

Prescription drug use during pregnancy in Hawai'i



**DATA FROM THE HAWAI'I PREGNANCY RISK
ASSESSMENT MONITORING SYSTEM,
2009-2010**



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Emily K. Roberson, MPH
Hawai'i Pregnancy Risk Assessment Monitoring System, Hawai'i Department of Health
Office of Public Health Studies, University of Hawai'i at Mānoa

Mahalo to my Coauthor



Eric Hurwitz, MS, DC, PhD

Office of Public Health Studies, University of Hawai'i at Mānoa

Learning Objectives



1. Describe the prevalence of prescription drug use among women during pregnancy in Hawai'i.
2. Identify the risk factors most strongly associated with prescription drug use during pregnancy in Hawai'i.

Presentation Outline



I. PRAMS Background

I. What is PRAMS?

II. PRAMS Methodology

II. Prescription Drug Research

I. Methods

II. Results

III. Implications

IV. Next Steps

III. Q&A

PRAMS Background



WHAT IS PRAMS AND HOW DOES IT WORK?

What is PRAMS?



Pregnancy Risk Assessment Monitoring System

- Ongoing state-specific and population-based surveillance system
- Developed in 1987 to supplement vital record data by providing state-specific data on maternal behaviors and experiences that occur before, during, and after pregnancy
 - Uses standardized data collection methods so data can be compared state to state
 - Part of the CDC initiative to reduce infant mortality and low birth weights
- Assists with measuring Healthy People 2020 state and national priority progress on maternal and child health
 - Also used for planning and assessing perinatal health programs
- Funded by Centers for Disease Control (CDC)
 - National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health

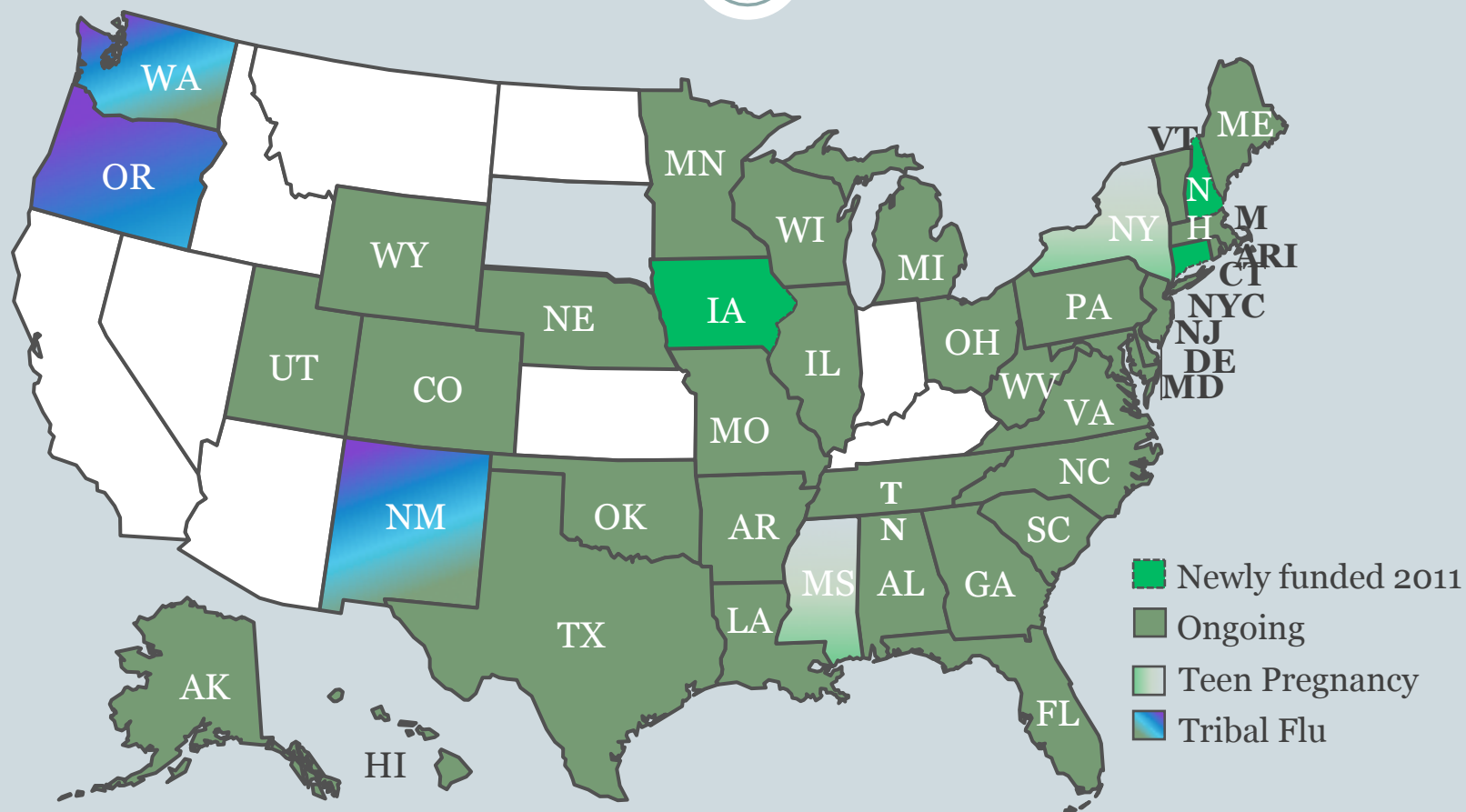


PRAMS

THE BEST SOURCE OF DATA ON MOTHERS AND BABIES

Current PRAMS Participation

7



PRAMS represents approximately 78% of all US live births
(91% w/MIHA)

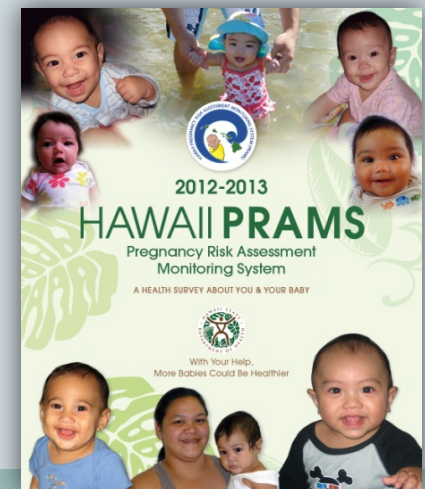


HAWAII STATE
DEPARTMENT
OF HEALTH

Hawai'i PRAMS



- Pilot in 1999; Official PRAMS state in 2000
- Hawai'i Department of Health with CDC support
- Program Coordinator and Data Manager
- Hawai'i PRAMS Advisory Committee of community stakeholders
 - Offer valuable insights that the DOH may not see or be aware of at a policy or program level



PRAMS Methodology



- Standardized data collection protocol
 - Compare Hawai'i to other states and/or compare different populations within Hawai'i to each other
 - See trends over time
- Sample drawn from birth certificates of women having a recent live birth
 - Current Hawai'i sampling scheme oversamples Neighbor Islands and low birthweight babies on Oahu
- Mailed questionnaire (self-administered)
- Telephone follow-up for non-responders

PRAMS Methodology

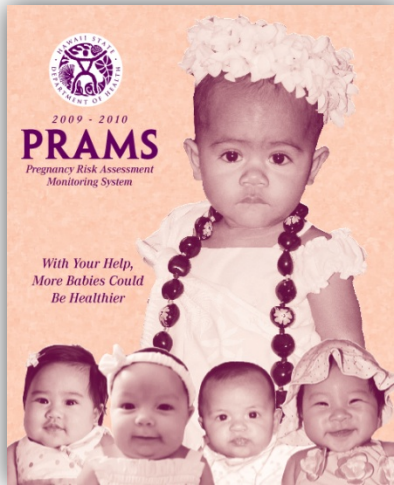


- CDC requires minimum 65% weighted response rate for results to be considered generalizable to all live births
 - Has never been an issue for Hawai'i (average ~73%)
- At the end of the data collection year, CDC weights the data files to account for nonresponse and other factors based on extracted birth certificate data items
 - The weight can be interpreted as the number of women like herself in the population that each respondent represents
- More information on PRAMS methodology available at <http://cdc.gov/prams/methodology.htm>

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PRAMS Prescription Drug Research



Why examine this issue?

- Some medications have documented teratogenic or otherwise harmful effects when used during pregnancy
- There are relatively few population-based studies on perinatal prescription drug use
 - ✦ Most available research findings come from non-population-based data sources
 - Limited generalizability
- The population of Hawai'i is unique in many ways
 - Hawai'i PRAMS provides detailed data on minority groups not commonly represented in the literature
 - Generalizability of data from other areas to Hawai'i is unclear with regards to many different topics within the field of maternal and child health (MCH)

Hospital seeing more babies born exposed to prescription drugs - CNN.com

By Julie O'Neill, CNN

updated 4:19 PM EDT, Mon April 30, 2012

CNN.com

Knoxville, Tennessee (CNN) -- Heart-wrenching cries echo through the halls of the neonatal intensive care unit at East Tennessee Children's Hospital. Nearly half of the newborn babies in the hospital's NICU are suffering from prescription drug withdrawal.

For over a year, the Knoxville hospital has been dealing with a dramatic increase in the number of newborns with neonatal abstinence syndrome, or NAS, which is the withdrawal process a newborn baby goes through after in utero exposure to certain medications.

"When I first got into neonatology the most common problem -- and still the most common problem -- that we take care of is premature babies or babies with respiratory distress," said neonatology director Dr. John Buchheit, a 17-year veteran at Children's. "But I had no idea that we would be seeing this issue, to this degree."

Narcotics used during pregnancy pass through the placenta to the baby. Once the baby is born, he or she no longer has access to the drugs and will likely go through withdrawal. According to Buchheit, opioids -- like oxycodone -- are the worst offenders for the babies suffering from NAS at his hospital.

Between 55% and 94% of babies exposed to opioids prior to birth exhibit signs of withdrawal, according to the American Academy of Pediatrics.



Volunteer 'cuddlers' comfort babies



Prescription drugs 'epidemic' in U.S.



Drug czar on prescription drug abuse strategy



Veterans and prescription pain meds

The babies are easily agitated and cry constantly, and many cannot be near sound and light. Other symptoms can include a distinct, high-pitched cry, tightening of the muscles and seizures.

While prescription drug abuse is a problem in nearly every neighborhood in

Methods



- Hawai'i PRAMS data from 3180 respondents were used to estimate prevalence of prescription drug use during pregnancy
 - Data were weighted to be representative of all pregnancies resulting in live births in Hawai'i in 2009 and 2010
- Vitamins and supplements were excluded from the analysis

Hawai'i PRAMS Prescription Drug Use During Pregnancy Question



77. Did you use any of these drugs when you were pregnant? For each item, circle **Y** (Yes) if you used it or circle **N** (No) if you did not.

- | | No | Yes |
|---|----|-----|
| a. Prescription drugs | N | Y |
| If yes, what kinds? —————→ Please tell us: | | |
| <div></div> | | |
| b. Marijuana (pot, bud) or hashish (hash) | N | Y |
| c. Amphetamines (uppers, ice, speed, crystal meth, crank). | N | Y |
| d. Cocaine (rock, coke, crack) or heroin (smack, horse). | N | Y |
| e. Tranquilizers (downers, ludes) or hallucinogens (LSD/acid, PCP/angel dust, ecstasy). | N | Y |
| f. Sniffing gasoline, glue, hairspray, or other aerosols | N | Y |

Methods



- Write-in answers coded into categories using SAS 9.2
 - Manual review of data
 - ✦ Misspellings, multiple drugs listed, etc.
 - Consulted with clinicians, other sources to determine which drug referenced
 - ✦ If unable to classify, coded as “Unknown”
 - Medications with possible indications in multiple groups
 - ✦ Cross-checked with maternal and/or birth certificate report of diagnoses
 - Entries > 30 characters listed in separate comment file
 - ✦ Coded into groups by individual ID number
- SAS options “upcase” and “string” used to group
 - ✦ Asthma & allergy
 - ✦ Anti-infectives
 - ✦ Gastrointestinal
 - ✦ Cardiovascular
 - ✦ Thyroid
 - ✦ Diabetes
 - ✦ Pregnancy support & labor-related
 - ✦ Pain relievers
 - ✦ Psychiatric
 - ✦ Vitamins/minerals/ supplements (excluded)
 - ✦ Other
 - ✦ Unknown

Methods



- Analysis conducted using SAS-callable SUDAAN 10.0
- Logistic regression was used to estimate adjusted associations of demographic, clinical and behavioral factors with prescription drug use during pregnancy.
 - The final model included:
 - ✦ Pre-pregnancy chronic disease diagnosis
 - ✦ Pregnancy-related medical problem
 - ✦ Type of insurance used for delivery
 - ✦ Education
 - ✦ Nativity
 - ✦ Alcohol use during pregnancy
 - ✦ Age
 - ✦ Race/ethnicity
 - ✦ Household income

Results



Of recently-pregnant women in Hawai'i:

- 18.3% reported using non-vitamin prescription drugs during their most recent pregnancy
 - 95%CI: 16.6-20.1
- The most commonly-reported medication types taken during pregnancy were:
 - Anti-infectives 4.2% [95%CI: 3.4-5.1]
 - Asthma/allergy 3.4% [95%CI: 2.7-4.3]
 - Gastrointestinal 3.3% [95%CI: 2.5-4.2]
 - Pain relievers 3.2% [95%CI: 2.5-4.2]



Results



- Prevalence of prescription drug use during pregnancy was highest among Hawai'i women who:
 - Had a pre-pregnancy chronic disease diagnosis
 - ✦ 36.8% [95%CI: 32.2-41.6]
 - Paid for their delivery with TRICARE insurance
 - ✦ 36.2% [95%CI: 30.2-42.6]
 - Were Caucasian
 - ✦ 28.6% [95%CI: 24.5-33.1]



Results

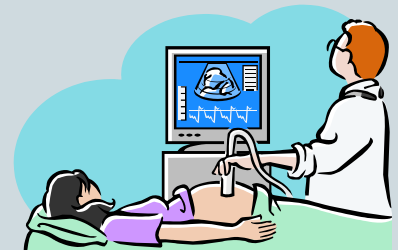


- Factors most strongly associated with prescription drug use during pregnancy in the multivariable model were:
 - Pre-pregnancy chronic disease diagnosis
 - ✦ aOR 3.7 [95%CI: 2.8-5.0]
 - Paying for delivery with TRICARE (vs. private insurance)
 - ✦ aOR 2.6 [95%CI: 1.8-3.9]
 - Pregnancy-related medical problem
 - ✦ aOR 2.6 [95%CI: 2.0-3.4]

Results



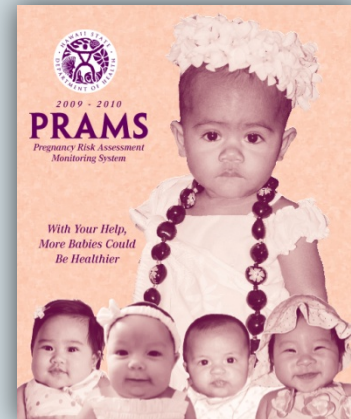
- Of women reporting prescription use during pregnancy, **10.0%** reported that their healthcare provider had not counseled them during prenatal care on which medicines are safe to use during pregnancy [95%CI: 7.3-13.5]
- Women who did not report prescription drug use
 - 14.2% [95%CI: 12.6-16.0]
- Overall
 - 13.4% [95%CI: 12.0-15.0]



PRAMS Data Limitations



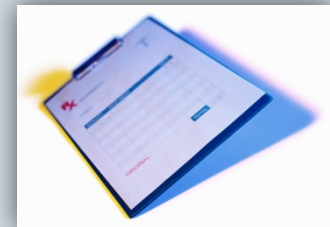
- Findings are not applicable to all pregnancies in Hawai‘i - only to women who had live births
 - Not applicable to women who had abortions, stillbirths, or fetal deaths
- Self-reported data
 - Recall bias
 - Reporting bias
 - ✦ Social/cultural issues around medication use
 - Mode bias (mail versus telephone survey)
 - Question comprehension
- Selection bias
 - Nonresponse bias
 - ✦ PRAMS nonresponse weights assume that the women in a particular subgroup who responded have the same response as those who did not respond



PRAMS Prescription Data Limitations



- Issues with comprehension of this specific question
 - Some medications listed were most likely not prescribed
 - ✦ OTC medications
- Specific medication sometimes unknown
 - Some answers did not specifically refer to drug name
 - ✦ Ex: “antibiotics” “thyroid medication”
- Some women don’t know what they took at all
- Some women don’t want to disclose what they took
- Sometimes unsure what drug they were referring to
 - Ex: “pills” “1”
- Don’t have information on:
 - Dosages or frequency
 - Trimester of usage
 - ✦ Some drugs are dangerous at certain times only
 - Ex: Main pain relievers in the 3rd trimester
 - If it was prescribed to the individual taking it



Implications



- Medication use among pregnant women is increasingly common
 - Increased need for careful monitoring by health care providers of usage in pregnant and reproductive-aged women
- Potential risks and benefits to mother and fetus should be explored during prenatal care so that women are informed and empowered to make the best decisions for themselves and their babies.

Next Steps



- Outcomes associated with specific drugs and/or drug classes
 - Being wary of confounding by indication
- Outcomes associated with specific chronic conditions
 - Treated vs. untreated
- Comparison with other data sources
 - Estimates generated from population-based data vs. other datasets



Acknowledgements



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Mahalo nui loa to Hawai'i PRAMS Data Manager Jane Awakuni and to all of the women who have completed the Hawai'i PRAMS Survey!

Mahalo for your attention!



Questions?



Emily K. Roberson, MPH
Hawai'i PRAMS Program

Phone: (808)733-4060
emily.roberson@doh.hawaii.gov