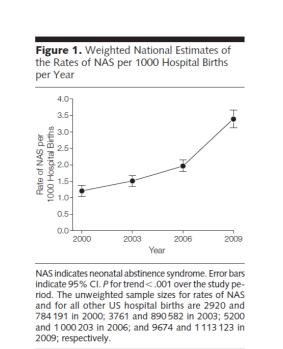
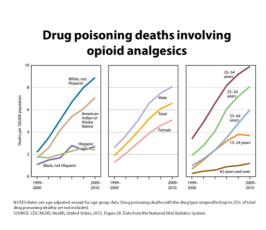
#### Improving the Care of Infants Impacted by Neonatal Abstinence Syndrome In Massachusetts

Munish Gupta (BIDMC) and Alan Picarillo (UMass), for the Neonatal Quality Improvement Collaborative of Massachusetts (NeoQIC)

#### Problem

- Newborns exposed to opiates in-utero can experience post-natal withdrawal; this is known as neonatal abstinence syndrome (NAS).
- Substantial evidence indicates dramatically increased rates of opiate use and NAS, nationally and in Massachusetts (see figures).
- Despite its prevalence, considerable variation exists in management of infants with NAS, and there is a lack of consensus on best practices in this area.
- Caring for families and infants impacted by NAS
   can often cause frustration and anger in clinicians.
- In 2013, we launched a statewide initiative on NAS that sought to (1) improve the care of infants and families impacted by NAS and (2) develop tools and systems to support collaborative QI among neonatal providers throughout the state.





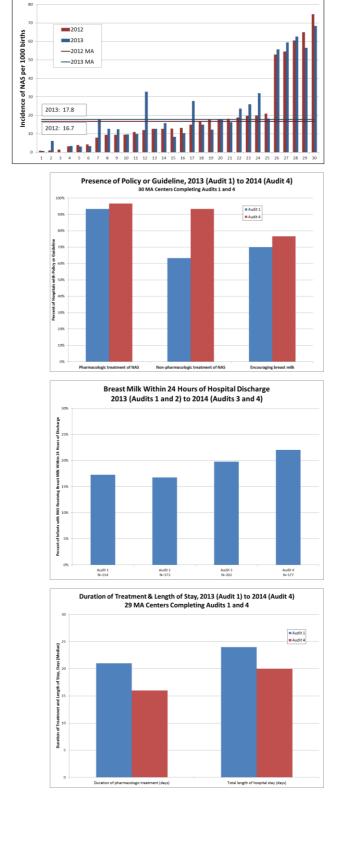
#### THE BOSTON GLOBE THURSDAY, JUNE 19, 2014 THIGH rate of addicted babies in state Data indicate far broader problem than Mass. officials' tally shows By They Jan WASHINGTON - Nor research the disclosure of the problem than the state of the population for the problem than the state of the population for the problem than the state of the

#### Interventions

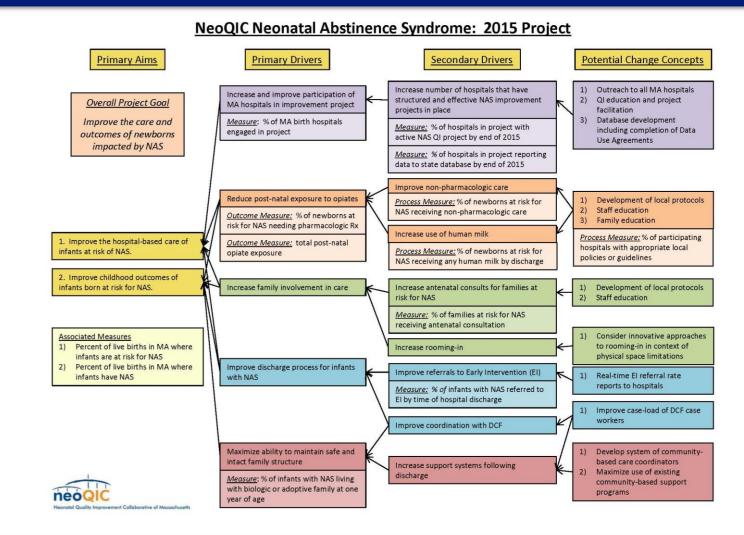
- KNOWLEDGE: bimonthly webinars, twice-annual statewide meetings to review current best knowledge in NAS treatment
- AWARENESS: extensive collaboration with Department of Public Health, including Bureau of Substance Abuse Services (BSAS), Early Intervention (EI), and Department of Children and Families (DCF)
- COLLABORATION: statewide meetings, practice survey, website to openly share practices, policies, and resources
- IMPROVEMENT: twice-annual data audits, local multidisciplinary improvement teams, local improvement projects; statewide key driver diagram to support efforts (see figure)

#### Results

- We found a much higher incidence of NAS in MA than anticipated: 17-18 per 1000 live births in 2012-2013, based on ICD data (see figure).
- We saw notable standardization of practices, such as elimination of use of diluted tincture of opium for treatment of NAS.
- We saw substantial increases in hospitals with policies on aspects of NAS care (see figure).
- We saw substantial increase in use of breast milk in infants with NAS (see figure).
- We saw significant reductions in length of stay
   (24 to 20 days) and pharmacologic treatment (21
   to 16 days) for infants with NAS (see figure).



#### **Key Driver Diagram**



#### **Lessons Learned**

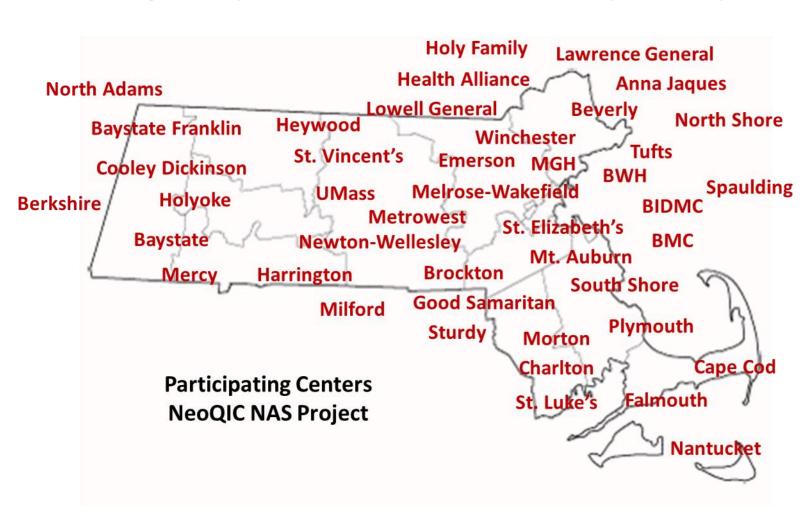
- Many opportunities exist to improve the trust and partnership between families impacted by NAS and providers. Although not measured, the most impressive result of the project to date may be changes in attitude of newborn providers towards these families.
- Collaboration between medical providers and public health agencies is critical to addressing the needs of these families. A statewide neonatal quality collaborative can and should incorporate all types of birthing hospitals. Level I, level II, and level III neonatal centers have much to learn from each other.

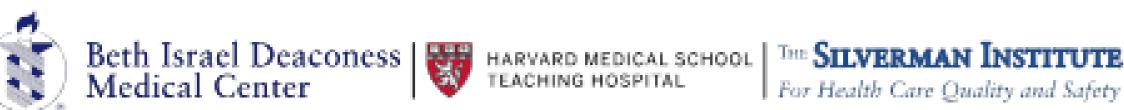
#### **Next Steps**

- Development of statewide guidance, in partnership with DCF, on controversial areas of NAS management
- Development of statewide database on NAS to better understand epidemiology, practice variations, and outcomes
- Partnering with BSAS treatment programs to improve collaboration between maternal and neonatal providers
- Focusing on post-discharge care of infants with NAS

#### The Team

• 42 out of 50 birthing hospitals in the state are participating.

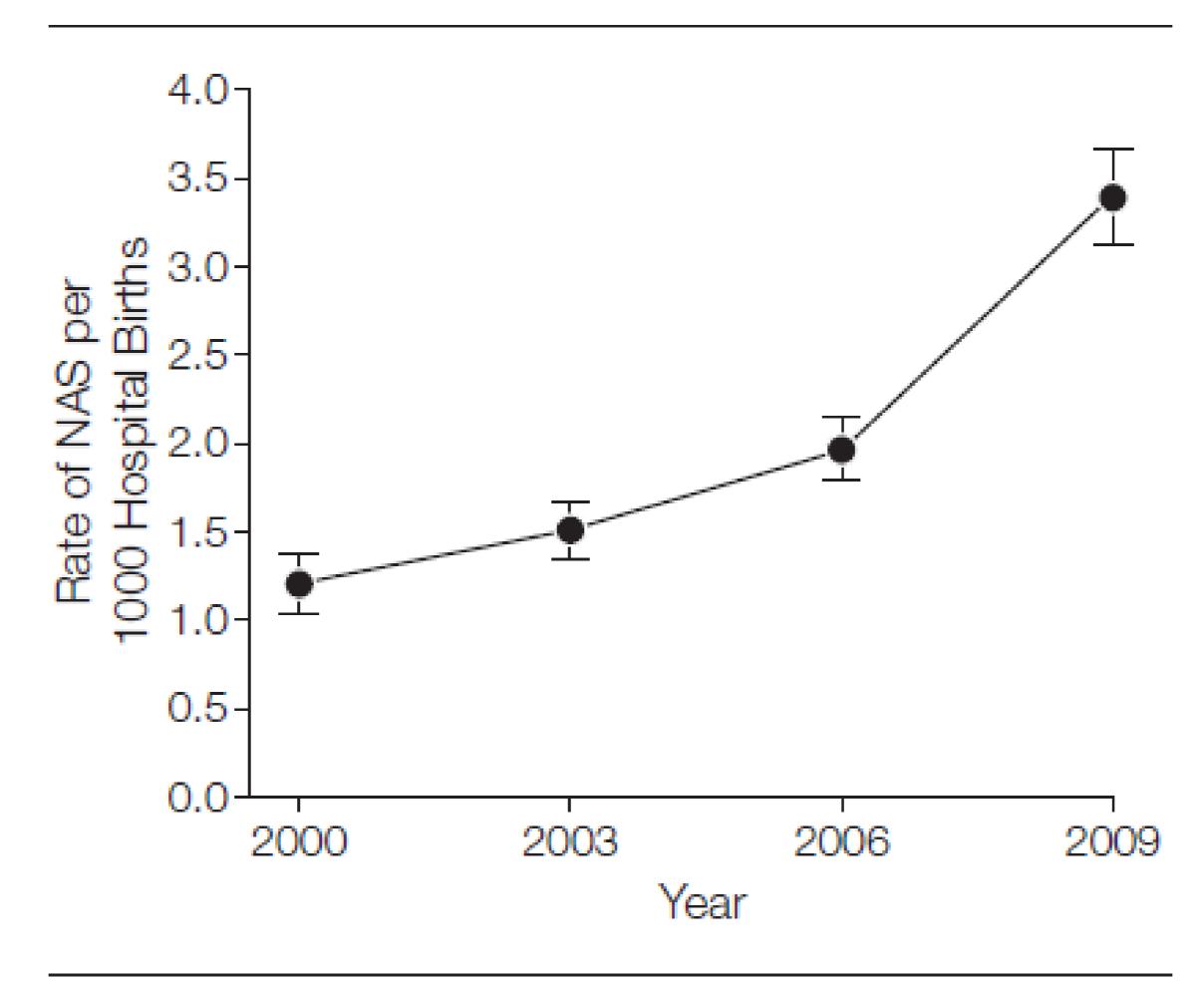






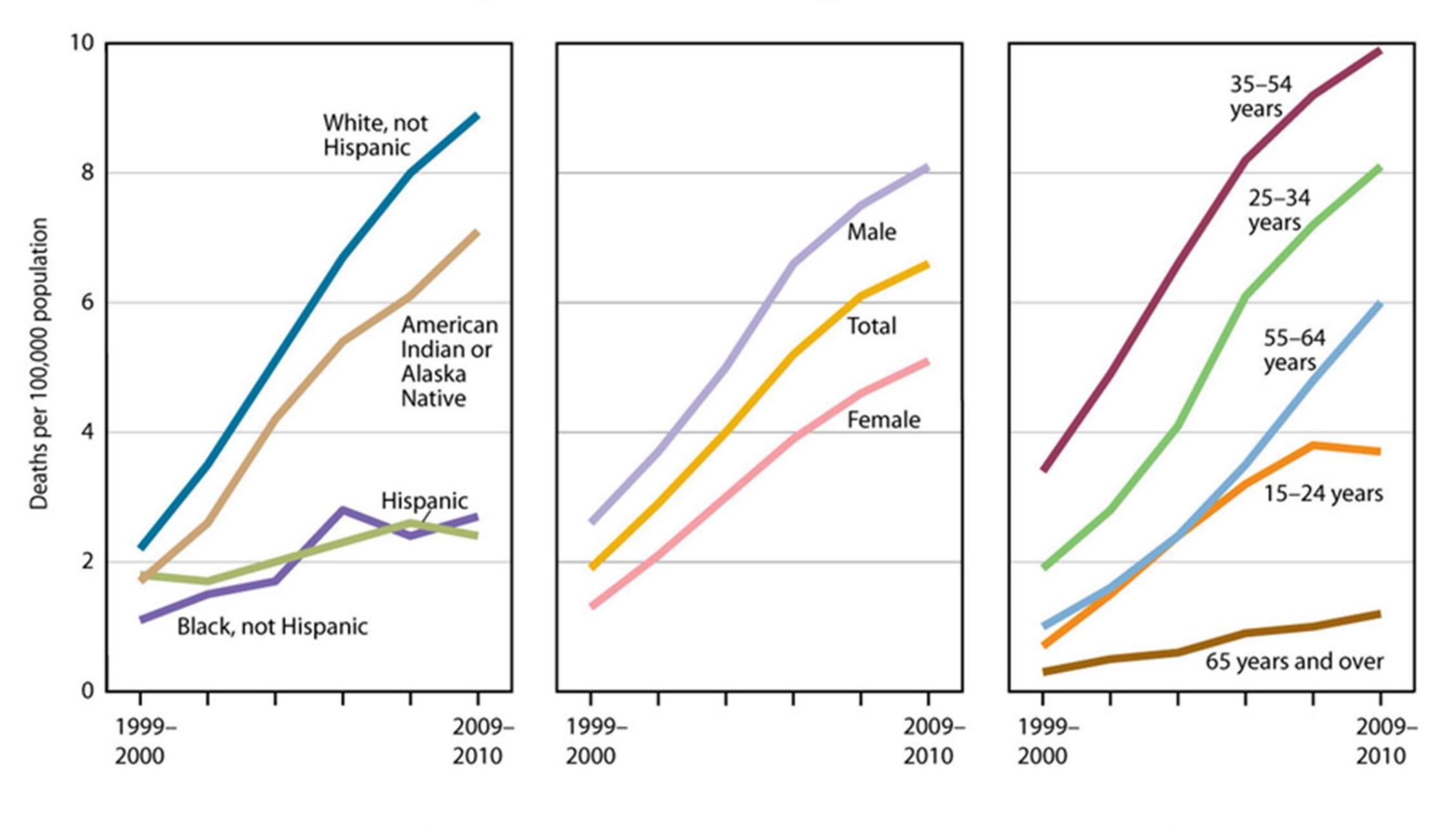


**Figure 1.** Weighted National Estimates of the Rates of NAS per 1000 Hospital Births per Year



NAS indicates neonatal abstinence syndrome. Error bars indicate 95% CI. *P* for trend < .001 over the study period. The unweighted sample sizes for rates of NAS and for all other US hospital births are 2920 and 784 191 in 2000; 3761 and 890 582 in 2003; 5200 and 1000 203 in 2006; and 9674 and 1113 123 in 2009; respectively.

## Drug poisoning deaths involving opioid analgesics



NOTES: Rates are age-adjusted, except for age group data. Drug poisoning deaths with the drug type unspecified (up to 25% of total drug poisoning deaths) are not included.

SOURCE: CDC/NCHS, Health, United States, 2013, Figure 28. Data from the National Vital Statistics System.



# The Boston Blobe

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### High rate of addicted babies in state

Data indicate far broader problem than Mass. officials' tally shows

By Tracy Jan GLOBE STAFF

WASHINGTON — New research shows that the number of babies born in Massachusetts with opiates in their system is more than triple the national rate — and far higher than the number tallied by state officials.

Hospital diagnoses data reported to the federal government and obtained by the Globe also show that the toll of opiate addiction is affecting babies not only in Massachusetts, but in New England as a whole, at far greater rates than the rest of the nation.

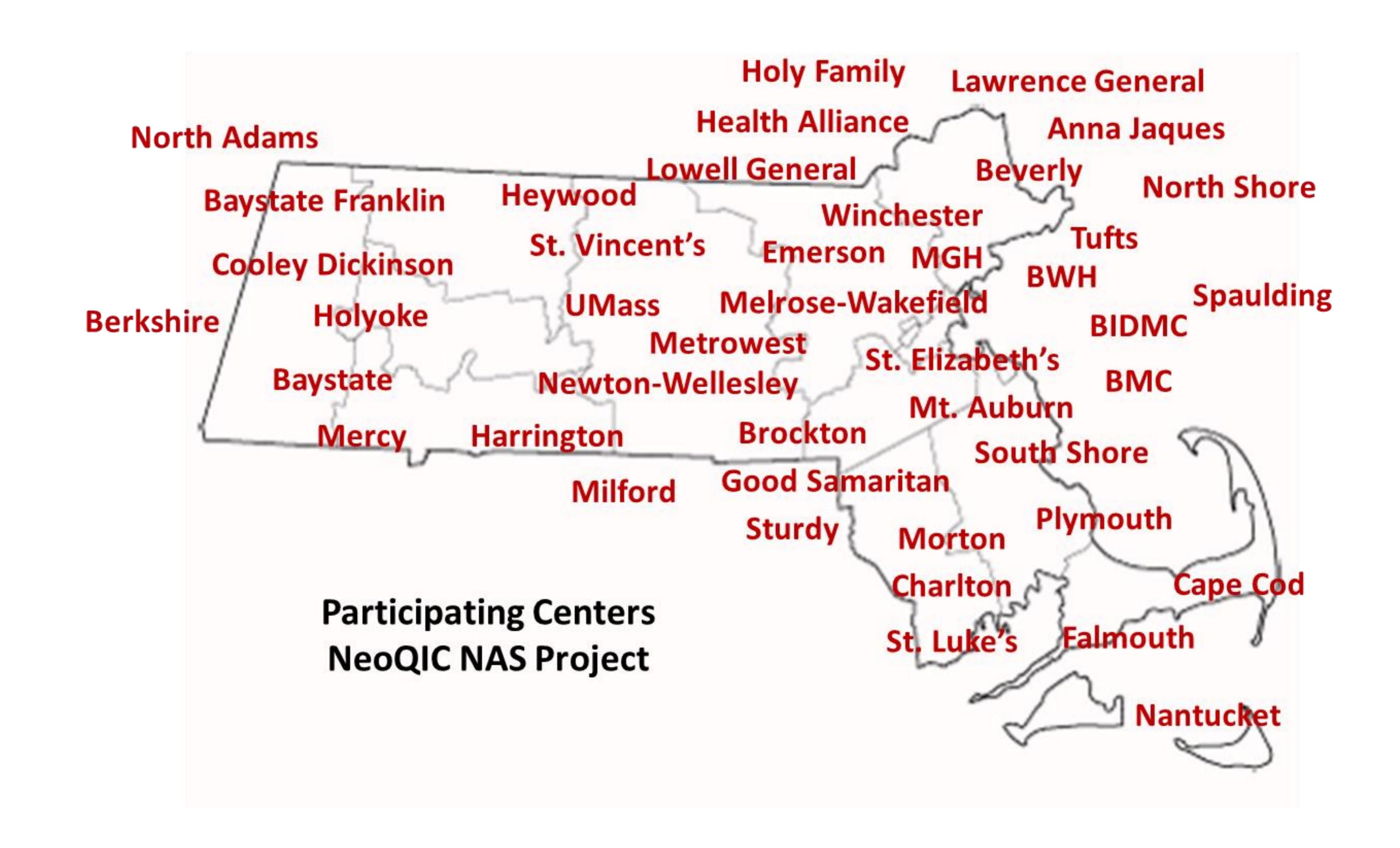
"If you don't know the scope of the

problem, how can you begin to address it?" said Dr. Elisha Wachman, a neonatologist at Boston Medical Center who specializes in treating these babies and is involved in an effort by 42 Massachusetts hospitals to determine the prevalence of drug-exposed babies and improve their care.

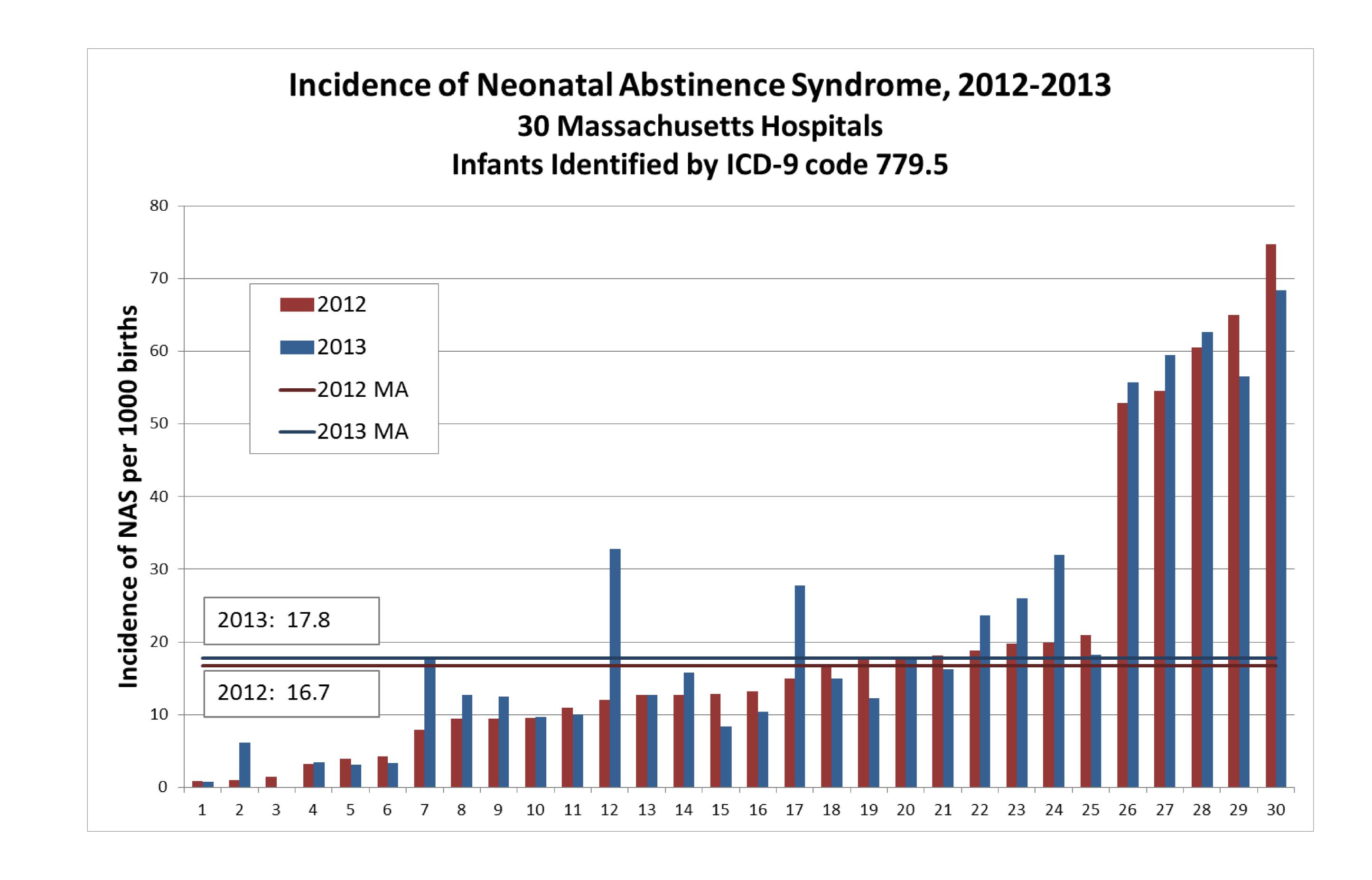
Based on the hospitalization figures, Wachman and other researchers estimated that more than 1,300 Massachusetts babies — or about 17.5 per 1,000 hospital births— were born with narcotics in their system in 2013. Nationally, the figure is five babies out of every 1,000 births, based on hospitalization figures from 2012, the most recent avail-

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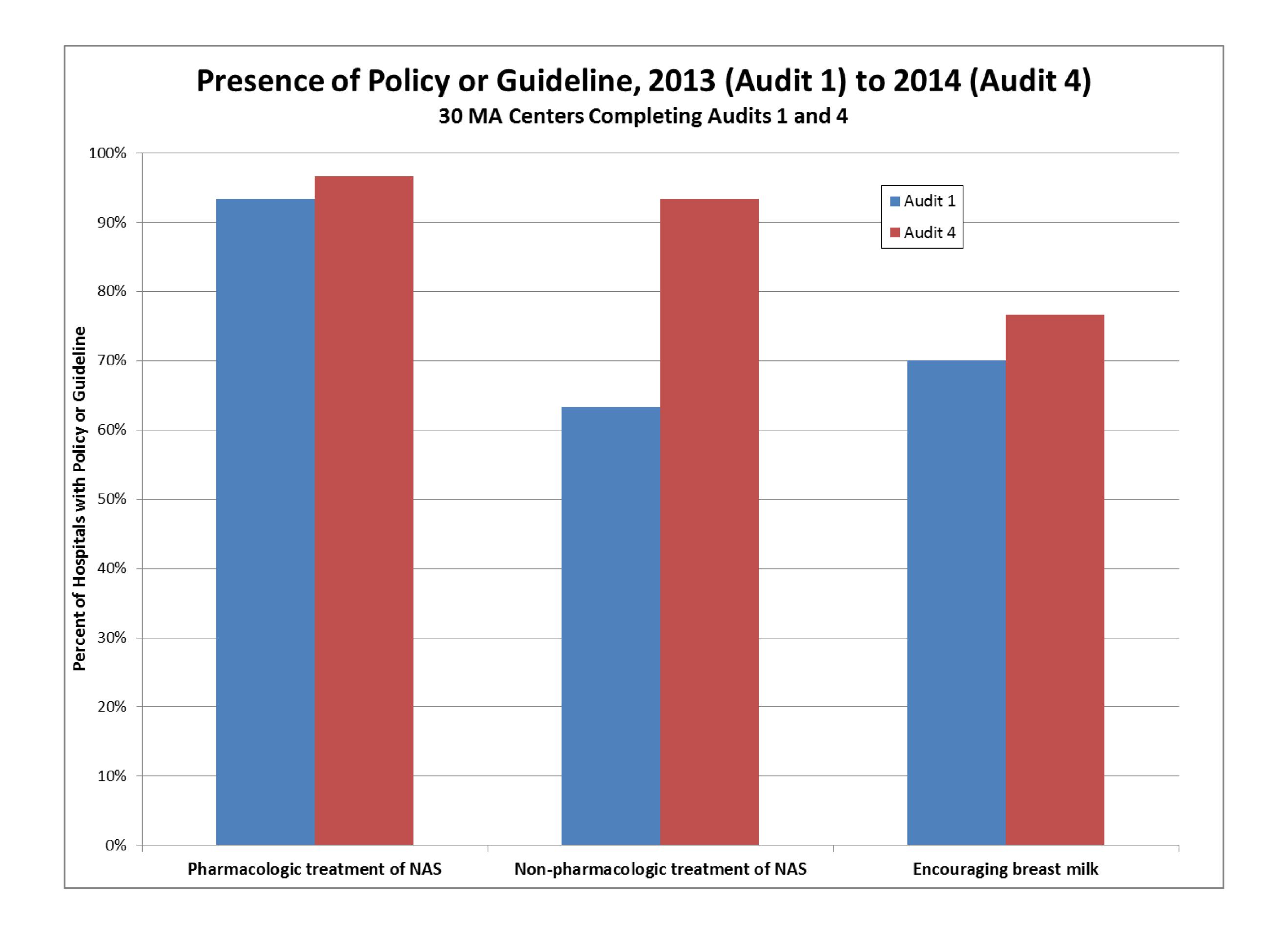




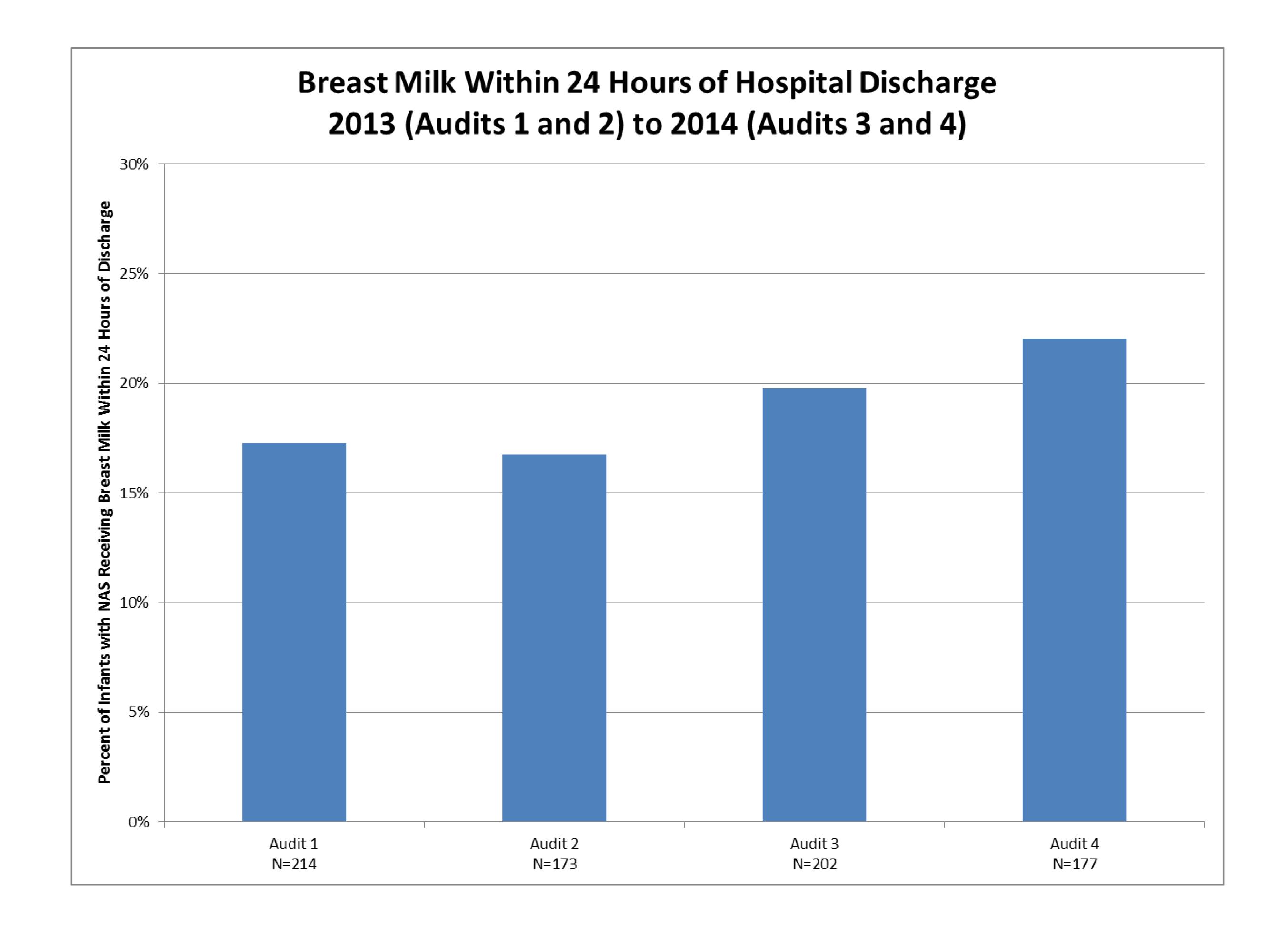




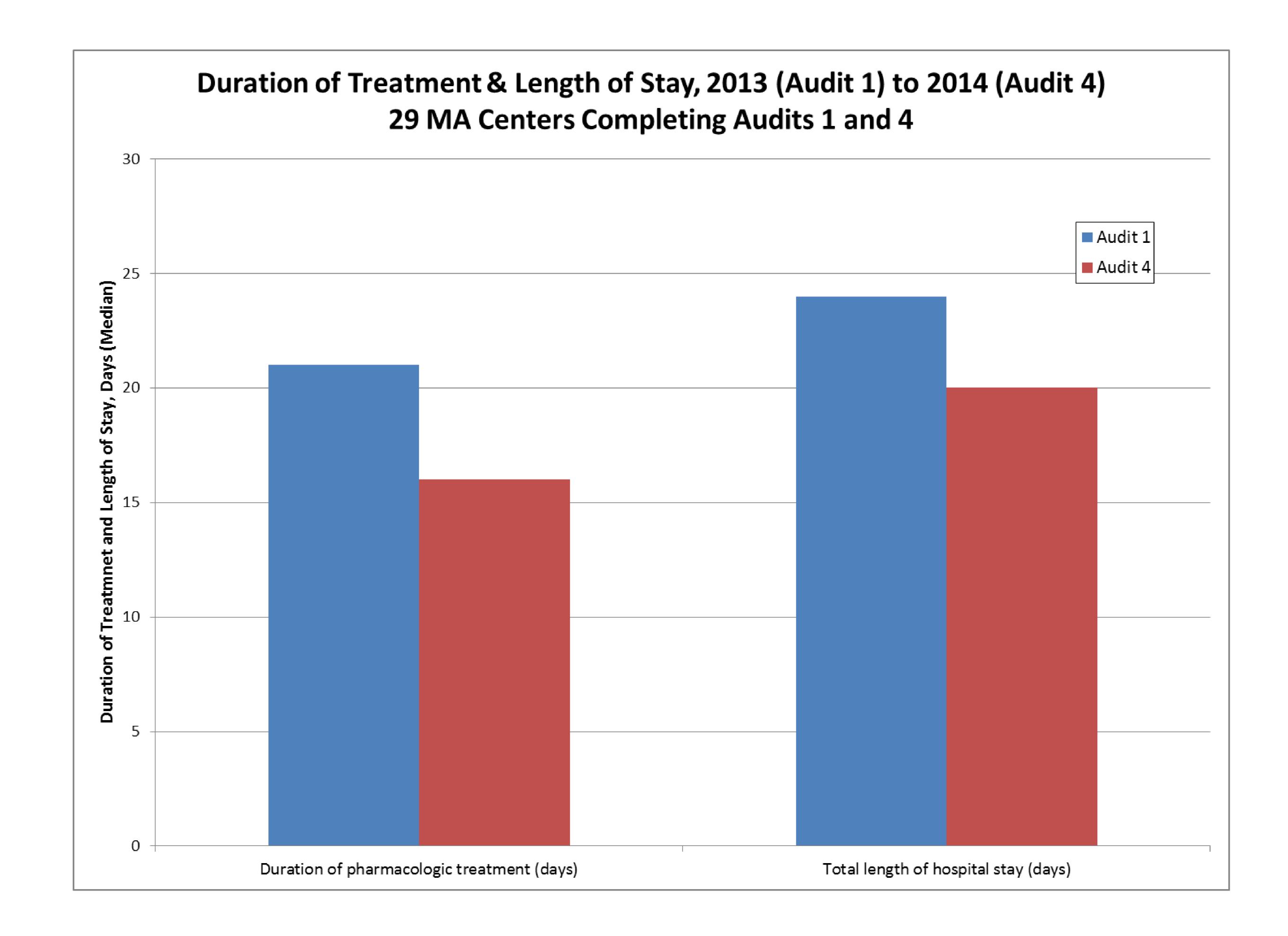














#### NeoQIC Neonatal Abstinence Syndrome: 2015 Project

Potential Change Concepts Primary Drivers Secondary Drivers Primary Aims Outreach to all MA hospitals Increase number of hospitals that have Increase and improve participation of structured and effective NAS improvement QI education and project Overall Project Goal MA hospitals in improvement project facilitation projects in place Database development Improve the care and Measure: % of MA birth hospitals Measure: % of hospitals in project with including completion of Data engaged in project outcomes of newborns active NAS QI project by end of 2015 Use Agreements impacted by NAS Measure: % of hospitals in project reporting data to state database by end of 2015 Improve non-pharmacologic care Reduce post-natal exposure to opiates Development of local protocols Process Measure: % of newborns at risk for Staff education NAS receiving non-pharmacologic care Outcome Measure: % of newborns at Family education risk for NAS needing pharmacologic Rx Increase use of human milk Process Measure: % of participating 1. Improve the hospital-based care of Outcome Measure: total post-natal hospitals with appropriate local Process Measure: % of newborns at risk for infants at risk of NAS. opiate exposure policies or guidelines NAS receiving any human milk by discharge 2. Improve childhood outcomes of Increase antenatal consults for families at infants born at risk for NAS. Increase family involvement in care Development of local protocols Staff education risk for NAS Measure: % of families at risk for NAS receiving antenatal consultation Consider innovative approaches Associated Measures to rooming-in in context of Percent of live births in MA where Increase rooming-in physical space limitations infants are at risk for NAS Percent of live births in MA where Improve discharge process for infants Improve referrals to Early Intervention (EI) Real-time El referral rate infants have NAS with NAS reports to hospitals Measure: % of infants with NAS referred to El by time of hospital discharge Improve case-load of DCF case workers Improve coordination with DCF Maximize ability to maintain safe and Develop system of communityintact family structure based care coordinators Increase support systems following Maximize use of existing discharge Measure: % of infants with NAS living community-based support with biologic or adoptive family at one programs year of age



Neonatal Quality Improvement Collaborative of Massachusetts