

Carl Joseph Vyborny

Carl Joseph Vyborny was a distinguished medical physicist and radiologist whose vision and expertise contributed to improved image quality in screening mammography and to the use of computers in the interpretation of medical images. He died of lung cancer on 20 March 2004 in his Riverside, Illinois, home.

Born on 23 November 1950 in Oak Park, Illinois, Carl obtained an early education that included the ardent reading of encyclopedias, and his love of learning was evident during his high-school appearances on the television show *It's Academic*. He continued his education at the University of Illinois at Chicago, where he received a BS in physics and mathematics in 1972. He earned an MS in physics from the University of Illinois at Urbana-Champaign in 1973.

Later that year, Carl turned his focus to medical physics and, subsequently, to medicine at the University of Chicago, an institution that he would never leave completely. He wrote his dissertation "The Speed of Radiographic Screen Film Systems as a Function of X-Ray Energy and Its Effect on Radiographic Contrast" under the guidance of Charles E. Metz and received his PhD in medical physics in 1976. Carl enrolled immediately in medical school, earning an MD with honors in 1980. He served a clinical residency in diagnostic radiology at the University of Chicago and then became an assistant professor, rising to the rank of clinical professor in 2001.

Carl joined a private radiology practice in the western suburbs of Chicago in 1985 while researching and teaching part-time at the University of Chicago. He was an attending radiologist at LaGrange Memorial Hospital in LaGrange, Illinois, for 17 years, a radiation safety officer at LaGrange Memorial Hospital for 14 years and at Glen Oaks Hospital for 3 years, and a member of the Radiation Protection Advisory Council of the State of Illinois for 10 years.

One of Carl's most significant contributions was the refinement of mammographic imaging for improved detection of early breast cancer. In 1985, as a member of the American College of Radiology's mammography accreditation program, he helped write the guidelines for accrediting mammography centers. Such efforts led to a position in the newly formed Academy of Radiology Research, which fruitfully encouraged the US government to create, in 2000, the Na-



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tional Institute for Biomedical Imaging and Bioengineering. He also organized delegations of US experts to lecture on screening mammography to the Czech medical establishment.

Carl was a crucial member of the University of Chicago team that developed the first computerized systems to enable radiologists to detect abnormalities in mammograms and chest radiographs. He helped both by guiding algorithm development and by establishing the first clinical trial of computer-aided mammographic diagnosis in metropolitan Chicago. Subsequently, he played a key role in making LaGrange Memorial Hospital one of the two Chicago-area sites in the digital mammography imaging screening trial of the American College of Radiology Imaging Network, the largest clinical trial in radiology ever organized.

As a clinical professor of radiology at Chicago, Carl was a coadvisor to PhD students in the university's graduate programs in medical physics, and he lectured annually on the physics of image quality to the department's resident physicians. Characteristically, his lectures in the university's continuing-education courses usually covered physical image quality as well as clinical interpretation methods.

Though a full-time practicing radiologist, Carl published and contributed more to his field than many full-time academics. He was the author or coauthor of more than 75 peer-reviewed journal articles on medical physics and radiology; was a member of national committees of the National Institutes of Health, the Centers for Disease Control and Prevention, the American College of Radiology, and other institutions; served as an edito-

rial consultant for the leading journals in his field; and played an active role in the teaching of graduate students, medical students, and residents.

Because of Carl's exceptionally strong understanding of both imaging physics and the image-interpretation process, the International Commission on Radiation Units and Measurements (ICRU) invited him to lead the formulation and writing of the document *Image Quality in Chest Radiography*, published in 2004. This comprehensive review covers the physical quality and human perception of chest x rays in order to provide medical physicists and radiologists with a strong foundation in the scientific aspects of chest radiography.

Carl was elected a diplomate of the American Board of Radiology (1984) and a fellow of the Society of Breast Imaging (1992), American College of Radiology (1994), and American Association of Physicists in Medicine (1999). In 2000–01, he was president of the Chicago Radiological Society, and received the society's Distinguished Service Award Gold Medal in early 2004.

Astronomy and genealogy were among Carl's passions. While attending academic meetings, he, his wife, Terrieann, and his daughter, Margaret, saw two solar eclipses. Carl also created one of the largest websites devoted to a Czech family (see <http://vyborny.com>).

In less than three years, Carl completed all of the University of Chicago's requirements for the PhD in medical physics—a record that still stands. He combined the talents of an outstanding scientist, a natural teacher, and a devoted clinician in ways that enabled him to see the big picture and to explain it to others. He was a visionary thinker, yet he helped connect academic research to its ultimate use in private practice.

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