**How Valid are Assessments of Conception Probability in Ovulatory Cycle Research? Evaluations, Recommendations, and Theoretical Implications**

**Supplemental Online Materials (SOM)**

**­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Contents**

**1. Expanded Description of Simulation Methods**

**2. Table S1. Percentages of the Sample with Specific Length of the Follicular Phase (Days to Ovulation)**

**3. Table S2, Validities of Several Forward Count and Backward Count Windows Represented in the Literature**

**4. Table S3. Validities of Measures of Conception Risk / Fertility Status, with 8% Anovulatory Cycles**

**5. Table S4. Validities of Measures of Conception Risk / Fertility Status, with Error in Reporting Onset of Last Menses**

**6. Table S5. Sample Size Necessary to Achieve 80% and 70% Power: Between-Subjects Studies with Representative Sampling**

**7. Table S6. Sample Size Necessary to Achieve 80% and 70% Power: Between-Subjects Studies with Representative Sampling, Including Effects of Anovulatory Cycles and Reporting Error**

**8. Table S7. Sample Size Necessary to Achieve 80% and 70% Power: Within-Subjects Studies**

**9. Table S8. Sample Size Necessary to Achieve 80% and 70% Power: Within-Subjects Studies, Including Effects of 8% Anovulatory Cycles and Reporting Error**

**10. SPSS Syntax Used to Create the Simulated Cycles and Construct the Measures Assessing Conception Probability**

**1. Expanded Description of Simulation Methods**

We created our simulation sample in 6 steps.

1. *A sample with day of ovulation and current day of the cycle*. First, we created a sample with a representative distribution of days of ovulation within a cycle (or, equivalently, follicular phase lengths, as the follicular phase begins the first day of the cycle and ends on the day of ovulation). Stirnemann et al. (2013) used ultrasound fetal biometry to estimate the day of conception (number of days following beginning of last menses to day of conception) on a sample of nearly 6000 women. As they noted, conception typically occurs within 12 hours of ovulation; hence, the distribution of days of conception should closely match that of days of ovulation. We used an online graphical data extractor (<http://arohatgi.info/WebPlotDigitizer/>) on Stirnemann et al.’s Figure 1 to obtain proportions of cycles in which conception occurred on a given day, with day of conception ranging from day 1 to day 29. (Day of ovulation occurs after day 29 in a tiny proportion of cycles - <<1%.) We then created 1000 cases that matched these proportions. This sample of 1000 was multiplied 35-fold, with each of the 35 sets given a current day of the cycle ranging from 1 to 35. Hence, our sample of 35,000 cycles had a distribution of days of ovulation matching that of Stirnemann et al. and a uniform distribution of current day of the cycle, representing days 1 to 35.

2. *Assumed distribution of luteal phase lengths*. Several large-sample studies have estimated the length of the luteal phase (days from ovulation to beginning of next menses) to average 13-14 days (Baird et al., 1995: 13.1; Cole et al., 2009: 13.2 days; Lenton et al., 1984: 14.1 days; Fehring et al., 2006: 12.4 days; sample sizes range from 327-1060). Fehring et al.’s value may be lower because of differences in the way day of ovulation was estimated (second peak day of LH surge). They estimated length of the follicular phase to be 16.5 days, whereas Stirnemann et al.’s estimate was ~15 days (Baird et al, 1995: 16.3 days; Cole et al., 2009: 14.7 days). Lenton et al.’s estimate is higher because they eliminated a small proportion of outlying short cycle lengths. Baird et al. also detected several similar outliers. Similar to Lenton et al., Baird et al.’s modal value was 14 days, with the distribution centered around 13-14 days (from their Figure 2). Standard deviations have been estimated to be approximately 2.0 days (Baird et al.: 2.2; Fehring et al.: 2.0; Cole et al.: 2.0; Lenton et al.: 1.4 with outlying values excluded). We created a sample of luteal phase lengths approximating a normal distribution with mean 13.5 days and standard deviation of 2.0.

3. *Assumed correlation between follicular and luteal phase lengths*. Across over 1000 cycles, Fehring et al. (2006) estimated a correlation of -.323 between follicular and luteal phase lengths. From data on about 400 cycles presented by Cole et al. (2009), one can estimate this correlation to be ~-.35. In our data, we modeled a correlation of -.3. We did so by generating a normally distributed standard random variable and creating a weighted sum of that variable and *z*-scored follicular phase lengths, weights being √(1-.32) and .3, respectively. We then transformed this sum to a variable with mean 13.5 and standard deviation of 2.0 (above), and rounded values to the nearest integer; this variable is the luteal phase length.

4. *Elimination of cases with cycle day exceeding cycle length*. As current day of the cycle cannot possibly exceed length of the current cycle (i.e., follicular + luteal phase lengths), we eliminated from our data base all such impossible cases. In our final sample (see below), 19.5% of all simulated cycles were eliminated. Of course, cycles eliminated were generally ones with current cycle day late in the cycle, leaving proportionately more cases early in the cycle. Naturally, this distribution mirrors the population of normally ovulating women. During every cycle, women have “day 1,” day 2,” and “day 3,” but only women whose current cycle length exceeds 25 days experience, in that cycle, “day 26,” only women whose current cycle length exceeds 26 days experience “day 27,” and so on. If the median cycle length is 29, then there are only about half as many day 30s as day 1s.

Also overrepresented among eliminated cases were follicular phase lengths greater than average, given that day of cycle was more likely to exceed cycle length for short cycles and that most variability in cycle length results from variation in follicular phase length (e.g., Fehring et al., 2006). To ensure that, even *after* case elimination, follicular phase lengths in the simulated sample closely matched those reported by Stirnemann et al. (2013), we examined discrepancies between Stirnemann et al.’s distribution of day of ovulation and the distribution we observed following case elimination in our original run. We accordingly adjusted the distribution of follicular phase lengths in a second run, such that our simulated sample would have a distribution of follicular phase lengths closely matching that reported by Stirnemann et al. after case elimination. This step entailed slightly overrepresenting short follicular phases and slightly underrepresenting long follicular phases in the sample of 35,000. As it happened, this adjustment made little difference: estimated validities between methods of estimating the follicular phase were nearly identical; the difference between mean validity coefficients (Pearson *r*s) was .001, and the mean absolute difference in validity was .006. We report results using the adjusted sample.

5. *A second sample*. To create our representative sample, we relied on reports of estimated follicular and luteal phase lengths and the correlation between these lengths in the literature. Though very large, the sample could nonetheless contain minor sample-specific error because luteal phase lengths were computed using a random variable. To assess the impact of this variation, we created a second sample using precisely the same procedures but generating a new random variable to compute luteal phase lengths. Results for the two samples were nearly identical: mean absolute difference in estimated validity coefficients was .006. In the main text and below, we report results for the two samples combined. Sample sizes after case elimination were 28,197 and 28,148; combined *N* = 56,345.

6. *The fertile phase and estimated probabilistic conception probability*. Following Stirnemann et al. (2013), we defined the true fertile window as beginning mid-way through the day five days prior to the day of ovulation and ending mid-way through the day of ovulation. Hence, we coded this variable for the 5 days prior to the day of ovulation and the day of ovulation itself as .5, 1, 1, 1, 1, .5, respectively, and all other days as 0. Also, following Wilcox et al. (1995), we assigned continuous probabilities of conception resulting from unprotected sex. Assuming the 6th day prior to ovulation and the day of ovulation itself were half-days, we coded this variable for the 6 days prior to ovulation and the day of ovulation itself as .05, .13, .15, .21, .29, .31, .15, respectively, and all other days as 0.

2. Table S1

***Percentages of the Sample with Specific Length of the Follicular Phase (Days to Ovulation)***

Length Observed Target1 Length Observed Target1

1 .00 .00 16 11.21 11.29

2 .00 .00 17 8.77 8.76

3 .00 .00 18 6.22 6.36

4 .10 .13 19 4.18 4.29

5 .20 .14 20 2.85 2.89

6 .31 .31 21 2.14 2.14

7 .41 .47 22 1.53 1.55

8 .82 .97 23 1.12 1.22

9 1.63 1.68 24 .71 .74

10 3.47 3.40 25 .41 .37

11 6.42 6.26 26 .20 .25

12 9.28 9.11 27 .10 .12

13 11.42 11.23 28 .10 .12

14 13.05 12.86 29 .10 .12

15 13.25 13.23

*Notes*. *N* = 53,345. Mean discrepancy between observed and target: .06%

1Based on Stirnemann et al. (2013)

3. Table S2

**Validities of Several Forward Count and Backward Count Windows Represented in the Literature**

 **Conception Probability In Fertile Window**

***Forward Count***

Day 6-14 .429 .437

***Backward Counts***

RC Day 14-21 – known .654 .660

RC Day 14-28 – known .421 .424

RC Day 13-19 – known .643 .633

RC Day 14-21 – report .7 .504 .504

RC Day 14-28 – report .7 .341 .346

RC Day 13-19 – report .7 .475 .462

RC Day 14-21 – report .5 .458 .457

RC Day 14-28 – report .5 .321 .325

RC Day 13-19 – report .5 .430 .420

*Notes*. N = 56,345. Conception Probability, In Fertile Window: two criterion measures. Forward Count: days counted from beginning of cycle. Backward Count: days counted from end of cycle. RC Day: reverse count days – days counted backward from first day of next menses. Hence, RC day 1 is the first day prior to onset of next menstrual bleeding, RC day 2 is the second day prior to the onset of next menstrual cycle, etc. Known, report .7, report .5: validity when day of onset of next menses is confirmed, validity when day of onset of next menses is estimated from typical cycle length, where validity of report is .7, validity when day of onset of next menses is estimated from typical cycle length, where validity of report is .5, respectively.

4. Table S3

***Validities of Measures of Conception Risk / Fertility Status, with 8% Anovulatory Cycles***

 Continuous Discrete Windows

 \_\_Single Average 6 7 8 9

*Conception Probability*

Forward **.497 / .528** .414 / .457 .458 / .477 .444 / .481 .470 / .485

Backward – known **.667 / .647** .624 / .625 .627 .640 .630 .619

backward – report .7 .540 / .533 **.542 / .554** .448 .470 .477 .488

Backward – report .5 .505 / .502 **.523 / .538** .401 .425 .434 .447

*In Fertile Window*

Forward **.487 / .525** .398 / .451 .448 / .476 .431 / .475 .462 / .483

Backward – known **.672 / .659** .621 / .630 .625 .645 .628 .619

Backward – report .7 **.537 /** .536 .536 / **.554** .440 .468 .469 .484

Backward – report .5 .502 / .503 **.517 / .537** .394 .422 .427 .443

*Notes*. *N* = 56,345. Conception Probability, In Fertile Window: two criterion measures. Forward: a forward estimate of conception risk; Backward – known: a backward estimate based on confirmed first day of next menses; Backward – report .7: a backward estimate based on self-reported typical cycle length, with validity .7; Backward – report .5: a backward estimate based on self-reported typical cycle length, with validity .5. For continuous measures and forward windows, two estimates are reported, separated by a slash: ones based on Wilcox et al. (2001) (before slash); ones based on Stirnemann et al. (2013) (after slash). 6, 7, 8, 9: Number of days in the high fertility window. **Bold** values: Highest validities on row, within Wilcox et al./Stirnemann et al. sets.

5. Table S4

***Validities of Measures of Conception Risk / Fertility Status, with Error in Reporting Onset of Last Menses***

 Continuous Discrete Windows

 \_\_Single Average 6 7 8 9

*Conception Probability*

Forward **.490 / .530** .394 / .450 .445 / .476 .432 / .474 .464 / .485

Backward – known - - - - - -

backward – report .7 .540 / .540 **.539 / .558** .439 .468 .471 .489

Backward – report .5 .506 / .509 **.520 / .542** .395 .425 .432 .448

*In Fertile Window*

Forward **.479 / .526** .379 / .443 .435 / .474 .420 / .468 .456 / .482

Backward – known - - - - - -

Backward – report .7 **.536 /** .542 .532 / **.557** .430 .465 .464 .485

Backward – report .5 .501 / .509 **.513 / .540** .388 .420 .424 .443

*Notes*. *N* = 56,345. Conception Probability, In Fertile Window: two criterion measures. Forward: a forward estimate of conception risk; Backward – known: a backward estimate based on confirmed first day of next menses (which is not affected by error in reporting of onset of last menses – hence the dashes; see Table 4); Backward – report .7: a backward estimate based on self-reported typical cycle length, with validity .7; Backward – report .5: a backward estimate based on self-reported typical cycle length, with validity .5. For continuous measures and forward windows, two estimates are reported, separated by a slash: ones based on Wilcox et al. (2001) (before slash); ones based on Stirnemann et al. (2013) (after slash). 6, 7, 8, 9: Number of days in the high fertility window. **Bold** values: Highest validities on row, within Wilcox et al./Stirnemann et al. sets.

6. Table S5

***Power for Sample Sizes of 50, 100, 200 and d of .5 and .8: Between-Subjects Studies with Representative Sampling***

 Cohen’s *d*

 .5 .8

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sample Size 50 100 200 50 100 200

1.0 .253 .461 *.756* .538 **.839** **.988**

.85 .194 .351 .613 .410 *.701* **.944**

.70 .145 .253 .455 .293 .530 **.827**

.55 .105 .172 .304 .197 .356 .620

.43 .080 .122 .203 .136 .236 .423

*Notes*. Left-hand column: Validity of measurement of conception risk. Cohen’s *d*: true standardized difference between high fertility and low fertility means. **Bolded** values: power *>* .8; *italicized* values: power > .7. Two-tailed tests assumed.

7. Table S6

***Sample Size Necessary to Achieve 80% and 70% Power: Between-Subjects Studies with Representative Sampling, Including Effects of Anovulatory Cycles and Reporting Error***

 Cohen’s *d*

  **.4 .5 .6 .7 .8**

Equivalent *r* .150 .187 .222 .257 .291

Validity of Conception Risk Measure

.67 (from .70) 770 **498** 351 262 204

 *605 391 276 206 161*

.50 (from .55) 1384 **896** 631 472 368

 *1086 704 496 371 289*

.38 (from .43) 2398 **1553** 1095 818 638

 *1882 1219 859 642 502*

*Notes*. Value of .7 (for backwards continuous estimate with confirmed onset of next menses) reduced to .67 by 8% anovulatory cycles. Value of .55 (for average of forward and backward continuous estimates with typical cycle length) reduced to .50 by 8% anovulatory cycles and reporting error. Value of .43 (for 6-day window, forward estimate) reduced to .38 by by 8% anovulatory cycles and reporting error. *N*s needed for 80% power given in the top row; *N*s needed for 70% power given in the bottom row (italicized). Cohen’s *d*: true standardized difference between high fertility and low fertility means. Equivalent *r*: Value of *r* that Cohen’s *d* translates to with representative sampling (5 of every 28.5 women being in the fertile phase). **Bolded** values: Recommended sample size to achieve adequate power. Two-tailed tests assumed.

8. Table S7

***Power for Sample Sizes of 25, 50, 100 and d of .5 and .8: Within-Subjects Studies and Correlation across Phases of .5***

 Cohen’s *d*

 .5 .8

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sample Size: 25 50 100 25 50 100

1.0 .661  **.927 .998** **.959 1.00** **1.00**

.85 .515  **.818 .983**  **.864 .992**  **1.00**

.70 .371 .648 **.916** .693 **.943** **.999**

.55 .245 .447 *.740* .478 *.781* **.974**

.43 .166 .295 .526 .313 .562 **.855**

*Notes*. Left-hand column: Validity of measurement of conception risk. Cohen’s *d*: true standardized difference between high fertility and low fertility means. **Bolded** values: power *>* .8; *italicized* values: power > .7. Two-tailed tests assumed.

9. Table S8

***Sample Size Necessary to Achieve 80% and 70% Power: Within-Subjects Studies, Including Effects of 8% Anovulatory Cycles and Reporting Error***

 Cohen’s *d*

 .5 .8

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*r* across phases .3 .5 .7 .3 .5 .7

.67 (from .70) 105  **77** 50 46 35 24

  *83 61 39 36 28 19*

.50 (from .55) 190 **140** 90 83 64 44

 *150 110 71 66 50 35*

.38 (from .43) 330 **243** 156 145 111 77

 *259 191 123 114 87 61*

*Notes*. Left-hand column: Validity of measurement of conception risk. Value of .7 (for backwards continuous estimate with confirmed onset of next menses) reduced to .67 by 8% anovulatory cycles. Value of .55 (for average of forward and backward continuous estimates with typical cycle length) reduced to .50 by 8% anovulatory cycles and reporting error. Value of .43 (for discrete 6-day window, forward estimate) reduced to .38 by by 8% anovulatory cycles and reporting error. *N*s needed for 80% power given in the top row; *N*s needed for 70% power given in the bottom row (italicized). Cohen’s *d*: true standardized difference between high fertility and low fertility means. **Bolded** values: Recommended sample size to achieve adequate power. Two-tailed tests assumed.

**10.** **SPSS Syntax Used to Create the Simulated Cycles and Construct the Measures Assessing Conception Probability**

**Syntax to create variables in simulation file**

\*Day of ovulation [dayovul] was created as described in the detailed methods: 1000 cases were created to conform to the distribution reported by Stirnemann et al. Each case was copied 35 times, with each copy given a different day of the cycle [day], ranging from 1 to 35\*

COMPUTE luteal\_base=-.3\*Zdayovul+sqrt(1-.3\*.3)\*rand1.

EXECUTE.

\*rand1 is a normal random deviate introduced to create variation in luteal phase length, independent of day of ovulation. Zdayofovul is dayofovul z-scored\*

COMPUTE luteal=rnd(Zluteal\_base\*2+13.5).

EXECUTE.

\*Zluteal\_base is luteal\_base z-scored, which is then transformed to a variable with mean 13.5 and *s* = 2. Rounded to a whole number\*

COMPUTE cyclth=dayovul+luteal.

EXECUTE.

\*Cycle length [cyclth] is the sum of length of the follicular phase [dayovul] plus length of the luteal phase]

IF (day le cyclth) valid\_case=1.

EXECUTE.

IF (day gt cyclth) valid\_case=0.

EXECUTE.

\*Only “individuals” with day of the cycle equal to or less than cycle length are true possible cases. All other cases have been eliminated\*

COMPUTE typcyclth\_base=sqrt(.65)\*Zcyclth+sqrt(.35)\*rand2.

EXECUTE.

\*rand2 is a normal random deviate introduced to create variation in typical cycle length independent of true cycle length. 65% of variance in cycle length assumed to be between-woman – hence variance in cycle length accounted for by typical cycle length is 65%\*

COMPUTE typcyclth=rnd(2.7\*typcyclth\_base+28.5).

EXECUTE.

\*typcyclth is the base z-value transformed to a variable with *s* = 2.7 [expected if *s* of cycle length is 3.4 and 65% of variance in cycle length is between-woman. Rounded to whole number\*

COMPUTE typcyclth\_trun=typcyclth.

EXECUTE.

IF (typcyclth gt 35) typcyclth\_trun=35.

EXECUTE.

IF (typcyclth lt 22) typcyclth\_trun=22.

EXECUTE.

\*typical cycle length truncated so that max = 35, min = 22\*

COMPUTE typcyclth\_adj70\_base=.7\*Ztypcyclth+sqrt(.51)\*rand3.

EXECUTE.

COMPUTE typcyclth\_adj50\_base=.5\*Ztypcyclth+sqrt(.75)\*rand4.

EXECUTE.

COMPUTE typcyclth\_adj70=rnd(2.7\*typcyclth\_adj70\_base+28.5).

EXECUTE.

COMPUTE typcyclth\_adj50=rnd(2.7\*typcyclth\_adj50\_base+28.5).

EXECUTE.

COMPUTE typcyclth\_adj70\_trun=typcyclth\_adj70.

EXECUTE.

IF (typcyclth\_adj70 gt 35) typcyclth\_adj70\_trun=35.

EXECUTE.

IF (typcyclth\_adj70 lt 22) typcyclth\_adj70\_trun=22.

EXECUTE.

COMPUTE typcyclth\_adj50\_trun=typcyclth\_adj50.

EXECUTE.

IF (typcyclth\_adj50 gt 35) typcyclth\_adj50\_trun=35.

EXECUTE.

IF (typcyclth\_adj50 lt 22) typcyclth\_adj50\_trun=22.

EXECUTE.

\*Reporting error pertaining to typical cycle introduced, with two different versions with validities of .7 and .5, respectively. Rand3 and rand4 are normal random deviates introduced to create variation independent of true typical cycle length. Truncated to max = 35, min = 22\*

COMPUTE fertile=0.

EXECUTE.

IF ((dayovul - day) = 5) fertile=.5.

EXECUTE.

IF ((dayovul - day) = 4) fertile= 1.

EXECUTE.

IF ((dayovul - day) = 3) fertile = 1.

EXECUTE.

IF ((dayovul - day) = 2) fertile= 1.

EXECUTE.

IF ((dayovul - day) = 1) fertile= 1.

EXECUTE.

IF ((dayovul - day) = 0) fertile=.5.

EXECUTE.

\*True fertile window defined. Half of day of ovulation is in fertile window. Half of 5 days prior to day of ovulation is in fertile window\*

COMPUTE conceptionrisk=0.

EXECUTE.

IF ((dayovul - day) = 6) conceptionrisk=.05.

EXECUTE.

IF ((dayovul - day) = 5) conceptionrisk=.13.

EXECUTE.

IF ((dayovul - day) = 4) conceptionrisk=.15.

EXECUTE.

IF ((dayovul - day) = 3) conceptionrisk=.21.

EXECUTE.

IF ((dayovul - day) = 2) conceptionrisk=.29.

EXECUTE.

IF ((dayovul - day) = 1) conceptionrisk=.31.

EXECUTE.

IF ((dayovul - day) = 0) conceptionrisk=.15.

EXECUTE.

\*True continuous conception risk defined. Based on values reported by Wilcox et al. (1995)\*

**Syntax to create 8% anovulatory cycles**

IF (rand5 le -1.4155) anovul=1.

EXECUTE.

IF (rand5 gt -1.4155) anovul=0.

EXECUTE.

COMPUTE fertile\_8anov=fertile.

EXECUTE.

\*rand5 a normal random deviate created to select 8% of cases to be anovulatory. Cut-point identified empirically based on distribution of rand5\*

IF (anovul = 1) fertile\_8anov=0.

EXECUTE.

COMPUTE conrisk\_8anov=conceptionrisk.

EXECUTE.

IF (anovul = 1) conrisk\_8anov=0.

EXECUTE.

\*Assignment of fertility status and conception risk of 0 to all anovulatory cases\*

**Syntax to introduce reporting error in reports of day of cycle**

COMPUTE error\_contin=.1+rand6\*(14+.5\*(day-14))/14.

EXECUTE.

IF (error\_contin le .9 and error\_contin ge -.9) error\_days=0.

EXECUTE.

IF (error\_contin ge -1.4 and error\_contin le -1) error\_days=-1.

EXECUTE.

IF (error\_contin ge -1.8 and error\_contin le -1.4) error\_days=-2.

EXECUTE.

IF (error\_contin ge -2.2 and error\_contin le -1.8) error\_days=-3.

EXECUTE.

IF (error\_contin ge -2.6 and error\_contin le -2.2) error\_days=-4.

EXECUTE.

IF (error\_contin le -2.6) error\_days=-5.

EXECUTE.

IF (error\_contin ge .9 and error\_contin le 1.4) error\_days=1.

EXECUTE.

IF (error\_contin ge 1.4 and error\_contin le 1.8) error\_days=2.

EXECUTE.

IF (error\_contin ge 1.8 and error\_contin le 2.2) error\_days=3.

EXECUTE.

IF (error\_contin ge 2.2 and error\_contin le 2.6) error\_days=4.

EXECUTE.

IF (error\_contin ge 2.6) error\_days=5.

EXECUTE.

COMPUTE daypluser=day-error\_days.

EXECUTE.

IF (daypluser le 0) daypluser=1.

EXECUTE.

\*rand6 a normal random deviate created to introduce reporting error\*

**Syntax to create measures estimating conception probability in simulation file**

***Wilcox et al. continuous measures***

\*prc\_wcx\_a to follow: Wilcox et al. forward estimates\*

IF (day eq 1) prc\_wcx\_a = .000 .

EXECUTE .

IF (day eq 2) prc\_wcx\_a = .000 .

EXECUTE .

IF (day eq 3) prc\_wcx\_a = .001 .

EXECUTE .

IF (day eq 4) prc\_wcx\_a = .002 .

EXECUTE .

IF (day eq 5) prc\_wcx\_a = .004 .

EXECUTE .

IF (day eq 6) prc\_wcx\_a = .009 .

EXECUTE .

IF (day eq 7) prc\_wcx\_a = .017 .

EXECUTE .

IF (day eq 8) prc\_wcx\_a = .029 .

EXECUTE .

IF (day eq 9) prc\_wcx\_a = .044 .

EXECUTE .

IF (day eq 10) prc\_wcx\_a = .061 .

EXECUTE .

IF (day eq 11) prc\_wcx\_a = .075 .

EXECUTE .

IF (day eq 12) prc\_wcx\_a = .084 .

EXECUTE .

IF (day eq 13) prc\_wcx\_a = .086 .

EXECUTE .

IF (day eq 14) prc\_wcx\_a = .081 .

EXECUTE .

IF (day eq 15) prc\_wcx\_a = .072 .

EXECUTE .

IF (day eq 16) prc\_wcx\_a = .061 .

EXECUTE .

IF (day eq 17) prc\_wcx\_a = .050 .

EXECUTE .

IF (day eq 18) prc\_wcx\_a = .040 .

EXECUTE .

IF (day eq 19) prc\_wcx\_a = .032 .

EXECUTE .

IF (day eq 20) prc\_wcx\_a = .025 .

EXECUTE .

IF (day eq 21) prc\_wcx\_a = .020 .

EXECUTE .

IF (day eq 22) prc\_wcx\_a = .016 .

EXECUTE .

IF (day eq 23) prc\_wcx\_a = .013 .

EXECUTE .

IF (day eq 24) prc\_wcx\_a = .011 .

EXECUTE .

IF (day eq 25) prc\_wcx\_a = .009 .

EXECUTE .

IF (day eq 26) prc\_wcx\_a = .008 .

EXECUTE .

IF (day eq 27) prc\_wcx\_a = .007 .

EXECUTE .

IF (day eq 28) prc\_wcx\_a = .007 .

EXECUTE .

IF (day eq 29) prc\_wcx\_a = .007 .

EXECUTE .

\*prc\_wcx\_b to follow: Wilcox et al. backward estimates, no error in true cyclth\*

IF (day ge 30 and day le 100) prc\_wcx\_a = .007 .

EXECUTE .

IF ((cyclth - day) le 14) day\_b = 29 - (cyclth - day).

EXECUTE.

IF ((cyclth - day) ge 15) day\_b = rnd((day/(cyclth - 14))\*15).

EXECUTE.

IF (day\_b eq 1) prc\_wcx\_b = .000 .

EXECUTE .

IF (day\_b eq 2) prc\_wcx\_b = .000 .

EXECUTE .

IF (day\_b eq 3) prc\_wcx\_b = .001 .

EXECUTE .

IF (day\_b eq 4) prc\_wcx\_b = .002 .

EXECUTE .

IF (day\_b eq 5) prc\_wcx\_b = .004 .

EXECUTE .

IF (day\_b eq 6) prc\_wcx\_b = .009 .

EXECUTE .

IF (day\_b eq 7) prc\_wcx\_b = .018 .

EXECUTE .

IF (day\_b eq 8) prc\_wcx\_b = .032 .

EXECUTE .

IF (day\_b eq 9) prc\_wcx\_b = .050 .

EXECUTE .

IF (day\_b eq 10) prc\_wcx\_b = .069 .

EXECUTE .

IF (day\_b eq 11) prc\_wcx\_b = .085 .

EXECUTE .

IF (day\_b eq 12) prc\_wcx\_b = .094 .

EXECUTE .

IF (day\_b eq 13) prc\_wcx\_b = .093 .

EXECUTE .

IF (day\_b eq 14) prc\_wcx\_b = .085 .

EXECUTE .

IF (day\_b eq 15) prc\_wcx\_b = .073 .

EXECUTE .

IF (day\_b eq 16) prc\_wcx\_b = .059 .

EXECUTE .

IF (day\_b eq 17) prc\_wcx\_b = .047 .

EXECUTE .

IF (day\_b eq 18) prc\_wcx\_b = .036 .

EXECUTE .

IF (day\_b eq 19) prc\_wcx\_b = .028 .

EXECUTE .

IF (day\_b eq 20) prc\_wcx\_b = .021 .

EXECUTE .

IF (day\_b eq 21) prc\_wcx\_b = .016 .

EXECUTE .

IF (day\_b eq 22) prc\_wcx\_b = .013 .

EXECUTE .

IF (day\_b eq 23) prc\_wcx\_b = .010 .

EXECUTE .

IF (day\_b eq 24) prc\_wcx\_b = .008 .

EXECUTE .

IF (day\_b eq 25) prc\_wcx\_b = .007 .

EXECUTE .

IF (day\_b eq 26) prc\_wcx\_b = .006 .

EXECUTE .

IF (day\_b eq 27) prc\_wcx\_b = .005 .

EXECUTE .

IF (day\_b eq 28) prc\_wcx\_b = .005 .

EXECUTE .

IF (day\_b eq 29) prc\_wcx\_b = .005 .

EXECUTE .

IF (day\_b ge 30 and day\_b le 100) prc\_wcx\_b = .005 .

EXECUTE .

\*prc\_wcx\_bta70 to follow: Wilcox et al. backward estimates, based on reported typical cycle length with validity of .7\*

IF ((typcyclth\_adj70\_trun - day) le 14) day\_bta70 = 29 - (typcyclth\_adj70\_trun - day).

EXECUTE.

IF ((typcyclth\_adj70\_trun - day) ge 15) day\_bta70 = rnd((day/(typcyclth\_adj70\_trun - 14))\*15).

EXECUTE.

IF (day\_bta70 eq 1) prc\_wcx\_bta70 = .000 .

EXECUTE .

IF (day\_bta70 eq 2) prc\_wcx\_bta70 = .000 .

EXECUTE .

IF (day\_bta70 eq 3) prc\_wcx\_bta70 = .001 .

EXECUTE .

IF (day\_bta70 eq 4) prc\_wcx\_bta70 = .002 .

EXECUTE .

IF (day\_bta70 eq 5) prc\_wcx\_bta70 = .004 .

EXECUTE .

IF (day\_bta70 eq 6) prc\_wcx\_bta70 = .009 .

EXECUTE .

IF (day\_bta70 eq 7) prc\_wcx\_bta70 = .018 .

EXECUTE .

IF (day\_bta70 eq 8) prc\_wcx\_bta70 = .032 .

EXECUTE .

IF (day\_bta70 eq 9) prc\_wcx\_bta70 = .050 .

EXECUTE .

IF (day\_bta70 eq 10) prc\_wcx\_bta70 = .069 .

EXECUTE .

IF (day\_bta70 eq 11) prc\_wcx\_bta70 = .085 .

EXECUTE .

IF (day\_bta70 eq 12) prc\_wcx\_bta70 = .094 .

EXECUTE .

IF (day\_bta70 eq 13) prc\_wcx\_bta70 = .093 .

EXECUTE .

IF (day\_bta70 eq 14) prc\_wcx\_bta70 = .085 .

EXECUTE .

IF (day\_bta70 eq 15) prc\_wcx\_bta70 = .073 .

EXECUTE .

IF (day\_bta70 eq 16) prc\_wcx\_bta70 = .059 .

EXECUTE .

IF (day\_bta70 eq 17) prc\_wcx\_bta70 = .047 .

EXECUTE .

IF (day\_bta70 eq 18) prc\_wcx\_bta70 = .036 .

EXECUTE .

IF (day\_bta70 eq 19) prc\_wcx\_bta70 = .028 .

EXECUTE .

IF (day\_bta70 eq 20) prc\_wcx\_bta70 = .021 .

EXECUTE .

IF (day\_bta70 eq 21) prc\_wcx\_bta70 = .016 .

EXECUTE .

IF (day\_bta70 eq 22) prc\_wcx\_bta70 = .013 .

EXECUTE .

IF (day\_bta70 eq 23) prc\_wcx\_bta70 = .010 .

EXECUTE .

IF (day\_bta70 eq 24) prc\_wcx\_bta70 = .008 .

EXECUTE .

IF (day\_bta70 eq 25) prc\_wcx\_bta70 = .007 .

EXECUTE .

IF (day\_bta70 eq 26) prc\_wcx\_bta70 = .006 .

EXECUTE .

IF (day\_bta70 eq 27) prc\_wcx\_bta70 = .005 .

EXECUTE .

IF (day\_bta70 eq 28) prc\_wcx\_bta70 = .005 .

EXECUTE .

IF (day\_bta70 eq 29) prc\_wcx\_bta70 = .005 .

EXECUTE .

IF (day\_bta70 ge 30 and day\_bta70 le 100) prc\_wcx\_bta70= .005 .

EXECUTE.

\*prc\_wcx\_bta50 to follow: Wilcox et al. backward estimates, based on reported typical cycle length with validity of .5\*

IF ((typcyclth\_adj50\_trun - day) le 14) day\_bta50 = 29 - (typcyclth\_adj50\_trun - day).

EXECUTE.

IF ((typcyclth\_adj50\_trun - day) ge 15) day\_bta50 = rnd((day/(typcyclth\_adj50\_trun - 14))\*15).

EXECUTE.

IF (day\_bta50 eq 1) prc\_wcx\_bta50 = .000 .

EXECUTE .

IF (day\_bta50 eq 2) prc\_wcx\_bta50 = .000 .

EXECUTE .

IF (day\_bta50 eq 3) prc\_wcx\_bta50 = .001 .

EXECUTE .

IF (day\_bta50 eq 4) prc\_wcx\_bta50 = .002 .

EXECUTE .

IF (day\_bta50 eq 5) prc\_wcx\_bta50 = .004 .

EXECUTE .

IF (day\_bta50 eq 6) prc\_wcx\_bta50 = .009 .

EXECUTE .

IF (day\_bta50 eq 7) prc\_wcx\_bta50 = .018 .

EXECUTE .

IF (day\_bta50 eq 8) prc\_wcx\_bta50 = .032 .

EXECUTE .

IF (day\_bta50 eq 9) prc\_wcx\_bta50 = .050 .

EXECUTE .

IF (day\_bta50 eq 10) prc\_wcx\_bta50 = .069 .

EXECUTE .

IF (day\_bta50 eq 11) prc\_wcx\_bta50 = .085 .

EXECUTE .

IF (day\_bta50 eq 12) prc\_wcx\_bta50 = .094 .

EXECUTE .

IF (day\_bta50 eq 13) prc\_wcx\_bta50 = .093 .

EXECUTE .

IF (day\_bta50 eq 14) prc\_wcx\_bta50 = .085 .

EXECUTE .

IF (day\_bta50 eq 15) prc\_wcx\_bta50 = .073 .

EXECUTE .

IF (day\_bta50 eq 16) prc\_wcx\_bta50 = .059 .

EXECUTE .

IF (day\_bta50 eq 17) prc\_wcx\_bta50 = .047 .

EXECUTE .

IF (day\_bta50 eq 18) prc\_wcx\_bta50 = .036 .

EXECUTE .

IF (day\_bta50 eq 19) prc\_wcx\_bta50 = .028 .

EXECUTE .

IF (day\_bta50 eq 20) prc\_wcx\_bta50 = .021 .

EXECUTE .

IF (day\_bta50 eq 21) prc\_wcx\_bta50 = .016 .

EXECUTE .

IF (day\_bta50 eq 22) prc\_wcx\_bta50 = .013 .

EXECUTE .

IF (day\_bta50 eq 23) prc\_wcx\_bta50 = .010 .

EXECUTE .

IF (day\_bta50 eq 24) prc\_wcx\_bta50 = .008 .

EXECUTE .

IF (day\_bta50 eq 25) prc\_wcx\_bta50 = .007 .

EXECUTE .

IF (day\_bta50 eq 26) prc\_wcx\_bta50 = .006 .

EXECUTE .

IF (day\_bta50 eq 27) prc\_wcx\_bta50 = .005 .

EXECUTE .

IF (day\_bta50 eq 28) prc\_wcx\_bta50 = .005 .

EXECUTE .

IF (day\_bta50 eq 29) prc\_wcx\_bta50 = .005 .

EXECUTE .

IF (day\_bta50 ge 30 and day\_bta50 le 100) prc\_wcx\_bta50= .005 .

EXECUTE.

***Stirnemann et al. continuous measures***

\*prc\_stirn\_a to follow: Stirnemann et al. forward estimates\*

IF (day eq 1) prc\_stirn\_a = .01.

EXECUTE .

IF (day eq 2) prc\_stirn\_a = .01.

EXECUTE .

IF (day eq 3) prc\_stirn\_a = .02.

EXECUTE .

IF (day eq 4) prc\_stirn\_a = .03.

EXECUTE .

IF (day eq 5) prc\_stirn\_a = .05.

EXECUTE .

IF (day eq 6) prc\_stirn\_a = .09.

EXECUTE .

IF (day eq 7) prc\_stirn\_a = .16.

EXECUTE .

IF (day eq 8) prc\_stirn\_a = .27.

EXECUTE .

IF (day eq 9) prc\_stirn\_a = .38.

EXECUTE .

IF (day eq 10) prc\_stirn\_a = .48.

EXECUTE .

IF (day eq 11) prc\_stirn\_a = .56.

EXECUTE .

IF (day eq 12) prc\_stirn\_a = .58.

EXECUTE .

IF (day eq 13) prc\_stirn\_a = .55.

EXECUTE .

IF (day eq 14) prc\_stirn\_a = .48.

EXECUTE .

IF (day eq 15) prc\_stirn\_a = .38.

EXECUTE .

IF (day eq 16) prc\_stirn\_a = .28.

EXECUTE .

IF (day eq 17) prc\_stirn\_a = .20.

EXECUTE .

IF (day eq 18) prc\_stirn\_a = .14.

EXECUTE .

IF (day eq 19) prc\_stirn\_a = .10.

EXECUTE .

IF (day eq 20) prc\_stirn\_a = .07.

EXECUTE .

IF (day eq 21) prc\_stirn\_a = .06.

EXECUTE .

IF (day eq 22) prc\_stirn\_a = .04.

EXECUTE .

IF (day eq 23) prc\_stirn\_a = .03.

EXECUTE .

IF (day eq 24) prc\_stirn\_a = .02.

EXECUTE .

IF (day eq 25) prc\_stirn\_a = .01.

EXECUTE .

IF (day eq 26) prc\_stirn\_a = .01.

EXECUTE .

IF (day eq 27) prc\_stirn\_a = .01.

EXECUTE .

IF (day eq 28) prc\_stirn\_a = .01.

EXECUTE .

IF (day eq 29) prc\_stirn\_a = .01.

EXECUTE .

IF (day ge 30 and day le 100) prc\_stirn\_a = .01.

EXECUTE .

\*prc\_stirn\_b to follow: Stirnemann et al. backward estimates, no error in true cyclth\*

IF (day\_b eq 1) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b eq 2) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b eq 3) prc\_stirn\_b = .02.

EXECUTE .

IF (day\_b eq 4) prc\_stirn\_b = .03.

EXECUTE .

IF (day\_b eq 5) prc\_stirn\_b = .05.

EXECUTE .

IF (day\_b eq 6) prc\_stirn\_b = .09.

EXECUTE .

IF (day\_b eq 7) prc\_stirn\_b = .16.

EXECUTE .

IF (day\_b eq 8) prc\_stirn\_b = .27.

EXECUTE .

IF (day\_b eq 9) prc\_stirn\_b = .38 .

EXECUTE .

IF (day\_b eq 10) prc\_stirn\_b = .48 .

EXECUTE .

IF (day\_b eq 11) prc\_stirn\_b = .56.

EXECUTE .

IF (day\_b eq 12) prc\_stirn\_b = .58.

EXECUTE .

IF (day\_b eq 13) prc\_stirn\_b = .55.

EXECUTE .

IF (day\_b eq 14) prc\_stirn\_b = .48.

EXECUTE .

IF (day\_b eq 15) prc\_stirn\_b = .38.

EXECUTE .

IF (day\_b eq 16) prc\_stirn\_b = .28.

EXECUTE .

IF (day\_b eq 17) prc\_stirn\_b = .20.

EXECUTE .

IF (day\_b eq 18) prc\_stirn\_b = .14.

EXECUTE .

IF (day\_b eq 19) prc\_stirn\_b = .10.

EXECUTE .

IF (day\_b eq 20) prc\_stirn\_b = .07.

EXECUTE .

IF (day\_b eq 21) prc\_stirn\_b = .06.

EXECUTE .

IF (day\_b eq 22) prc\_stirn\_b = .04.

EXECUTE .

IF (day\_b eq 23) prc\_stirn\_b = .03.

EXECUTE .

IF (day\_b eq 24) prc\_stirn\_b = .02.

EXECUTE .

IF (day\_b eq 25) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b eq 26) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b eq 27) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b eq 28) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b eq 29) prc\_stirn\_b = .01.

EXECUTE .

IF (day\_b ge 30 and day\_b le 100) prc\_stirn\_b = .01.

EXECUTE .

\*prc\_wcx\_bta70 to follow: Stirnemann et al. backward estimates, based on reported typical cycle length with validity of .7\*

IF (day\_bta70 eq 1) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 eq 2) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 eq 3) prc\_stirn\_bta70 = .02.

EXECUTE .

IF (day\_bta70 eq 4) prc\_stirn\_bta70 = .03.

EXECUTE .

IF (day\_bta70 eq 5) prc\_stirn\_bta70 = .05.

EXECUTE .

IF (day\_bta70 eq 6) prc\_stirn\_bta70 = .09.

EXECUTE .

IF (day\_bta70 eq 7) prc\_stirn\_bta70 = .16.

EXECUTE .

IF (day\_bta70 eq 8) prc\_stirn\_bta70 = .27.

EXECUTE .

IF (day\_bta70 eq 9) prc\_stirn\_bta70 = .38 .

EXECUTE .

IF (day\_bta70 eq 10) prc\_stirn\_bta70 = .48 .

EXECUTE .

IF (day\_bta70 eq 11) prc\_stirn\_bta70 = .56.

EXECUTE .

IF (day\_bta70 eq 12) prc\_stirn\_bta70 = .58.

EXECUTE .

IF (day\_bta70 eq 13) prc\_stirn\_bta70 = .55.

EXECUTE .

IF (day\_bta70 eq 14) prc\_stirn\_bta70 = .48.

EXECUTE .

IF (day\_bta70 eq 15) prc\_stirn\_bta70 = .38.

EXECUTE .

IF (day\_bta70 eq 16) prc\_stirn\_bta70 = .28.

EXECUTE .

IF (day\_bta70 eq 17) prc\_stirn\_bta70 = .20.

EXECUTE .

IF (day\_bta70 eq 18) prc\_stirn\_bta70 = .14.

EXECUTE .

IF (day\_bta70 eq 19) prc\_stirn\_bta70 = .10.

EXECUTE .

IF (day\_bta70 eq 20) prc\_stirn\_bta70 = .07.

EXECUTE .

IF (day\_bta70 eq 21) prc\_stirn\_bta70 = .06.

EXECUTE .

IF (day\_bta70 eq 22) prc\_stirn\_bta70 = .04.

EXECUTE .

IF (day\_bta70 eq 23) prc\_stirn\_bta70 = .03.

EXECUTE .

IF (day\_bta70 eq 24) prc\_stirn\_bta70 = .02.

EXECUTE .

IF (day\_bta70 eq 25) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 eq 26) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 eq 27) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 eq 28) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 eq 29) prc\_stirn\_bta70 = .01.

EXECUTE .

IF (day\_bta70 ge 30 and day\_bta70 le 100) prc\_stirn\_bta70 = .01.

EXECUTE .

\*prc\_wcx\_bta50 to follow: Stirnemann et al. backward estimates, based on reported typical cycle length with validity of .5\*

IF (day\_bta50 eq 1) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 eq 2) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 eq 3) prc\_stirn\_bta50 = .02.

EXECUTE .

IF (day\_bta50 eq 4) prc\_stirn\_bta50 = .03.

EXECUTE .

IF (day\_bta50 eq 5) prc\_stirn\_bta50 = .05.

EXECUTE .

IF (day\_bta50 eq 6) prc\_stirn\_bta50 = .09.

EXECUTE .

IF (day\_bta50 eq 7) prc\_stirn\_bta50 = .16.

EXECUTE .

IF (day\_bta50 eq 8) prc\_stirn\_bta50 = .27.

EXECUTE .

IF (day\_bta50 eq 9) prc\_stirn\_bta50 = .38 .

EXECUTE .

IF (day\_bta50 eq 10) prc\_stirn\_bta50 = .48 .

EXECUTE .

IF (day\_bta50 eq 11) prc\_stirn\_bta50 = .56.

EXECUTE .

IF (day\_bta50 eq 12) prc\_stirn\_bta50 = .58.

EXECUTE .

IF (day\_bta50 eq 13) prc\_stirn\_bta50 = .55.

EXECUTE .

IF (day\_bta50 eq 14) prc\_stirn\_bta50 = .48.

EXECUTE .

IF (day\_bta50 eq 15) prc\_stirn\_bta50 = .38.

EXECUTE .

IF (day\_bta50 eq 16) prc\_stirn\_bta50 = .28.

EXECUTE .

IF (day\_bta50 eq 17) prc\_stirn\_bta50 = .20.

EXECUTE .

IF (day\_bta50 eq 18) prc\_stirn\_bta50 = .14.

EXECUTE .

IF (day\_bta50 eq 19) prc\_stirn\_bta50 = .10.

EXECUTE .

IF (day\_bta50 eq 20) prc\_stirn\_bta50 = .07.

EXECUTE .

IF (day\_bta50 eq 21) prc\_stirn\_bta50 = .06.

EXECUTE .

IF (day\_bta50 eq 22) prc\_stirn\_bta50 = .04.

EXECUTE .

IF (day\_bta50 eq 23) prc\_stirn\_bta50 = .03.

EXECUTE .

IF (day\_bta50 eq 24) prc\_stirn\_bta50 = .02.

EXECUTE .

IF (day\_bta50 eq 25) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 eq 26) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 eq 27) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 eq 28) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 eq 29) prc\_stirn\_bta50 = .01.

EXECUTE .

IF (day\_bta50 ge 30 and day\_bta50 le 100) prc\_stirn\_bta50 = .01.

EXECUTE .

***Wilcox et al. discrete windows – forward count***

\*wcx\_win6f = 6 day window based on forward count, etc.\*

if (day le 10 or day ge 17) wcx\_win6f = 0.

execute.

if (day ge 11 and day le 16) wcx\_win6f = 1.

execute.

if (day le 9 or day ge 17) wcx\_win7f = 0.

execute.

if (day ge 10 and day le 16) wcx\_win7f = 1.

execute.

if (day le 9 or day ge 18) wcx\_win8f = 0.

execute.

if (day ge 10 and day le 17) wcx\_win8f = 1.

execute.

if (day le 8 or day ge 18) wcx\_win9f = 0.

execute.

if (day ge 9 and day le 17) wcx\_win9f = 1.

execute.

***Stirnemann et al. discrete windows – forward count***

\*stirne\_win6f = 6 day window based on forward count, etc.\*

IF (day lt 10 or day gt 15) stirn\_win6f=0.

EXECUTE.

IF (day ge 10 and day le 15) stirn\_win6f=1.

EXECUTE.

if (day le 8 or day ge 16) stirn\_win7f = 0.

execute.

if (day ge 9 and day le 15) stirn\_win7f = 1.

execute.

if (day le 8 or day ge 17) stirn\_win8f = 0.

execute.

if (day ge 9 and day le 16) stirn\_win8f = 1.

execute.

IF (day lt 8 or day gt 16) stirn\_win9f=0.

EXECUTE.

IF (day ge 8 and day le 16) stirn\_win9f=1.

EXECUTE.

***Discrete windows – backward (reverse days) counts***

COMPUTE RCday=cyclth+1-day.

EXECUTE.

COMPUTE RCday\_t70=typcyclth\_adj70\_trun+1-day.

EXECUTE.

COMPUTE RCday\_t50=typcyclth\_adj50\_trun+1-day.

EXECUTE.

IF (RCday\_t70 le 0) RCday\_t70=1.

EXECUTE.

IF (RCday\_t50 le 0) RCday\_t50=1.

EXECUTE.

COMPUTE RC1419=0.

EXECUTE.

IF (RCday ge 14 and RCday le 19) RC1419=1.

EXECUTE.

COMPUTE RC1420=0.

EXECUTE.

IF (RCday ge 14 and RCday le 20) RC1420=1.

EXECUTE.

COMPUTE RC1320=0.

EXECUTE.

IF (RCday ge 13 and RCday le 20) RC1320=1.

EXECUTE.

COMPUTE RC1321=0.

EXECUTE.

IF (RCday ge 13 and RCday le 21) RC1321=1.

EXECUTE.

COMPUTE RC1419t70=0.

EXECUTE.

IF (RCday\_t70 ge 14 and RCday\_t70 le 19) RC1419t70=1.

EXECUTE.

COMPUTE RC1420t70=0.

EXECUTE.

IF (RCday\_t70 ge 14 and RCday\_t70 le 20) RC1420t70=1.

EXECUTE.

COMPUTE RC1320t70=0.

EXECUTE.

IF (RCday\_t70 ge 13 and RCday\_t70 le 20) RC1320t70=1.

EXECUTE.

COMPUTE RC1321t70=0.

EXECUTE.

IF (RCday\_t70 ge 13 and RCday\_t70 le 21) RC1321t70=1.

EXECUTE.

COMPUTE RC1419t50=0.

EXECUTE.

IF (RCday\_t50 ge 14 and RCday\_t50 le 19) RC1419t50=1.

EXECUTE.

COMPUTE RC1420t50=0.

EXECUTE.

IF (RCday\_t50 ge 14 and RCday\_t50 le 20) RC1420t50=1.

EXECUTE.

COMPUTE RC1320t50=0.

EXECUTE.

IF (RCday\_t50 ge 13 and RCday\_t50 le 20) RC1320t50=1.

EXECUTE.

COMPUTE RC1321t50=0.

EXECUTE.

IF (RCday\_t50 ge 13 and RCday\_t50 le 21) RC1321t50=1.

EXECUTE.

***Averages of forward and backward continuous estimates***

COMPUTE prc\_wcx\_avgb = mean(prc\_wcx\_a,prc\_wcx\_b).

EXECUTE.

COMPUTE prc\_wcx\_avgbta70 = mean(prc\_wcx\_a,prc\_wcx\_bta70).

EXECUTE.

COMPUTE prc\_wcx\_avgbta50 = mean(prc\_wcx\_a,prc\_wcx\_bta50).

EXECUTE.

COMPUTE prc\_stirn\_avgb = mean(prc\_stirn\_a,prc\_stirn\_b).

EXECUTE.

COMPUTE prc\_stirn\_avgbta70 = mean(prc\_stirn\_a,prc\_stirn\_bta70).

EXECUTE.

COMPUTE prc\_stirn\_avgbta50 = mean(prc\_stirn\_a,prc\_stirn\_bta50).

EXECUTE.

**Syntax to create measures estimating conception probability in simulation file, based on reported day of the cycle with error**

Identical to all syntax for measures estimating conception probability, with substituting the day of the cycle with reporting error [daypluser] for true day of the cycle [day].