

# LSS Report 13 Detailed Cancer and Noncancer Mortality Data

December 31, 2003

The following notes describe files that are being distributed by RERF in conjunction with the publication of Report 13 on cancer and noncancer mortality in Life Span Study cohort of atomic bomb survivors. The paper by Preston et. al. [Radiation Research Volume 160, 381-407, 2003] presents the results of some of RERF's analyses of these data. The files included with this release of the LSS report 13 mortality data are:

r13mort.dat	Space delimited text file with a single header line that contains the variable names
r13models.amf	Epicure (AMFIT) command script to read the data file, compute various auxiliary variables and fit some of the basic models from LSS Report 13
r13models.log	Log file produced by r13models.amf

The dataset is a detailed tabulation of person years, case counts, and summary data constructed from data on individual survivors. The cohort for analysis includes 86,572 survivors. Data on individual survivors were stratified on city, sex, age at exposure, dose, attained age and calendar time to produce this data set. The first four of stratification factors categorize people while the last two categorize the cohort experience over time. The dose variable used for this stratification is DS86 weighted colon survivor dose computed as the gamma survivor dose estimate plus 10 times the neutron survivor dose estimate. "Survivor" doses incorporate an adjustment of the basic DS86 dose estimates to reduce bias in risk estimates that arises from random errors in individual dose estimates.

The first eight variables tabulated below index the cross-classification used to define the tables, the next 6 include cell-specific number of person years, a count of subjects entering the study, and cell-specific mean values for age, age at exposure, year, and distance from the bomb, the next 52 give disease death counts, and the final 20 are survivor exposure and dose variables. (In contrast to previous datasets released by RERF, the table also contains mean survivor organ doses for each cell.)

For each cell, the numbers of deaths to various causes divided by the PY provides a very imprecise estimate of death rates. To be useful these must be averaged or smoothed in some manner, in particular smoothing by use of the rate models such as used in the paper. The summary and dose variables can be used as class-marks for cells in modeling. Persons contribute to multiple cells of the

table, and the summary and dose variables are weighted means, weighted by the time each person contributes to the cell.

If these data are used as the basis for analyses in any publication including working papers or technical reports, a statement of acknowledgment must be included in the manuscript. This statement should read:

This report makes use of data obtained from the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan. RERF is a private, non-profit foundation funded by the Japanese Ministry of Health, Labour and Welfare (MHLW) and the U.S. Department of Energy (DOE), the latter through the National Academy of Sciences. The conclusions in this report are those of the authors and do not necessarily reflect the scientific judgment of RERF or its funding agencies.

Please send a copy of any reprints that make use of these data to:

Archives Unit  
Library and Archives Section  
Radiation Effects Research Foundation  
5-2 Hijiyama Koen  
Minami-ku  
Hiroshima, 732  
JAPAN

Detailed documentation:

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<b>Name</b>	<b>Categorizations</b>	<b>Definitions and Labeling Codes</b>
city	City	1 - Hiroshima 2 - Nagasaki
sex	Sex	1 - male 2 - female
un4gy	Under 4 Gy shielded kerma	0 - over 4 Gy 1 - under 4 Gy
distcat	Ground distance category	1 - < 3km 2- 3-10 km

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agxcat	Age at exposure category	1: 0 - 4 2: 5 - 9 3: 10 - 14 4: 15 - 19 5: 20 - 24 6: 25 - 29 7: 30 - 34 8: 35 - 39	9: 40 - 44 10: 45 - 49 11: 50 - 54 12: 55 - 59 13: 60 - 64 14: 65 - 69 15: 70+
agecat	Attained age category	2: 5 - 9 3: 10 - 14 4: 15 - 19 5: 20 - 24 6: 25 - 29 7: 30 - 34 8: 35 - 39 9: 40 - 44	10: 45 - 49 11: 50 - 54 12: 55 - 59 13: 60 - 64 14: 65 - 69 15: 70 - 74 16: 75 - 79 17: 80 - 84 18: 85+
dcat	Weighted survivor colon dose categories (Sv)	2: 0 - 0.005 3: 0.005 - 0.02 4: 0.02 - 0.04 5: 0.04 - 0.06 6: 0.06 - 0.08 7: 0.08 - 0.10 8: 0.10 - 0.125 9: 0.125 - 0.15 10: 0.15 - 0.175 11: 0.175 - 0.20 12: 0.20 - 0.25	13: 0.25 - 0.30 14: 0.30 - 0.50 15: 0.50 - 0.75 16: 0.75 - 1.00 17: 1.00 - 1.25 18: 1.25 - 1.50 19: 1.50 - 1.75 20: 1.75 - 2.00 21: 2.00 - 2.50 22: 2.50 - 3.00 23: 3.00+
time	Calendar time period	1: 1950 (Oct.) - 1952 2: 1953 - 1954 3: 1955 - 1957 4: 1958 - 1962 5: 1963 - 1964 6: 1965 - 1967 7: 1968 - 1972	8: 1973 - 1977 9: 1978 - 1982 10: 1983 - 1987 11: 1988 - 1990 12: 1991 - 1992 13: 1993 - 1997

<b>Name</b>	<b>Summary Variable</b>	<b>Description</b>
pyr	Person years	PY at risk for the cell
subjects	Subjects first at risk	Number of subjects, nonzero only in 1 <sup>st</sup> time category
gdist	Ground distance	PY-weighted average in meters
agex	Age at exposure	PY-weighted average in years
age	Attained age	PY-weighted average in years
year	Year	PY-weighted calendar time

<b>Name</b>	<b>Death Counts</b>	<b>9th Revision ICD Codes</b>
death	All deaths	
cancer	All cancer	140-208
solid	All solid cancer	140-199
liquid	All hematopoietic cancer	200-208
oralca	Cancer of the oral cavity	140-149
digestca	Cancer of the digestive system	150-159
esoph	Esophageal cancer	150
stomach	Stomach cancer	151
colon	Colon cancer	153
rectum	Rectal cancer	154
liver	Liver cancer	155
gallbldr	Cancer of the gallbladder	156
pancr	Pancreatic cancer	157
respca	Cancer of Respiratory system	160-165
lung	Lung cancer	162
bone	Bone cancer	170
connect	Cancer of connective tissues	171
melanoma	Melanoma	172
nmskin	Non-melanoma skin cancer	173
breast	Breast cancer (female)	174
uterus	All uterine cancer	179,180,182
cervix	Cervical cancer	180
corpus	Cancer of the uterine corpus	182
utmos	Uterine cancer, NOS	179
ovary	Ovarian cancer	183
othfem	Other female genital cancer	181,184
prost	Prostate cancer	185
othmale	Other male genital cancer	186,187
bladder	Bladder cancer	188
kidney	Kidney cancer	189.0
othurin	Other cancer of the urinary system	189. (1-4,8,9)
brainm	Malignant brain tumors	191
brainb	Benign brain tumors	225 (0)
othcnsm	Other malignant CNS tumors	192
othcnsb	Other benign CNS tumors	225 (1,2,3,4,8,9)
thyroid	Thyroid cancer	193
benign	Tumors of benign or unspecified type	210-239 except 225
blood	Noncancer blood diseases	280-289
noncadis	Noncancer diseases (exc. Blood diseases)	0-139,240-279,290-799
infect	Infectious diseases	0-139

endo	Diseases of the endocrine system	240-279
nervous	Nervous system diseases	320-389
heart	Coronary vascular diseases except stroke	390-429,440-459
resp	Respiratory diseases	460-519
digest	Digestive system diseases	520-579
urinary	Urinary system diseases	580-629
tb	Tuberculosis	010-018,137
stroke	Stroke	430-438
pneu	Pneumonia	480-487
livcir	Cirrhosis	571
external	External causes	E800-E999
suicide	Suicide	E950-E-959

<b>Name</b>	<b>Exposure and Dose Variables</b>	<b>Detail -- All doses are PY-weighted</b>
kerma	Shielded kerma	Unweighted total DS86 kerma truncated at 4 Gy
kerma_g	Shielded gamma kerma	Gamma part of truncated kerma
kerma_n	Shielded neutron kerma	Neutron part of truncated kerma
col_d10	Colon dose	weighted DS86 survivor dose (Sv)
col_gam	Colon gamma dose	DS86 survivor dose (Gy)
col_neu	Colon neutron dose	DS86 survivor dose (Gy)
mar_d10	Marrow dose	weighted DS86 survivor dose (Sv)
mar_gam	Marrow gamma dose	DS86 survivor dose (Gy)
mar_neu	Marrow neutron dose	DS86 survivor dose (Gy)
bra_d10	Brain dose	weighted DS86 survivor dose (Sv)
bre_d10	Breast dose	weighted DS86 survivor dose
liv_d10	Liver dose	weighted DS86 survivor dose
lun_d10	Lung dose	weighted DS86 survivor dose
ova_d10	Ovarian dose	weighted DS86 survivor dose
pan_d10	Pancreas dose	weighted DS86 survivor dose
ske_d10	Skeletal dose	weighted DS86 survivor dose
ski_d10	Skin dose	weighted DS86 survivor dose
sto_d10	Stomach dose	weighted DS86 survivor dose
tes_d10	Testicular dose	weighted DS86 survivor dose
thy_d10	Thyroid dose	weighted DS86 survivor dose
uri_d10	Urinary tract dose	weighted DS86 survivor dose
ute_d10	Uterine dose	weighted DS86 survivor dose