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Charles Frederick Mosteller

Leading statistician, pioneer of evidence-based medicine. Born on Dec 24, 1916, in Clarksburg, WV, USA, he died on July 23, 2006, of sepsis in Falls Church, VA, USA, aged 89 years.

Statistician Frederick Mosteller was a research associate at Harvard University's Department of Social Relations in the late 1940s when he began working with Harvard Medical School's Harry Beecher on studies of analgesics. It was Mosteller's first venture into health-care research, for which he would become well known. In 1948, John Bunker asked Mosteller for his help in the National Halothane Study, which was among the first large-scale clinical studies involving complex biostatistics and large-scale computing.

Mosteller's work in the social sciences and medicine made him a pre-eminent figure in the world of statistics. He published many important papers and books about health care, but several stand out. A recent survey of leading health survey researchers regarded *Costs, Benefits, and Risks of Surgery* (1977), which Mosteller co-authored with Bunker and Benjamin Barnes, as being among the top books published in health-care services in the past 150 years. For Sir Iain Chalmers, an "incredibly important" article co-authored by Mosteller, published in the *Journal of the American Medical Association* in 1992, described how different the results of cumulative meta-analyses were from what was being written in textbooks about the treatment of myocardial infarction. "Effective treatments had been overlooked for 10 years and lethal treatments had been continued for 30 years", despite better data, Chalmers told *The Lancet*. For James Ware of the Harvard School of Public Health, another that stands out was a project *The New England Journal of Medicine* asked Mosteller and John Bailar to undertake on practices in reporting statistical data in the medical literature. The work led to more than two dozen papers and a book, *Medical Uses of Statistics*, first published in 1986.

In *Medicine Worth Paying For: Assessing Medical Innovations* (1995), Mosteller and co-author Howard Frazier recognised the need for rationing, but suggested that careful statistical analysis could "resolve the problems of equity and values by rationing questions. We cannot eliminate the element of discrimination that rational procedures entail, but we might be able to develop a process regarded as fair and acceptable by nearly everyone. As we do so, we will have to confront a major difficulty, and that is our own compassion."

Mosteller, despite his eminence, was "one of the kindest and most encouraging men I've ever come across in academia", Chalmers said. "He was incredibly kind to young people who were trying to do their best, just a tremendous human being", recalled Chalmers. Ware, who now holds a chair named for Mosteller at the Harvard School of Public Health, was one of those young people, in 1979, when he applied for a position in Mosteller's department. When Ware joined the department, Mosteller asked him to join a group that was writing a biostatistics textbook for physicians in clinical practice, rather than yet another text written for those in the research setting. "Instead of a classical 'what is probability', we started out with, 'how would you diagnose a disease?'" Ware said. Mosteller gathered the group together at his house once a week. "He was wonderful at creating an atmosphere where everyone was comfortable in commenting on everyone else's work, no matter how senior."

Mosteller would quite literally reward contributions by every member of the team. "I and others had the experience of getting something returned with a gold star on it", said Judith Tanur, of the State University of New York at Stony Brook, who worked with him on *Statistics: A Guide to the Unknown*. Mosteller would insist that "if you did something other than a randomised controlled trial when you were looking into something, you weren't experimenting with people, you were fooling around with people", Tanur said.

After bachelor's and master's degrees from the Carnegie Institute of Technology in Pittsburgh, PA, Mosteller earned a PhD in statistics from Princeton University and then moved to Harvard in 1946. He became a full professor of mathematical statistics in 1951, and would later found the university's statistics department. He would eventually chair four Harvard departments, including the School of Public Health's Department of Biostatistics. He retired in 1988, but maintained an active research programme until 2003.

Mosteller is survived by two children, William and Gale. His wife, Virginia Gilroy Mosteller, died in 2001.

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