

FATHERS, PREGNANCY AND THE PERINATAL PERIOD

Craig Garfield, MD, MAPP
Departments of Pediatrics and
Medical Social Sciences
Ann & Robert H. Lurie Children's Hospital of Chicago



Pregnancy from the male perspective

Only recently had attention been paid to fathers' specific preconception and perinatal involvement and health. (CDC, 2006)

- Males lack resources and services that females have during the pregnancy period
- Existing policies and programs take a relatively myopic and dyadic view of families
- Focus generally on maternal-child health

From basic science to clinical research to community programs to public policy, the potential paternal contributions have been neglected.



Objectives

1. Describe the pregnancy period and fathers' influences from the paternal perspective
2. Discuss emerging themes from the nascent literature
3. Identifying gaps, opportunities and next steps for better understanding fathers and pregnancy



Fathers and the prenatal period

The pregnancy period is a key time period for men as individuals, and as a couple.

If birth is a “magical moment,” pregnancy is when the magic is forming

Among the low-income, noncustodial fathers, pregnancy often transformed the couple’s relationship from a dating relationship to a committed relationship. (Edin & Nelson, 2013)

- More fathers (77%) reporting being happy when they learned about the pregnancy compared to mothers (58%).

Becoming a father

- In a qualitative study of largely unmarried urban fathers, men reported becoming a father positively affected them by:
 - Improving healthy behaviors
 - Decreasing substance use and other risky behaviors
 - Changing their attitudes toward the future, “being there” (Garfield, Isacco, Bartlo, 2010)
- The Fragile Families and Child Wellbeing birth cohort study (and others) have taken advantage of fathers’ presence during pregnancy as a way to recruit and enroll fathers in research studies.
- Engaging fathers prenatally is an opportunity to study fathers AND to develop supports and interventions for fathers and families that benefit mothers, infants, and the fathers themselves.

Paternal influences

Fathers' own health prior to and during the pregnancy is an important variable for child health:

In a prospective study using Longitudinal Study of Adolescent Health (Add Health) —

- Birth weight was lower for infants born to fathers with diabetes
- Infant gestational age was lower for infants born to fathers with diabetes and those with higher levels of fast food consumption (Moss & Harris, 2015)

Fathers and toxins (1)

- Fathers' environmental exposures, such as lead, also play a role:
- In a bio-monitoring study designed to assess environmental pollutants, paternal increased blood lead levels:
 - Lower birth weight, shorter abdominal and cephalic circumferences at birth
 - More pronounced in female infants (Garcia-Esquinas, 2014)

Fathers and toxins (2)

- The transmission of Fetal Alcohol Syndrome through paternal lineage was one of the first clinical disorders to examine the possibility that the experiences of the father prior to conception could actually influence child outcomes. (Abel, 2004)
- The proposed mechanism is that paternal alcohol exposure disrupts normal functioning of the hypothalamic-pituitary-adrenal (HPA) axis in rodents and humans, resulting in:
 - Increased cortisol release
 - Exaggerated response to stressors
 - Impaired hippocampal-based learning (Weinberg, 1989)

Fathers and epigenetics

(modification of gene expression rather than alteration of the genetic DNA code itself)

- A mechanism exists for the transmission of paternal stress to offspring phenotype and the development of neuropsychiatric diseases.
- DNA methylation or chromatin modifications are added to the germline of sperm, directly transmit to future generations
- These epigenetic states can be thought of as “paternal effector genes.” (Hehar & Mychasiuk, 2015)

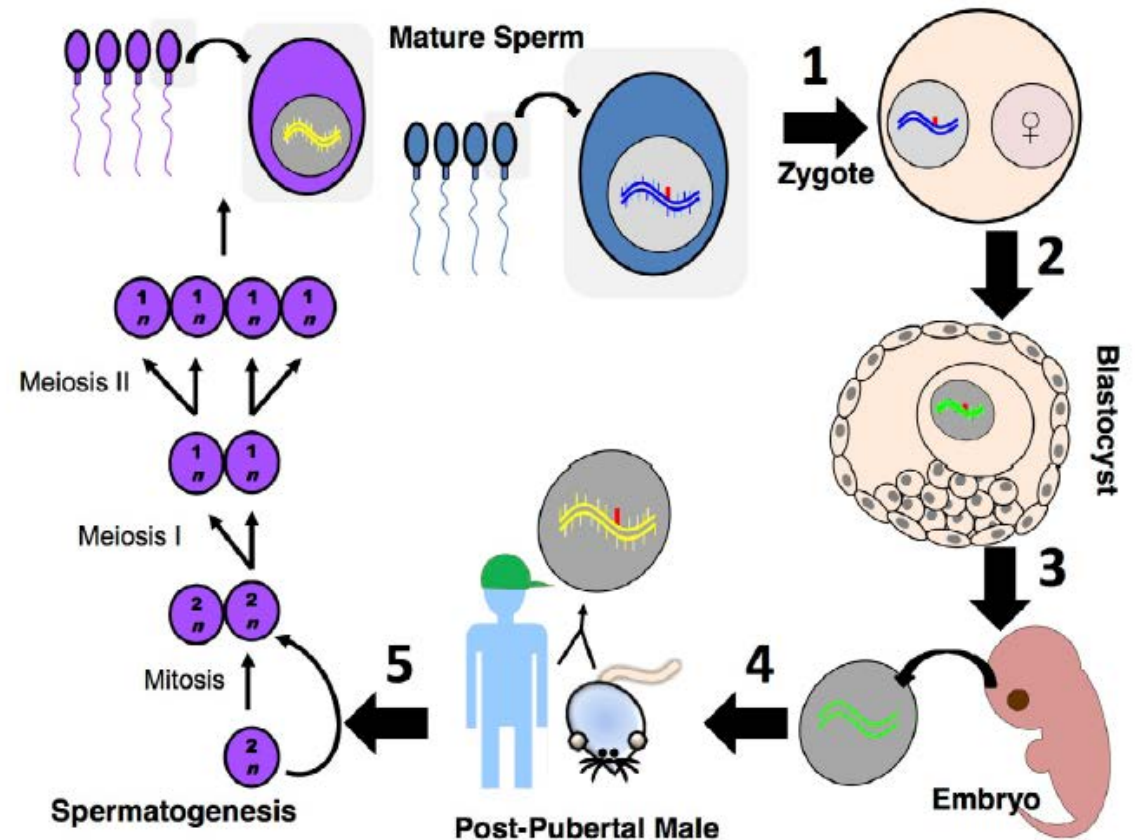


Figure 1. Schematic representation of methylation process focused on the paternal lifespan.

Paternal stress and mental health

- Paternal stress has been shown to alter methylation patterns and gene expression in the offspring's hippocampus, frontal cortex, and periventricular nucleus. (Rodgers, 2013)
- In rodent models, daily paternal stress prior to conception was shown to alter developmental trajectories, reduced responsiveness of the HPA stress axis, and increased depressive and anxiety-like behaviors in offspring. (Mychasiuk, 2013)

Fathers and aging

In a population-based retrospective cohort study, comparing to younger fathers:

- Fathers 40-45 years: 24% increased risk of stillbirth
- Fathers >45 years: 48% increased risk of late stillbirth, a greater risk of low birth weight, preterm birth, and very preterm birth infants (Alio, 2012)

Examination of over 2.8 million people in the Danish Psychiatric Central Research Registry found offspring of older fathers were at an increased risk of schizophrenia and related disorders, mental retardation, and autism spectrum disorders. (McGrath, 2014)

Conceptualizing preconception care

Men's prenatal health and wellbeing:

- Improves pregnancy and birth outcomes
- Enhances the female partner's reproductive health, behaviors
- Has the potential to prepare men for fatherhood.

Frey et al (2008) propose a model framework of the clinical content for men's' preconception care:

- 1) risk assessment
- 2) health promotion
- 3) clinical and psychological interventions.

Supporting fatherhood before and after it starts

(Garfield, 2015)

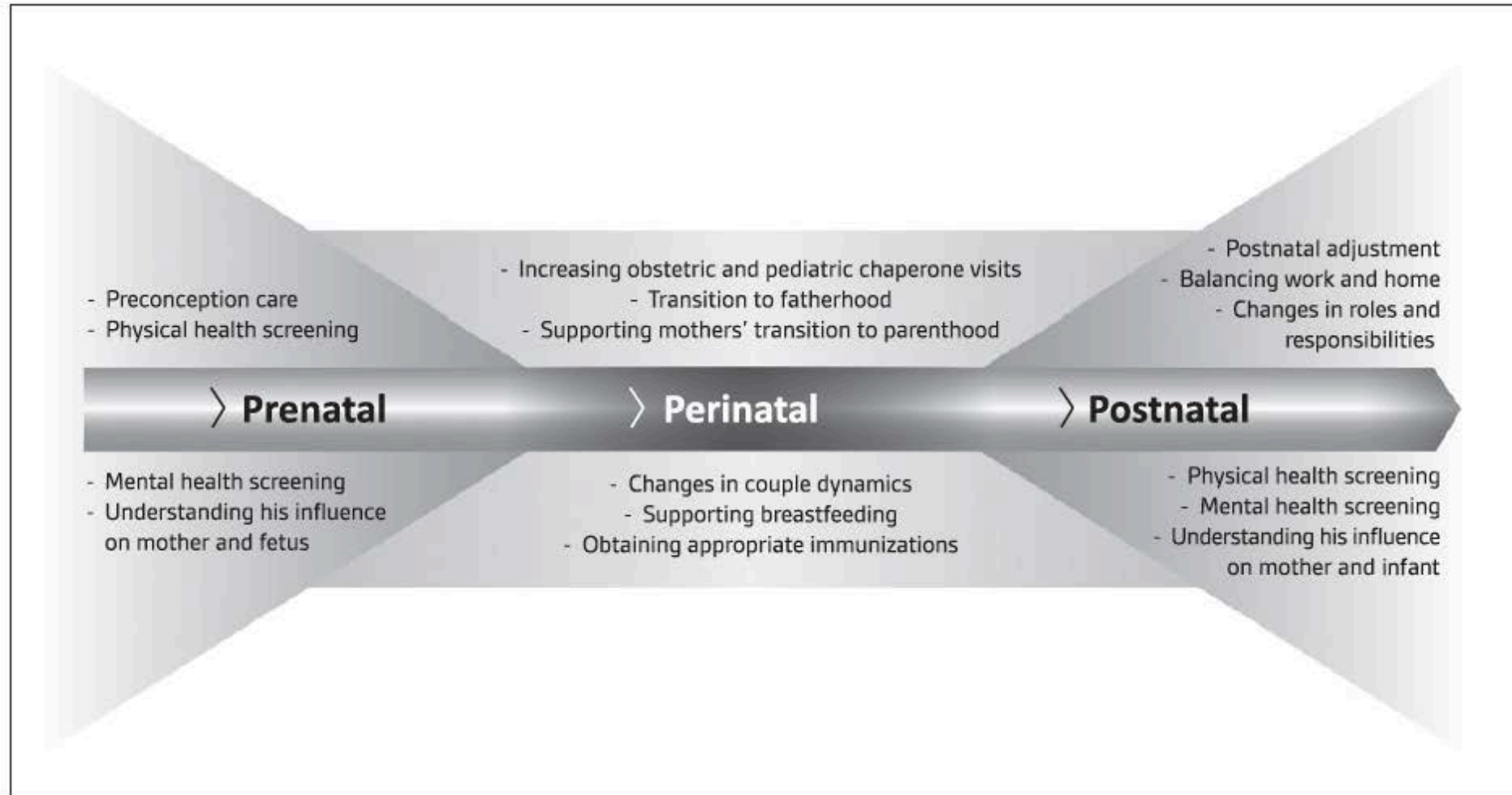


FIGURE 1

Conceptualization fathers' involvement in health from preconception through to the postnatal period.

Emerging Themes of Paternal Involvement Around Pregnancy

Paternal support as a key mechanism in father involvement

- The role of partner support serves as a mechanism underlying the relationship between father involvement and birth outcomes.
- In one study, women who were suffering from depression who rated their partners as less supportive had babies who were born earlier and had lower Apgar scores than their counterparts with higher perceived partner support. (Nylen, 2013)
 - Although it is not clear whether the support improved maternal coping or decreased depression, partner support may have a buffering effect.

Paternal instrumental support

- Instrumental support in the form of financial help from the baby's father decreased the likelihood of low birth weight, according to a study based on the Fragile Families and Child Wellbeing Study.
- After controlling for socioeconomic status, mothers who were in a non-cohabiting romantic relationship with the father had significantly higher odds of low birth weight compared to mothers who cohabited with the father of their baby. (Padilla & Reichman, 2001)

Fathers' influences on maternal health behaviors

- ECLS-BC study of 5,404 women found those whose partners were more involved in their pregnancy (talking about the pregnancy, being part of prenatal health care, and buying things for the baby) were:
 - 1.5 times more likely to receive prenatal care in the first trimester than those with partners with less involvement
 - Among those who smoked at conception, they were 36% more likely to reduce their cigarette consumption (McNamara, 2007)

Factors affecting involvement

- A study of 57 adolescent couples investigated factors associated with adolescent unmarried, nonresident fathers' prenatal involvement with the mother found:
 - Romantic involvement predicted fathers' prenatal involvement.
 - However, even for those who were romantically involved, conflicts between the couple decreased father's prenatal involvement.
 - Instability related to father's employment and low levels of empathy as well as a circle of mothers' friendships with other mothers with children born outside of marriage decreased the likelihood of father involvement. (Fagan, 2003)

Father prenatal involvement may develop into future involvement

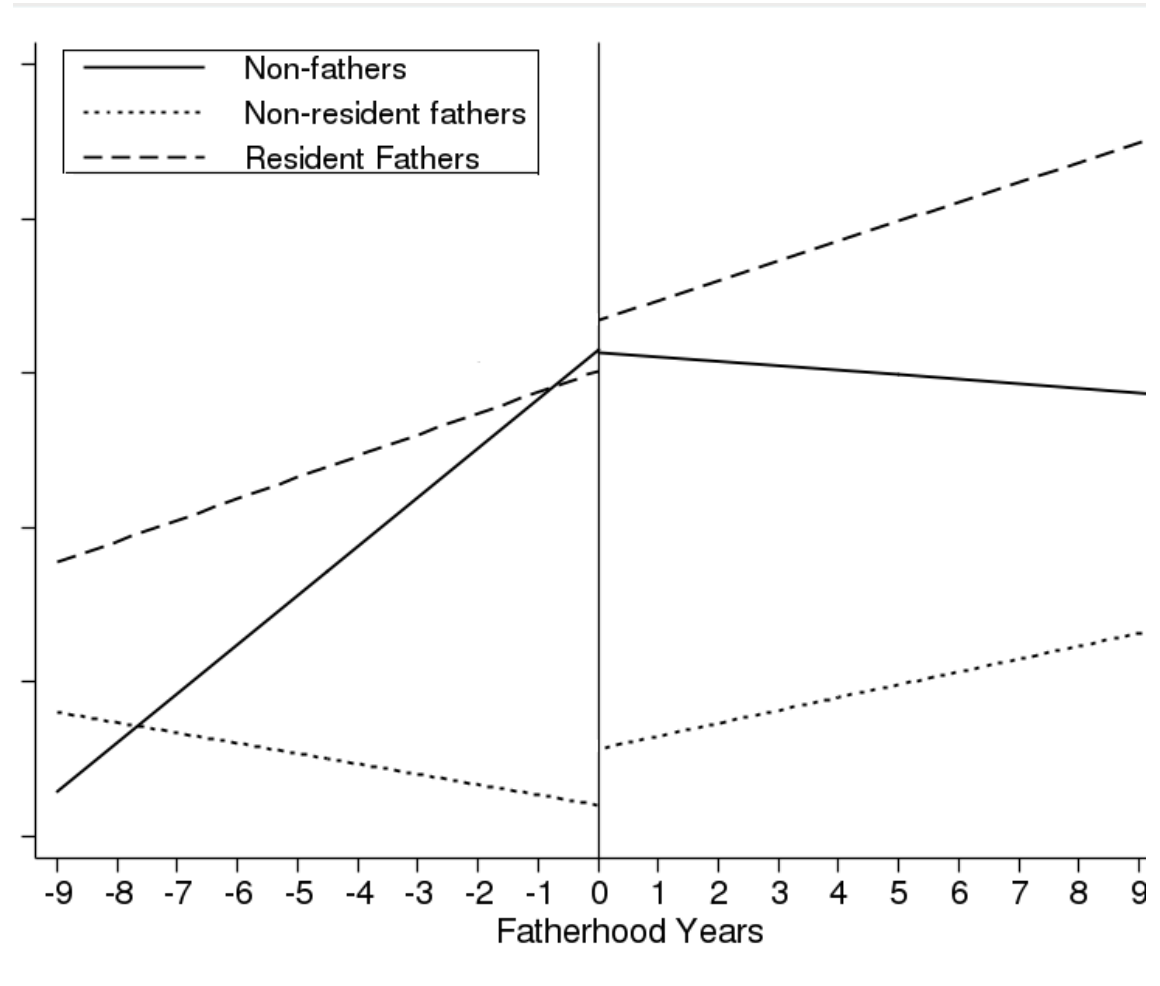
- A qualitative study with 22 fathers showed that being present during the mother's ultrasound contributed to paternal feelings of connection to the unborn baby and motivation to become more actively involved (Walsh et al, 2014)
 - Heightened the fathers' recognition of the reality of the pregnancy and the birth
 - Increased the awareness of their impending parenthood
 - Strengthened the connection with their partner, friends/family

Father prenatal involvement may develop into future involvement

- Father involvement before the birth of the child appears to influence birth outcomes as well as be predictive of future involvement.
- Fathers' prenatal involvement predicted involvement (time spent with infant, eating meals with infant, and other activities with infant) at 14 months, conditional on the quality of the mother-father relationship. (Tamis-LeMonda, 2009)
- Similarly, father's presence at birth was predictive of several indicators of involvement at 24 months, including direct caregiving activities, financial contribution, involvement in decision making, and linkages to extended family. (Bellamy, 2015)

Becoming a father affects men's physical health (BMI) (Garfield, 2015)

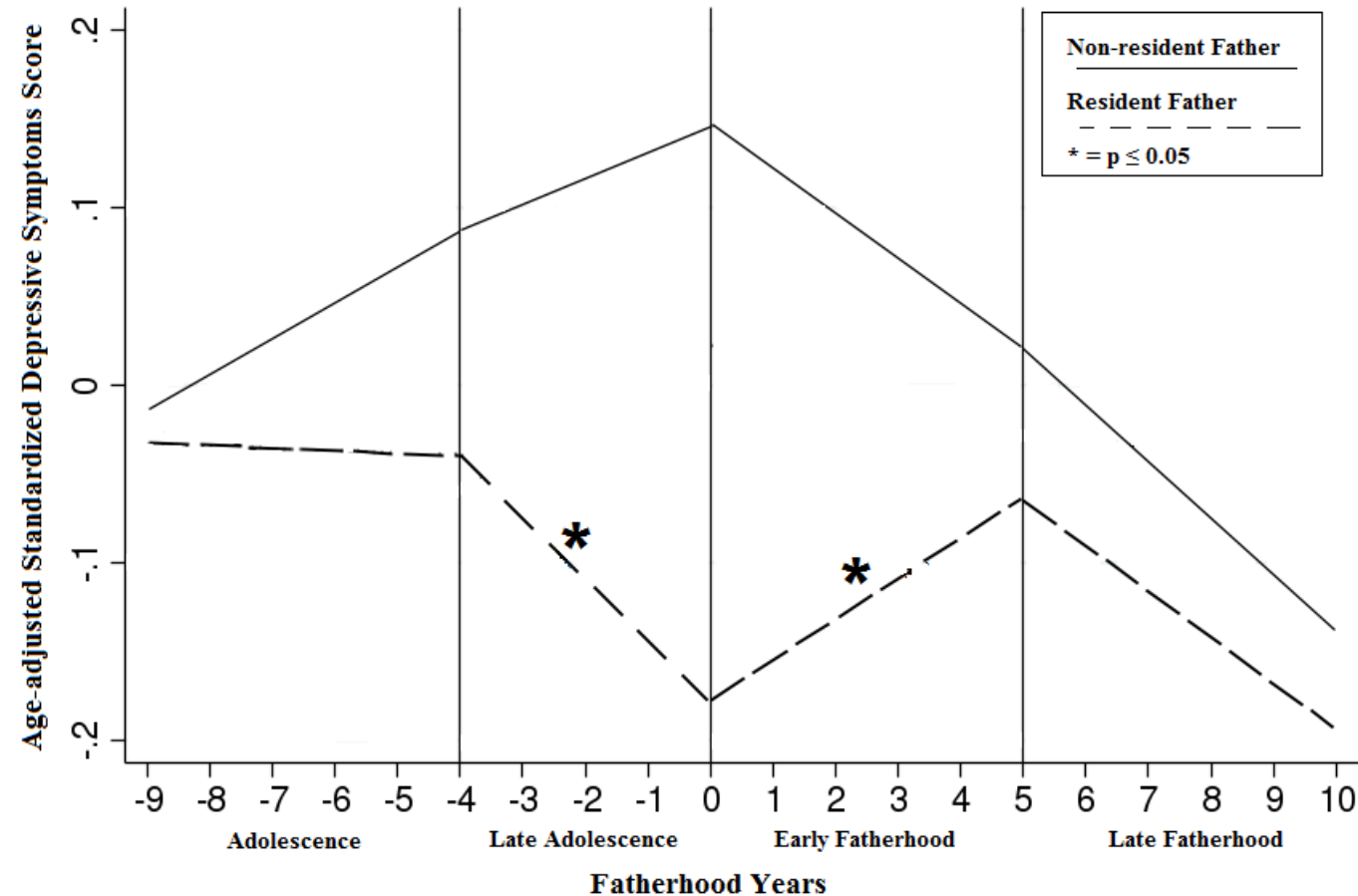
- An Add Health study of 10,253 males followed from adolescence thru young adulthood, after transition to fatherhood:
- Resident fathers inc BMI 2.6%
- Non-res father inc BMI 2.0%
- Non-fathers dec BMI 1.6%
 - Controlled for age, marriage, income, race/ethnicity, etc



Becoming a father affects men's mental health

(Garfield, 2014)

- Examining men's depressive symptoms as measured using CES-D:
- Nonresident fathers
 - Highest mean depressive symptoms scores (non-sig)
 - Peak just before entrance to fatherhood
- Resident fathers
 - Decrease in depressive symptoms scores in years immediately preceding entrance to fatherhood
 - 68% increase in scores during first five years of fatherhood



Summary of Emerging Themes of Paternal Involvement Around Pregnancy

- Paternal support as a key mechanism in father involvement
- Influences on maternal health behaviors
- Factors affecting prenatal paternal involvement
- How father involvement develops into father engagement
- The significance of father involvement during the prenatal period for future involvement
- Becoming a father affects men's physical and mental health

Next Steps

- With a slight widening of the pregnancy lens it is possible to view fathers as part of the solution to family issues in the prenatal and pregnant timeframe.
- Need to define our terms--“father” and “involvement” -- and delineating who the beneficiaries are from from fathers’ involvement.
- Understand in what ways do fathers, mothers, and fetus/infants benefit and are there key time points to consider.

Knowledge/skills for fathers in peripartum

Domains:

- Importance of father involvement for child development
- Physical, mental health changes in fathers
- Relationship strengthening
- Partner support
- Breastfeeding support
- Child-rearing tasks
- Work-family balance

Where to learn:

- Obstetric encounters
- Pediatric encounters
- Prenatal classes
- Community outreach workers
- Home visits

Key areas ready in need of exploration

- Father's health during pregnancy.
- Father's place within the community and the healthcare system during pregnancy.
- The effect of father involvement on the pregnancy from a basic sciences perspective.
- What works, for whom, and when...and how can we bring men "in"



Concluding thoughts

1. While it is the woman who becomes pregnant, it is the couple that is expecting a baby.
2. Expectant fathers contributions have been understudied and efforts to capitalize on their motivations have been minimal.
3. The pregnancy period is likely an excellent time to prime the pump and educate fathers on their important contributions.
4. Interventions that focus on fathers during pregnancy to improve their own health and wellbeing are likely to have downstream positive effects on their current partner and future child and family.

When I approach a child (father), he inspires in me two sentiments;
tenderness for what he is, and respect for what he may become.

- Louis Pasteur

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