

CARING FOR SUBSTANCE EXPOSED INFANTS (SEI) AND THEIR MOTHERS

The *New Jersey Birthday Hospital Survey* was developed to assess protocols and practices used in the care of substance exposed infants (SEI) and their mothers.

This inter-agency collaborative involved the New Jersey Department of Health, New Jersey birthing hospitals, the New Jersey Departments of Human Services and Children and Families, and NY/NJ High Intensity Drug Trafficking Areas.

December 2017

KEY FINDINGS

The **New Jersey Birthing Hospital Survey** was distributed to 50 birthing hospitals and 200 outpatient pediatric providers in the state. As of October 2017, preliminary results reveal:

- *Obstetric Leadership Component – Maternal Unit (15 out of 50 birthing hospitals responded)*
 - About 47% of the 15 responding hospitals implement universal screening.
 - 47% of the 15 responding hospitals provided a direct person-to-person link with a service provider.
- *Pediatric Leadership Component – Newborn Unit (18 out of 50 birthing hospitals responded)*
 - Only 1 out of the 18 hospitals universally tested infants for substance exposure at delivery.
 - Approximately 72% of the 18 responding hospitals had developed a plan of safe care for infants with NAS in all cases.
 - 39% of the 18 responding hospitals provided a direct person-to-person link with a service provider.
- *Outpatient Pediatric Provider Component – Providers with admitting privileges (42 out of 200 providers responded)*
 - Over a third of providers did not know which standardized tools they use to assess infants with Neonatal Abstinence Syndrome (NAS) in the hospital (34%). About 9% do not use a standardized tool.
 - Overall, about 55% of providers feel they do not have adequate resources to manage SEI's in office.
 - The resources providers feel the following as significantly lacking within their practice to serve as a referral source to manage SEIs: Parenting support (48%), child psychology (48%), social workers (45%), developmental specialists (36%) and home visitation services (36%).
 - Outpatient pediatric primary care providers who are not at all or somewhat confident in their practice's ability in managing SEIs see less cases of SEIs per year compared to providers who are moderately, very, or extremely confident.

Full presentation follows

New Jersey Birthing Hospital Survey: Substance Exposed Infants (SEIs) and their Mothers

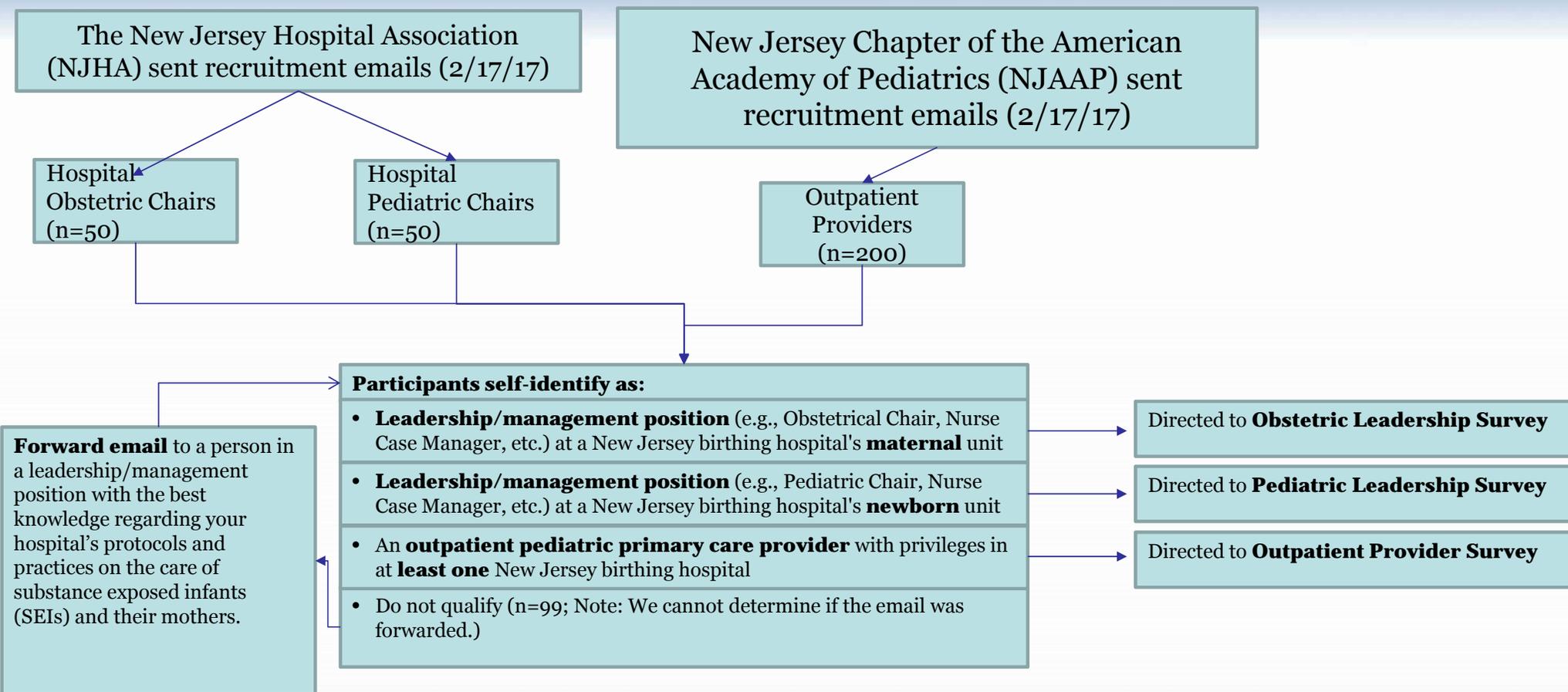
**Preliminary Findings
October 3, 2017**

Background

- Substance use and misuse during pregnancy is a significant problem in the United States. In recent years, there has been a corresponding increase in opioid-dependent newborns being treated for neonatal abstinence syndrome (NAS).
- Between 2000 and 2009, maternal opiate use increased from 1.19 to 5.63 per 1,000 hospital births per year and the incidence of NAS increased from 1.20 to 3.39 per 1,000 live births in the United States¹.
- Among NJ hospital births between 2010 and 2015, the NAS rate increased from approximately 4.9 to 7.1 per 1,000 live births.
- NAS can cause central nervous system irritability, autonomic over-reactivity, and gastrointestinal tract dysfunction in newborns². The highly variable manifestations of NAS present a challenge for providers, making it critical for them to use standardized tools to successfully identify SEIs and, more specifically, infants with NAS.
- Despite the recommendations put forth by the American Academy of Pediatrics (AAP) to manage SEIs, it is unclear whether these guidelines are being used widely or consistently.
- The purpose of this survey was to gain a better understanding about protocols and practices used by New Jersey birthing hospitals and providers in the care of SEIs and their mothers.
 - The findings of this study will be used by state and local agencies for educational interventions.

- Survey was conducted in collaboration with key national and state partners, such as New Jersey birthing hospitals, the New Jersey Departments of Human Services, Children and Families, the New Jersey Department of Health (DOH), and NY/NJ High Intensity Trafficking Areas (HIDTA) in developing the survey instrument.
- The survey was administered online using a DOH survey tool, Hippocrates.
- Recruitment strategy:
 - The New Jersey Hospital Association (NJHA) sent recruitment emails on behalf of the DOH to the Obstetric and Pediatric Chairs of the 50 birthing hospitals in NJ
 - The New Jersey Chapter of the American Academy of Pediatrics (NJAAP) sent recruitment emails on behalf of the DOH to 200 Outpatient Providers in NJ
 - Recruitment emails contained a link to complete online survey questionnaire
- Data collection period:
 - 7 weeks (2/17/17 – 3/31/2017)
 - Reminder emails sent weekly thereafter

Survey Respondent Recruitment



Obstetric Leadership Component Findings



Definitions of Levels of Maternal Care

- Level I, Basic Care: Uncomplicated pregnancies with the ability to detect, stabilize, and initiate management of unanticipated problems that occur during the antepartum, intrapartum, or postpartum period until patient can be transferred.
- Level II, Specialty Care: Level I facility plus care of appropriate high-risk conditions, both directly admitted and transferred from another facility.
- Level III, Subspecialty Care: Level II facility plus care of more complex maternal medical conditions, obstetric complication, and fetal conditions.
- Level IV, Regional Perinatal Center: Level III facility plus on-site medical and surgical care of the most complex maternal conditions and critically ill women and fetuses.

Reference: Level of Care Definitions obtained from The American Congress of Obstetricians and Gynecologists (<https://www.acog.org/About-ACOG/ACOG-Departments/LOMC>)

Obstetric Leadership Component (n=15)

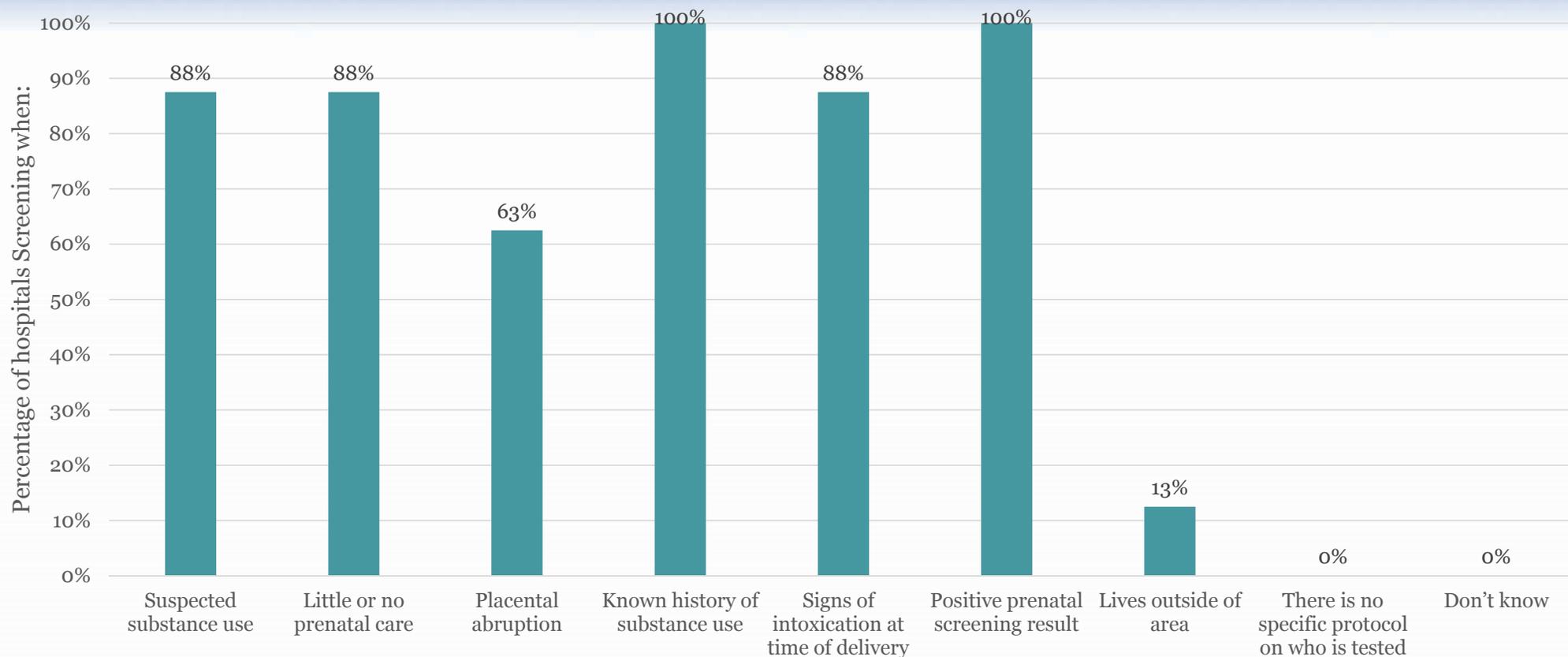
- Eligible participants were providers in a leadership/management position (e.g., Obstetrical Chair, Nurse Case Manager, etc.) at a NJ birthing hospital's maternal unit
- 15 out of 50 birthing hospitals completed the Obstetric Leadership Survey (30% response rate)
- 47% of the hospitals have a level II specialty care as the highest level of maternal care, 40% have a level III subspecialty care and 13% have a level IV regional perinatal center.
- 53% of providers are very or extremely confident in their hospital's effectiveness at discharge planning for mothers who have a substance use disorder. 27% are moderately confident and 20% are somewhat confident.

Screening of Pregnant Women for Substance Misuse or Abuse

- Of the 7 hospitals with universal screening of pregnant women for substance misuse or abuse:
 - 86% (6 of 7) conduct their screening during the first visit
 - 57% (4 of 7) screen during labor
 - 57% (4 of 7) screen during the first trimester.
- Of the 6 hospitals with no universal screening or the 2 hospitals that do not know if pregnant women are universally screened:
 - 71% (5 of 7) of respondents indicated that their practice is inconsistent with regard to when pregnant women are screened for substance misuse or abuse*.
 - 63% (5 of 8) reported that less than a quarter of women who receive prenatal care are screened for substance misuse and abuse by OB/GYN's prior to entering labor and delivery.
- In general, 53% (8 of the 15 responding hospitals) do not know which tools are used for screening.



Screening criteria for the hospitals with no universal screening (6) or among those that do not know if pregnant women are universally screened (2)



Screening of Pregnant Women for Substance Misuse or Abuse

- When asked if the hospital obtains a separate consent to test pregnant women for substance misuse or abuse,
 - 31% of the 15 responding hospitals reported that consent for testing is separate from consent for medical treatment and therefore, a separate consent is obtained.
 - 69% of the 15 responding hospitals reported that consent for medical treatment includes consent for testing and therefore, a separate consent is not obtained.
- The most frequently used method to test pregnant women for substance misuse or abuse was urine toxicology (60% of the 15 responding hospitals do not obtain separate consent while 33% obtain separate consent).
- Blood tests were less frequently used (7% obtain separate consent, 7% do not obtain separate consent)
- None of the hospitals used a breathalyzer to test pregnant women for substance misuse or abuse

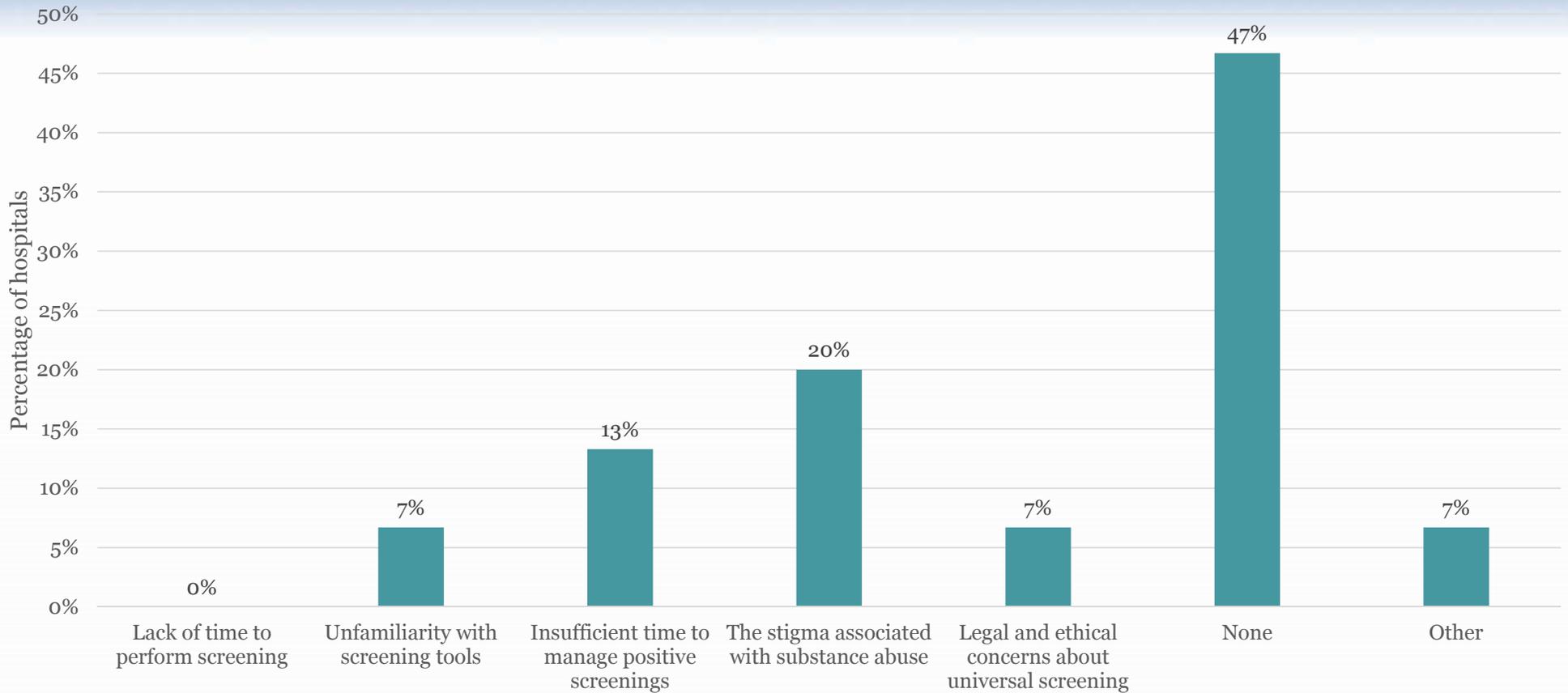


Service linkages provided to address mother's needs for developing a plan of safe care when she is identified as having a substance use disorder

- 53% of the 15 responding hospitals only provided referral to services but did not provide follow-up.
- 47% of the 15 responding hospitals provided a direct person-to-person link with a service provider.
- If the mother/caregiver has not engaged in services, 20% attempted to re-engage or refer to a different program and 20% reassessed need for child welfare involvement and/or report child neglect or abuse.



Barriers to screen pregnant women for substance misuse or abuse at the hospital (Check all that apply)



Pediatric Leadership Component Findings

Definitions of Neonatal Levels of Care

Level I, Well newborn nursery

- Evaluate and provide postnatal care to stable term newborn infants
- Stabilize and provide care for infants born 35–37 week gestation who remain physiologically stable
- Stabilize newborn infants who are ill and those born at <35 week gestation until transfer to a higher level of care

Level II, Special care nursery

Level I capabilities plus:

- Provide care for infants born ≥ 32 weeks GA and weighing ≥ 1500 g who have physiologic immaturity or who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis
- Provide care for infants convalescing after intensive care
- Provide mechanical ventilation for brief duration (<24 h) or continuous positive airway pressure or both
- Stabilize infants born before 32 week gestation and weighing <1500g until transfer to a neonatal intensive care facility



Definitions of Neonatal Levels of Care (Cont.)

Level III, Subspecialty Care

Level II capabilities plus:

- Provide comprehensive care for infants born <32 weeks GA and weighing <1500g and born at all GA and birth weights with critical illness
- Provide prompt and readily available access to a full range of pediatric medical subspecialists, and pediatric ophthalmologists
- Provide a full range of respiratory support that may include conventional and/or high frequency ventilation and inhaled nitric oxide
- Perform advanced imaging, with interpretation on an urgent basis, including computed tomography, MRI, and echocardiography

Level IV, Regional NICU

Level III capabilities plus:

- Located within an institution with the capability to provide surgical repair of complex congenital or acquired conditions
- Maintain a full range of pediatric medical subspecialists, pediatric surgical subspecialists, and pediatric anesthesiologists at the site
- Facilitate transport and provide outreach education

Pediatric Leadership Component

- Eligible participants were providers in a leadership/management position (e.g., Pediatric Chair, Nurse Case Manager, etc.) at a New Jersey birthing hospital's newborn unit.
- 36% (18 out of 50 birthing hospitals) completed the Pediatric Leadership Survey.
- 56% of the 18 hospitals have a level III subspecialty care as the highest level of newborn nursery care, 39% level II special care nursery and 6% level I well newborn nursery.
- 94% of providers were very or extremely confident in their hospital's effectiveness at identifying and managing SEIs while 6% were moderately confident.

Identification of Substance Exposed Infants (SEI)

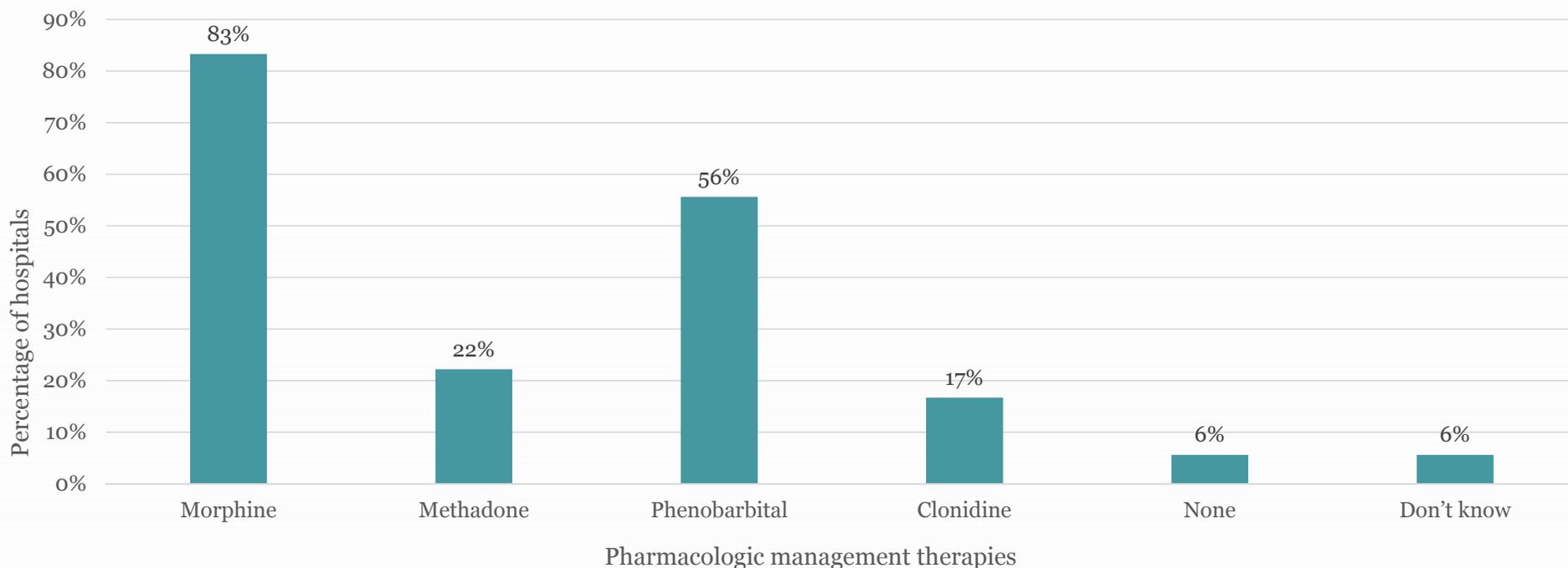
- Only 1 out of the 18 hospitals universally tested infants for substance exposure at delivery.
- Criteria for testing infants for substance exposure at delivery in the remaining 17 hospitals were when:
 - ✓ Mother **screened** for positive use (94%)
 - ✓ Mother suspected to have used during this pregnancy (89%)
 - ✓ Mother **tested** positive for use (83%)
 - ✓ Infant displayed symptoms of withdrawal or other medical signs (78%)
 - ✓ Mother suspected/known to have used during prior pregnancies (72%)
- Urine toxicology (89%) and meconium tests (72%) were the most common methods used to test infants for substance exposure.
- The least common methods were blood tests (17%) and cord tests (6%).

Management of SEIs and infants with Neonatal Abstinence Syndrome (NAS)

- Half of the hospitals use the Finnegan tool to assess infants with NAS, 33% use the Modified Finnegan, and 11% use the Lipsitz Neonatal Drug-Withdrawal Scoring System.
- Approximately 72% of the 18 responding hospitals had developed a plan of safe care for infants with NAS in all cases
 - ✓ 11% had no existing policy or protocol for developing a plan.
 - ✓ 17% were not sure about their hospital's policy or protocol for plan of safe care for infants.
- A majority of hospitals notify authorities in all cases (72%) and 11% notify authorities only when safety is a concern.

Management of SEIs and infants with NAS

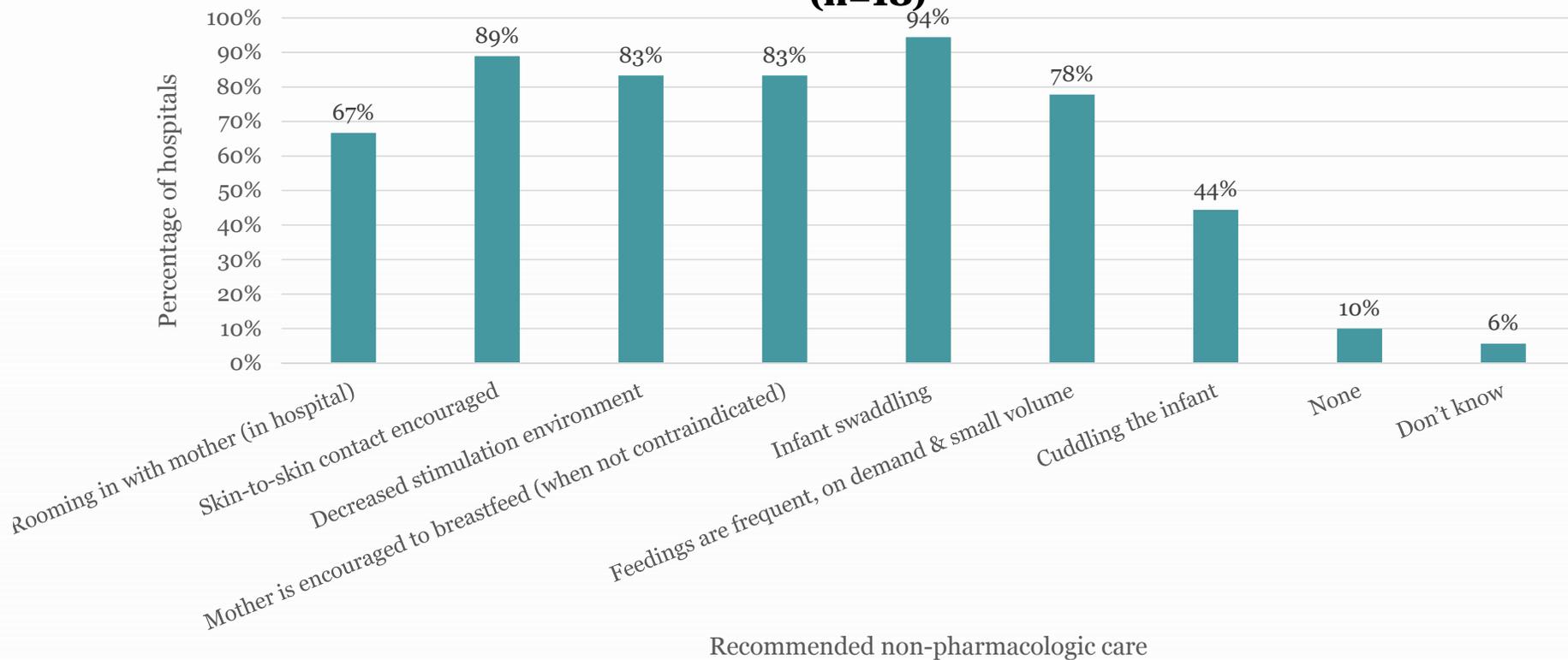
Pharmacologic therapies used to manage NAS in the hospital (n=18)



Morphine (n=15) and phenobarbital (n=10) were more frequently utilized than methadone (n=4) and clonidine (n=3) when pharmacologic management of NAS is indicated.

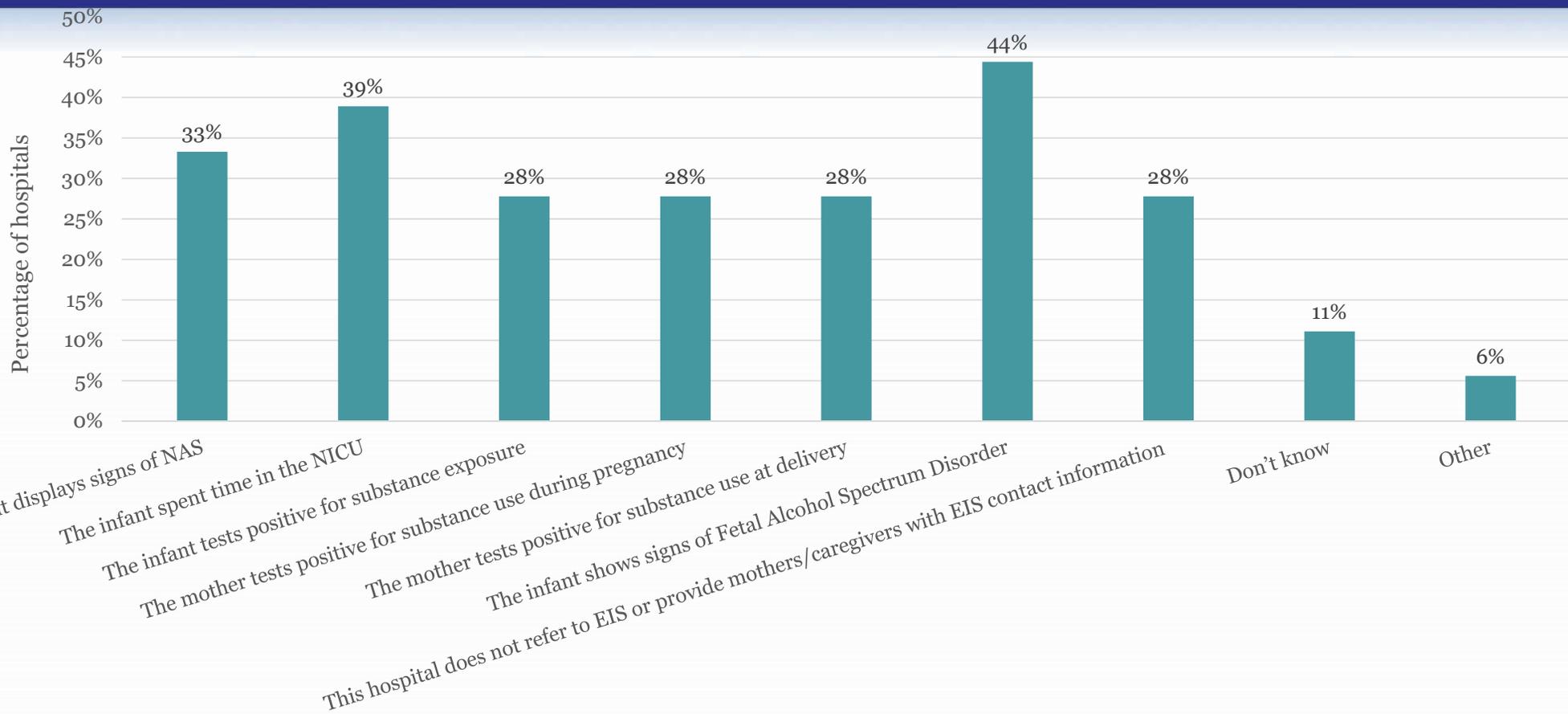
Management of SEIs and infants with NAS (Cont.)

Non-pharmacologic care hospitals provide to infants with NAS (n=18)





Criteria for referral of an SEI to Early Intervention Services

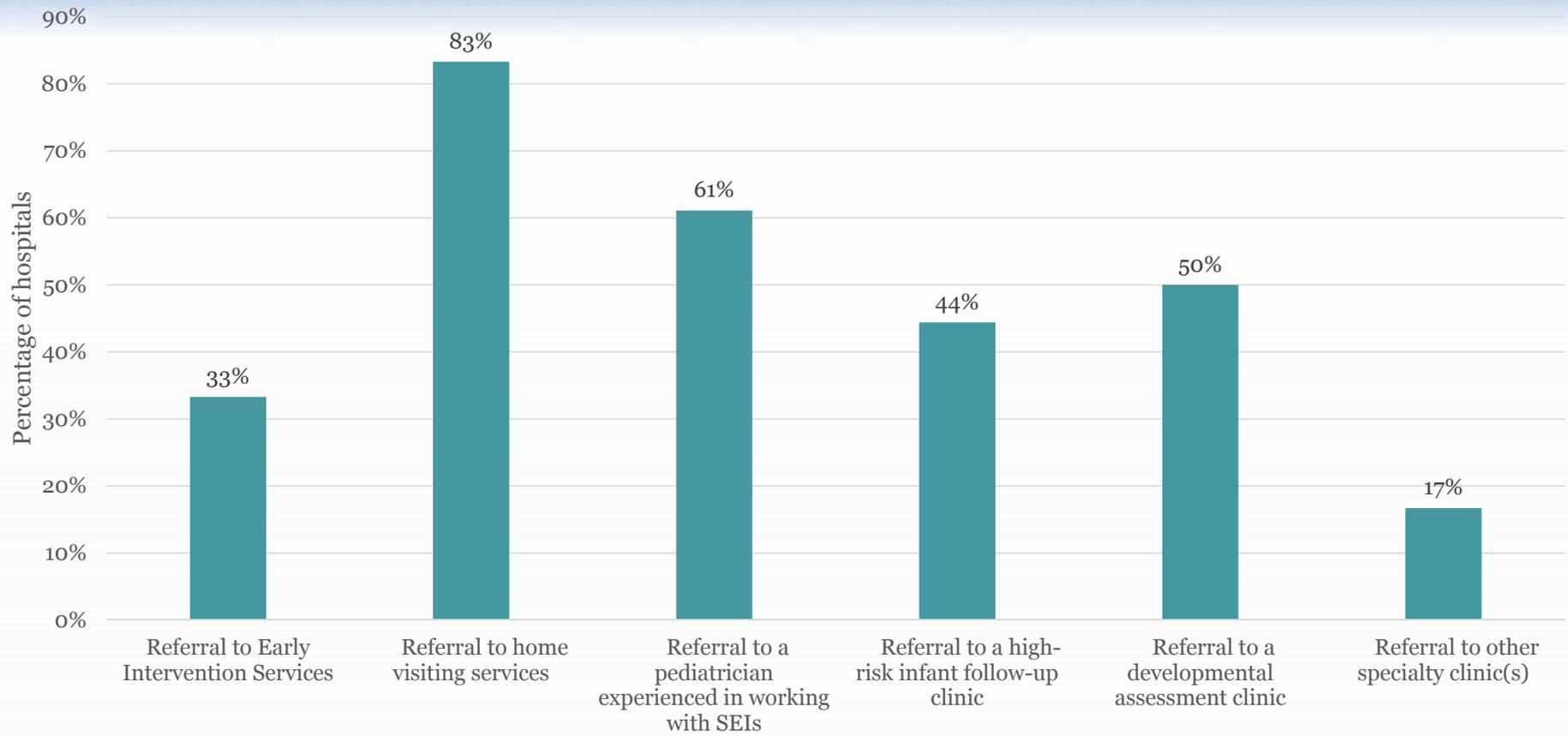




Service linkages provided to address an SEI's needs at the hospital

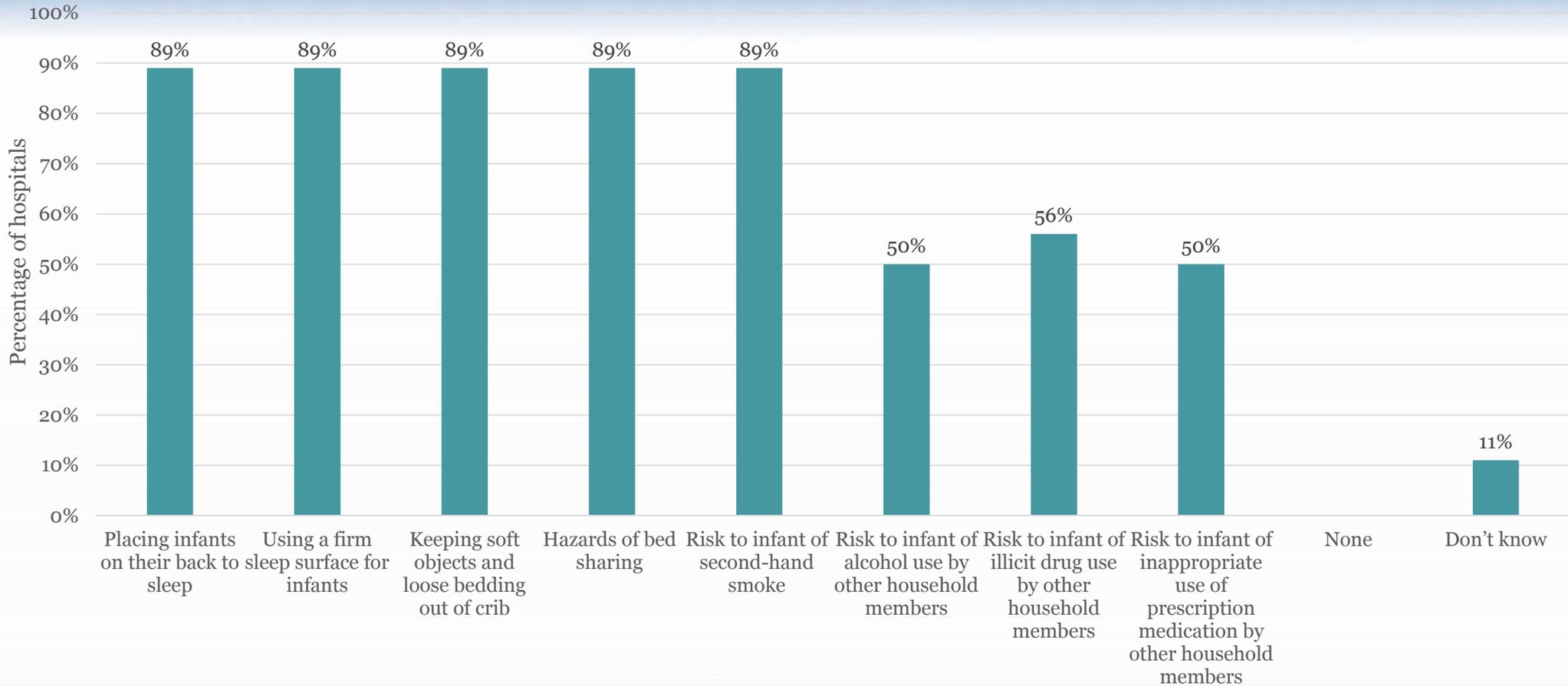
- 44% of the 18 responding hospitals only provided referral to services but do not provide follow-up.
- 39% of the 18 responding hospitals provide a direct person-to-person link with a service provider.
- If the mother/caregiver had not engaged in services, 22% attempted to re-engage or refer to a different program and 39% reassessed the need for child welfare involvement and/or reported child neglect or abuse.

Elements included in hospital discharge plans for an infant with NAS (n=18)





Which of the following does your hospital staff routinely educate mothers/caregivers of SEIs about? (n=18)



Outpatient Provider Component Findings

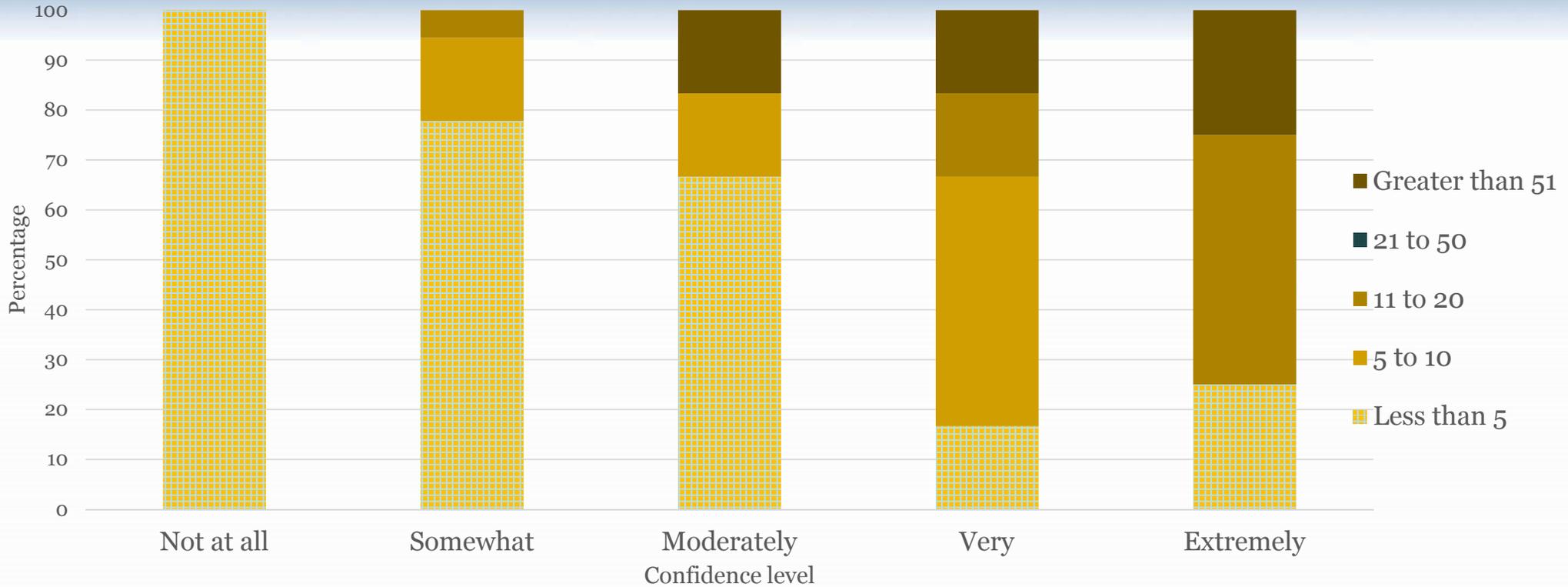


Outpatient Pediatric Primary Care Providers (n=42)

- Eligible participants were providers in an outpatient pediatric primary care facility with privileges in at least one New Jersey birthing hospital
- 21% (42 out of 200 providers) completed the Outpatient Pediatric Primary Care Survey
- Almost all providers (95% of 42) were physicians
- Providers described their practice as:
 - ✓ Primary care office plus hospital nursery rounds (n=20, 48%)
 - ✓ Primary care office plus hospital nursery rounds and inpatient rounds (n=15, 36%)
 - ✓ Other (n=7, 17%)

How many SEIs do you personally see per year?	Number	Percentage (%)
Less than 5	28	66.7
5-10	7	16.7
11-20	4	9.5
21-50	0	0
Greater than 51	3	7.1
Total	42	100

Confidence in practice's ability to manage SEIs by number of SEIs providers see per year (n=41)



Outpatient pediatric primary care providers who are not at all or somewhat confident in their practice's ability in managing SEIs see less cases of SEIs per year compared to providers who are moderately, very, or extremely confident.

- **Among the 42 providers who indicated the primary hospital where he/she has admitting privileges to a newborn nursery:**
 - Level of confidence in the primary hospital:
 - ✓ 85% of providers were very or extremely confident in that hospital's effectiveness at identifying and managing SEIs
 - ✓ 12% of providers were moderately confident
 - ✓ 3% of providers were somewhat confident
 - Highest level of newborn nursery care:
 - ✓ About 76% indicated that the highest level of newborn nursery care at their primary hospital is a level III
 - ✓ 20% is a level II
 - ✓ 5% is a level I

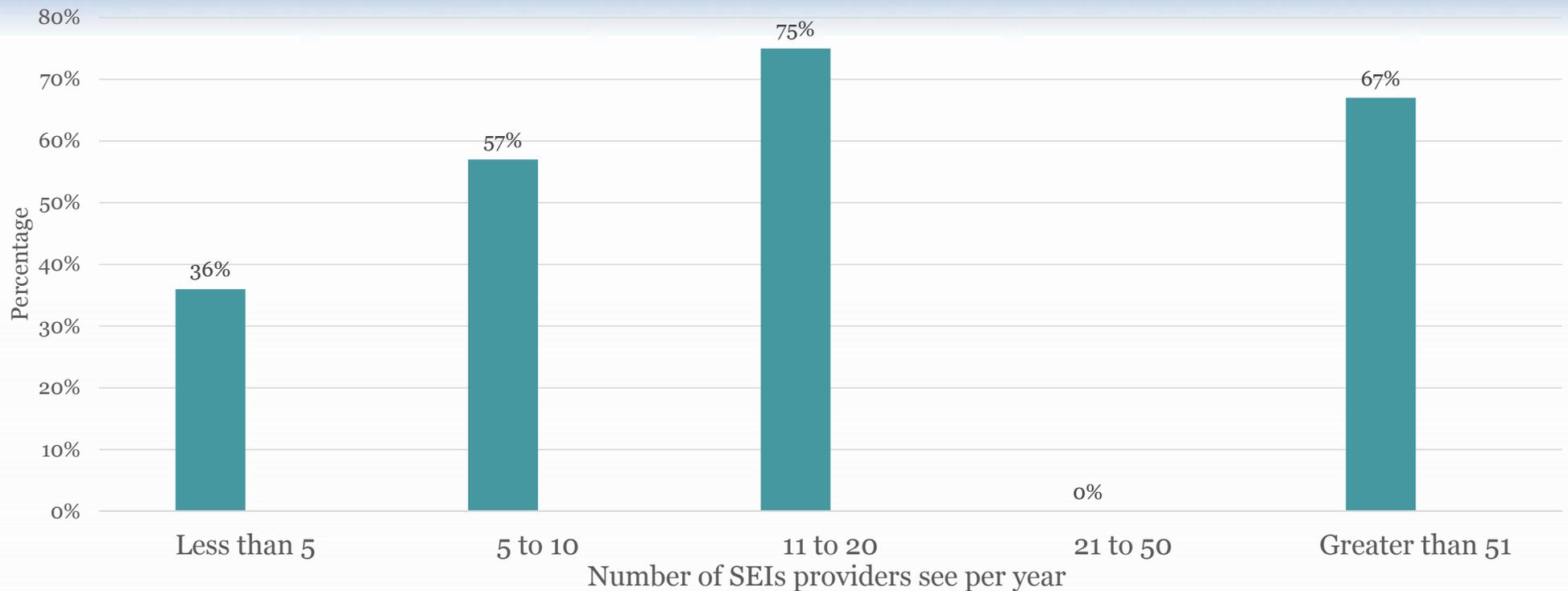
Standardized Tools and Protocols

Standardized tools used to assess infants with Neonatal Abstinence Syndrome (NAS) in the hospital

Tools	Number	Percentage
Finnegan	6	17.1
Modified Finnegan	10	28.6
Lipsitz Neonatal Drug-Withdrawal Scoring System	3	8.6
None	3	8.6
Don't know	12	34.3
Other- "NICU and PICU consultations as needed"	1	2.9
Total	35	100

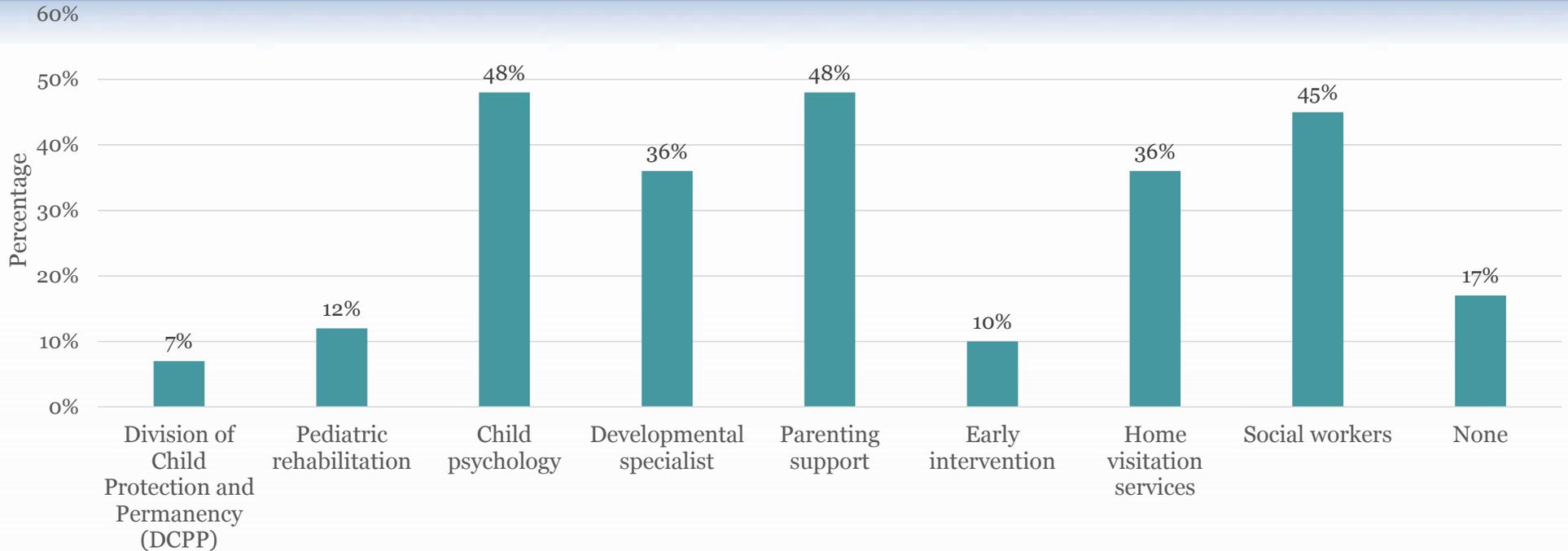
- Among 35 outpatient providers, the most commonly used tool is the Modified Finnegan (29%) followed by the Finnegan (17%).
- Over a third of providers did not know which standardized tools they use to assess infants with NAS in the hospital (34%). About 9% do not use a standardized tool.
- About 38% (16 out of 42 outpatient providers) use a specific protocol from a hospital to manage NAS in their practice while 62% (26 out of 42) of providers do not*.

Providers who feel they have adequate resources to manage SEIs in office by number of SEIs providers see per year



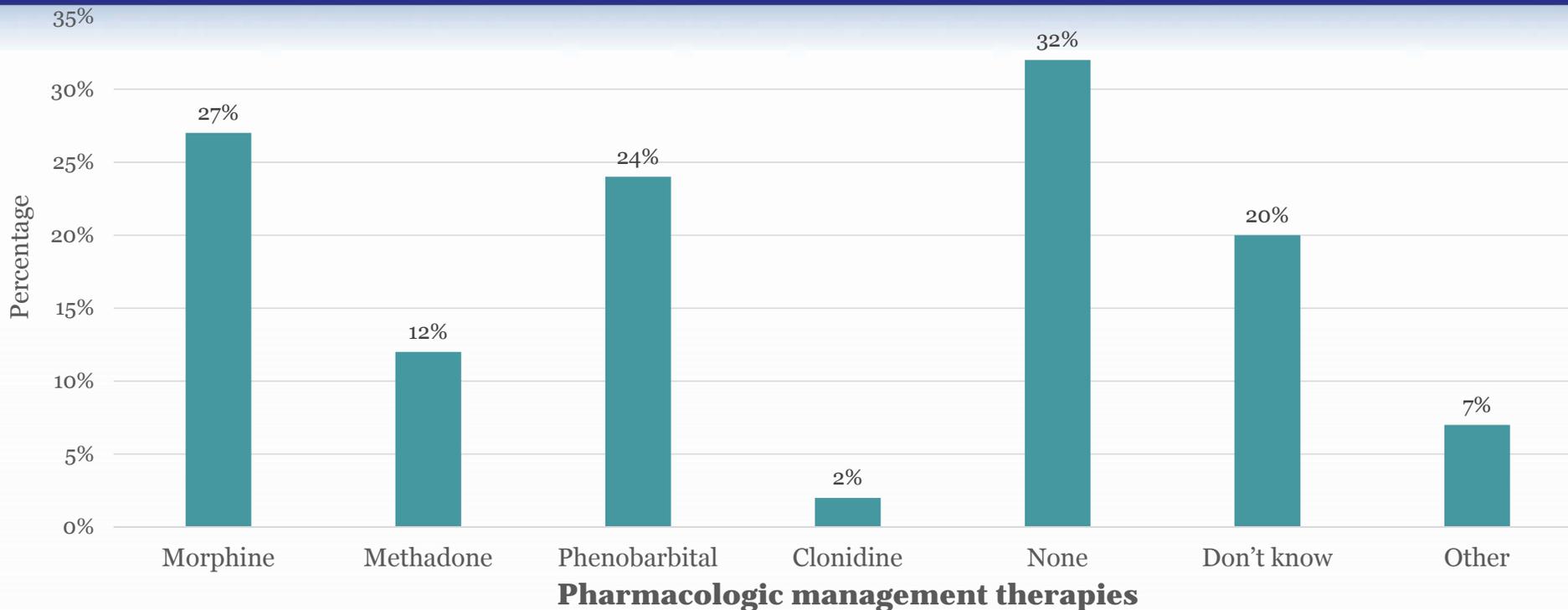
- Overall, about 45% of providers feel they have adequate resources to manage SEI's in office.
- Providers who see at least 5 cases per year believe they have adequate resources to manage SEIs in the office while those who see less than 5 SEIs per year believe they do not have adequate resources.

Resources significantly lacking within provider's practice or as a referral source to manage SEIs



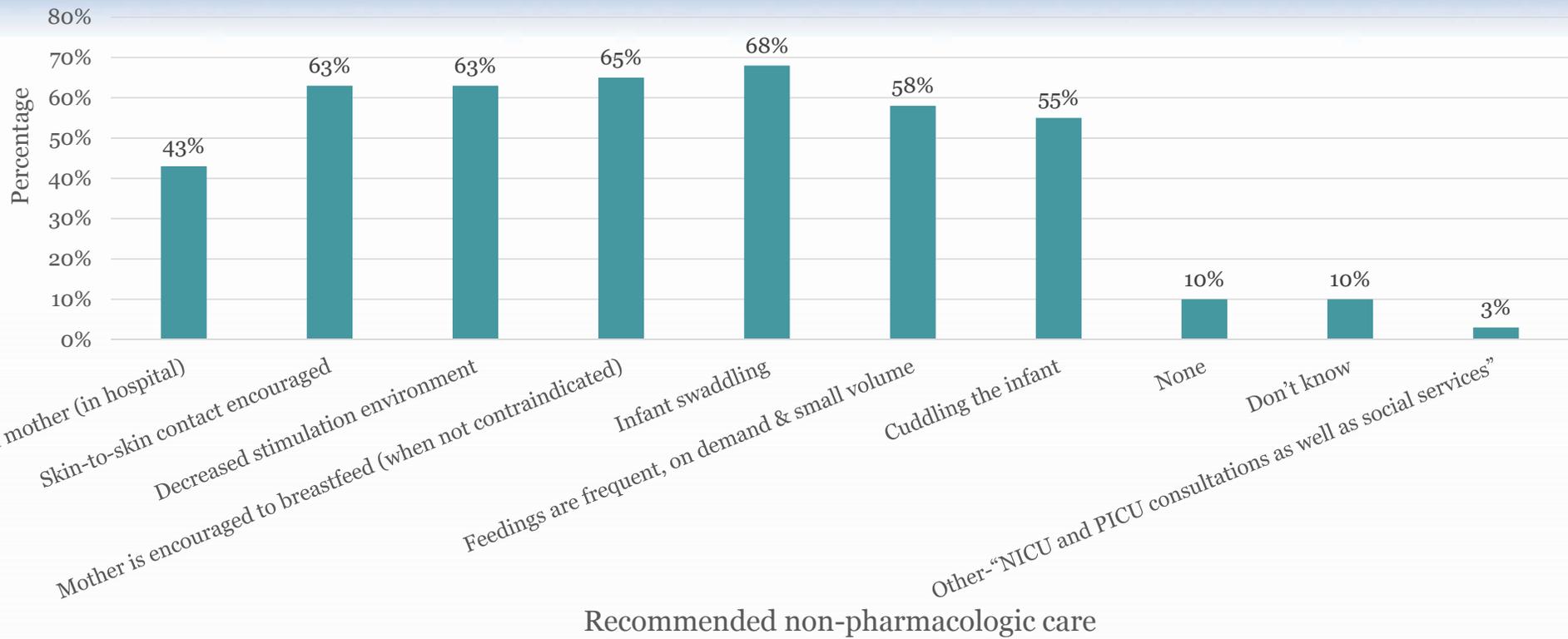
- The resources providers feel are significantly lacking within their practice as a referral source to manage SEIs:
 - Parenting support (n=20, 48%) and child psychology (n=20, 48%)
 - Social workers (n=19, 45%)
 - Developmental specialists (n=15, 36%) and home visitation services (n=15, 36%)
- About 17% (n=7) feel they have access to all listed resources

Pharmacologic therapies used to manage NAS in the office



- Morphine (n=11) and phenobarbital (n=10) were more frequently utilized than methadone (n=5) and clonidine (n=1) when pharmacologic management of NAS is indicated.
- Almost a third of providers indicated that their office practice does not utilize any pharmacologic therapies for NAS (n=13) and about 20% of providers were unsure.

Non-pharmacologic care recommended in the office to mothers of infants with NAS



At least half of providers provided recommendations to mothers of infants with NAS. Only 10% did not provide any recommendations.

1. Patrick SW, Schumacher RE, Benneyworth BD, Krans EE, McAllister JM, Davis MM. Neonatal abstinence syndrome and associated health care expenditures: United States, 2000-2009. *JAMA*. 2012 May 9; 307(18):1934-40.
2. Ko JY, Patrick SW, Tong VT, Patel R, Lind JN, Barfield WD. Incidence of Neonatal Abstinence Syndrome — 28 States, 1999–2013. *MMWR Morb Mortal Wkly Rep* 2016; 65:799–802.