Preconception: Who's at Risk for Pregnancy

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Objectives

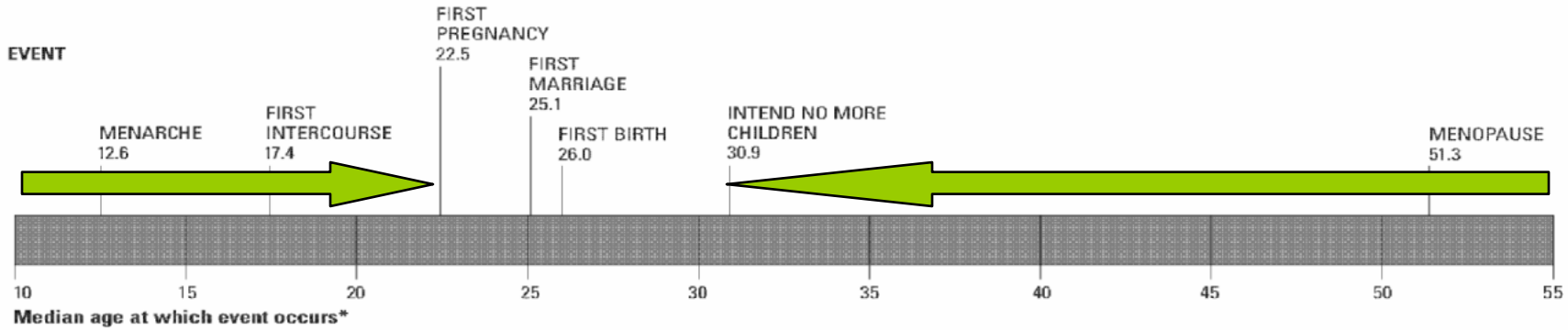
We hypothesized that factors related to life style choices and clinical practices are associated with pregnancy intention and risk status.

Background

- Preconception health refers to the health of a woman before she becomes pregnant.
- Preconception guidelines recommend every women should have a reproductive health plan, ongoing assessment at every health encounter, and risk factor modification.
- A paucity of research has documented the extent to which women adhere to preconception health guidelines.

FIGURE 1.1

The typical woman spends five years pregnant, postpartum or trying to get pregnant and 30 years avoiding pregnancy.



Note *Age by which half of women have experienced event.
Source Reference 4.

Source: Boonstra et al., 2006

Contraceptives & Pregnancy Risk

- Type of contraceptive method has been evaluated in terms of perfect use and actual use: [1,2,3]
  - *Continuous* birth control methods (i.e., hormonal management, sterilization, IUD) resulting in fewer unintended pregnancies
  - *Periodic* birth control methods (i.e., condom, spermicides or withdrawal) resulted in more unintended pregnancies

1 Potter L. (1996) How effective are contraceptives? The determination and measurement of pregnancy rates. Journal of Obstetrics and Gynecology, 88, 13S-23S.
2 Hatcher R., Trussell J., Steward F., Steward G., Kowal D., Guest F., Eds. (1994).. Contraceptive technology. 16th edition. New York: Irvington Publishers: 107-138, 637-688.
3 Rosenfeld J., & Everett K. (2000). Lifetime patterns of contraception and their relationship to unintended pregnancies. The Journal of Family Practice, 49, 823-828.High Risk

Methods

- Using the Behavioral Risk Factor Surveillance System (BRFSS) 2002 and 2004 datasets, we examined risk factors of non-pregnant, 18-44 year old, fertile women (n=62,154), sorting their risk for pregnancy by intention and contraceptive method.

BRFSS Preconception Categories

- ***Intended Pregnancy*** (n=4,862)

  Not doing anything to prevent a pregnancy because they wanted a pregnancy.

- ***High risk - Unintended Pregnancy*** (n=16,113)

  Not doing anything to prevent pregnancy for reasons other than want a pregnancy.

- ***Moderate risk - Unintended Pregnancy*** (n=18,183)

  Using periodic birth control methods (i.e., condom, diaphragm, foams/creams, not having sex at certain times, withdrawal, and emergency contraception)

- ***Low risk - Unintended Pregnancy*** (n=21,243)

  Using continuous birth control methods (i.e., the pill, Norplant, the IUD, and Depo-Provera/Lunelle shots)

Behavioral Risks

- BMI Category
- Alcohol Use
  - Any Use
  - Binge Use
  - Heavy Use
- Smoking
- Leisure Activity
- Folic Acid

Screening Risks

- Had Pap Test
- Had HIV Test
- STD Counseling
- Tobacco Counseling
- Dental Visit

Results: Behavioral Risk Factors

	IP (n = 3521) Prevalence % (95% CI)	Unintended-HR (n = 14781) Prevalence % (95% CI)	Unintended-AR (n = 15956) Prevalence % (95% CI)	Low-Risk (n = 17402) Prevalence % (95% CI)	Referent (n = 8741) Prevalence % (95% CI)
Lifestyle / Behavioral					
BMI					
Underweight (<18.5)	3.9 (3.0, 5.2)	3.5 (2.9, 4.1)	4.4 (3.8, 5.0)	3.8 (3.3, 4.5)	3.5 (2.8, 4.2)
Normal (18.5-24.9)	47.6 (44.6, 50.6)	46.2 (44.7, 47.7)	52.2 (50.7, 53.6)	53.6 (52.2, 55.0)	60.9 (59.2, 62.6)
Overweight (25.0-29.9)	23.9 (21.6, 26.5)	26.6 (25.3, 28.0)	25.6 (24.3, 26.9)	24.9 (23.7, 26.2)	22.1 (20.7, 23.6)
Obese (≥30.0)	24.5 (22.1, 27.2)	23.7 (22.5, 25.0)	17.9 (16.8, 19.1)	17.7 (16.6, 18.8)	13.6 (12.5, 14.8)
Any alcohol use	51.5 (48.6, 54.4)	46.5 (45.1, 48.0)	56.4 (55.0, 57.9)	56.2 (54.8, 57.6)	72.2 (70.6, 73.6)
Binge drinker	10.3 (8.6, 12.3)	10.7 (9.9, 11.6)	14.0 (13.0, 15.0)	13.8 (12.9, 14.7)	19.1 (17.7, 20.5)
Heavy drinker	4.8 (3.5, 6.4)	4.3 (3.8, 4.9)	6.5 (5.8, 7.4)	5.5 (4.9, 6.1)	7.4 (6.5, 8.5)
Current smoker	22.3 (20.0, 24.8)	26.3 (25.1, 27.6)	21.5 (20.3, 22.7)	20.6 (19.6, 21.7)	20.2 (18.8, 21.7)
Exercised	74.4 (71.7, 77.0)	68.8 (67.4, 70.2)	76.6 (75.2, 77.9)	77.1 (75.9, 78.3)	89.1 (88.1, 90.1)
Folic Acid Supplements	65.4 (46.5, 80.4)	25.6 (18.5, 34.2)	36.5 (27.5, 46.5)	48.7 (38.8, 58.7)	52.5 (37.8, 66.9)

Results: Screening Risk Factors

	IP (n = 3521) Prevalence % (95% CI)	Unintended-HR (n = 14781) Prevalence % (95% CI)	Unintended-AR (n = 15956) Prevalence % (95% CI)	Low-Risk (n = 17402) Prevalence % (95% CI)	Referent (n = 8741) Prevalence % (95% CI)
Screening					
Had Pap Test	95.1 (93.3, 96.4)	90.5 (89.3, 91.6)	91.2 (90.2, 92.1)	96.2 (95.5, 96.7)	98.5 (98.1, 98.9)
Had HIV Test	65.2 (62.4, 67.9)	54.7 (53.2, 56.2)	61.0 (59.6, 62.5)	61.8 (60.4, 63.1)	60.7 (58.9, 62.4)
STD Counseling	19.5 (17.2, 22.2)	18.6 (17.4, 19.8)	28.9 (27.5, 30.3)	38.2 (36.8, 39.6)	19.0 (17.5, 20.6)
Tobacco Counseling	72.1 (60.1, 81.7)	61.9 (54.6, 68.8)	62.8 (56.2, 68.9)	60.5 (55.4, 65.4)	67.6 (61.4, 73.2)
Dental Visit	25.8 (23.4, 28.3)	29.5 (28.2, 30.9)	30.7 (29.3, 32.0)	26.8 (25.6, 28.1)	19.4 (18.0, 20.9)

Results: Adjusted Odds Ratios

	Intended Pregnancy (IP)		Unintended Pregnancy- ***High*** Risk (UP-HR)		Unintended Pregnancy- ***Average*** Risk (UP-AR)		Unintended Pregnancy - ***Low*** Risk (UP-LR)	
Lifestyle / Behavioral	**aPOR**	**95% CI**	**aPOR**	**95% CI**	**aPOR**	**95% CI**	**aPOR**	**95% CI**
Any Alcohol	0.87	0.74, 1.02	0.70	0.62, 0.79	0.98	0.87, 1.10	0.98	0.87, 1.10
Binge	0.81	0.63, 1.04	0.77	0.65, 0.91	0.89	0.76, 1.04	0.81	0.70, 0.95
Heavy Alcohol	1.20	0.80, 1.80	0.94	0.74, 1.20	1.29	1.01, 1.64	0.96	0.77, 1.21
Current smoker	1.08	0.90, 1.31	0.96	0.83, 1.10	0.83	0.72, 0.95	0.71	0.61, 0.81
Exercise	0.84	0.68, 1.02	0.76	0.65, 0.89	1.01	0.87, 1.18	1.10	0.95, 1.28
Folic Acid	1.33	0.41, 4.32	0.33	0.13, 0.83	0.50	0.21, 1.19	0.72	0.30, 1.78

a Binary logistic regression in STATA's survey design analysis function was used to calculate prevalence adjusted odds ratios, controlling for the influence of race, age, marital status, education, income, employment and health insurance.
b Referent Group = Non-pregnant women, aged 21-34, HS education or more, White,non-Hispanic, income >$35K, employed, has health insurance (N=8741)

Results: Adjusted Odds Ratios

	Intended Pregnancy (IP)		Unintended Pregnancy- ***High*** Risk (UP-HR)		Unintended Pregnancy- ***Average*** Risk (UP-AR)		Unintended Pregnancy - ***Low*** Risk (UP-LR)	
Screening	**aPOR**	**95% CI**	**aPOR**	**95% CI**	**aPOR**	**95% CI**	**aPOR**	**95% CI**
Had Pap Test	0.41	0.25, 0.66	0.21	0.15, 0.30	0.35	0.25, 0.50	0.99	0.68, 1.45
Had HIV Test	1.05	0.89, 1.23	0.65	0.57, 0.73	0.83	0.74, 0.94	0.85	0.76, 0.95
STD Counseling	0.74	0.59, 0.94	0.56	0.47, 0.66	0.86	0.74, 1.00	1.24	1.07, 1.44
Tobacco Counseling	1.07	0.55, 2.12	0.74	0.44, 1.25	0.93	0.57, 1.51	0.71	0.47, 1.09
Dental Visit	0.75	0.62, 0.91	0.85	0.73, 0.98	0.92	0.80, 1.06	0.73	0.63, 0.83

a Binary logistic regression in STATA's survey design analysis function was used to calculate prevalence adjusted odds ratios, controlling for the influence of race, age, marital status, education, income, employment and health insurance.
b Referent Group = Non-pregnant women, aged 21-34, HS education or more, White,non-Hispanic, income >$35K, employed, has health insurance (N=8741)

Conclusions

- Women not using any birth control have the highest prevalence of obesity and smoking and lowest prevalence of leisure activity, and those not intending a pregnancy have the lowest prevalence of folic acid consumption.
- While the odds of women intending a pregnancy are engaging in selected lifestyle activities are comparable to the referent group, women at the highest risk for an unintended pregnancy are less likely to consume alcohol as well as less likely to exercise or consume folic acid.
- High Risk women are at a lower odds for any of the clinical screening exposures analyzed here.

Public Health Impact

- Women may be more likely to change behaviors at pregnancy, but the idea is to change behaviors BEFORE pregnancy.
- If women choose to engage in behaviors that could hurt a pregnancy, they can also choose to use birth control to prevent a pregnancy.
- We need to do a better job of clinically reaching women that are intending a pregnancy, beyond folic acid consumption, as well as women that are not intending a pregnancy.