House Human Services Committee
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Improving Care for the Opioid-exposed Newborn: The Vermont Experience

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Slide 1

1 Anne Johnston, 3/2/2013

OPIOID DEPENDENCY AND PREGNANCY

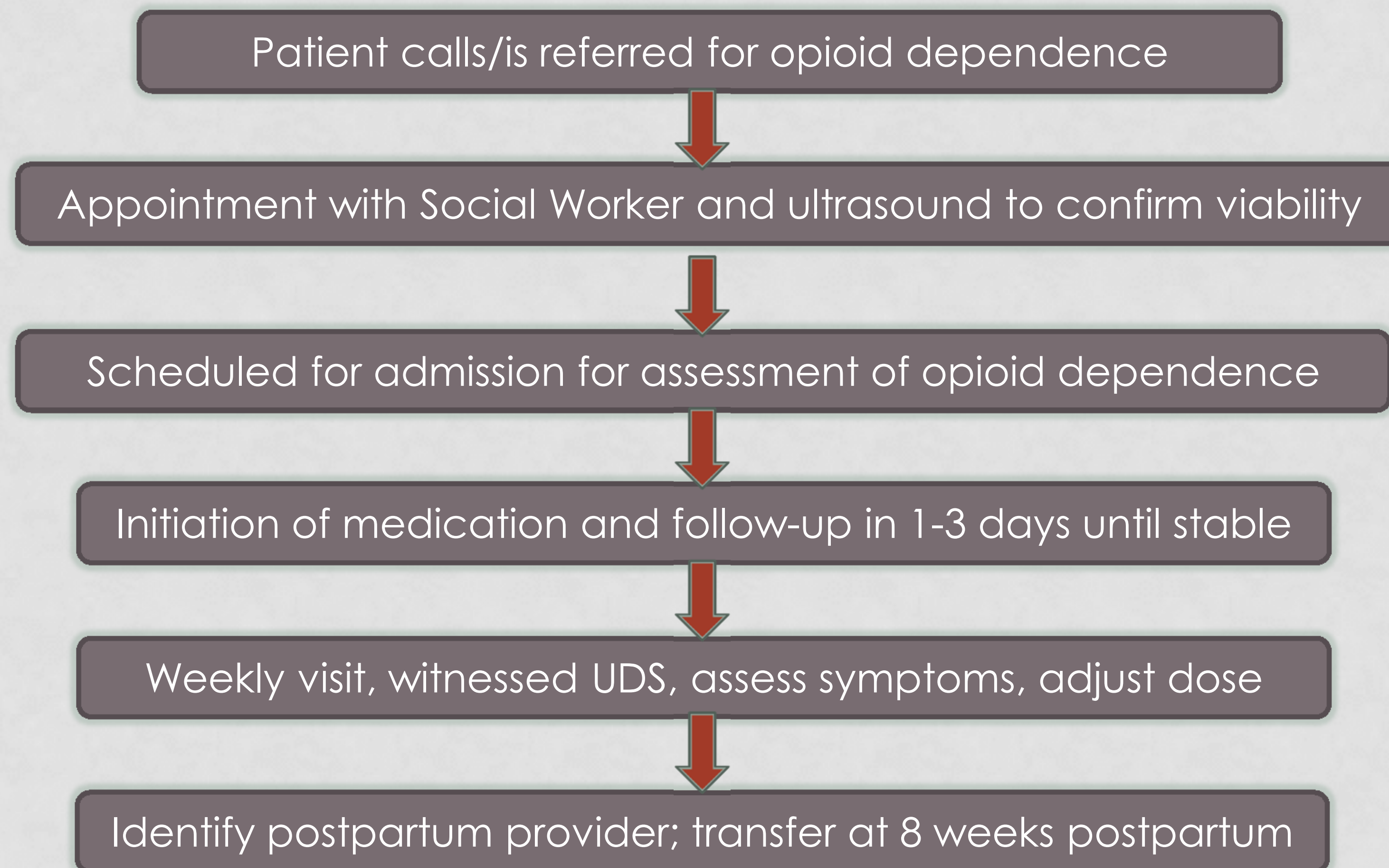
- Medication-assisted treatment with methadone or buprenorphine is the STANDARD OF CARE for pregnant opioid addicts, both for the health of the mother and the health of the fetus.

- One cannot talk about the health of the fetus or newborn without addressing the health care needs of the mother.

HISTORY OF PROGRAM FOR PREGNANT AND PARENTING OPIOID-DEPENDENT WOMEN AT FAHC

- 2000: 1st woman managed with methadone; infant sent home on methadone
- 2002: Addictionologist, Obstetrician and Neonatologist began meeting with increased numbers of patients
- 2003: Monthly multidisciplinary meetings with agencies including Lund Family Center, Home Health Nursing, DCF and multiple other agencies
- 2004: Started work with VCHIP
- 2008 to present: over 120 infants born to mothers on opioids are followed – Dr. Marjorie Meyer (Obstetrics) and Dr. Anne Johnston (Neonatology) work collaboratively on projects to improve care for these mothers and children

Pregnant Opioid-dependent Woman, Newly Diagnosed



Antenatal Visit With Neonatology

- Schedule 1 – 2 visits with Neonatal Clinic staff
- Written information (Care Notebook) http://www.uvm.edu/medicine/vchip/?Page=ICONcarenotebook.html
- **Promote breastfeeding**

NeoMed Experience

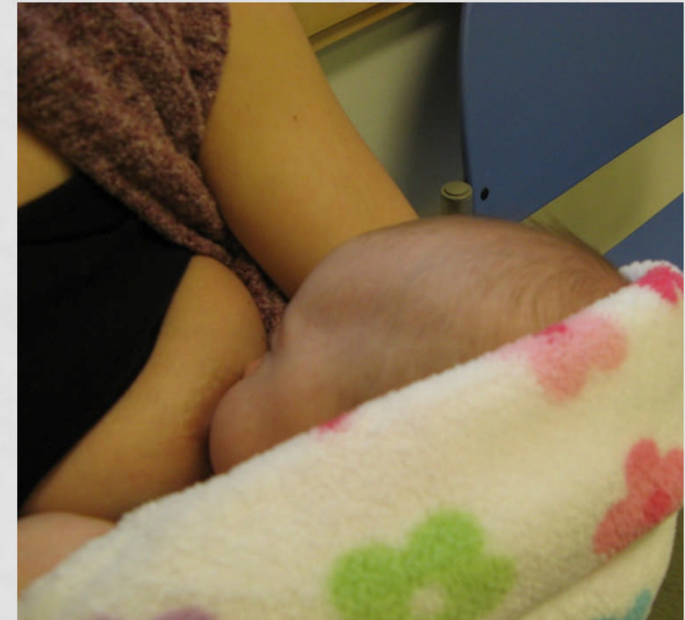
- Alleviation of fear
  - Care Notebook
  - You are not alone…
  - Ask them for their stories
- Respect
  - Introductions to others on the team
  - “Tell me about yourself”
  - “What are your dreams / goals”
- Recognition of strengths
  - Hearts / Story Bead Program

Neonatal Abstinence Syndrome

- A generalized disorder presenting as CNS irritability, GI dysfunction, autonomic symptoms, usually due to withdrawal from opioids
- Reported in the literature: 50-75% of infants born to mothers on opioids will need treatment
- Infants born to mothers on methadone or buprenorphine will often have a delay in the onset of symptoms, buprenorphine exposed infants will have later onset
- Need for pharmacologic treatment has generally ***not*** been shown to correlate with methadone or buprenorphine dose

MANAGEMENT OF NEONATAL ABSTINENCE SYNDROME

- Supportive treatment
- Importance of shared information for the treatment team
- Urine and meconium toxicology screens **only** if maternal toxicology screens unavailable
- Encourage breastfeeding
- Treat with medication if infant meets criteria through scoring



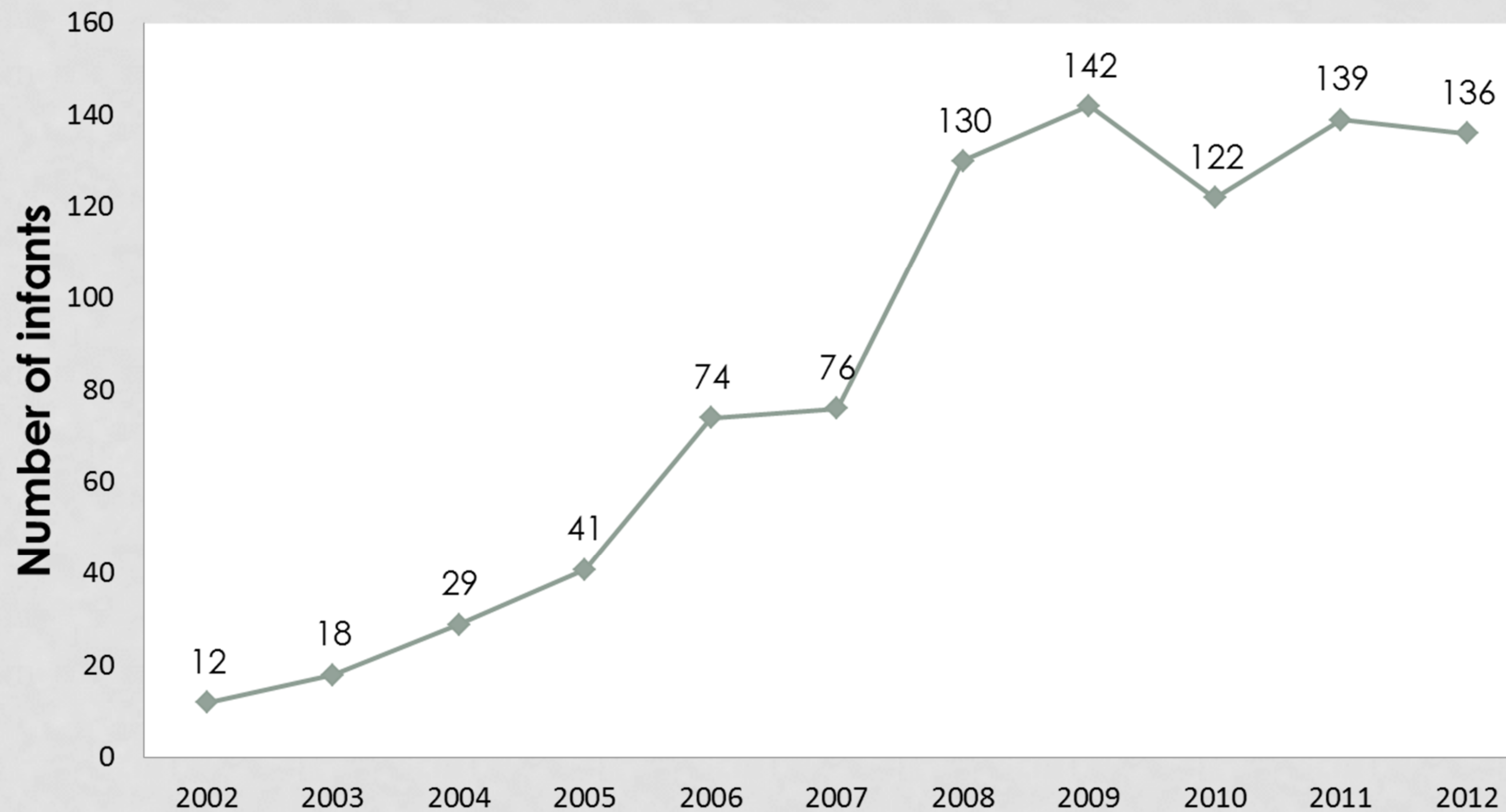
NAS: PHARMACOLOGIC TREATMENT

- Phenobarbital
  - most useful for polydrug use; limited use for opioid withdrawal; in conjunction with opioids, may shorten duration of treatment
- Dilute tincture of opium, morphine
  - short half life, approved by AAP, standard of care
- Clonidine
  - In conjunction with opioids may shorten duration of treatment
- Paregoric
  - not recommended for neonates: high EtoH, camphor is a CNS stimulant, benzoic acid may compete for bilirubin binding
- Methadone
  - long half life, well tolerated, may be a prolonged wean period, approved by AAP
- Buprenorphine
  - Experimental

Neonatal Medical Follow up Clinic (NeoMed)

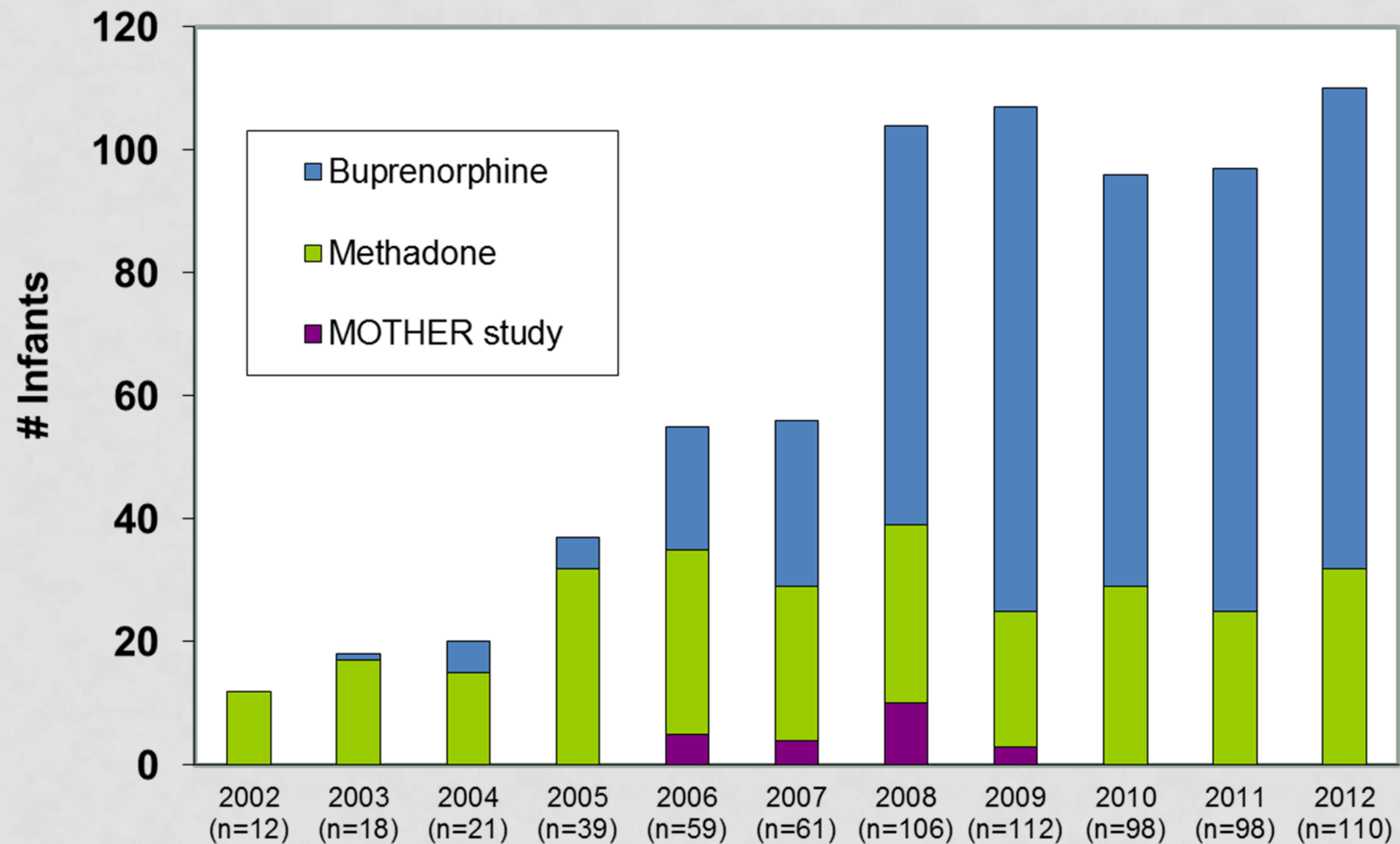
- First NeoMed clinic visit within 1 week of discharge
- Infants requiring medication for NAS are seen at least every 2 weeks
- Infants not requiring treatment follow up monthly for the first 4 months, then every 2-4 months until 12-18 months
- Bayley III Scales at 8-10 months
- Hepatitis C antibody at 18 months for exposed infants
- Multidisciplinary approach involving primary care provider, home health, early intervention, ChARM team, and maternal substance abuse provider

Number of opioid-exposed newborns followed at FAHC (Total 919)



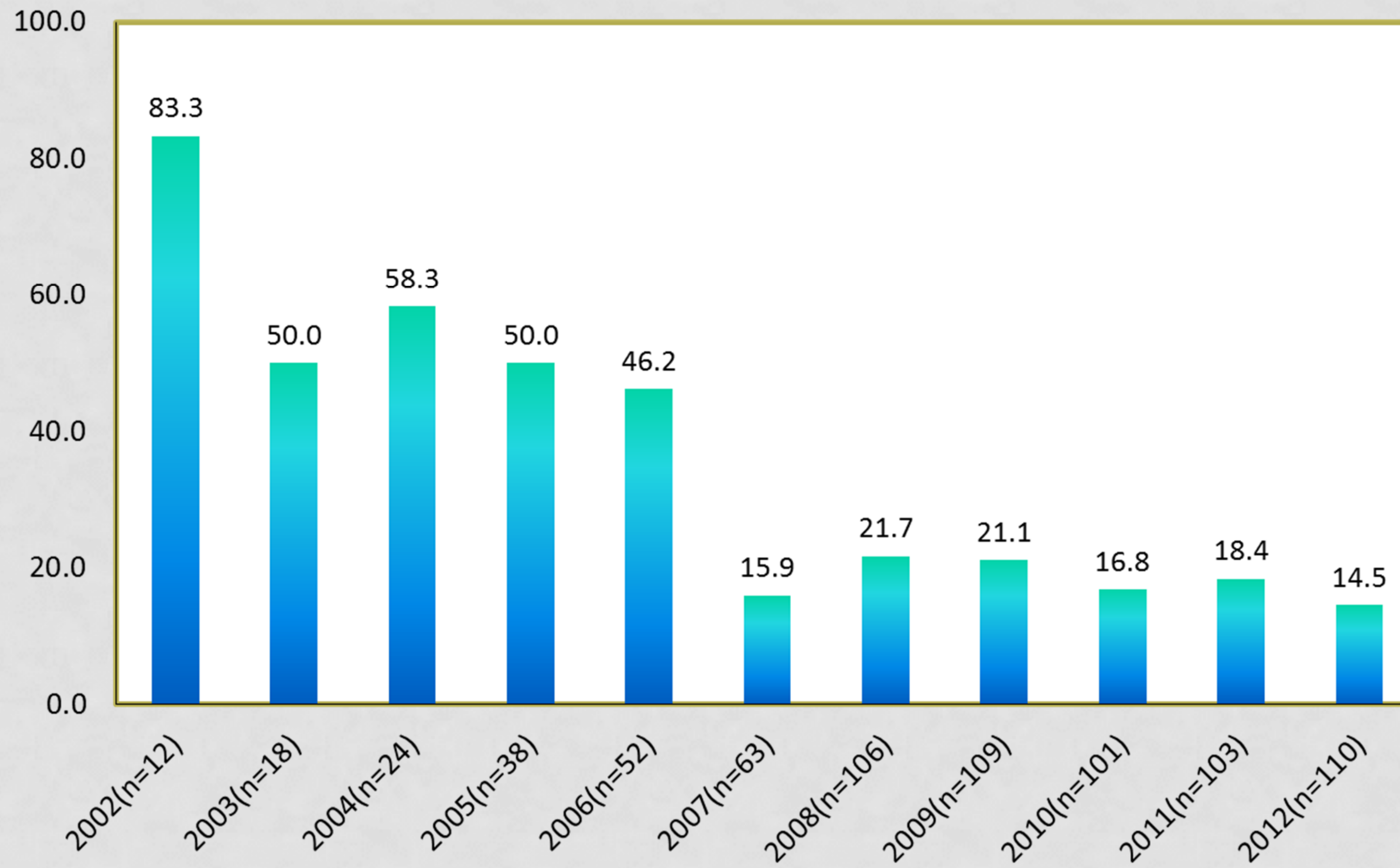
Vermont Children's Hospital:

Infants born to opioid dependent women with substance abuse on **methadone** or **buprenorphine** at delivery (N = 746)



Vermont Children's Hospital

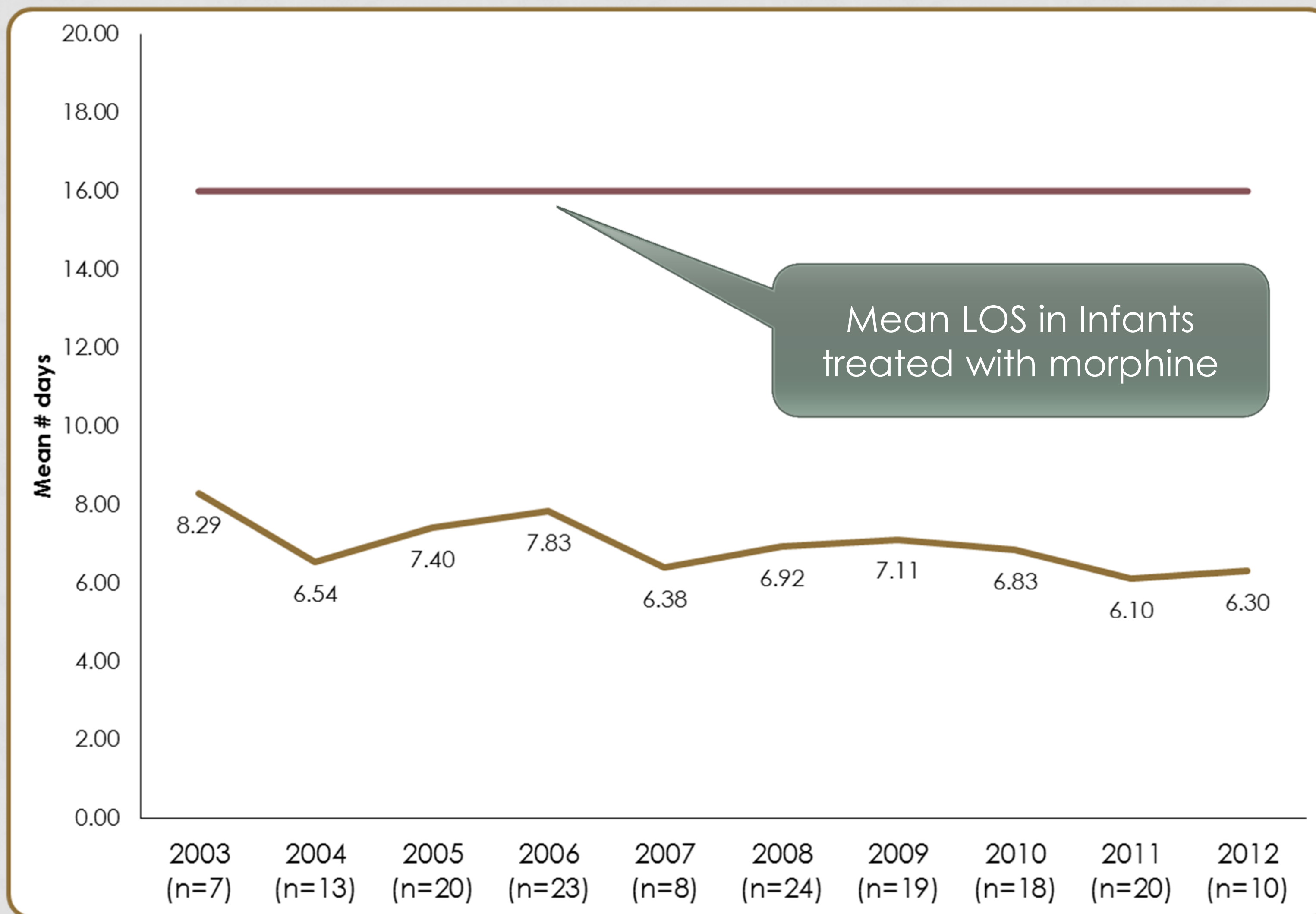
% Infants who received outpatient pharmacologic therapy



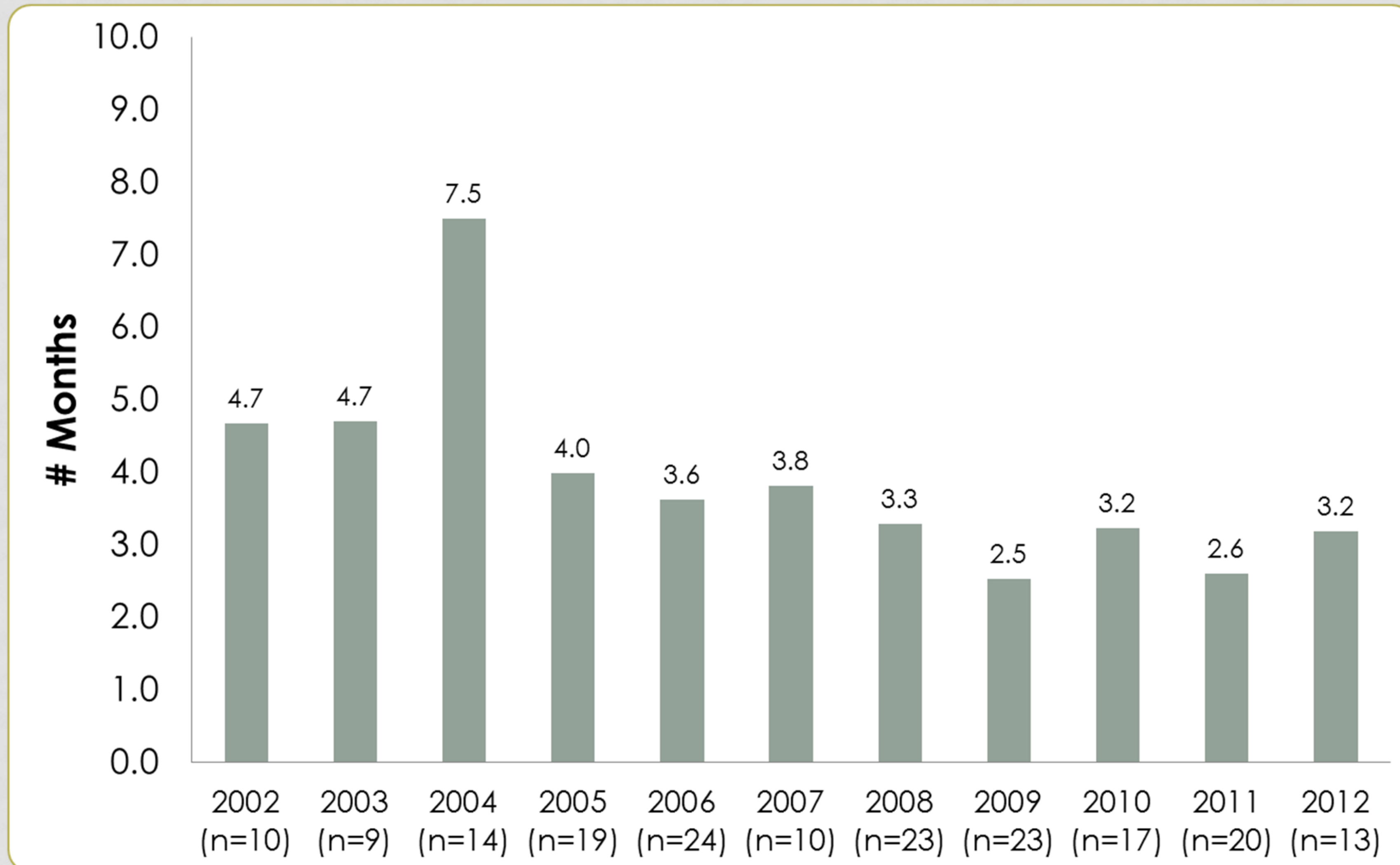
Why did pharmacologic treatment for NAS decrease?

- Better use of non-pharmacologic treatment
- Less subjectivity in NAS scoring
  - Through participating in MOTHER study
  - Decreased assumption of need for treatment
- Over time, the proportion of buprenorphine-treated pregnant women increased

Vermont Children's Hospital:
Mean Length of Stay in Term Infants Discharged on Methadone

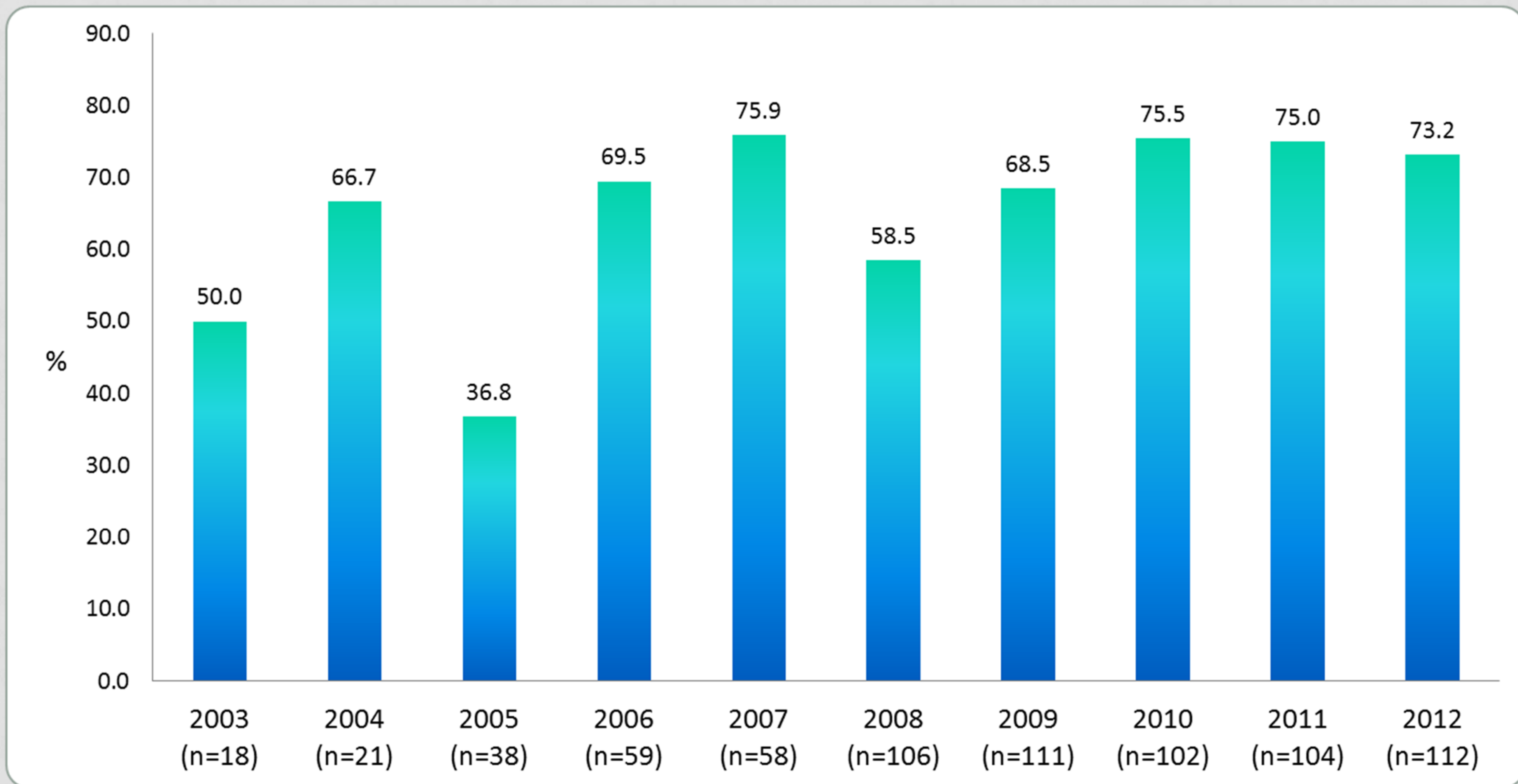


Vermont Children's Hospital
Length of Outpatient Methadone Treatment (months)



Vermont Children's Hospital

% Infants initiated on breast milk (N=741)



WHAT ARE THE OUTCOMES?

- Less premature births
- Less small birth weight infants
- Pregnant women are in treatment earlier with better prenatal care
- Less than 20% of exposed infants need methadone at home
- Length of hospital stay is lower than any other program reported for the treated infants
- The infants we have followed have no increased developmental delay at ~12 months of age

Vermont Children's Hospital

Outcomes for term methadone treated infants (n=78)

Outcome	Result Mean (SD)
Length of methadone treatment (days)	95.76 (0.94)
Birth weight (grams)	3195.96 (443.25)
Birth weight z-score	-0.58 (0.94)
Weight z-score at end of treatment	-0.61 (1.06)
Cognitive Rank (%tile) @ 8 – 14 months	70.11 (19.96)
Language Rank (%tile) @ 8 – 14 months	76.35 (14.23)
Motor Rank (%tile) @ 8 – 14 months	69.03 (24.04)

ICON: Improving Care for the Opioid-exposed Newborn

- ✓ Focus groups
- ✓ Educational programs
- ✓ Care Notebook
- ✓ Site visit to Center for Addiction in Pregnancy (Baltimore)
- ✓ Provide mechanism for parents to participate in NAS scoring while in hospital
- ✓ Medical student: Schweitzer Fellowship
  - Entire medical school class: Book Drive for Methadone Clinic clients and children
  - Incentives / Rewards / Celebrations
- ✓ Publication distributed throughout the state: "Screening for Substance Abuse During Pregnancy"

Parent Advisor

ICON: Improving Care for the Opioid-exposed Newborn

- ✓ Publication distributed throughout state: "Vermont Guidelines for the Treatment of Opioid Dependence During Pregnancy"
  http://www.uvm.edu/medicine/vchip/?Page=perinataltools.html
- ✓ Outreach education to the community-NAS management, treatment, scoring
- ✓ Tracking system for hepatitis C screening exposed infants
- ✓ Training completed in 3 hospitals for treatment of infants with morphine sulfate
- Projects…
  - ✓ Video for approach to NAS Scoring
  - Improve compliance with NeoMed visits
  - Reduction of exposure to tobacco smoke
  - Increase % of mothers who breast feed
  - Implement education regarding safe sleep

POTENTIALLY BETTER PRACTICES

#	Potentially Better Practice	
1	Develop a system for opioid-dependent pregnant women to meet with a pediatric care provider during pregnancy.	✓
2	Develop a system for opioid dependent pregnant to be offered a tour of the birthing center, postpartum unit and neonatal intensive care unit.	
3	Provide opioid-dependent pregnant women with education and support to promote breastfeeding.	✓
4	Provide opioid-dependent pregnant women with a peer mentor.	
5	Provide access to smoking cessation programs to opioid-dependent pregnant women.	
6	Complete hepatitis C antibody screening for infants born to hepatitis C antibody positive women.	✓
7	Develop a system for multi-disciplinary case management of opioid exposed infants.	✓

WHAT ARE THE BARRIERS TO IMPROVING OUTCOMES FOR WOMEN AND CHILDREN

- Stigma, fear of judgment
- Transition to post-partum providers
- Need to treat partners / family
- Inadequate housing
- Inadequate transportation
- Inadequate childcare availability
- Poor job availability (difficulty in obtaining job due to criminal background)

Conclusions

- Dr. Meyer and I have been asked to speak about our program nationally and internationally
- Significant decline in % infants needing treatment for NAS: from >80% to <20% (literature ~50%)
- Support breastfeeding
- Outpatient treatment of NAS with methadone:
  - ✓ Feasible: with adequate follow-up and coordination with other services
  - ✓ Safe: no infant deaths due to overdose
  - ✓ Effective: successful weaning with no increase in adverse early developmental outcomes
- **The baby's health depends upon the mother's health**