OMNO Aggregate Data Report

Q4 2022: Oct – Dec 2022

This is a report of records submitted as part of the Oklahoma Mothers and Newborns Affected by Opioids (OMNO) initiative representing mothers and infants with a date of delivery/birth from October 1 – December 31, 2022. In total, 96 records were reported by 11 participating hospitals. Table 1 provides a breakdown of the number of records. See Appendix A for more information about inclusion criteria, data collection and definitions.

Many of the measures reported are in alignment with the Data Collection Plan from the Alliance for Innovation in Maternal Health (AIM). When appropriate, the AIM measures are identified with their ID. The AIM measures typically use the denominator of "women with OUD during pregnancy[3]" or "opioid-exposed newborns ≥ 35 weeks gestation" (OEN[5]) as defined in the plan.

Table 1: Number of Records Entered for Q4 2022

	Collaborative-Wide
Total Records	96
Women with OUD During Pregnancy[3]	90
Opioid-Exposed Newborns ≥ 35 Weeks (OEN)[5]	85

The following information is included in this report:

Demographic Information – Records by Race/Ethnicity, and Insurance Status

Toxicology results of mothers and infants

Care of Women with OUD in Pregnancy:

- Universal Screening for OUD at prenatal care sites
- Percent of women with OUD during pregnancy who receive MAT or behavioral health treatment
- Percent of pregnant women with OUD screened for STI during pregnancy
- Percent of mothers with OUD receiving prenatal pediatric consult

Care of Opioid-Exposed Newborns:

- Percent of OEN who had NAS symptoms
- Average length of stay for newborns with Neonatal Abstinence Syndrome (NAS)
- Percent of OEN who roomed together with mother during at least 50% of hospitalization
- Percent of OEN receiving mother's milk at newborn discharge
- Percent of OENs requiring pharmacologic therapy
- Number of days of pharmacological treatment for babies with NAS
- Percentage of OEN with DHS contacted
- Percent of OEN who go home to biological mother or taken into DHS custody
- Percent of OEN with appropriate follow up at discharge (Early intervention)

Records by Race/Ethnicity

Race and Ethnicity are submitted separately for both mothers and infants. Multiple races may be entered for one mother or infant. Table 3 provides the record breakdown by race/ethnicity of the collaborative as a whole during Q4 2022. For reference, Table 5 lists the breakdown of race/ethnicity for all Oklahoma births in 2021 (data provisional).

Table 3: Records by Race/Ethnicity, Collaborative-Wide

Race	Mothers, n	Mothers, %	Infants, n	Infants, %
White or European descent	66	70.2%	66	71.0%
Native American or Alaskan Native	14	14.9%	14	15.1%
Black or African descent	12	12.8%	13	14.0%
Hispanic/Latino	4	4.3%	4	4.3%
Unknown	3	3.2%	3	3.2%
Other	0	0.0%	0	0.0%
Asian	1	1.1%	1	1.1%
Hawaiian or other Pacific Islander	1	1.1%	1	1.1%

Table 5: Births by Race/Ethnicity, Oklahoma 2021* (data provisional)

Race	Births, n	Births, %
White or European descent	28,260	71.0
Black or African descent	4,676	11.8
Hispanic/Latino	8,144	17.0
Asian or Pacific Islander	1,549	3.9
American Indian	5,298	13.3

**Source: Oklahoma State Department of Health, Center for Health Statistics, Health Care Information, OK2SHARE, 2021 provisional.*

Records by Insurance Status

Insurance Status is entered for each mother and infant separately. The vast majority of mothers and infants are insured by SoonerCare (Oklahoma's Medicaid). Table 6 below lists the number of records by insurance status during Q4 2022 collaborative-wide. For reference, Table 8 lists the breakdown of insurance status for all Oklahoma births in 2021 (data provisional).

Table 6: Records by Insurance Status, Collaborative-Wide

Insurance	Mothers, n	Mothers, %	Infants, n	Infants, %
SoonerCare	73	81.1%	72	84.7%
Private insurer	13	14.4%	11	12.9%
Unknown	2	2.2%	1	1.2%
Other	1	1.1%	0	0.0%
Tricare or military	0	0.0%	0	0.0%
Uninsured / self-pay	0	0.0%	1	1.2%
Indian Health Service (IHS)	1	1.1%	0	0.0%
Total	**90**		**85**	

Table 8: Births by Insurance Status, Oklahoma 2021 (data provisional)*		
Race	**Births, n**	**Births, %**
SoonerCare/Medicaid	24,510	51.8
Private insurance	19,428	41.1
Self-pay	1,280	2.7
Indian Health Service	272	0.6
CHAMPUS/TRICARE	875	1.8
Other Government (federal, state, local)	74	0.2
Other	884	1.9

**Source: Oklahoma State Department of Health, Center for Health Statistics, Health Care Information, OK2SHARE, 2021 provisional.*

Maternal Toxicology and History of Substance Use

Figure 2 indicates history of substance use *during the 2nd or 3rd trimesters of the current pregnancy* and toxicology results for all records entered during this period collaborative-wide. Of the **90** women with OUD during pregnancy during Q4 2022, a prenatal urine drug screen was known to be performed in **36 (40%)** cases and a urine drug screen during the birth hospitalization was known to be performed in **69 (77%)** cases. For each substance listed, there is a checkbox on the form to indicate if there is (1) Maternal History (i.e., verbal admission, positive verbal screen, known use during this pregnancy); (2) Prenatal UDS +, a positive urine drug screen during the prenatal period; or (3) Birth Hospitalization Maternal UDS+, a positive urine drug screen during the birth hospitalization. Multiple columns could be checked. Results may vary based on the UDS panel submitted for testing. Some lower panels list opioids in general, while some higher panels may identify specific opioids in the toxicology.

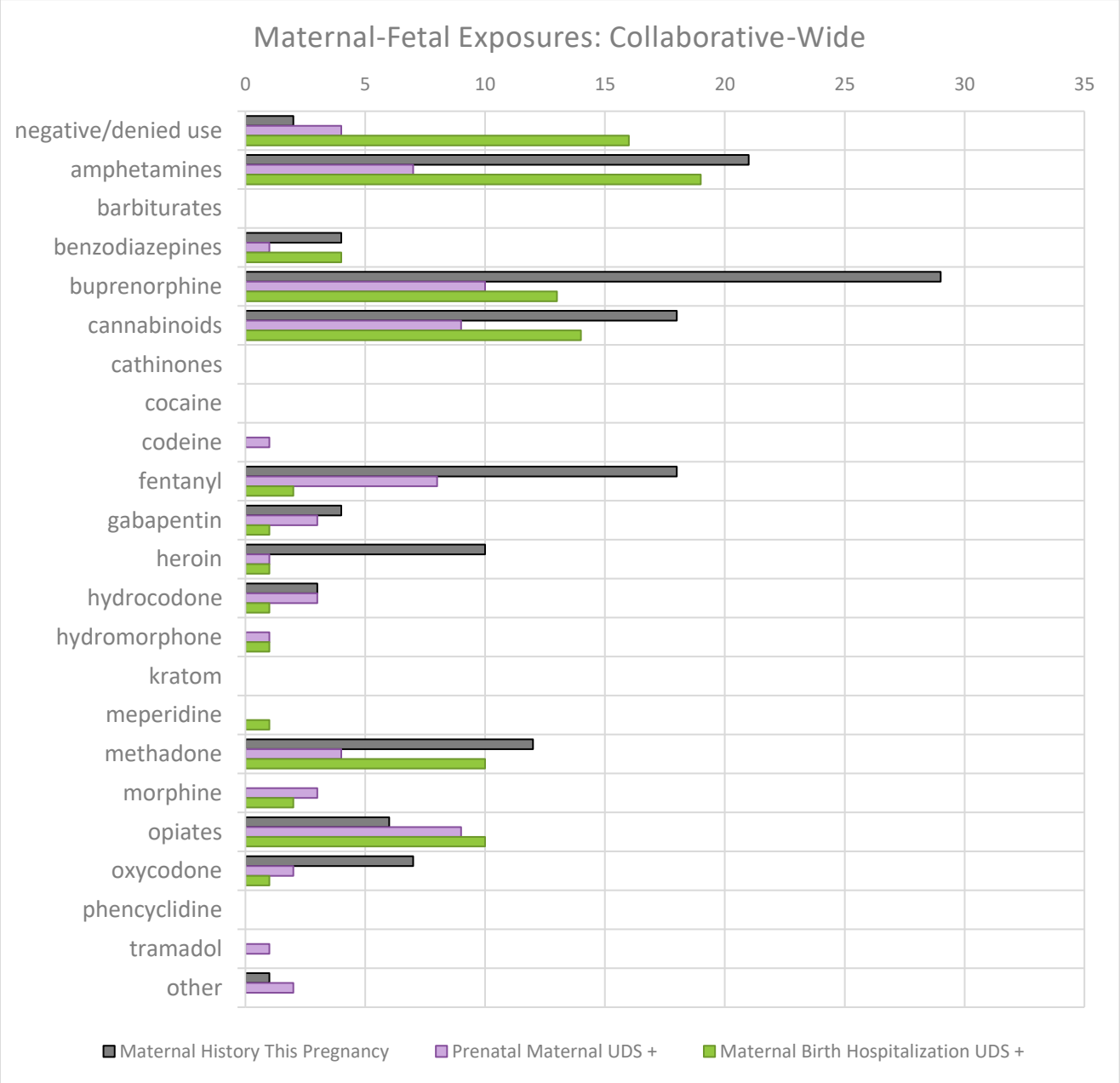


Figure 1:History of maternal substance use and toxicology of all records submitted collaborative-wide. Maternal History This Pregnancy: Indicates verbal admission or disclosed use

Newborn Toxicology

Of the **85** opioid-exposed newborns ≥ 35 weeks gestation, umbilical cord segments were known to be sent for toxicology testing in **75 (88%)** cases, meconium samples in **2 (2%)** cases and urine samples in **7 (8%)** cases. Some infants may have had multiple samples sent for testing. Figure 4 outlines the positive results by substance for the collaborative as a whole.

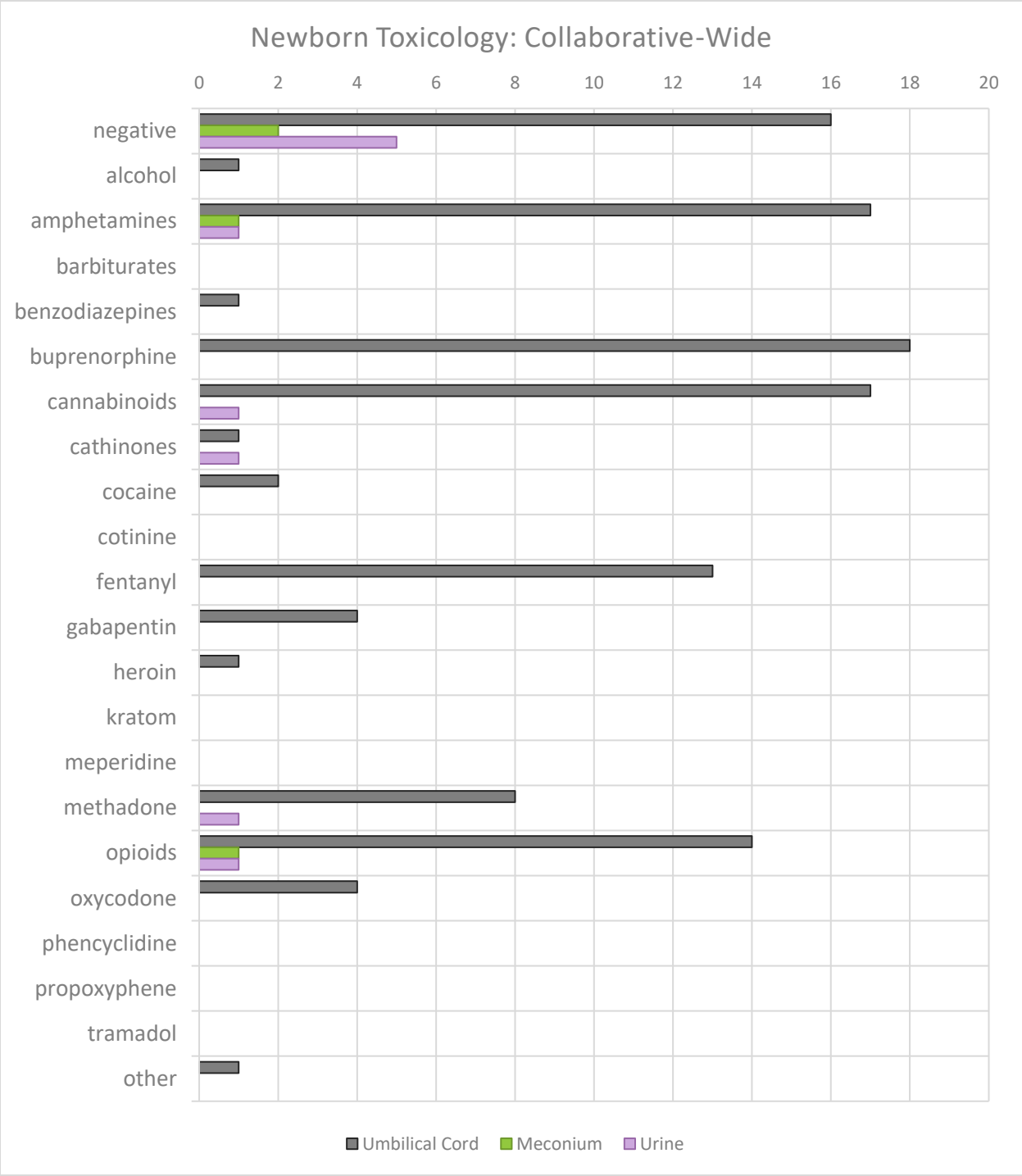


Figure 2: Newborn toxicology results of all records submitted collaborative-wide.

Identifying and Screening for OUD in Pregnancy (AIM P4)

According to our quarterly report surveys for Q4 2022 universal screening is known to be performed at **93%** of prenatal care sites associated with the hospitals. Figure 6 shows how universal screening has reportedly increased since the collaborative began.

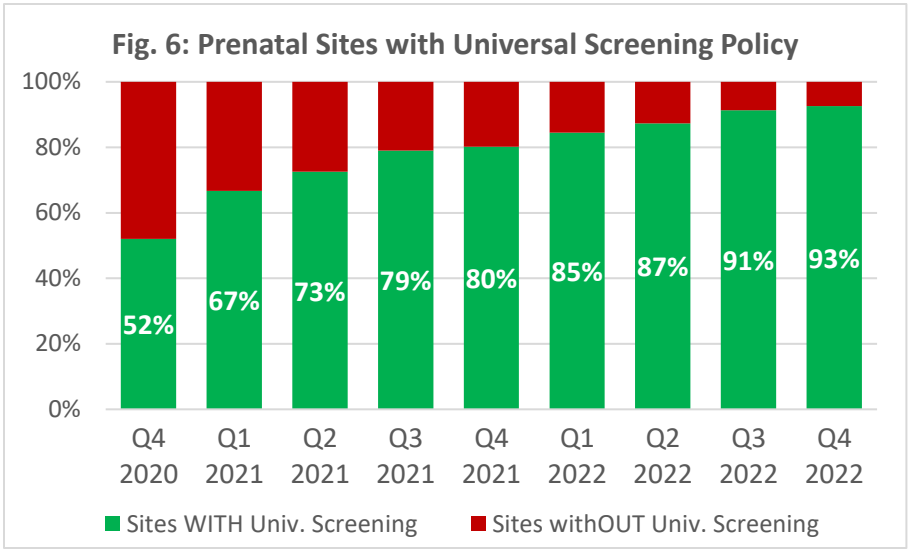
The following questions is on the maternal form:

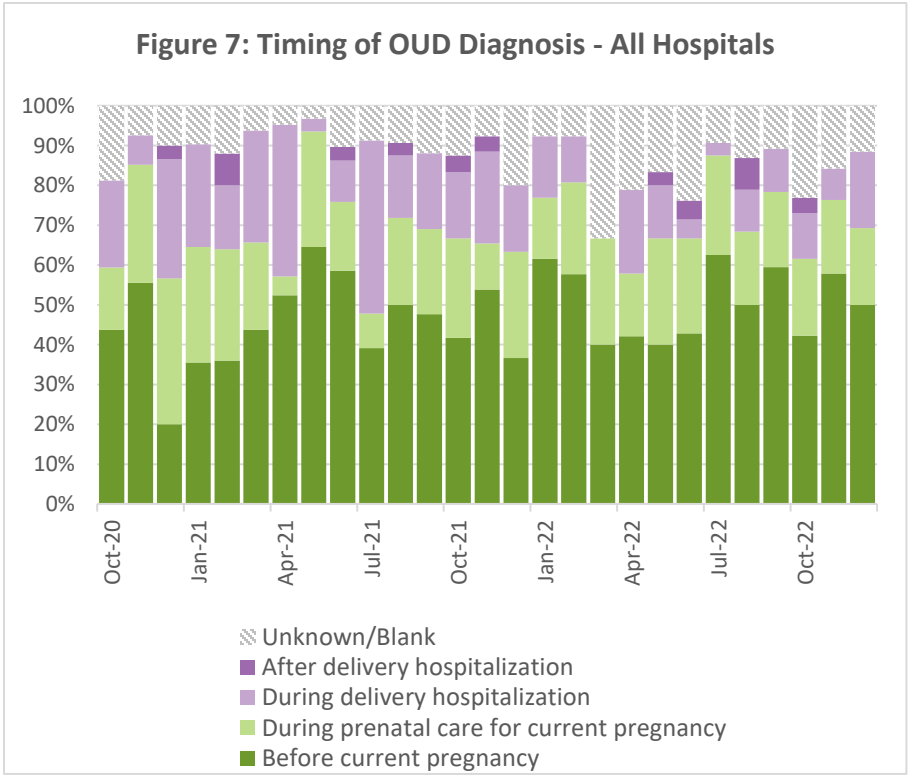
- When was maternal opioid use disorder (OUD) identified?
    - Before current pregnancy
    - During prenatal care for current pregnancy
    - During delivery hospitalization
    - After delivery hospitalization (possibly with readmission of infant)
    - Unknown

Table 9 summarizes the collaborative-wide responses during Q4 2022 to this question. Figure 7 illustrates the distribution of the timing of OUD diagnosis for each mother throughout the length of the initiative.

See opqic.org/omno/maternal for a list of validated universal screening tools.

Table 9: Timing of OUD Identification	n	%
Before current pregnancy	46	51%
During prenatal care for current pregnancy	17	19%
During delivery hospitalization	11	12%
After delivery hospitalization, when infant readmitted	1	1%
Unknown	15	17%





Medication-assisted Treatment and Behavioral Health Treatment During Pregnancy (AIM P1)

The following question is on the maternal form:

- *During pregnancy*, did the mother receive medication-assisted therapy or behavioral therapy for her opioid use disorder?
  - No
  - **Yes – Behavioral therapy only**
  - **Yes – MAT only**
  - **Yes – Both behavioral therapy and MAT**
  - **Yes – Details unknown**
  - Unknown

Figure 8 compares the percentage of all pregnant women with OUD for which any of the "yes" answers above (in bold) were selected for each reporting hospital.

Collaborative-wide, **55 (61%)** of the reported women with OUD during pregnancy either received or were referred to medication-assisted treatment or behavioral health treatment during Q4 2022. Figure 9 breaks down women receiving MAT or behavioral health treatment by the timing of their OUD diagnosis.

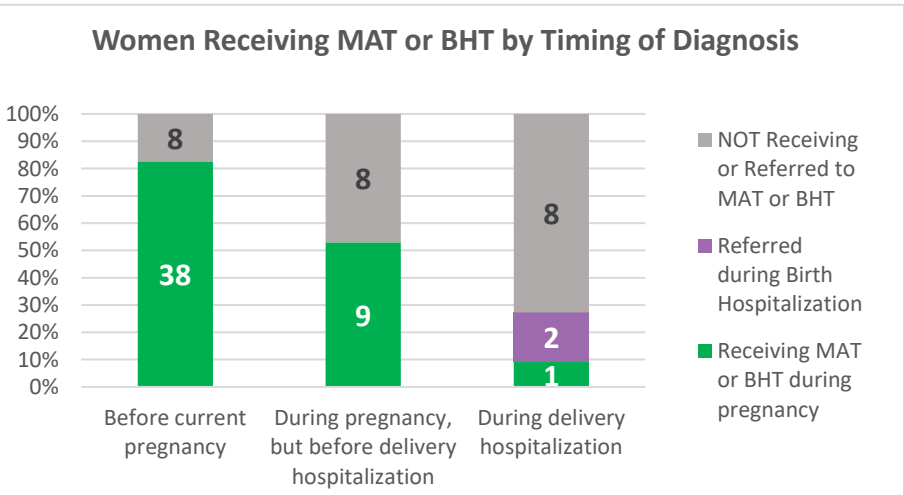


Figure 9: Represents all women with OUD, collaborative-wide

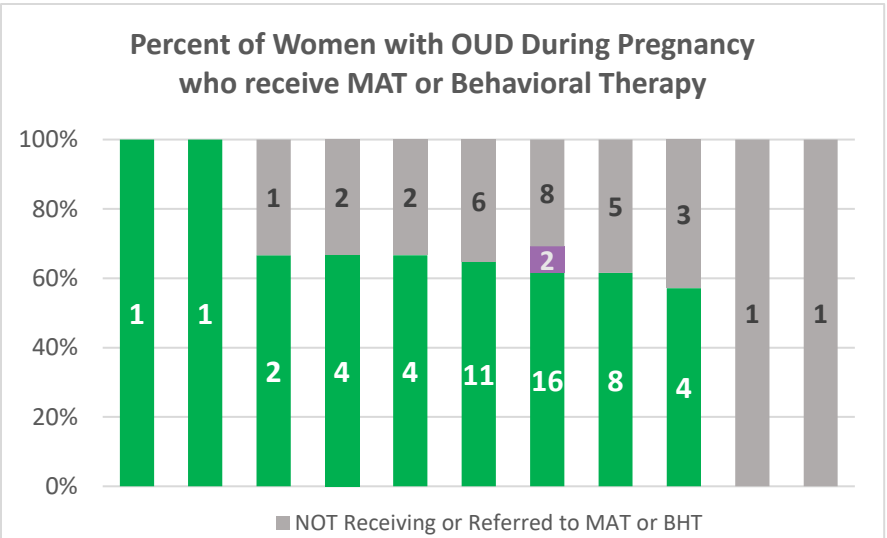


Figure 8: Each bar represents one reporting hospital.

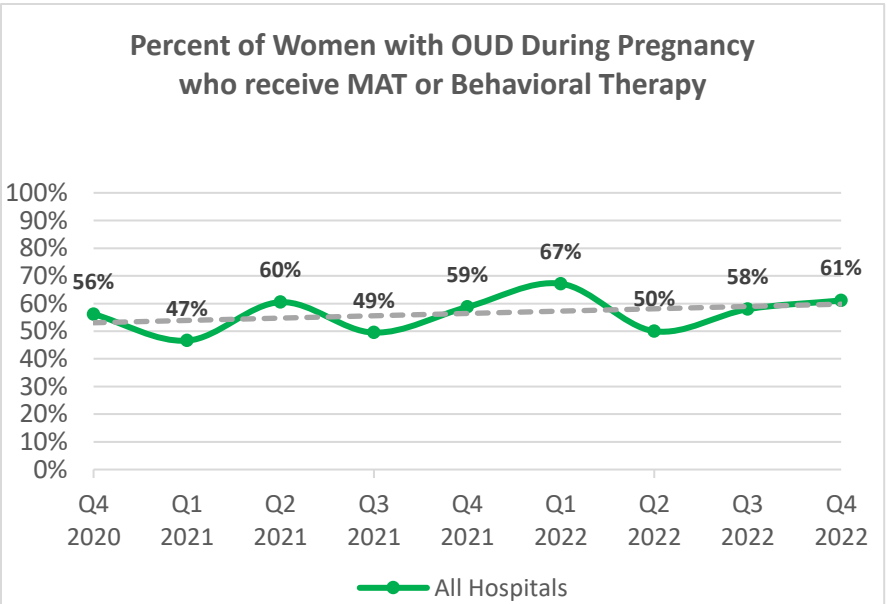


Figure 10

Screening for Sexually Transmitted Infections (STIs) (AIM OP6)

The following question is included on the maternal form:

Which of the following tests were performed?				
Service	Tested PRENATALLY BEFORE Birth Hospitalization	Tested DURING Birth Hospitalization	Tested, UNKNOWN TIME	Not Tested/ Unknown
Hepatitis B Testing	☐	☐	☐	☐
Hepatitis C Testing	☐	☐	☐	☐
HIV Testing	☐	☐	☐	☐
Syphilis Testing (RPR)	☐	☐	☐	☐

Collaborative-wide during Q4 2022, **more than 96%** of mothers were tested for HBV, syphilis (RPR), or HIV at some point during pregnancy or birth hospitalization. However, only **80%** of mothers were tested for HCV (see Fig. 11). Figure 13 compares the HCV testing rates of each reporting hospital.

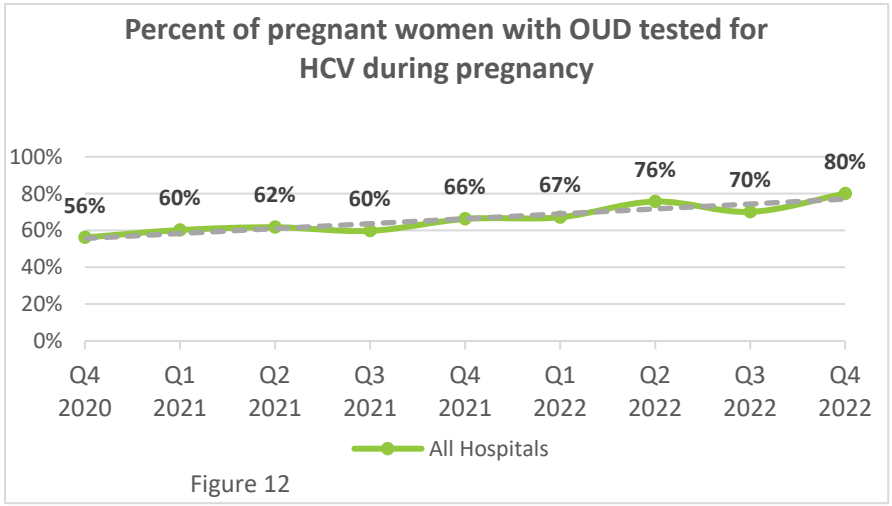


Figure 12

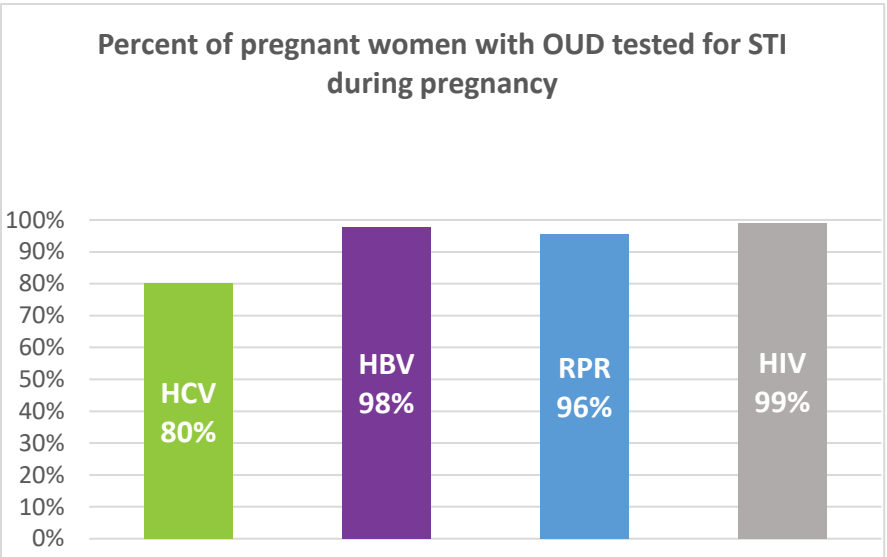


Figure 11: STI testing by collaborative-wide

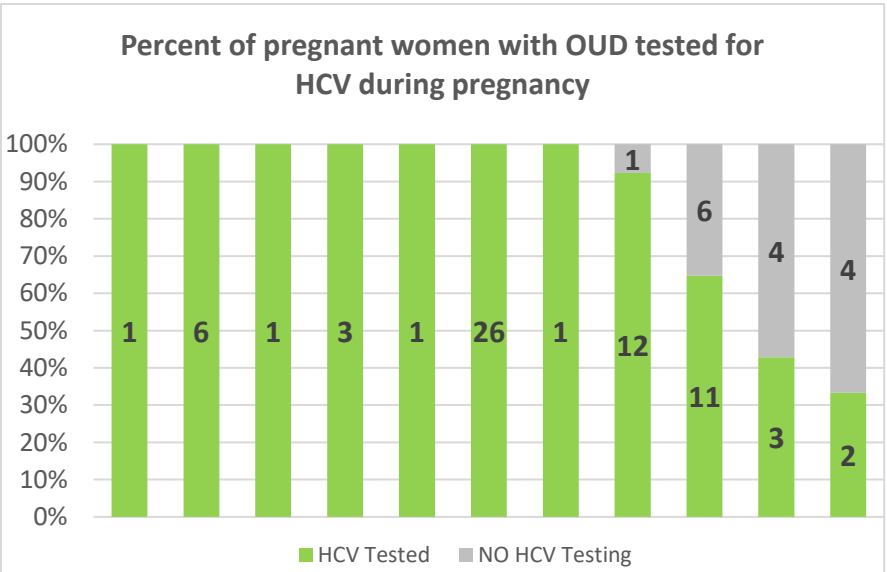


Figure 13: Each bar represents one reporting hospital.

Pediatric Consults Prior to Delivery (AIM OP12)

The following question was on the maternal form:

- Was an antenatal consult obtained at any time before delivery with pediatrics or neonatology regarding the expectations for NAS?
    - No
    - Yes, before delivery admission
    - Yes, during delivery hospitalization
    - Yes, unknown timing
    - Unknown

Figure 14 includes any of the "Yes" responses to this question at each reporting hospital. During Q4 2022, there were **2 (2%)** pediatric consults reported collaborative-wide. The goal of a pediatric consult might include establishing a relationship with the family, education of the signs and treatment of neonatal drug withdrawal, and preparing for safe discharge from the hospital.

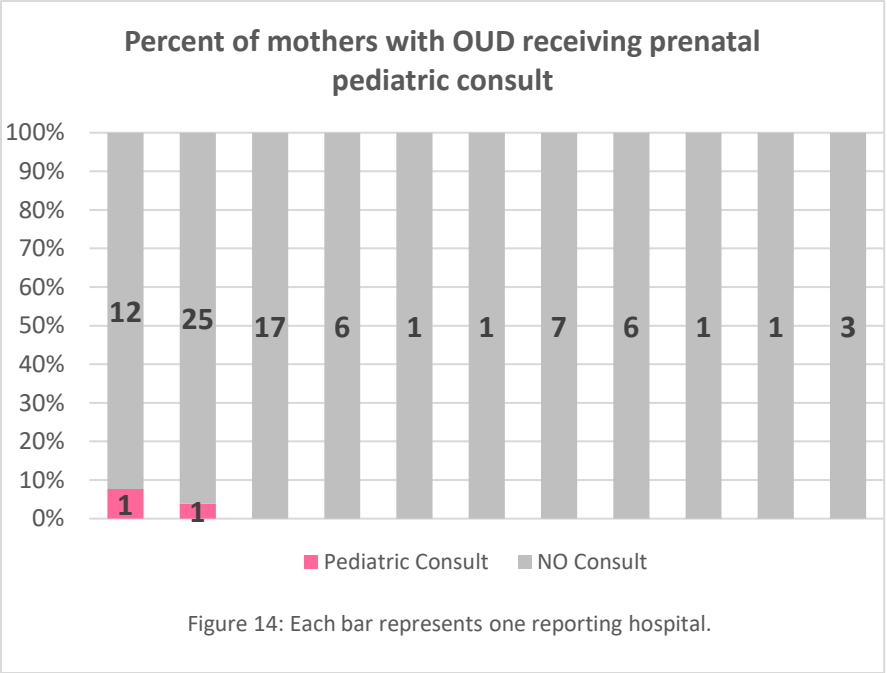


Figure 14: Each bar represents one reporting hospital.

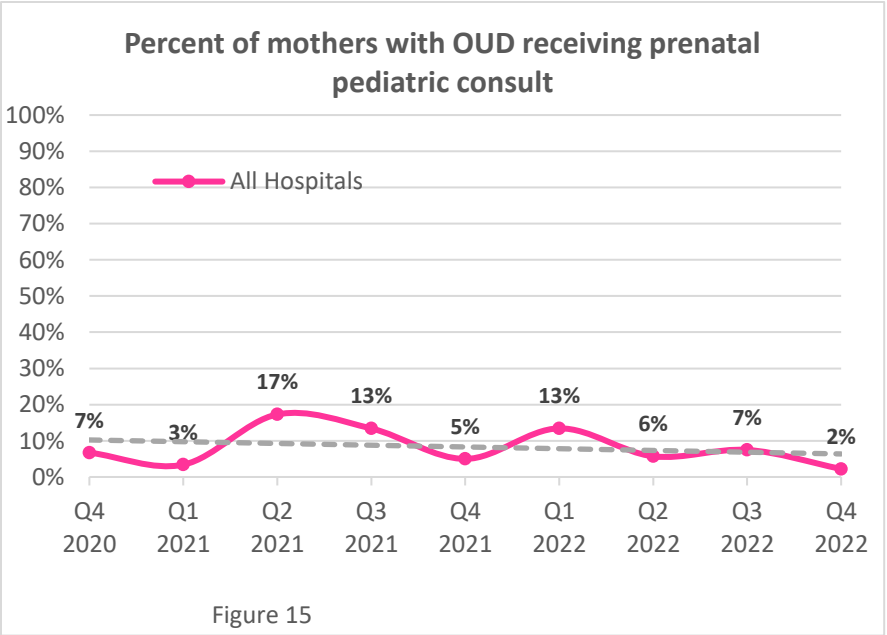


Figure 15

Neonatal Abstinence Syndrome (NAS)/Neonatal Opioid Withdrawal Syndrome (NOWS) and Drug Withdrawal

Not all infants with intrauterine exposure to opioids will experience drug withdrawal. The AIM NAS Definition is as follows: This syndrome is primarily characterized by irritability, tremors, feeding problems, vomiting, diarrhea, sweating, and, in some cases, seizures. The following question is included in the OMNO data collection form:

- Did infant have evidence of Neonatal Abstinence Syndrome (NAS)/Neonatal Opioid Withdrawal Syndrome (NOWS)?
    - o No
    - o **Yes – primarily gastrointestinal symptoms**
    - o **Yes – primarily neurological symptoms**
    - o **Yes – both GI and neurological symptoms**
    - o **Yes – unknown symptoms**
    - o Unknown

Figure 16 shows the percentage of OENs that were attributed any one of the "Yes" responses to this question (in bold above) at each reporting hospital. Overall, **39 (46%)** of the **85** OENs showed signs of withdrawal during Q4 2022. These numbers are used as the denominator for the measures that include "newborns with NAS". Table 10 shows the distribution of which assessment tools were used by hospitals to assess severity of withdrawal. Infants who experience withdrawal symptoms should be given the ICD-10 code P96.1. More coding guidance for both mothers and infants can be found at https://opqic.org/omno.

Table 10: Tools Used to Assess Infant Withdrawal. Some records indicated use of multiple tools.	
Tool	**Number of Records**
Eat, Sleep, Console	52
Finnegan or Modified Finnegan	23
Lipsitz	0
Other	1
None or clinical without a tool	8
Unknown	5

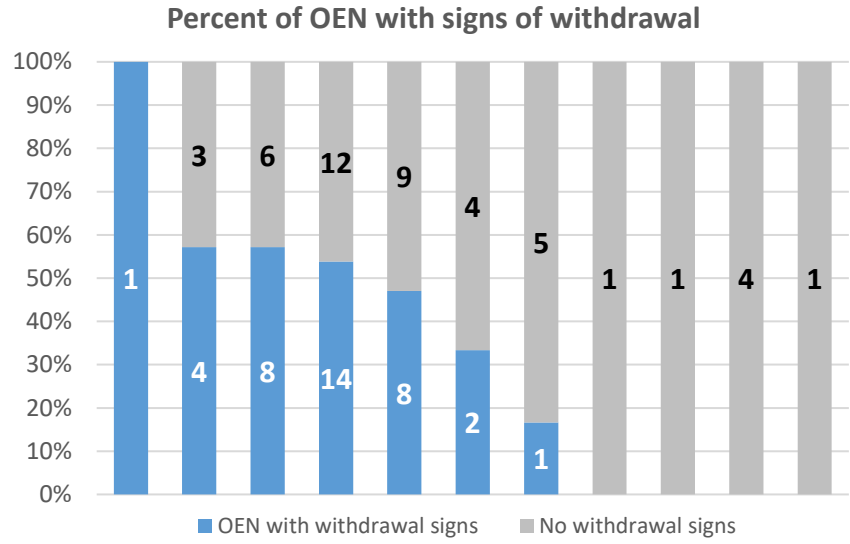


Figure 16: Each bar represents one reporting hospital.

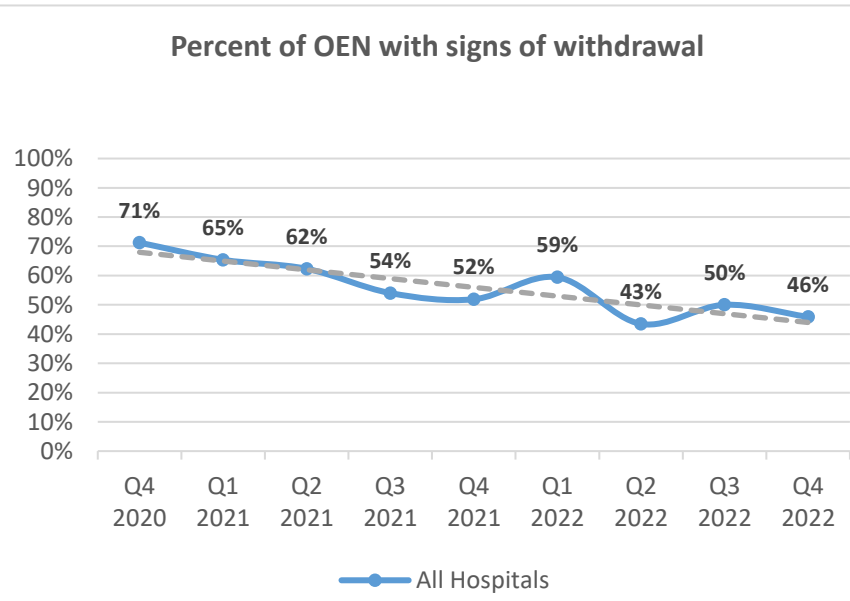


Figure 17

Newborn Length of Stay (AIM O4)

Length of Stay (LOS) was calculated by determining the difference of the date of birth from the date of discharge measured in days. Figure 18 shows the average length of stay for all OEN reported and the OEN who are indicated to have had withdrawal symptoms (NAS) as defined on Page 13. The data points for the average length of stay for babies with NAS are labeled.

Collaborative-Wide, the average LOS for babies with withdrawal during Q4 2022 was **14.7** days, and the average LOS for all OEN was **8.8** days.

Figure 19 illustrates the average LOS for newborns *with withdrawal/NAS* over time.

Infants for whom "Yes" was selected for the following question were excluded.

- Did the infant have medical diagnoses that increased hospital length of stay, such as the following? (Non-withdrawal-related feeding difficulties, Infection, Jaundice, Respiratory Illness)
    - **No**
    - Yes
    - **Unknown**

This includes infants who were discharged alive, listed by their hospital of discharge.

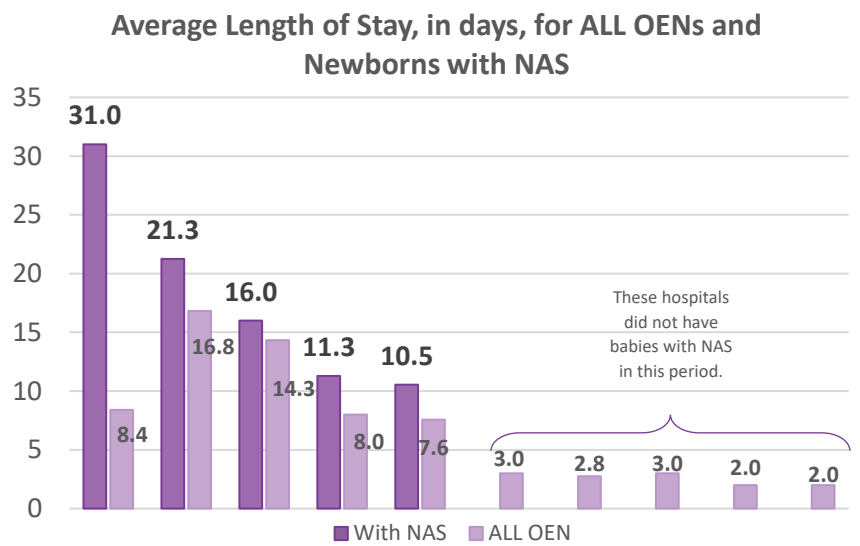


Figure 18: Each set of bars represents one reporting hospital.

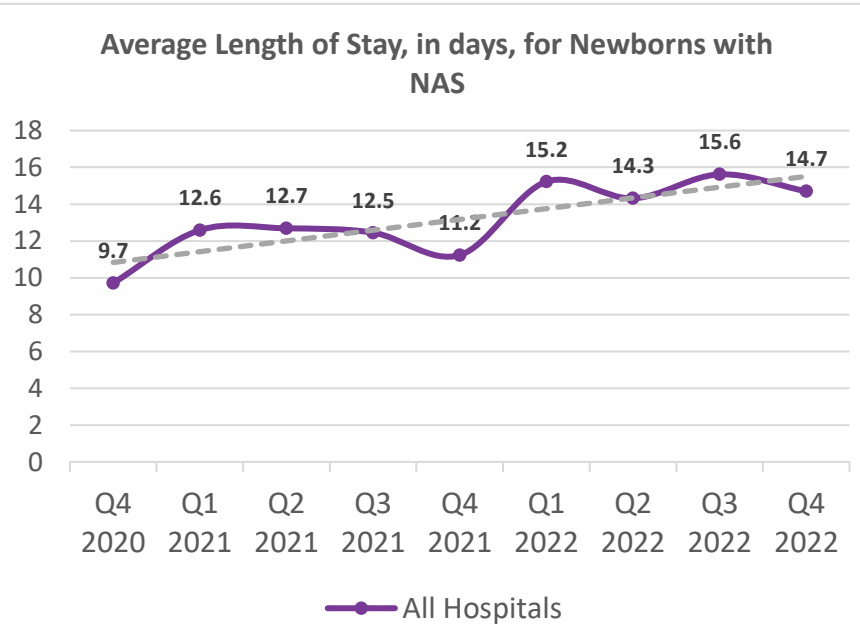


Figure 19

Rooming In (AIM OP13a)

The following question is on the infant form:

- Did the infant and mother room-in together at least 50% during the infant's hospitalization? (Please select one)
  - **Yes**
  - No, facilities not available for rooming in
  - No, family choice (mom left AMA, childcare issues, ill family member, etc.)
  - No, infant medical issues unrelated to NAS precluding rooming in
  - No, maternal medical issues (ICU admission or transfer)
  - No, social issues (mom does not have custody)
  - No, Other reason_____
  - Unknown

Figure 20 includes records of all OENs in which the "Yes" response was selected for each hospital. Collaborative-wide, **38 (45%)** of all OENs are reported to have roomed-in for at least 50% of their hospitalization during Q4 2022.

For OENs who did NOT room in for at least 50% of the time **(n=47)**, the reasons submitted are summarized in Table 11.

Table 11: Reasons Listed for NOT Rooming In, Collaborative-wide	**n**
Facilities not available for rooming in	11
Family Choice	10
Infant medical issues unrelated to NAS	0
Maternal medical issues	0
Social Issues	2
Other Reason	0

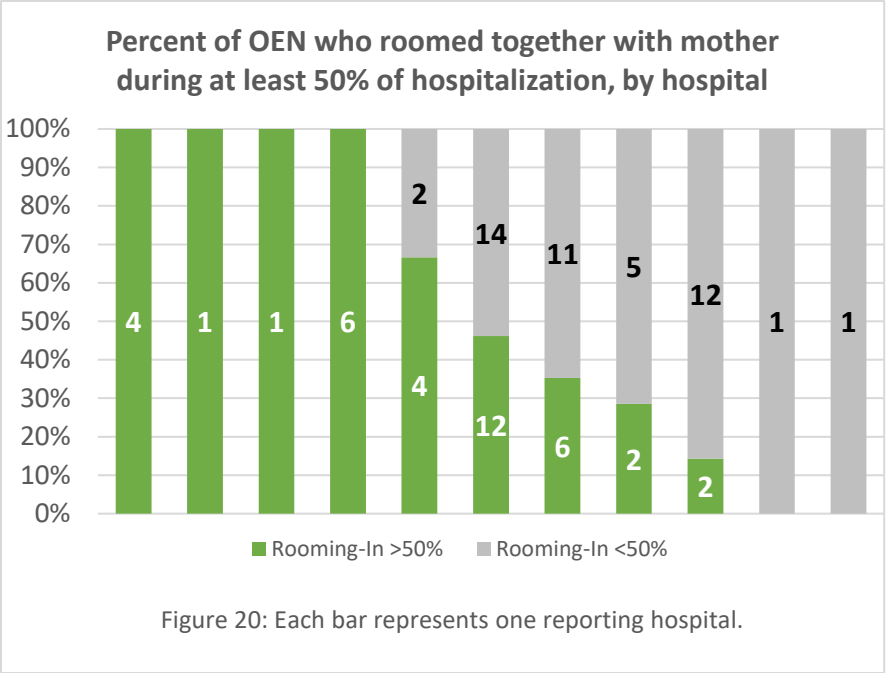


Figure 20: Each bar represents one reporting hospital.

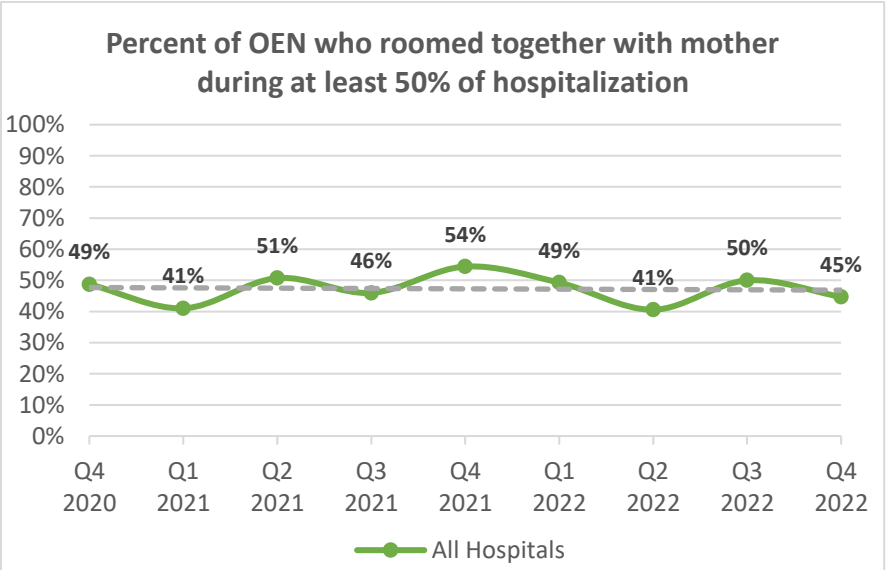


Figure 21

Breastfeeding the Opioid-exposed Newborn (AIM P2)

The following questions are on the infant form:

- Infant feeding *during hospital stay* (Check all that apply)
  - ☐ **MATERNAL milk**
  - ☐ DONOR milk
  - ☐ Formula
  - ☐ Other or no feedings were given
  - ☐ Unknown
- If maternal milk was not selected, was this due to maternal choice or other factors?
  - Only because of maternal choice
  - Other Reason(s)

And,

- Infant feeding *at discharge*
  - **Maternal milk exclusively**
  - **Maternal milk supplemented with donor milk or formula**
  - Donor milk exclusively
  - Formula exclusively
  - Unknown

Figure 22 represents the OENs that had one of the "maternal milk" options selected (in bold above). The labeled points are for infants receiving maternal milk *at discharge*. AIM P2 looks specifically at infant feeding at discharge. AIM P2 over time is represented in Figure 23.

Collaborative-wide during Q4 2022, **37 (44%)** of all OENs were reported to be receiving maternal milk at discharge, either exclusively or with supplementation.

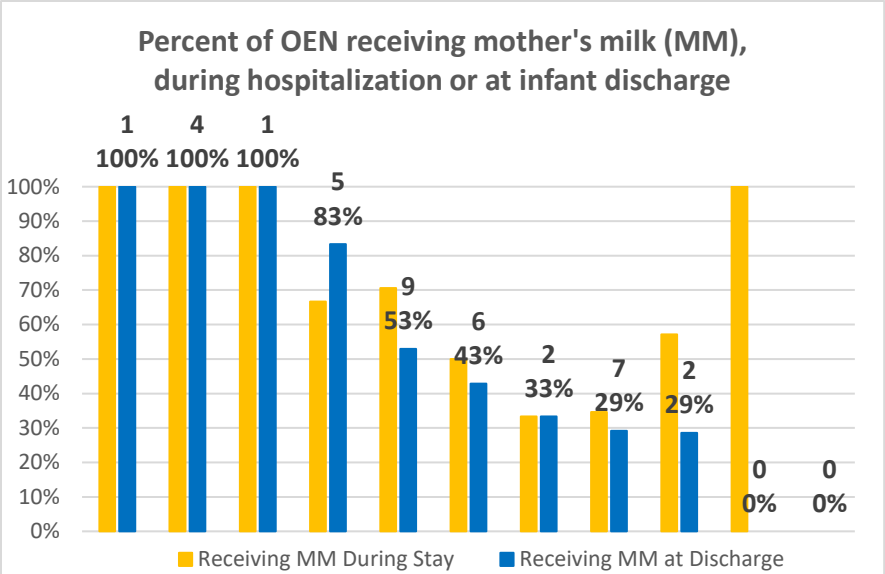


Figure 22: Each set of bars represents one reporting hospital.

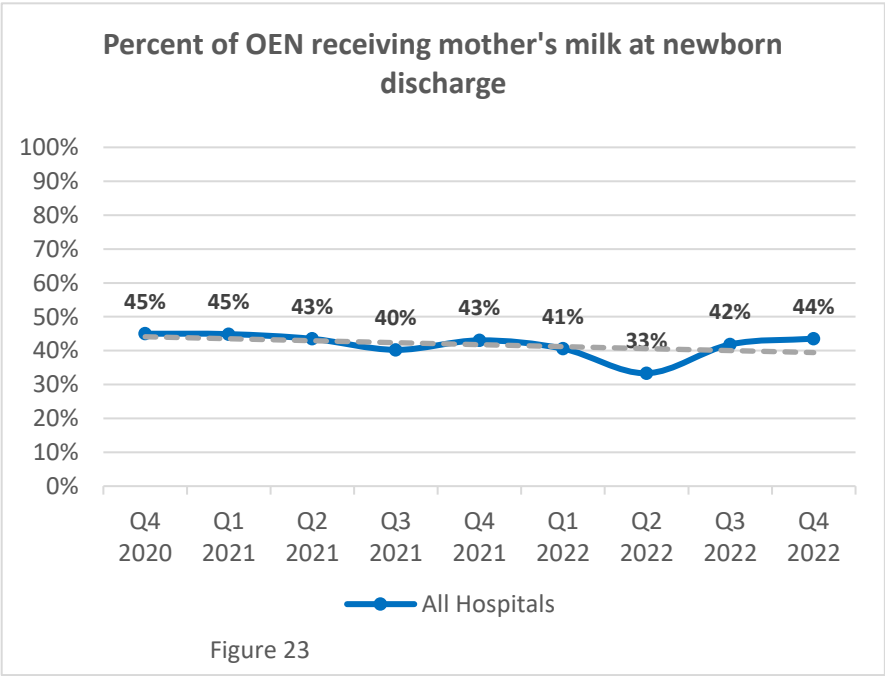


Figure 23

Pharmacologic Therapy (AIM OO1, OO2)

7 hospitals provided pharmacologic therapy to OENs experiencing withdrawal during Q4 2022. Overall, **27 (32%)** of the **85** OENs collaborative-wide received pharmacology therapy during Q4 2022. The average length of treatment for those newborns was **17.63** days.

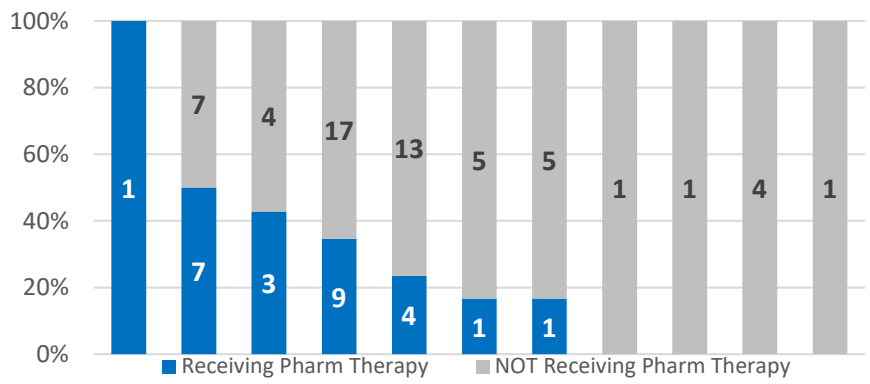


Figure 24: Each bar represents one reporting hospital.

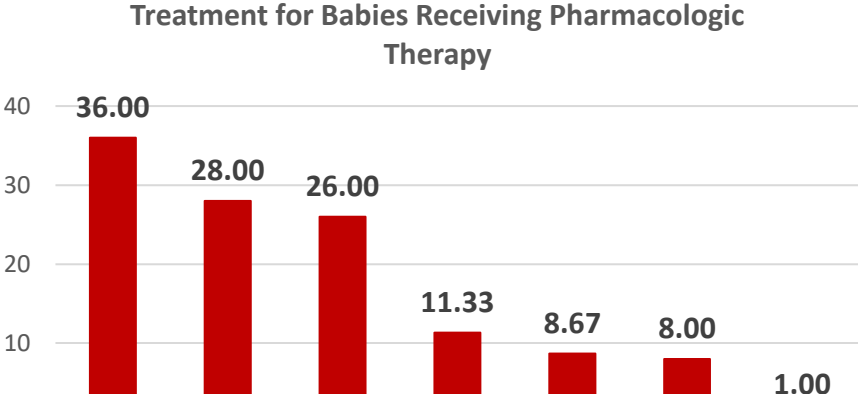


Figure 25: Each bar represents one reporting hospital.

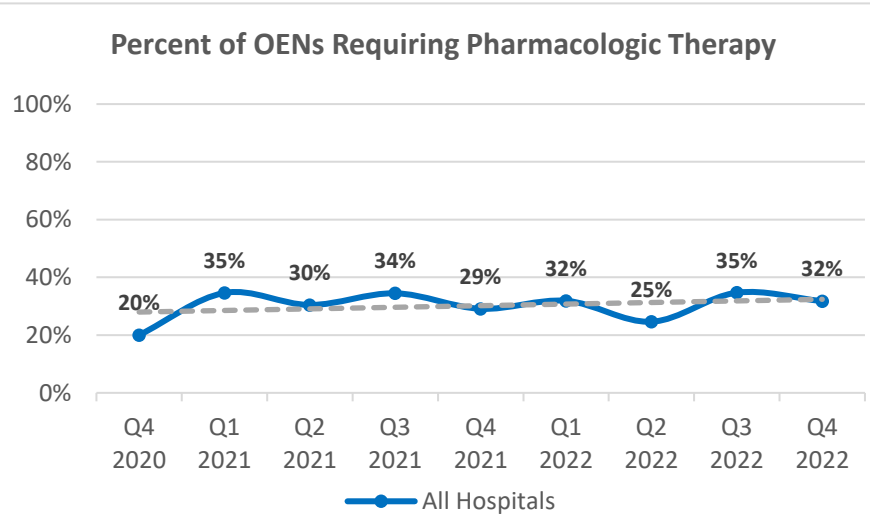


Figure 26

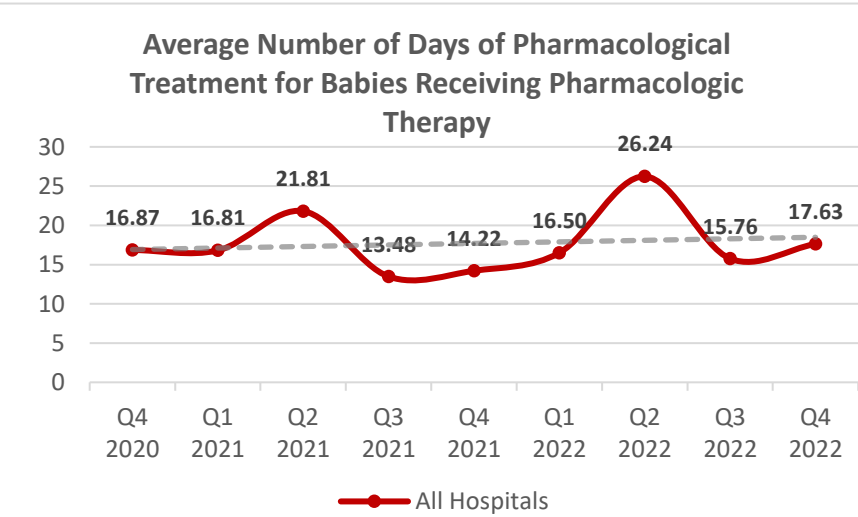


Figure 27

DHS Reporting of the Opioid-Exposed Newborn

The following questions were asked on the infant form:

- Was DHS contacted to report a substance-exposed infant?
  - No
  - Yes
  - Unknown

Of the **85** OENs, **76 (89%)** were known to be reported to DHS as a substance-exposed newborn. If a respondent said that DHS was not contacted (**n=9**), they were prompted to provide a reason, which are listed in Table 12.

Table 12: Reasons given for NOT contacting DHS
Mom in treatment program **(4 cases: 3 with negative toxicology, two of which had withdrawal; 1 case not tested, no withdrawal)**
Medication prescribed to mother for chronic/short term pain **(2 cases: 1 baby positive for opiates, 1 baby not tested, neither with withdrawal)**
Reason unknown/blank. **(3 cases: 1 with negative toxicology, 1 positive for fentanyl and cannabis, and 1 positive for oxycodone; none with withdrawal)**

Current Oklahoma statute: [Duty to Report Abuse or Neglect of Child Under Eighteen]

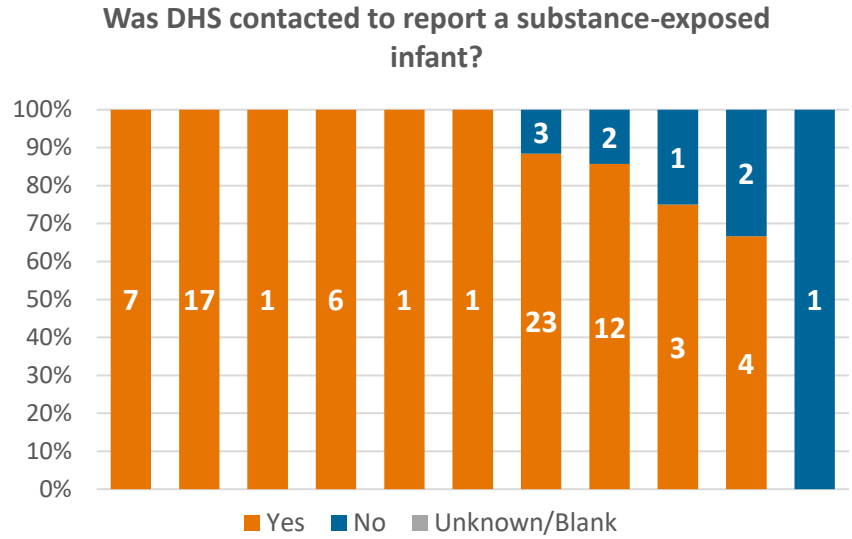


Figure 28: Each bar represents one reporting hospital.

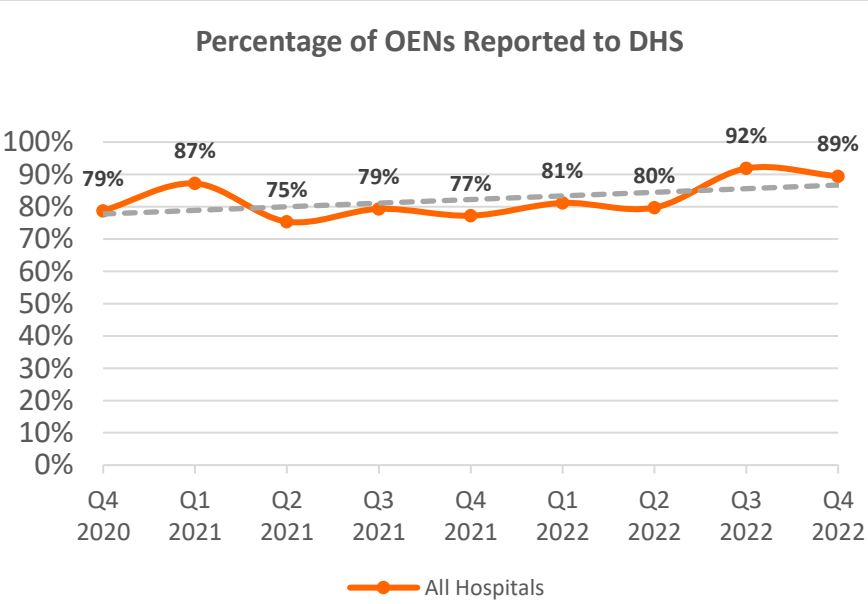


Figure 29

DHS Custody

The following questions were asked on the infant form:

- Did DHS take custody during birth hospitalization?
  - No, family maintained custody
  - No, planned adoption prior to delivery
  - **Yes, legal custody only**
  - **Yes, physical custody only**
  - **Yes, both legal and physical custody**
  - **Yes, unknown whether legal and/or physical custody**
  - Unknown

During Q4 2022, DHS took some form of custody of **18 (21%)** opioid-exposed infants. In Figure 30, "Yes" and "No" responses were combined and broken down by each reporting hospital. Figure 31 illustrates the percentage of OENs in DHS custody over time. Table 13 breaks down the types of custody reported.

Table 13: DHS Custody Types	Total OEN
Legal Custody Only	1
Physical Custody Only	2
Both Legal and **Physical Custody**	7
Unknown physical or legal custody	8

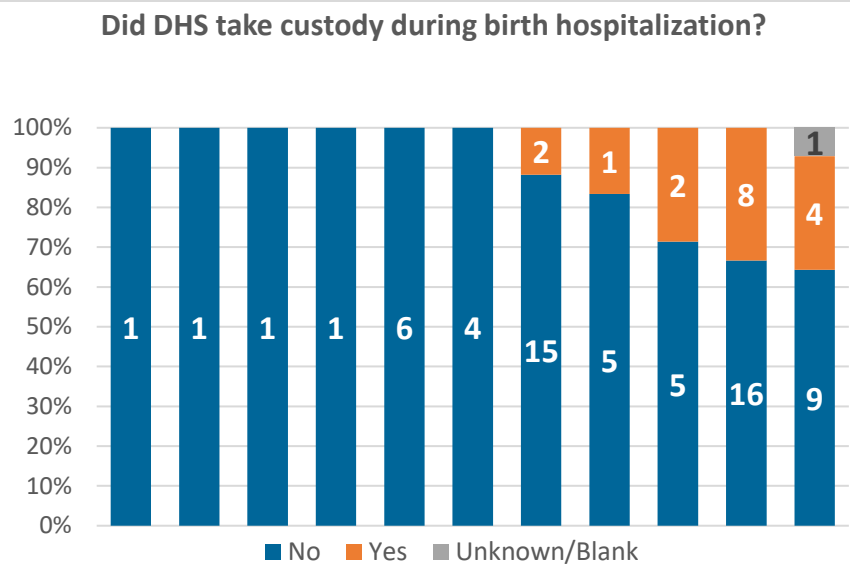


Figure 30: Each bar represents one reporting hospital.

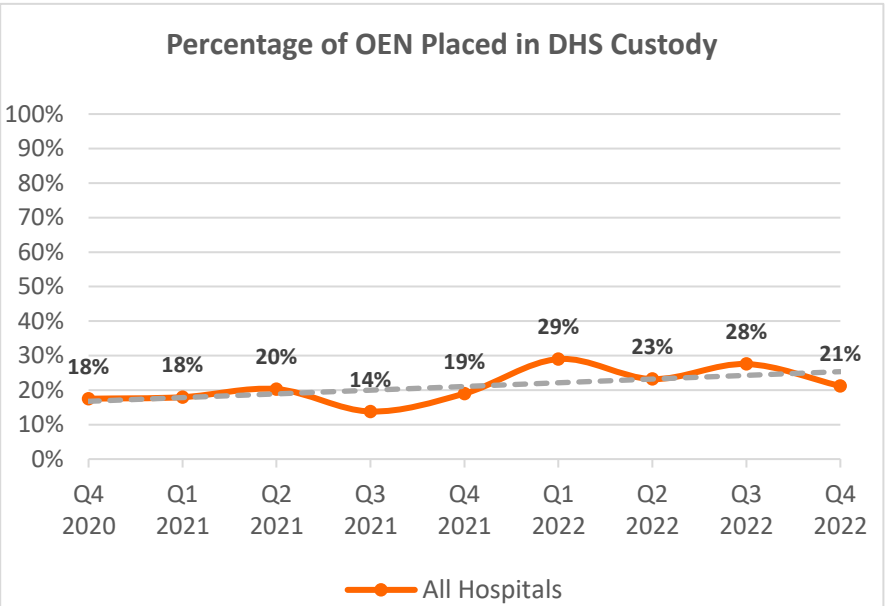


Figure 31

Placement after Discharge (AIM P3)

The following question was on the infant form:

- Who assumed care after discharge?
  - **Biological mother: Home**
  - **Biological mother: Substance treatment facility**
  - Placement with biological parent/partner in home where biological mother does NOT reside
  - Placement with other family member, foster or adoptive family
  - Transferred to other hospital/facility:
  - Date of Transfer: _____
  - Hospital transferred to:_____
  - Infant died. Cause of Death:_____
  - Unknown/Unclear documentation
  - Other _____

Figure 32 outlines a response to either of the first two choices listed above in which the infant was discharged with the biological mother. This is listed by hospital of discharge as a percentages of the OENs discharged from that hospital. This includes **4** responses of infants being discharged to substance treatment facilities. Collaborative-wide, **56 (66%)** infants were discharged home with their biological mother during Q4 2022.

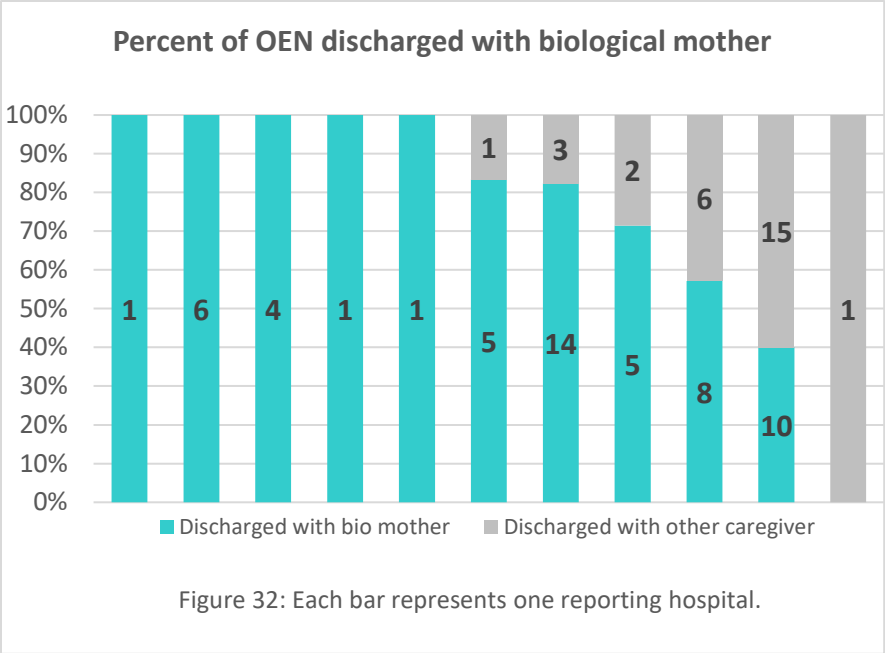


Figure 32: Each bar represents one reporting hospital.

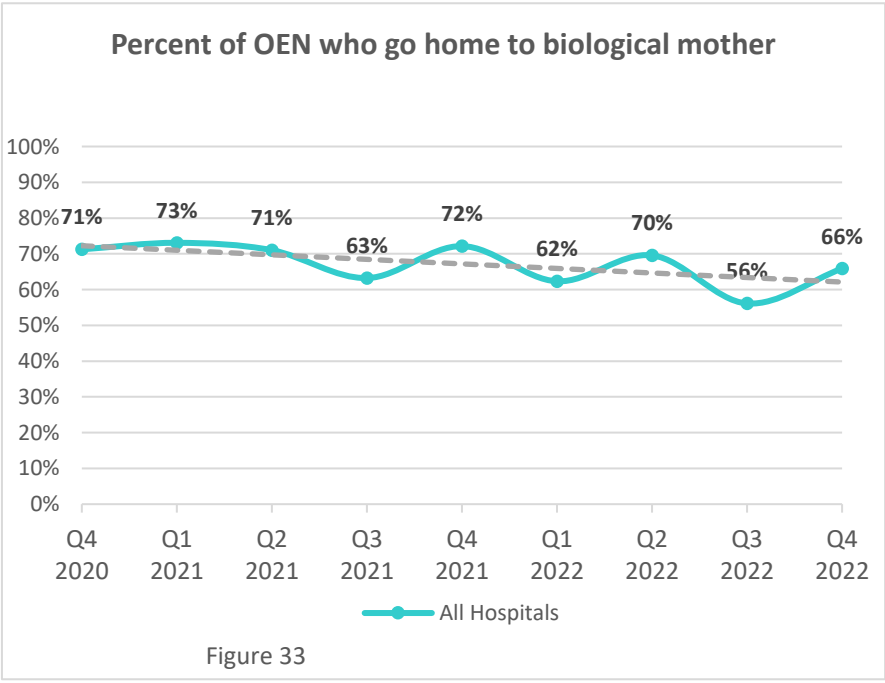


Figure 33

Early Intervention - Follow-up of the OEN (AIM OP14)

The following question was on the infant form:

- Early Intervention referrals documented prior to discharge
    - **o Sooner Start Referral**
    - **o ABC Clinic (OUHSC OKC)**
    - **o Other Local neurodevelopmental clinic: _____**
    - o None
    - o Unknown

Figure 34 shows the number and percentage of OEN at each hospital who were referred to early intervention services as indicated by one of the first three options above being selected (in bold). Infants are included in their hospital of discharge.

Collaborative-wide, **35 (41%)** infants were referred to early intervention services during Q4 2022.

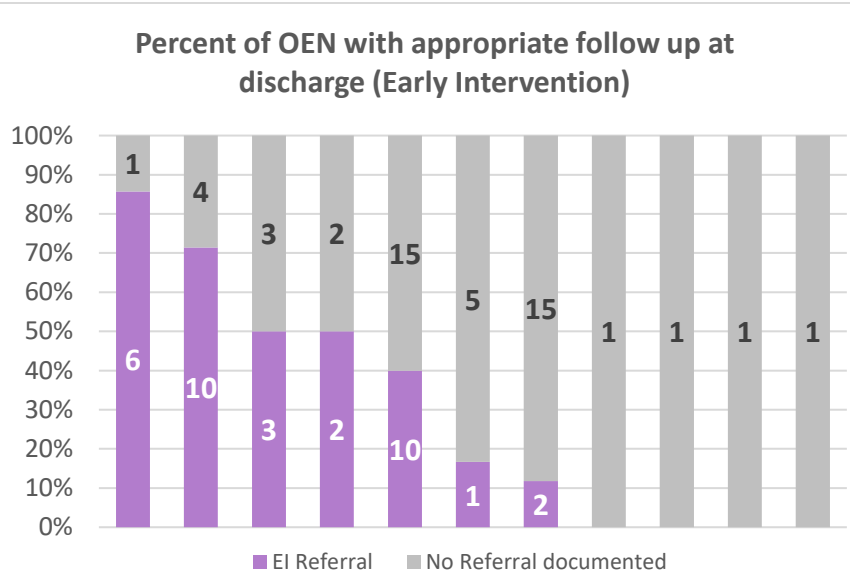


Figure 34: Each bar represents one reporting hospital.

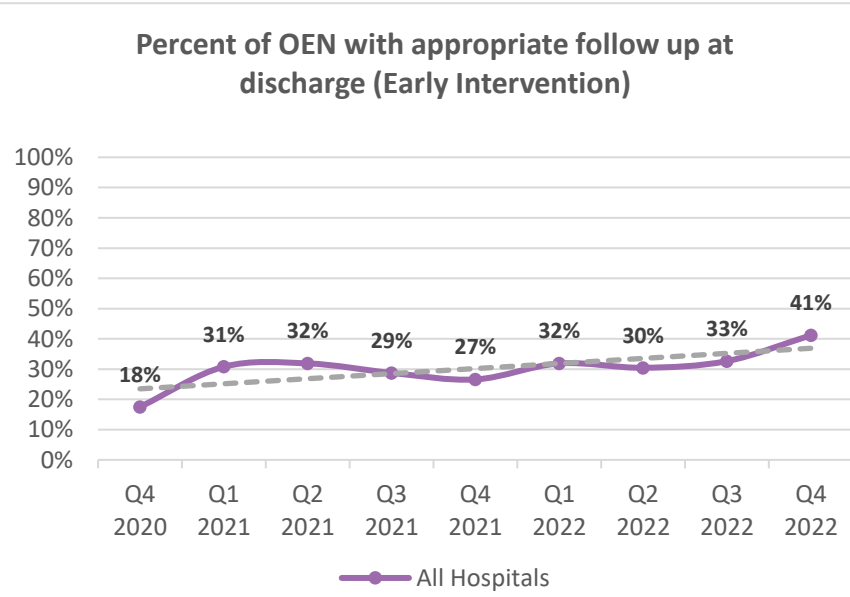


Figure 35

Appendix A: Data Collection and Submission Process/Definitions

In order for a mother and/or newborn to qualify for submission, either mother or infant must meet definition as **Pregnant Woman with Opioid Use Disorder[3] or Opioid-Exposed Newborn[5]** as listed in the definitions below.

If a mother or infant qualifies for submission, a data collection form is completed for each mother and infant.

Data is entered into an established REDCap database. These data were extracted April 5, 2023 and will not reflect records entered or modified after that time.

Definitions used in AIM measures

TERM	DEFINITION
1. Newborn	Infant admitted at 0 days old, transfer admission up to 1 week old, or readmission from home/ER/clinic up to 1 week old *Admitted at less than 7 days old
2. Neonatal Abstinence Syndrome (NAS)	Refer to ICD 10 Code P96.1 Neonatal Withdrawal Symptoms from Maternal Use of Drugs of Addiction
3. Opioid Use Disorder (OUD)/Pregnant Woman with Opioid Use Disorder	**Clinical Criteria:** All women delivering at your hospital with: • positive self-report screen or positive opioid toxicology screen during pregnancy and assessed to have OUD, or • Patient endorses or reports misuse of opioids / opioid use disorder • using non-prescribed opioids during pregnancy using prescribed opioids chronically for longer than a month in the third trimester (This excludes women using opioids solely prescribed for medical conditions) - newborn has an unanticipated positive neonatal cord, urine, or meconium screen for opioids or if -newborn has symptoms associated with opioid exposure including NAS Code P96.1 -F11.xx code can be used as an alternative to clinical criteria
4. Medication Assisted Treatment (MAT)	Medication Assisted Treatment (MAT): the use of FDA- approved medications, in combination with counseling and behavioral therapies, to provide a "whole-patient" approach to the treatment of substance use disorders (SAMHSA, 2018)
5. Opioid Exposed Newborn ≥ 35 weeks (OEN)	**Clinical Criteria:** All infants of mothers with opioid use disorder if mother has: • positive self-report screen or positive opioid toxicology screen during pregnancy and assessed to have OUD, or • Patient endorses or reports misuse of opioids / opioid use disorder, or • using non-prescribed opioids during pregnancy, or • using prescribed opioids chronically for longer than a month in the third trimester, or • if newborn has a positive neonatal cord, urine, or meconium screen for opioids, or ● if newborn affected by maternal use of opioids including NAS If using ICD-10 data, check both infant and maternal diagnoses: P96.1 Neonatal withdrawal symptoms from maternal use of drugs of addiction P04.14 Newborn affected by maternal use of opiates And Maternal codes for Opioid abuse, dependency, or use: F11.xx
6. Mother's milk at discharge	Mother's Milk at Discharge: Receipt of any of infant's mother's milk at time of discharge; does not need to be exclusive source of feeding
7. Screening	Screening: Verbal and written questions regarding opiate use. Screening tests include NIDA, 4Ps, 5Ps and others; refer to AIM screening tool guide
8. Testing	A biologic test of serum, urine, hair for presence of opioids

TERM	DEFINITION
9. Behavioral Health Services	Behavioral Health Counseling/Recovery Services Definition: Received Behavioral Health Counseling/Recovery Services including: • Residential Treatment/Inpatient Recovery Program • Outpatient Treatment • Methadone Clinic/Treatment Center • Behavioral Health Counseling • Peer Support Counseling/12-Steps Program
11. Prenatal Care Site	Any site where prenatal care is provided (includes office, clinic)