

Authorization and Collection of Tissues

The charge of "body snatching" by the news media opens up the issue of where and how the Los Alamos tissue analysis program obtained samples for study. During the first twelve years of the program, from 1959 to 1971, all samples were obtained from individuals who had died and/or were given autopsies at the Los Alamos Medical Center. As described in the main text, the first case was Cecil Kelley, who had worked with plutonium and died as a result of a criticality accident. His autopsy was authorized by the Los Alamos coroner, and then the pathologist at the Los Alamos Medical Center, Dr. Clarence C. Lushbaugh, decided to collect tissue samples from Kelley and have them analyzed for plutonium content by the biomedical research group at the Laboratory (Lushbaugh had a joint appointment with that group). After the Kelley incident, Lushbaugh decided to make the collection of tissue specimens for plutonium analyses a routine part of all autopsies performed at the Medical Center. That practice was quite acceptable since, in those days, autopsies were considered a learning tool. They were used to confirm the accuracy of the physician's diagnosis, to determine the effectiveness of certain medical treatments, and, of course, to determine the cause of death, especially in the cases of unattended deaths. Also, autopsy programs measuring plutonium in human tissues were being conducted at other sites in the U.S. and in foreign countries.

Perhaps the more unusual practice was Lushbaugh's attempt to get permission to perform an autopsy on *every* person who died at the Los Alamos Medical Center—Laboratory employees, members of the general population from Los Alamos and surrounding areas, and transient visitors from other parts of the country. Of course autopsies had to be performed on a certain percentage of persons dying in the hospital each year in order to maintain the accreditation of the hospital and hospital staff. Also the members of the Los Alamos community were typically very interested in the science that could be learned from the autopsies and were willing to make this final contribution of themselves in the interest of science.

For routine deaths, the floor nursing supervisor or the attending physician would ask the next of kin to sign the Medical Center's "Authority for Autopsy" form, which stated that the next of kin "authorize(d) a postmortem examination of the decedent, including removal and retention of such specimens and tissues, as the examining physician deems proper for therapeutic or scientific purposes". Few refused consent. Non-routine deaths (accidents, unattended deaths, suicides, homicides, and so on) fell under the authority of the coroner, and so the coroner was asked and would grant consent for the retention and analysis of tissues. In all the cases mentioned above, the next of kin were not necessarily made aware that tissues were being retained specifically for the analysis of plutonium content

Formal consent from occupationally exposed workers. Procedures for obtaining consent became more formal and more explicit in 1968 when the United States Atomic Energy Commission (AEC) established the National Plutonium Registry to function as a national center for the collection of medical, exposure, and work histories for the workers in the AEC nuclear complex. The Registry was an outgrowth of the postmortem tissue sampling program that had begun in 1949 at the AEC's Hanford site near Richland, Washington and continued to collect tissues at autopsy provided permission was given in advance by the occupationally exposed individual. In the original request for funds, the primary purpose of the Registry was stated as "the protection of the interests of the workers, employees, and public by serving as a national focus for acquisition and dissemination of the newest and best information

relative to the effects of the transuranium elements on people." In 1970, the name of the Registry was changed to the United States Transuranium Registry (USTR) but the mission did not change, and by June 1974, 5843 transuranium workers had been identified, of whom 3880 had signed release forms for their medical and health physics records and 819 had given authority for autopsy.

Initially, all tissues collected by the Registry, with the exception of cases originating at Rocky Flats, were analyzed at the Battelle, Pacific Northwest Laboratories, in Richland, Washington. In 1971, the Los Alamos Laboratory was added to the list of "approved" laboratories. The Battelle and Los Alamos laboratories submitted their own research proposals and were funded independently by the AEC for radiochemical analysis of the Registry tissues. In 1978, the Energy Research and Development Agency (ERDA), successor to the AEC, directed that the Los Alamos tissue analyses laboratory become the lead laboratory for analysis of human tissues for the United States Transuranium Registry (USTR).*

Once the Registry was established, physicians in the Industrial Medicine Group at Los Alamos would use the periodic employee medical examinations as a time to introduce the Registry and its purpose to those Laboratory employees who were either known to have, or suspected of having, internal exposure to the transuranium elements. Individuals willing to release their medical, exposure, and work histories to the Registry and to donate tissues following their death were provided additional detailed information and appropriate consent forms. Those forms were generally signed prior to death by the donor, his spouse or nearest next of kin, and a non-related witness. The forms were kept on file and had to be renewed every five years to be valid. Also the next of kin could withdraw the consent for tissue donation at the time of death if they desired to do so.

Potential donors were provided with identification cards to carry on their person that notified the attending physician or hospital staff at the time of death of the individual's desire to donate tissues to the U.S. Transuranium Registry. The card gave a telephone number to be called if death was imminent or had occurred. Once the Registry was notified, they alerted our tissue analysis laboratory, and we sent instructions and shipping containers to the hospital where the autopsy was to take place. Following the autopsy, tissue specimens were individually packaged in plastic bags, frozen, packed in Dry Ice, and shipped to Los Alamos by overnight delivery.

In recent years, the Registry instituted a whole-body donation program in which all internal organs were removed, packaged as described above, and sent directly to Los Alamos, and the cadaver was shipped to Richland for complete dissection. The skin, muscle, and bones were then shipped to Los Alamos for analyses. Because identification cards in wallets were sometimes overlooked, whole-body donors had the additional option of carrying Medic Alert bracelets or medallions so that there would be no delay in notifying the Registry of their death. The fact that the Registry often knew of an individual's death within a matter of minutes following the event, or sometimes prior to death, has led some people to conclude that the Registry was in collusion with the pathologists or contractors for the DOE to obtain tissue specimens. Thus, the charge of "body snatching." ■

*In 1978, the Energy Research and Development Agency funded the establishment of the United States Uranium Registry (USUR). In 1992, the USTR and USUR were combined to form the United States Transuranium and Uranium Registries (USTUR). An excellent summary of the history of the USTUR is given by R. L. Kathren et al in reference 12.