U.S. Million Person Study: Status and Summary Results to Date

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Abstract

The study of low dose and low-dose rate exposure is of immeasurable value in understanding the possible range of health effects from prolonged exposures to radiation. The Million Person Study (MPS) of low-dose health effects was designed to evaluate radiation risks among healthy American workers and veterans. The MPS is a national effort, directed by John D. Boice Jr, with critical support from the NRC, DOE, NASA, DoD, NCI, CDC, EPA, Landauer, Inc., and national laboratories. The MPS is evaluating low-dose and dose-rate effects, rare cancers, intakes of radioactive elements, non-cancer outcomes, and differences in risks between women and men. The MPS consists of five categories of workers and veterans exposed to radiation from 1939 to the present: U.S. DOE Manhattan Project, DoD Atomic Veterans, Industrial Radiographers, NRC Nuclear Utility, as well as Medical and related industries. Overall, about 30 individual cohorts comprise the MPS of which 21 have been or are under active study (~810,000 persons). The remaining cohorts will be studied as resources become available. This summary will describe the MPS, highlight the importance of dosimetry for epidemiological studies, detail cohort/study characteristics (with an emphasis on the nuclear power cohort), provide preliminary results (soon to be included in a special IJRB issue later in 2020), identify next steps, and cast a vision for the future.

Biosketch

Lawrence T. Dauer, Ph.D, CHP, is an Associate Attending Physicist in the Departments of Medical Physics and Radiology at Memorial Sloan Kettering Cancer Center, and is their Corporate Radiation Safety Officer. He has spent more than 35 years in the field of radiation protection and health physics, including programs for the nuclear energy and industrial sectors as well as operations and research in medical health physics. He is currently a Council and Board member of the National Council on Radiation Protection and Measurements and is scientific coordinator for the Million Person Study. He served 7 years on the International Commission on Radiological Protection Committee 3, Radiation Protection in Medicine, and has served on several committees for the HPS, GNYCHPS, AAPM, ABR, Society for Interventional Radiology, and Radiation Research societies.