From Family Planning to Breast Feeding

Selected Findings from
Pregnancy Risk Assessment Monitoring System

Epi Grand Rounds, July 30, 2007
Judith Sackoff, Research Director
Bureau of Maternal, Infant and Reproductive Health
Goals
Bureau of Maternal, Infant & Reproductive Health

• All pregnancies are planned
• Prevent teen pregnancy
• Improve the health equity of mothers and infants
• Breastfeeding becomes the norm
What is PRAMS?

Pregnancy Risk Assessment Monitoring System

- Surveillance system of maternal behavior, attitudes and experiences before, during and shortly after pregnancy
- Population-based
- Ongoing data collection
- Timely data collection
- Used locally for program and policy
PRAMS represents 75% of US births

Prior to 2006
Newly funded in 2006
NYC PRAMS Sample

• **Who is in the sample?**
  – ~180 women with live births randomly selected monthly from NYC birth certificates
  – ~2,200 annually/1.5% of NYC live births

• **Sampling methodology**
  – Random sampling without replacement
  – Stratified by birth weight
  – Final dataset weighted for stratification, nonselection and nonresponse
Survey Instrument

- 80 items
  - 60 core items
  - 20 local items
- English and Spanish (Chinese translation in progress)
- 20-25 minutes to complete
Data Collection Protocol

• Mail phase: women are sent up to 3 copies of the survey by mail
• Telephone phase: follow-up for non-responders; contacted up to 15 times by telephone
• 83% of interviews completed by mail; 17% by telephone
Response Rate

• 70% response rate required by CDC
  – 2004 was first year NYC reached 70%

• Ongoing challenge
  – Better phone numbers
  – Incentives: $20 MetroCard for all mothers; in 2007, additional $20 gift card for hard-to-reach women
  – Translate interview into other languages
NYC PRAMS Dataset
Linked PRAMS questionnaire-birth certificate dataset
July-December 2004, May-December 2005

PRAMS questionnaire
– Pregnancy intent
– Prenatal care
– Alcohol and tobacco use
– Domestic violence
– Breastfeeding
– Stressful life events
– And more…..

Birth certificate
– Demographics, including country of birth, race, age
– Pregnancy outcomes, including birth weight, gestation, method of delivery
Strengths & Limitations

• Strengths
  – Population-based source of data on maternal & infant health in NYC
  – Links behavioral and clinical information

• Limitations
  – Minimum detail on any one topic
  – Small n for subgroup analysis
  – Self-report
Presentations

Unintended pregnancy and pregnancy risk
Elizabeth Needham Waddell

The health of women of reproductive age
Lindsay Senter

Breastfeeding in NYC
Candace Mulready-Ward
Unintended Pregnancy and Pregnancy Risk in NYC

Elizabeth Needham Waddell, PhD
Family Planning Research Coordinator
Bureau of Maternal, Infant & Reproductive Health
Scope of talk

• What is unintended pregnancy, and why is it important to the health of New Yorkers?
• Who is at risk for unintended pregnancy?
• Which populations have highest rates of unintended pregnancy?
• Which populations have highest rates of unintended births?
NYC Data Sources

• NYC Pregnancy Risk Assessment Monitoring System (PRAMS)
  – Births
  – Spontaneous terminations of pregnancy
  – Induced terminations of pregnancy
• NYC Community Health Survey (2006)
Definitions of pregnancy intention

- **Intended**: a pregnancy that was desired at the time (or sooner than) it occurred
- **Unintended**:  
  - **Mistimed**: a pregnancy that was wanted, but at a later time than it occurred  
  - **Unwanted**: a pregnancy that was not desired when it occurred or at any point in the future

Source: Guttmacher Institute
Unintended pregnancy associated with adverse birth outcomes

- National PRAMS study found unwanted pregnancy associated with increased odds of:
  - Delivering low birth weight infant
  - Premature rupture of membranes (leading identifiable cause of preterm delivery)
  - Premature labor

Healthy People 2010
Family Planning Goals

• Improve pregnancy planning and spacing and prevent unintended pregnancy

• Increase the proportion of females at risk of unintended pregnancy (and their partners) who use contraception
Who’s at risk for unintended pregnancy?

• 2006 Community Health Survey
Community Health Survey identifies New Yorkers “at-risk for pregnancy”

2006 Community Health Survey sub-sample
- Females 18-44
- Exclusions
  - Women who did not have sex with a man in the past year: 15%
  - Women who did not respond to question about partners in the past year: 13%

Source: NYC DOHMH Bureau of EPI Services (calculations by Bureau of Maternal, Infant & Reproductive Health)
Most NYC women with a male partner in the last year were **NOT** trying to get pregnant.

The last time you had sex did you intend to get pregnant?

- Yes: 8%
- No, but wouldn't have minded: 15%
- No: 77%

Source: 2006 CHS, NYC DOHMH Bureau of EPI Services (calculations by Bureau of Maternal, Infant & Reproductive Health)
But many NYC women forgo birth control

Percent used birth control by pregnancy intention
(age-adjusted to US standard population)

Source: NYC DOHMH Bureau of EPI Services (calculations by Bureau of Maternal, Infant & Reproductive Health)
Birth control use declines with age

Percent used birth control among those NOT trying to get pregnant, by age group

Source: 2006 CHS, NYC DOHMH Bureau of EPI Services (calculations by Bureau of Maternal, Infant & Reproductive Health)
Healthy People 2010

Increase the proportion of females at risk of unintended pregnancy (and their partners) who use contraception

HP 2010 Goal: 100%

Hispanic women less likely to use BC

Percent used birth control among those NOT trying to get pregnant, by race/ethnicity (age-adjusted to US standard population)

Source: 2006 CHS, NYC DOHMH Bureau of EPI Services (calculations by Bureau of Maternal, Infant & Reproductive Health)
Who has unintended pregnancies?

- NYC Vital Statistics Data, 2004-2005
- NYC PRAMS, 2004-2005
NYC resident pregnancy outcomes, 2004-2005 (N = 414,821)

Induced terminations 40%
Spontaneous terminations 5%
Live births 55%

Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Institute
What comprises the rate of unintended pregnancies?

The sum of:

• 100% Induced terminations (abortions)

• 40% Live births (can adjust for race/age group)

• 40% Spontaneous terminations (can adjust for race/age group)

Source: PRAMS 2004-2005 (% of live births); Guttmacher Institute (% spontaneous terminations)
Most NYC unintended pregnancies are terminated

NYC resident pregnancies, 2004-2005
(N = 414,821)

- Intended pregnancies: 37%
- Unintended pregnancies: 63%
  - Induced terminations: 63%
  - Live births: 33%
  - Spontaneous terminations: 3%

Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Institute
Healthy People 2010

Increase the proportion of pregnancies that are intended

US Baseline, 1995: 51%
NYC 2004-2005: 44%

HP 2010 Goal: 70%

(age-adjusted to US standard population)

Rates of unintended pregnancy highest among NYC Blacks and Hispanics

Unintended pregnancies per 1,000 females
(age-adjusted to US standard population)

- White: 27
- Hispanic: 82
- Black, non-Hispanic: 95
- Asian: 35

Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Institute
Rates of NYC unintended pregnancy decline with age

Unintended pregnancies per 1,000 females

Source: NYC PRAMS 2004-2005, NYC DOHMH Bureau of Vital Statistics (calculations by Bureau of Maternal, Infant & Reproductive Health); Guttmacher Institute
Who has unintended live births?

- NYC PRAMS, 2004-2005
Most NYC births are intended

“Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant?”

- **INTENDED**
  - 60% Wanted to be pregnant sooner/then
  - 53% Wanted to be pregnant later

- **MISTIMED**
  - 32% Didn’t want to be pregnant then or at any time in the future

- **UNWANTED**
  - 8%
  - 10%

Source: NYC PRAMS, 2004-2005
NYC women ages 35+ most likely to report “unwanted” births

Percent who did not want to be pregnant at any time

AVG: 8%

* Unreliable estimate due to small sample size.

Source: NYC PRAMS 2004-2005
Black women in NYC most likely to report “unwanted” births

Percent who did not want to be pregnant at any time

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<td>Black non-Hispanic</td>
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</table>

* Unreliable estimate due to small sample size.

Source: NYC PRAMS 2004-2005 (age-adjusted to US standard population)
About half of new moms were NOT trying to get pregnant

- Using BC when got pregnant: 44%
- Not using BC when got pregnant: 57%

Trying to get pregnant: 47%
Not trying to get pregnant: 53%

Source: NYC PRAMS, 2004-2005
Reasons for not using BC

What were you or your husband’s or partner’s reasons for not doing anything to keep from getting pregnant?

Percent of new moms (not trying to get pregnant)

- Didn’t mind if I got pregnant: 50%
- Couldn’t get pregnant at that time: 25%
- Other: 16%
- Husband or partner didn’t want to use anything: 15%
- Had side effects from the birth control I was using: 10%
- Husband or partner was sterile: 5%
- Problems getting birth control: 4%

Source: NYC PRAMS 2004-2005
Summary of findings

• Rates of overall unintended pregnancy higher in NYC than in US, but NYC has fewer unintended births

• Most striking disparities in unintended pregnancy are by age group, not race/ethnicity

• Disconnect between pregnancy intention and birth control use – NYC is far from 100% HP 2010 goal for contraceptive use

• Need qualitative research to better understand pregnancy intention and barriers to contraceptive use
The Health of Reproductive-Aged Women in NYC

Using Survey Data to Assess Women’s Preconception Health

Lindsay Senter, MPH
Bureau of Maternal, Infant and Reproductive Health
Epi Grand Rounds
July 30, 2007
Scope of the talk

• Describe why a focus on preconception health is important

• Use PRAMS & CHS data to inform us about the health status of women of reproductive age and their preconception health risk factors

• Highlight obesity and diabetes as important risk factors
Why Preconception Health?
Infant mortality race/ethnic disparities continue at unacceptable levels

Trends in infant mortality by race/ethnicity: 1995-2005

Data Source: Office of Vital Statistics, NYC DOHMH, Compiled by BMIRH
Multiple factors associated with adverse birth outcomes

Mother
- Inadequate/No Prenatal Care
- Poor Health before Pregnancy
- Age
- Education
- Race/Ethnicity
- Stress
- Unmarried
- Smoking
- Substance Abuse
- Inadequate Nutrition
- Overweight/Obesity

Social /Community Context
- Poverty
- Stressors
- Social Support System
- Neighborhood
- Racial Discrimination

Infant
- Prematurity
- Low Birth weight
- SIDS/Sleep position
- Birth Defects
- First-born
- Multiple Births
- Male
- Accidents / Injuries
- Infections

Health Care / Provider
- Education / Quality Care
- Access to Care
- Cultural Competence / Communication

Adverse Birth Outcomes
Intervening at the time of prenatal care is too late

- Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective

- Critical periods of development

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Mean entry into prenatal care
“Every Woman, Every Time”

• Many women will benefit from this perspective
  – 40% of women in NYC are 18-44
  – 81% of US women will have had at least one child by age 44
  – 40% of all live births in NYC are unintended

Data Source: US Census Bureau, PRAMS 04-05
Nationally recognized preconception health guidelines

1. Undiagnosed, untreated, or improper treatment of **chronic and infectious diseases** (e.g. diabetes, HIV, rubella and Hep vaccine)

2. Women should be screened for **psychosocial concerns** (e.g. depression, intimate partner violence)

3. Living a healthy lifestyle by engaging in **healthy eating and exercise**, maintaining a **health weight**, **folic acid**, **eliminating/reducing substance use** (e.g. alcohol, tobacco)

4. Women & men should **routinely see a doctor** and providers should **screen for genetic conditions** and teratogenic risks associated with some medications (e.g. epilepsy treatment)
Using PRAMS to determine the prevalence of select preconception risk factors

Data Source: NYC PRAMS 04-05
Majority of New York City adults (18+) are overweight or obese, 2005

- Overweight BMI 25-29: 35%
- Obese BMI 30+: 20%
- Normal or Underweight: 45%

Data Source: CHS 05
Risks associated with overweight/obesity for women of reproductive age

- Hypertension
- Diabetes

- Hypertension during pregnancy (preeclampsia/eclampsia)
- Gestational Diabetes

Birth defects
Preterm
Stillbirths

Birth defects
Preterm
 Macrosomia

Other factors independent of chronic disease:
- C-section
- Birth defects
- Maternal morbidity
The rate of overweight/obesity is higher among Black non-Hispanic & Hispanic women with a live birth, 18-44, in NYC.

Data Source: NYC PRAMS 04-05
The rate of overweight/obesity is highest among older women with a live birth in NYC.

Data Source: NYC PRAMS 04-05
Prevalence of diabetes in NYC increases with maternal weight

![Graph showing the prevalence of diabetes in NYC by maternal weight categories: Underweight, Normal Weight, Overweight, and Obese. The graph indicates that the percentage of reported diabetes increases with maternal weight, with the highest percentage for Obese individuals. The data is sourced from NYC PRAMS 04-05.](image)

**Data Source:** NYC PRAMS 04-05

p-value for trend < .05
Chronic diabetes by race/ethnicity, women with a live birth, 18-44, NYC

Data Source: NYC PRAMS 04-05
Gestational diabetes by race/ethnicity, women with a live birth, 18-44, NYC

Percent reported gestational diabetes

- **Asian/Pacific Islander**: 15.1%
- **Black non-Hispanic**: 10.2%
- **Hispanic**: 7.6%
- **White non-Hispanic**: 7.3%

Data Source: NYC PRAMS 04-05
Chronic & gestational diabetes by maternal age, women with a live birth, 18-44, NYC

Data Source: NYC PRAMS 04-05

p-value for trend < .05
Can adverse reproductive outcomes be prevented among diabetic women by controlling their disease?

Women with chronic & gestational diabetes have:

- 3-5x the risk of having an infant with a birth defect\(^1\)
- 3-5x the risk of delivering a macrosomic infant\(^2\)
- 4-7x the risk of a stillbirth\(^3\)

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\(^1\) Hampton, JAMA, August 2004, 292:7, 789-790
\(^2\) Von Kries et al, European Journal of Pediatrics, November 1997, 156:12, 963-967; Vangen et al, Diabetes Care, February 2003, 26:2, 327-330
\(^3\) Cundy et al, Diabetes Medicine, January 2000, 17:1, 33-9; Wood et al, Diabetes Medicine, September 2003, 20:9, 703-707
Self-reported health status and access to care among NYC women of reproductive-age with chronic diabetes (CHS 04)

- Reports health status fair or poor: 51%
- No counseling on weight, nutrition, exercise at last doctor visit: 28%
- No health care coverage or insurance: 18%

*Age-adjusted rates
Data Source: NYC CHS 04
Tailor & integrate existing effective interventions to the specific needs of reproductive-aged women

Harlem Mind, Body and Soul

Controlling “ABCS”

- **A**1C control
- **B**lood pressure control
- **C**holesterol control
- **S**moking cessation

**A1C Registry**

**DPHOs**
Conclusions

• Obesity and diabetes are two examples of important preconception health risk factors.

• “Every Woman, Every Time”: must consider a new paradigm for taking care of women which shifts the focus back to before she becomes pregnant.
Resources

• March of Dimes: http://www.marchofdimes.com/professionals/preconception.asp
• CDC Recommendations to Improve Preconception Health and Health Care http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm
• American College for Ob/Gyn (ACOG) http://www.acog.org/acog_districts/dist_notice.cfm?recno=1&bulletin=2283
• Every Woman, Every Time, California http://www.marchofdimes.com/files/exec.sum.pdf
Breastfeeding in New York City

Candace Mulready-Ward, MPH
Bureau of Maternal, Infant and Reproductive Health
EPI GRAND ROUNDS
7/30/07
Bureau of Maternal, Infant and Reproductive Health Goal:

BREASTFEEDING BECOMES THE NORM
Scope of Talk

- The benefits of breastfeeding
- Breastfeeding in NYC
  - Initiation
  - Duration
  - Exclusivity
  - Reasons for Discontinuation
- Hospital support for breastfeeding
- What DOHMH is doing to promote breastfeeding
Benefits of Breastfeeding to the Infant and Child

• Strengthens infant’s immune system

• Strong evidence for decreased incidence of:
  – Acute otitis media
  – Non-specific gastroenteritis
  – Severe lower respiratory tract infections
  – Necrotizing enterocolitis
  – Atopic dermatitis
  – Asthma
  – Obesity
  – Type I and Type II diabetes
  – Childhood leukemia
  – Sudden Infant Death Syndrome (SIDS)

Source: Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries, AHRQ, April 2007.
Benefits of Breastfeeding to the Mother

• Decreased risk of:
  – Ovarian cancer
  – Breast cancer
  – Postpartum bleeding
  – Type II diabetes

Source: Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries, AHRQ, April 2007.
Benefits of Breastfeeding to the Community

• Decreased:
  – Health care expenditures
  – Costs associated with WIC
  – Parental absenteeism to care for sick child
  – Environmental burden from disposal of formula cans and bottles
  – Energy demands for production and transport of formula

Guidelines for Breastfeeding
American Academy of Pediatrics

- Almost all infants should be breastfed (BF)
- Initiate BF within 1 hour of birth
- Exclusive, on-demand BF for 6 months
- Supplement BF with iron-enriched solid food after 6 months
## Healthy People 2010
Breastfeeding Objectives

<table>
<thead>
<tr>
<th>Birth</th>
<th>3 Months</th>
<th>6 Months</th>
<th>1 Year</th>
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<tbody>
<tr>
<td>75% Initiate Breastfeeding</td>
<td>60% Exclusively Breastfeed</td>
<td>50% Breastfeed 25% Exclusively breastfeed</td>
<td>25% Breastfeed</td>
</tr>
</tbody>
</table>

|
Trends in Breastfeeding Initiation, USA, 1965-2001

Source: Ross Laboratories Mothers’ Survey, Ross Products Division, Abbott Laboratories.
Trends in Breastfeeding Initiation, NYC, 1980-2005

Breastfeeding Initiation: NYC vs. USA

• Did you ever breastfeed or pump breast milk to feed your new baby after delivery?

Duration of Any Breastfeeding for 8 + Weeks, NYC vs. USA

How many weeks or months did you breastfeed or pump milk to feed your baby?

Duration of Exclusive Breastfeeding for 8 + weeks, NYC vs. USA

- How old was your baby the first time you fed him or her anything besides breast milk?

Factors Influencing Breastfeeding Initiation, Duration and Exclusivity in NYC

- Logistic Regressions:
  - Initiation: Not breastfeeding
  - Duration: **Any** breastfeeding < 8 wks
  - Exclusivity: **Exclusive** breastfeeding < 8 wks
What factors influence breastfeeding initiation, duration and exclusivity in NYC?

- Maternal demographic factors:
  - Race/Ethnicity, Nativity, Age, Education, Marital Status, WIC status

- Maternal health factors:
  - Smoking status, BMI, depression

- Infant health factors:
  - Gestational age

- Other factors:
  - Infant feeding in hospital, pregnancy intention
Factors Influencing Breastfeeding Initiation in NYC

- Outcome variable: Not Breastfeeding
Which groups do not initiate breastfeeding in NYC?

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<thead>
<tr>
<th>Independent Variable</th>
<th>Adj OR</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>Smoker (vs. non-smoker)</td>
<td>3.71</td>
<td>(1.07, 12.95)</td>
</tr>
<tr>
<td>Less than high school (vs. some college)</td>
<td>3.22</td>
<td>(1.62, 6.14)</td>
</tr>
<tr>
<td>High school graduate (vs. some college)</td>
<td>2.33</td>
<td>(1.28, 4.22)</td>
</tr>
<tr>
<td>Obese (vs. normal weight)</td>
<td>2.34</td>
<td>(1.40, 3.93)</td>
</tr>
<tr>
<td>Foreign born (vs. US born)</td>
<td>0.48</td>
<td>(0.31, 0.74)</td>
</tr>
<tr>
<td>Hispanic (vs. white non-Hispanic)</td>
<td>0.51</td>
<td>(0.27, 0.97)</td>
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Factors Influencing Duration of *Any* Breastfeeding in NYC

• Outcome variable:

  Breastfeeding for < 8 weeks
## Which groups in NYC breastfeed for less than 8 weeks?

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<th>Independent Variable</th>
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<th>95% CI</th>
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<tbody>
<tr>
<td>&lt; 19 years old (vs. 25-34 years old)</td>
<td>4.64</td>
<td>(2.14, 10.05)</td>
</tr>
<tr>
<td>Infant fed something other than breast milk in hospital (vs. exclusive in hospital)</td>
<td>2.45</td>
<td>(1.55, 3.88)</td>
</tr>
<tr>
<td>Hispanic (vs. white non-Hispanic)</td>
<td>2.31</td>
<td>(1.35, 3.93)</td>
</tr>
<tr>
<td>Asian/Pacific Islander (vs. white non-Hispanic)</td>
<td>2.30</td>
<td>(1.18, 4.47)</td>
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<tr>
<td>Obese (vs. normal weight)</td>
<td>1.96</td>
<td>(1.15, 3.33)</td>
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<tr>
<td>Foreign born (vs. US born)</td>
<td>0.54</td>
<td>(0.37, 0.80)</td>
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</table>
Factors Influencing Duration of **Exclusive** Breastfeeding in NYC

- **Outcome variable:**
  - Exclusive Breastfeeding for < 8 weeks
Which groups in NYC *exclusively* breastfeed for less than 8 weeks?

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<th>Independent Variable</th>
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<th>95% CI</th>
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<tbody>
<tr>
<td>Infant fed something other than breast milk in hospital (vs. exclusive in hospital)</td>
<td>4.11</td>
<td>(2.81, 6.02)</td>
</tr>
<tr>
<td>Obese (vs. normal weight)</td>
<td>2.65</td>
<td>(1.46, 4.82)</td>
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<tr>
<td>Preterm (vs. term infant)</td>
<td>2.13</td>
<td>(1.26, 3.62)</td>
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Reasons for Discontinuing Breastfeeding

- Not producing enough milk        45%
- Breast milk didn’t satisfy baby  42%
- Baby had difficulty breastfeeding 24%
- Nipples sore, cracked or bleeding 17%
- Returned to work/school           16%
- Too many household duties         14%

NYC PRAMS 2004-2005
Baby Friendly Hospital Initiative (BFHI)

- UNICEF/WHO Initiative
- Addresses hospital influence in breastfeeding initiation and duration
- Established ten steps to successful breastfeeding
### NYC Report Card on Baby Friendly Hospital Initiative Steps for Successful Breastfeeding

1. Inform mothers of benefits of breastfeeding  
   - 88%
2. Give no pacifier  
   - 73%
3. Encourage breastfeeding on demand  
   - 65%
4. Refer for help with breastfeeding  
   - 64%
5. Show mothers how to breastfeed  
   - 63%
6. Baby rooms in with mother  
   - 58%
7. Initiate breastfeeding within 1 hr of birth  
   - 31%
8. Give infants only breast milk in hospital  
   - 22%
9. Do not provide gift pack with formula  
   - 14%

NYC PRAMS, 2004-2005
What DOHMH is Doing to Promote Breastfeeding

Five Point Strategy

1. Research and Evaluation
2. HHC Breast Milk Friendly Hospital Initiative
3. Provider and Community Education
4. Breastfeeding Friendly Workplaces
5. Policy Change
HHC Breast Milk Friendly Hospital Initiative

• Modeled on Baby Friendly Hospital Initiative

• HHC Hospitals will
  – Encourage baby rooming-in with mother
  – Ensure breastfeeding within 1 hour of birth
  – Offer no artificial feeding or pacifiers
  – Display no formula company incentives or materials
  – Train staff in Baby Friendly Hospital policies and practices
Resources

• **AAP Initiatives**: www.aap.org/breastfeeding

• **AAFP Policy**:

• **ILCA Clinical Guidelines**:
  www.ilca.org/education/2005clinicalguidelines.php

• **Baby Friendly Hospital Initiative**:
  www.cdc.gov/breastfeeding/compend-babyfriendlywho.htm
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