

Welcome

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- ✓ Use the chat feature in the control panel function to ask a question
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 - Text the SMS Code KAFPUR to 720-790-4423
 - OR**
 - Go to: <https://ce.childrenscolorado.org/code> & type in the code KAFPUR Update your name on Zoom to include first and last name

VIRTUAL EDUCATION SERIES – FEBRUARY 2024

Moving Towards Equitable Perinatal Toxicology Screening and Testing

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Disclosures

No financial disclosures to report.



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Objectives

1. Describe how toxicology screening and testing is commonly conducted in the perinatal period and risks of bias in this process.
2. Identify strategies to shift clinical practice and organizational policy to ensure equity in toxicology screening and testing during the perinatal period.
3. Discuss successes and challenges of implementing new state guidelines within a hospital system



Definitions

Screening:

- Process of gathering information from patient about substance use
- Use clinician-administered or self-administered validated screening tool
- **ALL** pregnant and birthing individuals should be screened for substance use

Testing:

- Collection of a biological sample that assesses for the presence of a substance and/or its metabolite
- A positive **SCREEN** does not always necessitate a toxicology **TEST**



Poll Question 1

The prevalence of substance use during pregnancy is higher in Non-Hispanic Black populations relative to Non-Hispanic White populations.

True or False



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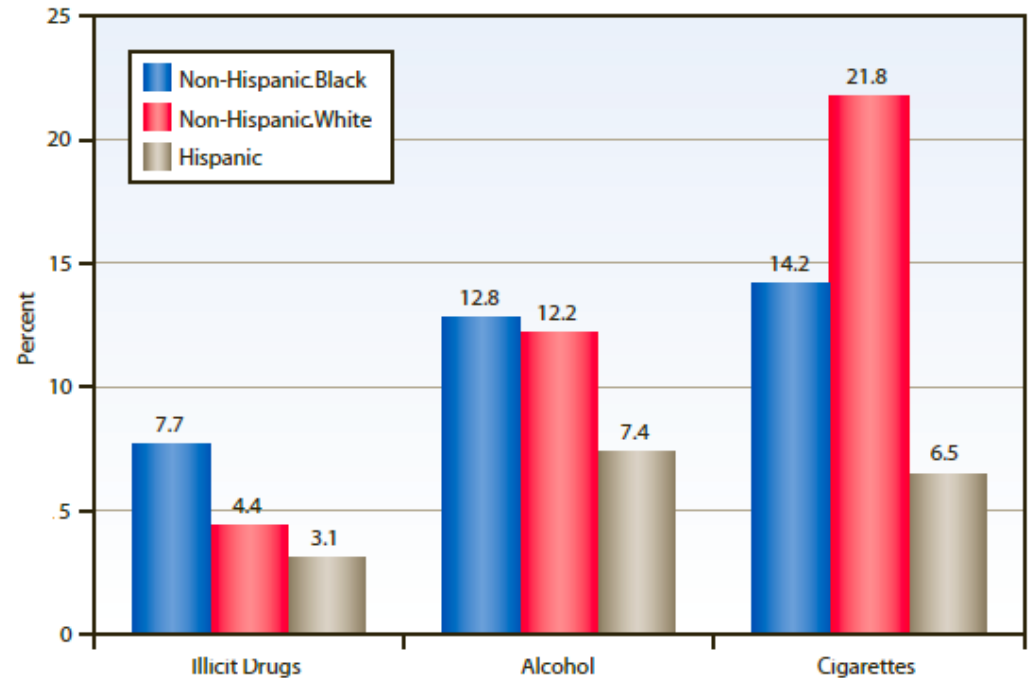
Data Spotlight

National Survey on Drug Use and Health

May 10, 2012

Substance Use during Pregnancy Varies by Race and Ethnicity

Past Month Substance Use among Pregnant Women Aged 15 to 44, by Race/Ethnicity and Substance: 2002 to 2010



Universal screening for alcohol and drug use and racial disparities In Child Protective Services reporting

Sarah C. M. Roberts^{1,2} and Amani Nuru-Jeter²

Racial/ethnic differences in characteristics of women in MCPOP

	White (n=1590) %	Black (n=918) %
Alcohol and/or drug user	14	14
Illicit drugs	12	13
Alcohol	4	3



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Prevalence of Illicit Drug Use and Non-Medical Prescription Drug Use

Table 1: Last Month Prevalence of Any Drug Use or NMU by Demographic or Other Characteristics Among Pregnant Women Ages 18-49 Years

	Last Month Any Drug Use/NMU ^a Prevalence % (95% CI)	p-value ^b
Race ^c		
White	9.01 (5.16, 12.87)	0.7382
Black	10.83 (0.78, 20.88)	0.7355
Other	Suppressed	-

Table 1: Last Month Prevalence of Any Drug Use or NMU by Demographic or Other Characteristics Among Pregnant Women Ages 18-49 Years

Race ^c		
White	9.01 (5.16, 12.87)	0.7382
Black	10.83 (0.78, 20.88)	0.7355
Other	Suppressed	-
Marital Status		
Married	7.41 (3.39, 11.42)	0.1401
Divorced/Separated/Widowed	7.49 (0.44, 14.53)	
Never Married	15.15 (5.81, 24.49)	
Education		
High School or Less	11.12 (3.05, 19.20)	0.7423
Some College	10.25 (3.38, 17.12)	
Bachelor's Degree or Higher, Trade School	7.89 (3.16, 12.62)	
Household Annual Income		
<\$50,000	11.12 (5.35, 16.90)	0.5093
\$50,000-99,999	6.72 (2.51, 10.92)	
≥\$100,000	9.29 (0.32, 18.25)	

Racial/Ethnic Differences in Prenatal and Postnatal Counseling About Maternal and Infant Health-Promoting Practices Among Teen Mothers

Maternal and Infant Characteristics

	Non-Hispanic White (n = 228,283; 42%)	Hispanic (n = 160,090; 30%)	Non-Hispanic Black (n = 110,716; 20%)	P
Maternal Demographic Characteristics				
Pregnancy attitudes and behaviors				
Pregnancy Intention				<.01
Intended	22.7 (20.7-24.9)	26.4 (23.4-29.6)	13.9 (11.7-16.5)	
Unintended	58.1 (55.7-60.6)	55.0 (51.5-58.4)	60.7 (57.4-63.9)	
Unsure	19.1 (17.2-21.2)	18.6 (16.2-21.3)	25.4 (22.6-28.4)	
Prepregnancy tobacco use				<.01
Yes	48.6 (46.1-51.1)	18.5 (16.0-21.4)	14.0 (12.1-16.3)	
Prepregnancy alcohol use				<.01
Yes	47.1 (44.6-49.6)	33.8 (30.6-37.2)	28.2 (25.4-31.3)	
Postpartum pregnancy prevention				<.01
Yes	85.5 (83.8-87.1)	83.0 (80.1-85.6)	80.3 (77.3-82.9)	



Racial/Ethnic Differences in Prenatal and Postnatal Counseling About Maternal and Infant Health-Promoting Practices Among Teen Mothers

Receipt of Prenatal and Postnatal Counseling According to Maternal Race/Ethnicity

	Total Cohort	Non-Hispanic White	Hispanic	Non-Hispanic Black	<i>P</i>
Prenatal counseling					
Harm of smoking	72.7 (71.1-74.2)	73.1 (70.7-75.3)	67.5 (64.1-70.7)	77.9 (74.8-80.8)	<.01
Harm of drinking	87.6 (86.4-88.7)	85.7 (83.8-87.4)	88.4 (85.9-90.5)	91.3 (88.9-93.2)	<.01
Harm of illicit drugs	84.1 (82.8-85.4)	82.2 (80.2-84.1)	84.6 (81.7-87.1)	89.3 (86.8-91.3)	<.01



Racial differences in indications for obstetrical toxicology testing and relationship of indications to test results

Nicola C. Perlman MD; David E. Cantonwine PhD MPH; Nicole A. Smith MD MPH

TABLE
Characteristics of mothers with and without toxicology testing

Characteristic	Mothers without toxicologic testing: 2015 2018 (n=19,723)	Mothers with toxicologic testing: 2015 2018 (n=551)	value ^a
Race			
White	11,104 (56.3)	201 (36.6)	.001
Black	2702 (13.7)	172 (31.2)	
Asian	2110 (10.7)	8 (1.4)	
Hispanic	1972 (10.0)	76 (13.9)	
American Indian	39 (0.2)	6 (1.1)	
Other	1400 (7.1)	56 (10.1)	
Unknown	414 (2.1)	32 (5.8)	



Racial differences in indications for obstetrical toxicology testing and relationship of indications to test results

Nicola C. Perlman MD; David E. Cantonwine PhD MPH; Nicole A. Smith MD MPH

Marital status	Not tested	Tested	
Single	5049 (25.6)	344 (62.5)	.001
Married	13,964 (70.8)	153 (27.7)	
Legally separated	99 (0.5)	16 (2.8)	
Unknown	256 (1.3)	17 (3.0)	
Divorced	138 (0.7)	10 (1.9)	
Life partner	118 (0.6)	9 (1.7)	
Other	99 (0.5)	2 (0.4)	
Mean yearly income by residential ZIP code			
57,917	5818 (29.5)	296 (53.8)	.001
57,918 82,442	4635 (23.5)	139 (25.2)	
82,443 100,788	4714 (23.9)	80 (14.5)	
> 100,789	4556 (23.1)	36 (6.5)	



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Infant Toxicology Testing

TABLE 1 Characteristics of Mothers of Neonates Who Delivered in 2018 Whose Neonates Did, and Did Not, Undergo Toxicology Testing

	Mothers of Neonates Without Toxicology Test, <i>n</i> = 6352	Mothers of Neonates With Toxicology Test, <i>n</i> = 86	<i>P</i>
Maternal age (mean ± SD)	34.2 (5.3)	29.2 (5.7)	<.0001
Race, <i>n</i> (%)			<.0001
White	3563 (56.1)	43 (48.8)	
Black	804 (12.7)	24 (27.9)	
Asian	801 (12.6)	0 (0.0)	
Hispanic	676 (10.6)	23 (26.7)	
American Indian	14 (0.2)	1 (1.2)	
Other	451 (7.1)	1 (1.2)	
Unknown	129 (2.0)	9 (10.4)	



Infant Toxicology Testing

TABLE 2 Odds of an Infant Undergoing Toxicology Testing: Association Between Maternal Characteristics and Toxicology Testing, Adjusted for Confounders

	Adjusted Odds Ratio	95% Confidence Intervals
Maternal age, y	0.95	0.91–0.99
Maternal race		
White	Reference	Reference
Black	1.05	0.58–1.91
Hispanic	1.36	0.77–2.39
Other or unknown	0.76	0.41–1.40
Marital status		
Married	Reference	Reference
Single	3.50	1.91–6.41
Unknown	4.27	0.96–18.89
Divorced	6.36	1.40–28.86
Life partner	3.93	0.50–31.05
Mean income by zip code		
<\$57 917	4.86	1.44–16.41
\$57 918–\$83 783	3.17	0.91–11.05
\$83 784–\$102 008	2.14	0.57–8.01
>\$102 009	Reference	Reference



Poll Question 2

In 1-2 words, What are appropriate indications for a toxicology TEST in a pregnant person?

Please place answer in chat



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Poll Question 3

In 1-2 words, What are appropriate indications for a toxicology TEST in a newborn?

Please place answer in chat



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Common Indications for Toxicology Testing

TABLE 3 Maternal and Neonatal Indications for Testing.

Indication	Total (<i>N</i> = 86), <i>n</i> (%)
Placental abruption	5 (5.8)
Preterm premature rupture of membranes	1 (1.2)
Preterm labor	2 (2.3)
Multiple indications	4 (4.7)
None	9 (10.5)
History of substance use disorder	33 (38.4)
Reports use	1 (1.2)
Maternal marijuana use	21 (24.4)
Limited prenatal care	5 (5.8)
Neonatal examination findings	6 (7.0)



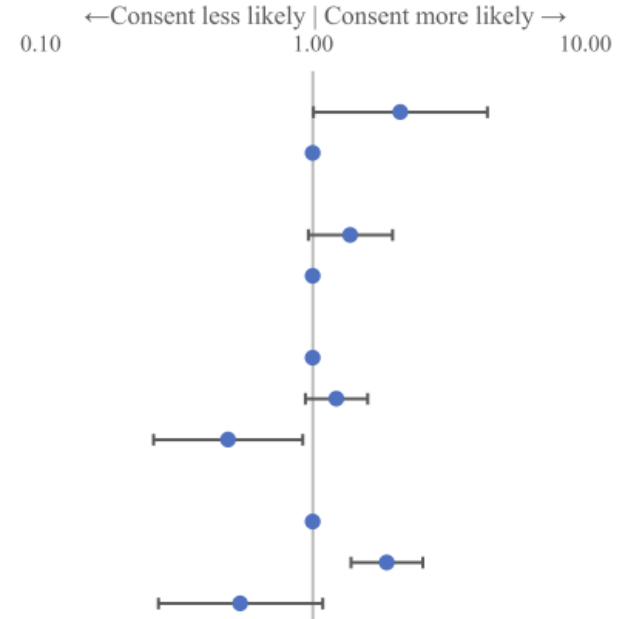
Characteristics Associated with Documented Consent for Maternal Toxicology Testing

Characteristic	Maternal Toxicology Test Performed (n=1562)	Consent Documented (n=466)	No Consent Documented (n=1096)
Recent nonprescribed substance use (excl. cannabis)	359 (23%)	101 (21.7%)	258 (23.5%)
MOUD (Methadone, Buprenorphine)	119 (7.6%)	40 (8.6%)	79 (7.2%)
Cannabis Use	518 (33.2%)	201 (43.1%)	317 (28.9%)
Maternal Complications (abruption, HTN, preterm labor, PPRM, IUFD)	315 (20.2%)	41 (8.8%)	274 (25%)
Inadequate Prenatal Care	117 (7.5%)	36 (7.7%)	81 (7.4%)



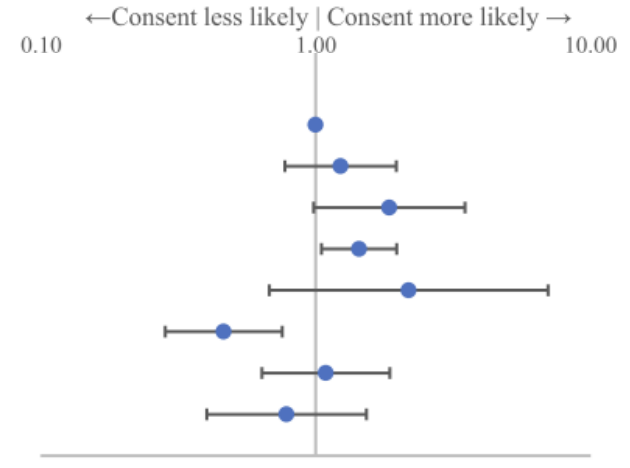
Association of maternal and hospital characteristics with documented consent

Characteristics	Crude Odds Ratios*			Adjusted Odds Ratios**		
	OR	95% CI		OR	95% CI	
Hospital consent policy						
Yes	2.29	1.40 3.74		2.10	1.01 4.37	
No	1.00	reference		1.00	reference	
Preterm delivery						
No	2.40	1.79 3.21		1.37	0.96 1.96	
Yes	1.00	reference		1.00	reference	
Insurance type						
Private pay/commercial	1.00	reference		1.00	reference	
Medicaid	1.42	1.11 1.81		1.22	0.94 1.59	
Medicare	0.59	0.32 1.08		0.49	0.26 0.92	
Prenatal care location						
Hospital or private practice	1.00	reference		1.00	reference	
Community health center	2.00	1.51 2.65		1.87	1.38 2.53	
Other	0.58	0.32 1.05		0.54	0.27 1.09	



Association of maternal and hospital characteristics with documented consent

Characteristics	Crude Odds Ratios*		Adjusted Odds Ratios**			
	OR	95% CI		OR	95% CI	
Primary testing indication						
Recent non-prescribed use	1.00	reference		1.00	reference	
Opioid agonist therapy	1.37	0.87	2.16	1.23	0.77	1.97
Remote non-prescribed use	2.06	1.11	3.83	1.85	0.98	3.49
Cannabis use	1.60	1.18	2.17	1.44	1.05	1.97
Monitoring medicine	1.75	0.58	5.25	2.18	0.68	7.00
Maternal complication	0.41	0.27	0.63	0.46	0.28	0.76
Inadequate prenatal care	1.33	0.82	2.18	1.09	0.64	1.86
Other/unknown	0.97	0.52	1.83	0.78	0.40	1.53



Indications for Obstetrical Toxicology Testing

Indication	Negative toxicology tests (n=357)	All positive toxicology tests (n=194)	Cannabis positive only (n=93)
Substance use (n=213)	59 (16.5) ^a	95 (49.0) ^a	59 (7) ^a
Abruption or hypertension (n=65)	45 (12.6) ^a	13 (6.7) ^a	7 (7) ^a
Abruption	31 (8.7)	10 (5.2)	6 (6)
Hypertension	14 (3.9)	3 (1.6)	1 (1)
Preterm complications (n=150)	115 (32.2) ^a	28 (14.4) ^a	7 (7) ^a
Preterm prelabor rupture of membranes	38 (10.6)	12 (6.2)	5 (5)
Preterm labor	77 (21.6)	16 (8.3)	2 (2)
Fetal (n=44)	30 (8.4) ^a	7 (3.6) ^a	7 (7) ^a
Other including fetal anomalies and intrauterine fetal demise	21 (5.9)	2 (1.0)	3 (3)
Intrauterine growth restriction	9 (2.5)	5 (2.6)	4 (4)
Maternal (n=95)	52 (14.6) ^a	32 (16.5) ^a	11 (11) ^a
Other including seizure and transaminitis	20 (5.6)	8 (4.1)	1 (1)
Pain	6 (1.7)	7 (3.6)	4 (4)
Altered affect	6 (1.7)	5 (2.6)	2 (2)
Few prenatal visits	20 (5.6)	12 (6.2)	4 (4)
None (n=81)	56 (15.7) ^a	19 (9.8) ^a	6 (6) ^a



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Racial Differences in Indications for Obstetrical Toxicology Testing

TABLE 3

Associations between maternal demographics and toxicology screening indications

Maternal demographic characteristic	Indication					
	Substance use	Abruption or hypertension	Preterm complications	Fetal complications	Maternal complications	None
Maternal age (y)	30.2 (4.9)	29.8 (5.9)	28.7 (5.5)	30.7 (5.9)	27.7 (5.8)	27.8 (5.9)
Maternal race						
Non-Hispanic White	93 (44.3)	14 (6.7)	49 (23.3)	14 (6.7)	21 (10.0)	19 (9.1)
Non-Hispanic Black	33 (19.6)	22 (13.1)	40 (23.8)	8 (4.8)	31 (18.5)	34 (20.2)
Hispanic	13 (14.8)	12 (13.6)	29 (33.0)	6 (6.8)	16 (18.2)	12(13.6)
Other	15 (17.6)	10 (11.8)	25 (29.4)	9 (10.6)	16 (18.8)	10 (11.8)



Universal screening for alcohol and drug use and racial disparities In Child Protective Services reporting

Sarah C. M. Roberts^{1,2} and Amani Nuru-Jeter²

J Behav Health Serv Res. 2012 January ; 39(1): 3–16. doi:10.1007/s11414-011-9247-x.

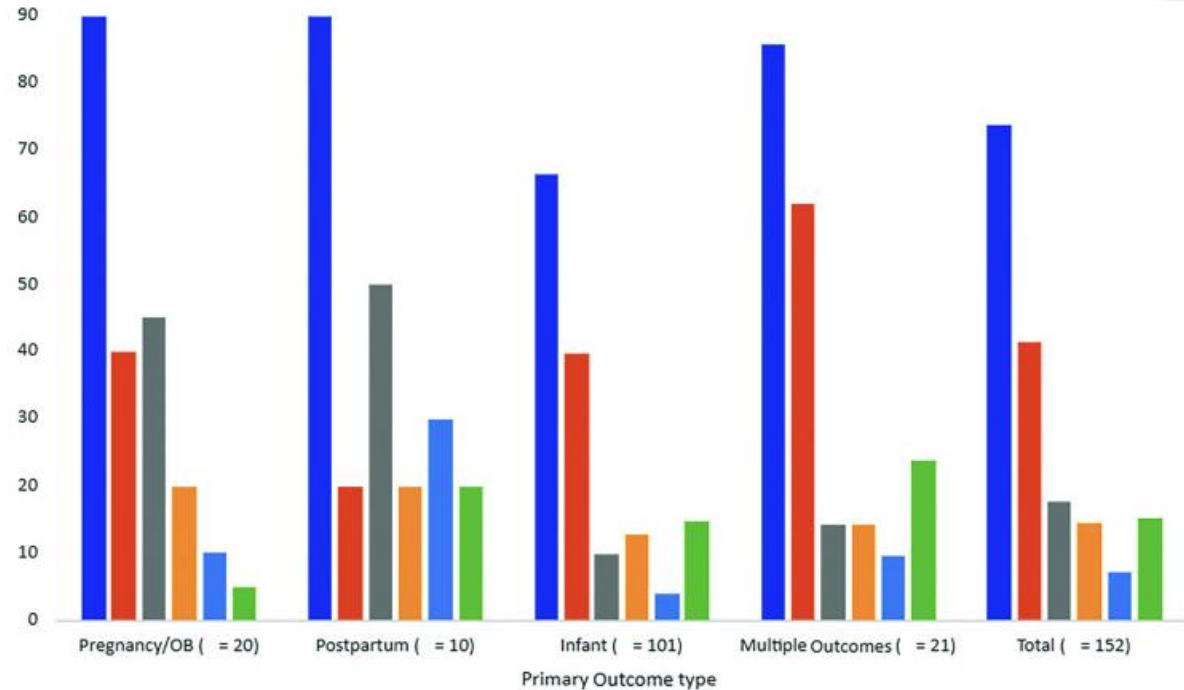
Percent of all newborns in the county reported to CPS related to maternal AOD use 2005-2007

	Newborns reported n (%)	Total births n
White	121(0.84)	14355
Black	124 (3.46) ***	3582
Hispanic/Latino	35 (0.24) ***	14485
Asian/Pacific Islander	27(0.34) ***	7771

p<.001, Chi-square test compared to White



Race/Ethnicity Data use in Perinatal Opioid Use Disorder Research



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■ Race/ethnicity data collected
■ statistical analysis on race/ethnicity and exposure
■ statistical analysis on race/ethnicity and outcome
■ Outcomes adjusted for race/ethnicity in multivariable analysis
■ Outcomes stratified by race/ethnicity in multivariable analysis
■ Discussion

race/ethnicity/racism

Poll Question 4

Does your unit or organization have a guidance for toxicology testing?

- A. Yes
- B. No
- C. In creation
- D. Unsure



Indications for Toxicology Testing in Colorado Birthing Facilities

2023 best practice guidelines for Colorado birthing facilities on clinical best practice principles related to toxicology testing.

Birthing Parent Toxicology Testing Indications

- 1) Signs and symptoms of intoxication, withdrawal, or altered mental status
- 2) If desired by the birthing person
- 3) Birthing person desires to chest/breastfeed, AND one or more of the following conditions exist:
 - Report of substance use or positive urine toxicology test during last trimester of pregnancy.
 - Birthing person has an active substance use disorder and is not engaged in treatment.

Note: If birthing person is involved in treatment, it is strongly recommended to consult with providers who have an ongoing relationship with the birthing person to assess the level of engagement with recovery 29

Newborn Toxicology Testing Indications

- 1) Newborn exhibits symptoms consistent with intoxication or withdrawal
- 2) Newborn's birthing parent meets criteria for toxicology testing, **AND** results would alter medical management of the newborn
- 3) Newborn with physical stigmata of FASD

Questions?

For additional information or questions, contact:

Sarah Velasco at sarah.velasco@childrenscolorado.org

Dr. Stephanie Bourque at stephanie.bourque@childrenscolorado.org

Thank you!



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