Pre-natal and Post-natal Screening and Testing for Substance Use

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Yale School of Medicine

- I have no disclosures.

Learning Objectives

- Contextualize current evidence regarding substance use and substance use disorder during pregnancy: effects on pregnancy and fetus, developmental/behavioral/cognitive outcomes.
- Describe best practices for screening for substance use and toxicology testing during pregnancy, at time of delivery, and toxicology testing of the newborn.
- Delineate the requirements of CAPTA/CARA, how they intersect with optimal clinical care for birthing people and newborns with prenatal substance exposure, evaluate the impact of Connecticut's dual notification/reporting system, and future directions for policy-related advocacy for families affected by substance use in NY.
- Contextualize breastfeeding decision-making for birthing people with substance use, and discuss the role of breastfeeding as a possible adjuvant treatment support for birthing people with substance use disorder in remission

Patient 1	Relevant differences	Patient 2
Throughout pregnancy, mom told OB team about ongoing cannabis use to improve appetite & help with sleep	FEAR OF CONSEQUENCES LEADS TO LACK OF DISCLOSURE	At the time of discharge, mom told RN about cannabis use during pregnancy to improve appetite & help with sleep
Mom has commercial insurance	BIAS AGAINST PARENTING IN POVERTY	Mom has Medicaid insurance
No prior CPS involvement for two older children	STIGMA ASSOCIATED WITH PRIOR CPS INVOVLVEMENT	Prior CPS involvement for older sibling not being able to participate in virtual school due to lack of internet access
No toxicology testing on newborn requested	EVIDENCE TO SUBSTANTIATE CLAIMS OF HARM	CPS requested toxicology testing on newborn
Mom is White	INSTITUTIONALIZED AND PERSONALLY MEDIATED RACISM	Mom is Black

Which is most concerning?

CANNABIS

STRENGTH OF EVIDENCE: WEAK

Prenatal effects:

- Weak evidence for possible fetal growth restriction, possible effects on neurodevelopment
- Many unanswered research questions, recommendations tentative

Postnatal effects

- Possible higher risk of use of cannabis and alcohol as adults
- Risks related to parental impaired judgement

ALCOHOL

STRENGTH OF EVIDENCE: STRONG

Prenatal effects

- Strong evidence for adverse pregnancy outcomes, fetal growth restriction, structural problems, neuromuscular problems, potentially life-long psychiatric and neurocognitive effects up to and including premature death
- Evidence base and recommendations well established

Postnatal effects

- Highly variable post-natal effects
- Potentially significant psychological impacts if alcohol use disorder involved
- Risks related to parental impaired judgement

CIGARETTE SMOKING

STRENGTH OF EVIDENCE: STRONG

Prenatal effects

- Strong evidence for adverse pregnancy outcomes, fetal growth restriction, structural problems, increased risk for SIDS, potentially life-long neurocognitive effects
- Evidence base and recommendations well established

Postnatal effects

- Increased risk of SIDS
- Increased risk of ear infections, lung infections, asthma and chronic lung disease, allergies

- If we screened and tested with the intent of finding those things that were most concerning for the viability and positive outcome of the pregnancy and the health of the infant that may be born of the pregnancy, we would be primarily evaluating for **nicotine** and **alcohol** metabolites.

AAP Technical Report 2013 Prenatal Substance Abuse: Short- and Long-Term Effects on the Exposed Fetus

- “self-reports of substance use are most likely to be valid when participants believe that they will not suffer negative consequences.”

Hilario et al. Denial of urinalysis-confirmed opioid sue in prescription opioid dependence. *J Subst Abuse Treat* 2015 48:85-90.

- Correlation 96-98% of self-reported cigarette smoking with biochemical detection

Baheiraeia et al. Association of self-reported passive smoking in pregnantwomen with cotinine level of maternal urine and umbilical cord blood at delivery. Paediatric and Perinatal Epidemiology. (2011) 26, 7076.

Which is most concerning?

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- Increased risk of ear infections, lung infections, asthma and chronic lung disease, allergies

POVERTY
STRENGTH OF EVIDENCE: STRONG

Prenatal effects

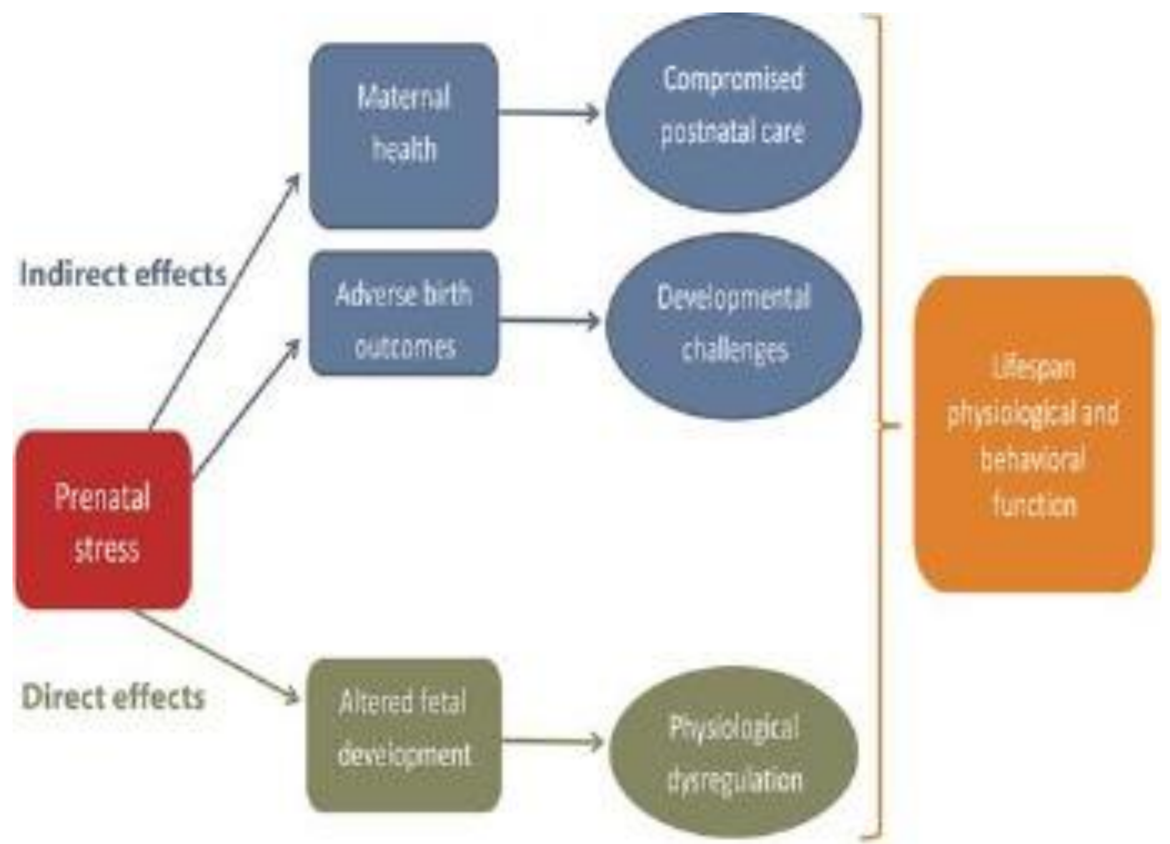
- Strong evidence for adverse pregnancy outcomes, fetal growth restriction, potentially life-long neurocognitive effects up to and including premature death

Postnatal effects

- Potentially significant psychological impacts
- Increased risks of accidents including accidental death
- Increased risk of illness including asthma and lung infections
- Increased risk of neurocognitive effects including unfulfilled potential educational and vocational achievement

Aber et al. THE EFFECTS OF POVERTY ON CHILD HEALTH AND DEVELOPMENT. *Annu. Rev. Public Health. 1997. 18:463–83*

Stress during pregnancy



Coussons-Read ME. Effects of prenatal stress on pregnancy and human development: mechanisms and pathways. Obstet Med. 2013 Jun;6(2):52-57. doi: 10.1177/1753495X12473751. Epub 2013 May 3. PMID: 27757157; PMCID: PMC5052760.

Understanding Pregnancy Signals and Infant Development (UPSIDE) cohort

First paper: Associations between neighborhood stress and maternal sex steroid hormones in pregnancy

> “Our findings suggest that greater exposure to neighborhood disorder is associated with higher levels of testosterone across pregnancy, particularly among mothers carrying male fetuses. Our findings are relevant to perinatal outcomes given evidence linking sex steroid dysregulation and pregnancy complications, adverse birth outcomes, and adverse long-term child health outcomes.”

Hansel, Megan & Murphy, Hannah & Brunner, Jessica & Wang, Christina & Miller, Richard & O'Connor, Thomas & Barrett, Emily & Rivera-Núñez, Zorimar. (2023). Associations between neighborhood stress and maternal sex steroid hormones in pregnancy. BMC Pregnancy and Childbirth. 23. 10.1186/s12884-023-06043-0.

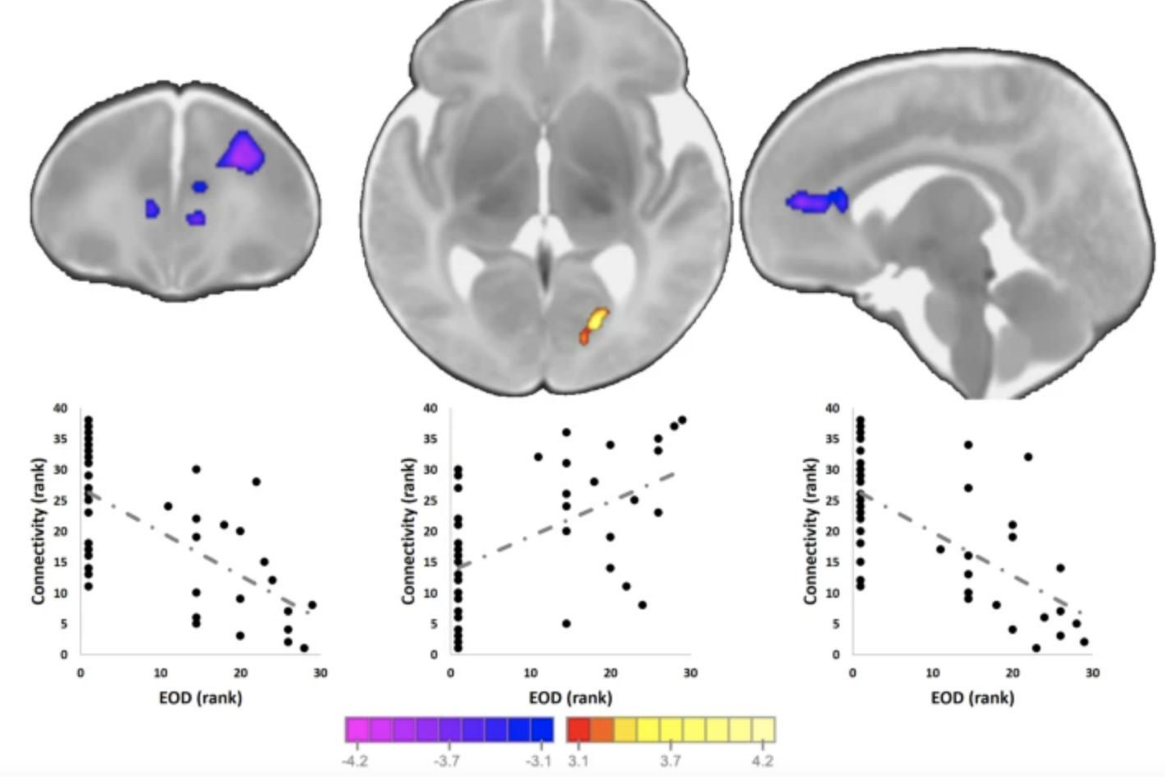
Article | Published: 15 November 2023

The effects of experience of discrimination and acculturation during pregnancy on the developing offspring brain

Marisa N. Spann ✉, Kiarra Alleyne, Cristi
Bang, Victoria Oyeneye, Rebecca Kiflom,
& Dustin Scheinost

Neuropsychopharmacology (2023) | Cit

Fig. 3: Associations prenatal experiences of discrimination and offspring amygdala connectivity.



Prevention related to preterm delivery

- Inadequate prenatal care is associated with preterm delivery and adverse outcomes

Gadson A, Akpovi E, Mehta PK. Exploring the social determinants of racial/ethnic disparities in prenatal care utilization and maternal outcome. Semin Perinatol. 2017;41(5):308–317. PubMed doi: 10.1053/j.semperi.2017.04.008

Fryer K, Munoz MC, Rahangdale L, Stuebe AM. Multiparous Black and Latinx women face more barriers to prenatal care than white women. J Racial Ethn Health Disparities. 2021;8(1):80–87. PubMed doi: 10.1007/s40615-020-00759-x

Salm Ward TC, Mazul M, Ngui EM, Bridgewater FD, Harley AE."You learn to go last": perceptions of prenatal care experiences among African-American women with limited incomes. Matern Child Health J. 2013;17(10):1753–1759. PubMed doi: 10.1007/s10995-012-1194-5

- Environmental racism → microplastic exposure → associated with preterm delivery

THE LANCET
Planetary Health

ARTICLES | VOLUME 8, ISSUE 2, E74-E85, FEBRUARY 2024 | Download Full Issue

Prenatal phthalate exposure and adverse birth outcomes in the USA: a prospective analysis of births and estimates of attributable burden and costs

Prof Leonardo Trasande, MD • Morgan E Nelson, MS • Prof Akram Alshawabkeh, PhD • Prof Emily S Barrett, PhD • Jessie P Buckley, PhD • Prof Dana Dabelea, MD • et al. Show all authors • Show footnotes

Open Access • Published: February, 2024 • DOI: https://doi.org/10.1016/S2542-5196(23)00270-X •

30 MAR 2021 | PRESS RELEASE | CHEMICALS & POLLUTION ACTION

Plastic pollution is an environmental injustice to vulnerable communities – new report

Assessments of Hypothesized Risk Factors

None or Public Health Ins

Age <21

No partner

<College

Psychological Risk = Any Pre-CBCL Psychiatric Dx or + PROMIS Depression Screen

Cumulative Psychosocial Adversity Index (Evans 2013)

Cumulative Prenatal Substance Exposure (Carta et al., 2001; Humeniuk et al., 2008)

Prematurity and Neonatal Complications

CBCL Dysregulation Trajectories Across Ages

18-35 mos

36-47 mos

48-59 mos

60-72 mos

Nicotine

Alcohol

Marijuana

Opioids

Illicit Substances

Birth GA Group:

- Ext/Very Preterm <32 wks
- Mod/late Preterm = 32-36 wks
- Term ≥ 37 wks

LOS = proxy for neonatal illness > GA week Median

CBCL-DP >180:
Anxiety/Depression+
Attention + Aggression
Other Syndrome Scores:
Emotional Reactivity, Social Withdrawal
Sleep Problems
Somatic Complaints

Maternal and Newborn Characteristics

CBCL Outcomes at 18-72 mos

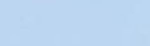
Psychosocial and Neonatal Risk Factors Associated with Behavioral Dysregulation Trajectories from 18 through 72 Months of Age Among ECHO Study Children

Presenting Author: Julie A. Hofheimer, PhD (she/her/hers) – University of North Carolina at Chapel Hill School of Medicine

Conclusions

After matching on additional risk factors, infants with **prenatal opioid exposure** were not at higher risk for for developmental, cognitive, and behavioral problems outcomes compared to unexposed children

- Additional analyses are planned to examine the influence of opioid type, dosage, and duration as well as the effect of opioid replacement therapy
- Evaluation for more subtle deficits/difficulties should be assessed through formal testing and/or parental surveys



KAISER PERMANENTE

Financial Support

FDA Contract 75F40119C10101

Prenatal Opioid Exposure and the Risk of Developmental Delay, Cognitive, Behavioral, and Motor Disorders

Presenting Author: Michael Kuzniewicz, MD MPH (he/him/his) – Kaiser Permanente Northen California

Over half (52%) of infants exposed to *in-utero* opioids, regardless of NAS diagnosis, were ≥2 standard deviations below the mean for all 6 domains of the BDIST. (Table 2)

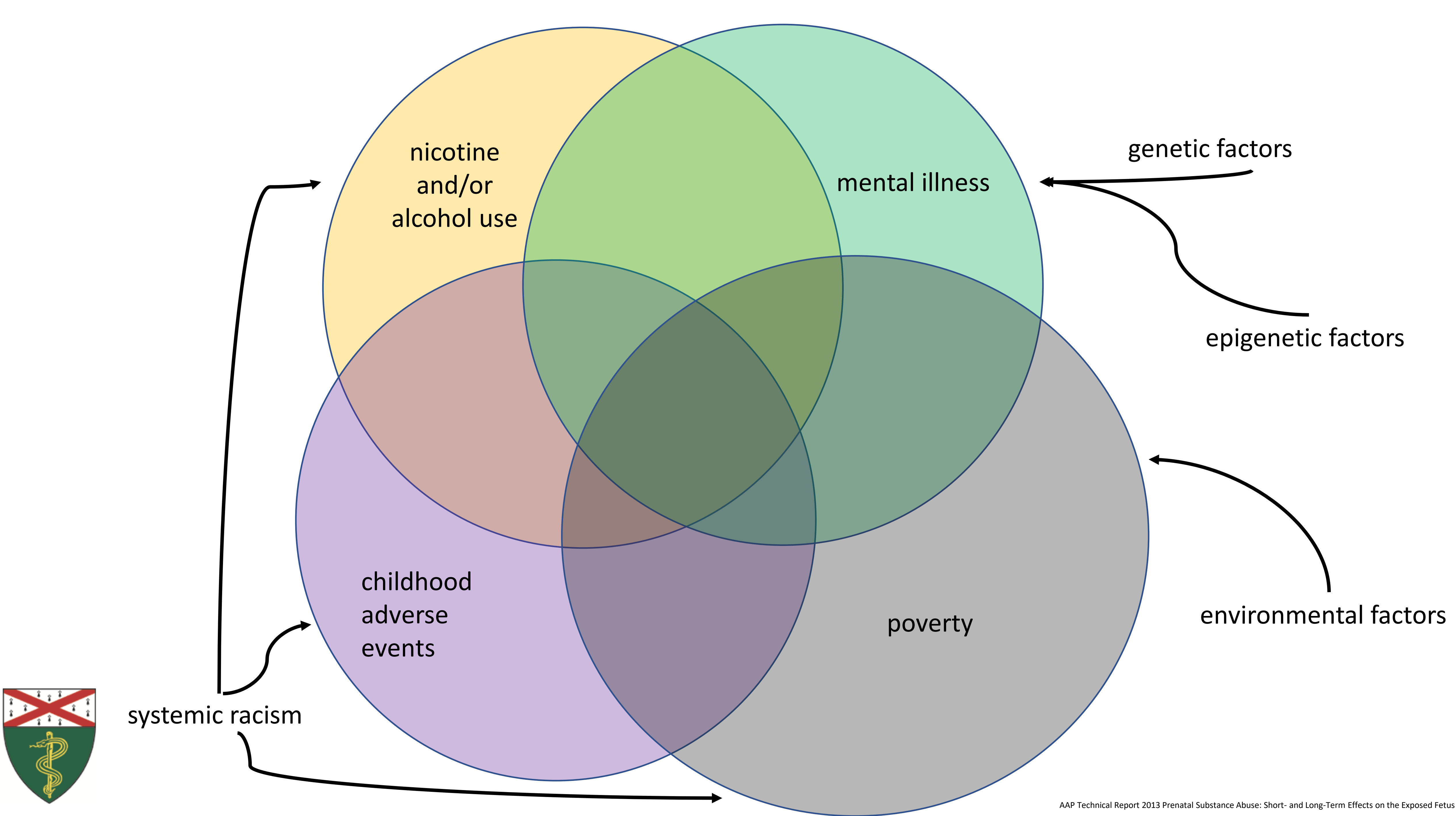
Neurodevelopment Outcomes of In Utero Opioid Exposed Infants Enrolled in Early Intervention

Presenting Author: Marissa Reilly, MS (she/her/hers) – Tufts University School of Medicine

Maternal Opioid Use	Heroin	2.4%
	Methadone/Buprenorphine	16.6%
	Opioid pain medications	81.0%

Prenatal Opioid Exposure and the Risk of Developmental Delay, Cognitive, Behavioral, and Motor Disorders

Presenting Author: Michael Kuzniewicz, MD MPH (he/him/his) – Kaiser Permanente Northen California


nicotine and/or alcohol use
mental illness
genetic factors
epigenetic factors
childhood adverse events
poverty
environmental factors
systemic racism
AAP Technical Report 2013 Prenatal Substance Abuse: Short- and Long-Term Effects on the Exposed Fetus

- The physiologic impact of maternal substance use on the fetus is highly variable.

- **What may be most harmful to fetuses about many substances is their legal status and context of use, leading to barriers in communication and access to prenatal care, social stress, stigma, poverty, incarceration, etc.**

Beyond a simple cause and effect relationship: Exploring the long-term outcomes of children prenatally exposed to opioids and other substances
Ekaterina Burduli, Hendrée E Jones
In Press, Corrected Proof, Available online 7 December 2024

- Neuropsychiatric effects due to pre-natal exposure are highly mitigated by positive parenting interventions postnatally.

Infant and Child Development. The role of mother's prenatal substance use disorder and early parenting on child social cognition at school age
Volume30, Issue3 May/June 2021

Implications

- Goal is to support people maximally during pregnancy
  - Prenatal care
  - Social support, connect with appropriately matched services
  - Mental health support, disorder identification and treatment
  - Substance use/use disorder identification with universal validated screening questionnaires
  - Substance use/use disorder treatment
    - Alcohol use cessation, tobacco use cessation, medications for opioid use disorder, etc
  - Mitigation of stressors, including experiences of discrimination
  - Preparation for parenting
  - Identification of and mitigation of barriers to dyads remaining together after delivery

Caitlin E. Martin, Tawany Almeida, Bhushan Thakkar & Tiffany Kimbrough (2022) Postpartum and addiction recovery of women in opioid use disorder treatment: A qualitative study, Substance Abuse, 43:1, 389-396, DOI: 10.1080/08897077.2021.1944954

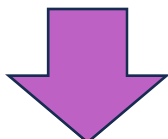
NYU Review of Law & Social Change 2019 The Harm of Child Removal Shanta Trivedi

Mical Raz, Alan Dettlaff, Frank Edwards; The Perils of Child “Protection” for Children of Color: Lessons From History. *Pediatrics* July 2021; 148 (1).

Reduce Prenatal Maternal Stress to Improve Pregnancy and Birth Outcomes: Recommendations for U.S. Policy

Marci Lobel and Heidi Preis
Policy Insights from the Behavioral and Brain Sciences
Volume 12, Issue 1
https://doi.org/10.1177/23727322241302417

- **"Improving prenatal screening requires the expertise of scientists to develop and validate tools and procedures, and healthcare professionals to implement them.**
- "Better training, diversification, and geographic distribution of the prenatal care workforce requires commitment from medical training programs and healthcare systems.



"Reducing maternal stress and its impacts can provide each child with the healthiest possible start to life and the greatest ability to thrive."

Screen early and often

- "For women with early prenatal screening in their first trimester, there was a decrease of
  - any self-reported substance use by 72%,
  - marijuana by 57%,
  - all opiates by 40%, and
  - benzodiazepine use by 76% when rescreened at the end of their pregnancy.
- For those with initial screening in their second trimester, there was a smaller decrease in
  - any self-reported substance use by 44%,
  - marijuana by 36%,
  - all opiates by 20%, and
  - benzodiazepine use by 50% when rescreened at the end of their pregnancy.
- We even found a much smaller decrease when screened in their third trimester in
  - any substance by 6%,
  - marijuana by 9%,
  - all opiates by 0%, and
  - benzodiazepine use by 15% when rescreened at the end of their pregnancy."

Improved Maternal and Infant Outcomes with Serial, Self-Reported Early Prenatal Substance Use Screening

Published: 27 April 2021

Volume 25, pages 1118–1125, (2021) Cite this article

Future directions

- Screening non-birthing parent for substance use?

Ornoy et al The developmental outcome of children born to heroin-dependent mothers, raised at home or adopted. Child Abuse Negl. 1996

Caring for Families Impacted by Opioid Use: A Qualitative Analysis of Integrated Program Designs

What's New:

A growing number of programs provide integrated medical and behavioral care to families impacted by opioid use disorder. Successful programs prioritized care coordination, removing barriers to integrating medical and behavioral services, and balancing child safety concerns while maintaining parental trust.

Schiff DM, Partridge S, Gummadi NH, Gray JR, Stulac S, Costello E, Wachman EM, Jones HE, Greenfield SF, Taveras EM, Bernstein JA. Caring for Families Impacted by Opioid Use: A Qualitative Analysis of Integrated Program Designs. Acad Pediatr. 2022 Jan-Feb;22(1):125-136. doi: 10.1016/j.acap.2021.04.016. Epub 2021 Apr 24. PMID: 33901729; PMCID: PMC8542059.

After the baby is born…

What is CAPTA/CARA?

- The Child Abuse Prevention and Treatment Act, as updated by the Comprehensive Addiction and Recovery Act of 2016 requires each state to develop a protocol for and produce annual reports to the federal government detailing
  - (1) the numbers of newborns “affected by” substance use during pregnancy,
  - (2) that CPS systems are notified of delivery of such newborns,
  - (3) that these newborns have Family Care Plans, and
  - (4) what is in these plans.

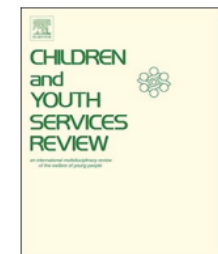
https://www.acf.hhs.gov/sites/default/files/documents/cb/pi1702.pdf

Children and Youth Services Review 99 (2019) 343–354

Contents lists available at ScienceDirect

Children and Youth Services Review

journal homepage: www.elsevier.com/locate/childyouth



Planning for safe care or widening the net?: A review and analysis of 51 states' CAPTA policies addressing substance-exposed infants

Margaret H. Lloyd[a,*], Stephanie Luczak[b], Samantha Lew[a]

[a] *University of Connecticut School of Social Work, USA*
[b] *Connecticut Children's Medical Center, USA*

“Highlights
•We analyze state-level consistency with 2016 federal child welfare legislation addressing prenatal substance exposure.
•We find only two states in full compliance.
•Many states now mandate reporting all positive infant drug screens to CPS regardless of safety concerns.
•We discuss our findings in the context of the “net widening” phenomenon and current literature.”

Range of responses by state

Connecticut[22]

- A drug test on a pregnant or birthing person is **NOT** required by law.
    - If screening indicates the need for a drug test, providers should ask for and get informed consent prior to drug testing a pregnant or birthing person.
- A drug test on a newborn is **NOT** required by law.
- A positive drug test or indication that a newborn is substance-affected does **NOT** trigger a mandatory report.
    - Providers must make a CAPTA notification through an online portal for any newborn known to be exposed to substances during pregnancy. If there are no safety concerns, this information is anonymized and does NOT equate to a DCF referral.[23]

WHAT YOU NEED TO KNOW FOR PROVIDERS

Prenatal Drug Exposure: CAPTA Reporting Requirements for Medical Professionals[1]

Note: This resource is up to date as of February 2024.

ADDICTION

Research Report | Full Access

Association between punitive policies and neonatal abstinence syndrome among Medicaid-insured infants in complex policy environments

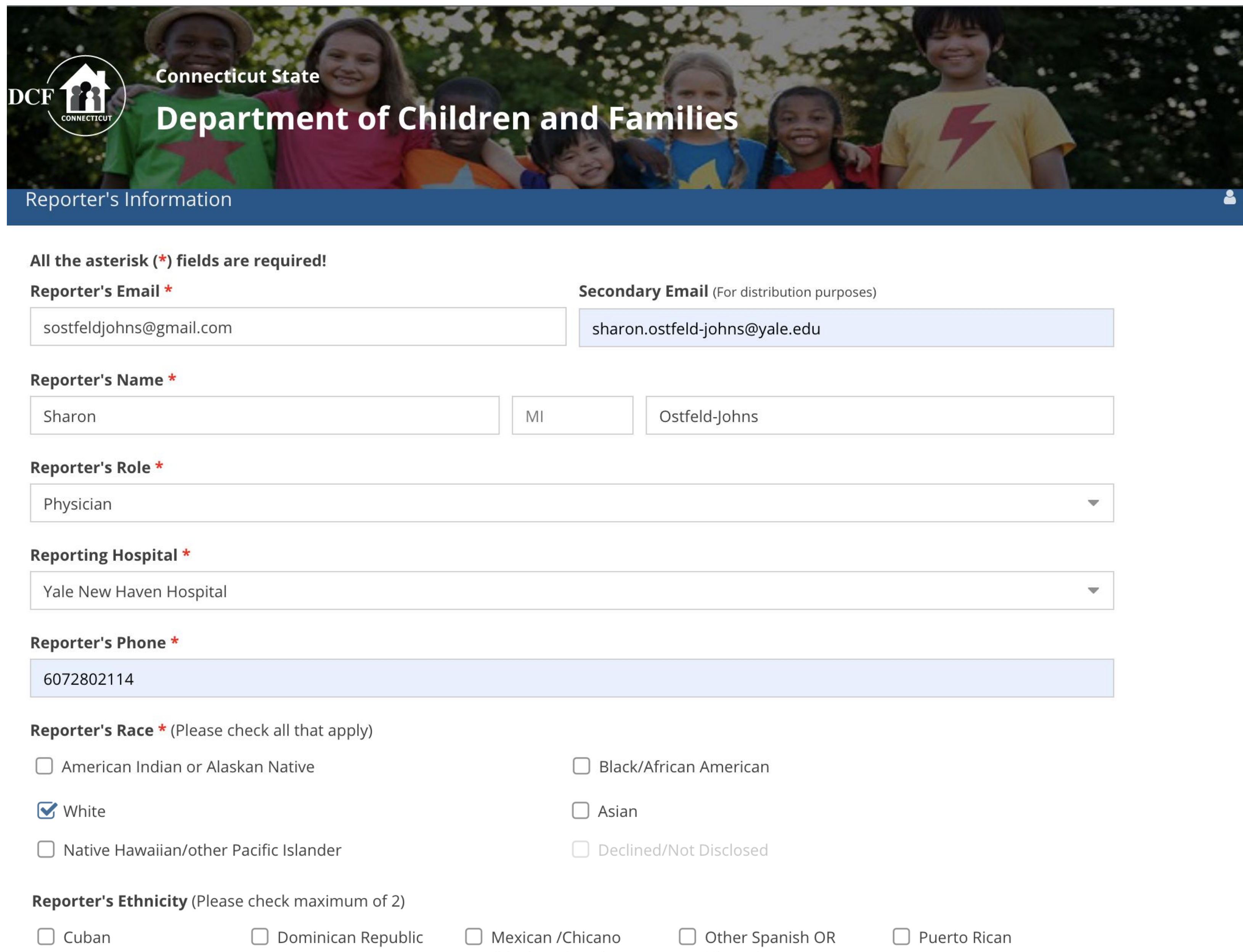
Laura J. Faherty, Sara Heins, Ashley M. Kranz, Stephen W. Patrick, Bradley D. Stein

First published: 07 June 2021 | https://doi.org/10.1111/add.15602 | Citations: 7

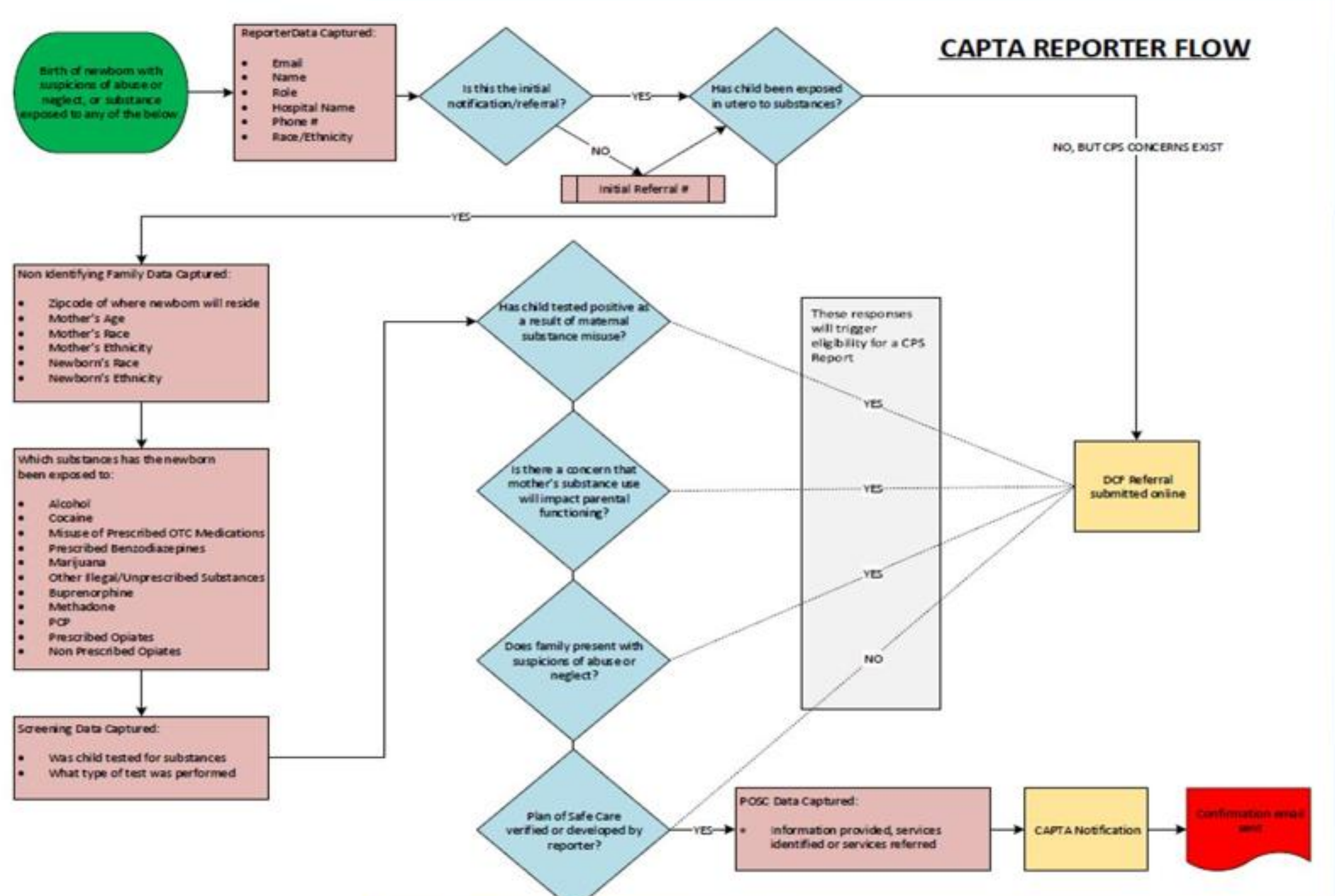
"In this study of Medicaid-insured infants in 39 states, we found that punitive policies were not associated with reduced odds of NAS either in the short or long term."

"The complexity of state policy environments has increased over time, with the number of states with both treatment-supportive and potentially treatment-deterring policies increasing since 2000."

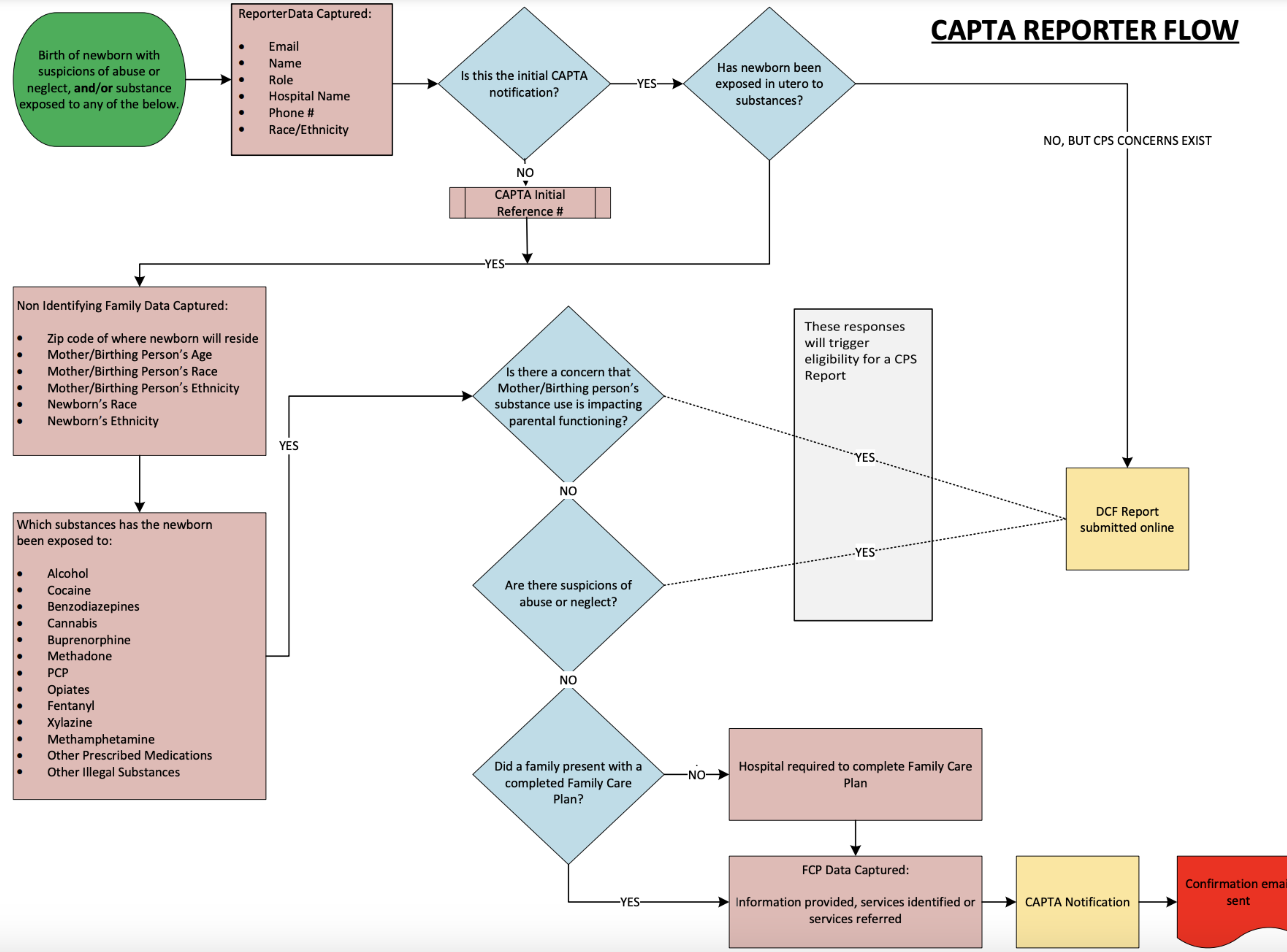
Connecticut's Approach: Dual Notification and Reporting Systems: CAPTA Notification Portal



OLD
CAPTA internal
work flow
diagram
(not for
dissemination)



CURRENT



Connecticut’s approach (at management level)

- Nonpunitive response
- Prioritize supportive response to substance **use** during pregnancy (ie “exposure” vs a determination of being “affected by”)
- Maximal support prior to and separate from investigation
- Separation of CAPTA “notification” (anonymous, federal law requires) from DCF “report” (investigation, implication of harm or neglect) for substance use without concerns for harm or neglect

“Affected by” vs “exposure to”

- Challenges with “affected by”
  - Not necessarily clinically apparent during the newborn hospital stay
  - Evidence shows disparities in determination of NAS/NOWS diagnosis
  - Withdrawal symptoms are highly dependent on parental response to infant and presence with infant thus dependent on parental presence etc
  - Would want resources provided to families even with infant with no “apparent” symptoms (ie counseling/harm reduction re: cannabis use and breastfeeding etc)

- If you choose “exposure to” then you have to provide dual notification/reporting system

Optimal clinical care

- Screen for substance use during pregnancy
- Match with appropriate services during pregnancy
- Verify appropriate services in place during newborn hospital stay
- Families go home together

Legal intent

- Identify substance use during pregnancy
- Develop Family Care Plan
- Send anonymized information to state during newborn hospital stay
- Families go home together

The Family Care Plan from CT CAPTA Notification Portal

Information provided, services identified or services referred * (Please check all that apply)

- ☐ 12 Step Group
- ☐ Birth to Three
- ☐ Breastfeeding
- ☐ Childcare
- ☐ Co-parenting
- ☐ Depression during/after pregnancy
- ☐ Developmental Milestones
- ☐ Financial Assistance
- ☐ Food Insecurity
- ☐ Home Visiting
- ☐ Housing Assistance
- ☐ Identified Pediatrician
- ☐ Immunizations
- ☐ Infant Car Seat Safety
- ☐ Medication Assisted Treatment
- ☐ Mental Health -Parent
- ☐ Mental Health-Early Childhood
- ☐ Nutrition
- ☐ Oral Health Care
- ☐ Parenting Groups
- ☐ Prenatal Health Care
- ☐ Recovery Supports
- ☐ Safe Sleep Plan
- ☐ Second Hand Smoke
- ☐ SNAP Benefits
- ☐ Substance Use Counseling
- ☐ Transportation
- ☐ WIC
- ☐ Other (specify)

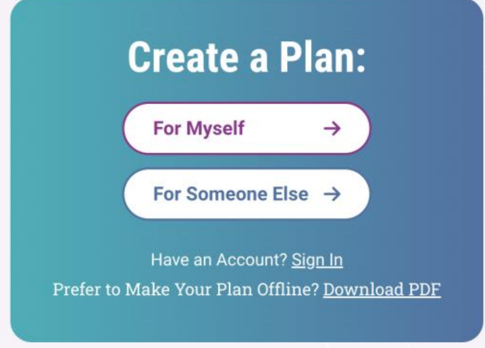
This plan is for you and your information will not be shared with any agencies or organizations.

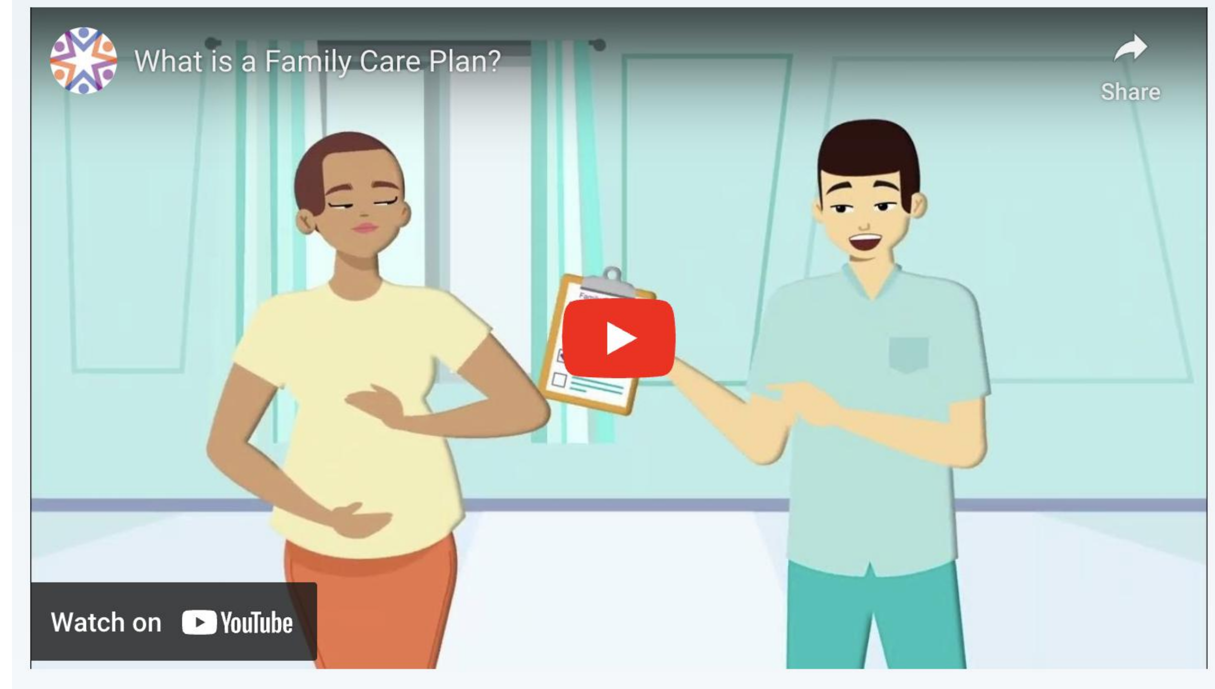
START A FAMILY CARE PLAN

If you are pregnant and using substances, a Family Care Plan (FCP) is a helpful tool that outlines various supports that you have in place to support the health and wellbeing of your baby, yourself, and your family.

An FCP can include services such as medical care, reproductive care, financial and housing assistance, WIC, home visiting, parenting groups, substance use recovery supports, and other resources that you are engaged with or would like to engage with.

In CT, any pregnant individual who is using prescribed/non prescribed substances (including cannabis) during pregnancy should have an FCP completed before birth and available to reference at the hospital after birth. You have the option of creating an FCP on your own or you may choose to work with a trusted support of your choice, such as a family member, a friend, or a community/health professional.





https://www.sepict.org/individuals-and-families/what-is-a-family-care-plan/

Perceptions of the “Family Care Plan”

- A “red letter”, stigmatizing
- Something that leads to DCF referral

Family Care Plan should continue to support the whole *family* after delivery

- Rise in late postpartum mortality
  - continue to screen for substance use and need for intensified support/engagement in the late postpartum period (42d—1yr)

Future directions

- Family Care Plans for *all* pregnant patients
- Passage of CAPTA reauthorization: current language makes dual notification/reporting system a federal mandate

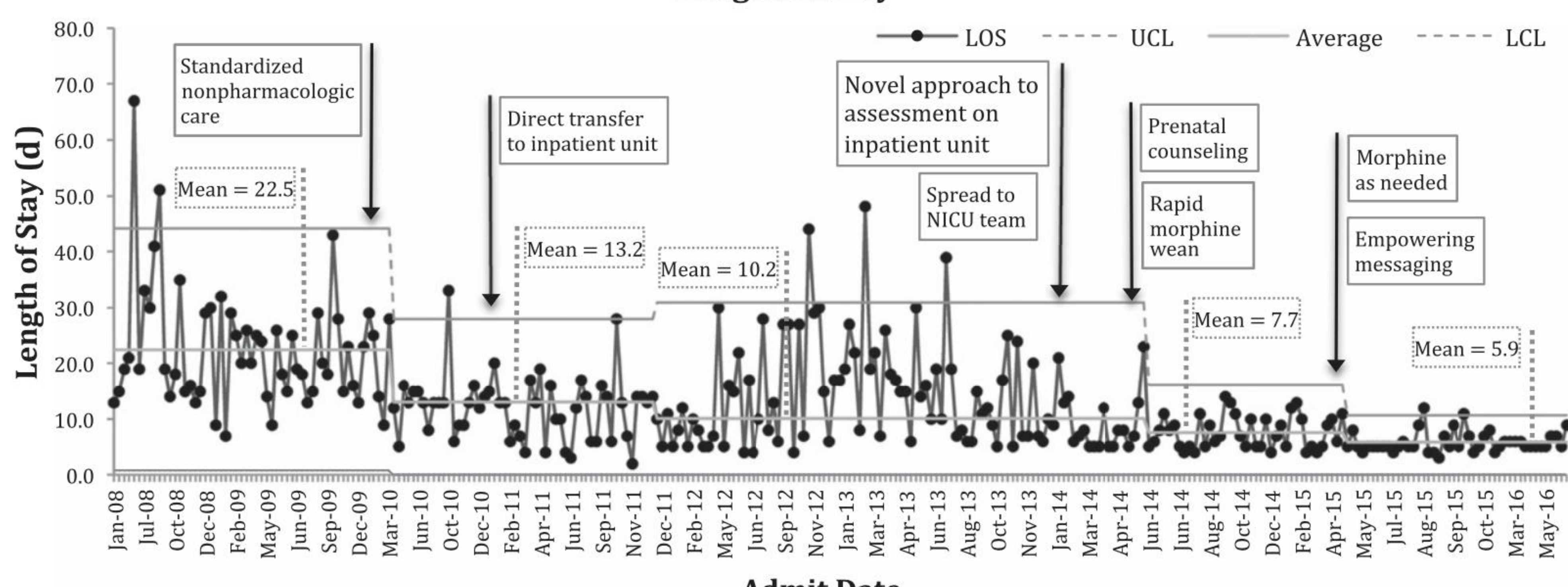
Lloyd Sieger et al. The 2021 reauthorization of CAPTA —letting public health lead. N Engl J Med. 2021

Now ESC!

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

Matthew R. Grossman, MD,[a] Adam K. Berkwitt, 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]

PEDIATRICS Volume 139, number 6, June 2017



Standardize
nonpharmac
care

Novel approach to assessment on inpatient unit

owering
saging

- Attempts to implement ESC without a focus on the message "you are the best treatment for your child" i.e. parent's role as keystone in newborn care, have not shown the same benefits.

Ryan K, Moyer A, Glait M, Yan K, Dasgupta M, Saudek K, Cabacungan E. Correlating Scores but Contrasting Outcomes for Eat Sleep Console Versus Modified Finnegan. Hosp Pediatr. 2021 Apr;11(4):350-357. doi: 10.1542/hpeds.2020-003665. Epub 2021 Mar 2. PMID: 33653727.

- Decreased parental presence is associated with higher rates of pharmacologic treatment in infants treated with ESC.

Amin A, Frazie M, Thompson S, Patel A. Assessing the Eat, Sleep, Console model for neonatal abstinence syndrome management at a regional referral center. J Perinatol. 2023 Jul;43(7):916-922. doi: 10.1038/s41372-023-01666-9. Epub 2023 Apr 25. PMID: 37185367; PMCID: PMC10127154.

Hospitalization for neonatal opioid withdrawal syndrome

Non-pharmacologic Care Plan

- **Providing an Empowering Message**
  - It is essential to discuss the importance of family involvement in providing continuous non-pharmacologic interventions for their infants
  - "You are the best treatment for your child"
- **Components of Non-Pharmacologic Care Plan**
  - **Low Stimulation Environment**
    - Low lights, quiet environment
  - **Feeding on Demand**
    - Assess for cues of hunger, may cluster feed
  - **6 S's**
    - Swaddle, sway, suck, sideways, shhhh, skin-skin contact
    - Coach families on these tools

ESC Goals

- **Can the Infant Eat?**
  - Breastfeed well OR take approximately 1 oz formula in 30 mins
- **Can the Infant Sleep?**
  - Uninterrupted sleep in between feeds or episodes of inconsolability
- **Can the Infant be Consoled in 10 Mins?**
  - When infant cries, can s/he be consoled implementing non-pharmacologic interventions

ORIGINAL ARTICLE

Eat, Sleep, Console Approach or Usual Care for Neonatal Opioid Withdrawal

Leslie W. Young, M.D., Songthip T. Ounpraseuth, Ph.D., Stephanie L. Merhar, M.D., Zhuopei Hu, M.S., Alan E. Simon, M.D., Andrew A. Bremer, M.D., Ph.D., Jeannette Y. Lee, Ph.D., Abhik Das, Ph.D., Margaret M. Crawford, B.S., Rachel G. Greenberg, M.D., P. Brian Smith, M.D., Brenda B. Poindexter, M.D., et al., for the ACT NOW Collaborative*

"In this multicenter, stepped-wedge, cluster-randomized, controlled trial, we found that the use of the Eat, Sleep, Console care approach decreased the time until infants with opioid withdrawal were medically ready for hospital discharge by a mean of 6.7 days, as compared with usual care. The use of the approach also decreased the proportion of infants who received pharmacologic treatment by 32.5 percentage points, without increasing specified adverse safety outcomes through 3 months of age."

April 30, 2023
DOI: 10.1056/NEJMoa2214470

Review

Drug testing in support of the diagnosis of neonatal abstinence syndrome: The current situation

Loralie J. Langman [a], Alysha M. Rushton [a], Dylan Thomas [b], Penny Colbourne [b], Isolde Seiden-Long [c], Miranda M. Brun [b], David Colantonio [d], Paul J Jannetto [a]

"At present it would appear that clinical tools and established diagnostic signs and symptoms remain adequate at establishing the diagnosis of NAS."

"We must remember that the ultimate purpose and goal of neonatal drug testing is to support the diagnosis of NAS…, and not to identify a condition that may exist in the mother (i.e., maternal substance use disorder)."

Volume 111, January 2023, Pages 1-10

“To be quite clear, newborn toxicology testing is the use of a biochemical sample obtained from the infant as a surrogate for information collected from the birthing person.”

“Given the current level of evidence and the inequitable consequences specific to newborn toxicology testing, ordering them

- in a universal fashion is not recommended.
- when there is no known substance exposure and no symptoms of NOWS is not recommended.
- when there is already knowledge of prenatal opioid exposure has no benefit related to NOWS care, and likely harms.

Toxicology tests should be sent only when the result would

- clarify a suspected diagnosis of NOWS or
- change clinical management of NOWS; this is rare.

To fulfill this clinical need, the only appropriate test is urine toxicology. Long window of detection methods (umbilical cord, meconium) have no role in the diagnosis or clinical management of NOWS.

These tests should be sent only when attempts to obtain information from higher quality sources (parental report, toxicology testing of the birthing person) have been exhausted.”

Pre-natal and post-natal screening and testing in neonatal abstinence syndrome

Sharon Ostfeld-Johns

Seminars in PERINATOLOGY

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RESEARCH ARTICLE | MARCH 10 2025

"Like a Hot Potato": Breakdown of Clinician-Parent Communication About Newborn Toxicology Testing

Gina Liu, MSc; Brianna J. Wright, BA; Leah N. Schwartz, MD, MSc; Ellis J. Yeo, BA; Sarah N. Bernstein, MD; Sharon Ostfeld-Johns, MD; Davida M. Schiff, MD, MSc

"From both sets of interviews, we identified 4 themes:

- (1) **lack of communication about the benefits and risks** of newborn toxicology testing led to confusion and misperceptions about the purpose of testing among parents,
- (2) **fear of damaging the clinician-parent relationship** and discomfort discussing potential Child Protective Services involvement impacted clinician communication around testing,
- (3) both clinicians and parents expressed a **desire for more transparent communication** around newborn toxicology testing, and
- (4) participants suggested **structured consent conversations** and **improved coordination across prenatal and perinatal care teams**."

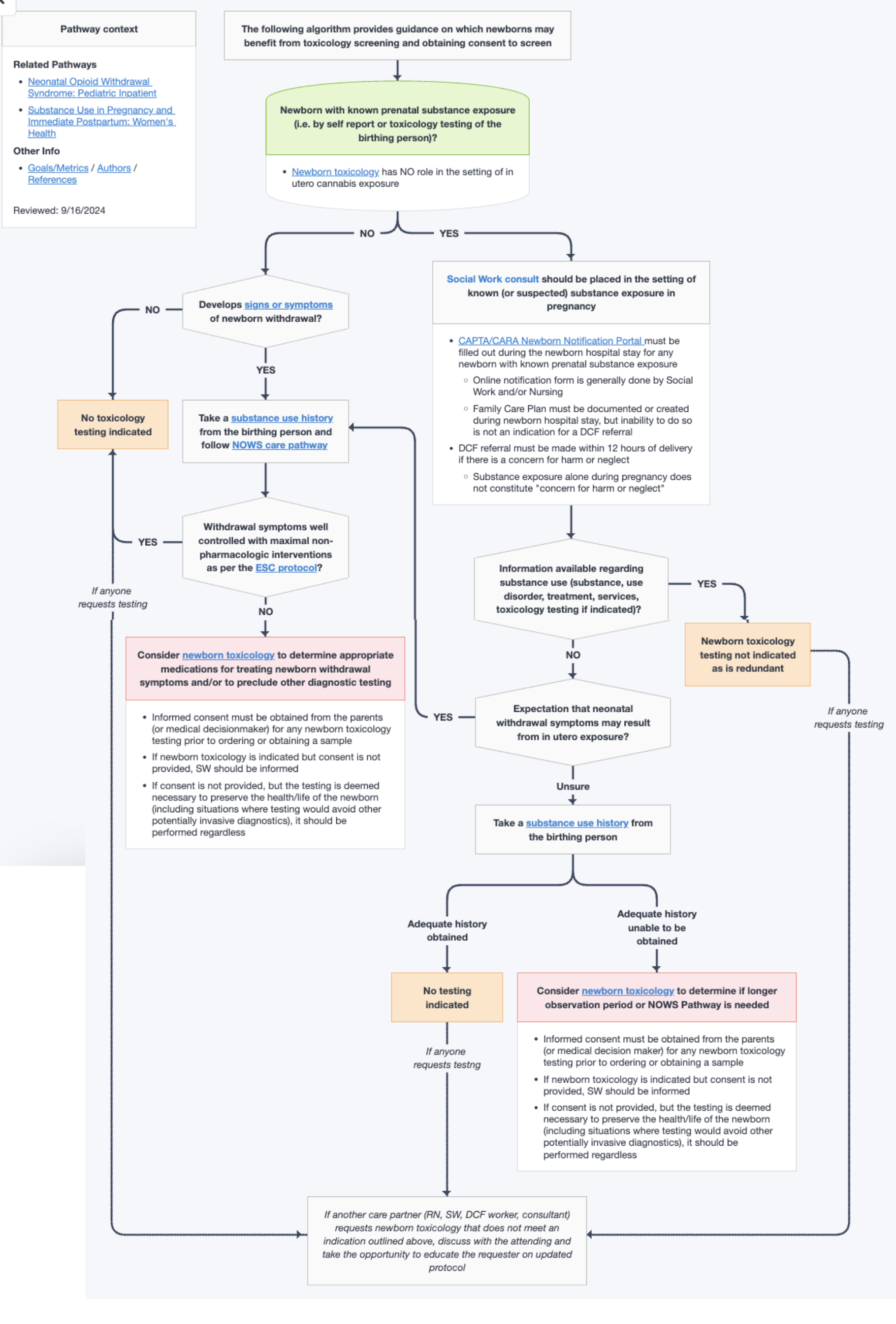
Our Newborn Toxicology Testing Protocol development process:

- Conversations began…
  - Ideas percolating within Pediatric Hospital Medicine Section
  - Support from Section Chief
  - Support from head of Child Abuse Section
  - Support from medical director of Newborn Nursery
  - Conversations with OB team
  - Support from SW leadership
  - Trainee involvement
  - Support from Addiction Medicine colleagues

New connections

- Connections made with workers and researchers at DCF to generate data about CAPTA referrals
- Use of tests as substantiation of claim of harm
  - Mutual deference
    - Usually ordered when requested by SW or DCF (or expectation of this)
    - Per discussions with DCF, they thought they were ordered for medical purposes
- Now: working on future projects and research, involved in state level policy groups

The newborn toxicology pathway



Pathway context

Related Pathways

- Neonatal Opioid Withdrawal Syndrome: Pediatric Inpatient
- Substance Use in Pregnancy and Immediate Postpartum: Women's Health

Other Info

- Goals/Metrics / Authors / References

Reviewed: 9/16/2024

The following algorithm provides guidance on which newborns may benefit from toxicology screening and obtaining consent to screen

Newborn with known prenatal substance exposure (i.e. by self report or toxicology testing of the birthing person)?

- Newborn toxicology has NO role in the setting of in utero cannabis exposure

NO →

Develops signs or symptoms of newborn withdrawal?

- **NO** → **No toxicology testing indicated**
- **YES** → **Take a substance use history from the birthing person and follow NOWS care pathway**

Withdrawal symptoms well controlled with maximal non-pharmacologic interventions as per the ESC protocol?

- **YES** → **No toxicology testing indicated**
  - *If anyone requests testing*
- **NO** →

Consider newborn toxicology to determine appropriate medications for treating newborn withdrawal symptoms and/or to preclude other diagnostic testing

- Informed consent must be obtained from the parents (or medical decisionmaker) for any newborn toxicology testing prior to ordering or obtaining a sample
- If newborn toxicology is indicated but consent is not provided, SW should be informed
- If consent is not provided, but the testing is deemed necessary to preserve the health/life of the newborn (including situations where testing would avoid other potentially invasive diagnostics), it should be performed regardless

YES →

Social Work consult should be placed in the setting of known (or suspected) substance exposure in pregnancy

- CAPTA/CARA Newborn Notification Portal must be filled out during the newborn hospital stay for any newborn with known prenatal substance exposure
  - Online notification form is generally done by Social Work and/or Nursing
  - Family Care Plan must be documented or created during newborn hospital stay, but inability to do so is not an indication for a DCF referral
- DCF referral must be made within 12 hours of delivery if there is a concern for harm or neglect
  - Substance exposure alone during pregnancy does not constitute "concern for harm or neglect"

Information available regarding substance use (substance, use disorder, treatment, services, toxicology testing if indicated)?

- **YES** → **Newborn toxicology testing not indicated as is redundant**
  - *If anyone requests testing*
- **NO** →

Expectation that neonatal withdrawal symptoms may result from in utero exposure?

- **YES** → **Take a substance use history from the birthing person and follow NOWS care pathway**
- **Unsure** → **Take a substance use history from the birthing person**

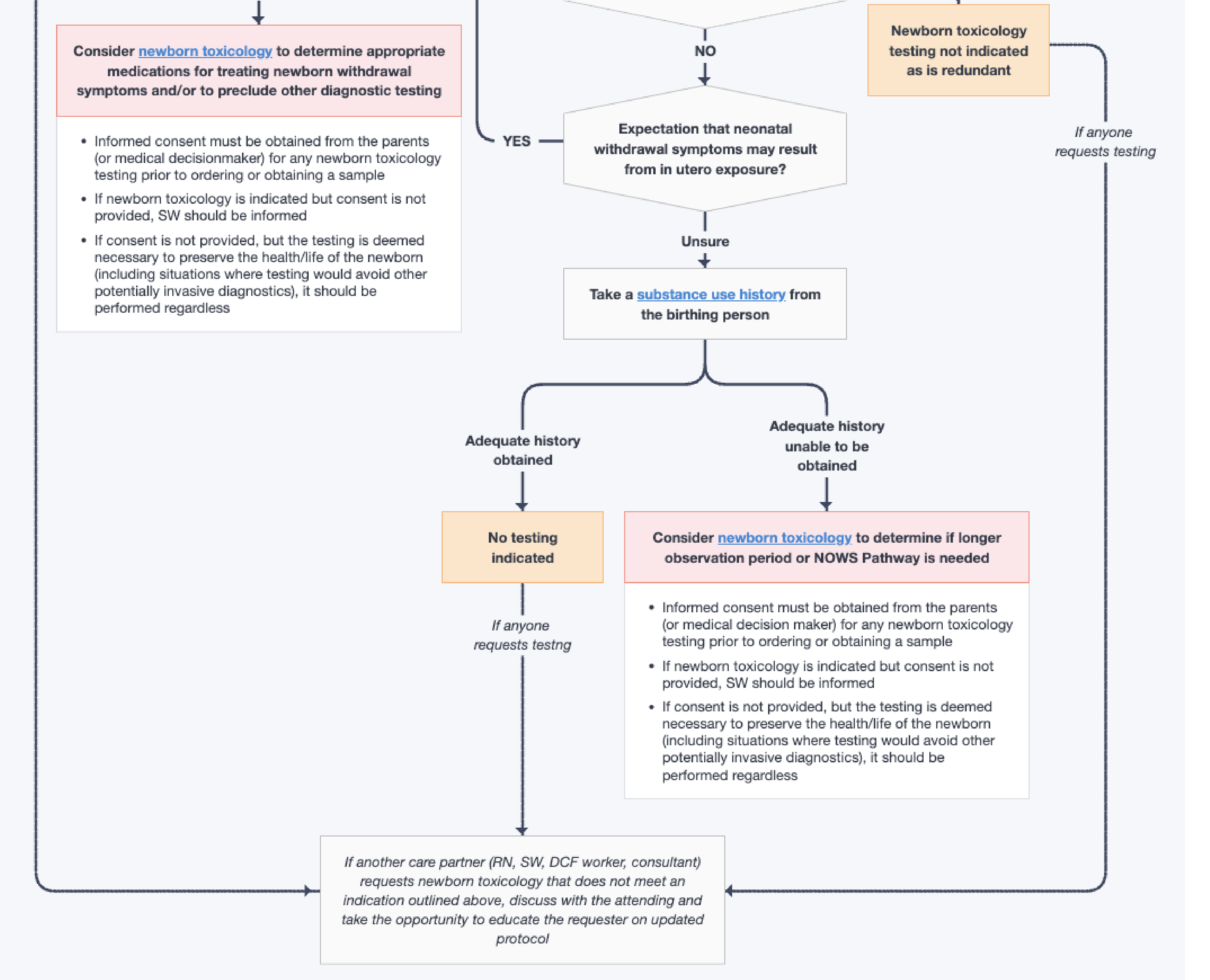
Substance use history questions

NOTES

- People who are pregnant may not tell clinicians about substance use because of fear of punitive responses
- Taking a substance use history is an opportunity to be a compassionate listener and trusted care partner, which can help people engage with treatment and support services
- Use the harm reduction principle of unconditional positive regard. When you have unconditional positive regard for someone:
  - You respect their right to make important decisions about their body and their health
  - You want what is best for them
  - You believe that they are competent and capable of choosing what is right for them based on their unique circumstances
  - You trust their actions are motivated by a desire to be the best parent they can be

Consider questions such as:

- "Do you have any medical problems?
- Are there any mental health problems such
- as depression or anxiety disorders in the family?
- Do you or anyone in your home smoke?
- Do you or anyone in your home drink alcohol?
- Do you or anyone in your home use drugs?
- Before you knew you were pregnant, how would you describe your use of alcohol?
- After you knew of your pregnancy, how would you describe your use of alcohol?
- Same as above repeated regarding tobacco, prescription medications with attention to opioids and sedative hypnotics, marijuana, cocaine, methamphetamine, and heroin or fentanyl"


Consider newborn toxicology to determine appropriate medications for treating newborn withdrawal symptoms and/or to preclude other diagnostic testing
Informed consent must be obtained from the parents (or medical decisionmaker) for any newborn toxicology testing prior to ordering or obtaining a sample
If newborn toxicology is indicated but consent is not provided, SW should be informed
If consent is not provided, but the testing is deemed necessary to preserve the health/life of the newborn (including situations where testing would avoid other potentially invasive diagnostics), it should be performed regardless
NO
Newborn toxicology testing not indicated as is redundant
YES
Expectation that neonatal withdrawal symptoms may result from in utero exposure?
If anyone requests testing
Unsure
Take a substance use history from the birthing person
Adequate history obtained
Adequate history unable to be obtained
No testing indicated
Consider newborn toxicology to determine if longer observation period or NOWS Pathway is needed
If anyone requests testng
Informed consent must be obtained from the parents (or medical decision maker) for any newborn toxicology testing prior to ordering or obtaining a sample
If newborn toxicology is indicated but consent is not provided, SW should be informed
If consent is not provided, but the testing is deemed necessary to preserve the health/life of the newborn (including situations where testing would avoid other potentially invasive diagnostics), it should be performed regardless
If another care partner (RN, SW, DCF worker, consultant) requests newborn toxicology that does not meet an indication outlined above, discuss with the attending and take the opportunity to educate the requester on updated protocol

Research questions

- Within our health system, prior to an objective protocol, what were the rates of toxicology testing in newborns, and were there differences in the rate of testing in different groups?
  - Race (NHB, NHW, HL, Other)
  - Insurance (Medicaid, private insurance)
  - Income
- What were the differences in the rates of positivity of testing?
- What were the differences in what the tests were positive for (e.g. cannabis only, MOUD medications only, etc)?

Research questions

- Were we making unnecessary/low yield DCF referrals?
- When we put in place an objective clinically-directed testing protocol, did we change testing patterns, disparities, and downstream outcomes?

Figure 3A: Pre-intervention tests ordered and performed with results, by race

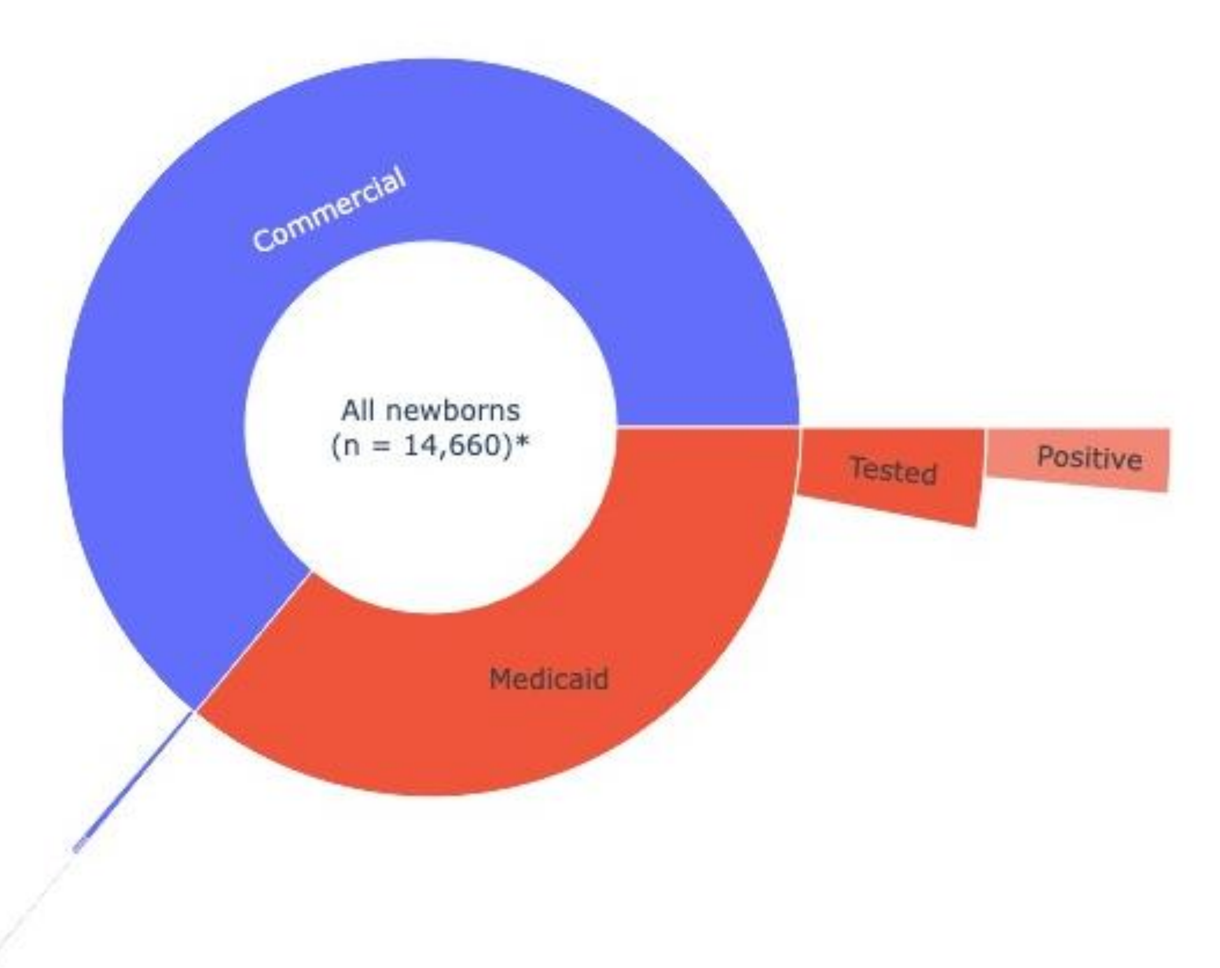
White Non-Hispanic
All newborns
(n = 14,636)*
Other
Tested
Positive
Hispanic or Latino
Black Non-Hispanic
Tested

	WNH	BNH	H/L
% of newborns delivered	55.5%	15.5%	19.8%
% of tests ordered	43.1%	32.7%	22.8%
% of population tested	2.5%	6.7%	3.6%
Relative rate of testing compared to average (3.2%)	0.8	2.1	1.1
Odds ratio	ref.	2.84 (p<0.001)	1.5 (p<0.001)
% of tests ordered in this group that were positive	61.0%	30.3%	44.3%

Forthcoming/accepted publication:
Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Newborn urine drug screen testing rates and positivity rates by race-ethnicity in the pre-intervention period. *186 patients were removed due to missing race-ethnicity date. Abbreviations: UDS, urine drug screen

Figure 3B: Pre-intervention tests ordered and performed with results, by insurance

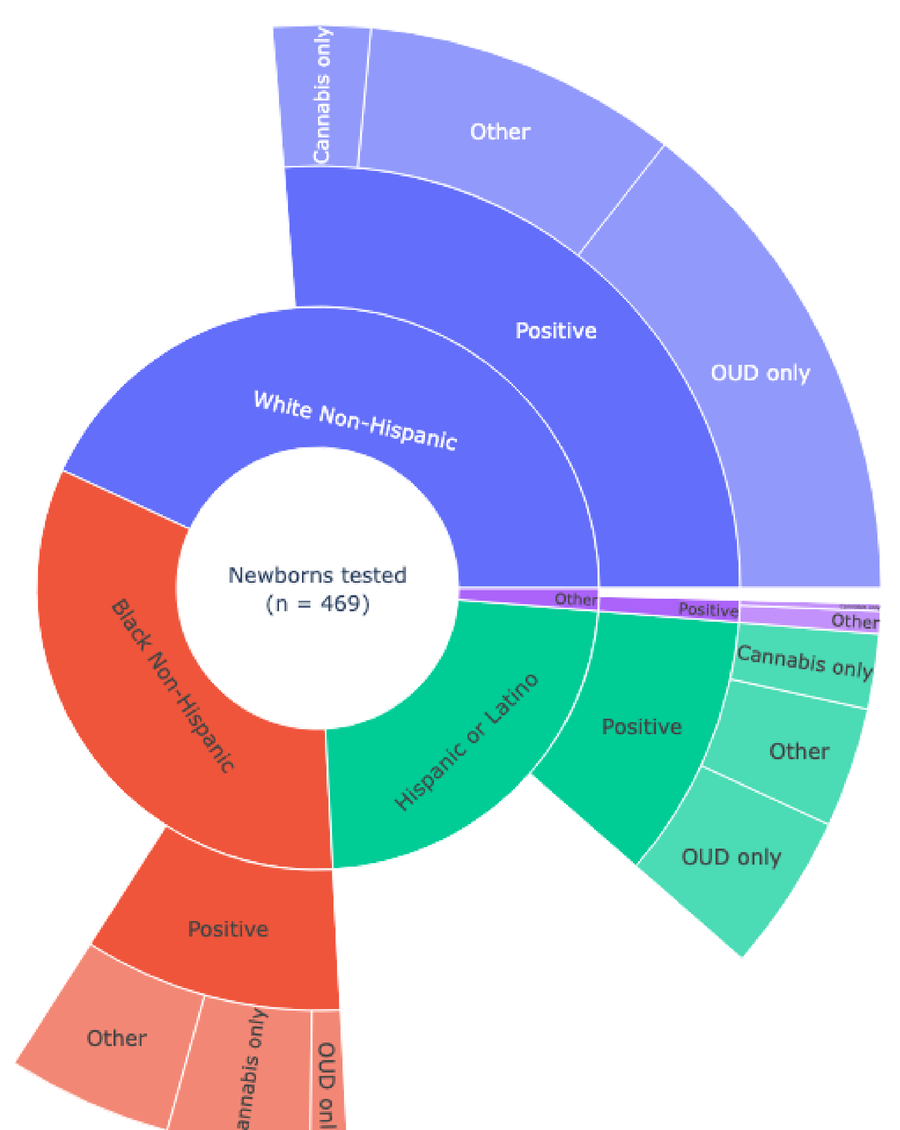


	Commercial	Medicaid
% of newborns delivered	64.0%	36.0%
% of tests ordered	7.7%	92.3%
% of population tested	0.4%	8.2%
Relative rate of testing compared to average (3.2%)	0.1	2.6
Odds ratio	ref.	23.17 ($p<0.001$)
% of tests ordered in this group that were positive	48.9%	25.0%

Forthcoming/accepted publication:
Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Newborn urine drug screen testing rates and positivity rates by insurance in the pre-intervention period. *160 patients were removed due to missing insurance date or non-commercial or Medicaid insurance. Abbreviations: UDS, urine drug screen

Figure 3C: Pre-intervention tests results, by race



	WNH	BNH	H/L
% of tests ordered in this group that were positive for cannabis only	10.6%	41.3%	21.3%
…MOUD only	54.9%	10.9%	44.7%
…other	34.4%	47.8%	34.0%

Forthcoming/accepted publication:
Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Newborn urine drug screen testing results (positive vs. negative among those tested and by drug category among those positive) but race-ethnicity in the pre-intervention period. OUD only denotes a UDS positive only for medications for the treatment of opiate use disorder. Other denotes UDS with multiple substances or with a substance other than cannabis or medications for OUD. Abbreviations: OUD, opiate use disorder.

Figure 3D: Pre-intervention tests results, by insurance

	Commercial	**Medicaid**
% of tests ordered in this group that were positive for cannabis only	18.9%	33.3%
…MOUD only	43.4%	22.2%
…other	37.7%	44.4%

Forthcoming/accepted publication:
Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Newborn urine drug screen testing results (positive vs. negative among those tested and by drug category among those positive) but insurance in the pre-intervention period. OUD only denotes a UDS positive only for medications for the treatment of opiate use disorder. Other denotes UDS with multiple substances or with a substance other than cannabis or medications for OUD. Abbreviations: OUD, opiate use disorder.

Control chart

5.0%
4.5%
4.0%
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
UCL
CL
Percent of newborns with a toxicology test ordered
Coalition building and conversations begin
Toxicology removed from nursing ESC order set
Protocol goes live on hospital intranet
Protocol goes live as Agile Pathway in Epic
0.0061
0.0013
1/12/19 1/26/19 2/9/19 2/23/19 3/9/19 3/23/19 4/6/19 4/20/19 5/4/19 5/18/19 6/1/19 6/15/19 6/29/19 7/13/19 7/27/19 8/10/19 8/24/19 9/7/19 9/21/19 10/5/19 10/19/19 11/2/19 11/16/19 11/30/19 12/14/19 12/28/19 1/11/20 1/25/20 2/8/20 2/22/20 3/7/20 3/21/20 4/4/20 4/18/20 5/2/20 5/16/20 5/30/20 6/13/20 6/27/20 7/11/20 7/25/20 8/8/20 8/22/20 9/5/20 9/19/20 10/3/20 10/17/20 10/31/20 11/14/20 11/28/20 12/12/20 12/26/20 1/9/21 1/23/21 2/6/21 2/20/21 3/6/21 3/20/21 4/3/21 4/17/21 5/1/21 5/15/21 5/29/21 6/12/21 6/26/21 7/10/21 7/24/21 8/7/21 8/21/21 9/4/21 9/18/21 10/2/21 10/16/21 10/30/21 11/13/21 11/27/21 12/11/21 12/25/21 1/8/22 1/22/22 2/5/22 2/19/22 3/5/22 3/19/22 4/2/22 4/16/22 4/30/22 5/14/22 5/28/22 6/11/22 6/25/22 7/9/22 7/23/22 8/6/22 8/20/22 9/3/22 9/17/22 10/1/22 10/15/22
1/12/19 - 10/15/22

Forthcoming/accepted publication:

Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Rate of Utox Obtained for Newborns

Rate of Utox Obtained for Newborn

4.0%
3.0%
2.0%
1.0%
0.0%

UCL = 0.02008

Average = 0.8%

LCL = -0.00327

9/1/18 3/1/19 9/1/19 3/1/20 9/1/20 3/1/21 9/1/21 3/1/22 9/1/22 3/1/23 9/1/23 3/1/24 9/1/24 3/1/25 9/1/25 3/1/26

Control chart by race

Race/Ethnicity
- Black
- Hispanic or Latino
- Other

Coalition building and conversations begin

Toxicology removed from nursing ESC order set

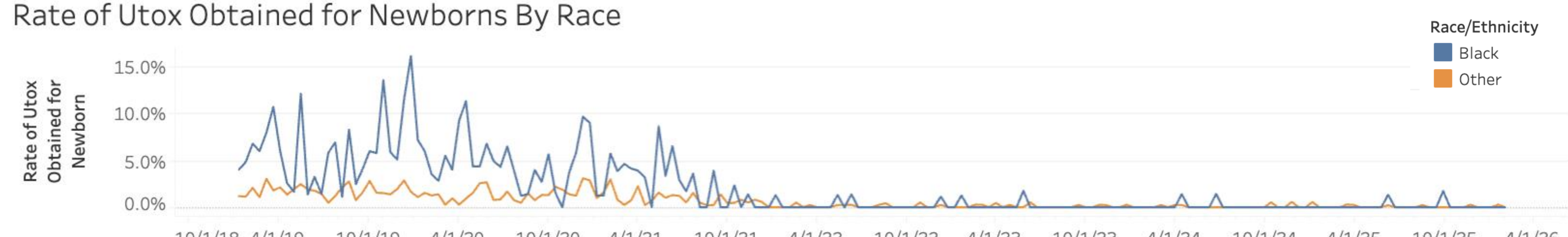
Protocol goes live on hospital intranet

Protocol goes live as Agile Pathway in Epic

Rate of Utox Obtained for Newborn

15.0%
10.0%
5.0%
0.0%

12/1/18 3/1/19 6/1/19 9/1/19 12/1/19 3/1/20 6/1/20 9/1/20 12/1/20 3/1/21 6/1/21 9/1/21 12/1/21 3/1/22 6/1/22



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Rate of Utox Obtained for Newborns By Insurance

Forthcoming/accepted publication:

Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

DCF referrals (in all newborns)

Start coalition-building

Pathway live

7.5

5.0

2.5

DCF referral rate (%)

January 2018
January 2019
January 2020
January 2021
January 2022

Time

Intervention period

Pre-intervention

Coalition-building

Pathway

Forthcoming/accepted publication:

Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Balancing measures

- We tracked 30-day hospital readmissions for NAS or NOWS
  - No cases of newborns readmitted with uncontrolled withdrawal symptoms occurred, either in the pre- or post-intervention periods.
- Yale's child protection team consults include routine assessment of risk factors including prenatal substance use
  - No cases of child maltreatment related to previously unknown (i.e. a missed diagnosis during the newborn hospital stay/retrospectively recognized) prenatal substance use were identified during the pre- or post-intervention periods.

Forthcoming/accepted publication:
Ostfeld-Johns S, Aragona E, Carey GB, Hart L, Loyal J. Newborn Toxicology Testing Not Indicated: A novel approach to prioritize clinical utility, reduce unnecessary testing and eliminate bias *NEJM Catalyst.* 2025.

Key takeaways for newborn tox testing

- Newborn toxicology testing in the setting of prenatal substance exposure is usually not necessary to provide optimal clinical care
- When it is clinically indicated, urine toxicology testing provides actionable clinical information
- Informed consent should be obtained before ordering newborn toxicology testing in the vast majority of circumstances
- Implementing an objective protocol for toxicology test ordering resulted in significantly decreased rates of testing across all groups and differences between groups became minimal
- In enacting a practice guideline with these key messages, we did not see safety events occur as a result

Future clinical practice/research directions

- Single question screener by pediatricians during newborn hospital stay
  - No current national guidance on history taking by pediatrician
  - No clinical consensus on best practice
- Standard language for parents of infants with prenatal substance exposure regarding potential clinical effects
  - Dispel myths, equip to educate others (family, friends, etc)
  - Motivate for positive effect of parenting

- Breastfeeding is a human right

Joint statement by the UN Special Rapporteurs on the Right to Food, Right to Health, the Working Group on Discrimination against Women in law and in practice, and the Committee on the Rights of the Child in support of increased efforts to promote, support and protect breast-feeding (2016)

Feldman-Winter L, Van T, Varadi D, Adams AC, Kural B, and C.J. Rouw ECJ. Academy of Breastfeeding Medicine Position Statement: Breastfeeding As a Basic Human Right. BREASTFEEDING MEDICINE Volume 17, Number 8, 2022

- …and a choice
- …and part of optimal health outcomes, especially in newborns at risk of NOWS

A Meta-Analysis of Breastfeeding Effects for Infants With Neonatal Abstinence Syndrome

	Breastfeeding			Nonbreastfeeding				Std. mean difference IV, random,
Severity of NAS symptoms								
Liu et al. (2015)	5.1	1.3	32	5.4	1.1	150	57.1%	−0.26 [−0.65, 0.12]
McQueen et al. (2011)	4.9	2.9	8	6.9	4.2	11	9.7%	−0.51 [−1.44, 0.42]
O'Connor et al. (2013)	8.83	3.56	65	9.56	2.58	20	33.2%	−0.22 [−0.72, 0.29]
Total (95% CI)			105			181	100.0%	−0.27 [−0.56, 0.02]
Abdel-Latif et al. (2006)	85.4	71.7	85	108.2	81.8	105	31.2%	−0.29 [−0.58, −0.01]
Favara et al. (2019)	15.5	6.5	430	18	8	1308	48.1%	−0.33 [−0.44, −0.22]
Welle-Strand et al. (2013)	28.6	19.1	95	46.7	26.7	29	20.7%	−0.85 [−1.28, −0.42]
Total (95% CI)			610			1442	100.0%	−0.43 [−0.68, −0.17]
Heterogeneity. $Tau^2 = 0.03$; $Chi^2 = 5.60$, $df = 2$ ($p = .06$); $I^2 = 64\%$								
with NAS								
Abdel-Latif et al. (2006)	14.7	14.9	85	19.5	15	105	17.1%	−0.32 [−0.61, −0.03]
Favara et al. (2019)	20.5	7.5	430	22	9	1308	20.1%	−0.17 [−0.28, −0.06]
Isemann et al. (2011)	27	24	56	29	20	66	15.7%	−0.09 [−0.45, 0.27]
MacVicar et al. (2018)	10.8	6.7	11	30	11.8	3	2.7%	−2.31 [−3.94, −0.68]
O'Connor et al. (2013)	7.08	4.39	65	6.6	1.7	20	12.6%	0.12 [−0.38, 0.62]
Short et al. (2016)	12	7	1576	13.5	8.5	1968	20.5%	−0.19 [−0.26, −0.12]
Wachman et al. (2013)	15.8	4.3	38	27.4	4.9	48	11.3%	−2.47 [−3.04, −1.91]
Total (95% CI)			2261			3518	100.0%	−0.47 [−0.75, −0.18]
Heterogeneity. $Tau^2 = 0.10$; $Chi^2 = 70.54$, $df = 6$ ($p < .00001$); $I^2 = 91\%$								
Test for overall effect: $Z = 3.23$ ($p = .001$)								

Note. SD = standard deviation; IV = inverse variance; NAS = neonatal abstinence syndrome; CI = confidence interval.

Chu, Liangliang; McGrath, Jacqueline M.; Qiao, Jianhong; Brownell, Elizabeth; Recto, Pamela; Cleveland, Lisa M.; Lopez, Emme; Gelfond, Jonathan; Crawford, Allison; McGlothen-Bell, Kelly. A Meta-Analysis of Breastfeeding Effects for Infants With Neonatal Abstinence Syndrome. Nursing Research 71(1):p 54-65, 1/2
2022. | DOI: 10.1097/NNR.0000000000000555

Why is breastfeeding so good?

- Mechanisms
  - Skin-to-skin time
  - Bonding
  - Milk-related factors
  - Medication in milk

Chu, Liangliang; McGrath, Jacqueline M.; Qiao, Jianhong; Brownell, Elizabeth; Recto, Pamela; Cleveland, Lisa M.; Lopez, Emme; Gelfond, Jonathan; Crawford, Allison; McGlothen-Bell, Kelly. A Meta-Analysis of Breastfeeding Effects for Infants With Neonatal Abstinence Syndrome. Nursing Research 71(1):p 54-65, 1/2 2022. | DOI: 10.1097/NNR.0000000000000555

“I’m Doing the Best That I Can for Her”

- “…**mothers with OUDs experienced significant shame and guilt for having exposed their infants to opioids…**

- …**the participants believed that their human milk alleviated their infants’ NAS symptoms, which in turn helped alleviate their feelings of shame and guilt**.

- …research…suggests that breastfeeding may reduce the severity and duration of NAS symptoms in neonates, no studies have explored what this means to the mother and what possible impact this might have on her recovery.

- We found that women regarded **breastfeeding as a facilitator in their recovery**.

- They **wanted to do what was best for their infants** and this required them to remain in treatment and abstain from the use of illicit substances.”

McGlothen KS, Cleveland LM, Gill SL. “I’m Doing the Best That I Can for Her”: Infant-Feeding Decisions of Mothers Receiving Medication-Assisted Treatment for an Opioid Use Disorder. Journal of Human Lactation. 2018;34(3):535-542. doi:10.1177/0890334417745521

Consider:

- **The benefits of breastfeeding as an adjuvant treatment for OUD are underexplored**

- Empowering messages to use:
  - *“Your milk is the best thing for your baby”*
  - *“We know that breastfeeding helps babies with withdrawal symptoms”*

Table 5. Summary of Breastfeeding R… er Treatments

SUD treatment	Reco…	Strength of recommendation
Methadone	Compatible with breastf…	A
Buprenorphine (SL)	Compatible with breastf…	A

Table 3. General Recommendations for Breastfeeding Among Individuals Who Use Substances or with Substance Use Disorders

Recommendation	*Level of evidence*	*Strength of recommendation*
Those who have SUD or use substances during pregnancy or the postpartum period should engage in multidisciplinary prenatal and postpartum substance use care.	2	B
Individuals who discontinue nonprescribed substance use by the delivery hospitalization can be supported in breastfeeding initiation with appropriate follow-up.	2	B
Targeted perinatal dyadic lactation care such as prenatal education, inpatient and postpartum lactation support, and ongoing multidisciplinary SUD treatment can facilitate breastfeeding continuation.	2	B
Individual programs and institutions should establish breastfeeding guidelines to mitigate bias, facilitate consistency across providers, and empower individuals with SUD.	3	C

BREASTFEEDING MEDICINE
Volume 18, Number 10, 2023
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DOI: 10.1089/bfm.2023.29256.abm

Table 4. Summary of Breastfeeding Recommendations for Nonprescribed Substance Use

Recommendations	*Infant monitoring/potential harms*	*Maternal monitoring/potential harms*	*Additional considerations*
Opioids Breastfeeding should be avoided during the use of nonprescribed opioids. *Level of Evidence: 2* *Strength of Recommendation: B*	Sedation, respiratory depression, withdrawal, and associated feeding difficulties	Sedation, decreased responsiveness to infant, rare reports of delayed lactogenesis	Pumping/expressing milk should be recommended in cases of recent use if future abstinence is supported. Consider a relapse plan and other supportive measures.
Breastfeeding should be avoided during the use of nonprescribed sedative-hypnotics *Level of Evidence: 3* *Strength of Recommendation: C*	Sedation, respiratory depression, withdrawal, inadequate weight gain	Sedation, decreased responsiveness to infant	Individuals prescribed benzodiazepines for the treatment of benzodiazepine use disorder or for anxiety disorders may safely breastfeed.
Stimulants Breastfeeding should be avoided during the use of nonprescribed stimulants. *Level of Evidence: 3*	Gastrointestinal and cardiorespiratory symptoms, hypothermia, irritability, tremors,	Reduced breast milk production	May accumulate in greater quantities in breast milk than maternal serum. Individuals prescribed stimulants for the
Breastfeeding should be avoided after moderate-to-high alcohol consumption. Occasional intake of more modest amounts of alcohol during lactation and waiting 2 hours per drink consumed to resume breastfeeding is likely safe. *Level of Evidence: 1* *Strength of Recommendation: A*	Drowsiness, changes in sleep and eating behaviors, possible impact on long-term neurodevelopment	Decreased breast milk production	There is no accumulation of alcohol in breast milk due to alcohol's zero-order pharmacokinetic profile.
Breastfeeding is recommended, but individuals should be counseled and supported to reduce or stop the use of nicotine products while breastfeeding. *Level of Evidence: 1*	Altered feeding and sleep	Breast milk is less nutritional, decreased milk production	Second-hand smoke exposure is associated with an increased risk for upper respiratory infections, allergies, and SUID in the infants. Little data are available for vaping products.
Cannabis We encourage cessation and/or reduction of cannabis use during lactation. *Level of Evidence: 2* *Strength of Recommendation: B*	Possible neurodevelopmental effects	Changes in breast milk composition and decrease in duration of breastfeeding	For individuals who continue to use cannabis and wish to breastfeed, we recommend a shared decision-making process to discuss the risks and benefits.

ADHD, attention deficit hyperactivity disorder; SUID, sudden unexpected infant death.

DOI: 10.1089/bfm.2023.29256.abm

- During the newborn hospital stay:
  - “women who discontinue nonprescribed substance use by or during the delivery hospitalization can be supported in breastfeeding initiation.”
  - “Mothers motivated to breastfeed who report recent non-prescribed substance use and/or have positive toxicology testing at delivery should be supported in expressing milk to establish milk production. The decision of whether to give expressed milk to the infant and when to start breastfeeding should be made using a multidisciplinary approach involving the patient and clinicians of both the parent–infant dyad.”
- After discharge
  - “If a breast-feeding mother returns to nonprescribed substance use in the postpartum period, a similar approach of expressing milk and discarding milk and consultation with a multidisciplinary team should take place to inform breastfeeding decisions.”

BREASTFEEDING MEDICINE
Volume 18, Number 10, 2023
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DOI: 10.1089/bfm.2023.29256.abm

Clinical Perspective

Safely Supporting the Establishment of Breastfeeding in the Setting of Fentanyl Use Before the Birth Hospitalization

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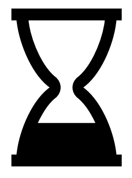
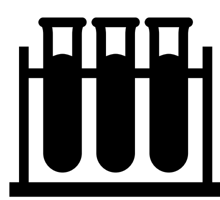
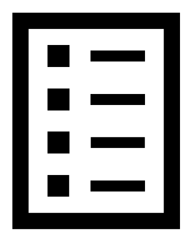
Marcela C. Smid, MD, MS, and Vania Rudolf, MD, MPH

Ostfeld-Johns S, Schiff D, Seidman D, Smid MC, Rudolf V. Safely Supporting the Establishment of Breastfeeding in the Setting of Fentanyl Use Before the Birth Hospitalization. Obstet Gynecol. 2026 Mar 12. doi: 10.1097/AOG.0000000000006235. Epub ahead of print. PMID: 41818755.

Key Recommendations	
	72 hours after last use, the amount of fentanyl in breastmilk is likely safe for the newborn, and the parent's decision to breastfeed should be supported during the birth hospitalization in the context of parental treatment for substance use disorder.
	With maximal support from the treatment team, early breastfeeding can form positive bonds for life and has the potential to optimize parenting self-efficacy and support substance use cessation.
	Toxicology testing prior to initiation of breastfeeding, to evaluate for the presence of stimulants which would make breastfeeding unsafe, may be considered, particularly in areas of co-use or areas where non-prescribed opioid supplies are often contaminated. We do not recommend urine toxicology testing be required to be negative for fentanyl prior to breastfeeding.
	We recommend developing contingency plans with patients during pregnancy or the birth hospitalization to be prepared for possible return to use of illicit substances while breastfeeding (see Contingency Plan Box). These conversations can promote trust that providers want to increase recovery supports, rather than penalize periods of return to use, allowing patients to utilize harm reduction and access care early in a potential relapse.

Contingency plan for potential return to substance use:[1]

1. Pre-planning:
    - a. Identify and communicate with an alternate caregiver about potential need for child care
    - b. Identify health care team member to communicate with related to breastfeeding decision-making in the setting of potential return to use (e.g. primary care provider, addiction medicine specialist, obstetrician, pediatrician) and community IBCLC resources
    - c. Ensure safe sleep guidance provided and independent sleep space identified for child
    - d. Ensure pump is available in the home
    - e. Ensure formula, bottles, and nipples are available in the home
    - f. Consider providing a lock box so that any substances are out of the reach of toddlers/crawlers
    - g. Ensure discharge from newborn hospital stay with naloxone nasal spray and discuss indications for use and safety of use in infants/babies/newborns
2. In the case of return to use:
    - a. Ensure alternate caregiver for child/children, pause direct breastfeeding and/or feeding expressed milk
    - b. If breastfeeding parent previously bedsharing with child, recommend adherence to safe sleep guidance including separate sleeping space
    - c. Provide formula to caregivers of child, following appropriate formula mixing for child's age and nutritional needs
    - d. Contact health care team member previously identified to discuss plan for expressed breast milk (e.g. pump to maintain supply vs pump to wean supply) and IBCLC for plan implementation and follow up recommendations
    - e. Pump milk according to plan & discard milk for at least 72 h after last use, consider toxicology testing prior to resuming direct breastfeeding and/or providing pumped milk to child to assess for presence of stimulants (see manuscript)
    - f. Clear substance from any child-accessible surfaces and furniture (including wiping surfaces, trash is secure, etc) and make use of lock box as needed
    - g. Utilize naloxone nasal spray on any infant who presents with altered mental status with a concern for exposure to opioids[2,3,4,5]
    - h. Intensify support of the postpartum person with wrap-around services. Screen for common triggers of return to use (postpartum depression, intimate partner violence, lack of sleep, challenges getting to methadone clinic in the context of child care).
    - i. Escalate relapse prevention supports (increased home visits, enrollment in intensive outpatient programming, and/or residential treatment).

In the context of the known and unknown risks…

- Breastfeeding is a human right and can be safely supported

Learning Objectives

- Contextualize current evidence regarding substance use and substance use disorder during pregnancy: effects on pregnancy and fetus, developmental/behavioral/cognitive outcomes.
- Describe best practices for screening for substance use and toxicology testing during pregnancy, at time of delivery, and toxicology testing of the newborn.
- Delineate the requirements of CAPTA/CARA, how they intersect with optimal clinical care for birthing people and newborns with prenatal substance exposure, evaluate the impact of Connecticut's dual notification/reporting system, and future directions for policy-related advocacy for families affected by substance use in CT.
- Contextualize breastfeeding decision-making for birthing people with substance use, and discuss the role of breastfeeding as a possible adjuvant treatment support for birthing people with substance use disorder in remission

Thank you!

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THANK YOU!