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log: d:\ssizeprglog.log
log type: text
opened on: 15 Feb 2007, 13:00:12

. clear

. quietly do ssizeprg

. ssizeprgdoc

* SSIZEPRG contains 4 `immediate form' programs that estimate
* 2-sample sample sizes and power to detect NMB differences
* that are greater than 0. Two programs -- cessli and cepowli --
* assume standard deviations for cost and effect that are common
* between the 2 treatment groups (SD, not SE for the difference).
* Two programs -- cess2i and cepow2i -- assume standard
* deviations for cost and effect that differ between the two
* treatment groups. All 4 programs presume two arm trials and a
* common sample size for both treatment groups

* These programs yield results that are identical to those
* derived from the NHB formula in: Willan AR. Analysis, sample
* size, and power for estimating incremental net health benefit
* from clinical trial data. Control Clin Trials 2001;22:228-237.

* Glick, sampsizedoc last revised 02/13/07

* PROGRAM: CESS1I

* cessli is used to estimate sample size when one assumes
* there are common standard deviations for cost and effect
* between the 2 treatment groups (SDs, not SEs for the difference
* in cost and effect).

* COMMAND LINE: cessli [diffc] [diffe] [sdc] [sde] [corr] [wtp] [alpha]
[beta]

* The 8 arguments are all numbers
** `1' Difference in costs
** `2' Difference in effects
** `3' Standard deviation, costs (assumed the same for both groups)
** `4' Standard deviation, effects (assumed the same for both groups)
** `5' Correlation, difference in costs and effects
** `6' Maximum willingness to pay
** `7' Two-tailed alpha level (e.g., 0.05)
** `8' One-tailed beta level (e.g., 0.80)

* Saved results (scalars)

* r(diffc)
* r(diffq)
* r(sd_c)
* r(sd_e)
* r(rho)
* r(wtp)
* r(alpha)
* r(beta)
* r(nmb)

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* r(sampsize)

* PROGRAM:  CEPOWli

* cepowli is used to assess power when one assumes
* that the 2 treatment groups have common standard
* deviations for costs and effects (SDs, not SEs for
* the difference in cost and effect)

* COMMAND LINE:  cepowli [diffc] [diffe] [sdc] [sde] [corr] [wtp] [alpha]
[sampsize]

* The 8 arguments are all numbers
* `1'  Difference in costs
* `2'  Difference in effects
* `3'  Standard deviation, costs (assumed the same for both groups)
* `4'  Standard deviation, effects (assumed the same for both groups)
* `5'  Correlation, difference in costs and effects
* `6'  Willingness to pay
* `7'  Two-tailed level (e.g., 0.05)
* `8'  Sample size per group

* Saved results (scalars)

* r(diffc)
* r(diffq)
* r(sd_c)
* r(sd_e)
* r(rho)
* r(wtp)
* r(alpha)
* r(sampsize)
* r(nmb)
* r(power)

* PROGRAM:  CESS2I

* cess2i is used to assess sample size when one
* assumes there are Rx-specific standard deviations
* for the 2 treatment groups' costs and effects (SDs,
* not SEs for the difference in costs and effects)

* COMMAND LINE:  cess2i [diffc] [diffe] [sdc0] 9sdc1 [sde0] [sde1] [corr]
[wtp] [alpha] [beta]

* The 10 arguments are all numbers
* `1'  Difference in costs
* `2'  Difference in effects
* `3'  Standard deviation, costs, group 0
* `4'  Standard deviation, costs, group 1
* `5'  Standard deviation, effects, group 0
* `6'  Standard deviation, effects, group 1
* `7'  Correlation, difference in costs and effects
* `8'  Willingness to pay
* `9'  Two-tailed alpha level (e.g., 0.05)
* `10' One-tailed beta level (e.g., 0.80)

* Saved results (scalars)

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* r(diffc)
* r(diffq)
* r(sd_c0)
* r(sd_c1)
* r(sd_e0)
* r(sd_e1)
* r(rho)
* r(wtp)
* r(alpha)
* r(beta)
* r(nmb)
* r(sampsize)

* PROGRAM: CEPOW2I

* cepow2i is used to assess power when one assumes
* there are Rx-specific standard deviations for for the
* 2 treatment groups' costs and effects (SDs, not SEs
* for the difference in costs and effects)

* COMMAND LINE: cepow2i [diffc] [diffe] [sdc0] 9sdc1 [sde0] [sde1] [corr]
[ wtp] [alpha] [sampl
> e size]

* The 10 arguments are all numbers
* 1 Difference in costs
* 2 Difference in effects
* 3 Standard deviation, costs, group 0
* 4 Standard deviation, costs, group 1
* 5 Standard deviation, effects, group 0
* 6 Standard deviation, effects, group 1
* 7 Correlation, difference in costs and effects
* 8 Willingness to pay
* 9 Two-tailed alpha level (e.g., 0.05)
* 10 Sample size

* Saved results (scalars)

* r(diffc)
* r(diffq)
* r(sd_c0)
* r(sd_c1)
* r(sd_e0)
* r(sd_e1)
* r(rho)
* r(wtp)
* r(alpha)
* r(sampsize)
* r(nmb)
* r(power)

* EXAMPLE 1: ASSUME
* Cost difference = 1000
* Effect difference = 0.05
* SD cost = 1000
* SE effect = 0.5
* Correlation of the difference in C&E = 0.1
* Willingness to pay = 75,000
* Two-tailed alpha = 0.05

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* Two-tailed beta = 0.80

. cessli 1000 .05 1000 .5 .1 75000 .05 .8

SAMPLE SIZE CALCULATION (Common SD Costs and Effects)

Assumptions

Difference in costs:                1000
Difference in effects:              .05

Standard deviation, costs:          1000
Standard deviation, effects:        .5
Correlation, difference in costs and effects: .1

Willingness to pay:                75000
Two-tailed alpha level:             .05
One-tailed beta level:              .8

Expected NMB:                       2750

*** SAMPLE SIZE PER GROUP ***      2906

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. return list
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scalars:
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      r(diffc) = 1000
      r(diffq) = .05
      r(sd_c)  = 1000
      r(sd_e)  = .5
      r(rho)   = .1
      r(wtp)   = 75000
      r(alpha) = .05
      r(beta)  = .8
      r(nmb)   = 2750
      r(sampsize) = 2906

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. cepowli 1000 .05 1000 .5 .1 75000 .05 2906

POWER CALCULATION (Common SD Costs and Effects)

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Assumptions
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Difference in costs:                1000
Difference in effects:              .05

Standard deviation, costs:          1000
Standard deviation, effects:        .5
Correlation, difference in costs and effects: .1

Willingness to pay:                75000
Two-tailed alpha level:             .05
Sample size per group               2906

Expected NMB:                       2750

*** POWER TO DETECT DIFFERENCE *** .8

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```
. return list
```

```
scalars:
```

```
    r(diffc) = 1000
    r(diffq) = .05
    r(sd_c) = 1000
    r(sd_e) = .5
    r(rho) = .1
    r(wtp) = 75000
    r(alpha) = .05
    r(sampsize) = 2906
    r(nmb) = 2750
    r(power) = .8
```

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* EXAMPLE 2: ASSUME
* Cost difference = 1000
* Effect difference = 0.05
* SD0 cost = 900
* SD1 cost = 1000
* SE0 effect = 0.45
* SE1 effect = 0.55
* Correlation of the difference in C&E = 0.1
* Willingness to pay = 75,000
* Two-tailed alpha = 0.05
* Two-tailed beta = 0.80
```

```
. ccss2i 1000 .05 900 1100 .45 .55 .1 75000 .05 .8
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SAMPLE SIZE CALCULATION (Different SD, Costs and Effects)
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Assumptions
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Difference in costs:	1000
Difference in effects:	.05
Standard deviation, costs, group 0:	900
Standard deviation, costs, group 1:	1100
Standard deviation, effects, group 0:	.45
Standard deviation, effects, group 1:	.55
Correlation, difference in costs and effects:	.1
Ceiling ratio:	75000
Two-tailed alpha level:	.05
One-tailed beta level:	.8
Expected NMB:	2750
*** SAMPLE SIZE PER GROUP ***	2935

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. return list
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```
scalars:
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```
    r(diffc) = 1000
    r(diffq) = .05
    r(sd_c0) = 900
    r(sd_c1) = 1100
    r(sd_e0) = .45
    r(sd_e1) = .55
```

```
    r(rho) = .1
    r(wtp) = 75000
    r(alpha) = .05
    r(beta) = .8
    r(nmb) = 2750
    r(sampsize) = 2935
```

```
. cepow2i 1000 .05 900 1100 .45 .55 .1 75000 .05 2935
```

```
POWER CALCULATION (Different SD, Costs and Effects)
```

```
Assumptions
```

```
Difference in costs:                1000
Difference in effects:              .05

Standard deviation, costs, group 0: 900
Standard deviation, costs, group 1: 1100
Standard deviation, effects, group 0: .45
Standard deviation, effects, group 1: .55
Correlation, difference in costs and effects: .1

Ceiling ratio:                      75000
Two-tailed alpha level:             .05
Sample Size:                        2935

    Expected NMB:                    2750

*** POWER TO DETECT DIFFERENCE ***  .8
```

```
. return list
```

```
scalars:
```

```
    r(diffc) = 1000
    r(diffq) = .05
    r(sd_c0) = 900
    r(sd_c1) = 1100
    r(sd_e0) = .45
    r(sd_e1) = .55
    r(rho) = .1
    r(wtp) = 75000
    r(alpha) = .05
    r(sampsize) = 2935
    r(nmb) = 2750
    r(power) = .8
```

```
. log close
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```
    log: d:ssizeprglog.log
    log type: text
    closed on: 15 Feb 2007, 13:02:48
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