

# Package ‘KMsurv’

May 7, 2026

**Version** 0.1-6

**Date** 2025-05-16

**Title** Datasets from Klein and Moeschberger (1997), Survival Analysis

**Maintainer** Jun Yan <jun.yan@uconn.edu>

**Description** Datasets and functions for Klein and Moeschberger (1997),  
``Survival Analysis, Techniques for Censored and Truncated  
Data'', Springer.

**License** GPL (>= 3)

**URL** <https://github.com/jun-yan/KMsurv>

**NeedsCompilation** no

**Author** John P. Klein [aut] (KM book author),  
Melvin L. Moeschberger [aut] (KM book author),  
Jun Yan [aut, cre]

**Repository** CRAN

**Date/Publication** 2025-05-20 05:40:02 UTC

## Contents

aids . . . . .	2
alloauto . . . . .	3
allograft . . . . .	3
azt . . . . .	4
baboon . . . . .	4
bcdeter . . . . .	5
bfeed . . . . .	5
bmt . . . . .	6
bnct . . . . .	7
btrial . . . . .	7
burn . . . . .	8
channing . . . . .	9
drug6mp . . . . .	9
drughiv . . . . .	10

hodg . . . . .	10
kidney . . . . .	11
kidrecurr . . . . .	12
kidtran . . . . .	13
larynx . . . . .	13
lifetab . . . . .	14
lung . . . . .	15
pneumon . . . . .	16
psych . . . . .	17
rats . . . . .	17
std . . . . .	18
stddiag . . . . .	19
tongue . . . . .	19
twins . . . . .	20

<b>Index</b>	<b>21</b>
--------------	-----------

---

aids	<i>data from Section 1.19</i>
------	-------------------------------

---

## Description

The aids data frame has 295 rows and 3 columns.

## Format

This data frame contains the following columns:

**infect** Infection time for AIDS, years

**induct** Induction time for AIDS, years

**adult** Indicator of adult (1=adult, 0=child)

## Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Lagakos et al. *Biometrika* 68 (1981): 515-523.

## Examples

```
data(aids)
```

---

alloauto	<i>data from Section 1.9</i>
----------	------------------------------

---

**Description**

The alloauto data frame has 90 rows and 5 columns.

**Format**

This data frame contains the following columns:

**time** Time to death or relapse, months

**type** Type of transplant (1=allogeneic, 2=autologous)

**delta** Leukemia-free survival indicator (0=alive without relapse, 1=dead or relapse)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Kardaun Stat. Nederlandica 37 (1983), 103-126.

**Examples**

```
data(alloauto)
```

---

allograft	<i>data from Exercise 13.1, p418</i>
-----------	--------------------------------------

---

**Description**

The allograft data frame has 34 rows and 4 columns.

**Format**

This data frame contains the following columns:

**patient** Patient

**time** Time to graft rejection, days

**rejection** Indicator of graft rejection (1=yes, 0=no)

**match** Good HLA skin match (1=yes, 0=no)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Batchelor and Hackett Lancet 2 (1970): 581-583.

**Examples**

```
data(allograft)
```

---

azt *data from Exercise 4.7, p122*

---

**Description**

The azt data frame has 45 rows and 4 columns.

**Format**

This data frame contains the following columns:

**patient** Patient number

**ageentry** Age at entry into AZT study, months

**age** Age at death or censoring time, months

**death** Death indicator (1=dead, 0=alive)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(azt)
```

---

baboon *data from Exercise 5.8, p147*

---

**Description**

The baboon data frame has 25 rows and 2 columns.

**Format**

This data frame contains the following columns:

**date** Date (day/month/year)

**time** Descent time (military time)

**observed** Indicator of observed or not (1=observed, 0=not observed)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(baboon)
```

---

bcdeter	<i>data from Section 1.18</i>
---------	-------------------------------

---

**Description**

The bcdeter data frame has 92 rows and 3 columns.

**Format**

This data frame contains the following columns:

**lower** Lower limit of interval, months

**upper** Upper limit of interval, months

**treat** Treatment regimen (1=radiotherapy only, 2=radiotherapy + chemotherapy)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Beadle et al Cancer 54 (1984):2911-2918.

**Examples**

```
data(bcdeter)
```

---

bfeed	<i>data from Section 1.14</i>
-------	-------------------------------

---

**Description**

The bfeed data frame has 927 rows and 10 columns.

**Format**

This data frame contains the following columns:

**duration** Duration of breast feeding, weeks

**delta** Indicator of completed breast feeding (1=yes, 0=no)

**race** Race of mother (1=white, 2=black, 3=other)

**poverty** Mother in poverty (1=yes, 0=no)

**smoke** Mother smoked at birth of child (1=yes, 0=no)

**alcohol** Mother used alcohol at birth of child (1=yes, 0=no)

**agemth** Age of mother at birth of child

**ybirth** Year of birth

**yschool** Education level of mother (years of school)

**pc3mth** Prenatal care after 3rd month (1=yes, 0=no)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. *National Longitudinal Survey of Youth Handbook* The Ohio State University, 1995.

**Examples**

```
data(bfeed)
```

---

bmt	<i>data from Section 1.3</i>
-----	------------------------------

---

**Description**

The bmt data frame has 137 rows and 22 columns.

**Format**

This data frame contains the following columns:

- group** Disease Group 1-ALL, 2-AML Low Risk, 3-AML High Risk
- t1** Time To Death Or On Study Time
- t2** Disease Free Survival Time (Time To Relapse, Death Or End Of Study)
- d1** Death Indicator 1-Dead 0-Alive
- d2** Relapse Indicator 1-Relapsed, 0-Disease Free
- d3** Disease Free Survival Indicator 1-Dead Or Relapsed, 0-Alive Disease Free)
- ta** Time To Acute Graft-Versus-Host Disease
- da** Acute GVHD Indicator 1-Developed Acute GVHD 0-Never Developed Acute GVHD)
- tc** Time To Chronic Graft-Versus-Host Disease
- dc** Chronic GVHD Indicator 1-Developed Chronic GVHD 0-Never Developed Chronic GVHD
- tp** Time To Chronic Graft-Versus-Host Disease
- dp** Platelet Recovery Indicator 1-Platelets Returned To Normal, 0-Platelets Never Returned to Normal
- z1** Patient Age In Years
- z2** Donor Age In Years
- z3** Patient Sex: 1-Male, 0-Female
- z4** Donor Sex: 1-Male, 0-Female
- z5** Patient CMV Status: 1-CMV Positive, 0-CMV Negative
- z6** Donor CMV Status: 1-CMV Positive, 0-CMV Negative
- z7** Waiting Time to Transplant In Days
- z8** FAB: 1-FAB Grade 4 Or 5 and AML, 0-Otherwise
- z9** Hospital: 1-The Ohio State University, 2-Alferd , 3-St. Vincent, 4-Hahnemann
- z10** MTX Used as a Graft-Versus-Host- Prophylactic: 1-Yes 0-No

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(bmt)
```

---

bnct	<i>data from Exercise 7.7, p223</i>
------	-------------------------------------

---

**Description**

The bnct data frame has 34 rows and 3 columns.

**Format**

This data frame contains the following columns:

**trt** Treatment (1=untreated, 2=radiated, 3=radiated + BPA)

**time** Death time or on-study time, days

**death** Death indicator (1=dead, 0=alive)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(bnct)
```

---

btrial	<i>data from Section 1.5</i>
--------	------------------------------

---

**Description**

The btrial data frame has 45 rows and 3 columns.

**Format**

This data frame contains the following columns:

**time** Time to death or on-study time, months

**death** Death indicator (0=alive, 1=dead)

**im** Immunohistochemical response (1=negative, 2=positive)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Sedmak et al. *Modern Pathology* 2 (1989): 516-520.

**Examples**

```
data(btrial)
```

---

burn	<i>data from Section 1.6</i>
------	------------------------------

---

**Description**

The burn data frame has 154 rows and 17 columns.

**Format**

This data frame contains the following columns:

**Obs** Observation number

**Z1** Treatment: 0=routine bathing 1=Body cleansing

**Z2** Gender (0=male 1=female)

**Z3** Race: 0=nonwhite 1=white

**Z4** Percentage of total surface area burned

**Z5** Burn site indicator: head 1=yes, 0=no

**Z6** Burn site indicator: buttock 1=yes, 0=no

**Z7** Burn site indicator: trunk 1=yes, 0=no

**Z8** Burn site indicator: upper leg 1=yes, 0=no

**Z9** Burn site indicator: lower leg 1=yes, 0=no

**Z10** Burn site indicator: respiratory tract 1=yes, 0=no

**Z11** Type of burn: 1=chemical, 2=scald, 3=electric, 4=flame

**T1** Time to excision or on study time

**D1** Excision indicator: 1=yes 0=no

**T2** Time to prophylactic antibiotic treatment or on study time

**D2** Prophylactic antibiotic treatment: 1=yes 0=no

**T3** Time to straphylococcus aureus infection or on study time

**D3** Straphylococcus aureus infection: 1=yes 0=no

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Ichida et al. *Stat. Med.* 12 (1993): 301-310.

**Examples**

```
data(burn)
```

---

channing	<i>data from Section 1.16</i>
----------	-------------------------------

---

**Description**

The channing data frame has 462 rows and 6 columns.

**Format**

This data frame contains the following columns:

**obs** Observation number

**death** Death status (1=dead, 0=alive)

**ageentry** Age of entry into retirement home, months

**age** Age of death or left retirement home, months

**time** Difference between the above two ages, months

**gender** Gender (1=male, 2=female)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Hyde Biometrika (1977), 225-230.

**Examples**

```
data(channing)
```

---

drug6mp	<i>data from Section 1.2</i>
---------	------------------------------

---

**Description**

The drug6mp data frame has 21 rows and 5 columns.

**Format**

This data frame contains the following columns:

**pair** pair number

**remstat** Remission status at randomization (1=partial, 2=complete)

**t1** Time to relapse for placebo patients, months

**t2** Time to relapse for 6-MP patients, months

**relapse** Relapse indicator (0=censored, 1=relapse) for 6-MP patients

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Freireich et al. (1963) *Blood* 21: 699-716.

**Examples**

```
data(drug6mp)
```

---

drughiv	<i>data from Exercise 7.6, p222</i>
---------	-------------------------------------

---

**Description**

The drughiv data frame has 34 rows and 3 columns.

**Format**

This data frame contains the following columns:

**drug** Drug combination (1=AZT + zalcitabine, 2=AZT + zalcitabine + saquinavir)

**time** Time after drug administration to CD4 count at a specified level, days

**delta** Indicator of CD4 count reaching specified level (1=yes, 0=no)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(drughiv)
```

---

hodg	<i>data from Section 1.10</i>
------	-------------------------------

---

**Description**

The hodg data frame has 43 rows and 6 columns.

**Format**

This data frame contains the following columns:

- gtype** Graft type (1=allogenic, 2=autologous)
- dtype** Disease type (1=Non Hodgkin lymphoma, 2=Hodgkins disease)
- time** Time to death or relapse, days
- delta** Death/relapse indicator (0=alive, 1=dead)
- score** Karnofsky score
- wtime** Waiting time to transplant in months

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Avalos et al. Bone Marrow Transplantation 13(1993):133-138.

**Examples**

```
data(hodg)
```

---

kidney	<i>data from Section 1.4</i>
--------	------------------------------

---

**Description**

The kidney data frame has 119 rows and 3 columns.

**Format**

This data frame contains the following columns:

- time** Time to infection, months
- delta** Infection indicator (0=no, 1=yes)
- type** Catheter placement (1=surgically, 2=percutaneously)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Nahman et al. J. Am Soc. Nephrology 3 (1992): 103-107.

**Examples**

```
data(kidney)
```

---

kidrecurr

*Data on 38 individuals using a kidney dialysis machine*

---

### Description

Data on 38 individuals using a kidney dialysis machine See Problem 13.5.2

### Usage

```
data(kidrecurr)
```

### Format

A data frame with 38 observations on the following 10 variables.

**patient** Patient number

**time1** Time one of recurrence of infection, days

**infect1** Indicator infection one (1=yes, 0=no)

**time2** Time two of recurrence of infection, days

**infect2** Indicator infection two (1=yes, 0=no)

**age** Patient's age

**gender** Patient's gender

**gn** Disease type GN (1=yes, 0=no)

**an** Disease type AN (1=yes, 0=no)

**pkd** Disease type PKD (1=yes, 0=no)

### Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. McGilchrist and Aisbett 47 (1991):461-466.

### Examples

```
data(kidrecurr)
```

---

kidtran	<i>data from Section 1.7</i>
---------	------------------------------

---

**Description**

The kidtran data frame has 863 rows and 6 columns.

**Format**

This data frame contains the following columns:

**obs** Observation number

**time** Time to death or on-study time

**delta** Death indicator (0=alive, 1=dead)

**gender** 1=male, 2=female

**race** 1=white, 2=black

**age** Age in years

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(kidtran)
```

---

larynx	<i>data from Section 1.8</i>
--------	------------------------------

---

**Description**

The larynx data frame has 90 rows and 5 columns.

**Format**

This data frame contains the following columns:

**stage** Stage of disease (1=stage 1, 2=stage2, 3=stage 3, 4=stage 4)

**time** Time to death or on-study time, months

**age** Age at diagnosis of larynx cancer

**diagyr** Year of diagnosis of larynx cancer

**delta** Death indicator (0=alive, 1=dead)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Kardaun Stat. Nederlandica 37 (1983), 103-126.

**Examples**

```
data(larynx)
```

---

lifetab	<i>Create cohort life table</i>
---------	---------------------------------

---

**Description**

Create cohort life table.

**Usage**

```
lifetab(tis, ninit, nlost, nevent)
```

**Arguments**

tis	a vector of end points of time intervals, whose length is 1 greater than nlost and nevent.
ninit	the number of subjects initially entering the study.
nlost	a vector of the number of individuals lost follow or withdrawn alive for whatever reason.
nevent	a vector of the number of individuals who experienced the event

**Value**

A data.frame with the following columns:

nsubs	the number of subject entering the intervals who have not experienced the event.
nlost	the number of individuals lost follow or withdrawn alive for whatever reason.
nrisk	the estimated number of individuals at risk of experiencing the event.
nevent	the number of individuals who experienced the event.
surv	the estimated survival function at the start of the intervals.
pdf	the estimated probability density function at the midpoint of the intervals.
hazard	the estimated hazard rate at the midpoint of the intervals.
se.surv	the estimated standard deviation of survival at the beginning of the intervals.
se.pdf	the estimated standard deviation of the prbability density function at the midpoint of the intervals.
se.hazard	the estimated standard deviation of the hazard function at the midpoint of the intervals

The row.names are the intervals.

**Author(s)**

Jun Yan <jyan@stat.uconn.edu>

**Examples**

```
tis <- c(0, 2, 3, 5, 7, 11, 17, 25, 37, 53, NA)
nsubs <- c(927, 848, 774, 649, 565, 449, 296, 186, 112, 27)
nlost <- c(2, 3, 6, 9, 7, 5, 3, rep(0, 3))
nevent <- c(77, 71, 119, 75, 109, 148, 107, 74, 85, 27)

lifetab(tis, nsubs[1], nlost, nevent)
```

---

lung

*data from Exercise 4.4, p120*

---

**Description**

The lung data frame has 25 rows and 4 columns.

**Format**

This data frame contains the following columns:

**time** Days to death

**death** Death indicator (1=dead), complete follow-up on all patients

**time2** Days to 3/31/80 or death (interim analysis)

**death2** Death indicator as of 3/31/80 (1=dead, 0=alive)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(lung)
```

---

pneumon

*data from Section 1.13*

---

### Description

The pneumon data frame has 3470 rows and 15 columns.

### Format

This data frame contains the following columns:

**chldage** Age child had pneumonia, months

**hospital** Indicator for hospitalization for pneumonia (1=yes, 0=no)

**mthage** Age of the mother, years

**urban** Urban environment for mother (1=yes, 0=no)

**alcohol** Alcohol use by mother during pregnancy (1=yes, 0=no)

**smoke** Cigarette use by mother during pregnancy (1=yes, 0=no)

**region** Region of the country (1=northeast, 2=north central, 3=south, 4=west)

**poverty** Mother at poverty level (1=yes, 0=no)

**bweight** Normal birthweight (>5.5 lbs.) (1=yes, 0=no)

**race** Race of the mother (1=white, 2=black, 3=other)

**education** Education of the mother, years of school

**nsibs** Number of siblings of the child

**wmonth** Month the child was weaned

**sfmonth** Month the child on solid food

**agepnp** Age child in the hospital for pneumonia, months

### Source

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. *National Longitudinal Survey of Youth Handbook* The Ohio State University, 1995.

### Examples

```
data(pneumon)
```

---

psych

*data from Section 1.15*

---

**Description**

The psych data frame has 927 rows and 10 columns.

**Format**

This data frame contains the following columns:

**sex** Patient sex (1=male, 2=female)

**age** Patient age

**time** Time to death or on-study time

**death** Death indicator (0=alive, 1=dead)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Woollen Biometrics 37 (1981): 687-696.

**Examples**

```
data(psych)
```

---

rats

*data from Exercise 7.13, p225*

---

**Description**

The rats data frame has 50 rows and 4 columns.

**Format**

This data frame contains the following columns:

**time** Time to tumor development

**tumor** Indicator of tumor development (1=yes, 0=no)

**trt** Treatment (1=treated with drug, 0=given placebo)

**litter** Litter

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(rats)
```

---

 std
 

---

*data from Section 1.12*


---

**Description**

The `std` data frame has 877 rows and 3 columns.

**Format**

This data frame contains the following columns:

**obs** Observation number

**race** Race (W=white, B=black)

**marital** Marital status (D=divorced / separated, M=married, S=single)

**age** AGE

**yschool** Years of schooling

**iinfct** Initial infection (1= gonorrhea, 2=chlamydia, 3=both)

**npartner** Number of partners

**os12m** Oral sex within 12 months (1=yes, 0=no)

**os30d** Oral sex within 30 days (1=yes, 0=no)

**rs12m** Rectal sex within 12 months (1=yes, 0=no)

**rs30d** Rectal sex within 30 days (1=yes, 0=no)

**abdpain** Presence of abdominal pain (1=yes, 0=no)

**discharge** Sign of discharge (1=yes, 0=no)

**dysuria** Sign of dysuria (1=yes, 0=no)

**condom** Condom use (1=always, 2=sometime, 3=never)

**itch** Sign of itch (1=yes, 0=no)

**lesion** Sign of lesion (1=yes, 0=no)

**rash** Sign of rash (1=yes, 0=no)

**lymph** Sign of lymph (1=yes, 0=no)

**vagina** Involvement vagina at exam (1=yes, 0=no)

**dchexam** Discharge at exam (1=yes, 0=no)

**abnode** Abnormal node at exam (1=yes, 0=no)

**rinfct** Reinfection (1=yes, 0=no)

**time** Time to reinfection

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(std)
```

---

stddiag	<i>data from Exercise 5.6, p146</i>
---------	-------------------------------------

---

**Description**

The stddiag data frame has 25 rows and 2 columns.

**Format**

This data frame contains the following columns:

**encounter** Months from 1/93 to encounter

**diagnosed** Months until STD diagnosed in the clinic

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(stddiag)
```

---

tongue	<i>data from Section 1.11</i>
--------	-------------------------------

---

**Description**

The tongue data frame has 80 rows and 3 columns.

**Format**

This data frame contains the following columns:

**type** Tumor DNA profile (1=Aneuploid Tumor, 2=Diploid Tumor)

**time** Time to death or on-study time, weeks

**delta** Death indicator (0=alive, 1=dead)

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer. Sickle-Santanello et al. *Cytometry* 9 (1988): 594-599.

**Examples**

```
data(tongue)
```

---

twins

*data from Exercise 7.14, p225*

---

**Description**

The twins data frame has 24 rows and 3 columns.

**Format**

This data frame contains the following columns:

**id** Twin number

**age** Age of twin's death from CHD, months

**death** Death (male twin) from CHD indicator (1=dead from CHD, 0=alive or other cause of death)

**gender** 1=male, 2=female

**Source**

Klein and Moeschberger (1997) *Survival Analysis Techniques for Censored and truncated data*, Springer.

**Examples**

```
data(twins)
```

# Index

## \* datasets

aids, 2  
alloauto, 3  
allograft, 3  
azt, 4  
baboon, 4  
bcdeter, 5  
bfeed, 5  
bmt, 6  
bnct, 7  
btrial, 7  
burn, 8  
channing, 9  
drug6mp, 9  
drughiv, 10  
hodg, 10  
kidney, 11  
kidrecurr, 12  
kidtran, 13  
larynx, 13  
lung, 15  
pneumon, 16  
psych, 17  
rats, 17  
std, 18  
stddiag, 19  
tongue, 19  
twins, 20

## \* manip

lifetab, 14

aids, 2  
alloauto, 3  
allograft, 3  
azt, 4

baboon, 4  
bcdeter, 5  
bfeed, 5  
bmt, 6

bnct, 7  
btrial, 7  
burn, 8  
  
channing, 9  
  
drug6mp, 9  
drughiv, 10  
  
hodg, 10  
  
kidney, 11  
kidrecurr, 12  
kidtran, 13  
  
larynx, 13  
lifetab, 14  
lung, 15  
  
pneumon, 16  
psych, 17  
  
rats, 17  
  
std, 18  
stddiag, 19  
  
tongue, 19  
twins, 20