# MatEx: Using the Data

Maternal Substance Exposure Database

August 2020

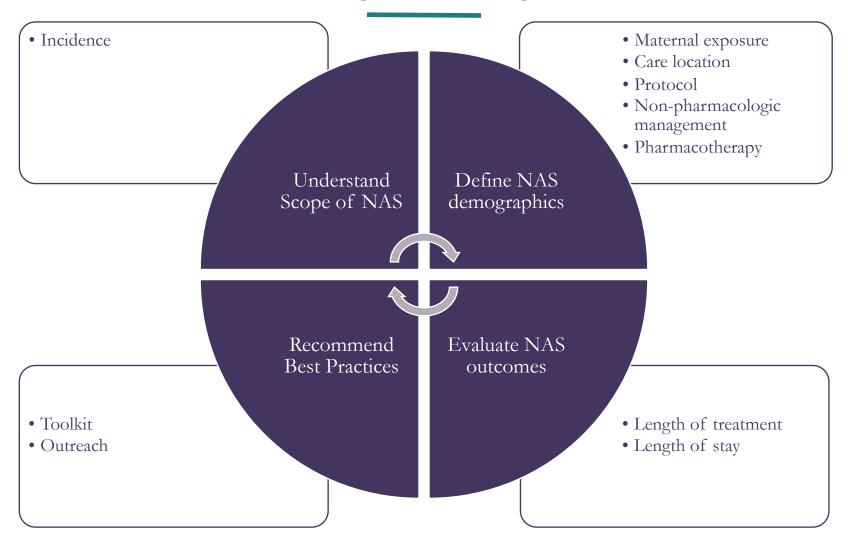


## Agenda

Time	Topic	Presenter
12:00 PM	MatEx Overview	Caroline Toney-Noland
12:05 PM	Data Entry	Robert Castro, MD
12:15 PM	Reports & Using the Data	Lisa Chyi, MD
12:30 PM	Case Study: UC Irvine	Sandra Iacob, MD & Pam Aron-Johnson, RN
12:50 PM	Questions	Jadene Wong, MD

### **MatEx Overview**

Advancing NAS Management





### **MatEx Overview**

### Eligibility

Any infant greater than or equal to 34 weeks gestation with an **in-utero** history of exposure to opiates/narcotics (prescribed or illicit) with Neonatal Abstinence Syndrome (NAS) withdrawal symptoms by Day of Life 7. See list of drugs for complete eligibility:

- Buprenorphine (Subutex, Suboxone)
- Codeine
- Fentanyl
- Heroin
- Hydrocodone
- Hydromorphone
- Methadone
- Oxycodone
- Other

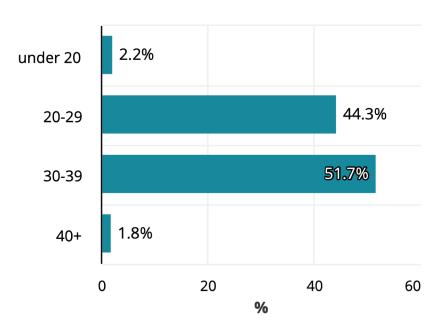
- $\geq$  34 weeks GA
- in-utero exposure to opiates/narcotics
- with NAS symptoms by DOL 7

Hudak ML, Tan RC; Committee on Drugs; Committee on Fetus and Newborn. American Academy of Pediatrics Clinical Report. Neonatal drug withdrawal. Pediatrics. 2012;129(2). Available at: <a href="https://www.pediatrics.org/cgi/content/full/129/2/e540">www.pediatrics.org/cgi/content/full/129/2/e540</a>



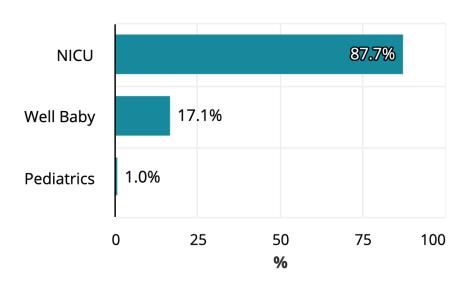
### MatEx Snapshot





- 96.1% of all records reported receiving some non-pharmacologic treatment
- 56% of all records reported receiving pharmacologic treatment

#### **Location of NAS Management**

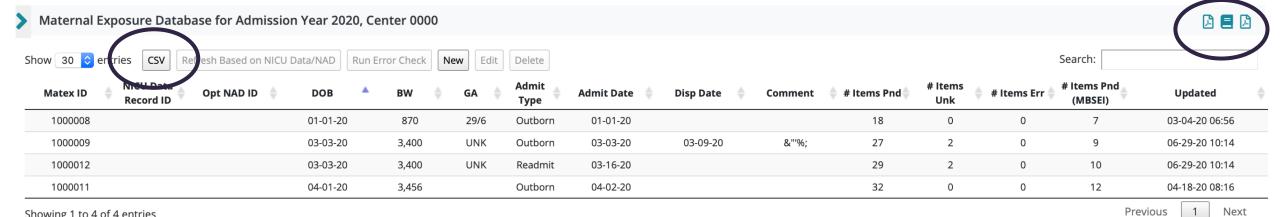


- The average length of stay for opiate exposed infants in MatEx is 16.6 days.
- Only 30% of MatEx records report being discharged home on breastmilk. The average (2006-2019) for all CPQCC babies is 72%.



## cpqccdata.org

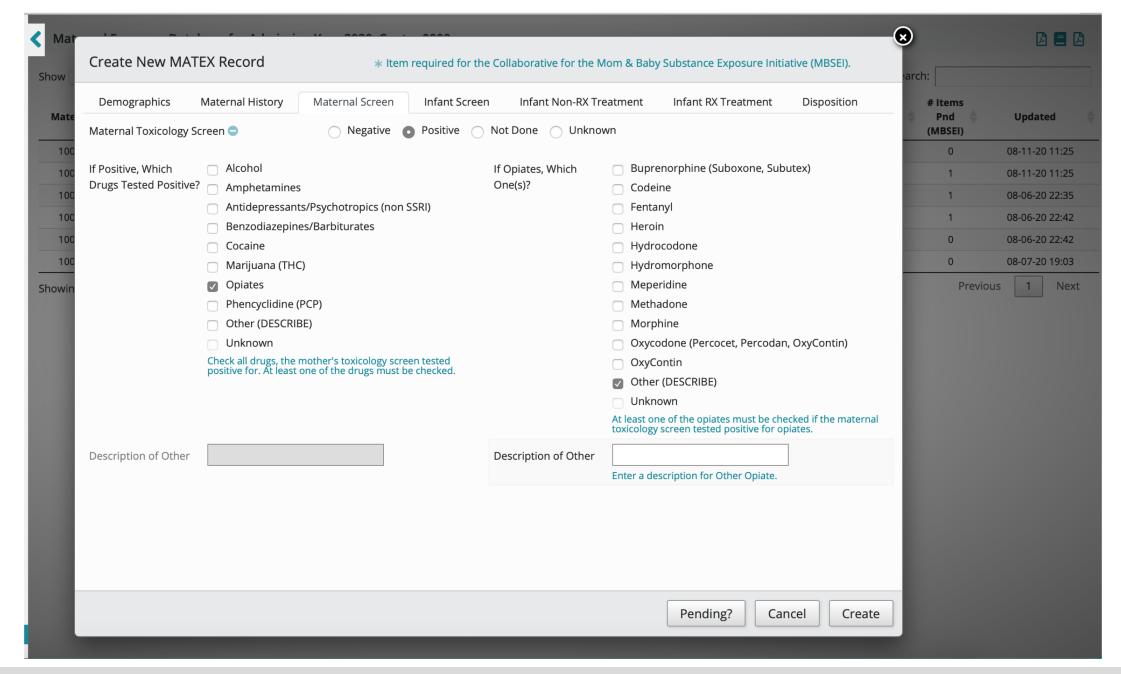




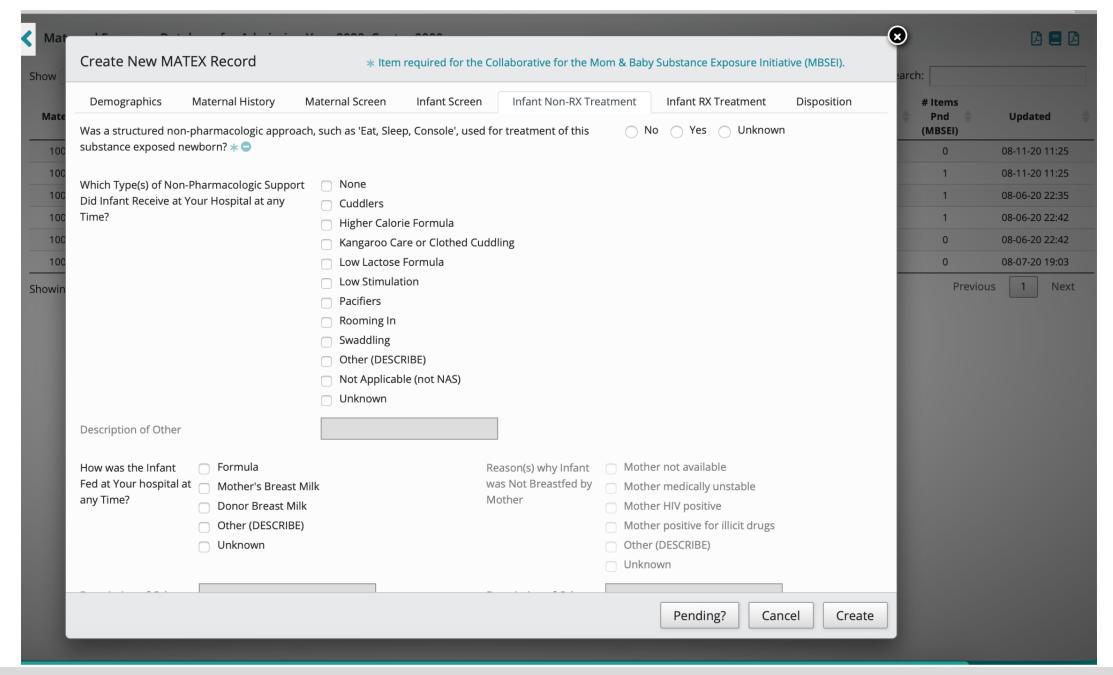
Showing 1 to 4 of 4 entries

Create New MATEX Rec	or u * Item required for the Col	llaborative for the Mom & Baby Substance Exposure Initiative (MBSEI).
Demographics Ma	ernal History Maternal Screen Infant Screen Infant Non-RX Treatment Infant RX Treatment	Disposition
MATEX ID	MATEX ID - assigned by intake system  NICU Data Record ID  O	Only applicable for NICU Data eligible infants (NICU participants only). Otherwise, leave empty.
Optional NAD Stay ID	Optional Hospital Infant ID  [Optional] NAD stay reference number (NICU participants only).	Optional] Infant ID for hospital record ( <b>not MRN</b> ).
Admission Type *	Inborn Prior MATEX ID Outborn 30-Day Readmit after Discharge from this Hospital	inter MATEX ID for previous stay <u>and</u> admission date for this stay. Once entered, click <i>Refresh</i> to load Demographics, Maternal History and Maternal Screen from previous MATEX record.
Date of Birth *	☐ Unknown Time of Birth	□Unknown
Location of Birth *		NICU Well-Baby
Sex <b>∗</b> □	Male Undetermined Unknown	Pediatrics PICU Transported to another hospital Other Unknown Indicate all locations where the infant received treatment for non-sharmacological and pharmacological care related to exposure or potential xposure.
Admission Date *	Mother's Date of Birth *  Indicate when the infant was admitted for treatment. The year of admission must be 2020.	Unknown











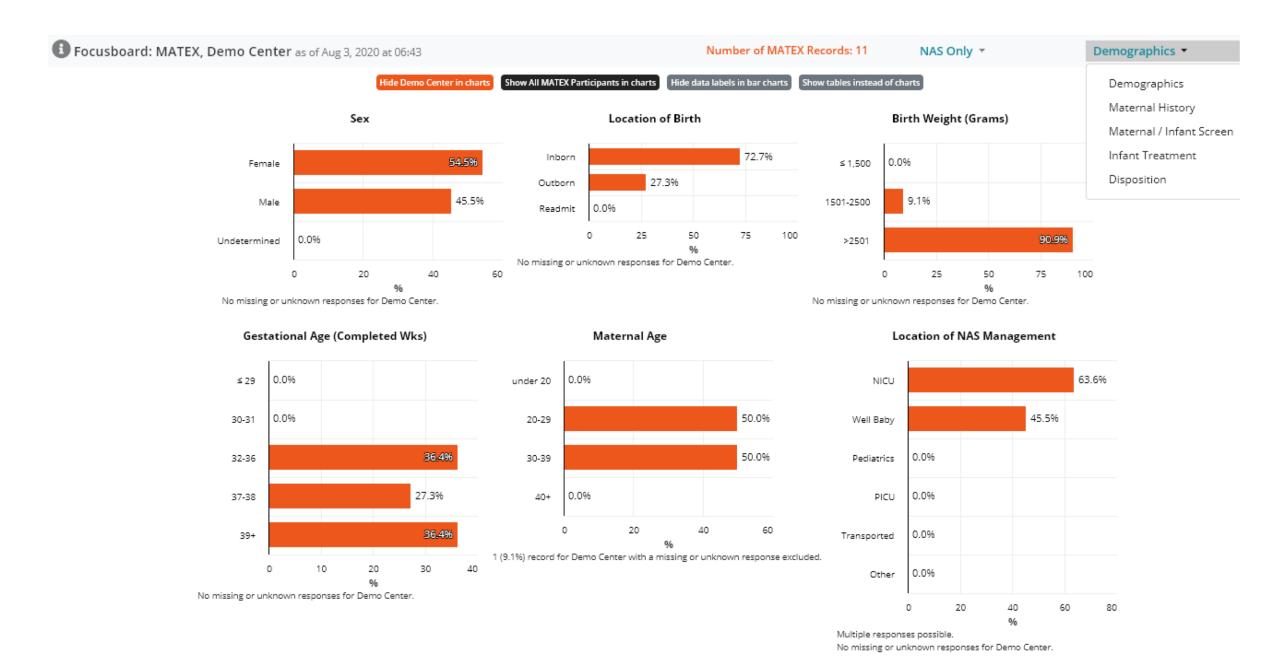
	Record	* Item required for the Collaborative for the Mom & Baby S	ubstance Exposure Initiative (MBSEI).
		O Phenobarbital	
		Other (DESCRIBE)	
		Unknown	
Description of Other			
Did Infant Peceive any Mo	other's Milk within the last 24 Hours of Infan	: Hospital Discharge? *   No Yes Unknown	
Did illiant Receive any Mc	of the same within the last 24 flours of illian	Tiospital discharge: A Tiospital discharge in the Tiospital discharge in th	
Infant Health Insurance	CCS	Infant Discharge Date *	
	Commercial HMO		
	Commercial PPO	Infant Hospital Disposition O Home to biol	ogical mother
	☐ Medi-Cal	<b>★</b> → Home to other	er family member
	Point of Service EPO	<ul> <li>Discharged to</li> </ul>	Social Services/Foster Care
	Other	Adoption	
	Unknown	○ Transported t	o another hospital
	Select all insurance options that apply for the Note: Healthy Families Program transitioned t Select 'Medi-Cal' for Medi-Cal Managed Care p	nfant's hospital stay.  Died  Medi-Cal in 2013.	
Description of Other	Select Medi-Cai for Medi-Cai Managed Care p	ans. Unknown	
Maternal Disposition			
Have All Safe Discharge C	hecklist Criteria Been Met? * 🖨	No Yes No Checklist Unknown  A template Maternal Safe Discharge Checklist is available here. You can Safe Discharge Checklist for your facility. Once you have developed those the checklist has been followed for each specific patient.  Check "Yes" if the specific patient has met ALL safe discharge crecklist Check "No" if the specific patient has not met ALL safe discharge Discharge Checklist Check "No Checklist" if your hospital has not yet developed a Safe	iteria on your hospital's defined Safe Discharge e criteria on your hospital's defined Safe



### cpqccreport.org





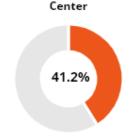


#### % of Infants born to Mothers Positive for Exposure to Drugs During Pregnancy



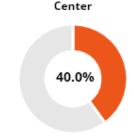
1 (4.8%) record for Demo Center with a missing or unknown response excluded.

#### % of Infants born to Mothers Receiving Addiction Services During Pregnancy



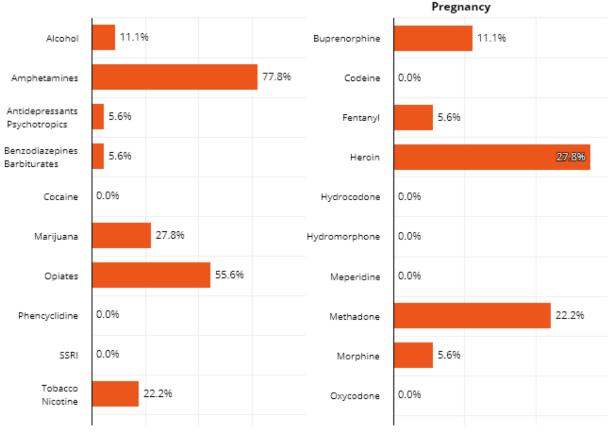
4 (19.0%) records for Demo Center with a missing or unknown response excluded.

#### % of Infants born to Mothers Receiving Medication Assisted Treatment During Pregnancy

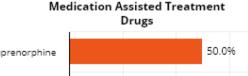


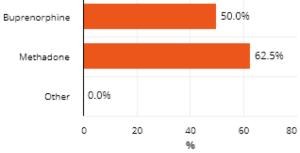
1 (4.8%) record for Demo Center with a missing or unknown response excluded.

#### Maternal Drug Exposures during Pregnancy



#### Maternal Opiate Exposures during





Multiple responses possible.

The denominator is the number of infants born to a mother receiving medication assisted treatment during pregnancy. No missing or unknown responses for Demo Center.

#### % of Infants born to Mothers with Positive Toxicology Screen

#### Center



2 (9.5%) records for Demo Center with a missing or unknown response excluded.

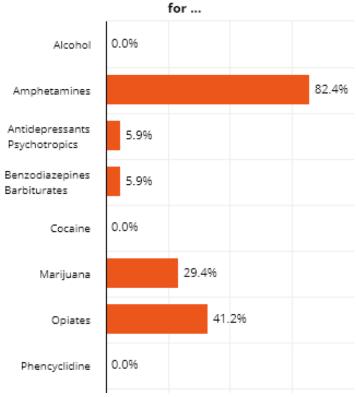
#### % of Infants with Positive Toxicology Screen

#### Center

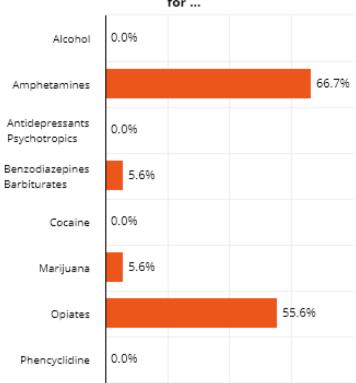


1 (4.8%) record for Demo Center with a missing or unknown response excluded.

### Maternal Toxicology Screen Positive



### Infant Toxicology Screen Positive for ...



NAS Only ▼

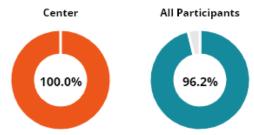
Hide Demo Center in charts

Show All MATEX Participants in charts

Hide data labels in bar charts

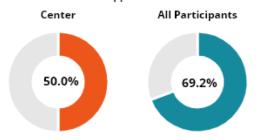
Show tables instead of charts

#### % of Infants for with Non-Pharmacologic Treatment



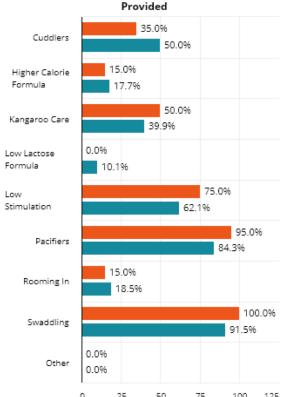
No missing or unknown responses for Demo Center.

#### % of Infants for whom a Structured Non-Pharmacologic Treatment Approach was Used

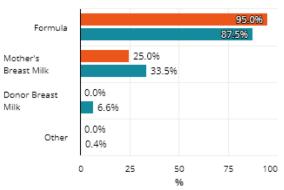


17 (81.0%) records for Demo Center with a missing or unknown response excluded

#### Types of Non-Pharmaceutical Support Provided



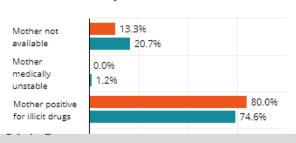
#### Infant Feed Types while Hospitalized



Multiple responses possible.

1 (4.8%) record for Demo Center with a missing or unknown response excluded.

#### Reasons why Infant was not Breastfed





Infant Discharged on Pharmacologic Treatment Drug		Center f=11)	All MATEX Participants (N Inf=175)			
	N	%	N	%		
Yes	3	27.3	29	16.6		
No	8	72.7	146	83.4		
No missing or unknown responses for Demo Center.						

Pharmacologic Treatment Drug Infant was Discharged on		Center nf=3)	All MATEX Participants (N Inf=29)						
	N	%	N	%					
Clonidine	0	0.0	0	0.0					
Methadone	0	0.0	7	24.1					
Morphine	2	66.7	16	55.2					
Phenobarbital	1	33.3	5	17.2					
Other	0	0.0	1	3.4					
No missing or unknown responses for Demo Center.									

Discharged on Breast Milk		Center f=11)	All MATEX Participants (N Inf=169)			
	N	%	N	%		
Yes	5	45.5	59	34.9		
No	6	54.5	110	65.1		
No missing or unknown responses for Demo Center.						

# Using the Data: QI example comparing drug treatment to non-drug treatment

### Help Desk Welcome, Caroline! **CPQCC Administrator** Home Change Password Upload EDS File **Activity Reports** Status Reports Admin Tasks Mail/Download Reports/Data Custom Query Update Log / Msg Archive Logon to NICU Reports Calculator Tool Member Directory NICU 0000 Add New Data Add via Shared Record [0] CCS Form CCS Report Data Reports Close-Out Checklist Optional NICU Admits DB MATEX DB LOGOUT

19 users online at 2:08:11 PM **②** HIS, abeauchamp, ahuang, bberry, cmastracch, ctoney, fdavis, hcastaneda, jblanke, jkellam, jparucha, jsantos,



Next

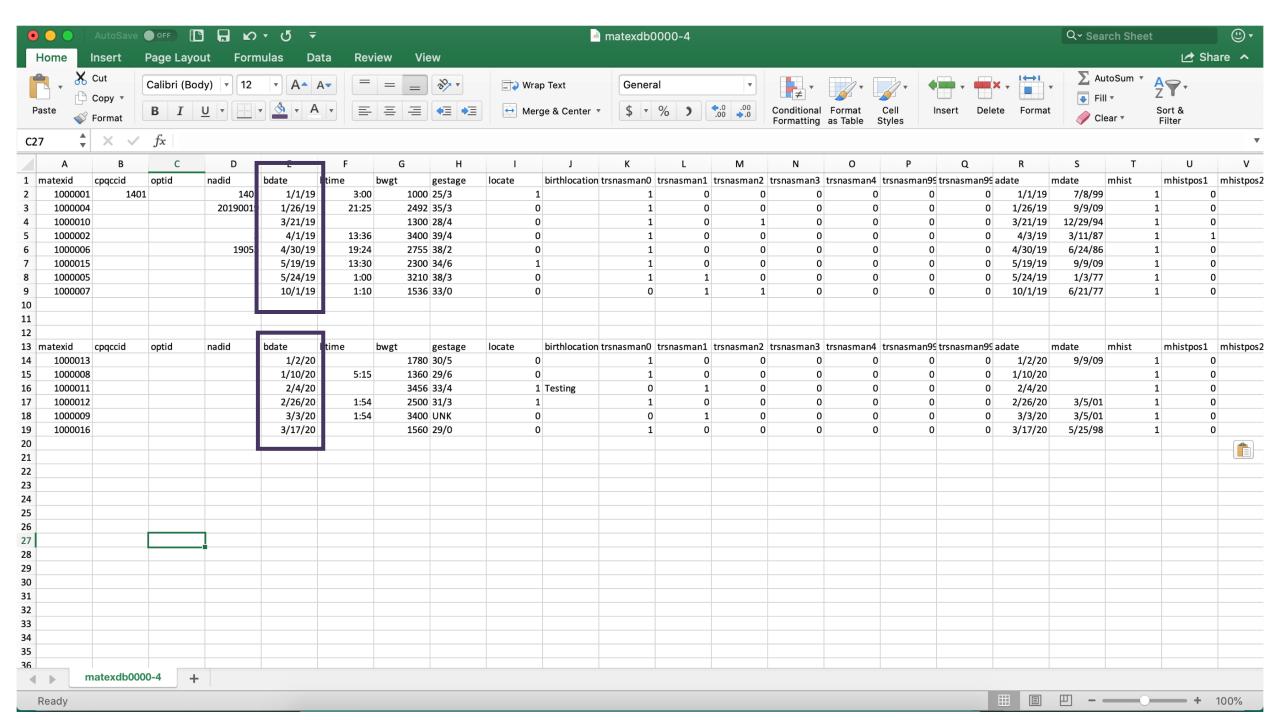
Search:

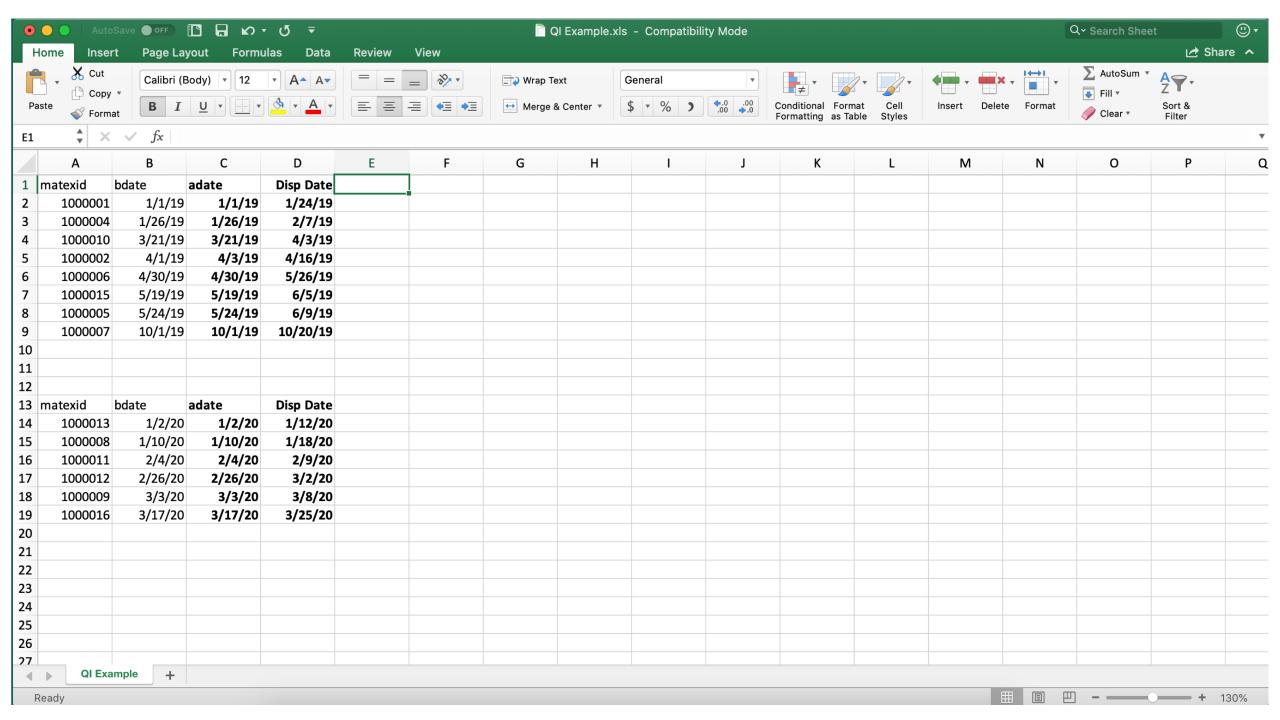
Show	30	<b>\$</b>	entrie	ş	CSV	B	fresh Based on NICU Data/NAD	Run Error Check	New	Edit	Delete	
			•			$\boldsymbol{Z}$						

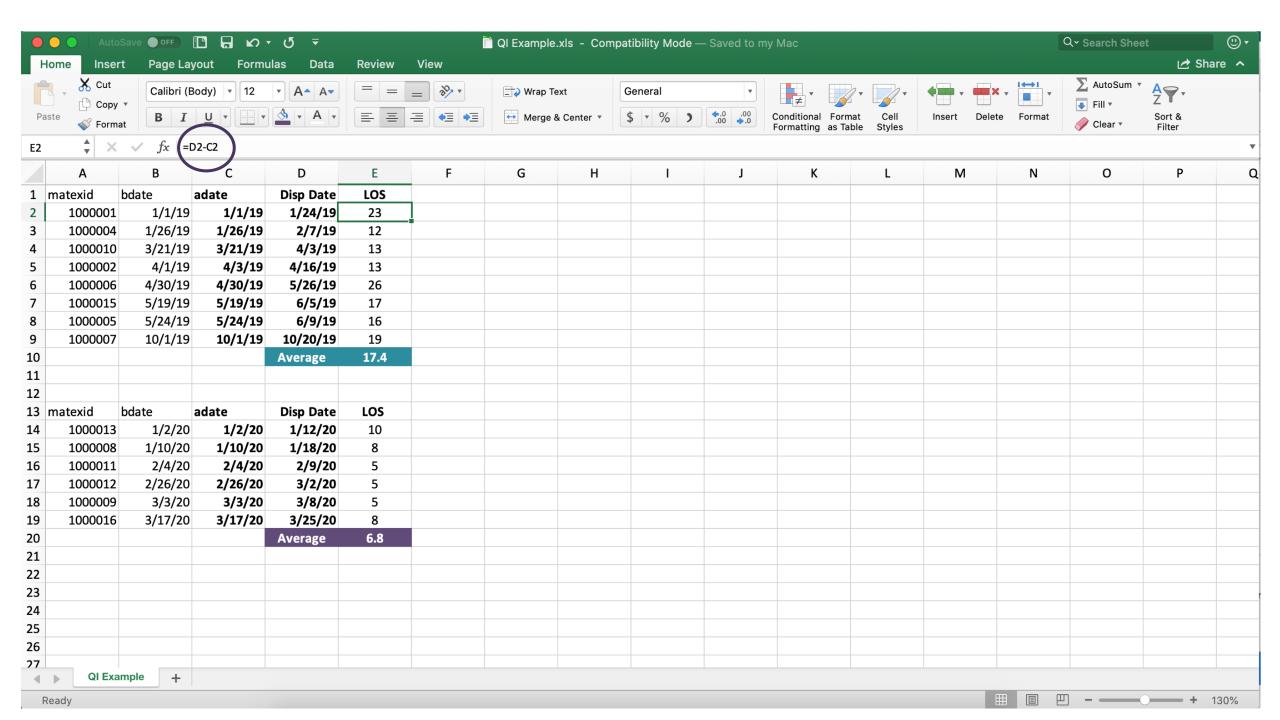
Mate	NICU K ID Data Opt NAD ID Record ID	DOB ^	BW	GA ∳	Admit Type	Admit Date 🌲	Disp Date 🌲	Comment	# Items Pnd	# Items Unk	# Items Err	# Items Pnd (MBSEI)	Updated
1000	0013	01-02-20	1,780	30/5	Inborn	01-02-20	01-12-20		1	1	0	0	08-11-20 11:25
1000	8000	01-10-20	1,360	29/6	Inborn	01-10-20	01-18-20		0	0	0	1	08-11-20 11:25
1000	0011	02-04-20	3,456	33/4	Outborn	02-04-20	02-09-20		3	2	0	1	08-06-20 22:35
1000	0012	02-26-20	2,500	31/3	Outborn	02-26-20	03-02-20		0	1	0	1	08-06-20 22:42
1000	0009	03-03-20	3,400	UNK	Inborn	03-03-20	03-08-20		0	2	0	0	08-06-20 22:42
100	0016	03-17-20	1,560	29/0	Inborn	03-17-20	03-25-20		1	0	0	0	08-07-20 19:03

Showing 1 to 6 of 6 entries

Previous 1







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# Our Experience with MatEx

### MatEx

- Data Collection for ~1.5 years
  - 。 NICU
  - . Mother&Baby
  - 。 OB

# Managing the Data

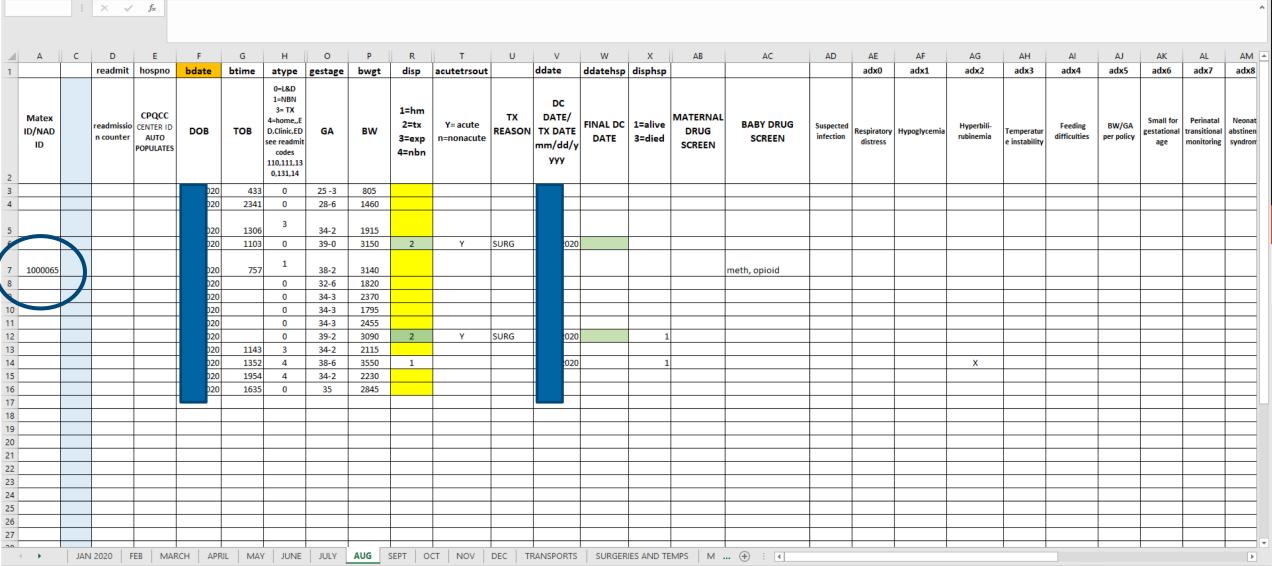
- Setting up your own spreadsheet
- Organizing for easier abstraction and quick reference



# MatEx & UCI

- Our NICU
  - 1550 Deliveries/year
  - All maternal Transports throughout Orange County
  - Level 4 Regional NICU
  - 450+ NICU Admission/year
- 2019
  - 48 infants entered into MatEx
  - 15 infants treated
  - 10 discharged on meds





Macros

**□** 5+ ≥+ ≠

Workbook Views

✓ Ruler ✓ Formula Bar

Show

Zoom

# MatEx

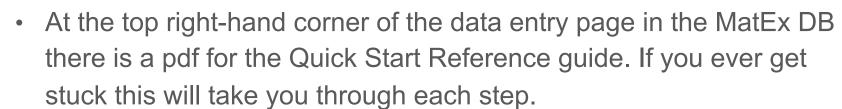
Demographics Mate	ernal History Maternal Screen Infant Screen Infant	t Non-RX Treatment Infant RX Treatmen	nt Disposition
	MATEX ID - assigned by intake system		Only applicable for NICU Data eligible infants (NICU participants only). Otherwise, leave empty.
Optional NAD Stay ID	[Optional] NAD stay reference number (NICU participants only).	Optional Hospital Infant ID	[Optional] Infant ID for hospital record ( <b>not MRN</b> ).
Admission Type *	<ul> <li>Inborn</li> <li>Outborn</li> <li>30-Day Readmit after Discharge from this Hospital</li> </ul>	Prior MATEX ID	Enter MATEX ID for previous stay <u>and</u> admission date for this stay. Once entered, click <i>Refresh</i> to load Demographics, Maternal History and Maternal Screen from previous MATEX record.
Matex ID	NICU Data Record ID Opt NAD ID		

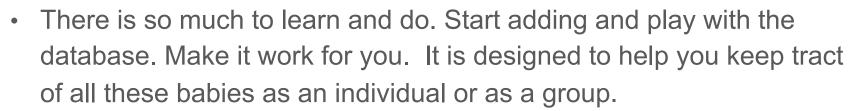
Matex ID	<b>A</b>	NICU Data Record ID	\$ Opt NAD ID	\$
1000001				
1000002				
1000003			270	
1000004		5905		
1000005		5906		

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# **Getting lost?**

Maternal Exposure Database for Admission Year 2019, Center 0291









How do you tackle barriers with other units in your hospital?

How do you get their buy in?

What data do you have to show to get their interest?

### MatEx

- . So what can you do with this data?
- How is this applicable at the bedside for the patient?

# MatEx - MBSEI

#### **UCI Neonatal Abstinence Syndrome**

#### Maternal Risk-Based Screening How To Screen First-Line Treatment •Urine Drug Screen Pain with ·Positive maternal urine test ·Continue to establish a therapeutic relationship with parents/caregivers Reflex to Confirmation Acknowledgement of maternal and empower them to be involved with the care of their newborn •Meconium Drug Screen history of drug use during · Emphasize parental presence at bedside, being hands-on with cares, skinpregnancy to-skin, holding, swaddling Placental abruption ·Establish a quiet, low light environment with a limited number of visitors . Scant or lack of prenatal care ·Cluster nursing assessments and interventions when newborn is awake Admission from justice center . Encourage breastfeeding if mother is in a program on methadone or buprenorphine «Start diaper/barrier creams right away Perform Finnegan scores Q3H preferably after a feeding Notify provider when Finnegan scores >8 x3 or >12 x2 •All babies with a positive screen should be monitored for 72 hours for Morphine 0.05mg/kg PO Q3H PRN onset of symptoms prior to discharge or Q4H PRN If single score ≥12 or 3 consecutive ≥8 If on Q3H dosing, Morphine 0.05mg/kg PO Q3H transfer to NICU Continue Finnegan Scoring Scores ≤8 over 24h Single score ≥12 or ≥9 x2 Escalate by 0.02mg/kg/dose to Deescalate by 0.02mg/kg/dose a max of 0.15mg/kg Q3H to a min of 0.03mg/kg Q3H then off Max dose reached of 0.15mg/kg Q3H and scores ≥12x1 or ≥9 x2 Monitor 48hrs off morphine Initiate clonidine 1mcg/kg Q6F If score ≥12 or ≥9 If still on clonidine Scores ≤8 over 24h Single score ≥12 or ≥9 x2 x2, patient will be taken off protocol and treatment will be at the Deescalate by 0.5mcg/kg/dose Escalate by 0.5mcg/kg/dose to Monitor 48hrs off clonidine discretion of the until off a max of 2mcg/kg Q6H treating physician

#### References:

- 1.Laura Broome, Tsz-Yin So. Neonatal Abstinence Syndrome: The Use of Clonidine as a Treatment Option. NeoReviews Oct 2011, 12 (10) e575-e584; DOI: 10.1542/neo.12-10-e575
- 2. Henrietta S. Bada, et al. Morphine Versus Clonidine for Neonatal Abstinence Syndrome. Pediatrics Feb 2015, 135 (2) e383-e391; DOI: 10.1542/peds.2014-2377
  3. Crynski AI, Davis JM, Dansereau LM, et al. Neurodevelopmental Outcomes of Neonates Randomized to Morphine or Methadone for Treatment of Neonatal Abstinence Syndrome. J Pediatr. 2020;219:146-151.e1.

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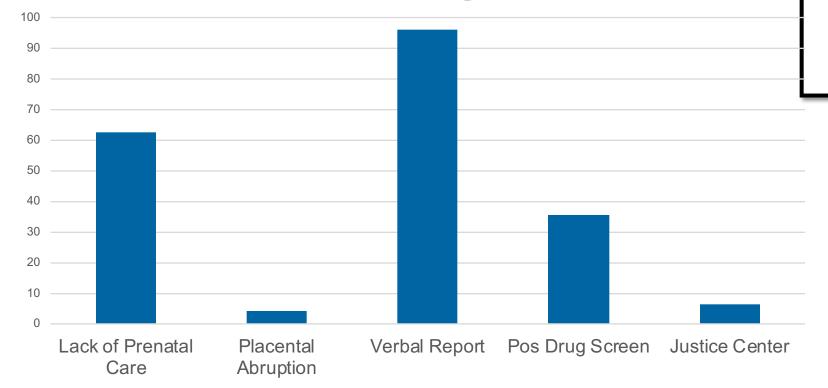
# Original Plan ... and Obstacles

- . Screening
  - NICU screening criteria created, easily accepted
  - OB screening criteria discussed, many committees, lack of champion
- Baby Algorithm
  - 。 NICU discussed and accepted
  - Mother&Baby discussed, concerned for rooming in, morphine, inpatient wean
    - Solution: Review 2019 Data

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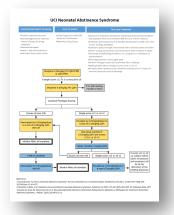
# Screening

### **Screening Data**



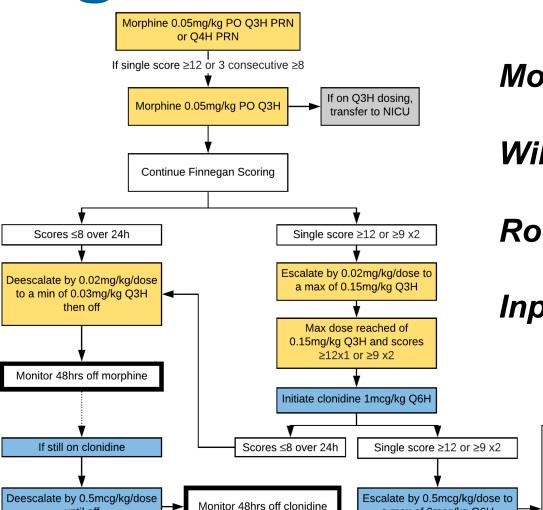
### **Maternal Risk-Based Screening**

- Positive maternal urine test
- Acknowledgement of maternal history of drug use during pregnancy
- Placental abruption
- Scant or lack of prenatal care
- Admission from justice center



# Algorithm

until off



Morphine? Training? Comfort level?

Will all these babies now end up in the NICU?

Rooming in? Do we trust the dyad?

Inpatient wean? LOS???

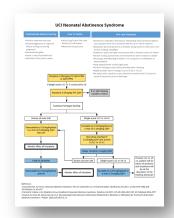
If score ≥12 or ≥9

x2, patient will be taken off protocol and treatment will be at the

discretion of the

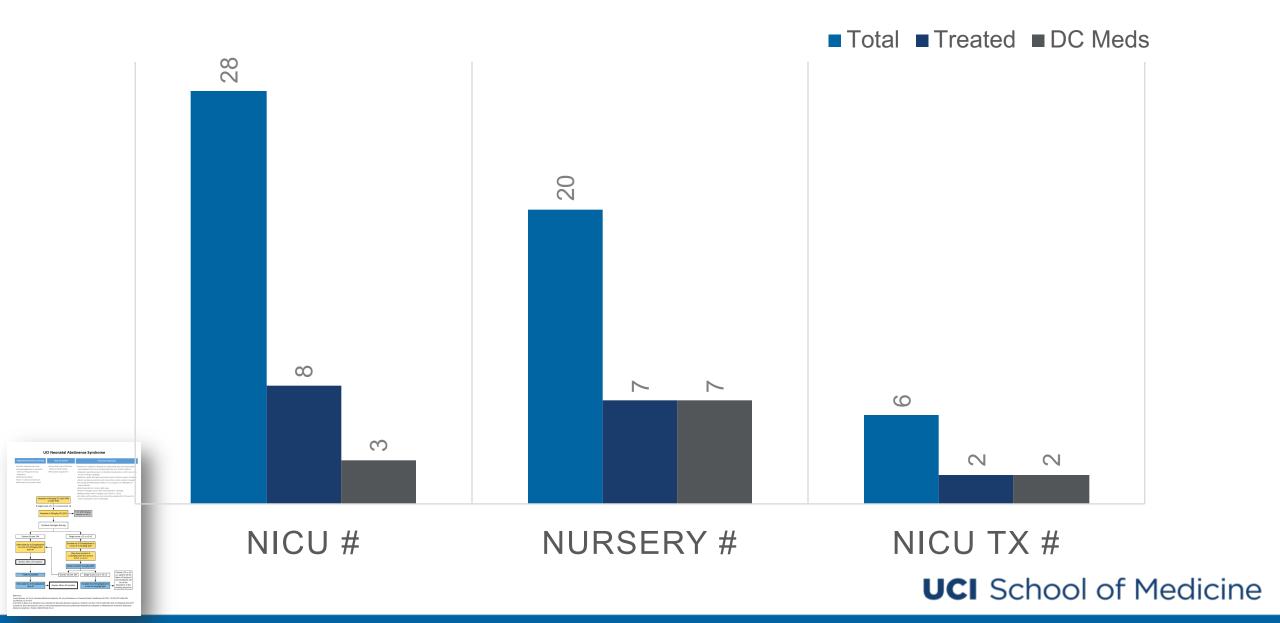
treating physician

a max of 2mcg/kg Q6H



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### 2019 ADMISSIONS



# Original Plan ... and Obstacles

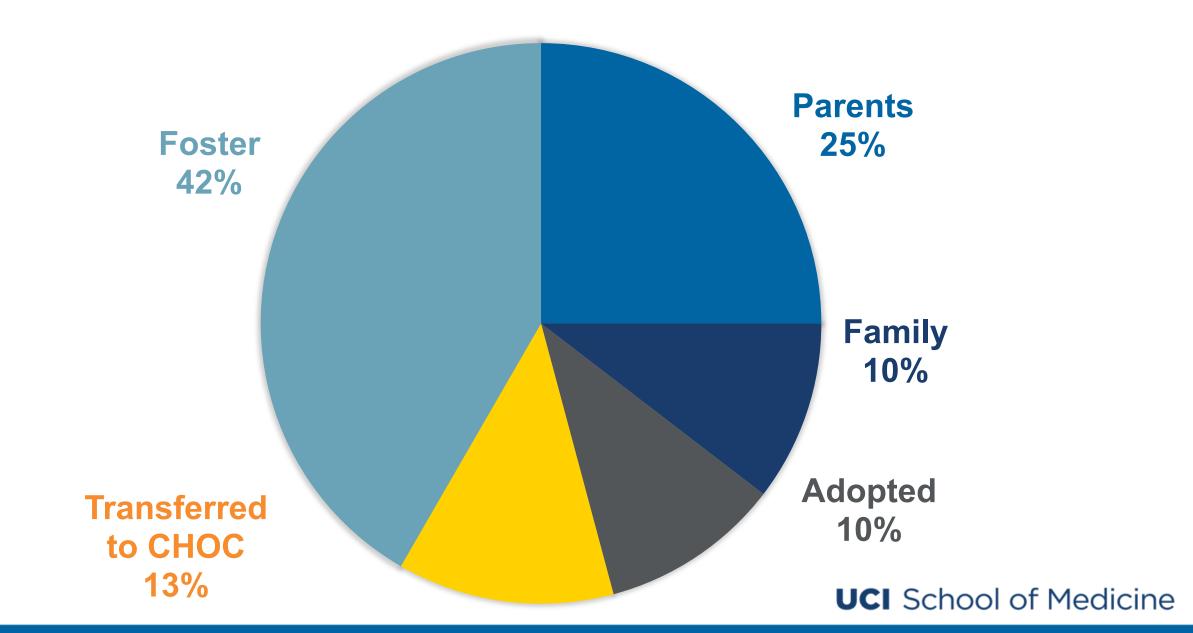
- . Screening
  - NICU Implemented July 2020
  - **OB** To be implemented in Aug/Sept 2020
- Baby Algorithm
  - NICU Implemented July 2020
  - Mother&Baby Implemented July 2020

# Stigma

- . "Foster Babies"
- . "Drug Babies"
- "Parents get too many chances to get it right"

Frank and candid conversations
Webinars/Educational Sessions

### 2019 CAREGIVER



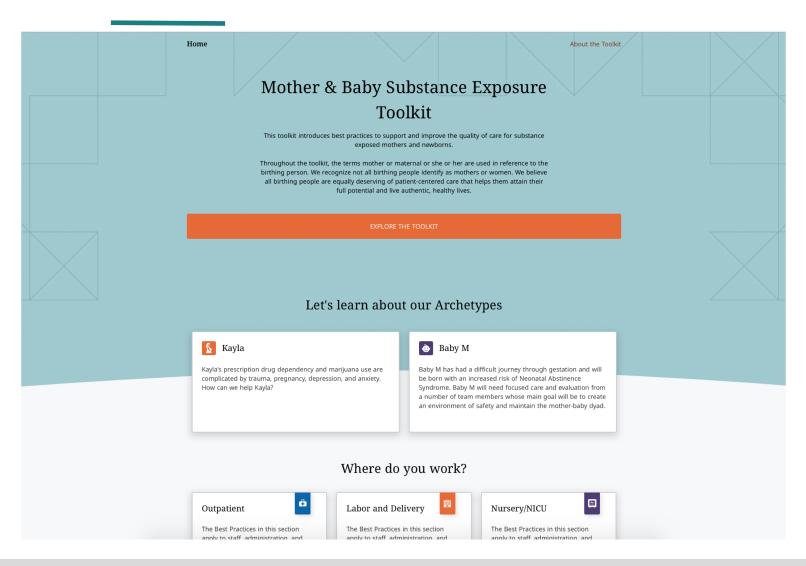
# What does "Parenting Classes" and proving change mean?

Meeting with Orange County
Public Defender's Office
working in Dependency

# Thank You!

### **Additional Resources**

nastoolkit.org





# CACC

If your NICU is interested in participating or learning more about MatEx, email Caroline Toney-Noland at: ctn@stanford.edu