Postpartum Depression and Health Services Expenditures among Employed Women

Rada Dagher, PhD, Assistant Professor[1]
Pat McGovern, PhD, Professor[2]
Bryan Dowd, PhD, Professor[3]
Donna McAlpine, PhD, Associate Professor[3]
Laurie Ukestad, MS, Research Project Manager[2]
David McCaffrey, BA, Programmer[3]

November 5, 2007

[1] Department of Health Services Research, Management and Policy, University of Florida
[2] Division of Environmental Health Sciences, University of Minnesota
[3] Division of Health Policy and Management, University of Minnesota

Why Postpartum Depression (PPD)?

- Significant Prevalence: 10-15% of all pregnancies
- Debilitating mental disorder: begins in 1st 4 weeks after childbirth but may start as late as 3 or 6 months
- Negative effect on:
  - Maternal quality of life & relationships
  - Maternal-infant interaction
  - Children's emotional and cognitive development
- In extreme cases, potential exists for suicide and/or infant homicide

Symptoms of PPD

- Fatigue
- Insomnia
- Fear and guilt
- Inability to concentrate
- Insecurity
- Anxiety attacks
- Obsessive thoughts
- Self hatred
- Loss of all hope
- Loss of interest in life
- Suicidal ideation

- Severe, persistent, may last for months

Previous Research

- A lot done on determinants of postpartum depression but very little on its relation to health services expenditures

- Literature on postpartum depression
  - Has not closely examined employed women
  - Small sample sizes
  - Constrained to married and 1st time mothers
  - Underrepresented African Americans & other minorities

Why Employed Mothers?

- **Depression costs employers:**
  - $44 billion annually in lost productive work time
  - $12.4 billion dollars in health care costs

- **LFP rates for mothers of infants in the past few decades:**
  - 54% in 2003 vs. 38% in 1980 (BLS, 2004)

- **Timing of return to work after childbirth among first time mothers employed during pregnancy*:**
  - 60% at 3 months
  - 82% at 12 months

- **Fast return to work after childbirth may:**
  - Increase the risk of postpartum depression and in turn health care costs

* Overturf Johnson J, Downs B. *Maternity Leave and Employment Patterns: 1961-2000. Current Population Report, P70-103* , 2005. Washington, DC: U.S. Census Bureau.

Specific Aims

- To investigate the impact of postpartum depression on employed women's health services expenditures at 11 weeks after childbirth

- To compare the utilization of different types of health services between depressed and non-depressed women

Who Cares?

- ✓**Women** care about their health and costs of maintaining it

- ✓**Employers**
  - Want their employees to be productive
  - Want to avoid incurring high health insurance costs

- ✓**Policymakers**
  - 3 states including Minnesota have passed legislation on PPD
  - National bill on PPD has passed in the House (Oct 15, 2007)
    - Melanie Blocker-Stokes Postpartum Depression Research and Care Act

Methodology

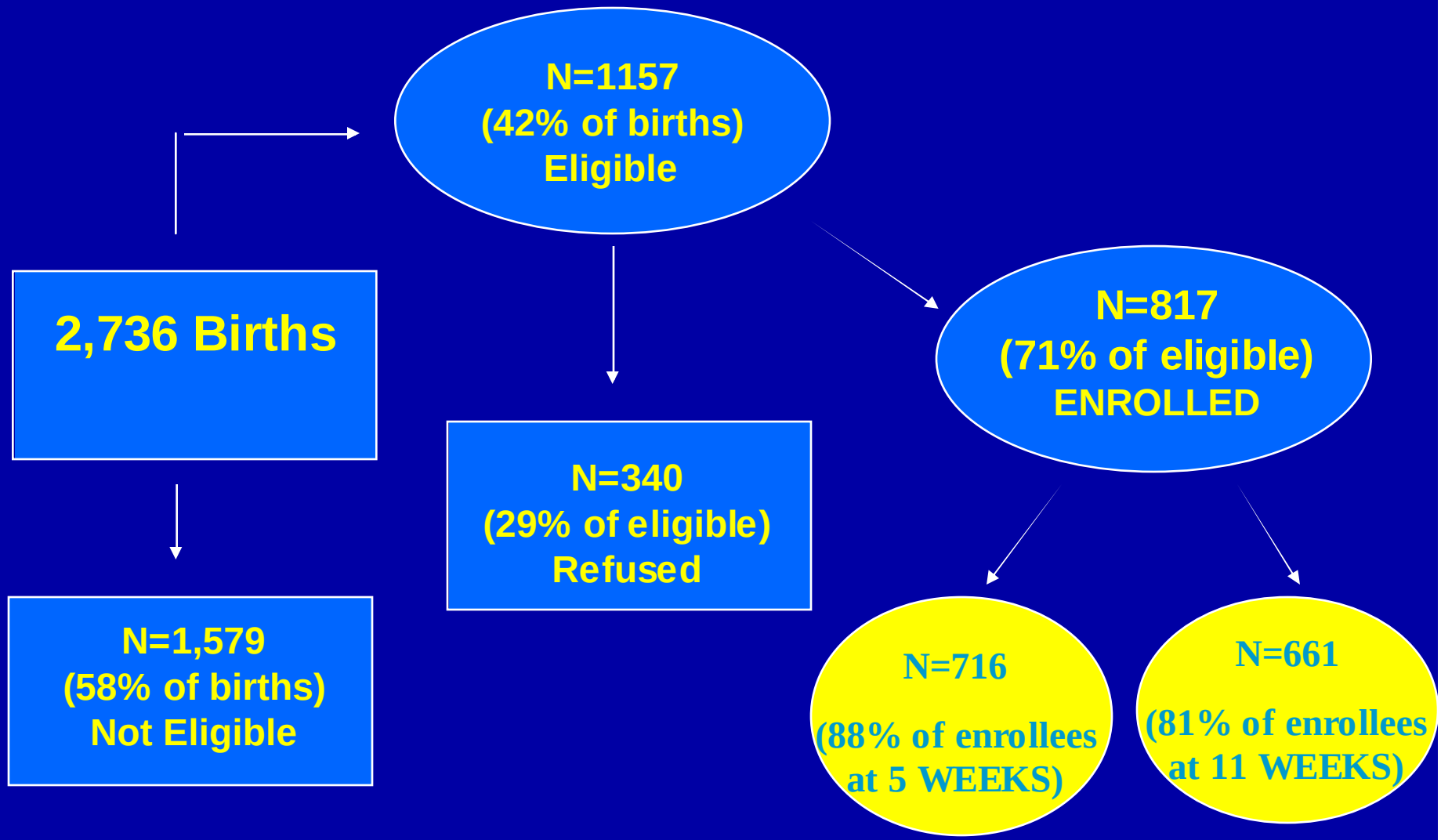
- **Design:** Longitudinal study (PI: Dr. Patricia McGovern)
- **Target Population:**
  - Women, 18 years or older
  - Reside in the 7 county metropolitan Twin Cities area
  - Live, singleton birth in 2001
- **Sampling Frame:**
  - All women delivering in 3 metropolitan hospitals (Minneapolis/St. Paul)
  - Recruitment between April 9 & November 19, 2001
- **Selection Criteria:**
  - Speak English
  - Healthy infant
  - Employed for at least 3 consecutive months, 20 hours or more per week before birth
  - Plans to return to work following childbirth
  - Plans to keep the baby

Data Collection

- **Approval of Institutional Review Boards at:**
  - **The 3 participating hospitals**
  - **University of Minnesota**
- **Hospital enrollment at childbirth**
  - **Nurses elicited women's consent**
    - **Abstract information from birth records**
    - **Conduct in-person interviews**

- **Telephone interviews at 5 and 11 weeks postpartum by University interviewers**

Participation Rate and Eligibility



Main Explanatory Variable: Edinburgh Postnatal Depression Scale

- Able to laugh and see the funny side of things
- Looked forward with enjoyment to things
- Blamed myself unnecessarily when things went wrong
- Been anxious/worried for no good reason
- Felt scared/panicky for no very good reason
- Things have been getting on top of me
- Been so unhappy that I had difficulty sleeping
- I have felt sad or miserable
- Been so unhappy that I have been crying
- Thoughts of harming myself occurred to me

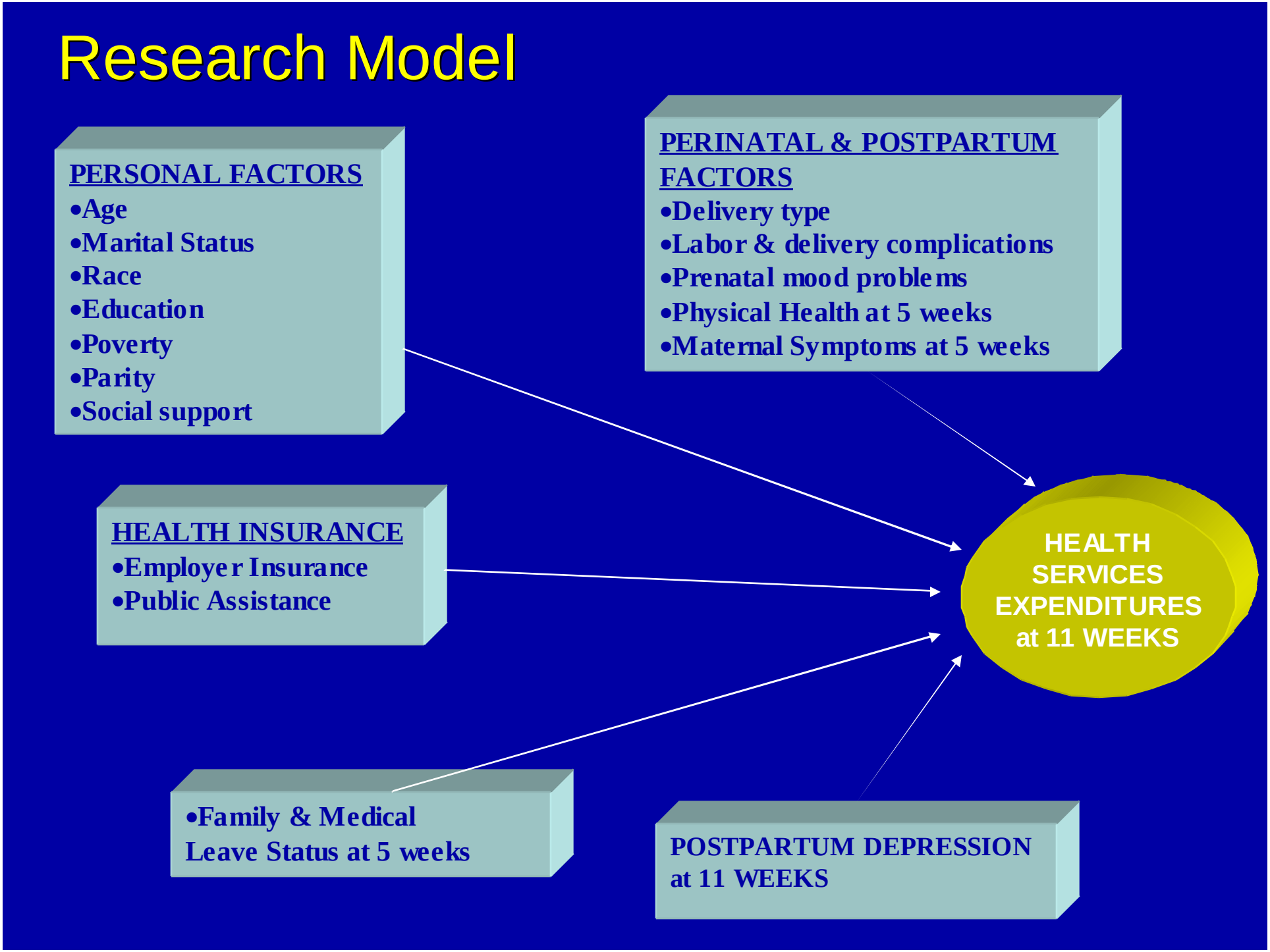
Edinburgh Postnatal Depression Scale

- Four response categories
  - No, never (score: 0)
  - Yes, most of the time (score: 3)
- Overall scores theoretically range from 0-30
- Sensitivity (86%), Specificity (78%)
- Threshold score GE 12.5 identified women with definite major depressive illness according to Research Diagnostic Criteria*

Main Outcome Variable: Health Services Expenditures

- Natural log of the price-weighted sum of all health services used from hospital discharge until 11 weeks postpartum
  - Self-reported health services used
    - Outpatient surgeries
    - Hospitalizations
    - Office visits
    - Mental health visits
    - Emergency room care
  - Price data
    - Blue Cross Blue Shield of Minnesota

Research Model



Characteristics of the Sample

Demographics

- 30 years (SD=5.3, Range =18-45)
- 76% Married
- 87% Caucasian
- 49% College degree or higher
- 46% First time mothers

Work characteristics

- 13% Blue collar, 37% Clerical, 49% Professional
- 38 work hrs/wk before delivery (SD=4, Range = 20-70)
- Four years of employment
- Return to work rates:
  - 7% at 5 weeks
  - 49% at 11 weeks

Postpartum depression prevalence

- 4.7% met the 12.5 threshold for postpartum depression at 11 weeks

Results of Bivariate Analyses

- Depressed women more likely to
  - Attend emergency room (18.2%) vs. Non-depressed (4.1%)
  - Seek mental health counseling (22.6%) vs. Non-depressed (3.8%)
- Depressed women had on average 0.3 more emergency visits and 0.8 more counseling visits than Non-depressed
- Depressed and Non-depressed women did not differ by having had at least one:
  - Hospitalization
  - Outpatient surgeries
  - Office visits
- Depressed and Non-depressed women did not differ by number of:
  - Hospitalizations
  - Outpatient surgeries
  - Office visits

Determinants of Health Services Expenditures

Explanatory Variables	β	P-value
Age	**0.12**	**0.02**
Marital Status	-0.07	0.16
Education	-0.08	0.17
Race	-0.04	0.38
Parity	-0.02	0.72
Poverty	**0.15**	**0.01**
Leave Status	-0.55	0.09
Social Support	0.07	0.14
# Birth Complications	**0.09**	**0.03**
Delivery Type	0.07	0.11
Prenatal Depression	-0.05	0.21
Physical Health at 5 weeks	-0.04	0.49
Maternal Sx at 5 weeks	**0.16**	**0.003**
Employer Insurance = 1	-0.17	0.12
Public assistance = 1	-0.20	0.052
Postpartum Depression	**0.10**	**0.000**

Determinants of Health Services Expenditures

- Older age
- Being below the poverty threshold
- Having labor and delivery complications
- Increased maternal symptoms at 5 weeks
- Meeting the threshold for postpartum depression on the EPDS
  - Depressed women incurred 87% higher health services expenditures than the non-depressed

Conclusions

- Depressed women had consistently higher health services costs than non-depressed women

- The six-fold increase in counseling visits and the four-fold increase in emergency room visits may be driving the costs

Implications

- Primary care providers
  - Evaluate women's moods before and after childbirth and referring them to mental health specialists
- Employers and human resource personnel
  - Need to evaluate access to competent medical/health care personnel through the employer's health plan
  - Need to evaluate preferred providers using best practices-screening for depression in primary care
  - Opportunity for worksite/online education for women of reproductive years—March of Dimes or health care provider groups

Study Limitations

- Generalizability
  - Employed women with similar demographic and employment characteristics
  - The distribution of women by age, race and marital status in this sample may differ from that in other major urban or rural areas
- Measurement of health services expenditures
- Explanatory and outcome variables:

  Self-report

Future Directions

- Replicate this study on a more racially and socio-economically diverse sample
- Evaluate workplace interventions and policies that may decrease the risk of PPD
- Explore whether earlier identification of depressed women or screening and education in primary care settings may decrease excessive health services use after childbirth
- Assess whether women with postpartum depression are being adequately identified and treated in the health care system

Funding

The National Institute for Occupational Safety and Health

The Impact of Total Workload on Maternal Postpartum Health & Quality of Life
Grant #5 R18 OH003605-05

TELL THE DOCTOR I'M CANCELING. TOM CRUISE SAYS THERES NO REAL REASON I SHOULD BE HERE AND THAT'S GOOD ENOUGH FOR ME!