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# Making decisions on maternity leave and associated mother/child outcomes

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“...evidence suggests that gains can be made through maternity-leave policies that allow women to invest in themselves and their children.”

The USA spends more than any other industrialized country on healthcare and has the highest rate of obstetrician-attended births, yet maternal and infant mortality rank comparatively high [1–3]. Reducing preterm births, lowering cesarean deliveries and increasing breastfeeding are critical strategies for improving maternal and child health outcomes and reducing costs. However, such efforts cannot simply rely on medical care. At least for working women, evidence suggests that gains can be made through maternity-leave policies that allow women to invest in themselves and their children.

Maternity leave is an area in which the USA shows low commitment; 80% of pregnant employed women remain on the job until 1 month or less before their child's birth [4]. Most employers, including the federal government, allow women unpaid leave, and only 8% of workers in the private sector benefit from paid leave [10]. Expectant mothers often accumulate leave before childbirth and forgo vacation and sick days after to minimize the loss of income.

Many Americans are covered by the Federal Medical Leave Act of 1993, which provides 12 weeks of unpaid, job-protected leave for pregnancy, childbirth, adoption or serious illness. The law is restrictive; it applies to employees working for at least 12 months, full time or nearly so, in firms employing 50 workers or more. Consequently, approximately 40% of workers, and an even higher proportion of low-wage workers, are not eligible for the Federal Medical Leave Act of 1993 [5]. Workers in only five states are offered paid pregnancy

leave through a short-term disability insurance program. California is at the forefront. By expanding the disability insurance program through employee contributions, California, since 2004, gives workers in all firm sizes the right to 6 weeks of paid family leave to care for a newborn, in addition to 4 weeks prior to and 6–8 weeks after childbirth [6].

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Across the border in Canada, the federal government offers 17 weeks of paid leave (up to 11 weeks before birth) and up to 1 year of total job-protected leave to women who have worked for their employer for at least 6 months. In Europe, mothers are provided a minimum of 14 weeks of variable paid leave [7,8], of which prebirth leave is characteristically between 4 and 6 weeks. Efforts are underway to extend maternity leave to 18 weeks.

Given wide variations in social policies and behaviors among rich Western countries, what can research evidence teach us about the benefits of maternity leave before and after childbirth?

## Health benefits of prebirth leave

Few studies have evaluated the impact of prebirth leave for nonmedical reasons on maternal complications and birth outcomes. All are retrospective and the majority show beneficial effects of leave. A study of working women who delivered a full-term infant at one hospital in Montreal (Canada) and who, on average,

took 8 weeks of leave, found that the risk of obstetric complications during labor and delivery markedly decreased with the duration of leave [8]. Our team's recent study of full-time working women in Southern California (USA), all of whom received prenatal care, found that for leave at 36 weeks or more, gestation was associated with an almost fourfold reduced risk of primary cesarean deliveries compared with non-leave-takers, after adjusting for confounders [9]. We surmise that rest and reduced stress may lead to fewer obstetric complications. Labor is very physically demanding and often begins at night; if a woman enters labor already exhausted from a full day at work, it is hardly surprising that problems increase. Moreover, evidence suggests that women with greater maternal prenatal stress are more likely to perceive pain, receive analgesia, such as epidurals, and deliver surgically [10].

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We found no marked differences in length of gestation or mean birthweight between infants of women who took leave and those who worked up to delivery [11]. However, in a subgroup of women whose work efforts outstripped their occupational rewards, those who took leave gave birth to infants with longer gestation. A previous study of working mothers who delivered in Mexico City (Mexico) demonstrated that prebirth leave of less than 1 month was associated with a sixfold elevated risk of preterm delivery compared with mothers who took 4–6 weeks (6 weeks is the amount entitled by law), while increasing leave to greater than 6 weeks had no marked effect [11].

Evidence of further favorable effects of prebirth leave on birth outcomes come from European studies. Among factory workers in France, preterm delivery was lower among leave-takers (3.1%) than non-leave-takers (8.1%) [12]. An ecological study that aggregated data from 16 European countries, the USA and Japan (Organization for Economic Co-operation and Development [OECD] countries), found that paid but not unpaid prebirth leave significantly decreased perinatal mortality and low birthweight [7]. Only one study of Swedish women found no relationship between paid prebirth leave benefits and birthweight [13]. However, pregnancy, parental and other leave and sickness benefits were combined, and it is not known to what extent maternity leave was taken because of actual illness. Except for the Guendelman *et al.* study [9], studies did not consider whether an early delivery precluded women from taking leave.

Clearly, there is need to further evaluate whether prebirth leave and paid benefits positively impact leave. Despite wide differences in national policies, prevailing norms and characteristics of working mothers, evidence from these studies show protective effects of prebirth leave.

## Benefits of postpartum leave

### Mothers

On average, mothers in the USA return to work within 3 months of childbirth [14]. Several USA studies demonstrate that longer work leave is associated with fewer mental-health symptoms. A national survey found that, holding other factors constant, increasing leave by 1 week was associated with a 6–7% decline in depressive symptoms [14]. A prospective cohort study of participants interviewed 11 weeks after childbirth in Minnesota, USA, found that leave status was not associated with physical or mental postpartum health [15]. A positive effect of leave on vitality was documented after 12 weeks of leave and on mental health after 15 and 24 weeks, respectively, when compared with leaves shorter than 9 weeks [16,17]. In addition, in another study, the combination of maternal depressive symptoms and a short maternity leave within 6 weeks was associated with less maternal positive affect and responsiveness to infant cues [18]. So far, studies conducted in the USA and Italy have found no association of leave with maternal physical health [19–20] or in the number of outpatient physician or clinic visits in the first 6 months postpartum [14]. Publications evaluating the effects of postpartum leave on the health of European women are sparse.

### Children

Evidence shows, quite consistently, that longer periods of maternity leave are associated with improved health outcomes for children, partly as a result of health behaviors that allow mothers to invest in their children. A US longitudinal study of over 1600 dyads found that mothers who returned to work after 12 weeks postpartum versus earlier than 12 weeks were more likely to seek well-baby check-ups, complete immunizations or breastfeed their infants [21].

Our study also demonstrates that, among full-time working mothers, a short maternity leave is associated with a higher risk of early breastfeeding cessation [22]. A maternity leave of less than 6 weeks or between 6 and 12 weeks was associated with over fourfold and twofold increased odds of not establishing breastfeeding in the first month, respectively. Also, women whose maternity leaves were up to 6 weeks had a more than threefold increased risk of early breastfeeding cessation after successful establishment relative to women not yet returning to work. The negative effects of a short maternity leave within 12 weeks were stronger among women working in inflexible or nonmanagerial jobs and among women with high psychosocial distress. Previous US studies corroborate these findings [23,24], generally showing effects of maternity leave on breastfeeding duration but not initiation. [25,26]. A recent Canadian study found that breastfeeding increases a third of a month with every additional month of maternity leave [23]. No such studies seem to have been conducted in Europe.

The relationship between maternity leave and infant and child mortality is borne out in ecological studies [7,27,28]. In the OECD study, after controlling for covariates, a 10-week extension in paid leave was associated with decreases in neonatal mortality (2.3%), postneonatal mortality (4.1%) and in infant (2.6%) and child mortality (3%) [4]. Nonetheless, unpaid leave

showed no significant associations with infant mortality [4]. Moreover, no further benefits were seen with maternity leaves longer than 40 weeks in European countries [28].

In summary, studies evaluating the health effects of maternity leave are heterogeneous and assess different dimensions of leave under different social and cultural conditions. Methodological limitations notwithstanding, the bulk of the evidence suggests that prebirth and postpartum paid leave have the potential to improve birth outcomes, protect maternal mental health, promote health-seeking behaviors and enhance children's health and wellbeing. Given the economic benefits of mothers' participation in the workforce and the healthcare costs associated

with the failure to provide leave, policies supporting paid leave should be justified not only as helping individuals and families, but as a necessary and sound financial investment for society at large.

#### Financial & competing interests disclosure

*The author has no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.*

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#### References

Papers of special note have been highlighted as:

- of interest
  - of considerable interest
- 1 Anderson G, Reinhardt U, Hussey P, Petrosyan V. It's the prices, stupid: why the United States is so different from other countries. *Health Aff.* 22(3), 89–105 (2003).
  - 2 Hill K, Thomas K, Abouzahr C *et al.* Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data. *Lancet* 370(9595), 1311–1319 (2007).
  - 3 MacDorman MF, Matthews TJ. Recent trends in infant mortality in the United States. In: *NCHS Data Brief, Number 9, October 2008*. National Center for Health Statistics, MD, USA (2008).
  - 4 Johnson T. Maternity leave and employment patterns of first time mothers: 1961–2003. In: *Current Population Report*. US Census Bureau, DC, USA, 70–113 (2007).
  - 5 Ray R, Gornick J, Schmitt J. Parental leave policies in 21 countries. Assessing generosity and gender equality. Center for Economic and Policy Research, DC, USA (2008).
  - **Analysis that offers insight into maternity leave policies and its impact on employment and other social dimensions.**
  - 6 Guendelman S, Pearl M, Graham S, Angulo V, Kharrazi M. Utilization of pay in antenatal leave among working women in Southern California. *Matern. Child Health J.* 10(1), 63–73 (2006).
  - **Gives details on the evidence of health effects of maternity leave.**
  - 7 Tanaka S. Parental leave and child health across OECD countries. *Econ. J.* 115, F7–F28 (2005).
  - **Gives details on the evidence of health effects of maternity leave.**
  - 8 Xu Q, Seguin L, Goulet L. Effet benefique d'un arret du travail avant l'accouchement [Beneficial effect of maternity leave on delivery]. *Can. J. Public Health* 93(1), 72–77 (2002).
  - **Good article to assess the evidence on the health effects of maternity leave.**
  - 9 Guendelman S, Pearl M, Graham S, Hubbard A, Kharrazi M. Maternity leave in the ninth month of pregnancy and birth outcomes among working women. *Womens Health Issues* 19(1), 30–37 (2009).
  - **Details the evidence on the health effects of maternity leave.**
  - 10 Saunders T, Lobel M, Veloso C, Meyer B. Prenatal maternal stress is associated with delivery analgesia and unplanned cesareans. *J. Psychosom. Obstet. Gynaecol.* 27(3), 141–146 (2006).
  - 11 Ceron-Mireles P, Harlow S, Sanchez-Carrillo C. The risk of prematurity and small for gestational-age birth in Mexico City: the effects of working conditions and antenatal leave. *Am. J. Public Health* 86, 825–831 (1996).
  - **Details the evidence on the health effects of maternity leave.**
  - 12 Mamelle N, Bertucat I, Munoz F. Pregnant women at work: rest periods to prevent preterm birth? *Paediatr. Perinat. Epidemiol.* 3, 19–28 (1989).
  - 13 Sysdjo A, Brynhildsen J, Ekholm Selling K, Josefsson A, Sysdjo G. Influence of rest during pregnancy on birth weight in working women. *Obstet. Gynecol.* 107, 991–996 (2006).
  - **Provides evidence on the health effects of maternity leave.**
  - 14 Chatterji P, Markowitz S. Does the length of maternity leave affect maternal health? *Southern Econ. J.* 72 (1), 16–41 (2005).
  - **Provides evidence on the health effects of maternity leave.**
  - 15 McGovern P, Dowd B, Gjerdingen D *et al.* Mothers' health and work-related factors at 11 weeks postpartum. *Ann. Fam. Med.* 5, 519–527 (2007).
  - 16 McGovern P, Dowd B, Gjerdingen D, Moscovice I, Kochevar L, Lhman W. Time off work and the postpartum health of employed women. *Med. Care* 35(5), 507–521 (1997).
  - 17 Gjerdingen D, Chaloner K. The relationship of women's postpartum mental health to employment, childbirth and social support. *J. Fam. Pract.* 38, 465–472 (1994).
  - 18 Clark R, Shibley Hyde J, Essex M, Klein M. Length of maternity leave and quality of mother–infant interactions. *Child Dev.* 68(2), 364–383 (1997).
  - 19 Killien MG, Habermann B, Jarrett M. Influence of employment characteristics on postpartum mother's health. *Women Health* 33(1–2), 63–81 (2001).
  - 20 Romito P, Saurel-Cubizolles MJ, Cuttini M. Mother's health after the birth of the first child: the case of employed women in an Italian city. *Women Health* 21(2/3), 1–22 (1994).
  - 21 Berger L, Hill J, Waldfogel J. Maternity leave, early maternal employment and child health and development in the US. *Econ. J.* 115, F29–F47 (2005).
  - **Analysis that offers insight into maternity leave policies and its impact on employment and other social dimensions.**
  - 22 Guendelman S, Kosa J, Pearl M, Graham S, Goodman J, Kharrazi M. Juggling work and breastfeeding: effects of maternity leave and occupational characteristics. *Pediatrics* 123, e38–e46 (2009).
  - **Details the evidence on the health effects of maternity leave.**

- 23 Fein SB, Roe B. The effect of work status on initiation and duration of breast-feeding. *Am. J. Public Health* 88(7), 1042–1046 (1998).
- 24 Visness CM, Kenney KI. Maternal employment and breast-feeding: findings from the 1988 National Maternal and Infant Health Survey. *Am. J. Public Health* 87(6), 945–950 (1997).
- 25 Kimbro RT. On-the-job moms: work and breastfeeding initiation and duration for a sample of low-income women. *Matern. Child Health J.* 10(1), 19–26 (2006).
- 26 Baker M, Milligan K. Maternal employment, breastfeeding and health: evidence from maternity leave mandates. *J. Health Econ.* 27(4), 871–887 (2008).
- Provides evidence on the health effects of maternity leave.
- 27 Winegarden CR, Bracy PM. Demographic consequences of maternal-leave programs in industrial countries: evidence from fixed-effects models. *Southern Econ. J.* 61(4), 1020–1035 (1995).
- 28 Ruhm CJ. Parental leave and child health. *J. Health Econ.* 19(6), 931–960 (2001).

**Website**

- 101 US Department of Labor, Bureau of Labor Statistics, National Compensation Survey: employee benefits in private industry in the United States, August 2007  
[www.bls.gov/ncs/ebs/sp/ebsm0006.pdf](http://www.bls.gov/ncs/ebs/sp/ebsm0006.pdf)