaced by AI. Radiographers play a crucial role in both diagnosing and supporting patients throughout their care journey, ensuring trust and comfort (Varkey 2020).

Regulatory frameworks, guidelines, and policies on AI use

The Society of Radiography in Kenya (SORK) has developed various guidelines and manuals to support the professional interests of radiographers in Kenya. These resources include the SORK Constitution, the Radiographers Act No. 28 of 2022, and other policy documents that provide a framework for the practice of radiography in Kenya (www.sork.org.ke). Additionally, the Kenya National AI Strategy 2025 emphasizes the importance of creating unified legal frameworks and ethical guidelines to guide AI development and ensure governance and regulatory frameworks remain agile to accommodate evolving technologies. ICT Authority.

These efforts highlight the need for comprehensive regulatory frameworks, guidelines, and policies to support the integration of AI in radiography and imaging, ensuring responsible development and deployment of AI technologies.

The relevant line ministry, health regulators, and professional associations such as the Society of Radiography in Kenya (SORK), in consultation with experts and technology drivers, need to integrate the regulatory frameworks, guidelines, and policies to support AI in radiography and imaging. These frameworks should ensure responsible development and deployment of AI, focusing on accountability, transparency, fairness, and patient rights, while minimizing biases and improving patient care through strict oversight and governance.

Conclusion

AI is set to significantly impact radiography and radiotherapy, with radiographers playing a key role in integrating AI into their clinical practice. While AI will not replace radiographers, it will augment their work, particularly in enhancing efficiency, effectiveness, quality, and standardized imaging, precision, and help in triaging, ultimately reducing turnaround times and improving overall patient care experience. Despite current uncertainty among radiographers about AI's impact on careers and daily practice, especially in LMICs, studies have shown that useful deployment of AI transforms the radiographers' work, and hence a need to impress and celebrate the technology. However, for successful adoption, AI must be regulated, integrated into systems, and supported by targeted education. Radiographers need appropriate training to confidently lead in AI-driven clinical transformation, enhance patient care, and contribute to research and innovation in imaging and radiotherapy services.

Radiographers need appropriate training to confidently lead in AI-driven clinical transformation, enhance patient care, and contribute to research and innovation in imaging and radiotherapy services.

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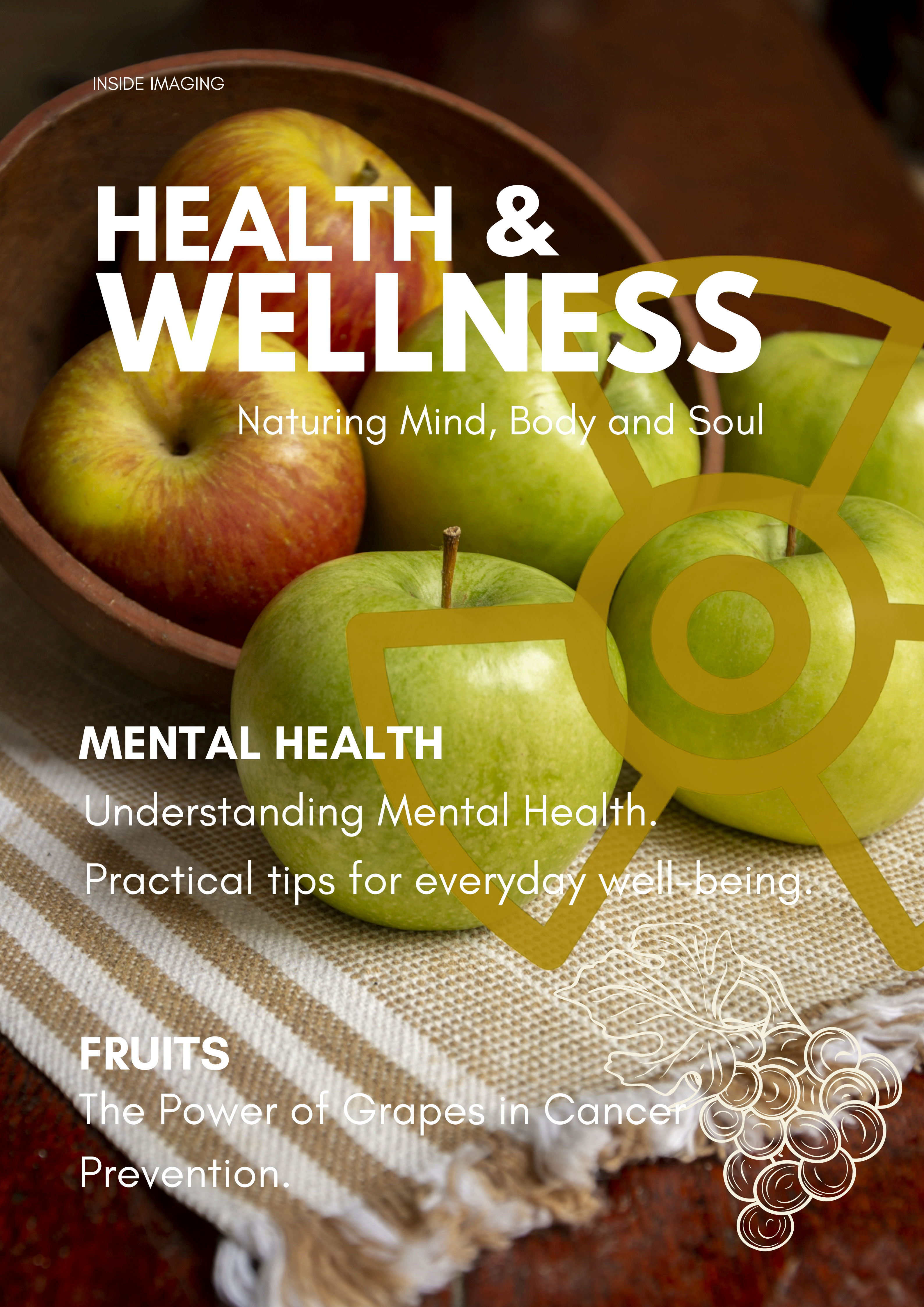


INSIDE IMAGING

HEALTH & WELLNESS

Naturing Mind, Body and Soul

MENTAL HEALTH

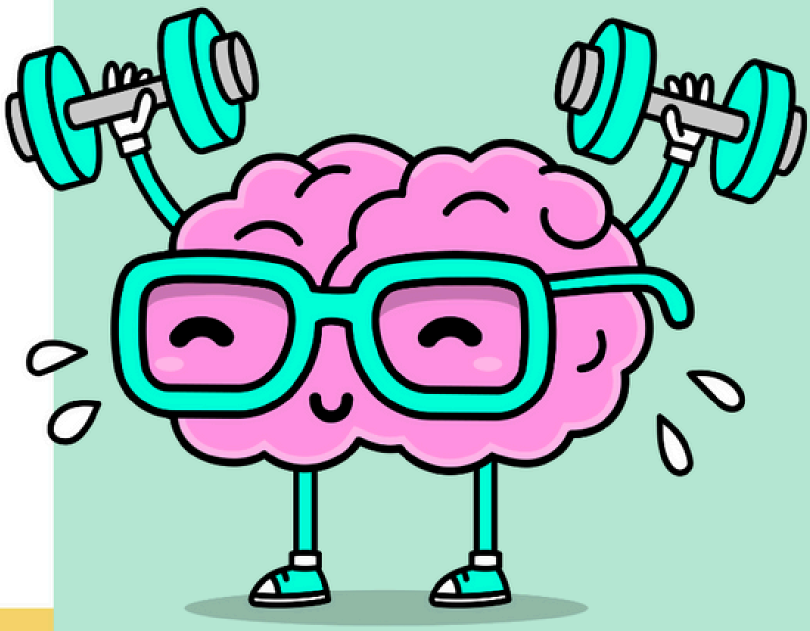
Understanding Mental Health.

Practical tips for everyday well-being.

FRUITS

The Power of Grapes in Cancer Prevention.

MENTAL HEALTH *Awareness*



What is Mental Health?

Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act.

Importance of Mental Health

Good mental health is essential for overall well-being, enabling us to handle stress, relate to others, and make healthy choices.

SUPPORTING MENTAL HEALTH

- **Self-Care**

  Regular exercise, balanced diet, adequate sleep.

- **Seek Professional Help**

  Therapists, counselors, and support groups.

- **Be There**

  Offer support and listen without judgment.

Inside Imaging

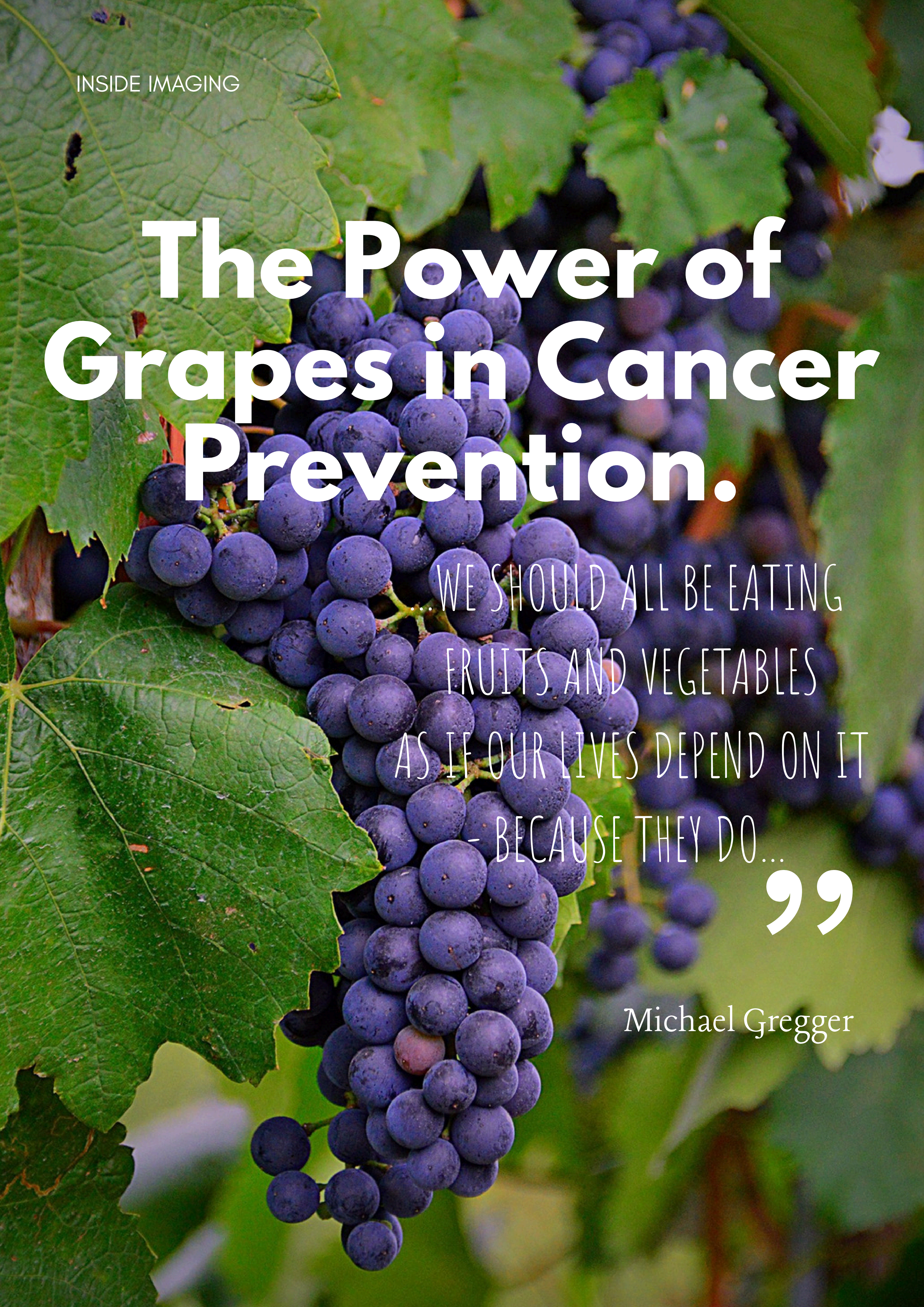
Taking care of your mental health

Practical tips for everyday well-being

Mental health is just as important as physical health. It affects how we think, feel, and act. Taking care of our mental health is essential for overall well-being. Here are some practical tips to help you maintain good mental health.

Practice self-care. Take time to do things that you enjoy, such as reading a book, taking a walk, or having a relaxing bath. Prioritizing self-care can help reduce stress and improve mood.

Connect with others. Having a support system is crucial for good mental health. Reach out to friends, family, or a mental health professional if you need to talk or receive guidance.


INSIDE IMAGING
The Power of Grapes in Cancer Prevention.
...WE SHOULD ALL BE EATING FRUITS AND VEGETABLES AS IF OUR LIVES DEPEND ON IT - BECAUSE THEY DO...
Michael Gregger

THE POWER OF GRAPES IN CANCER PREVENTION

An article by Cancer Centre for Healing
https://cancercenterforhealing.com/grapes-and-cancer-risk-reduction/

Grapes have long been known for their delicious taste and versatility in the kitchen. However, recent studies have shed light on their potential as a powerful anti-cancer food.

Various phytochemicals found in grapes, such as resveratrol, quercetin, and catechins, have been shown to have strong anti-cancer properties. These compounds work to inhibit the growth and spread of cancer cells and induce apoptosis, or programmed cell death. Additionally, grapes are rich in antioxidants, which help protect cells from damage and reduce the risk of cancer.

An animal study published in the Journal of Agricultural and Food Chemistry found that grape seed extract inhibited the growth of prostate cancer cells in mice by inducing apoptosis. Another study published in the Journal of Nutrition found that grape seed extract reduced the development and growth of breast tumors in rats.

One of the most significant benefits of grapes in cancer prevention is their high antioxidant content. Antioxidants are compounds that neutralize free radicals, which are unstable molecules that can cause damage to cells and increase the risk of cancer. Grapes are particularly rich in two antioxidants: resveratrol and quercetin. Resveratrol is a polyphenol that has been shown to have anti-inflammatory and anti-cancer properties. Quercetin is a flavonoid that has also been studied for its anti-cancer effects.

A study published in the Journal of Nutrition found that resveratrol inhibited the growth and spread of colon cancer cells in mice. Another study published in the Journal of Agricultural and Food Chemistry found that quercetin inhibited the growth of prostate cancer cells in a test-tube study.

Incorporating grapes into one’s diet is a simple and delicious way to reap the benefits of these powerful anti-cancer compounds. Whether eaten on their own, added to salads, or blended in smoothies, grapes are a convenient and nutritious food to include in a healthy diet.

REVOLUTIONIZING RADIOGRAPHY:

The Synergy of AI, Low-Dose Techniques, and Advanced Technology in CT and X-ray

Author: Junior Mukudi

INTRODUCTION

Radiology, the cornerstone of modern medical diagnostics, is undergoing a profound transformation driven by technological advancements. Computed tomography (CT) and X-ray imaging, the workhorses of this field, are experiencing a paradigm shift with the integration of artificial intelligence (AI), the refinement of low-dose techniques, and the deployment of sophisticated hardware and software. This article delves into the intricate interplay of these factors, particularly in long series examinations, highlighting how they are reshaping clinical practice and improving patient outcomes.

The Imperative of Low-Dose Techniques: Ionizing radiation, while essential for imaging, carries inherent risks. The ALARA (As Low As Reasonably Achievable) principle dictates that radiation exposure should be minimized without compromising diagnostic quality. This is particularly crucial in long series examinations, such as CT angiographies, perfusion studies, and full spine X-rays, where cumulative doses can be substantial.

Technological Advancements in Low-Dose Imaging:

- Iterative Reconstruction (IR): Traditional filtered back projection (FBP) often results in noisy images, necessitating higher radiation doses. IR algorithms, like adaptive statistical iterative reconstruction (ASiR) and model-based iterative reconstruction (MBIR), iteratively refine image data, reducing noise and artifacts while preserving diagnostic accuracy. "IR works by comparing the reconstructed image with the raw data and iteratively correcting for inconsistencies, ultimately reducing the required radiation dose." (Boas & Fleischmann, 2012)

This allows for significant dose reductions, often up to 50% or more, compared to FBP.

- Advanced Collimation and Beam Shaping: Modern CT scanners utilize advanced collimators that precisely shape the X-ray beam, minimizing scatter radiation and optimizing dose distribution. Adaptive collimation techniques, which dynamically adjust the beam width based on patient size and anatomy, further enhance dose efficiency. X-ray units have also improved in collimation, allowing for less scatter and therefore less radiation.
- Automatic Exposure Control (AEC): AEC systems automatically adjust the

tube current (mA) based on patient attenuation, ensuring optimal image quality with minimal radiation exposure. This is particularly beneficial in long series examinations, where patient anatomy may vary significantly.

- Spectral Shaping: Spectral shaping filters optimize the x-ray spectrum, removing low-energy photons that contribute to patient dose without providing diagnostic information. This is especially helpful in CT examinations where it can increase contrast, and lower dose.
- Virtual Monoenergetic Imaging (VMI): Dual-energy CT allows for the generation of VMI, which can improve image contrast and reduce artifacts, potentially enabling lower radiation doses.
- The Power of AI in Radiography: AI is revolutionizing radiography by automating tasks, enhancing image quality, and improving diagnostic accuracy
- AI-Powered Image Reconstruction: Deep learning algorithms are being used to develop advanced IR techniques that surpass the capabilities of traditional methods. These algorithms can learn complex image patterns and effectively remove noise and artifacts, enabling even greater dose reductions. "Deep learning-based reconstruction algorithms can achieve superior image quality at significantly lower radiation doses compared to traditional iterative reconstruction techniques." (McCullough et al., 2017)
- AI-Driven Dose Optimization: AI algorithms can analyze patient data and imaging parameters to optimize radiation dose on a patient-specific basis. This includes predicting optimal mA settings, scan protocols, and reconstruction parameters.
- Automated Image Analysis and Interpretation: AI algorithms can automatically detect and quantify abnormalities in CT and X-ray images, reducing the workload of radiologists and improving diagnostic accuracy. In long series examinations, AI can automatically segment and analyze large volumes of image data, identifying subtle changes that may be missed by human observers. For example, AI systems can automatically detect pulmonary emboli in CT pulmonary angiograms or identify subtle fractures in full spine X-rays.
- Workflow Optimization: AI can automate tasks such as patient positioning, image archiving, and report generation, streamlining the workflow and improving efficiency. This is especially important in high-volume radiology departments, where long series examinations can be time-consuming.
- Integration of Technology in Long Series Examinations: Long series examinations, such as CT angiography of the aorta or full spine CT, present unique challenges in terms of radiation dose and image quality.

The integration of AI and low-dose techniques is essential for optimizing these examinations.

- CT Angiography (CTA): AI-powered IR can significantly reduce radiation dose in CTA without compromising diagnostic accuracy. AI algorithms can also be used to automatically segment and quantify vascular structures, improving diagnostic accuracy and reducing interpretation time. Dual energy CT combined with AI, can remove bone from the image, revealing the vessels without bone artifacts.
- CT Perfusion Studies: AI algorithms can be used to analyze perfusion data, providing quantitative information about tissue blood flow. This can improve the accuracy of diagnosis and prognosis in conditions such as stroke and cancer. Low dose perfusion studies are enabled by AI enhanced IR, and spectral shaping.
- Full Spine X-rays and CT: AI-powered image reconstruction can improve image quality and reduce radiation dose in full spine X-rays and CT. AI algorithms can also be used to automatically measure spinal curvature and identify vertebral fractures. Stitching algorithms are improved with AI, to provide a single image of the whole spine, with less artifacts.
- Lower extremity CTAs: These exams can be very long, and therefore deliver a high dose. AI and low dose techniques are paramount to reducing the dose. AI can also help with the post processing of the images, and help with the segmentation of the arteries.

Challenges and Future Directions:

Despite the significant advancements in AI and low-dose techniques, several challenges remain.

1. Data Availability and Standardization: The development of robust AI algorithms requires large, high-quality datasets. Standardization of imaging protocols and data formats is essential for enabling the development and deployment of AI-powered solutions.
2. Regulatory and Ethical Considerations: The use of AI in radiology raises important regulatory and ethical considerations, including data privacy, algorithm bias, and liability. The use of AI must be transparent and explainable.
3. Integration into Clinical Workflow: Seamless integration of AI-powered tools into the clinical workflow is essential for maximizing their impact. This requires close collaboration between radiologists, technologists, and AI developers.
4. Continuing Education: Radiology professionals must stay up-to-date on the latest advancements in AI and low-dose techniques. The future of radiography lies in the continued integration of AI, low-dose techniques, and advanced technology. By addressing the challenges and embracing

the opportunities, we can transform radiology into a more precise, efficient, and patient-centered field.

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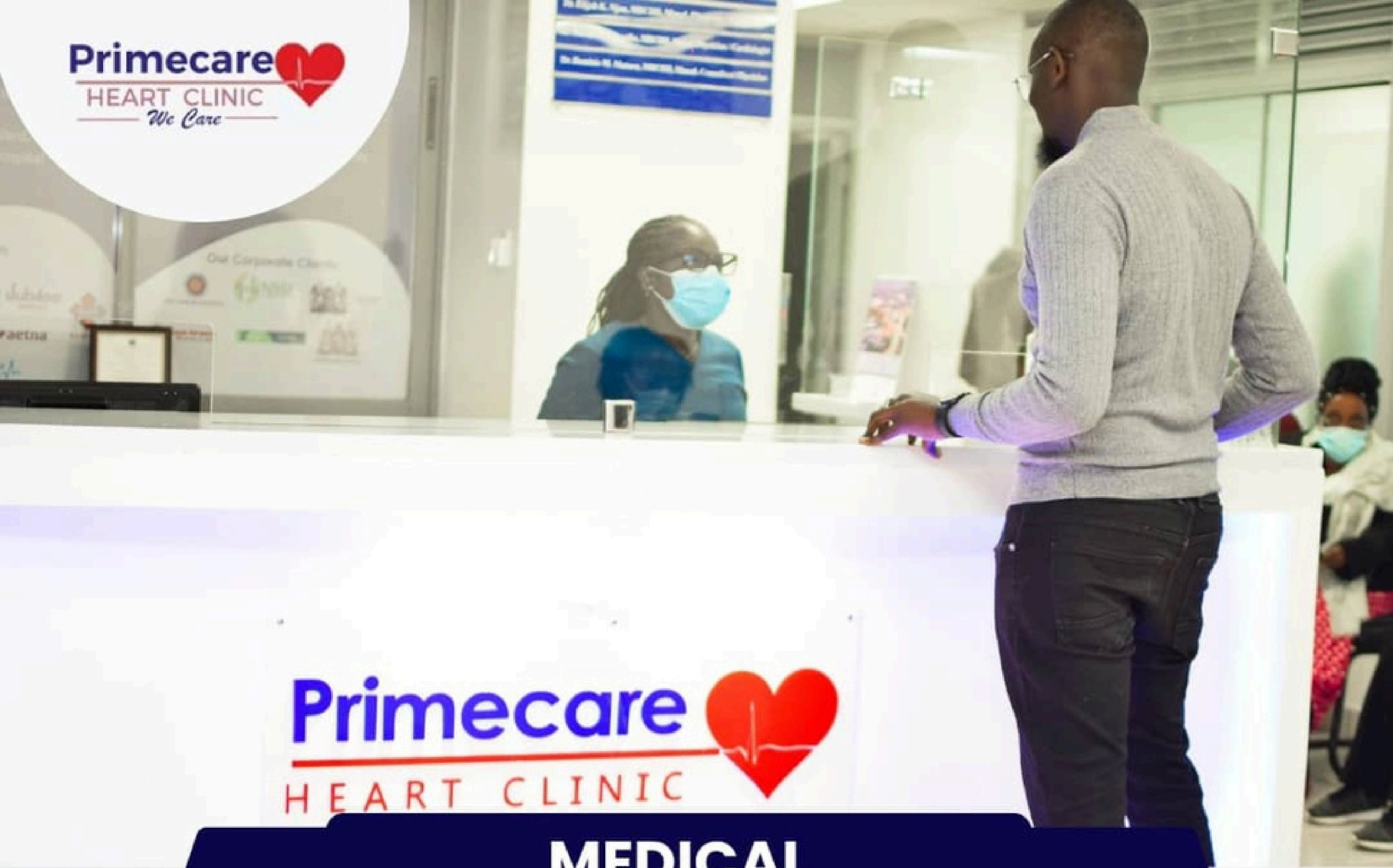

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IMAGING IN CANCER MANAGEMENT:

ADVANCING EARLY DETECTION AND TREATMENT

Abner Ombaso Atika

INTRODUCTION

Medical imaging has transformed cancer care, progressing from simple X-rays in the early twentieth century to cutting-edge technology that visualizes tumours at the molecular level. Early identification remains a critical component of cancer survival—studies suggest that identifying tumours like breast or colorectal at early stages can increase five-year survival rates to 90%, compared to 20% or less for metastatic illness (American Cancer Society, 2022). Beyond diagnosis, imaging now drives personalised treatment, assesses therapeutic efficacy, and decreases the need for intrusive biopsies. This essay delves into how contemporary imaging modalities improve cancer management and the ground-breaking technologies influencing its future

Imaging Modalities for Cancer Diagnosis

Computed Tomography (CT)

CT scans use X-rays to produce cross-sectional images, which are particularly effective at identifying malignancies in the lungs, liver, and bones. Low-dose CT technology has reduced radiation exposure by 40-60% while maintaining diagnostic accuracy, making lung cancer screening safer for high-risk patients. 4D-CT, which captures organ motion during breathing, is becoming increasingly vital for targeting lung malignancies in radiation therapy.

Real-world Impact: A 2020 study found that low-dose CT screening reduced lung cancer mortality among smokers by 20%, saving an estimated 12,000 lives per year in the United States (NEJM, 2020).

Magnetic Resonance Imaging (MRI)

MRI uses powerful magnetic fields and radio waves to generate high-resolution pictures with excellent soft-tissue contrast. This method is very effective for assessing brain, breast, and prostate malignancies. Beyond traditional anatomical imaging, sophisticated MRI techniques, such as diffusion-weighted imaging (DWI) and dynamic contrast-enhanced (DCE) MRI, provide information about tissue microstructure and vascularity. These approaches aid in the detection of early tumour alterations as well as the differentiation of benign and malignant lesions. For example, research published in the Journal of Clinical Oncology found that early use of MRI in bladder cancer patients considerably decreased the time from diagnosis to therapy, improving the treatment outcomes (The Sun, 2025).

Positron Emission Tomography (PET)

PET scans use radiotracers, such as fluorodeoxyglucose (FDG), to detect cell metabolic activity. Cancer cells have faster metabolic rates than normal tissues, making PET an effective tool for diagnosing malignancies and assessing treatment outcomes. When paired with CT (as PET/CT), the modality combines metabolic and anatomical data to provide a comprehensive overview. PET imaging has been demonstrated to predict tumour response to therapy, guide treatment modifications, and even correlate imaging features with genetic data—a topic known as radio genomics (Bi et al., 2019).

HOW IMAGING INFORMS TREATMENT PLANNING AND MONITORING

Radiation Therapy Planning

Accurate tumour identification is crucial for successful radiation therapy. Oncologists can accurately map tumour boundaries and distinguish malignant tissue from healthy structures using high-resolution CT and MRI images. This precision decreases radiation exposure to normal tissues and associated negative effects. Automated segmentation tools and image fusion techniques have made this process more efficient, ensuring that treatment regimens are accurate and reproducible.

(a) Scans show cancer cells before (left) and after (right) theranostic-guided treatment. Image courtesy of Vikas Prasad, MD. (b)Positron emission tomography (PET) CT scan of Whole human body.

Monitoring treatment response.

Serial imaging enables clinicians to monitor how tumours change over time. For example, a decrease in tumour size on CT or a decrease in FDG uptake on PET can suggest a good response to treatment. Such real-time monitoring enables adaptive therapy, which modifies treatment based on a tumour's response, to maximize effectiveness. The use of imaging biomarkers has even permitted the prediction of treatment results; radiomic research has demonstrated that quantitative imaging features can serve as valid predictors of patient survival and response to therapy (Aerts et al., 2014).

THE FUTURE OF CANCER IMAGING: AI, BIOMARKERS, AND BEYOND

Artificial Intelligence

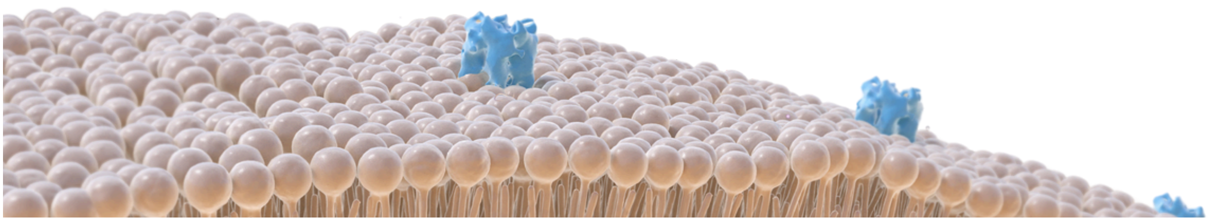
AI algorithms examine imaging data to discover small patterns that humans cannot see. Google's LYNA (Lymph Node Assistant) detected breast cancer metastases in lymph nodes with 99% accuracy, reducing pathologist errors by 85% (Nature Medicine, 2018). Similarly, AI techniques such as ProFound AI for mammography reduced radiologists' reading times by 52% while increasing cancer detection rates (Radiology: Artificial Intelligence, 2021).

Novel biomarkers

Emerging radiotracers target specific cancer biomarkers. PSMA-PET (prostate-specific membrane antigen) detects prostate cancer recurrence at PSA levels as low as 0.2 ng/mL, which is far sooner than traditional imaging (New England Journal of Medicine, 2020). Meanwhile, hyperpolarized MRI detects real-time metabolic changes in tumors using non-radioactive tracers such as pyruvate, providing insights into treatment resistance.

Liquid Biopsies and Hybrid Technologies

Combining imaging with liquid biopsies (blood tests that detect tumor DNA) could allow for non-invasive monitoring. Stanford researchers are creating "virtual biopsies" that use magnetic resonance imaging (MRI) to map tumor genetics, potentially replacing invasive tissue collection (Science Translational Medicine, 2022).



CONCLUSION: A VISION FOR THE FUTURE

Medical imaging is more than just a diagnostic tool; it is an essential component of precision oncology. From AI-powered detection to molecular biomarkers, these advancements promise to diagnose tumors early, customize treatments to individual biology, and increase worldwide survival rates. However, problems persist, such as economic hurdles and the need for defined standards. Continued collaboration among radiologists, oncologists, and engineers will be required to democratize these advances and provide equal access. As imaging technology advances, so will our ability to turn the tide against cancer.

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Author: Abner Ombaso Atika

A dedicated radiation therapy professional and an editor at Inside Imaging. He recently graduated from Jomo Kenyatta University of Agriculture and Technology with a Bachelor of Radiography (Therapy), which has equipped him with a strong foundation in medical imaging and cancer treatment.

In his role at Inside Imaging, he combine my technical expertise with my passion for medical journalism. He ensures that his peers are effectively informed about the latest advancements in radiation therapy and imaging technologies. He is committed to bridging the gap between clinical practice and informative content, and he continuously seek opportunities to foster awareness and innovation in radiation oncology.

A commitment to excellence has fueled his journey in radiography, and he looks forward to contributing further to the healthcare community through my editorial work and clinical practice.

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THE EVOLUTION LANDSCAPE OF RADIOLOGY:

CURRENT TRENDS AND FUTURE PROSPECTS

Dr. Tima Nassir Ali Khamis
Consultant Radiologist. HOD-Radiology Department; C.G.T.R.H.

INTRODUCTION

Radiology is a cornerstone of modern healthcare, offering crucial diagnostic and therapeutic insights through imaging technologies such as X-ray, ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), and nuclear medicine. Since Wilhelm Roentgen's discovery of X-rays in 1895, radiology has continuously evolved, integrating technological advancements to enhance disease detection, treatment planning, and patient outcomes (Brady et al., 2020).

Advancements in radiology contribute to improved diagnostic accuracy, reduced invasive procedures, and optimized treatment strategies. Innovations such as artificial intelligence (AI), hybrid imaging, and high-resolution modalities have revolutionized the field. However, radiology faces challenges, particularly in low-resource settings where cost, infrastructure, and workforce limitations hinder accessibility. This paper explores the current trends shaping radiology, key challenges, and the future of radiology in Kenya, concluding with recommendations for stakeholders to enhance imaging services.

Current Trends in Radiology

2.1 Artificial Intelligence (AI) in Radiology

AI has emerged as a transformative force in radiology, improving imaging interpretation, workflow automation, and predictive analytics. AI-powered algorithms assist radiologists in detecting abnormalities, reducing diagnostic errors, and expediting image analysis. Deep learning models, such as convolutional neural networks (CNNs), have demonstrated high accuracy in detecting lung nodules, breast tumors, and brain lesions (Lakhani & Sundaram, 2017). Additionally, AI applications streamline radiology workflows by automating report generation and prioritizing critical cases, enhancing efficiency and reducing workload (Hosny et al., 2018).

2.2 Hybrid Imaging Modalities

Hybrid imaging combines two or more imaging techniques to improve diagnostic accuracy. The integration of positron emission tomography (PET) with CT (PET/CT) or MRI (PET/MRI) has significantly enhanced oncologic imaging, enabling precise tumor localization and metabolic assessment. Similarly, single-photon emission computed tomography (SPECT/CT) has improved the detection of musculoskeletal and cardiovascular conditions (Kjaer et al., 2017). Hybrid imaging is particularly valuable in oncology, neurology, and cardiology, where multimodal assessment provides comprehensive disease characterization.

2.3 Advances in MRI and CT Technologies

MRI and CT technologies have seen substantial improvements in speed, resolution, and functional imaging capabilities. Ultra-high-field MRI (7 Tesla and above) offers superior soft tissue contrast and neuroimaging capabilities, enabling early detection of neurological disorders (Ladd et al., 2018). Spectral CT imaging, including dual-energy CT, enhances tissue characterization by differentiating materials based on atomic composition. Moreover, low-dose CT protocols and iterative reconstruction techniques minimize radiation exposure while maintaining image quality, addressing safety concerns associated with ionizing radiation (Brenner & Hall, 2007).

2.4 Teleradiology and Remote Imaging

Teleradiology has become increasingly relevant, particularly in regions with a shortage of radiologists. Digital transmission of medical images allows radiologists to interpret scans remotely, bridging the gap in radiology services between urban and rural areas. Cloud-based radiology platforms and picture archiving and communication systems (PACS) facilitate seamless image sharing and collaboration among healthcare providers, improving access to expert opinions (Shan et al., 2020).

Challenges in Radiology

Despite technological advancements, several challenges persist in radiology, particularly in resource-limited settings.

3.1 High Costs and Limited Accessibility

Advanced imaging modalities, such as MRI and PET/CT, require substantial capital investment, making them inaccessible in many low- and middle-income countries (LMICs). The cost of imaging equipment, maintenance, and consumables often limits the availability of radiological services, particularly in rural healthcare facilities (Kawooya, 2012). Additionally, the cost of imaging examinations may be prohibitive for many patients, exacerbating healthcare disparities.

3.2 Workforce Shortages and Training Gaps

The global shortage of radiologists remains a significant challenge, particularly in Africa. Many developing countries have a low radiologist-to-population ratio, leading to delays in imaging interpretation and diagnosis (Morris et al., 2019). Moreover, there are training gaps in emerging technologies, such as AI-assisted radiology and hybrid imaging, necessitating continuous professional development for radiologists and radiographers.

3.3 Policy and Regulatory Issues

The integration of AI in radiology raises ethical and regulatory concerns regarding data privacy, liability, and algorithm bias. The lack of standardized guidelines for AI implementation in radiology poses challenges in ensuring the safety and accuracy of AI-driven diagnoses (Langlotz, 2019). Additionally, in many developing countries, limited government investment in radiology infrastructure and workforce development hinders the expansion of imaging services.

3.4 Radiation Safety Concerns

The increasing use of ionizing radiation in diagnostic imaging raises concerns about radiation exposure, particularly for pediatric and pregnant patients. Efforts to optimize imaging protocols and implement dose-reduction techniques are crucial to minimizing radiation-related risks while maintaining diagnostic accuracy (Smith-Bindman et al., 2012).

The Future of Radiology in Kenya

4.1 Expansion of Imaging Infrastructure

Expanding imaging infrastructure, particularly in county and sub-county hospitals, will improve access to diagnostic services. Government and private sector investments in MRI, CT, and ultrasound equipment are essential for addressing disparities in imaging availability. Public-private partnerships (PPPs) can facilitate the acquisition of advanced imaging technology and ensure sustainable radiology services (Okeji et al., 2021).

4.2 AI Integration and Digital Health Solutions

Kenya has the potential to leverage AI and digital health solutions to enhance radiology services. AI-driven diagnostic tools can assist radiologists in interpreting scans more efficiently, reducing diagnostic delays. Additionally, mobile health (mHealth) applications and telemedicine platforms can improve radiology access in remote areas, enabling timely diagnosis and treatment (Mwachaka et al., 2021).

4.3 Strengthening Radiology Training and Capacity Building

To address the shortage of radiologists, Kenya must strengthen radiology training programs and expand opportunities for specialization. Collaborations between local medical schools and international radiology institutions can facilitate knowledge exchange and skill development. Incorporating AI and hybrid imaging training into radiology curricula will prepare future radiologists for emerging trends in medical imaging.

4.4 Policy and Regulatory Reforms

Kenyan policymakers should develop and implement regulations that govern AI use in radiology, ensuring ethical and legal compliance. Establishing national imaging guidelines and radiation safety protocols will standardize imaging practices across healthcare facilities. Additionally, expanding insurance coverage for radiological procedures will improve affordability and access to imaging services.

Conclusion and Call for Action

The evolution of radiology has transformed medical diagnosis and treatment, with advancements in AI, hybrid imaging, and MRI/CT technologies enhancing diagnostic accuracy and efficiency. However, challenges such as high costs, workforce shortages, and policy gaps hinder optimal radiology service delivery, particularly in resource-limited settings like Kenya.

To improve radiology services in Kenya, stakeholders should:

- Expand imaging infrastructure through government and private sector investments.
- Integrate AI and digital health solutions to optimize radiology workflows and access.
- Enhance radiology training programs to address workforce shortages and skill gaps.
- Develop regulatory frameworks to govern AI implementation and radiation safety.
- Increase funding and insurance coverage for diagnostic imaging services.

By addressing these challenges and embracing technological innovations, Kenya can advance its radiology sector, ultimately improving healthcare outcomes for its population.

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Author: **Dr. Tima Nassir Ali Khamis**

Dr. Tima Nassir Ali Khamis is a Consultant Radiologist and the Head of the Radiology Department at Coast General Teaching and Referral Hospital in Mombasa, Kenya. With extensive experience in diagnostic imaging, including CT, MRI, X-rays, and ultrasounds, she is also skilled in image-guided procedures. She serves as a part-time lecturer at the Technical University of Mombasa, Dr. Khamis has a strong research background, with published work on pediatric radiation doses, and actively participates in national and international radiology conferences. Her key interests include nuclear imaging and oncological imaging.

SMALL STEPS, BIG IMPACT:

The Resilient Growth of Nuclear Medicine in Kenya

Oguna Daniel Kasam

For decades, Kenya's nuclear medicine landscape was confined to two gamma cameras—one at Kenyatta National Hospital (KNH) and another at Aga Khan University Hospital Nairobi (AKUHN). These solitary pieces of equipment were the only gateways to nuclear medicine imaging in the country. However, in recent years, this once-limited field has witnessed a remarkable transformation. Over the past five years, nuclear medicine in Kenya has taken a bold leap forward, particularly in the realm of PET/CT applications, and is now on a rapid upward trajectory.

The most significant milestone in this progress has been the expansion of PET and SPECT imaging centers across the country, along with the installation of in-house and commercial cyclotrons ensuring a reliable supply of radiopharmaceuticals. This revolution in the field of nuclear medicine is reshaping the diagnostic and therapeutic landscape, with profound implications for patient care.

Nuclear medicine, a modality involving the administration of small amounts of radiopharmaceuticals followed by imaging with sophisticated equipment such as PET and SPECT, has always held immense potential. Its applications are now making a substantial impact in three major areas: SPECT/CT imaging, PET/CT imaging, and theranostics.

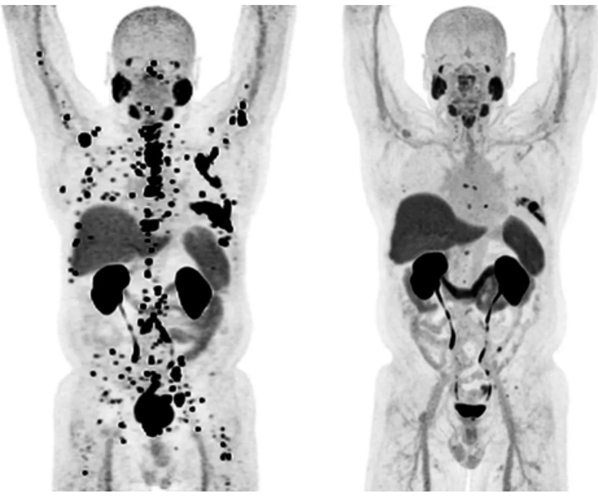
SPECT/CT IMAGING

While PET/CT has rapidly emerged as the most popular application in Kenya, SPECT, though the older of the two modalities still plays a crucial role in the country's nuclear medicine practice. However, SPECT faces significant challenges, primarily due to limited awareness of its wide-ranging diagnostic and therapeutic applications. Despite this, SPECT imaging remains indispensable in oncology, neurology, nephrology, cardiology, pulmonology, gastroenterology, endocrinology, and musculoskeletal studies, primarily utilizing technetium-99 as the radiotracer. The growing recognition of its versatility has gradually led to increased use, though it still trails behind PET/CT in terms of uptake.

PET/CT IMAGING

PET/CT imaging has quickly become the frontrunner in nuclear medicine applications in Kenya. Its role in oncology is particularly notable, where it is used for cancer staging, restaging, treatment response assessment, and the diagnosis of occult diseases. PET/CT's impact is also being felt in neurology, where it aids in the diagnosis of conditions like dementia and Alzheimer's disease. In cardiology, PET/CT is used for myocardial viability testing, while its potential in inflammatory conditions is increasingly recognized.

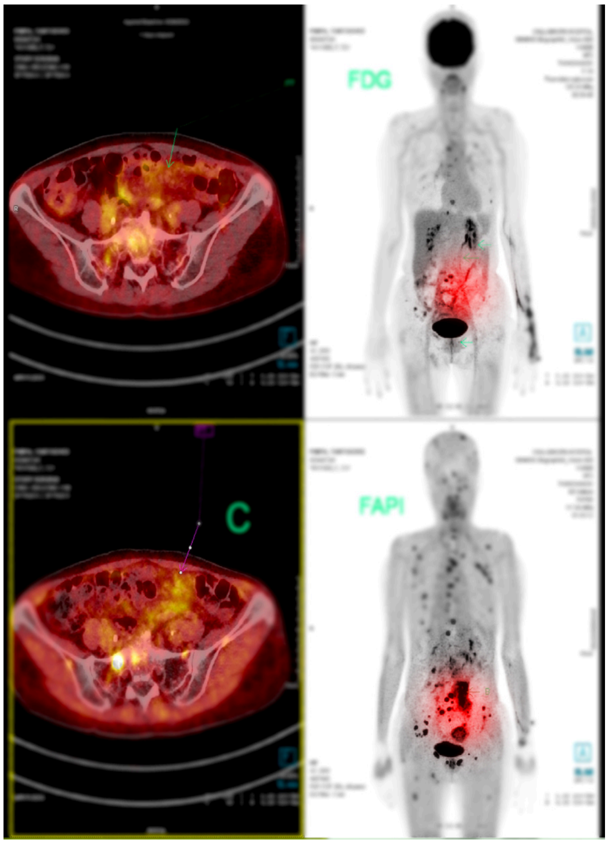
The rapid adoption of PET/CT in Kenya over the past seven years highlights not just the growing demand for more advanced diagnostic tools but also the success of various healthcare institutions in making these technologies more accessible.



(a) Scans show cancer cells before (left) and after (right) theranostic-guided treatment. Image courtesy of Vikas Prasad, MD. (b)Positron emission tomography (PET) CT scan of Whole human body.

THERANOSTICS: THE NEW FRONTIER

The most recent breakthrough in nuclear medicine is the emergence of theranostics, a novel approach that combines diagnostics and therapy using the same radiopharmaceuticals. Theranostics is particularly promising in treating conditions like thyroid cancers, castration-resistant prostate cancers, and neuroendocrine tumours. Kenya's strides in this area are being spearheaded by Kenyatta University Teaching, Referral & Research Hospital (KUTRRH), which has pioneered the establishment of the first Lu177 therapy for prostate cancer in the region.



THE EXPANDING NETWORK

Today, Kenya is home to seven nuclear medicine facilities, a sharp contrast to the two that once defined the country's capabilities. The growth of these centers including KUTRRH, AKUHN, Nairobi West Hospital, Ruai Family Hospital (RFH), HCG Cancer Care, Nairobi Radiotherapy Center, and Ultradiagnostic Center (UDC), illustrates the rapid development of this essential medical field. Each facility plays a critical role in serving the increasing demand for nuclear medicine services, with a growing number of patients benefiting from more accurate diagnoses and cutting-edge treatments.

The evolution of nuclear medicine in Kenya, from its humble beginnings with only a handful of equipment to a dynamic field with advanced imaging modalities and theranostics, is a testament to the country's resilience and commitment to improving healthcare. The swift growth in PET/CT technology, the continued relevance of SPECT, and the promising future of theranostics are just the beginning.

However, with this rapid expansion comes an urgent need to invest in training more nuclear medicine specialists. The field remains critically understaffed, posing a challenge to sustaining and optimizing these advancements.

Addressing this workforce gap through formalized training programs and capacity-building initiatives is essential for ensuring quality service delivery and expanding access to these life-saving technologies.
Additionally, while progress has been commendable, all current nuclear medicine facilities are concentrated in Nairobi. Expanding services to other counties is crucial in making nuclear medicine accessible to more Kenyans, especially those in underserved regions. Decentralization will not only improve early diagnosis and treatment for patients outside the capital but also contribute to reducing the burden on existing centers

Oguna Daniel Kasam,
Nuclear Medicine Technologist.

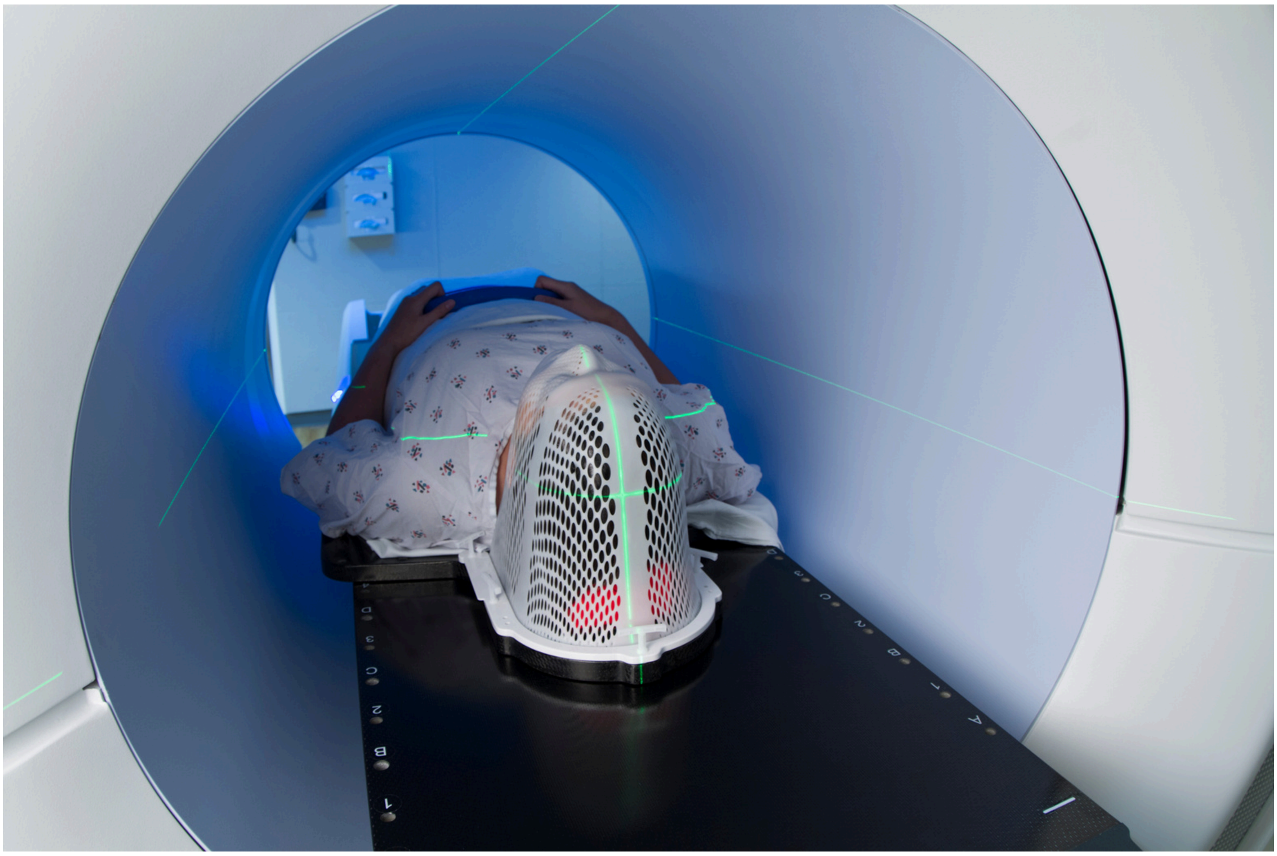
PERSONALIZED MEDICINE IN RADIOTHERAPY (PM-RT):

THE FUTURE OF PERSONALIZED CANCER THERAPIES

John Jaote

Introduction

One of the new concepts in medicine is personalized medicine. In radiotherapy, it means radiation treatment that is designed according to the specific needs of each individual patient and takes into consideration factors like tumor and tumor environment. The aim of personalized medicine is to minimize side effects and enhance therapeutic efficacy. Application of personalized medicine concepts has attained tremendous progress in radiotherapy, a very important aspect of cancer management. The article discusses the progress in PM-RT, benefits, challenges and future directions with a Kenyan and African perspective.



PROGRESS IN PERSONALIZED RADIATION THERAPY

I.Adaptive radiotherapy (ART)-increases accuracy and reduces harm to healthy tissue by promptly modifying treatment plans according to the tumor's modification in size, shape, or patient anatomy. Advanced imaging techniques, such as MRI-guided radiotherapy, enhance fine-tuning, such that the radiation dose is accurately delivered to the tumor while surrounding healthy tissues are avoided.

II. Genomic Profiling- involves the analysis of the extent of genetic mutations and expression in a patient's tumor to help oncologists decide on individual biomarkers of response to radiotherapy. For instance, certain genetic alterations can make the tumor susceptible to radiation, while others cause resistance. NGS and other technologies have made it possible to quickly and accurately profile tumors, and the most appropriate radiotherapy treatments available to choose from.

Benefits

I. Enhanced Treatment Precision: Individualized methods such as image-guided methods and adaptive radiation improve targeting of tumors, with less harm to normal tissue and better results.
II. Fewer Side Effects: Innovations such as motion control and proton therapy minimize long-term toxicity and enhance quality of life for patients.
III. Better Patient Outcomes: These innovations result in better cancer control and survival, particularly in difficult situations.

Challenges:

I. Expensive: Adaptive radiation, Proton therapy, and Artificial intelligence are a few of the high-end technologies that involve massive investments that are usually not feasible in LMICs.
II. Poor Availability of Equipment: Rural populations have limited access to high-end imaging (CT, MRI, PET) and radiation equipment since these facilities are usually unavailable or are concentrated in urban areas.
III. Maintenance and Sustainability: Due to a lack of technical know-how and spare parts, day-to-day maintenance and repair of sophisticated equipment could be difficult to perform.

FUTURE PROSPECTS IN KENYA AND AFRICA

AI-Powered Treatment Plans' Potential

As the technology of artificial intelligence (AI) continues to develop, there is a bright future ahead for personalized radiotherapy in Kenya and Africa. AI-treatment planning has the ability to generate optimal radiation schedules by analyzing enormous amounts of information, such as imaging scans, clinical responses, and genomic information. By minimizing the necessity of extensive infrastructure and expertise, this can help break some of the current constraints on personalized medicine. Artificial intelligence algorithms, for instance, can be used to help determine which patients will be most helped by a particular radiotherapy treatment in order to better allocate resources.

Collaborative Efforts and Capacity Development

To be in a position to unlock the potential of personalized radiotherapy in Africa, capacity building and collaborative efforts are required. International organizations, technology companies, and local healthcare institutions can collaborate to facilitate knowledge and resource transfer. Clinicians can be empowered with training programs in genomics, radiomics, and AI to facilitate the development of the expertise required to provide personalized radiotherapy. Efforts must also be made to expand access to genomic profiling and more sophisticated imaging technologies in an effort to bring more personalized medicine to the region.AI-Powered Treatment Plans' Potential

Conclusion

PM-RT represents the future of personalized cancer therapy, with promises of improved patient outcomes and reduced side effects. In Kenya and Africa, the prospect of AI-driven treatment planning and collaboration offers hope for overcoming limitations. As professionals, it is our responsibility to advocate for and facilitate the actualization of personalized radiotherapy so that all patients can have access to ideal cancer care.

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RT(T)(S) John Jaote is a qualified Radiation Therapist and researcher in Radiotherapy and Diagnostic Radiography. He holds a Bachelors Degree in Radiotherapy from Jomo Kenyatta University. John is particularly interested in radiotherapy development and precision in cancer treatment.

RESEARCH

CASE 18846

Extrapulmonary cystic manifestation of angioinvasive pulmonary aspergillosis

rid: 159677

Hepatic metastasis with tumor thrombus extending to the right atrium

CASE 18846

EXTRAPULMONARY CYSTIC MANIFESTATION OF ANGIOINVASIVE PULMONARY ASPERGILLOSIS

Eurorad

Confirmation of Publication

This is to officially confirm that case report **18846** was published in EURORAD, the database of radiological case reports of the European Society of Radiology.

Title:
Extrapulmonary cystic manifestation of angioinvasive pulmonary aspergillosis

Authors:
Martin Ian Kamanda 1, Mary Kerubo Onyinkwa 1, Rahul Zode 2, Michieka Okioga 2

Published on:
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CASE 18846

EXTRAPULMONARY CYSTIC MANIFESTATION OF ANGIOINVASIVE PULMONARY ASPERGILLOSIS

Published on 30.01.2025

DOI: 10.35100/eurorad/case.18846
ISSN: 1563-4086
Section: Chest imaging
Area of Interest: Lung Respiratory system
Thorax
Procedure: Laboratory tests
Imaging Technique: CT
Imaging Technique: CT-High Resolution
Case Type: Clinical Case
Authors: Martin Ian Kamanda 1, Mary
Kerubo Onyinkwa
1, Rahul Zode 2, Michieka Okioga 2
Patient: 37 years, female

Clinical History:
A 37-year-old lady came to the hospital with a complaint of a non-irritating cough, which was managed as an allergic cough and she was discharged with medication. However, she was brought back to the hospital with exertional dyspnoea, abdominal swelling and mild pitting bipedal oedema. This time, she was admitted for a comprehensive diagnostic workup. In the last 10 years, she had been treated for pulmonary aspergillosis and hypothyroidism.

Imaging Findings:
High-resolution chest CT showed bilateral ground glass opacities, fibrosis and asymmetric cylindrical bronchiectasis. The left upper lobe bronchus was severely ectatic, leading to a large peripheral cavity (positive feeding bronchus sign) (Figure 1a). In the hila, there were multiple well-defined mattered cystic lesions compressing and narrowing the diameter of the right interlobar pulmonary artery and the left lower lobe pulmonary artery (Figures 1b, 1c, and 1d). There was no evidence of pulmonary embolism.
An echocardiogram scan showed that the right cardiac chambers were dilated with impaired right ventricular function and right ventricular hypertrophy. There was also evidence of severe tricuspid regurgitation and pulmonary arterial hypertension.

CASE 18846

EXTRAPULMONARY CYSTIC MANIFESTATION OF ANGIOINVASIVE PULMONARY ASPERGILLOSIS

Discussion:

Background Pulmonary aspergilloses constitute a group of mycotic diseases with a wide spectrum of clinical syndromes often dependent on the host's immune status or previous history of bronchopulmonary disease. There are three classifications of the disease, namely, invasive aspergillosis, allergic bronchopulmonary aspergillosis and chronic aspergillosis [1].

Clinical Perspective

Invasive aspergillosis typically afflicts patients who are immunocompromised patients, while chronic pulmonary aspergillosis afflicts patients who have had a history of parenchymal lung disease such as chronic obstructive pulmonary disease or previous mycobacterial lung disease. Allergic bronchopulmonary aspergillosis afflicts patients with bronchial asthma or cystic fibrosis, mainly due to an allergic response to aspergillus [1]. Invasive pulmonary aspergillosis has been associated with high mortality rates, and it can be airway-invasive or angioinvasive [1].

Imaging Perspective

There are no specific radiological features associated with angioinvasive aspergillus infection. Typical radiological patterns may include nodules with or without ground-glass opacities, masses, consolidation, wedge-shaped infarcts and pleural effusions. In the advanced stage of the disease, cavitary formation is prevalent [2]. In this case report, the unusual feature of cystic lesions in the perihilar regions was a rare finding in angioinvasive pulmonary aspergillosis.

CT findings are vital for guiding further invasive diagnostic procedures such as flexible bronchoscopy with alveolar lavage and/or CT-guided biopsy, which are helpful in narrowing the diagnosis through microbiological and histological diagnosis [2].

Outcome

In our case, based on clinical, radiological and histopathology, the diagnosis of systemic fungal infection (aspergillosis) was made.

Initially, the patient improved and was scheduled for a discharge. However, she suddenly changed her condition with the onset of cough, restlessness, and severe haematemesis after a session of chest physiotherapy. Resuscitation attempts were unsuccessful, and she succumbed.

The autopsy report revealed marked parenchymal and airway fibrosis with extensive haemorrhage and fungal elements with hyphae branching at acute angles (Figures 2a and 2b). In the hila, there were multiple cystic lesions of varying sizes. Some of the cysts

CASE 18846

EXTRAPULMONARY CYSTIC MANIFESTATION OF ANGIOINVASIVE PULMONARY ASPERGILLOSIS

contained a clear fluid with a white capsule while others contained serous fluid and were adherent to blood vessels and airways.

Take Home Message / Teaching Points

- The identification of a "feeding bronchus sign" can aid in the diagnosis of peripheral lesions through a guided bronchoscopy.
- CT pulmonary angiogram has a better sensitivity and specificity in the diagnosis of angioinvasive pulmonary aspergillosis.
- A combination of clinical, radiological, and pathological diagnoses can narrow down the diagnosis of the disease.

All patient data have been completely anonymised throughout the entire manuscript and related files.

Differential Diagnosis List: Systemic fungal infection (aspergillosis), Chronic obstructive pulmonary disease, Cor pulmonale

Final Diagnosis: Systemic fungal infection (aspergillosis)

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Lewis RE, Stanzani M, Morana G, Sassi C (2023) Radiology-based diagnosis of fungal pulmonary infections in highrisk hematology patients: are we making progress? Curr Opin Infect Dis 36(4):250-6. doi: 10.1097/QCO.0000000000000937. (PMID: 37431554)

CASE 18846

EXTRAPULMONARY CYSTIC MANIFESTATION OF ANGIOINVASIVE PULMONARY ASPERGILLOSIS

A

Description: Coronal reformat showing the positive feeding bronchus sign. Origin: © Department of Radiology and Pathology, The Nairobi Hospital, Nairobi, Kenya, 2024

C

Description: Coronal reformat showing the positive feeding bronchus sign. Origin: © Department of Radiology and Pathology, The Nairobi Hospital, Nairobi, Kenya, 2024

B

Description: Axial reformat showing a cystic lesion compressing the adjacent artery.Origin: © Department of Radiology and Pathology, The Nairobi Hospital, Nairobi, Kenya, 2024

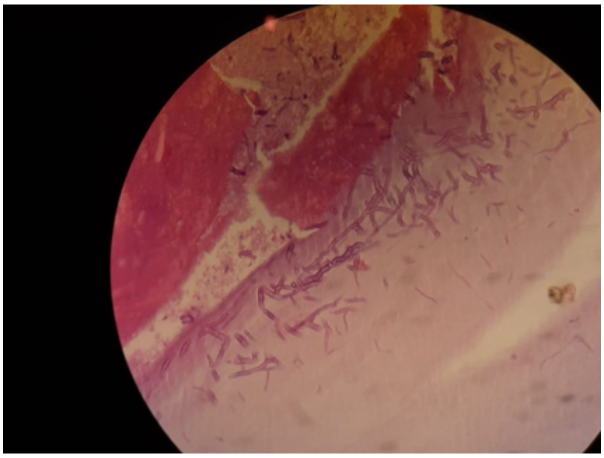
CASE 18846

EXTRAPULMONARY CYSTIC MANIFESTATION OF ANGIOINVASIVE PULMONARY ASPERGILLOSIS

D

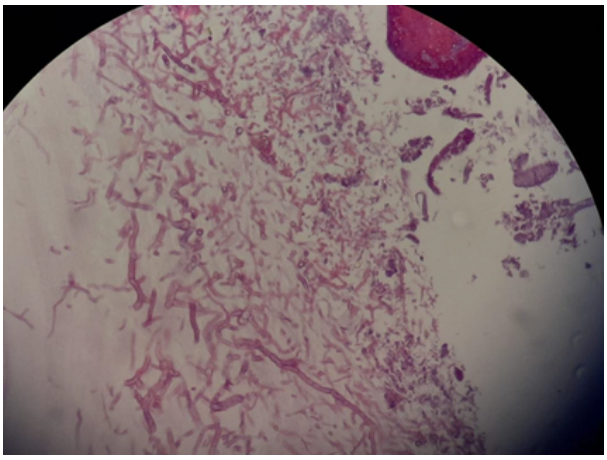
Description: Coronal (1c) and sagittal (1d) reformats showing the mattered cystic lesions.Origin: © Department of Radiology and Pathology, The Nairobi Hospital, Nairobi, Kenya, 2024

A



Description: Grocott's silver stain confirms the presence of Aspergillus. Origin: © Department of Radiology and Pathology, The Nairobi Hospital, Nairobi, Kenya, 2024

B



Description: Grocott's silver stain confirms the presence of Aspergillus. Origin: © Department of Radiology and Pathology, The Nairobi Hospital, Nairobi, Kenya, 2024

rid: 159677

HEPATIC METASTASIS WITH TUMOR THROMBUS EXTENDING TO THE RIGHT ATRIUM

Published on 17 Jan 2023

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Machang'a K, Hepatic metastasis with tumour thrombus extending to the right atrium. Case study, Radiopaedia.org (Accessed on 27 Jun 2025) https://doi.org/10.53347/rID-159677
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Disclosures:
At the time the case was submitted for publication Karen Machang'a had no financial relationships to ineligible companies to disclose.

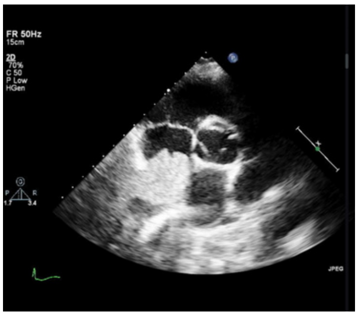
Case published:
17 Jan 2023
Revisions:
14 times, by 3 contributors
Systems:
Hepatobiliary, Cardiac, Oncology

Clinical History:
Abdominal pains and vomiting for 2 weeks

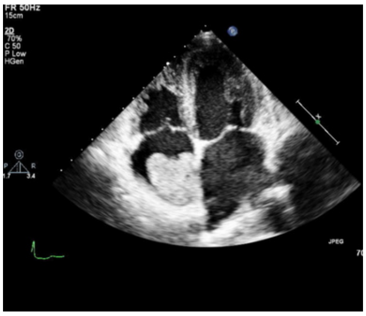
Patient Data:
40 Years, Male.

rID: 159677

HEPATIC METASTASIS WITH TUMOR THROMBUS EXTENDING TO THE RIGHT ATRIUM

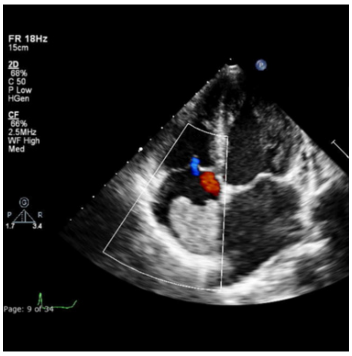


Parasternal short axis (PSAX) at the base.



Apical four chamber.

Right ventricular inflow view



Apical four chamber with color doppler at the tricuspid valve.

Normal biventricular systolic function. Echogenic fixed right atrial mass measuring 4.2 x 3.4cm. The tricuspid valve orifice is not obstructed. Trace tricuspid regurgitation. Moderate mitral regurgitation.

CT Scan

The liver demonstrated a heterogenous pattern post contrast with an ill defined heterogenous mass in segment II, III . Segment IVb appeared to be involved. The lesion in segment II appeared to be infiltrating the IVC extending to the right atrium without a clear cardiac mass.

Gallbladder bile appeared dense. CBD was dilated. There was mild perihepatic, pericholecystic, peri-splenic, left perirenal and pelvic fluid.

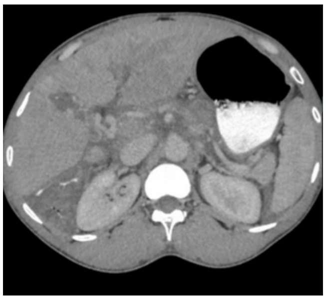
There was a thrombus within superior mesenteric vein and portal vein. Enlarged porta hepatis and gastric bed nodes seen.

Extensive concentric ascending colon wall thickening with associated luminal narrowing.

Multiple pulmonary nodules were seen.

rID: 159677

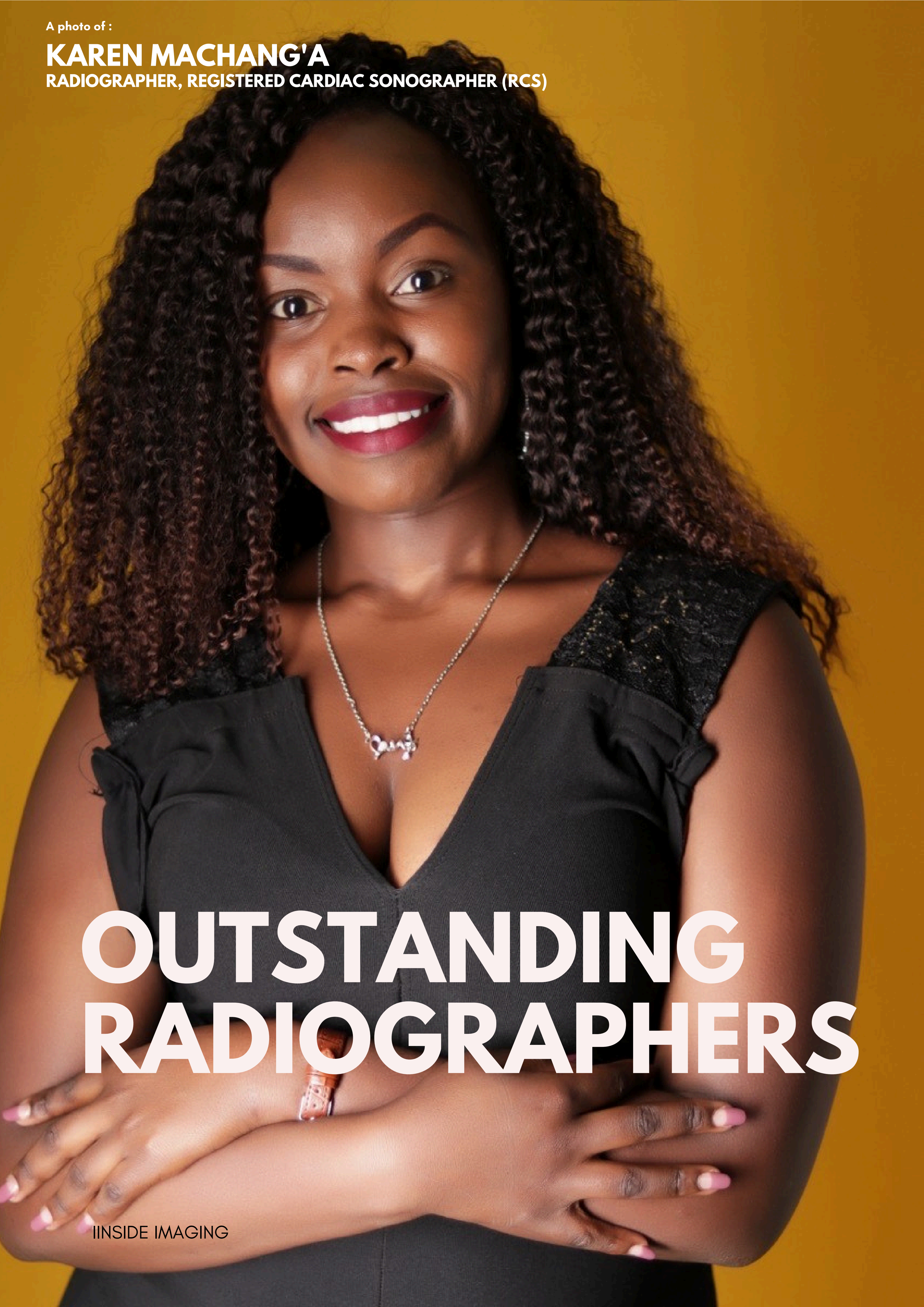
HEPATIC METASTASIS WITH TUMOR THROMBUS EXTENDING TO THE RIGHT ATRIUM



Tumour markers and a liver biopsy were done for this patient.
TUMOUR MARKERS: AFP :1000 , Ca 125 :145 , Ca 19-9 :14.9 , CEA :1.5 , vitamin D :44 .

Case Discussion

CT demonstrated features of colorectal carcinoma with hepatic metastasis and IVC tumour thrombus infiltration extending to the right atrial chamber as seen in echo images.
The differentials for the intracardiac mass based on echo findings include a lipoma or a primary tumour such as myxoma.


A photo of :
KAREN MACHANG'A
RADIOGRAPHER, REGISTERED CARDIAC SONOGRAPHER (RCS)
OUTSTANDING RADIOGRAPHERS
IINSIDE IMAGING

KAREN MACHANG'A

RADIOGRAPHER, REGISTERED CARDIAC SONOGRAPHER (RCS)

Karen Machang'a stands as a beacon of excellence in the field of cardiac sonography in Kenya. Her journey from a radiography student to a recognized leader in cardiovascular imaging is a testament to her dedication, resilience, and passion for healthcare.

Professional Summary

Karen Machang'a is a dedicated healthcare professional with a passion for improving patient outcomes and advancing public health initiatives. With a diverse background spanning radiography, cardiac sonography, ECG, publishing case studies and articles, and health advocacy, she strives to make a positive impact in the field of healthcare and wellness.

She is committed to promoting health and wellness through education, advocacy, and community engagement, with a focus on supporting Sustainable Development Goal 3 (Good Health and Well-being). Karen is passionate about collaborating with like-minded professionals and organizations to drive positive change in healthcare. Whether it's discussing research opportunities, sharing insights on public health initiatives, or exploring partnership opportunities, she remains eager to connect and collaborate to enhance healthcare outcomes and accessibility.

Early Life and Education

Karen's fascination with medical imaging began during her undergraduate studies at Jomo Kenyatta University of Agriculture and Technology, where she earned a Bachelor of Radiography degree. Eager to specialize, she pursued a Post Graduate Certificate in Echocardiography and ECG from the Kenya Medical Training College (KMTC). Her commitment to continuous learning led her to complete an Advanced Course in Intensive Care Echocardiography from the European Society of Intensive Care Medicine (ESICM), equipping her with cutting-edge skills in cardiac imaging. Additionally, she holds the prestigious Registered Cardiac Sonographer (RCS) certification from the Cardiovascular Credentialing International (CCI), further solidifying her expertise in the field.

KAREN MACHANG'A

RADIOGRAPHER, REGISTERED CARDIAC SONOGRAPHER (RCS)

Professional Milestones

At The Nairobi Hospital, Karen played a pivotal role in advancing cardiac sonography services. Her expertise has significantly improved patient outcomes, particularly in the diagnosis and management of cardiovascular diseases. Recognizing her contributions, she was appointed as an ambassador for 123sonography, a global platform for medical ultrasound education. In this capacity, she collaborates with international experts to enhance cardiac imaging practices and elevate ultrasound education worldwide.

Teaching and Mentorship

Karen is passionate about education and mentorship, having taught diploma students at KMTC in Human Anatomy and Physiology. Additionally, she lectured at the Nairobi West College of Health Sciences, where she taught Electrocardiography (ECG). Her teaching experience has allowed her to shape the next generation of medical professionals, instilling both technical expertise and a patient-centered approach to healthcare.

Editorial Contributions

Karen's passion for knowledge dissemination led her to join Radiopaedia.org as a contributor, where she has published over 40 cardiac case studies and written more than 10 articles. Her dedication and expertise earned her the roles of sub-editor and later editor, where she ensures the accuracy and quality of educational materials available to radiology professionals worldwide.

📌 **Published Works:** Karen Machang'a on Radiopaedia

Public Health Advocacy and Collaboration

Beyond her expertise in imaging, Karen is deeply committed to health advocacy, research, and education. She actively participates in public health discussions, community engagement programs, and knowledge-sharing initiatives that aim to improve patient care and accessibility to advanced imaging techniques.

Karen thrives on collaborating with professionals, researchers, and organizations that share a common goal of enhancing healthcare services and education. She believes in leveraging collective expertise to drive meaningful change in the industry.

KAREN MACHANG'A

RADIOGRAPHER, REGISTERED CARDIAC SONOGRAPHER (RCS)

Personal Philosophy and Vision

Karen believes in the transformative power of education, mentorship, and advanced technology in medical imaging. She actively trains and mentors upcoming radiographers and sonographers, emphasizing the importance of empathy, precision, and continuous improvement in healthcare. Her vision is to see a healthcare system where advanced imaging techniques are accessible and where professionals are well-equipped to utilize them for optimal patient care.

Conclusion

Karen Machang'a's journey is an inspiring narrative of passion, expertise, and leadership. Her contributions to cardiac sonography, radiographic education, mentorship, and public health advocacy have not only elevated the standards in Kenya but have also gained global recognition, inspiring many in the field of medical imaging.

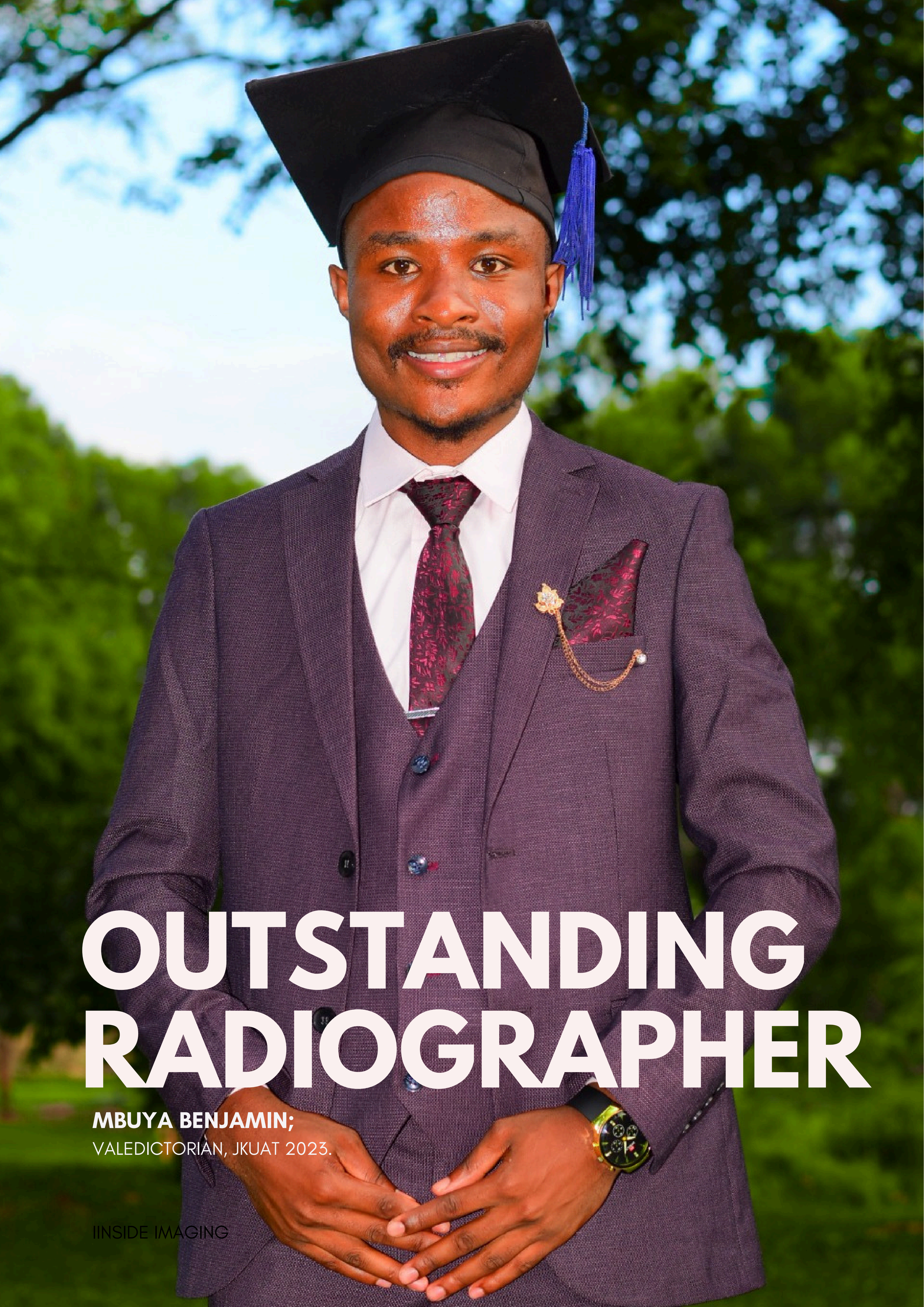
MARTIN IAN KAMANDA –

PHD. PUBLIC HEALTH (JKUAT/KEMRI-ONGOING), MSC. HSM(UON), B. TECH. RAD (UNIV. OF JOBURG)

Martin Ian Kamanda is the immediate former lecturer at Jomo Kenyatta University of Agriculture and Technology. He taught scanning parameters in CT, Volumetric post processing, CT correlation anatomy and physiology. He was also instrumental in research and clinical supervision of students.

Currently, he is the manager of the Radiology department at the Nairobi Hospital. The department spans six outpatient centers, a main radiology section, oncology center, Cath lab, accident and emergency and echocardiography lab. He oversees smooth operations of the department to enable efficient provision of 'one stop' radiology services. The department has over 53 radiographers and sonographers covering the department.

Being an avid researcher with peer reviewed articles, he aims at bridging the gap between clinical research and public health research. In addition, he also envisages to find a nexus between radiology-based research and public health research. His research interests are mainly on radio morphometry and its impact on a public health level. At an individual level, he is currently a Phd public Health candidate enrolled in the JKUAT/KEMRI program. He is working on clinical and demographic determinants on the variation of the conus medullaris at magnetic resonance imaging.


OUTSTANDING
RADIOGRAPHER
MBUYA BENJAMIN;
VALEDICTORIAN, JKUAT 2023.
IINSIDE IMAGING

The EXPOSURE Button Series...

659
Total Attendees

7.5Hrs
Total Duration

Geographic Data
Kenya,Tanzania,Uganda ,Rwanda,Nigeria,Ghana ,Egypt,Australia,Britain, USA,Eswatini,Zambia,Jamaica,South Africa,Botswana, Mozambique

6.5/10
Engagements Metrics

3973
Total Impressions

PACORI 2025

PACORI

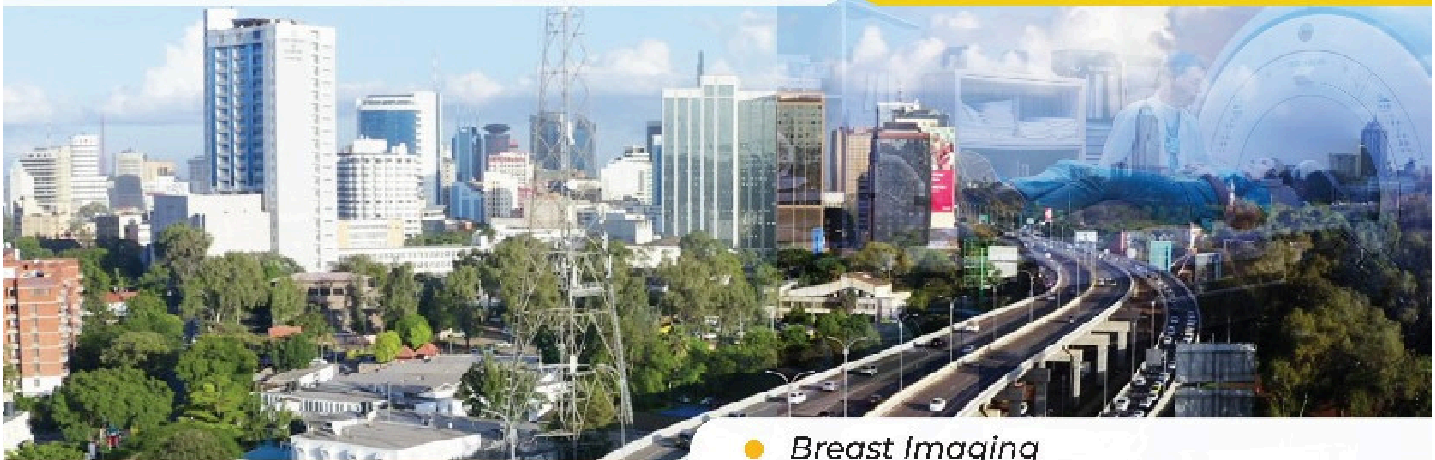
PAN AFRICAN CONGRESS OF RADIOLOGY & IMAGING
BIENNIAL SCIENTIFIC CONGRESS

www.pacori.org

THEME: *Advancing Education, Innovation and Collaboration in Radiology across Africa for Better Healthcare Outcomes.*

Venue: Argyle Grand Hotel, Nairobi, Kenya

24th - 27th September 2025



PRE-CONGRESS WORKSHOP
24TH SEPTEMBER 2025

- *Breast Imaging*
- *Musculoskeletal Imaging*
- *Cardiac Imaging*
- *Radiation Protection*

CALL FOR ABSTRACTS

The committee will accept only a limited number of papers that meet the criteria of orignality, presentation quality and topic relevance. The structured abstracts should be between 250 - 300 words. The deadline for abstract submission is **30th April 2025** and Abstracts should be submitted by email only to: **pacorikenya2025@gmail.com**

Registration Fees

	Early Bird 30th April 2025	After 1st May 2025
PACORI Members	**Kshs. 20,000** (160 USD)	**Kshs. 25,000** (200 USD)
NON Members	**Kshs. 25,000** (200 USD)	**Kshs. 30,000** (240 USD)
International Delegates	**Kshs. 25,000** (200 USD)	**Kshs. 32,000** (255 USD)
Students (Limited slots)	**Kshs. 15,000** (120 USD)	**Kshs. 17,000** (135 USD)

BANK DETAILS

Bank Name:	**NATIONAL BANK**	Bank Code :	**12**
Account Name:	**PACORI**	Branch Code :	**025**
USD Account:	**7717901919**	Branch Name :	**HOSPITAL**
KSH Account:	**7717888866**		

MEDICS MANAGEMENT SERVICES

Conference Organizer
Medics Management Services (MMS).
Tel: +254 0726 830 732

Email : info@mmskenya.co.ke
Website: www.mmskenya.com

THE 11TH BIENNIAL PAN AFRICAN CONGRESS OF RADIOLOGY & IMAGING (PACORI) 2025

The Pan African Congress of Radiology and Imaging (PACORI) is a premier scientific congress
that unites stakeholders in radiation medicine from across Africa and beyond. Established in 2000 through the efforts of radiologists and radiographers in East Africa, PACORI has evolved
into a biennial African scientific congress and exhibition dedicated to advancing radiology, imaging, and radiation medicine across the continent.

PACORI's primary objective is to create a vibrant international network of imaging professionals to foster collaboration and drive innovation in diagnostics, interventions, and treatments. Stakeholders include diagnostic and therapy radiographers, Sonographers, radiologists, nuclear medicine physicians, medical physicists, radiation oncologists, biomedical engineers, medical radiation regulators, manufacturers, vendors, and suppliers of radiological equipment, financiers, academicians, researchers, students, and other healthcare collaborators.

Delegates from Africa, Asia, Europe, the USA, and Australia will participate, offering an unparalleled opportunity for benchmarking on best practices, networking, and collaboration.

The Congress has previously been hosted in the following pan-African cities; Nairobi- Kenya (2001,2003), Dar es Salaam-Tanzania (2005), Kampala - Uganda (2007), Abuja- Nigeria (2009), Lusaka- Zambia (2011), Kigali-Rwanda (2013), Nairobi-Kenya (2015), Dar es Salaam-Tanzania (2017), Accra-Ghana (2019), Addis Ababa-Ethiopia (2021- postponed due to Covid-19), Nairobi-Kenya (proposed host 2025).

The 11th Biennial PACORI Congress will be held in Nairobi, Kenya, from 24th to 28th September 2025, at the Argyle Grand Hotel Nairobi- Kenya.

Themed "Advancing Education, Innovation, and Collaboration in Africa: Radiology for Better Healthcare Outcomes," this multidisciplinary Congress will feature:

·Cutting-edge presentations on advancements in diagnostic imaging, interventional radiology, radiation therapy, and technological innovations.

·Discussions addressing challenges, solutions, and emerging opportunities, including the integration of AI to achieve sustainable and quality healthcare in Africa.

·Interactive sessions on health financing, teleradiology, and education in radiation medicine.

·A scientific exhibition, providing a platform for suppliers, marketers, manufacturers, and consumers to showcase innovations, research advancements, and practical solutions to improve radiation medicine in Africa.

Radiographers are encouraged to submit abstracts for PACORI 2025, aligning with the PACORI scientific committee's criteria. Submissions should fall under the following sub-themes:

- **AI in Radiology and Imaging**
- **Innovation in Radiotherapy**
- **Molecular Imaging: Trends & Future Directions**
- **Interventional Radiology: The Future of Minimally Invasive Procedures**
- **Advancements in Imaging Technology, Equipment & Medical Physics**
- **Radiation Safety & Protection**
- **Education & Training in Radiology and Imaging**
- **Collaborative Research in Radiology across Africa**
- **Enhancing Patient Experience in Radiology & Imaging**
- **Regulatory & Policy Issues in Radiology and Imaging**
- **Future Trends & Challenges in Radiology & Ultrasound Medicine**
- **Financing Radiology**

Interested radiographers should ensure their abstracts meet PACORI's scientific criteria. (Refer to PACORI 2025 Website www.pacori.org. Abstract to be sent to: abstracts2025@pacori.org by Saturday, May 30, 2025 | 23:59 EAT.

The congress will feature:

·**Pre-congress workshops, plenary sessions, modality-based breakout sessions,**
exhibitions, a gala dinner, and more.

·**A unique blend of academic, social, and policy-driven activities to enrich the experience for all participants.**

The PACORI 2025 Pre-Congress workshop is to be held on 24th September 2025, featuring the following themes; Breast Imaging, Musculoskeletal imaging, and Cardiac imaging which will attract global experts as speakers.

On behalf of the PACORI 2025 organizing committee, I look forward to seeing every PACORI friend in Nairobi in September 2025 for this exceptional event.

Jevas O. Kenyanya
Vice President PACORI 2025

https://conferences.iaea.org/event/413/

CONFERENCE ON RADIATION PROTECTION IN MEDICINE — X RAY VISION

VIENNA, AUSTRIA FROM 8 TO 12 DECEMBER 2025

The conference, co-sponsored by the World Health Organization and the Pan American Health Organization, will extend on the achievements of previous IAEA conferences on the topic held in 2012 and 2017 focusing on the radiation protection and safety of patients and health professionals undergoing or using radiation to diagnose and treat health conditions.
The latest research shows that about 4.2 billion medical radiological examinations are performed each year, and this number continues to grow: for example, more computed tomography (CT) scanners are being installed in clinics around the world to replace conventional X ray procedures, while in nuclear medicine therapy, there is increasing use of radionuclides for treating metastatic cancer cells. In addition, an estimated 6.2 million courses of radiation therapy treatment are performed each year. New medical radiation technology and procedures continue to be developed.
"The conference will review significant global developments in the radiation protection of patients and health professionals taking into account current trends and advances in medical radiation technology and procedures," said Hildegarde Vandenhove, Director of the IAEA Division of Radiation, Transport and Waste Safety.

Vision for the Future

The theme of the conference, 'X ray vision', represents the techniques developed long ago to see inside the human body using ionizing radiation. It also represents the opportunity for medical experts to 'look into' the future by examining the current and potential upcoming trends and challenges, to enable them to formulate a vision to further enhance global radiation protection of patients and medical workers against the harmful effects of ionizing radiation.

Improving Radiation Protection in Healthcare

Exchanges will include the discussion of new trends in medical uses of radiation, such as using artificial intelligence in medical imaging and therapy, which can accelerate research to reduce patient radiation doses and calls for quality assurance programmes, interdisciplinary collaboration, and consideration of ethics, patient privacy and data security. Participants will also discuss ways to help raise the voices of patients in relation to their own healthcare plan.

The conference will provide a platform for enhanced networking opportunities among health professionals, including physicians practising in radiological imaging, nuclear medicine and radiotherapy, referring medical practitioners, medical physicists, medical radiation technologists and regulatory authorities.

Inside Imaging

Partnerships

YHCP

Young Healthcare Professionals Community

Successful Breast Cancer Awareness Campaign

@YoungHealthcareProfessionalsCommunity

RADJAMII

RADJAMII

Development of Educational Content

@Radjamii

Merch by Medico

ESTD 2024

Medico

ESTD 2024

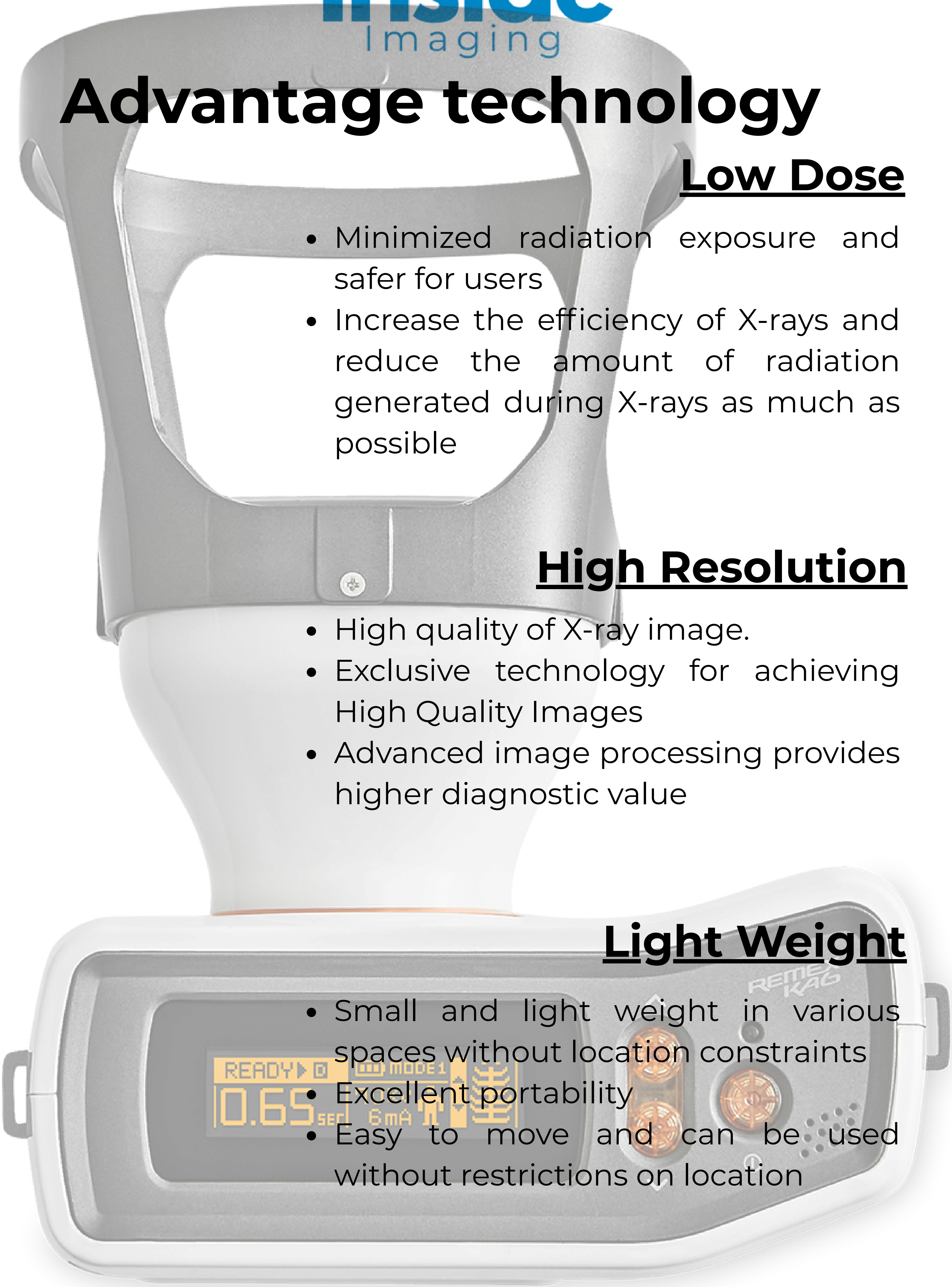
PLACING AN ORDER?

CONTACT : 0715068510

BUSINESS & INNOVATION

REMEDI Introduces Best-in-Class, Affordable & Innovative Handheld X-Ray Machine.

Inside Imaging



Advantage technology

Low Dose

- Minimized radiation exposure and safer for users
- Increase the efficiency of X-rays and reduce the amount of radiation generated during X-rays as much as possible

High Resolution

- High quality of X-ray image.
- Exclusive technology for achieving High Quality Images
- Advanced image processing provides higher diagnostic value

Light Weight

- Small and light weight in various spaces without location constraints
- Excellent portability
- Easy to move and can be used without restrictions on location

Tube Voltage
40 ~ 70 kV (Variable)

Tube Current
2 ~ 6 mA (Variable)

Exposure Time Range
0.06 ~ 2.0 Sec

Focal Spot Size
0.4 mm

Nominal Electric Power
420 W (70kV, 6mA, 0.1s)

Size
165.3 x 176.0 x 255.6 mm

Weight
2.4 kg

Battery
DC 22.2V / 1800 mAh

- **Radiology**
- **Emergency**
- **ICU,NICU,NPIR**
- **Theatre**
- **Respiratory Medicine**

IVY HEALTHCARE SOLUTIONS LIMITED

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PUZZLE

X	R	A	Y	I	M	A	G	E	P	R	O	T	O	N	Z
D	O	S	E	D	O	S	I	M	E	T	E	R	T	E	E
T	H	E	R	A	P	Y	L	I	N	A	C	F	L	U	O
R	A	D	I	A	T	I	O	N	L	E	N	I	Z	I	N
A	T	T	E	N	U	A	T	I	O	N	U	Z	I	N	G
T	U	M	O	R	T	U	M	O	R	O	P	T	I	O	N
T	U	M	O	R	M	R	I	G	A	M	M	A	A	T	R
L	E	A	D	T	R	E	A	T	M	E	N	T	C	O	L
M	R	R	I	C	O	L	L	I	M	A	T	O	R	O	R
F	O	L	L	I	M	A	T	O	R	M	A	T	O	R	F
T	U	M	O	R	M	R	R	I	G	A	M	M	A	A	T
C	O	L	L	I	M	A	T	U	O	L	L	I	M	A	T
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C	O	L	L	I	M	A	T	O	R	S	C	A	T	T	E
L	O	L	L	I	M	A	T	O	R	S	C	T	T	E	R

X-RAY	IMAGE	THERAPY	THERAPY
DOSE	MRI	FLUOROSCOPY	CT SCAN
DOSIMETER	MODALITY	IONIZING	ULTRASOUND
MODALITY	FRACTION	ATTENUATION	ATTENUATION
TUMOR	LEAD	LEAD	MRI
MRI	TREATMENT	TREATMENT	GAMMA
TARGET	COLLIMATOR	COLLIMATOR	SCATTER

INSIDE IMAGING

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Precision in Imaging, Excellence in Dental and Radiology Care.

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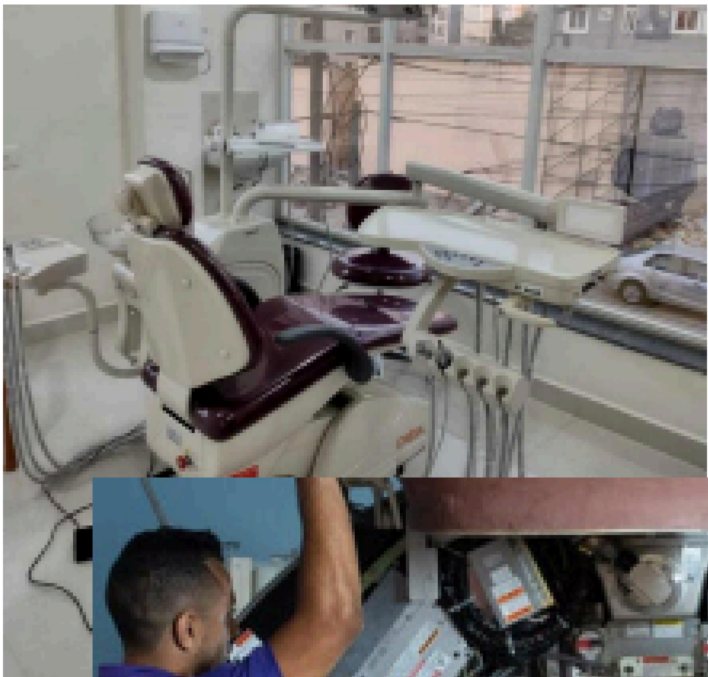
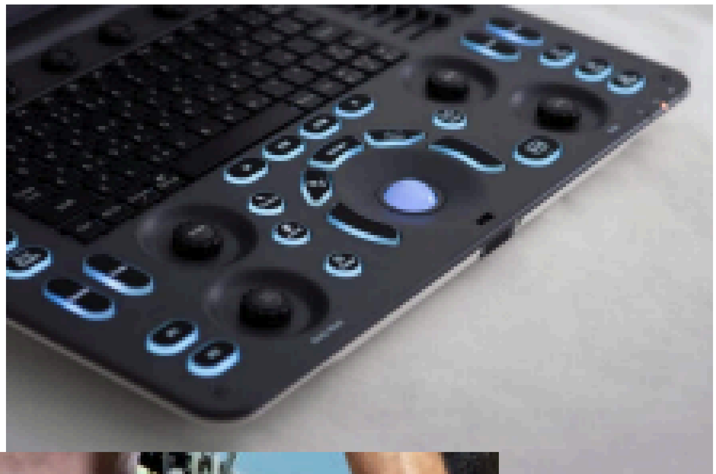
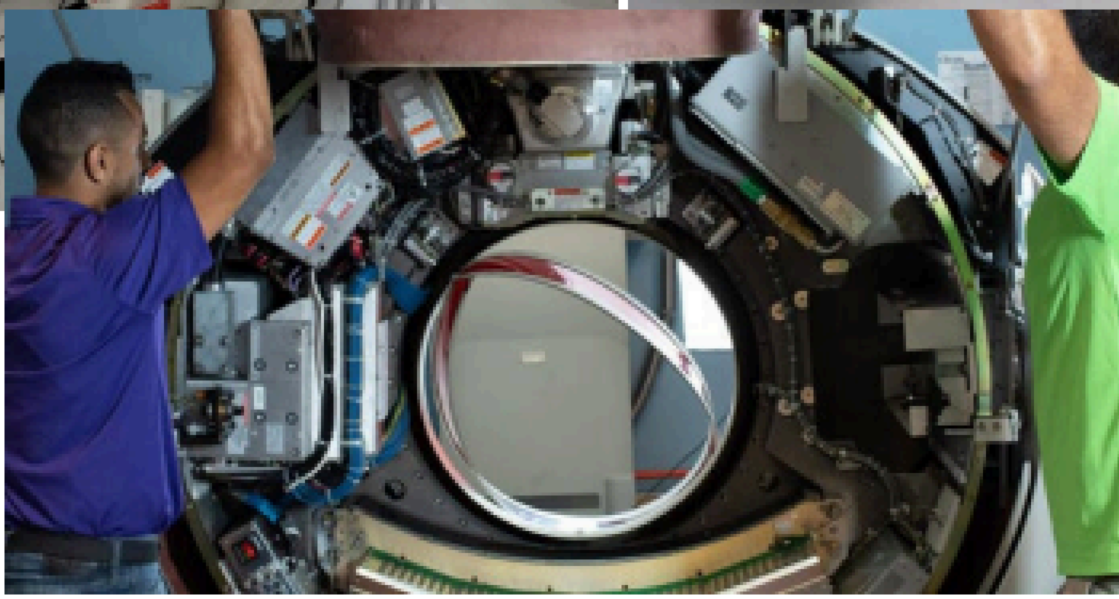
Repairs, Maintenance, & Installations







DESIGNER

INSIDE IMAGING MAGAZINE

Tochukwu Nnabuike

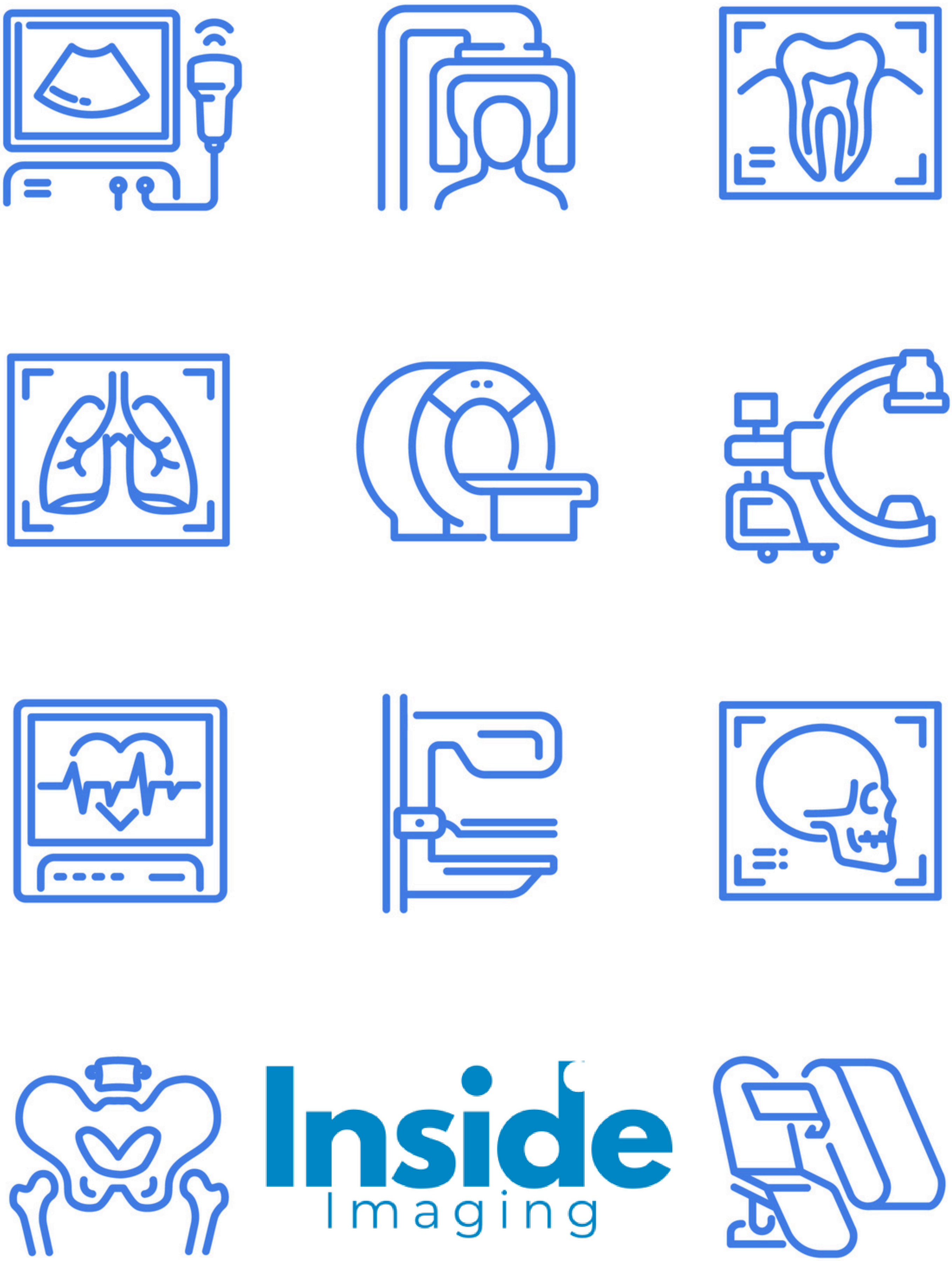
Also fondly known as The AmeboRadiographer, Tochukwu is a creative radiographer and passionate healthcare communicator. He is the founder of the AmeboRadiographer Corner and Young Healthcare Professionals Community (YHPC), where he combines his medical background and design skills to educate and inspire.

Currently serving as Senior Radiographer at AMCE, he has designed for multiple health-focused platforms using Canva Pro, delivering clear, engaging visuals. Beyond radiography, Tochukwu is a strong advocate for community building,

healthcare equity, and empowering young professionals through creativity and mentorship.nformation accessible, relevant, and unforgettable—especially in a field as crucial as healthcare.”

In his words,

“Design is not just about making things pretty. It’s about making information accessible, relevant, and unforgettable—especially in a field as crucial as healthcare.”


Inside
Imaging

Inside
Imaging