Package 'accrual'

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Type Package

Title Bayesian Accrual Prediction

Version 1.0

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Depends R(>= 2.8.0), tcltk

Imports fgui,SMPracticals

Description
Subject recruitment for medical research is challenging. Slow patient accrual leads to delay in research. Accrual monitoring during the process of recruitment is critical. Researchers need reliable tools to manage the accrual rate. We developed a Bayesian method that integrates researcher's experience on previous trials and data from the current study, providing reliable prediction on accrual rate for clinical studies. In this R package, we present functions for Bayesian accrual prediction which can be easily used by statisticians and clinical researchers.

License GPL-2

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R topics documented:

accrual-package   *Bayesian Accrual prediction*

Description

Description: Subject recruitment for medical research is challenging. Slow patient accrual leads to delay in research.Accrual monitoring during the process of recruitment is critical. Researchers need reliable tools to manage the accrual rate.We developed a Bayesian method that integrates researcher's experience on previous trials and data from the current study,providing reliable prediction on accrual rate for clinical studies.In this R package, we present functions for Bayesian accrual prediction which can be easily used by statisticiana and clinical researcher.s.

Details

Package:	accrual
Type:	Package
Version:	1.0
Date:	2013-02-06
License:	GPL-2

There are major three funtions in the package. The accrual.gui function provide the gui version.

Author(s)

Yu Jiang, Steve Simon, Matthew S. Mayo , Rama Raghavan, Byron J. Gajewski

Maintainer:Yu Jiang <yjiang@kumc.edu>

References

Gajewski BJ, Simon SD, Carlson SE (2008). Predicting accrual in clinical trials with Bayesian posterior predictive distributions. Stat Med. 27(13):2328-40.

Examples

```
accrual.n(n=300, T=36, P=0.5, m=100, tm=10)
accrual.T(n=300, T=36, P=0.5, m=100, tm=10)
accrual.plots(accrual.data)
accrual.gui()
```

---

accrual.data *Example Accrual Data*

Description

An example dataset for subject accrual.

Usage

```
accrual.data
```

Examples

```
str(accrual.data)
plot(accrual.data)
accrual.plots(accrual.data)
```

---

accrual.gui *GUI Version of the Bayesian Accrual Prediciton*

Description

The R GUI interface only needs the researchers to input the original design information that are required information for IRBs (total time proposed and total subjects proposed) and the updated accrual data (time since start and subjects accrual). It uses Bayesian prediction model in the background of calculation

Usage

```
accrual.gui()
```

Author(s)

Yu Jiang, Steve Simon, Matthew S. Mayo , Rama Raghavan, Byron J. Gajewski

Examples

```
accrual.gui()
```

---

accrual.n   *Prediction of Accrual in Fixed Time Frame*

Description

Produce a plot and output for prediction of the number of subjects can be recruited in a fixed time frame

Usage

```
accrual.n(n, T, P, m, tm,nmax=2*n)
```

Arguments

n	Total sample size
T	Total planned time
P	Research's confidence in the accrual process, range 0-1
m	Subject been recruited
tm	Time to now
nmax	The max of y set up in the plot, the default is 2*n.

Author(s)

Yu Jiang, Steve Simon, Matthew S. Mayo , Rama Raghavan, Byron J. Gajewski

Examples

```
accrual.n(n=300, T=36, P=0.5, m=100, tm=10)
```

---

accrual.plots   *Dignostic Plots*

Description

The diagnostic panel shows four figures that help to understand the data distribution. The figure on the top left is the exponential quantile plot, which checks whether the distribution of waiting times is exponential. The top right figure shows the histogram of the waiting times, with the red line is the theoretical exponential distribution. The figure of waiting time verse cumulative accrual time is shown on the bottom left. The figure of total accrual verse cumulative accrual time is shown on the bottom right.

Usage

```
accrual.plots(w)
```

Arguments

w	The accrual data set.

Author(s)

Yu Jiang, Steve Simon, Matthew S. Mayo , Rama Raghavan, Byron J. Gajewski

Examples

```
accrual.plots(accrual.data)
```

---

accrual.T	*Prediction of Time.*

Description

Prediction of time frame for a certain nubmer of subjects.

Usage

```
accrual.T(n, T, P, m,tm,Tmax)
```

Arguments

n	Total sample size
T	Total planned time
P	Research's confidence in the accrual process, range 0-1
m	Subject been recruited
tm	Time to now
Tmax	The max of x set up for the plot, default is 2*T.

Author(s)

Yu Jiang, Steve Simon, Matthew S. Mayo , Rama Raghavan, Byron J. Gajewski

Examples

```
accrual.T(n=300, T=36, P=0.5, m=100, tm=10)
```

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