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Revolutionising precision cancer care through innovative medical imaging technologies

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The growing global cancer burden demands continuous advances in radiotherapy and care to address global health challenges

Siemens Healthineers' Global Mission for Equity, Innovation, and Accessibility

The global cancer burden is increasing, necessitating continuous improvement in radiotherapy and cancer care worldwide. Southeast Asian cancer care is underdeveloped across the spectrum of screening, diagnosis, treatment, and survivorship, reveals a population study conducted by Siemens Healthineers. The survey of over 6,000 participants across six Southeast Asian countries highlights a strong belief in early detection (78%) despite low screening uptake (26%), alongside a limited understanding of treatment options, post-treatment care, and access gaps. While 80% are aware of post-treatment care, 55% lack clarity on its specifics. Optimism exists for coordinated care models like "one-stop" services (45%) and digital innovations such as AI (40%) to enhance the cancer care journey. Addressing the full cancer pathway—from screening to survivorship—is essential to improving outcomes. It underscores the importance of addressing the entire cancer journey—from screening to survivorship—to enhance outcomes. Siemens Healthineers public perceptions of cancer care in Southeast Asia reveal significant gaps across the spectrum, from screening and diagnosis to treatment and survivorship.

Similarly, the Lancet Oncology Report indicates that by 2035 there will be a need for twice as much radiotherapy capacity and four times as many practitioners to treat the growing burden of cancer care. Despite progress in innovation and capacity development, there remains a significant shortage of practitioners due to insufficient training programs, technological constraints, and inadequate infrastructure.

The leading global medical technology firm, Siemens Healthineers is dedicated to enhancing cancer care in Southeast Asia along with its global presence by tackling these gaps in detection, treatment, and care pathways. Strategically focused on advancing early detection, clinician empowerment, as well as advancing precision treatments and long-term care through digital innovations. The goal is to create meaningful patient impact by integrating technological innovation, clinical expertise, and healthcare consulting. Furthermore, it is important to improve the coordination of care, ensure affordability, and adopt digital tools that are transparent and human-centered.

Addressing these disparities, *Sasa Mutic, President of Radiation Oncology Solutions at Varian Medical Systems* explains, “For more than 70 years, radiotherapy has been a cornerstone of cancer care. It has quietly saved lives, eased suffering, and given families precious time together. Yet too many people still face fear, misunderstanding, or lack of access that keeps them from receiving the treatment they need. Access to care is a concern globally, not just in developing nations”.

Enhanced Cancer Care Collaboration

Varian, a Siemens Healthineers company and leader in intelligent cancer care technology, specializes in radiotherapy, proton therapy, and software solutions. Its $16.4 billion acquisition by Siemens Healthineers in April 2021 has created a comprehensive, AI-driven portfolio spanning imaging, treatment, and diagnostics. Integration with Siemens has enhanced supply chain stability through scale and cost efficiencies from bulk purchasing, while shared resources have accelerated innovation. These advancements support Varian's mission of sustainable global health and a shared vision of improving patient outcomes.

“Varian, a Siemens Healthineers company, is committed to advancing innovation, partnerships, and training to bring high-quality radiotherapy care to more people globally. The mission is to create a world without the fear of cancer, emphasizing radiotherapy's role in extending life and restoring joy, dignity, and possibility. We are committed to eliminating disparities and achieving equity in cancer care, ensuring access to leading-edge technology even in resource-challenged settings.” Sasa reiterates Varian's commitment to promoting a world in which cancer is no longer a fear.

Varian and Siemens Healthineers have partnered through the "EnVision" collaboration to redefine cancer care by integrating MRI into routine clinical practice in radiotherapy. Combining Varian's expertise in treatment delivery and planning tools with Siemens' imaging capabilities enhances treatment options. This collaboration offers benefits such as improved clinical workflows, advanced tools for early detection, accurate diagnosis, and personalized therapy, ushering in a new era of efficient and effective cancer care.

Precision and Patient-Centered Innovation

Siemens estimates that 50-70% of all cancer patients require radiation therapy, spanning curative to palliative care. Additionally, cancer trends project a ~10% increase in new cases from over 22 million in 2025 to over 24 million in 2030 and a 20% rise in deaths from over 10 million to over 12 million during this period. These alarming statistics highlight the urgent need to address cancer care globally.

Varian is addressing critical health challenges, including cancer, neurodegenerative diseases, and cardiovascular conditions, through precision therapy, patient twinning, and healthcare AI. With a strong emphasis on equity and access to care in oncology, Varian is actively working to tackle the growing cancer burden through technological advancements and improved systemic care delivery. by leveraging advanced imaging technologies like anatomical MRI, diffusion-weighted MRI, and photon-counting CT for precise treatment planning and improved soft tissue contrast Varian is transforming trends in cancer care. These innovations enable personalized treatment, confident decision-making, and streamlined workflows, reinforcing their leadership in intelligent cancer care.

Varian has reinforced its leadership in cancer care with innovations, including Hypersight for clearer tumor imaging, Intellig for targeted microwave ablation, Photon-counting CT for precise tumor differentiation, RapidArt for improved radiation delivery, and the Dynamic Couch for enhanced treatment efficiency and patient comfort. These advancements improve efficiency, encourage clinical adoption, are resource-friendly with lower electricity use, and are optimized for staff efficiency in low-resource settings.

Elevating Cancer Care in Africa Through Innovation and Collaboration

Siemens Healthineers is addressing cancer care disparities in Africa through partnerships and initiatives aimed at improving access to advanced treatments. In Nigeria, they have enhanced radiotherapy standards by introducing technology typically found in top global cancer centers. In Kenya, their program focuses on interventional radiology solutions such as cryoablation, heat, and microwave therapies. Additionally, Siemens supports local providers by implementing advanced oncology services, promoting technology adoption, and addressing human capital shortages through education and training to enable sustainable care delivery in resource-constrained settings.

Furthur Sasa explains “The partnership between Siemens Healthineers and the NSIA-LUTH Cancer Centre in Lagos, Nigeria, aims to expand access to high-quality cancer care, improve patient outcomes, enable safe clinical adoption, and ensure reliable, high-uptime cancer care. Siemens Healthineers supports a comprehensive, integrated oncology ecosystem that combines software, digital tools, and AI, along with end-to-end radiation oncology solutions and long-term strategic partnerships to drive sustainable impact and transform cancer care for communities.”

Transforming MRI with AI automation

Siemens Healthineers is revolutionizing medical imaging by leveraging advanced automation and artificial intelligence to redefine MRI technology. Their vision is to make MRI scanners fully automated, universally accessible, and capable of operating in diverse and challenging environments. Through innovations in dry magnet technology, AI, and intelligent software, Siemens addresses key barriers to accessibility and efficiency. These advancements aim to expand MRI's reach beyond traditional clinical settings, enabling its use in industrial applications and enhancing its impact across various fields. This transformative approach underscores Siemens' commitment to improving medical care through cutting-edge technology.

Further elaborating on this, Anne Becker, Senior Global Product Marketing Manager for MRI systems, says, “A number of clinical advancements have been made, including high-resolution imaging using XL Gradients and Deep Resolve, enabling faster, higher-resolution scans across fields such as MSK, neuro, and liver, as well as accelerated prostate imaging in under three minutes with AI-powered Deep Resolve reconstruction. A priority is placed on sustainability, and 1.5T systems reduce operational risks, have smaller footprints, and are designed to enhance adaptability and comfort for patients with

upgradable features such as gradient strength, bore size, and channel configuration. A variety of workflow enhancements, including myExam Autopilot and Assist for guided workflows, BioMatrix Contour coils, and Position Sensors, improve the intuitiveness and flexibility of the system. The goal is to make MRI systems "dry, autonomous, and everywhere," breaking barriers to expand global reach and efficiency.”

Siemens Healthineers is enhancing MRI technology by prioritizing helium-free solutions, AI-driven automation, and greater accessibility. Their innovative DryCool technology provides "freedom beyond helium" with sealed-for-life magnet designs, no quench pipes, and AutoResponse for optimized uptime. The MAGNETOM Free platform, featuring the world's first 80 cm patient bore and an integrated iMRI suite, along with the upcoming MAGNETOM Flow platform offering 60 cm and 70 cm bore sizes, will empower users with Syngo MR XB10 technology.

“Dry magnet technology overcomes the logistical and cost challenges of traditional MRI scanners, which require large amounts of liquid helium, by using minimal helium (e.g., 0.7 liters), making installation simpler, improving longevity and reliability without quenching, enabling deployment in remote areas, and maintaining high image quality and performance. Siemens' MRI technology includes dry magnet systems, designed for compact spaces, energy efficiency, and configurable features such as wider bore options, cardiac scanning, and upgradeable systems. AI integration supports image quality improvement, noise reduction, and faster scans.” explains Anne Becker.

Siemens Healthineers' advancements in MRI and medical imaging technology exemplify a forward-thinking approach to addressing both operational and clinical challenges. By integrating AI and user-friendly features, their systems not only enhance image quality and speed but also improve accessibility and efficiency in diverse healthcare settings. The emphasis on automation and remote capabilities helps mitigate technician shortages, streamline workflows, and expand the reach of advanced imaging tools, ensuring that more patients can benefit from high-quality care.

The comprehensive integration of AI across imaging modalities, from 3D Tomosynthesis to contrast-enhanced mammography and biopsy guidance, underscores Siemens' commitment to precision and efficiency. AI-driven features like **breast density scoring**, lesion marking, and Transpara scores are transforming diagnostic processes by prioritizing risks, improving reporting accuracy, and supporting clinicians in making informed decisions. These innovations not only enhance diagnostic outcomes but also contribute to a more seamless and interoperable radiology workflow, reinforcing the role of technology in modern healthcare.

In a nutshell, Siemens Healthineers' cohesive strategy combines operational optimization, advanced imaging techniques, and AI-driven solutions to redefine medical imaging. Programs such as Equipment Lifecycle Management and the Automated X-ray Positioning System further extend the utility and precision of their systems. This holistic approach demonstrates how Siemens is not only addressing current healthcare needs but also paving the way for a future where medical imaging is more efficient, accurate, and accessible, ultimately improving patient care and supporting healthcare providers in delivering better outcomes.