simulation to study strategies to handle small strata

Wei Zou

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Version history

- sim_strata_1b: use simsurv to replace rpact as the engine to simulate survival data. The simulation cannot handle ramp up enrollment or dropoff; but it can simulate data with high EPR easily
- sim_strata_1: code is modified from C:/Users/zouw2/aPDL1/impower010/natera/programs/sim_collapsibility4_test_st

prevalence 0.5 , prognostic HR .63

```
## [1] "finding 100 input files when looking for r1"
## [1] "modification interval: 0.7 min"
## [1] "will add file name to the returned data"
```

var	n	mean	sd	min	25%	50%	75%	max
n	2000	120.000	0.000	120.000	120.000	120.000	120.000	120.000
nevent	2000	90.347	4.550	75.000	87.000	90.000	94.000	104.000
p_s	2000	0.354	0.297	0.000	0.087	0.287	0.579	0.999
delta_p	2000	0.004	0.080	-0.369	-0.024	0.001	0.032	0.438
O-E_M2	2000	2.647	3.501	-9.376	0.419	2.643	5.051	12.508
O-E_M1	2000	2.273	3.096	-9.195	0.251	2.239	4.428	11.853

prevalence 0.1 , prognostic HR .63

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var	n	mean	sd	min	25%	50%	75%	max
n	2000	120.000	0.000	120.000	120.000	120.000	120.000	120.000
nevent	2000	98.047	4.171	84.000	95.000	98.000	101.000	110.000
p_s	2000	0.338	0.292	0.000	0.078	0.259	0.556	0.999
delta_p	2000	0.004	0.056	-0.318	-0.017	0.000	0.022	0.361
O-E_M2	2000	4.947	4.574	-10.251	1.962	4.961	8.109	18.803
O-E_M1	2000	0.427	1.387	-3.919	-0.510	0.477	1.397	3.919

more mature read at 100 month

```
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## [1] "modification interval: 0.7 min"
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```

var	n	mean	sd	min	25%	50%	75%	max
n	2000	120.000	0.000	120.000	120.000	120.000	120.000	120.000
nevent	2000	115.633	2.071	107.000	114.000	116.000	117.000	120.000
p_s	2000	0.314	0.288	0.000	0.062	0.221	0.519	0.997
delta_p	2000	0.004	0.084	-0.462	-0.024	0.000	0.031	0.486
O-E_M2	2000	5.675	4.850	-10.991	2.606	5.814	9.032	19.891
O-E_M1	2000	0.511	1.522	-3.919	-0.527	0.558	1.598	3.919

prevalence 0.5 , prognostic HR .4

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## [1] "finding 100 input files when looking for r1"
## [1] "modification interval: 0.9 min"
## [1] "will add file name to the returned data"
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var	n	mean	sd	min	25%	50%	75%	max
n	2000	120.000	0.000	120.000	120.000	120.000	120.000	120.000
nevent	2000	89.090	4.379	74.000	86.000	89.000	92.000	102.000
p_s	2000	0.359	0.301	0.000	0.094	0.287	0.589	1.000
delta_p	2000	0.027	0.133	-0.635	-0.028	0.017	0.086	0.653
O-E_M2	2000	2.821	3.592	-9.040	0.462	2.801	5.311	13.537
O-E_M1	2000	2.017	2.879	-8.261	0.073	2.061	4.050	11.028

prevalence 0.1 , prognostic HR .4

```
## [1] "finding 100 input files when looking for r1"
## [1] "modification interval: 0.9 min"
## [1] "will add file name to the returned data"
```

var	n	mean	sd	min	25%	50%	75%	max
n	2000	120.000	0.000	120.000	120.000	120.000	120.000	120.000
nevent	2000	103.621	3.540	92.000	101.000	104.000	106.000	115.000
p_s	2000	0.330	0.292	0.000	0.073	0.248	0.544	1.000
delta_p	2000	0.016	0.080	-0.351	-0.015	0.007	0.046	0.417
O-E_M2	2000	5.296	4.714	-9.773	2.177	5.313	8.535	18.248
O-E_M1	2000	0.356	1.305	-3.919	-0.510	0.399	1.272	3.919