The four pillars of radiation safety

Even among medical professionals at the same institution, radiation dose management involves different approaches to implementation and safety. Much of the disparity stems from years of varying beliefs and practices, and even misconceptions about the application of X-rays. This variation can have a significant impact on the safety of radiation imaging.

A uniform program of radiation safety — assessment, tools and solutions, education and professional service — is the solution. Placing the focus on continuous quality improvement will not only assure that patients receive efficient, quality care, but alleviate concerns regarding radiation exposure.

Here are what we believe the four pillars of creating a culture of radiation safety.

Pillar one Understanding

Components:
- Dose monitoring evaluation, which includes equipment review, policy and procedure reviews, and image archiving systems.
- Dose planning, including the establishment of dose process best practices for staff and patients.
- Implementation of education and training, KPI checks, and creation of an end-to-end process.

Pillar two Integration

Components:
- Tool implementation, including dose-tracking software, lead vests/shielding and image quality (IQ) tools.
- Solution implementation, including strategic administration of policy and procedures, governance models, KPI metrics, and ACR Dose Index Registry comparisons.
- Training and education programs.

Pillar three Education

Components:
- A Learning Center, featuring specialized DoseWise education topics:
  - Webinars, both live and recorded.
  - Peer-reviewed journal articles and Philips whitepapers.
  - Public and patient education on the real risks and benefits of imaging using radiation.

Pillar four Improvement

Components:
- Professional services that address protocol optimization, benchmark and metric comparisons and reviews, shielding designs, and image quality and associated quality assurance reviews.
- Consultation on workflow and equipment utilization, ACR accreditation, indication of low-dose technology and program auditing (JC, XR-29, Agreement State, Notified Body).

The support of senior management is crucial for bringing all departments together under the objective of creating a culture of radiation safety. They are responsible for emphasizing the hospital’s vision and goals.

Management

- Define the vision for radiation safety
- Establish policies and procedures
- Implement radiation safety training
- Review and analyze radiation safety metrics
- Provide resources and support

Key Committees

- Radiation safety committee
- Medical staff
- Nursing staff
- Technologists
- Maintenance personnel

Metrics

- Radiation dose
- Patient exposure time
- Equipment utilization
- Image quality
- Patient satisfaction