

SCAI's Approach to Radiation and Occupational Safety

Insights from SCAI leadership on findings from a recent societal survey on occupational hazards and the efforts the society is making to prioritize physician health and safety.

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Orthopedic injuries and radiation exposure among interventional cardiologists and catheterization lab (cath lab) staff can have serious consequences and, for many years, have been accepted as the price one pays to work in the cath lab. Looking at pictures of a cath lab 3 decades ago and comparing it to the average cath lab today, it would be difficult to pick out many differences in protective equipment. Heavy, burdensome lead aprons weighing up to 15 lbs are still the norm, and although fluoroscopic equipment has evolved, shielding in most cath labs hasn't advanced much, if at all.

A survey conducted by the Society for Cardiovascular Angiography and Interventions (SCAI) in 2023 and published in March 2024 revealed alarmingly high rates of orthopedic injuries, cataracts, and cancer diagnoses among respondents.¹ Musculoskeletal (MSK) pain associated with wearing heavy lead aprons in the cath lab was reported in 66% of respondents, and 17% of respondents reported limiting cath lab time due to excessive radiation exposure. One of the most concerning findings was the high rate of cancer and cataracts, reported at a rate three times that of the general population. Unfortunately, compared to previous surveys of interventional cardiologists published in the past 2 decades, the 2023 SCAI survey did not reveal any improvement in the rates of injuries.

Unlike the previous SCAI surveys, the 2023 survey addressed challenges in the cath lab pertaining to pregnancy. MSK pain and the risk of fetal radiation exposure weigh on the minds of young interventional cardiologists and cath lab staff. Among female survey respondents, 28% reported that they had been discouraged from working in the cath lab while pregnant, and 71% answered that they would want to step away from the cath lab while pregnant. These data suggest that the occupational hazards of interventional cardiology may unfortunately deter women from considering a career in the field.

There have been significant technologic advances in radiation protection equipment in recent years. Despite this, many interventional cardiologists and cath lab staff either do not have access to adequate shielding or do not routinely use the shielding that is available in their labs. Additionally, novel shielding devices that can reduce the thickness of lead aprons utilized or even allow for elimination of lead aprons for the operator altogether have started to enter into the market, but are far from ubiquitous. Adoption of these technologies has been slow, primarily due to the upfront investment that is needed to integrate them into labs.

SCAI'S ROLE IN IMPROVING OCCUPATIONAL SAFETY

When physicians choose a career in interventional cardiology, few likely consider that they may have physical injuries that could limit the longevity of their careers or even reduce their life expectancy. In addition, physician disability (even if short term) is extremely costly to a health system. Occupational Safety and Health Administration (OSHA) has many regulations to protect workers, but the regulations surrounding occupational exposure in the cath lab are minimal. Additionally, there is no guidance on lead aprons and prevention of MSK injury related to protective equipment. It is time that the regulations be updated to include the technologies that are available in 2025, and SCAI is leading this initiative. Some of these technologies include Rampart (Rampart IC), Protego (Image Diagnostics, Inc.), Radiation system (Radiation Medical), EggNest (Egg Medical), and Zero-Gravity (Biotronik).

SCAI has taken a strong stance on the prioritization of physician health and safety. The SCAI Physician Well-Being Committee consists of physician members who are passionate about improving the lives and extending the careers of interventional cardiologists through support, advocacy, and education. In addition, the organization

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will be hosting roundtable discussions where key stakeholders will develop an action plan for improving access to safety equipment in cath labs around the country. In order to get the momentum needed to effect change, SCAI will bring regulatory bodies, such as OSHA and organizations representing other specialties (ie, interventional radiology, vascular surgery) to the table to discuss the gravity of the problem. SCAI is in the process of creating an online toolkit for physicians to utilize for their conversations with administrators.

As the home of interventional cardiology, SCAI is fully invested in improving the safety and well-being of interventional cardiologists. The movement to change safety standards in cath labs around the country is just starting, and SCAI will continue to lead the way in this endeavor. The status quo can no longer be accepted. ■

1. Abudayyeh J, Dupont AG, Hermiller KB, et al. Occupational health hazards in the cardiac catheterization laboratory: results of the 2023 SCAI survey. *J Soc Cardiovasc Angiogr Interv*. Published online March 4, 2025. doi: 10.1016/j.jscai.2024.102493

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