

## Sustainable Radiology: A Joint Statement on Environmental Impact



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Radiology, a crucial component of modern healthcare, significantly contributes to the environmental burden through energy consumption, medical waste and reliance on non-renewable resources. As global healthcare systems acknowledge the urgent need for sustainability, radiological societies have united to advocate for impactful and measurable actions. These efforts must balance environmental responsibility with the need to maintain high-quality patient care. Addressing climate change within radiology requires a comprehensive approach, integrating education, research, industry collaboration and strategic policy changes to create a more sustainable future.

The joint position paper by the American College of Radiology (ACR), Asian Oceanian Society of Radiology (AOSR), African Society of Radiology (ASR), Canadian Association of Radiologists (CAR), Colegio Interamericano de Radiología (CIR), European Society of Radiology (ESR), Egyptian Society of Radiology and Nuclear Medicine (ESRNM), International Society for Strategic Studies in Radiology (IS3R), International Society of Radiology (ISR), Royal Australian and New Zealand College of Radiologists (RANZCR) and Radiological Society of North America (RSNA) outlines the necessity for transformative changes in radiology.

### Reducing Radiology's Environmental Footprint

The practice of radiology generates substantial greenhouse gas emissions, mainly from energy-intensive imaging modalities such as computed tomography (CT) and magnetic resonance imaging (MRI). The manufacturing, operation and disposal of imaging equipment contribute significantly to healthcare's carbon footprint. Strategies to mitigate this impact include optimising imaging protocols to reduce unnecessary scans, investing in energy-efficient technologies and implementing sustainable procurement policies. Additionally, waste management practices must be improved, particularly in the disposal of contrast agents and radiopharmaceuticals, to minimise environmental contamination.

Transformation to a low-carbon and climate-resilient radiology sector requires engagement at multiple levels, from individual radiologists to governmental bodies and industry stakeholders. Individual radiologists can influence sustainable practices through mindful imaging requests and optimising workflow efficiencies. At the institutional level, radiology departments must collaborate with sustainability teams to implement green energy sources, reduce energy waste and adopt circular economy principles in equipment procurement. Industry partners also play a critical role in designing imaging machines with lower energy consumption and longer lifespans to reduce waste and emissions.

### Bridging Global Inequalities in Radiological Access

The environmental impact of radiology varies significantly across different regions, with resource-limited settings facing distinct challenges. In low- and middle-income countries, access to imaging services remains constrained by infrastructure deficits, financial limitations and workforce shortages. While efforts to expand radiological services in these regions are essential, they must be implemented sustainably to avoid exacerbating environmental degradation. This includes integrating renewable energy sources into imaging facilities, employing mobile imaging units to reach underserved populations and fostering local capacity building. Addressing these disparities is crucial to ensuring equitable access to healthcare while promoting environmentally responsible radiology.

### **Recommended Read:** [Advancing Sustainability in Radiology](#)

Equitable access to radiology requires international cooperation to ensure that advancements in medical imaging are not restricted to wealthier nations. High-income countries must support research and policies that assist lower-income regions in accessing imaging services while adopting sustainable infrastructure. This includes capacity-building initiatives, technological support and training programmes to empower local professionals. Telemedicine and teleradiology provide additional opportunities to expand radiological access while reducing the need for patient travel, thereby minimising emissions associated with transportation.

## **The Role of Research and Industry Collaboration**

Advancing sustainability in radiology requires dedicated research to assess and mitigate the sector's environmental impact. This includes developing energy consumption models for imaging equipment, exploring the potential of artificial intelligence to optimise imaging efficiency and investigating alternative materials for imaging contrast agents. Collaboration between radiology professionals, industry stakeholders and regulatory bodies is essential to drive innovation in sustainable imaging technology. Manufacturers must prioritise eco-friendly product designs, circular economy principles and energy-efficient imaging solutions to align with global sustainability goals.

The integration of sustainability into radiology education is critical to ensuring long-term progress. Radiologists must be equipped with the knowledge to implement sustainable practices in their daily work and advocate for policy changes at institutional and governmental levels. Professional societies must take the lead in incorporating environmental sustainability into radiology curricula, ensuring that future generations of radiologists are prepared to contribute to global decarbonisation efforts. Research must continue to evaluate the environmental impact of imaging procedures, with findings disseminated across the global medical community to drive widespread adoption of best practices.

The transition to a more sustainable radiology sector is both a necessity and an opportunity to redefine healthcare's relationship with the environment. By addressing operational inefficiencies, fostering research and advocating for global equity in imaging services, radiological societies can take charge of a greener future. Achieving sustainability in radiology will require a multi-faceted approach, encompassing technological innovation, policy reform and professional education. With concerted efforts, the field can continue to provide high-quality diagnostic services while reducing its ecological footprint and promoting global health equity. The joint position paper from leading radiology societies underscores the urgency of this transformation, advocating for immediate action to secure a sustainable future for radiology and global healthcare systems.

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