
Radiation Dose - Who Calibrates the Machines?



Dose reduction programmes rely on hardware, software and the actions of healthcare staff and patients. But did you ever stop to wonder who ensures the accuracy of the imaging and radiation therapy machines?

[The University of Wisconsin Radiation Calibration Laboratory](#) provides calibration services to around 60 percent of the U.S. medical physics market, and is one of just three institutions that bases its accuracy on devices verified by the [National Institute of Standards and Technology](#) (NIST).

By measuring an unknown instrument against a known one, the process of calibration creates a correction factor that clinics can use to ensure safety and accuracy of the dose, says the Laboratory's director, Larry DeWerd, a UW-Madison professor of medical physics (pictured). Their calibration services enable funding of research, necessary as radiation sources evolve and new devices need to be evaluated.

See Also: [CT Dose Management: A Pan European Strategy](#)

A calibration study begins with measurement of a beam of radiation using a chamber that has been calibrated at NIST and is accurate to within 0.5 percent. Then clinical medical physicists place chambers owned by client health organisations. Explained DeWerd. "If our chamber measures 100 units, and their chamber measures 105, that establishes the correction factor they must use to obtain an accurate measurement from their chamber."

After being returned to its owner, a calibrated chamber may be used for two years before recalibration is needed.

Source: [University of Wisconsin-Madison](#)

Image credit: David Tenenbaum

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