Incidence data set of leukemia, lymphoma and multiple myeloma among atomic bomb survivors: 1950 to 2001 follow-up

This documentation describes the data for the 1950–2001 follow-up that was used in analyses of leukemia, lymphoma, and multiple myeloma incidence in the Life Span Study (LSS) of atomic bomb survivors. Results of these analyses are described in the paper Hsu WL, Preston DL, Soda M, Sugiyama H, Funamoto S, Kodama K, Kimura A, Kamada N, Dohy H, Tomonaga M, Iwanaga M, Miyazaki Y, Cullings HM, Suyama A, Ozasa K, Shore RE, Mabuchi K: The incidence of leukemia, lymphoma and multiple myeloma among atomic bomb survivors: 1950–2001. *Radiat Res* 2013; 179(3):361–82.

The files included with this data release are:

lsshempy.csv	Leukemia, lymphoma, multiple myeloma incidence data file, comma delimited text file with a single header line that contains the variable names
LSS leuk lymphoma mm incidence.amf	Epicure (AMFIT) command script to read the data and fit the basic models used in the paper for various individual and combined categories of malignancies
LSS leuk lymphoma mm incidence.log	A log file produced by the program above

The data set is a detailed tabulation of person years, event counts, and summary data constructed from data on individual survivors. The analysis cohort includes 113,011 survivors with known doses. Data on individual survivors are stratified by city, sex, whether or not an individual's unweighted total shielded kerma was above 4 Gy, ground distance, age at exposure, attained age, calendar time, and bone marrow dose.

The file is a comma-separated-value file with one record per stratum. The first record in each file contains variable names. The file can easily be read into statistical packages such as SAS, Stata, or Epicure. Because of the numbers of records some versions of Excel may not be able to read all of the records in the file.

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), Hiroshima and Nagasaki, Japan. RERF is a public interest foundation funded by the Japanese Ministry of Health, Labour and Welfare (MHLW) and the U.S. Department of Energy (DOE), the latter in part through DOE award DE-HS0000031 to 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
Department of Information Technology
Radiation Effects Research Foundation
5-2 Hijiyama Koen
Minami-ku
Hiroshima 732-0815
JAPAN

These data are available on the RERF homepage (http://www.rerf.jp/)

Detailed documentation follows:

LSS leukemia, lymphoma, and multiple myeloma 1950–2001 person-year table

File name: lsshempy.csv

Format: ASCII text, comma-separated-values with variable names in row 1

File size: 38,579 records (including one variable name header record)

Basic description: Data on 1,012 hematopoietic malignancies among 120,005 people with 3,842,918 migration-adjusted person years of follow-up (includes people with unknown dose; i.e., mar_ad10 = -100)

Item	Description
City	City 1 : Hiroshima 2 : Nagasaki
Sex	Sex 1 : Male 2 : Female
Un4gy	Under 4 Gy of Shielded Kerma Total (G+N) indicator 0 : Shielded Kerma G+N < 4 Gy 1 : Shielded Kerma G+N >= 4 Gy
Distcat	Ground distance categories 1 : <3000 m 2 : 3000-<15000 3 : NIC
Agxcat	Age at exposure categories 1:0-<5 2:5-<10 3:10-<15 4:15-<20 5:20-<25 6:25-<30 7:30-<35 8:35-<40 9:40-<45 10:45-<50 11:50-<55 12:55-<60 13:60-<65 14:65-<70 15:70-<100
Agecat	Attained age categories 1:0-<5 2:5-<10 3:10-<15 4:15-<20 5:20-<25 6:25-<30 7:30-<35 8:35-<40 9:40-<45 10:45-<50 11:50-<55 12:55-<60 13:60-<65 14:65-<70

	15:70-<75 16:75-<80 17:80-<85 18:85-<110
Dcat	DS02 weighted Bone Marrow dose categories Adjusted-truncated RBE=10 weighted dose (i.e. gamma + 10*neutron) 1:<0(DoseUNK) 2:0-<5 3:5-<20 4:20-<40 5:40-<60 6:60-<80 7:80-<100 8:100-<125 9:125-<150 10:150-<175 11:175-<200 12:200-<250 13:250-<300 14:300-<500 15:500-<750 16:750-<1000 17:1000-<1250 18:1250-<1500 19:1500-<1750 20:1750-<2000 21:2000-<2500 22:2500-<3000 23:3000+
Time	Calendar time 1:Oct1,1950-Dec31,1952 2:Jan1,1953-Dec31,1955 3:Jan1,1956-Dec31,1957 4:Jan1,1958-Dec31,1960 5:Jan1,1961-Dec31,1965 6:Jan1,1966-Dec31,1970 7:Jan1,1971-Dec31,1975 8:Jan1,1976-Dec31,1980 9:Jan1,1981-Dec31,1985 10:Jan1,1986-Dec31,1987 11:Jan1,1988-Dec31,1990 12:Jan1,1991-Dec31,1995 13:Jan1,1996-Dec31,2000 14:Jan1,2001-Dec31,2001
Subjects	The number of subjects first at risk in each cell
Upyr	Unadjusted person years at risk

Pyr	Adjusted person years at risk
Gdist	Person-year weighted mean Ground distance in meters
Agex	Person-year weighted mean Age at exposure in years
Age	Person-year weighted mean Attained age in years
Year	Person-year weighted mean year
Nhl	Non Hodgkin lymphoma
Hl	Hodgkin lymphoma
Mye	Myeloma
All	Acute lymphoblastic leukemia
Oll	Aleukemia/subleukemic lymphoid leukemia
Alltot	total ALL
Cll	Chronic lymphocytic leukemia
Hcl	Hairy cell leukemia
Clltot	Total CLL
Atl	Adult T-cell leukemia
Aml	Acute myeloid leukemia
Oml	a-/sub-leukemic myeloid leukemia, or myeloid leukemia NOS
Amol	Acute monocytic leukemia
Amltot	Total AML
Cml	Chronic myeloid leukemia
othleuk	Other leukemia
Noncll	Non-CLL/non-ATL leumemia
Leuktot	Total leukemia
Hldtot	All events
mar_ad10	Person-year weighted mean weighted adjusted-truncated DS02 Bone Marrow dose
mar_ag	Person-year weighted mean weighted adjusted-truncated DS02 Bone Marrow Gamma
mar_an	Person-year weighted mean weighted adjusted-truncated DS02 Bone Marrow Neutron