

stir — Report incidence-rate comparison

[Description](#)
[Options](#)
[Reference](#)

[Quick start](#)
[Remarks and examples](#)
[Also see](#)

[Menu](#)
[Stored results](#)

[Syntax](#)
[Methods and formulas](#)

Description

`stir` reports point estimates and confidence intervals for the incidence-rate ratio (IRR) and incidence-rate difference. Stratified IRRs may be standardized to produce standardized mortality ratios.

`stir` can be used with single- or multiple-record and single- or multiple-failure `st` data.

Quick start

IRR and difference with confidence intervals for exposure indicator `exposed` using `stset` data
`stir exposed`

Crude and Mantel–Haenszel combined IRRs with test of homogeneity for strata defined by `svar`
`stir exposed, strata(svar)`

As above, and standardize the IRRs by weighting variable `wvar`
`stir exposed, strata(svar) standard(wvar)`

As above, but standardize using time at risk for the unexposed group as weights
`stir exposed, strata(svar) estandard`

Menu

Statistics > Survival analysis > Summary statistics, tests, and tables > Report incidence-rate comparison

Syntax

```
stir exposedvar [if] [in] [, options]
```

<i>options</i>	Description
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Main

<code>strata(<i>varname</i>)</code>	stratify on <i>varname</i>
<code>noshow</code>	do not show st setting information

Options

<code>ird</code>	report incidence-rate difference rather than ratio
<code>estandard</code>	combine external weights with within-stratum statistics
<code>istandard</code>	combine internal weights with within-stratum statistics
<code>standard(<i>varname</i>)</code>	combine user-specified weights with within-stratum statistics
<code>pool</code>	display pooled estimate
<code>nocrude</code>	do not display crude estimate
<code>nohom</code>	do not display homogeneity test
<code>tb</code>	calculate test-based confidence intervals
<code>level(#)</code>	set confidence level; default is level(95)

Options except `noshow`, `tb`, and `level(#)` are relevant only if `strata()` is specified.

You must `stset` your data before using `stir`; see [\[ST\] stset](#).

`by` is allowed; see [\[D\] by](#).

`fweights` and `iweights` may be specified using `stset`; see [\[ST\] stset](#). `stir` may not be used with `pweighted` data.

Options

Main

`strata(varname)` specifies that the calculation be stratified on *varname*, which may be a numeric or string variable. Within-stratum statistics are shown and then combined with Mantel–Haenszel weights.

`noshow` prevents `stir` from showing the key `st` variables. This option is seldom used because most people type `stset`, `show` or `stset`, `noshow` to set whether they want to see these variables mentioned at the top of the output of every `st` command; see [\[ST\] stset](#).

Options

`ird`, `estandard`, `istandard`, `standard(varname)`, `pool`, `nocrude`, and `nohom` are relevant only if `strata()` is specified; see [\[R\] epitab](#).

`tb` and `level(#)` are relevant in all cases; see [\[R\] epitab](#).

Remarks and examples

stir examines the incidence rate and time at risk.

```
. use http://www.stata-press.com/data/r15/page2
. stir group, noshow
note: Exposed <-> group==2 and Unexposed <-> group==1
```

	group		Total
	Exposed	Unexposed	
Failure	19	17	36
Time	5023	4095	9118
Incidence rate	.0037826	.0041514	.0039482
	Point estimate		[95% Conf. Interval]
Inc. rate diff.	-.0003688	-.002974	.0022364
Inc. rate ratio	.9111616	.4484366	1.866047 (exact)
Prev. frac. ex.	.0888384	-.8660469	.5515634 (exact)
Prev. frac. pop	.04894		
	(midp) Pr(k<=19) =		0.3900 (exact)
	(midp) 2*Pr(k<=19) =		0.7799 (exact)

Video example

[How to calculate incidence rates and incidence-rate ratios](#)

Stored results

stir stores the following in `r()`:

Scalars

```
r(p)          one-sided p-value
r(ird)        incidence-rate difference
r(lb_ird)     lower bound of CI for ird
r(ub_ird)     upper bound of CI for ird
r(irr)        incidence-rate ratio
r(lb_irr)     lower bound of CI for irr
r(ub_irr)     upper bound of CI for irr
r(afe)        attributable (prev.) fraction among exposed
r(lb_afe)     lower bound of CI for afe
r(ub_afe)     upper bound of CI for afe
r(afp)        attributable fraction for the population
r(chi2_mh)    Mantel-Haenszel homogeneity  $\chi^2$ 
r(chi2_p)     pooled homogeneity  $\chi^2$ 
r(df)         degrees of freedom
```

Methods and formulas

stir simply accumulates numbers of failures and time at risk by exposed and unexposed (by strata, if necessary) and passes the calculation to `ir`; see [\[R\] epitab](#).

Reference

Dupont, W. D. 2009. *Statistical Modeling for Biomedical Researchers: A Simple Introduction to the Analysis of Complex Data*. 2nd ed. Cambridge: Cambridge University Press.

Also see

[ST] **stset** — Declare data to be survival-time data

[ST] **stsum** — Summarize survival-time data

[R] **epitab** — Tables for epidemiologists