The United States Transuranium and Uranium Registries (USTUR): Learning from Plutonium and Uranium Workers

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Abstract

Beginning in the 1960's with the mission of acquiring and providing precise information about the effects of plutonium and other transuranic elements in man, the USTUR has followed up to 'old age' almost 500 volunteer Registrants who worked at weapons sites and received measurable internal doses. While failing to detect deleterious health effects attributable to transuranic elements, USTUR research continues to utilize these real human data from DOE workers in its contributions to the development of the biokinetic models used in assessing intakes to predict tissue doses.

There is still much to learn from the data acquired from the Registries' 370 deceased tissue donors and the 110 still-living Registrants, whose average age is now about 76 years (youngest < 35 y; oldest > 95 y). This paper illustrates USTUR's current research program, including the application of registrant case data to (i) quantify the variability in behavior of transuranic materials among individuals; (ii) validate new methodologies used at DOE sites for determining tissue doses in individual cases; and (iii) model the effectiveness of chelation therapy. These data are also valuable in examining the adequacy of protection standards utilized for plutonium workers in the early years of the nuclear industry.

Keywords: USTUR, Transuranium registry, Uranium registry, Pu workers, Pu biokinetic modeling, Pu bioassay, Pu tissue contents, Pu internal dose, Autopsy, Radiation protection.