

Radiation Effects Research Foundation

Life Span Study Respiratory Cancers Incidence Data Set 1958-2009

May 2019

This documentation describes data files and analysis scripts used to reproduce the results in the manuscript “Lung, laryngeal and other respiratory cancer incidence among Japanese atomic bomb survivors: an updated analysis from 1958-2009” by EK Cahoon, DL Preston, DA Pierce, EJ Grant, AV Brenner, K Mabuchi, M Utada, and K Ozasa. Published in *Radiation Research* 2017;187(5):538-548. <http://dx.doi.org/10.1667/RR14583.1>

The dataset was created as a person-year table. Person-years and numbers of cases were stratified on city, sex, attained age, age at the time of the bombing, calendar year, ground distance from the hypocenter, smoking status, DS02R1 weighted absorbed lung dose, and whether an individual’s unweighted total shielded kerma was above 4 Gy.

The dataset is a comma-separated-value file with one record per strata. Command and log files for Epicure are included to reproduce the primary findings from the manuscript.

A detailed description of the dataset is at the end of this document.

File	Content
lung_table_3.amf	Epicure script for ERR models for lung cancers (radiation only, simple additive, simple multiplicative, generalized multiplicative. [Table 3 in the manuscript])
lun_smk_2017ext_v1.csv	comma-separated-value data file
lung_table_3.log	Epicure log file
readme_lung_2017.pdf	This documentation 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 data include information obtained from the Hiroshima City, Hiroshima Prefecture, Nagasaki City, and Nagasaki Prefecture Tumor Registries and the Hiroshima and Nagasaki Tissue Registries. 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 manuscripts which make use of these data to:

Archives Unit Library and Archives Section
Information Technology Department
Radiation Effects Research Foundation
5-2 Hijiyama Park
Minami-ku Hiroshima, 732-0815
JAPAN

or by email to:

pub-info@rerf.or.jp

These data are available from the RERF home page (<http://www.rerf.or.jp>).

Respiratory Cancers Incidence Data Set 1958-2009

person-year table

File name: lun_smk_2017ext_v1.csv

Format: ASCII text, comma-separated-values (csv) with variable names in first row. Windows/DOS linefeeds.

File size: 187,796 rows (including names row)

Description: Data on 2,446 lung cancers, 180 laryngeal cancers, 115 “other respiratory” cancers among 105,444 subjects and 3,079,484 person years. Order of variables in table, below, is the same as the order of variables in CSV file.

Name	Description and codes
city	City (categorical) 1: Hiroshima; 2 Nagasaki
sex	Sex (categorical) 1: Male; 2 Female
un4gy	Under 4 Gy of total shielded KERMA (gamma+neutron) indicator (categorical). 0: Not under 4 Gy; 1: Under 4 Gy
distcat	Distance from hypocenter (categorical) 1: 0-3000m; 2: 3000-10000m 3: Not in city (NIC)
agxcat	Age at exposure (categorical) 1: 0-5 years old; 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+
agecat	Attained age (categorical) 1: 0-5 years old; 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+
time	Calendar year (categorical) 1: 1958-1961; 2: 1961-1966; 3: 1966-1971; 4: 1971-1976; 5: 1976-1981; 6: 1981-1986; 7: 1986-1988; 8: 1988-1991; 9: 1991-1996; 10: 1996-1999; 11: 1999-2000; 12: 2000-2005; 13: 2005-2010
dcat	DS02R1 weighted absorbed lung dose (categorical)

	<p>[Note: doses are adjusted and truncated; neutron weighting factor of 10]</p> <p>1: dose unknown; 2: NIC; 3: 0-5 mGy; 4: 5-20 mGy 5: 20-40 mGy; 6: 40-60 mGy; 7: 60-80 mGy; 8: 80-100 mGy 9: 100-125 mGy; 10: 125-150 mGy; 11: 150-175 mGy; 12: 175-200 mGy; 13: 200-250 mGy; 14: 250-300 mGy; 15: 300-500 mGy; 16: 500-750 mGy; 17: 750-1000 mGy; 18: 1000-1250 mGy; 19: 1250-1500 mGy; 20: 1500-1750 mGy; 21: 1750-2000 mGy; 22: 2000-2500 mGy; 23: 2500-3000 mGy; 24: 3000+ mGy;</p>
scat	<p>Smoking Status (categorical)</p> <p>1: Unknown; 2: Never; 3: Past; 4: Current</p>
smkcat	<p>Cigarettes per day (categorical)</p> <p>1: Unknown; 2: 0; 3: 1-7.4; 4: 7.5-12.4; 5: 12.5-17.4; 6: 17.5-22.4; 7: 22.5-27.4; 8: 27.5+</p>
smkyrcat	<p>Years of Smoking (categorical)</p> <p>1: Unknown; 2: 0; 3: >0-5; 4: 5-10; 5: 10-20; 6: 20-30; 7: 30+</p>
smkqyrcat	<p>Years since quitting smoking (categorical)</p> <p>1: Unknown; 2: 0; 3: >0-5; 4: 5-10; 5: 10-15; 6: 15+</p>
upyr	Person-years at risk (unadjusted for migration)
subjects	The number of subjects first at risk
gdist	Ground Distance from Hypocenter (meters) [set at 20,000 if not in city]
agex	Age at Time of the Bombing (years)
age	Attained age (years)
year	Calendar Year
lung	First primary lung cancer case counts (ICD10 C34)
larynx	First primary larynx cancer case counts (ICD10 C32)
othresp	First primary “other respiratory” cancer case counts (ICD10 C30 ¹ , C31, C33, C381–C383, C388, C390, C398, C399)
d10lun	Absorbed, weighted (neutron weight=10) adjusted and truncated lung dose (mGy)
smkamt	<p>Smoking Intensity</p> <p>-1: Unknown</p> <p>0+: Cigarettes per day</p>

¹ Note: The case definition for “Other respiratory cancers” that appeared in the text of the manuscript was in error; the description omitted “C30 and C31”. Despite the incorrect description, case counts reported in the manuscript match the case counts in this data set.

	Value is -1 until age at first questionnaire with known smoking status
smkyrs	Years of Smoking -1: Unknown 0+: Years of smoking from age reported starting to current age. Value is -1 until age at first questionnaire with known smoking status
smqyrs	Years since quit smoking -1: Unknown 0+: Years since age reported as quit smoking. Value is -1 until age at questionnaire when reported quitting
pyr	Person-Years adjusted for migration rates
pyr92	Person-Years adjusted for migration using the previous migration rates (used in 2007 publication)
nic	Not In City 0: In city survivor 1: Survivor not in city at the time of bombing