A Comparison of App-Defined Fertile Days from Two Fertility Tracking Apps using Identical Cycle Data

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Author Disclosures:
- Manhart- Consultant to CCL, developer of CPG
- Duane- none

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Fertility Tracking Apps

- Estimated 11million US users
- Few have evidence of effectiveness/follow established FABMS (Duane et al 2016)
- Recent Scoping Review (Earl et al 2019)
  - Not all apps accurately predict the fertile window
  - Paucity of evidence-based research
  - Absence of fertility, health professionals and users in studies

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Natural Cycles

- EU & FDA- cleared
- Temp-only algorithm
- 8-9% typical unintended pregnancy rate when combined with barriers (Berglund Scherwitzl et al. 2017).

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CycleProGo™

- Developed by CCL- Sympto-Thermal Method
- BBT + cervical mucus defines fertile window
- Rules as tested by Frank Herrmann et al (2007)

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Study Objective:

Compare the app-defined fertile windows of each app when using identical input data.

Methods:

Randomly selected 20 women w/ >12cycles in CPG database
Re-entered daily BBT from 240 cycles into NC

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Methods (2)

- Anonymous data set of all CPG accounts
- Defined regular cycling woman as:
  - < 40 years old
  - all cycles 20-40 days long
- Daily BBT data entered in NC
  - Missing days skipped
  - Cycles entered as if sequential

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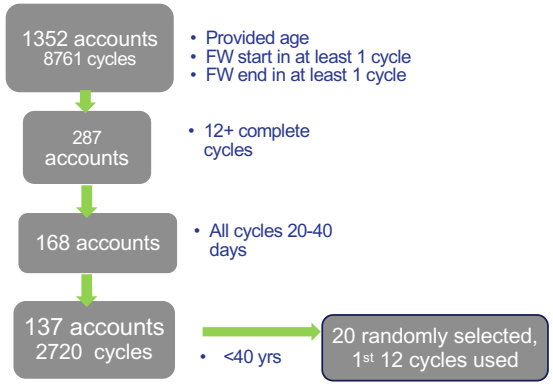
Extraction of Cycle Data



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Results

Selected cohort Characteristics

- Mean age 29.5 (range 23-38)
- 386 total cycles (18.4cycles/woman)
- Avg cycle length 28.3 days (21-40 days)
- BBT entered in 92% of cycle days (79- 99.7%)

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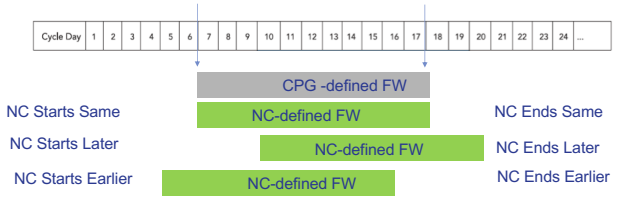
Comparing Fertile Window Start & FW-End days



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Fertile Window Start Days

- Little Congruence between the two Apps

Comparison of FW-start days*

Same FW start	22%
NC FW start later than CPG	50%
NC FW start earlier than CPG	29%

*238 cycles (NC 240FW starts, CPG 238)

- Mean FW-start day: NC=7.3, CPG=6.3 ($p<0.0001$)

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Fertile Window End Days

- Similar lack of Congruence between the two Apps

Comparison of FW-end days*

Same FW start	16%
NC FW start later than CPG	16%
NC FW start earlier than CPG	68%

*181 cycles (NC 222FW ends, CPG 190)

- Mean FW-end day: NC=19.0, CPG=20.4 ($p<0.0001$)

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Total Fertile Window Length

	Mean FW length (SD)	Range
CPG	15.1 (±3.5)	8-27 days
NC	12.8 (±3.6)*	6-29 days

* p<0.0001

- 7% of cycles had same FW length

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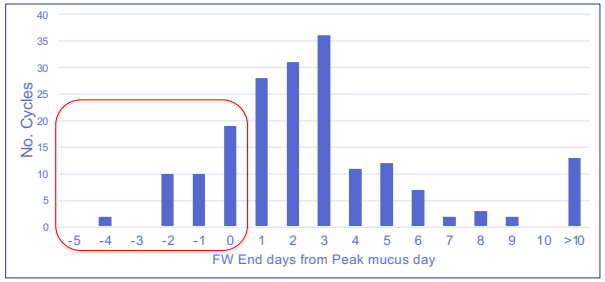
NC FW-End Compared to Peak Mucus day



22% cycles FW ended on or before Peak Day

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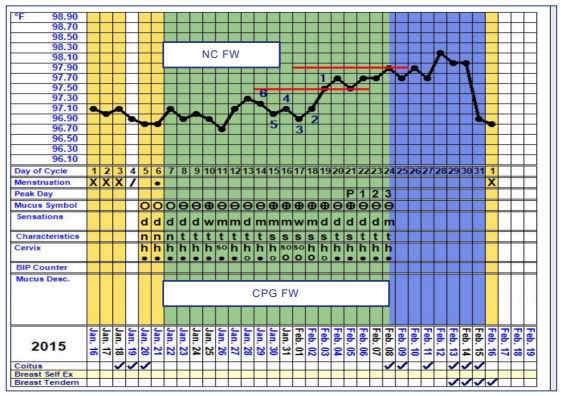
Example -Differing Fertile Windows



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Summary & Conclusions

- Despite identical data - poor congruence in definition of Fertile Window
- Only 7% cycles with same FW length
- Differences in both FW-Start and FW-End days
- 22% of cycles FW closed on/before Peak mucus day with NC temp-only algorithm

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