

Colorado Hospitals Substance Exposed Newborn Quality Improvement Collaborative (CHoSEN QIC)

February 1, 2019

COLORADO SEN STEERING COMMITTEE



**CHOSEN
COLLABORATIVE**

**PLANS OF
SAFE CARE
WORK GROUP**

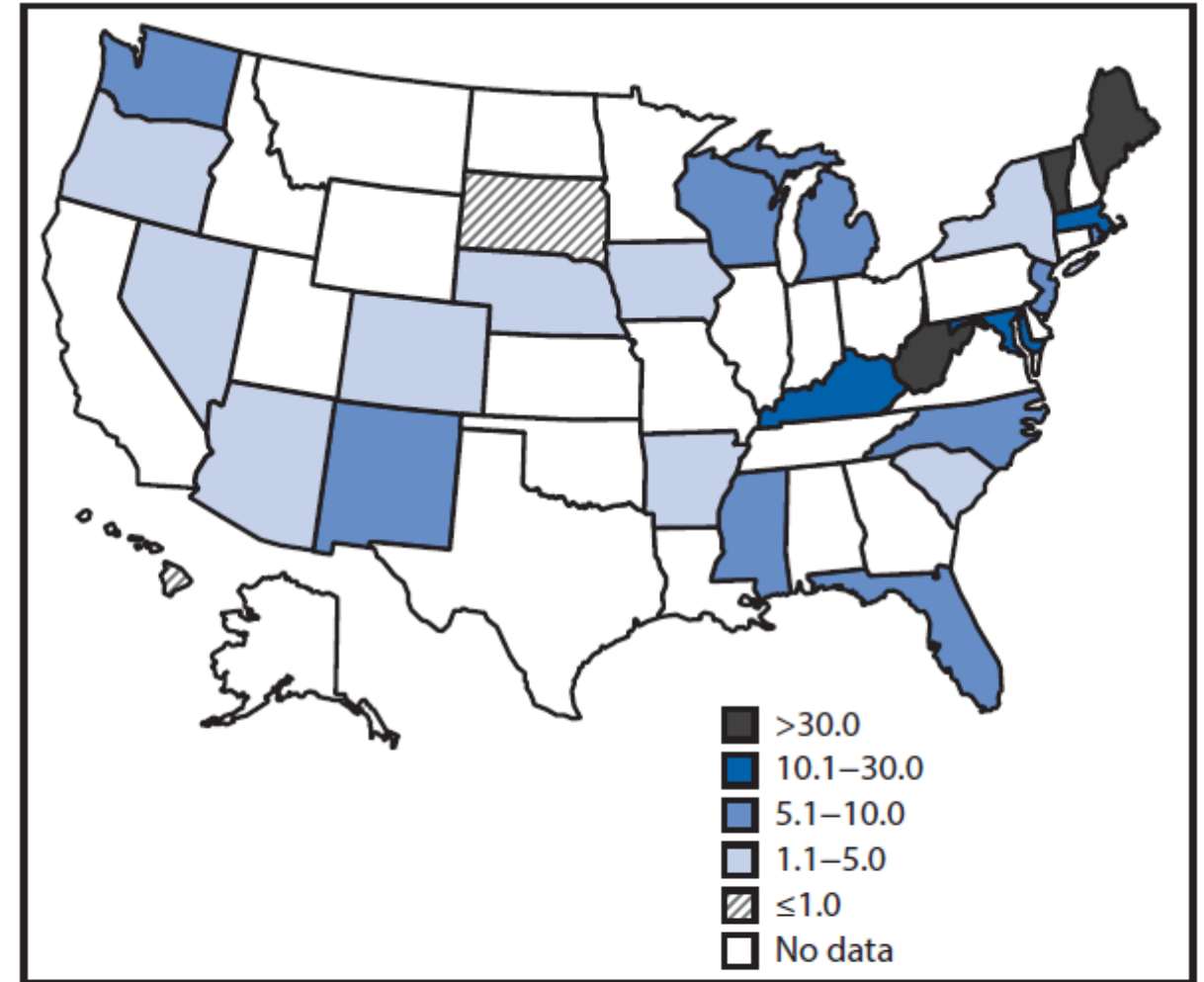
**DATA & RESEARCH
WORK GROUP**

**POLICY
WORK GROUP**

**FASD
IDENTIFICATION
WORK GROUP**

**PROVIDER
EDUCATION
WORK GROUP**

Among 28 states, overall NAS incidence increased 300% from 1.5 to 6.0 per 1000 hospital births from 1999 to 2013



Source: State Inpatient Databases, Healthcare Cost and Utilization Project.

* NAS cases per 1,000 hospital births.

† Incidence rates reported are for 2013, except for four states (Maine, Maryland, Massachusetts, and Rhode Island) for which 2013 data were not available; 2012 data are reported for these states.

Ko JY, Patrick SW, Tong VT, Patel R, Lind JN, Barfield WD.
MMWR Morb Mortal Wkly Rep 2016;65:799–802

SYSTEMS	SIGNS AND SYMPTOMS	SCORE	AM 2	4	6	8	10	12	PM 2	4	6	8	10	12	DAILY WT.
CENTRAL NERVOUS SYSTEM DISTURBANCES	High Pitched Cry	2													
	Continuous High Pitched Cry	3													
	Sleeps < 1 Hour After Feeding	3													
	Sleeps < 2 Hours After Feeding	2													
	Hyperactive Moro Reflex	2													
	Markedly Hyperactive Moro Reflex	3													
	Mild Tremors Disturbed	2													
	Moderate Severe Tremors Disturbed	3													
	Mild Tremors Undisturbed	1													
	Moderate Severe Tremors Undisturbed	2													
	Increased Muscle Tone	2													
	Excoriation (specify area): _____	1													
	Myoclonic Jerks	3													
	Generalized Convulsions	3													
METABOLIC VASOMOTOR/ RESPIRATORY DISTURBANCES	Sweating	1													
	Fever < 101°F (39.3°C)	1													
	Fever > 101°F (39.3°C)	2													
	Frequent Yawning (> 3-4 times/interval)	1													
	Mottling	1													
	Nasal Stuffiness	1													
	Sneezing (> 3-4 times/interval)	1													
	Nasal Flaring	2													
	Respiratory Rate > 60/min	1													
	Respiration Rate > 60/min with Retractions	2													
GASTROINTESTINAL DISTURBANCES	Excessive Sucking	1													
	Poor Feeding	2													
	Regurgitation	2													
	Projectile Vomiting	3													
	Loose Stools	2													
	Watery Stools	3													
SUMMARY	TOTAL SCORE														
	SCORER'S INITIALS														
	STATUS OF THERAPY														

Variability Across Colorado Hospitals

- Maternal and infant drug screening
- Infant assessment for withdrawal
- Location of care for opioid exposed newborns
- Degree of engagement of mothers
- Pharmacologic treatment modalities
 - Initiation and weaning protocols
- Criteria for discharge
- On and on and on.....

An Initiative to Improve the Quality of Care of Infants With Neonatal Abstinence Syndrome

Matthew R. Grossman, MD,^a Adam K. Berkowitz, MD,^a Rachel R. Osborn, MD,^a Yaqing Xu, MS,^b Denise A. Esserman, PhD,^b Eugene D. Shapiro, MD,^{a,c} Matthew J. Bizzarro, MD^a

BACKGROUND AND OBJECTIVES: The incidence of neonatal abstinence syndrome (NAS), a constellation of neurologic, gastrointestinal, and musculoskeletal disturbances associated with opioid withdrawal, has increased dramatically and is associated with long hospital stays. At our institution, the average length of stay (ALOS) for infants exposed to methadone in utero was 22.4 days before the start of our project. We aimed to reduce ALOS for infants with NAS by 50%.

METHODS: In 2010, a multidisciplinary team began several plan-do-study-act cycles at Yale New Haven Children's Hospital. Key interventions included standardization of nonpharmacologic care coupled with an empowering message to parents, development of a novel approach to assessment, administration of morphine on an as-needed basis, and transfer of infants directly to the inpatient unit, bypassing the NICU. The outcome measures included ALOS, morphine use, and hospital costs using statistical process control charts.

abstract



Departments of ^aPediatrics, ^bBiostatistics, and ^cEpidemiology, Yale University School of Medicine and School of Public Health, New Haven, Connecticut

Dr Grossman conceptualized and designed the project, drafted the initial manuscript, and coordinated data collection; Drs Berkowitz and Osborn helped design the project, collected data, and critically reviewed the manuscript; Ms Xu and Dr Esserman carried out the statistical analysis and critically reviewed the manuscript; Dr Shapiro helped analyze data and critically reviewed the manuscript; Dr Bizzarro helped design the project and critically reviewed the manuscript; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the

CHoSEN QIC

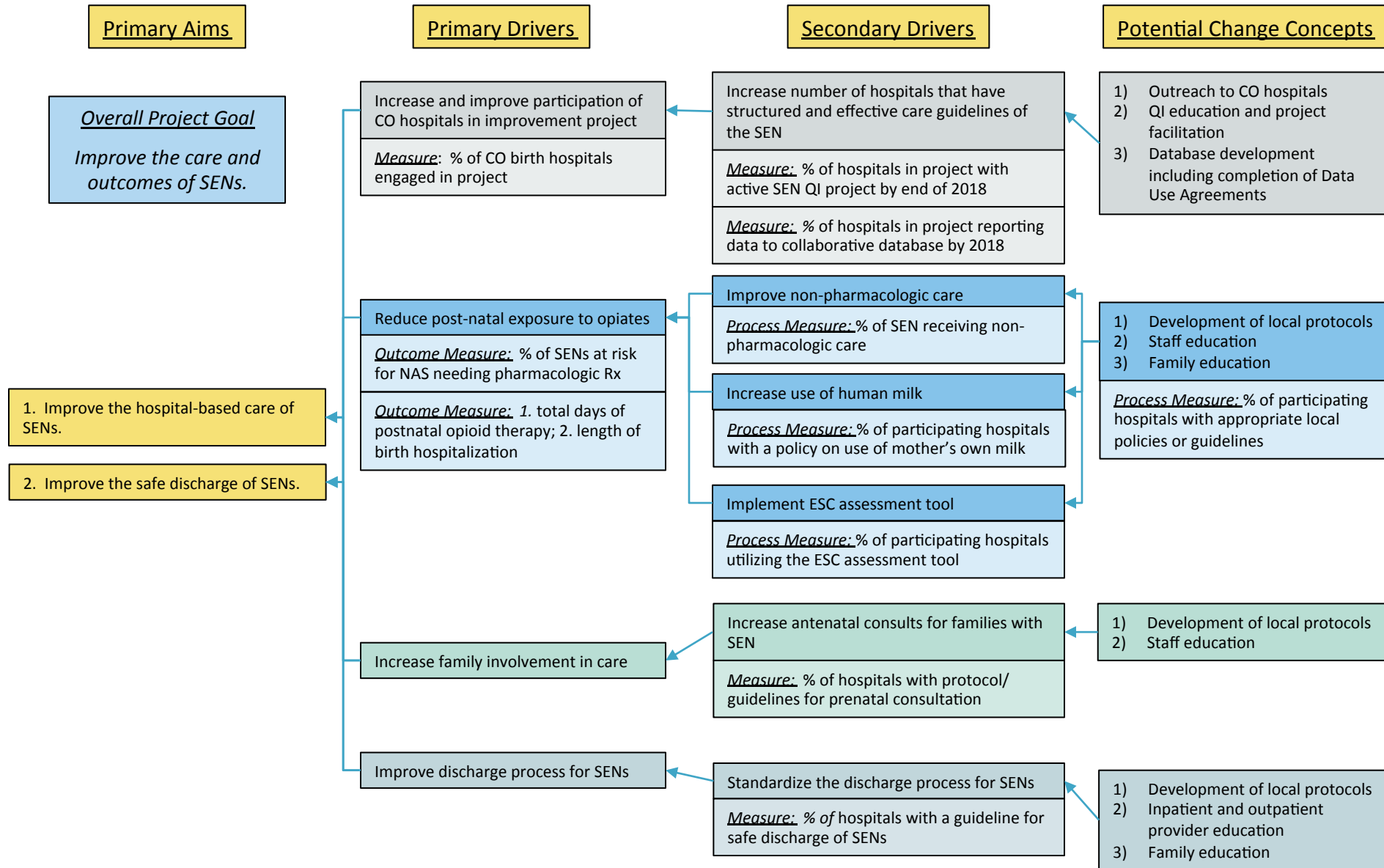
Initiative Goal

Our goal is to develop a collaborative quality improvement initiative of Colorado hospitals that will use structured **quality improvement methods and sharing of data and practices** to further support hospital-based improvement efforts to achieve measurable improvements in the care of substance-exposed newborns and their families.

CHoSEN QIC: Components

- Multi-disciplinary hospital-based improvement teams
- Structured quality improvement methods
- Data collection on key performance measures
 - shared database with online data entry
 - regular progress reports
- Toolkits of better practices and resources
- Open sharing of practices and data
 - twice-yearly statewide summits and regular webinars.

CHOSEN QIC Key Driver Diagram



Progress to Date

Development of Partnerships



School of Medicine

UNIVERSITY OF COLORADO

September 2017

<u>Hospital</u>	<u>Team Lead Identified</u>	<u>Team Roster Completed</u>	<u>IRB Review Completed</u>	<u>Data Audit Begun</u>	<u>Interventions Implemented</u>	<u>Data Sharing Begun</u>
Denver Health	Y					
Lutheran	Y					
Parker	Y					
Platte Valley	Y					
Poudre Valley	Y					
University Hospital	Y					

January 2019

<u>Hospital</u>	<u>Team Lead Identified</u>	<u>Team Roster Completed</u>	<u>Data Use Agreement</u>	<u>Interventions Implemented</u>	<u>Data Collection & Sharing Begun</u>
Denver Health	Y	Y	Y	Y	Y
Lutheran Medical Center	Y	Y	Y	Y	Y
McKee Medical Center	Y	Y	Y		
Medical Center of the Rockies	Y	Y	Y		
Memorial Hospital	Y	Y	Y	Y	Y
North Colorado Medical Center	Y	Y	Y		
North Suburban Medical Center	Y	Y	Y	Y	Y
Parkview Medical Center	Y	Y	Y	Y	Y
Parker Adventist	Y	Y	Y	Y	Y
Platte Valley	Y	Y	Y	Y	Y
Poudre Valley	Y	Y	Y	Y	Y
San Luis Valley Health	Y	Y			
St. Joseph Hospital	Y	Y	Y	Y	Y
St. Mary's Medical Center	Y	Y	Y	Y	Y
St. Vincent Healthcare	Y	Y			
University Hospital	Y	Y	Y	Y	Y
Valley View Hospital	Y	Y			

Workshops, Forums, Webinars

- First forum, September 2017
- Fall Forum, November 2017
- CHoSEN QIC “How-To” Workshop, February 2018
- Spring Forum, May 2018
- Webinar, September 2018
- Winter Forum, January 2019

Winter Forum: January 31, 2019

Over 80 attendees from across Colorado:

- Colorado Springs
- Denver Metro
- Fort Collins
- Grand Junction
- Glenwood Springs
- Greeley
- Pueblo

Representing:

- 14 Colorado hospitals
- 3 State agencies
- 3 Partner organizations



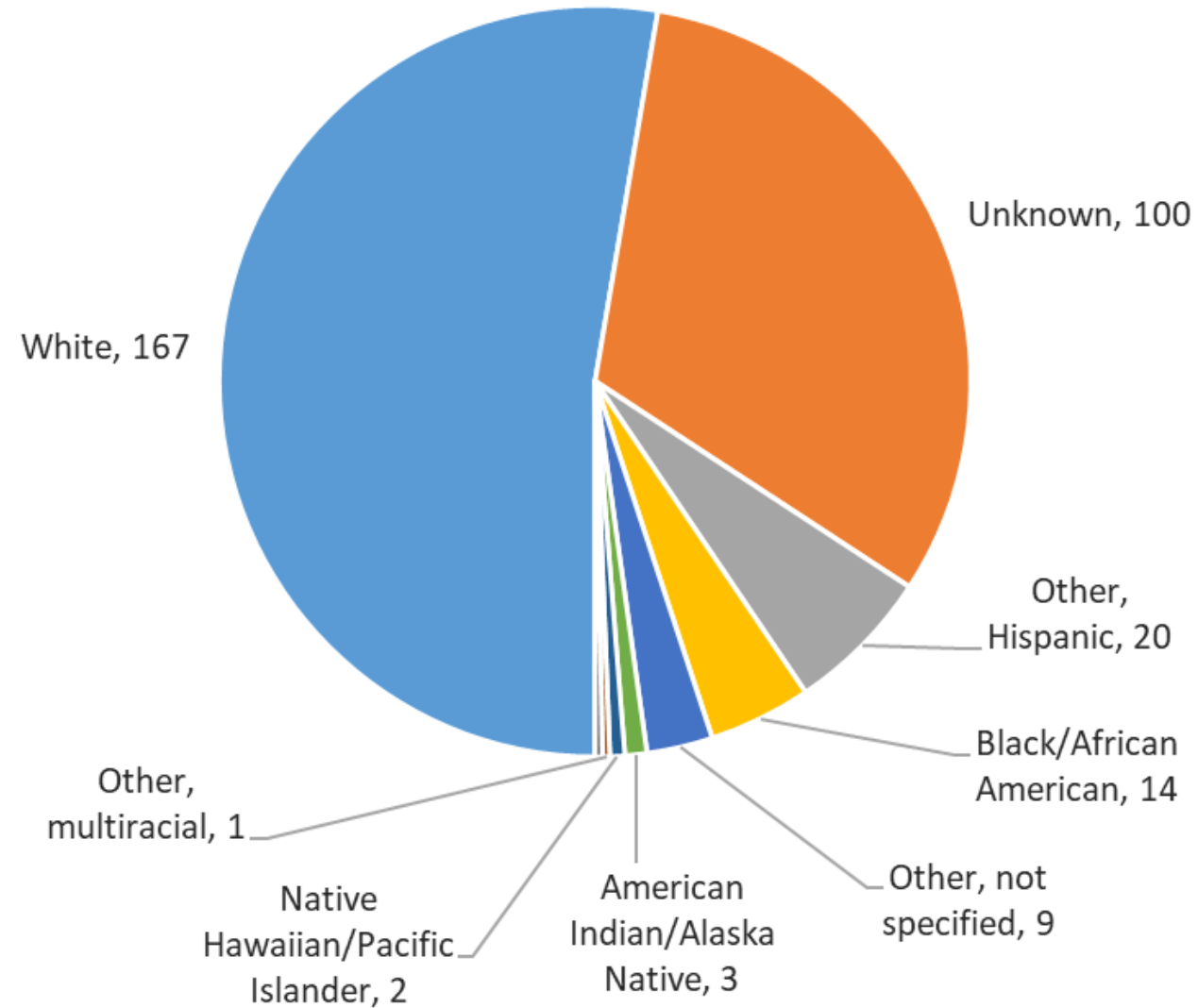
Site Visits

Hospital	Date
Denver Health	7/13/2018
Memorial Hospital	11/9/2018
Valley View Hospital	11/19/2018
St. Mary's Medical Center	11/20/2018
Parkview Medical Center	1/14/2019
St. Joseph Hospital	2/15/2019



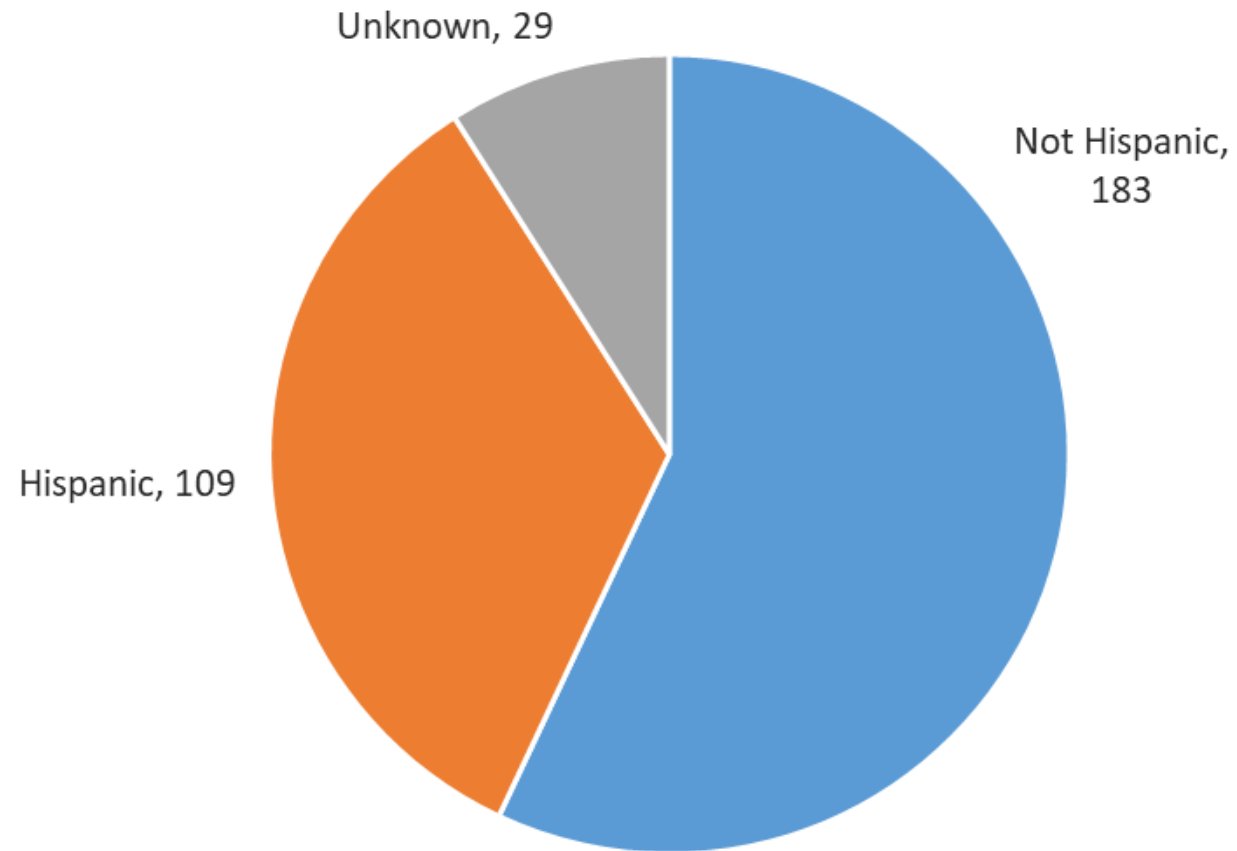
Data Update

Cases of Substance-exposed Newborns by
Mother's Race

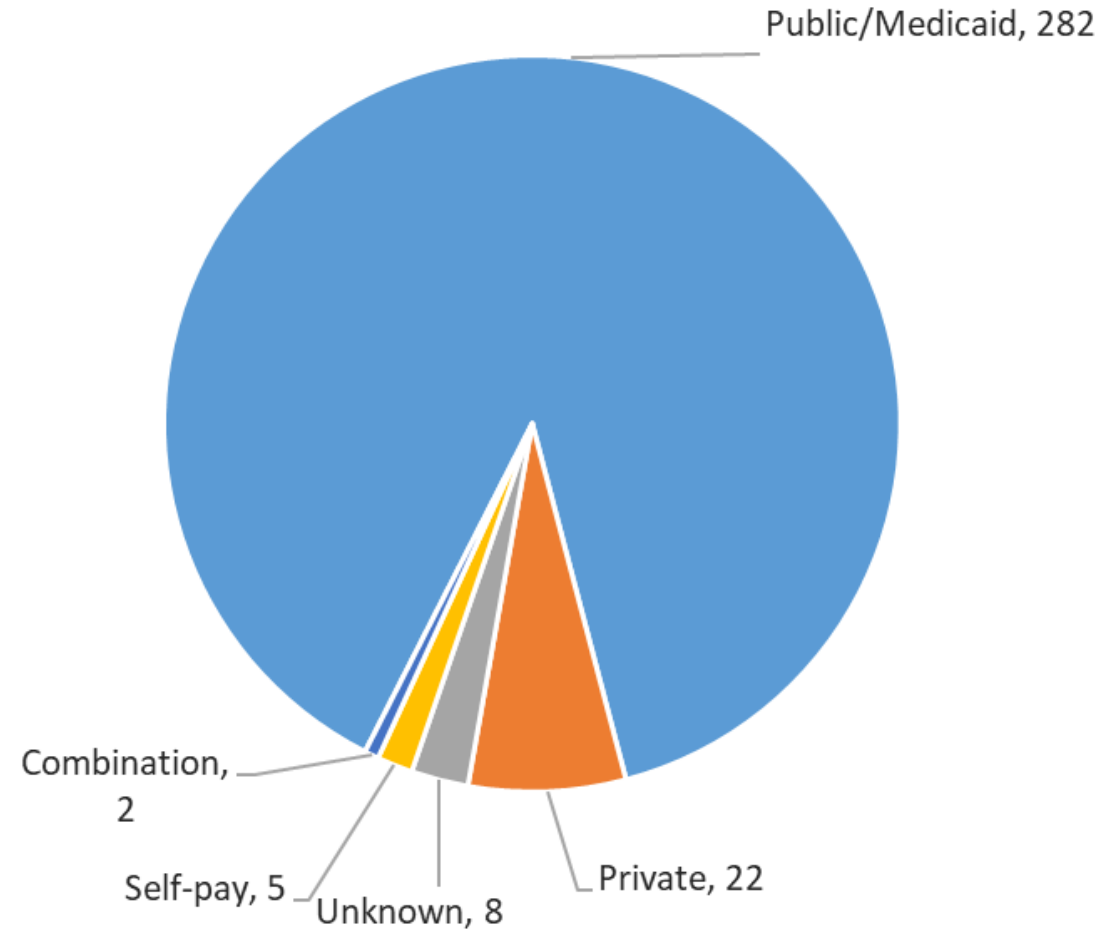


315 cases
captured to date

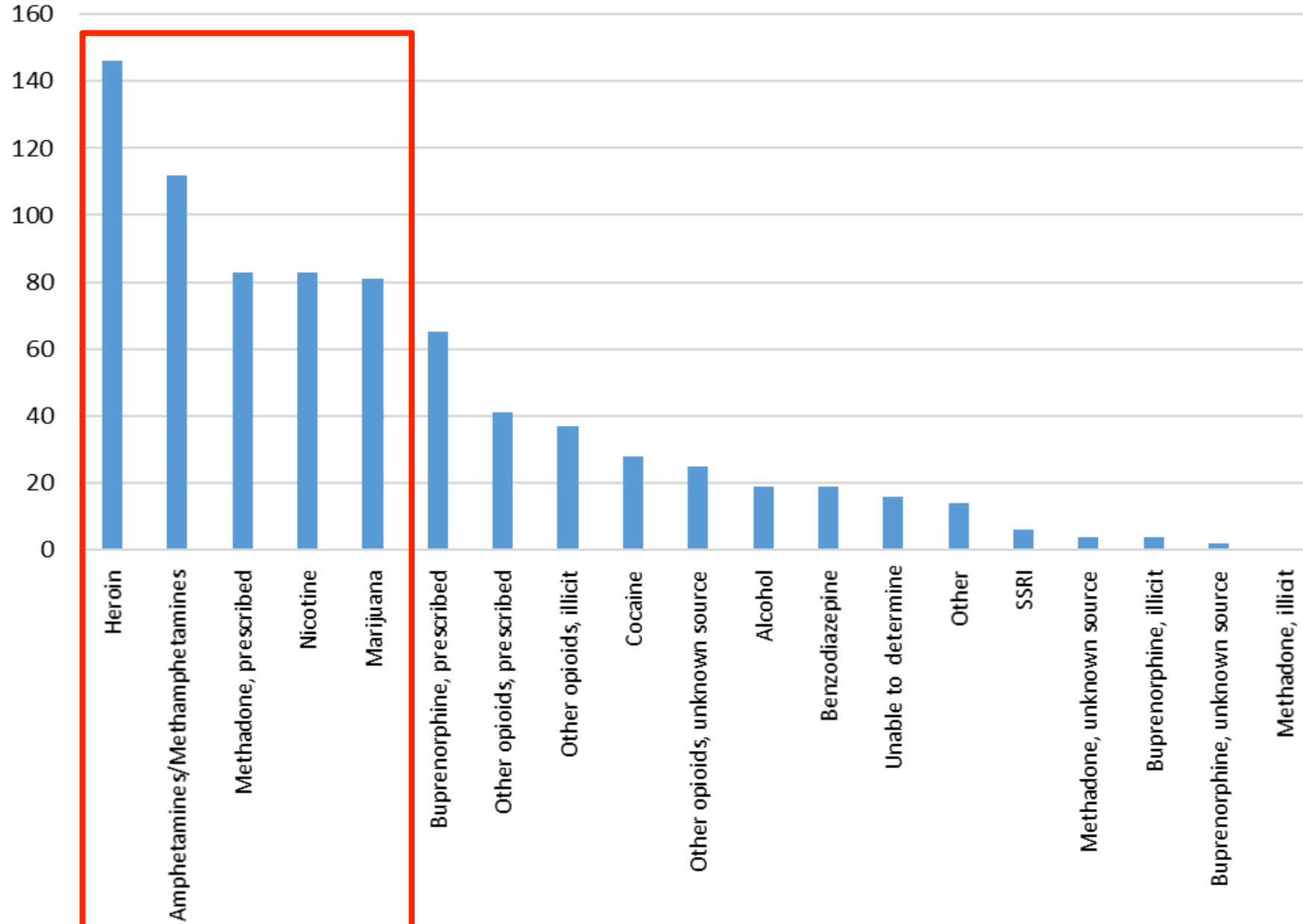
Cases of Substance-exposed Newborns by
Mother's Ethnicity



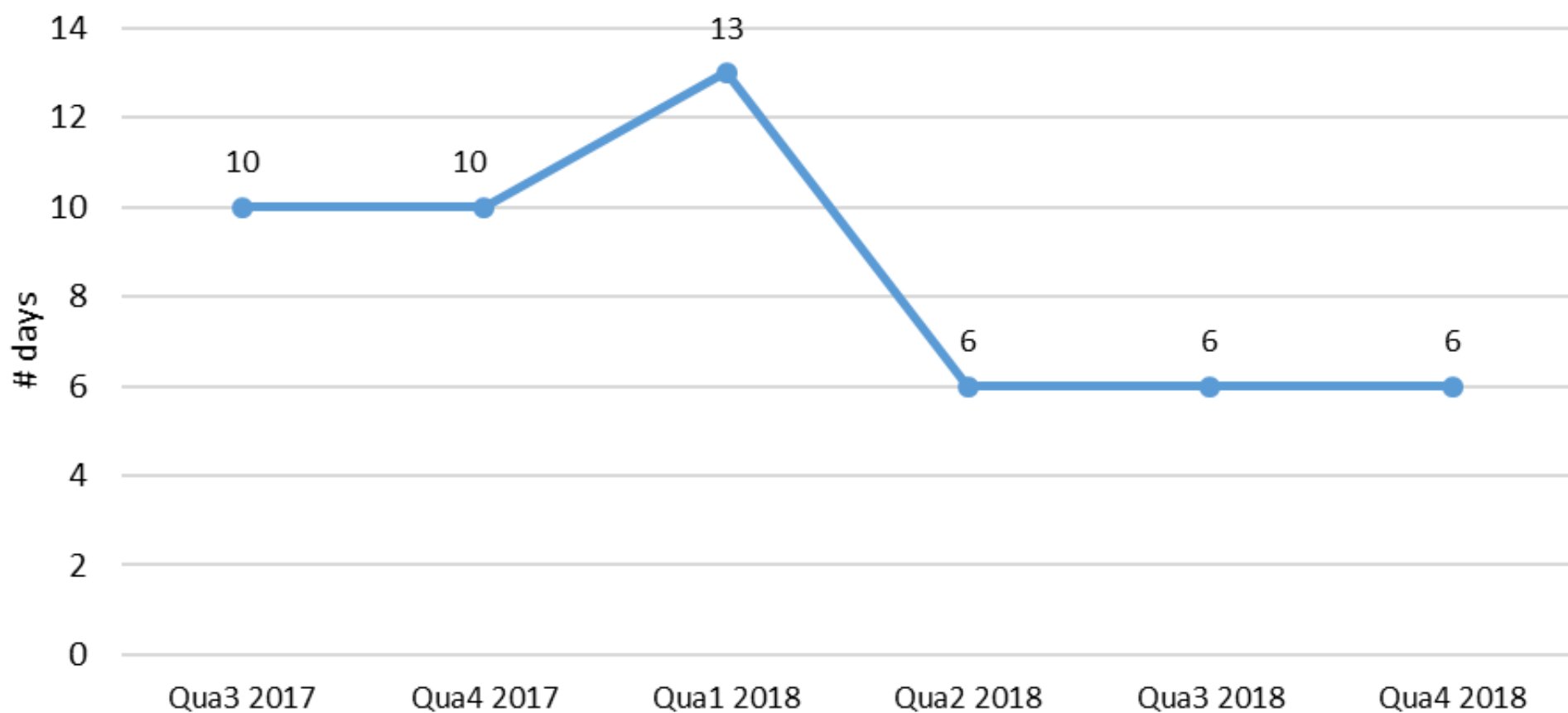
Cases of Substance-exposed Newborns by Mother's Insurance



Maternal and Fetal Exposures by Type of Substance

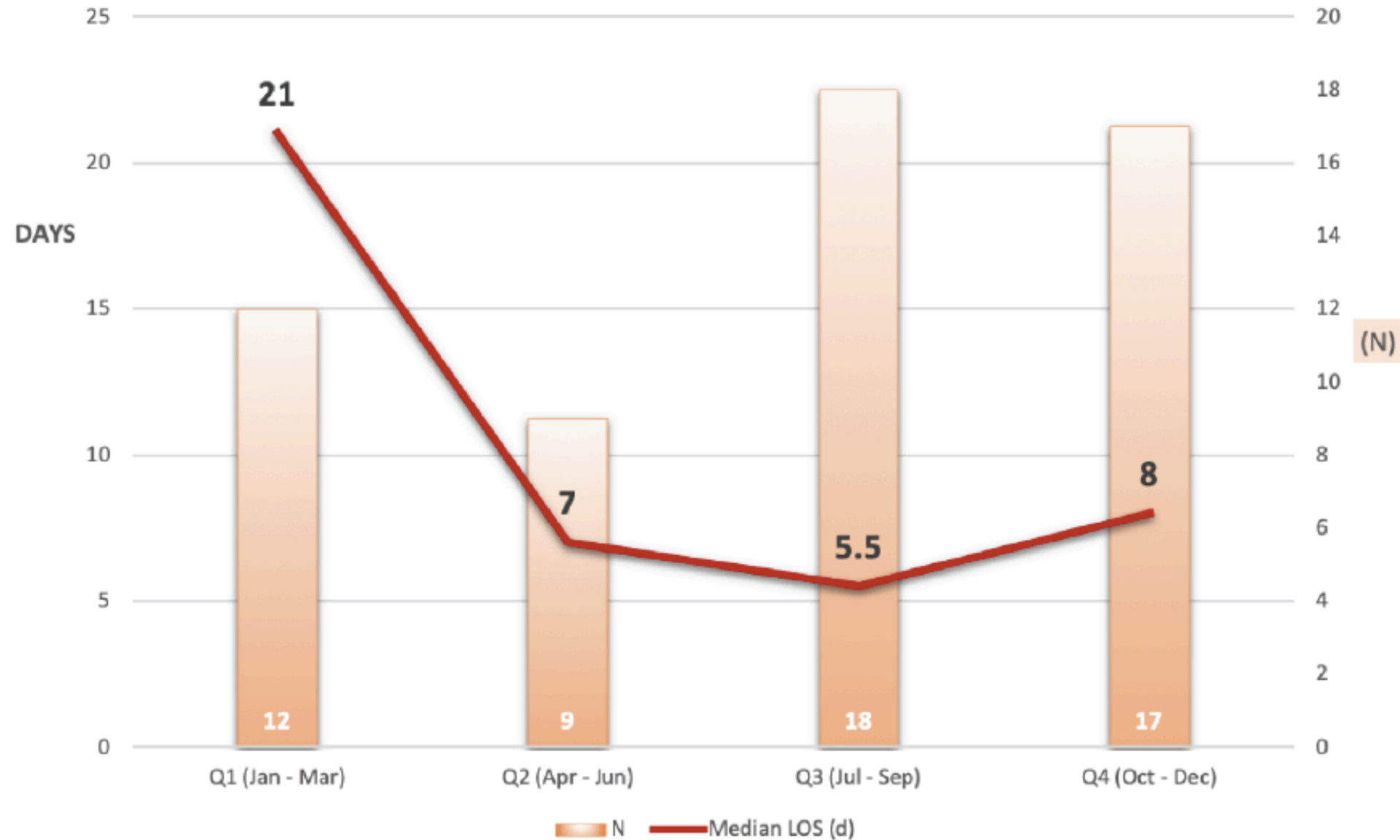


Median Length-of-Stay

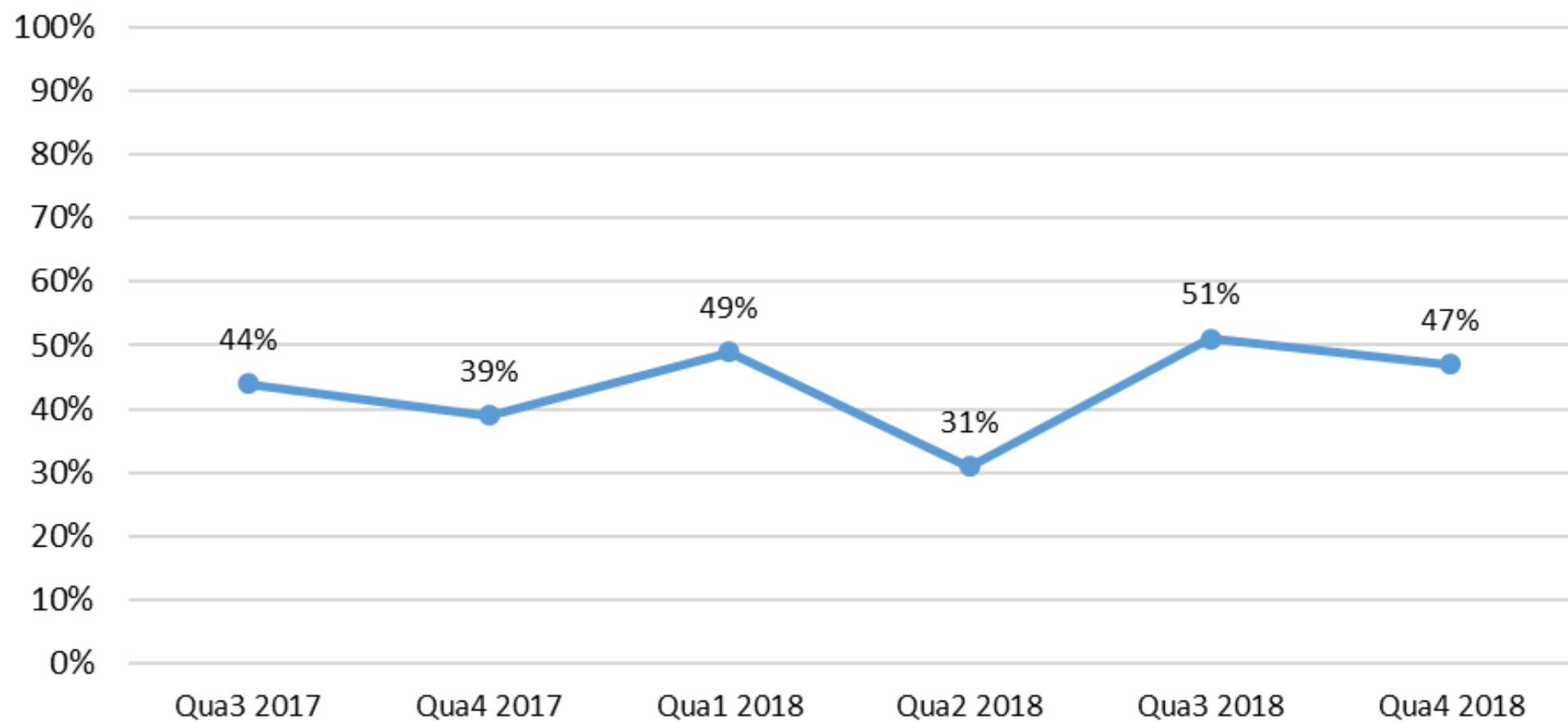


Neonates born under 35-0 weeks gestation and neonates transferred to another facility were excluded from the data.

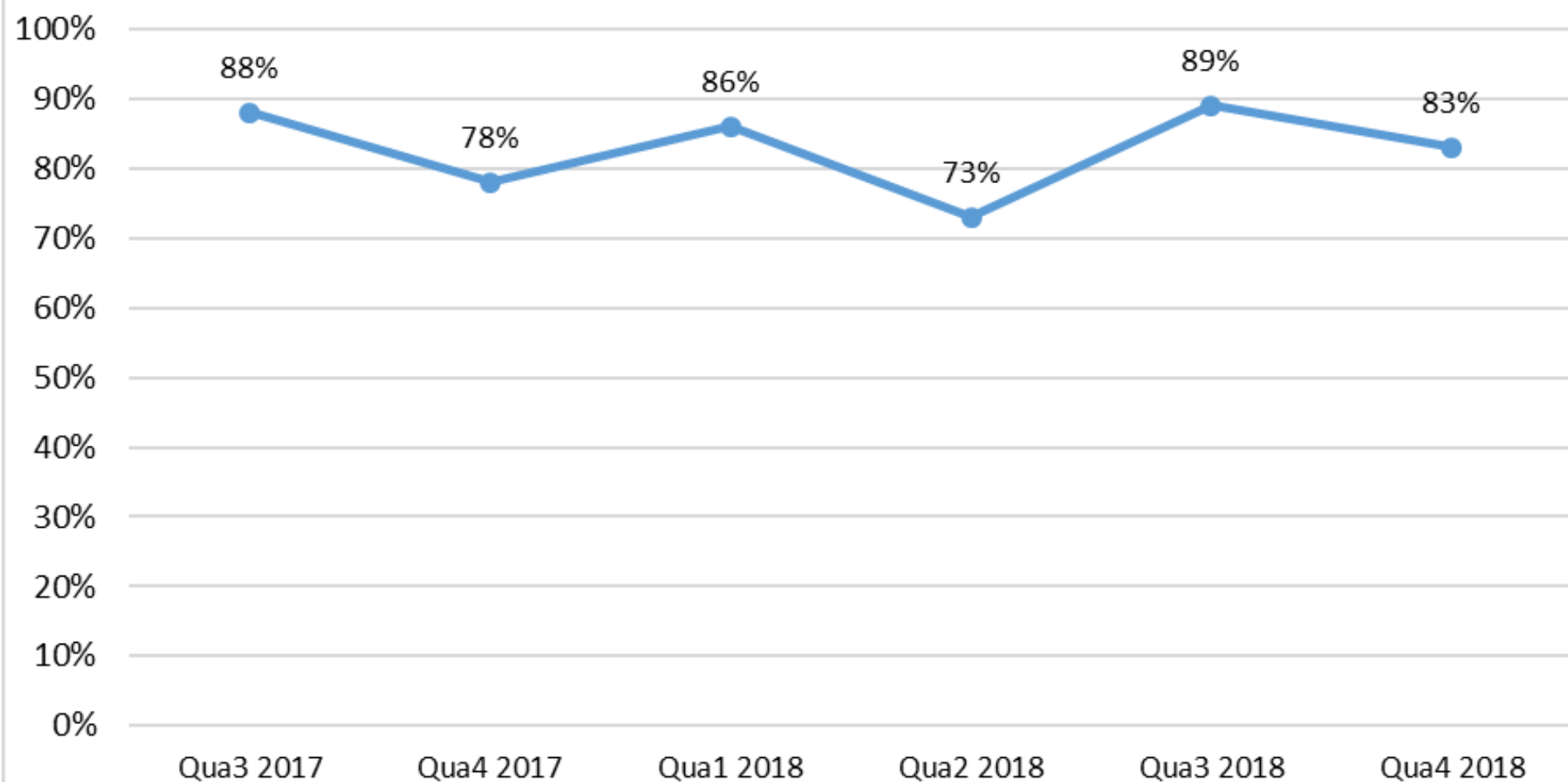
Overall Length of Stay by Quarter 2018



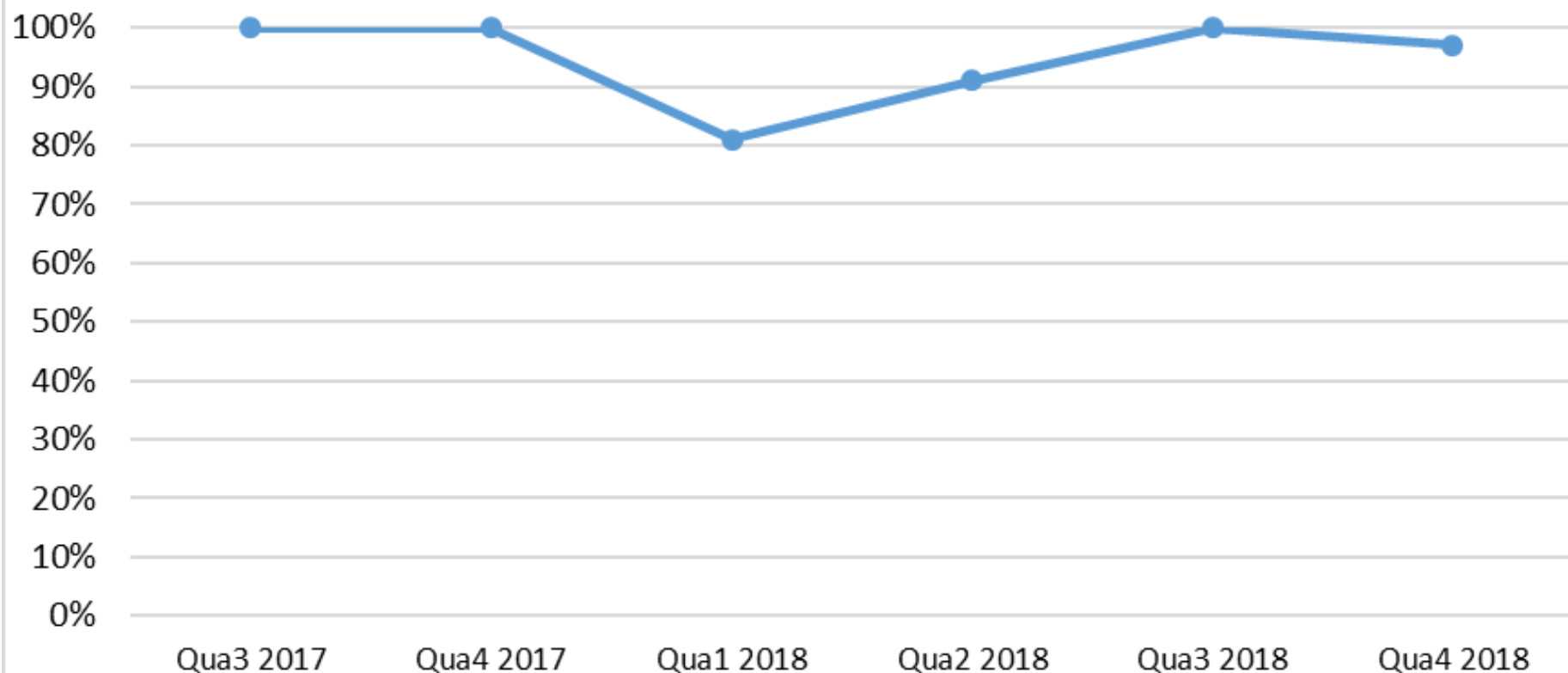
Percent of Substance-exposed Newborns Who Were Eligible for Mother's Own Milk Based on Hospital's Guidelines



Percent of Substance-exposed Newborns Who Received Mother's Own Milk (MOM) if Eligible



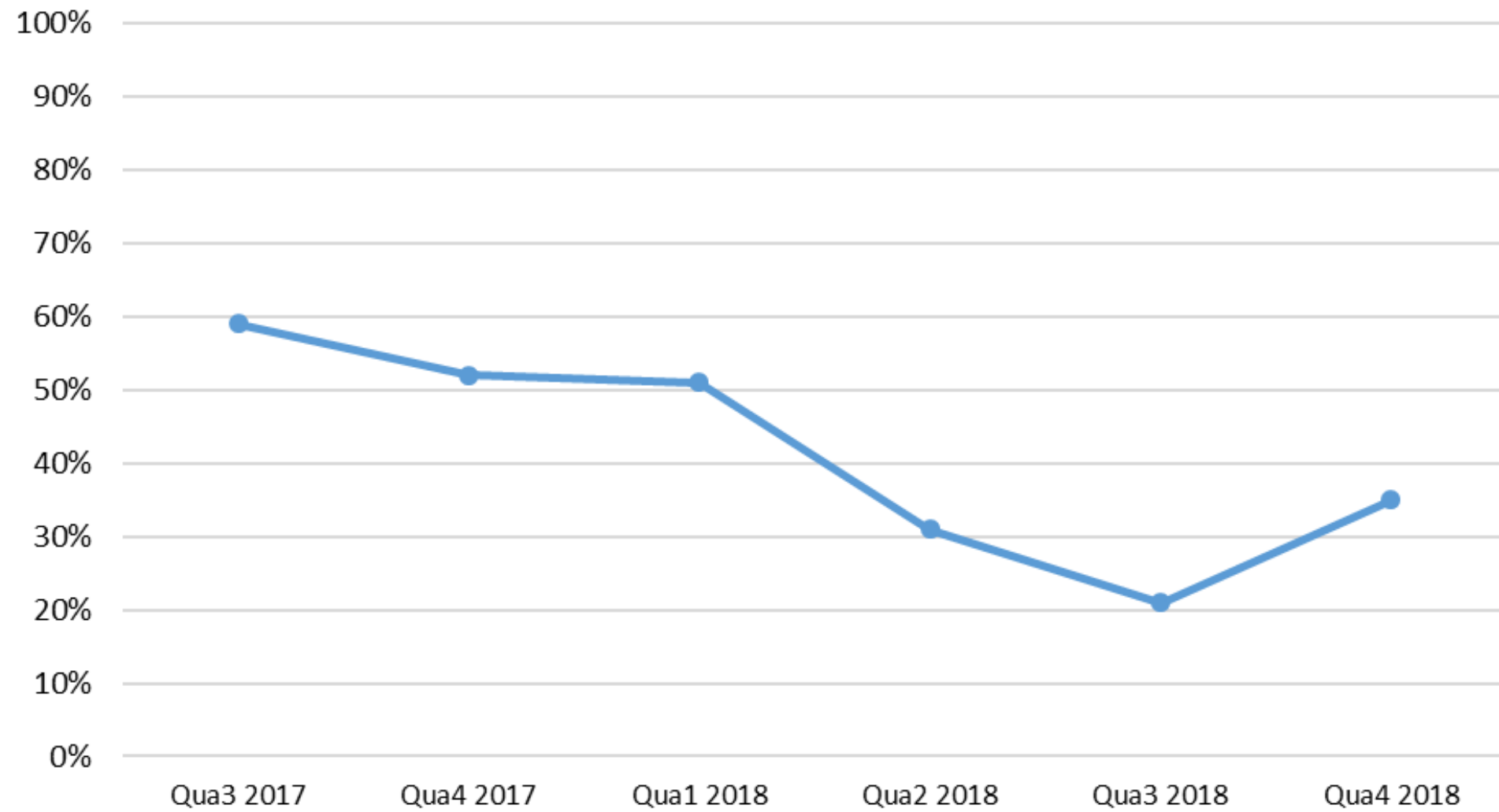
Percent of Neonates Receiving Non-pharmacologic Therapy Prior to Opiate Treatment



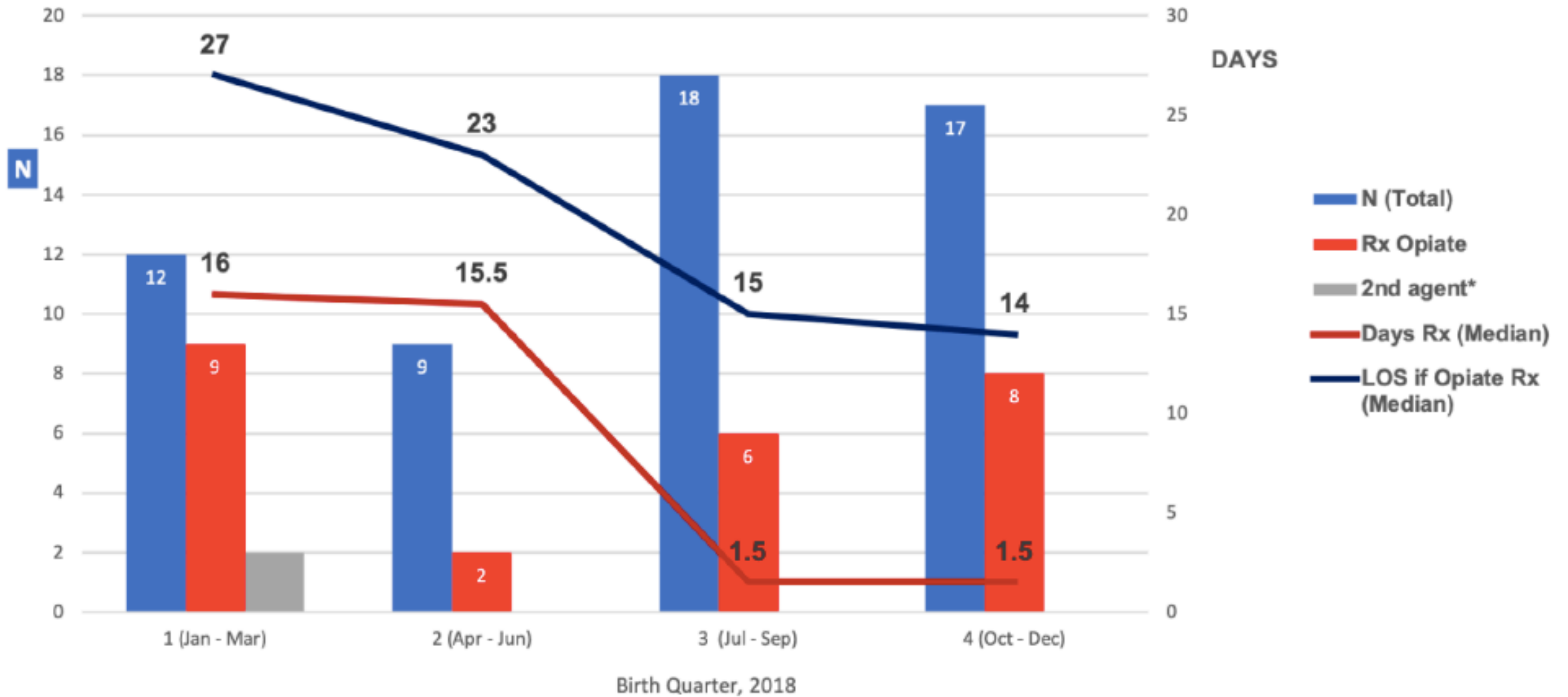
Cases were excluded from denominator if use of non-pharm therapy was unknown.

Nearly all cases in Qua1 2018 where non-pharm therapy was not initiated prior to opiate treatment were for one hospital that joined CHoSEN during that quarter.

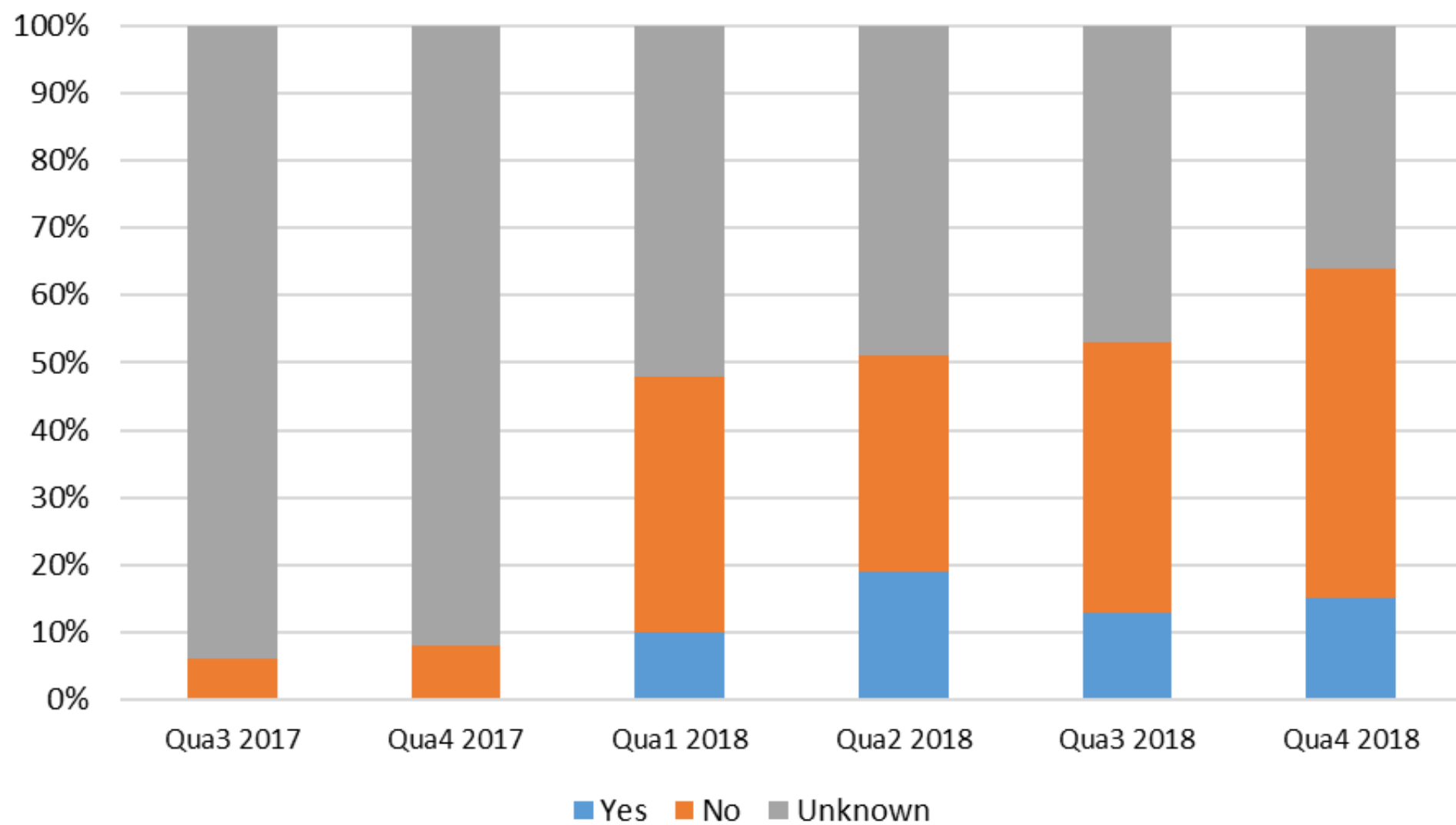
Percent of Neonates Receiving Opiate Treatment



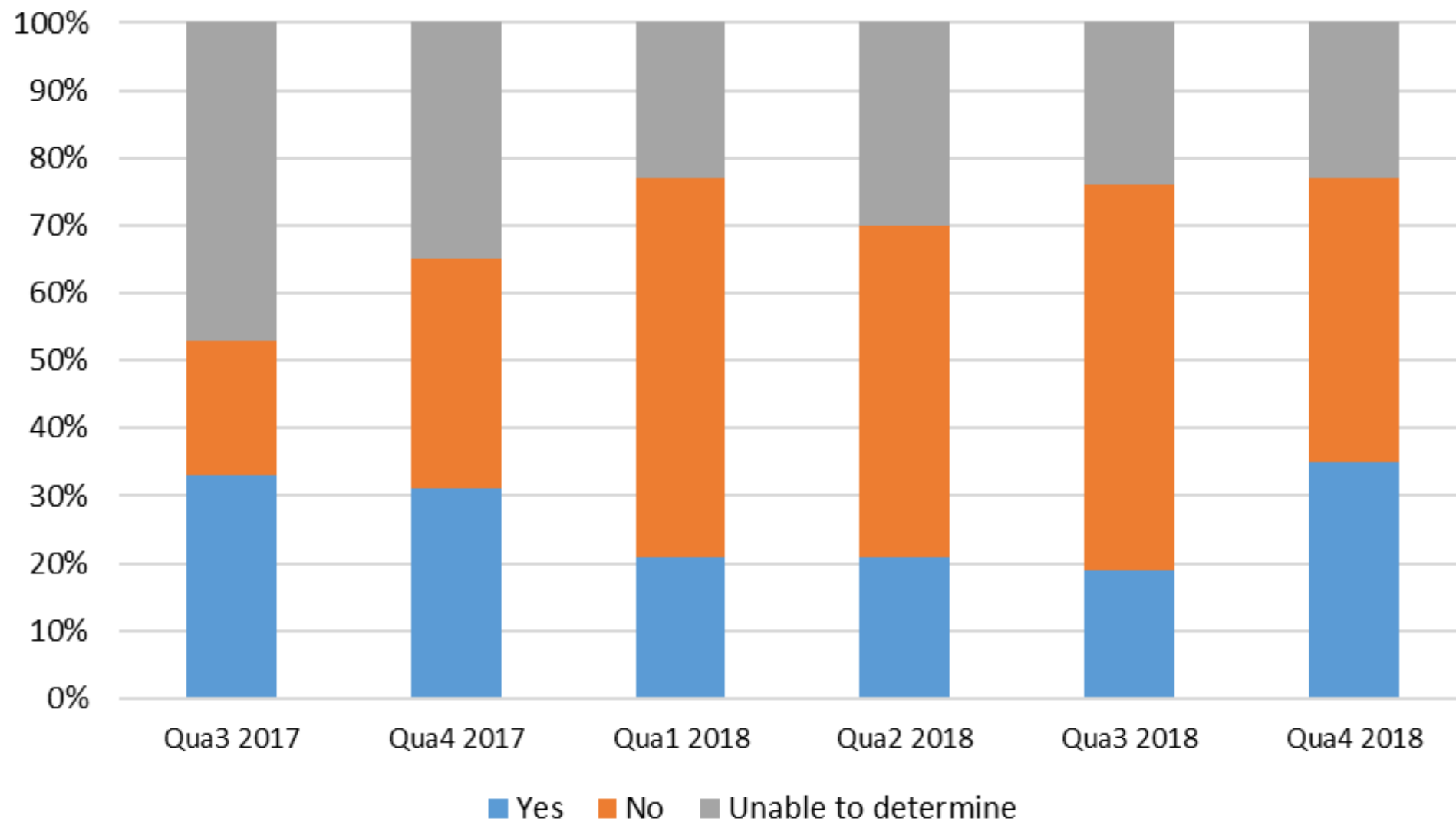
Characteristics of Opiate Treatment



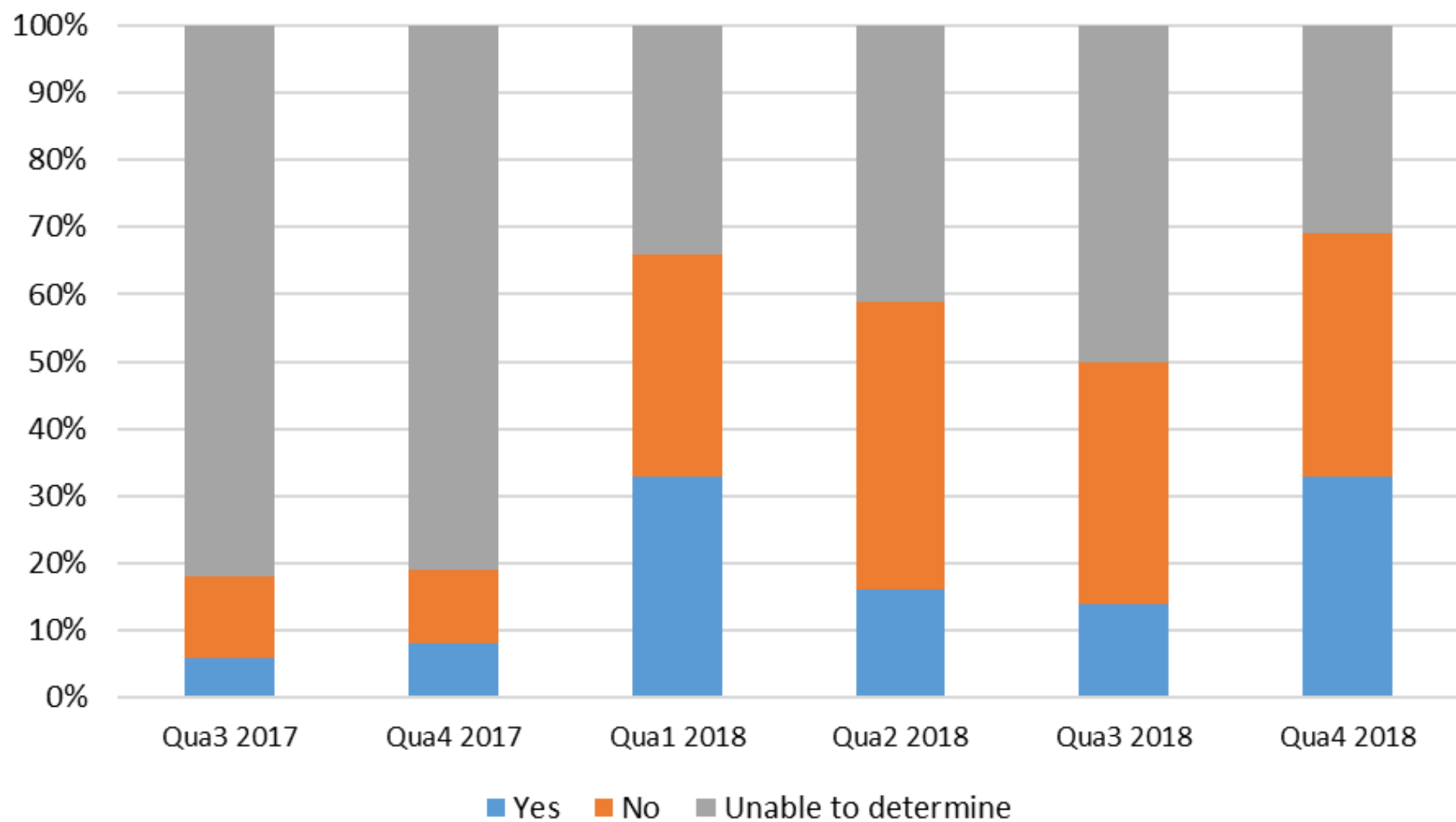
Percent of Mothers Receiving Prenatal Counseling



Percent of Referrals to Early Intervention



Percent of Verbal Handoffs to PCP



Based on the data,
what next?

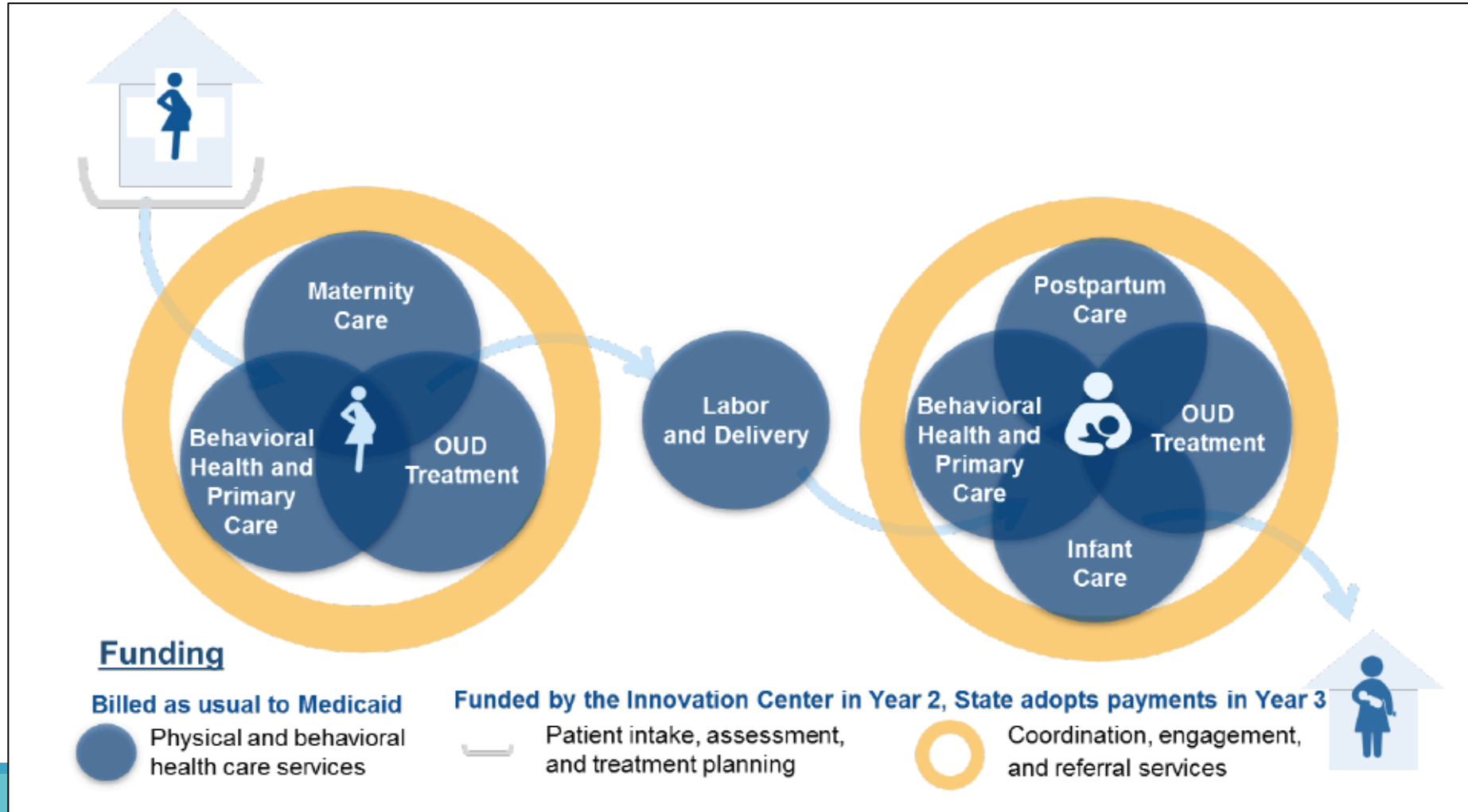
CHoSEN QIC Next Steps

- Move beyond birth hospitalization
 - Focused effort on understanding and improving prenatal counseling of mothers (Parkview Medical Center)
- Qualitative interviews of mothers, hospital staff, and outpatient providers about their experiences in caring for opioid exposed newborns
- Increase hospital participation in CHoSEN QIC within and beyond Colorado

Barriers (or Opportunities)

- Physical and conceptual separation of the maternal-infant dyad
- Lack of linked data systems
 - Mother - Infant
 - Prenatal - Birth Hospitalization – Postnatal Care
 - Hospital care - social service utilization
 - Maternal medical care – Mental health care – SUD Treatment

Maternal Opioid Misuse (MOM) Model



Maternal Opioid Misuse (MOM) Model

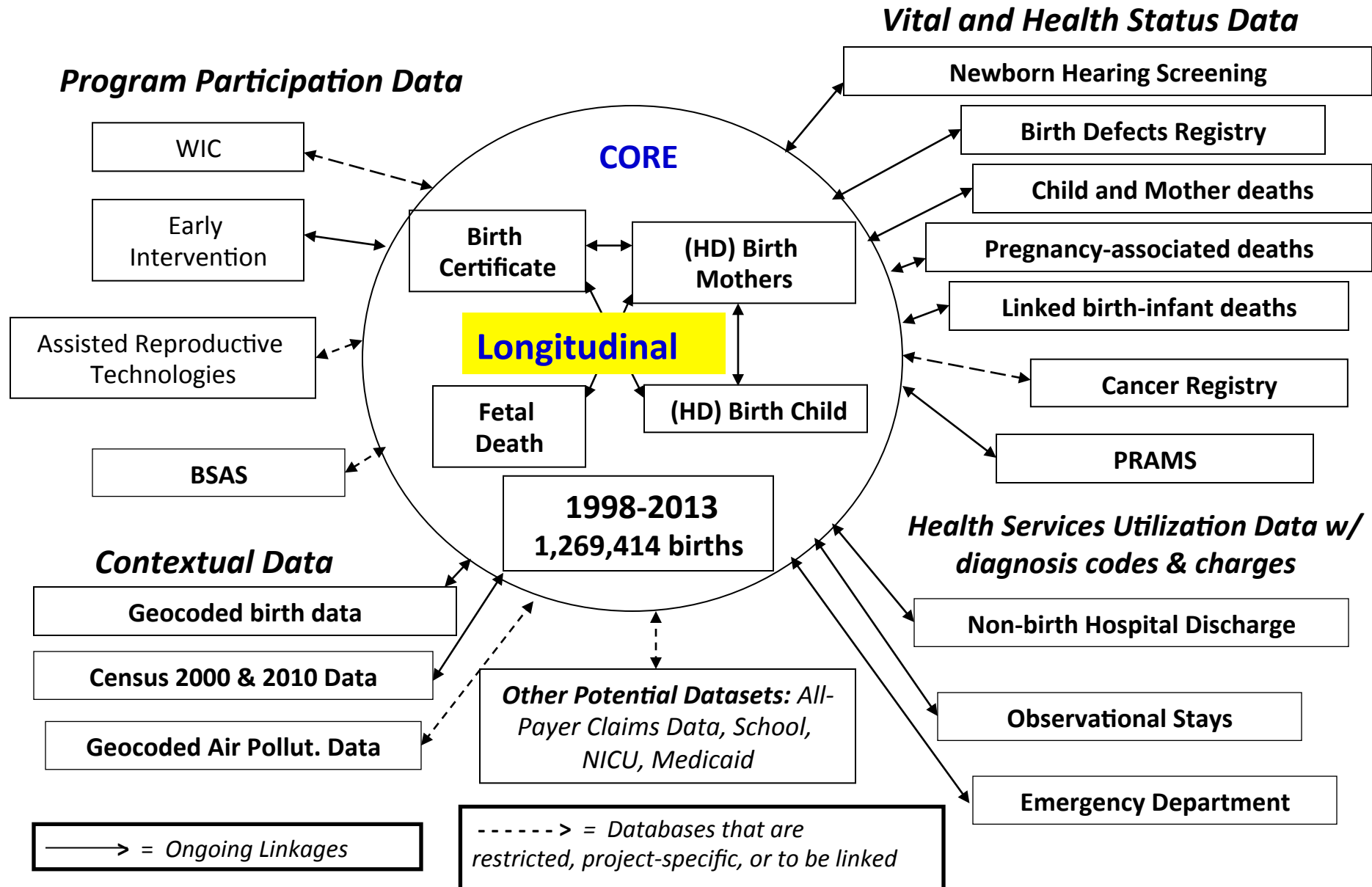


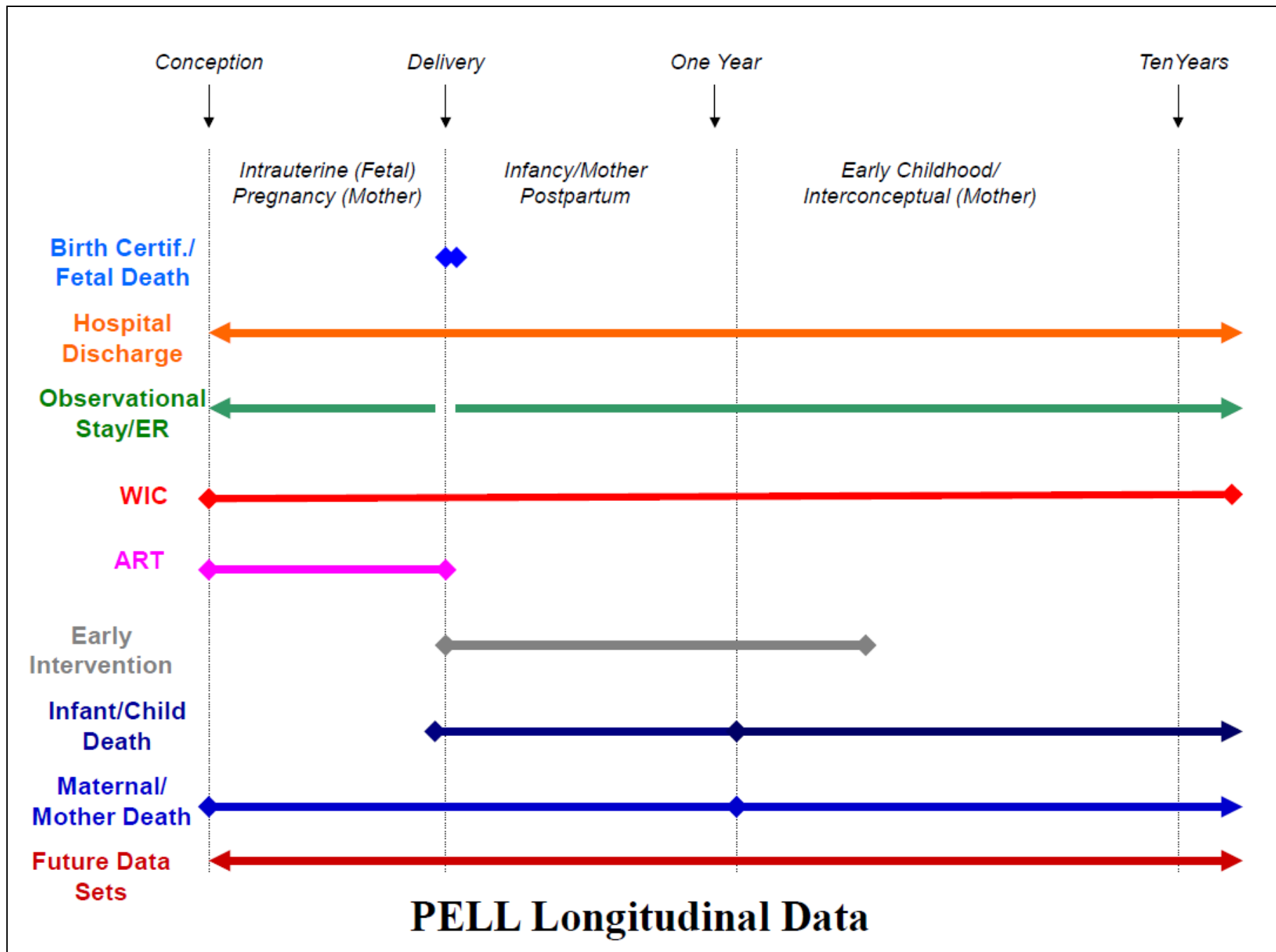
State Medicaid agencies will develop and implement coverage and payment strategies; work with the Center for Medicaid and CHIP Services (CMCS) to implement necessary authorities, including state plan amendments and/or program waivers; ensure provision of usable claims and encounter data to operate and evaluate the model; and, coordinate with care-delivery partners to support information-sharing.



Care-delivery partners will provide services to model beneficiaries, either directly or through clinical partners. Primary responsibilities will include: establishing relationships with clinical partners; building capacity at the service-delivery level to support care-delivery transformation; and, implementing a coordinated and integrated care-delivery approach. The care-delivery partner(s) may be a health system or a payer, such as a Medicaid managed care plan (MCP).

PELL Data System





“Isolation is the Enemy
of Improvement.”



Acknowledgements

Illuminate Colorado

Jillian Adams

Jade Woodard

CPCQC

Jaime Cabrera

Nancy Griffith

Rachel Wright

CHoSEN QIC Steering Committee

Ann Hall

Susan Hwang

Jessica Scott

Danielle Smith

Colleen Wheeler

Erica Wymore

Funders

Colorado Office of the Attorney
General

COPIC

Colorado Medicaid UPL

Hospitals

Denver Health

Lutheran Medical Center

McKee Medical Center

Medical Center of the Rockies

Memorial Hospital

North Colorado Medical Center

North Suburban Medical Center

Parkview Medical Center

Parker Adventist

Platte Valley

Poudre Valley

San Luis Valley Health

St. Joseph Hospital

St. Mary's Medical Center

St. Vincent Healthcare

University Hospital

Valley View Hospital