Over- and Under-classification of Underlying Cause of Death on Death Certificates from a Small All-autopsied Population of Former Nuclear Workers

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The United States Transuranium and Uranium Registries studies the biokinetics and internal dosimetry of actinides in former nuclear workers. An autopsy is performed on each individual.

This research determines the over- and under-classification of the underlying cause of death (UCOD) among 231 individuals with both death certificates (DC) and autopsy reports (AR).

Individuals were classified into three groups according to whether a certifier used AR to determine the UCOD for the DC: AR not used, AR used, and unknown. The International Classification of Diseases (ICD-10) codes were used to determine if the UCOD on the DC agreed with the UCOD from the AR. A mismatch meant that the disease category did not match. Due to the small number of individuals studied, cross-classification was performed for only four disease categories: cancer, cardiovascular, external, and other. Over-classification meant that DC had a false positive diagnosis and under-classification meant that DC had a false negative diagnosis.

The misclassification rates were: 32.1% for the AR not used group, 19.6% for the AR used group, and 18.6% for the unknown group. For the AR not used group, the over-classification rates for the four disease groups were: 12.5%-cancer, 27.6%-cardiovascular, 0.0%-external, and 51.7%-other. The under-classification rates for the AR not used group were: 22.2%-cancer, 36.4%-cardiovascular, 42.9%-external, and 30.0%-other.

There is significant misclassification on DC when compared to AR, even for cases where an autopsy was used to determine the UCOD. For epidemiological studies, these inconsistencies should be taken into consideration.

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