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Project Nurture Final Report Health Share of Oregon

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Project Nurture Final Report

Health Share of Oregon

May 2018

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Center for Outcomes
Research and Education

"IF IT WASN'T FOR MY DAUGHTER, I WOULDN'T BE HERE...HERE I CAN TALK ABOUT BEING A MOM AND BEING IN ADDICTION AND GETTING OVER MY ADDICTION AND MOVING FORWARD AND GIVING HER A BETTER LIFE SO SHE DOESN'T...FOLLOW MY FOOTSTEPS..."

"Because [PN Provider] is caring and she doesn't judge. She's not judgmental like the doctors at the other place."

"It's a good way to know that you're not alone, that even if you're carrying a child and struggling with addiction...there's a place for you."

"I HONESTLY LOVE PROJECT NURTURE. I FEEL LIKE IT SAVED MY LIFE...I JUST FEEL LIKE I BELONG THERE."



PROJECT NURTURE

"IT'S MY FIRST TIME BEING A MOM, SO IT'S REALLY HELPFUL...I DEFINITELY LOVE THE SUPPORT."

"I love that there's all kinds of resources, you know? They [Project Nurture] have so many resources for people who cannot financially take care of things."

"When I'm clean for two years, [PN CADC] is going to help me get into the drug counselor program...just to be able to give back everything that's been given to me."

"I REALLY, HONESTLY, IN MY HEART, LOVE PROJECT NURTURE. IF IT WASN'T FOR PROJECT NURTURE, I WOULDN'T HAVE MY KIDS, IN THAT, I PROBABLY WOULD HAVE KILLED MYSELF TO BE HONEST. I REALLY FEEL LIKE PROJECT NURTURE SAVED MY LIFE."

"I AM SO GRATEFUL FOR THE PROGRAM AND EVERYBODY IN THE PROGRAM."

"It's really helpful and...supportive, and everybody's been in addiction while pregnant or before pregnancy or after pregnancy, so it gives me the support that I need..."

"I AM GRATEFUL FOR PROJECT NURTURE. I FEEL LIKE IT HAS MADE A BIG DIFFERENCE IN MY RECOVERY."

"They're very easy to trust, and they're very sincere about their job, and it doesn't seem like it's a job to them, you know? Like, they're there because they want to be there."

"I FELT LIKE I WAS AT HOME..."

Executive Summary

Project Nurture – a program launched by Health Share of Oregon in 2014– is a Center of Excellence model where pregnant individuals with substance use disorder find a supportive, respectful environment that integrates substance use treatment and maternity care. Health Share of Oregon partnered with the Center for Outcomes Research and Evaluation (CORE) to evaluate this impact of this program. The main objective of the evaluation were to understand the impact of Project Nurture on clinical outcomes, the health care system, and participants. **Project Nurture has demonstrated that it an effective model for managing a complex population and improving clinical outcomes.**



Project Nurture

Approach

This study used an observational, mixed methods approach that included multiple key data sources: Medicaid claims, program data, surveys, and interviews. Due to the sensitive nature and federal regulations around substance use data, we were not able to obtain identifiable information; thus, none of the data sources are linked. To study the potential impact of Project Nurture on clinical outcomes from 2016-2017, we used a combination of diagnoses, provider, and facility codes to designate someone as a likely Project Nurture participant and a likely non-participant.

Key Findings

CLINICAL OUTCOMES

- Project Nurture participants had a **70% reduction** in the odds of having a **pre-term birth** compared to non-participants.
- **Cesarean section** was **significantly decreased** for Project Nurture participants compared to non-participants (28.5% vs. 36.5%, respectively).
- **Significantly more** Project Nurture participants had **7 or more prenatal care visits** compared to non-participants.
- Use of **Medication Assisted Therapy (MAT) for opioid users** was **significantly increased** for Project Nurture participants compared to non-participants.
- **Fewer infants** of Project Nurture participants **required additional care** at birth compared to non-participants.
- **93%** of Project Nurture participants **had custody of their infants** at program exit.

HEALTH CARE SYSTEMS

Prior to Project Nurture, health care providers did not feel equipped to treat pregnant individuals with substance use disorder, and people who sought care under those circumstances often left feeling judged and stigmatized. We heard that Project Nurture successfully integrated substance use and pregnancy care in a way that removed barriers to care and reduced stigma. Project Nurture developed the health care workforce by creating effective interdisciplinary teams trained in addiction and trauma-informed care.

“Everybody being on site together [...] carrying different pieces of the care and bringing it together in a ‘big whole’ is super powerful. It just makes it a little more sustainable [...] it’s so nice for me to have my own peers and my own support, and it’s nice knowing I don’t have to hold everything – that we can participate as a team.” – Staff

PARTICIPANTS

Project Nurture impacted the lives of participants at the community, family, and individual level. Project Nurture helped create a community of peers with similar lived experience that helped participants to feel welcomed and supported. Project Nurture helped families stay together by supporting stability in recovery and navigation of systems, including the Department of Human Services. Finally, Project Nurture fostered self-determination in individuals helping them in their recovery and in setting positive goals for their futures.

“I am stable today. And, because of that and Project Nurture, I have my home, I have amazing support here and outside. I have amazing clean time that I’m super proud of. I have amazing recovery I’m super proud of. I have both my children. I’m happy, so happy.” – Participant

POTENTIAL COST REDUCTIONS

The analysis of claims payment is too limited to show any changes in costs between those likely exposed to Project Nurture and those likely not exposed. Participants were spread among three hospitals and multiple payers, and poor outcomes were too infrequent to draw conclusions. However, based on the key findings in this report, there are several areas of potential cost reductions including reduced number of infants requiring additional care (-\$16,200 per infant) and reduced cesarean section (-\$2,900 per procedure). Additionally, there is potential for long-term cost reductions associated with reducing pre-term births and with engaging a traditionally stigmatized population in health care – but further study is needed to assess this potential.

LIMITATIONS

There are many limitations in this study. Mainly, identifiable information about Project Nurture participants could not be shared with CORE. Thus, for the clinical outcomes, we used utilization patterns as a proxy for individuals likely exposed to the Project Nurture model, although it was not possible to know their level of engagement with care. Even with adjustments in our analysis, many confounding factors could not be considered including history of previous poor pregnancy outcomes. Surveys had a small sample size and interview data may not represent the experiences or opinions of all staff and participants. For complete limitations, see the Methodology.

Bottom Line

Project Nurture is changing the way the health and substance use treatment systems care for pregnant or parenting patients with substance use disorder. Through its team-based, integrated, non-judgmental care approach, Project Nurture is impacting health outcomes for both women and infants, as well as achieving positive outcomes on many levels of their lives.

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Introduction

In 2014, Health Share of Oregon created a new model of care called Project Nurture, which integrates comprehensive prenatal and postpartum care with substance use treatment, case management, and peer support using a Center of Excellence health care model. The goals of this new model are to improve clinical and social outcomes for pregnant people and their infants, support the participants in parenting (if that is their goal), promote substance use recovery, and reduce cost of care for pregnant people struggling with substance use disorders. Health Share of Oregon partnered with the Center for Outcomes Research and Evaluation (CORE) in 2016 to evaluate this program. **The main objectives of this evaluation were to understand the impact of Project Nurture on clinical outcomes, the health care system, and participants.**



Project Nurture

Background: Pregnancy with Substance Use Disorder

Use of illicit substances while pregnant is associated with lower rates of prenatal care and worsened obstetric and birth outcomes for women and infants.¹ Rates of substance use disorders for women of child-bearing age are on the rise in the US, creating a substantial public health problem.^{1,2} Greater risk for poor health outcomes for infants born to someone who uses substances during pregnancy include, but are not limited to, low birth weight, preterm delivery, small-for-gestational age, and infant mortality.³ Parental drug abuse was listed as a circumstance of removal for 34% of children entering foster care⁴, demonstrating the impact that substance use can have on parenting and families.

Pregnancy with Substance Use Disorder in the Health Share of Oregon Population

To understand disparities in outcomes in the Health Share of Oregon population (Health Share is a coordinated care organization (CCO) in the Portland Metro area serving Medicaid members), we measured birth outcomes for people who were pregnant and who had a contemporaneous substance use disorder diagnosis. We compared this group to people who were pregnant and did not have a substance use diagnosis. We used Medicaid claims data from 2012-2017 to identify the population and measure maternal and infant birth outcomes.

Limitations: We are not able to confirm that people in the substance using population had this disorder or consider the severity of the disorder. Some people in the non-substance using group may have undiagnosed substance use disorder.

Percent of births to substance users. We calculated the percent of births to Health Share members with substance use disorder each year from 2012-2017. The results show that approximately 6-7% of births are to people with substance use disorder, and this rate was consistent across all six years measured. This represents more than 200 births to substance users each year to Health Share of Oregon. At the time of the study, Health Share served about two-thirds of Medicaid members in the Portland Metro area, about 200,000 adults and children, with about 3,000 births a year.

Maternal birth outcomes are worse for people with substance use disorder. From 2012-2017, there were 1,401 births to people with a contemporaneous substance use disorder diagnoses and 20,438 births to people without substance use disorder. For those with a substance use diagnoses, the most common diagnoses were opioid use disorder (48%) followed by amphetamines (38%) (See Appendix Exhibit S2, page 34). We found that receipt of 7 or more prenatal care visits was significantly less prevalent for those with substance use disorder compared to those without substance use disorder (**Exhibit 1**). Excluding hemorrhage, all measured poor birth outcomes were significantly more prevalent for those with a substance use disorder – including preterm birth. We also found that cesarean section (C-section) was significantly more common for those with a substance use diagnosis compared to those without a substance use disorder.

1. Kotelchuck M, et al., The Prevalence and Impact of Substance Use Disorder and Treatment on Maternal Obstetric Experience and Birth Outcomes Among Singleton Deliveries in Massachusetts. *Matern Child Health J.* 2017 Apr; 21(4)
2. Gopman S. Prenatal and Postpartum Care of Women with Substance Use Disorders. *Obstet Gynecol Clin N Am.* 2014; 41
3. Forray A., "Substance Use During Pregnancy." *F1000 Research.* 2016; 13 (5)
4. U.S. Department of Health & Human Services: Children's Bureau. *AFCARS Report #24.* (2017)

Exhibit 1. Maternal Birth Outcomes

Maternal outcomes	SUD N=1,401	No SUD N=20,438	AOR	p-value
Prenatal care (7 or more visits)	10.6%	14.7%	0.6	<0.0001
Preterm birth	9.9%	5.8%	1.6	<0.0001
C-Section	34.5%	26.2%	1.4	<0.0001
Placental abruption	4.8%	2.6%	1.7	0.0003
Hemorrhage	9.8%	9.3%	1.0	0.8455
Hypertension	20.4%	16.5%	1.2	0.0066

SUD=substance use disorder; AOR = adjusted odds ratio; adjusted for birth hospital; p<0.05 considered statistically significant

Infants exposed to substances have worse birth outcomes. Not all infants were linked to their birth parent in the Medicaid claims data. There are fewer infants in the birth infant outcomes analysis (954 infants to substance users and 17,013 infants to non-substance users) because we are only including infants who are matched to their birth parent. Every poor birth outcome we measured, except for extremely premature and extremely low birth weight, was significantly more common in infants born to people with a substance use disorder compared infants born to people without substance use disorder (**Exhibit 2**). Infants born to people with substance use disorder had twice the odds of being low birth weight, more than 3.5 times the odds of having intrauterine growth restriction, twice the odds of being small for gestational age, and 1.5 times the odds of having respiratory distress syndrome. Approximately 23% of infants born to substance users had neonatal abstinence syndrome.

Exhibit 2. Infant Birth Outcomes

Infant outcomes	SUD exposure N=954	No SUD exposure N=17,013	AOR	p-value
Premature	10.9%	5.9%	1.9	<0.0001
Extremely premature	0.5%	0.2%	2.2	0.1372
Low birth weight	6.8%	3.4%	2.1	<0.0001
Extremely low birth weight	0.4%	0.3%	1.4	0.5369
Small for gestational age	8.5%	4.1%	2.2	<0.0001
Neonatal abstinence syndrome	23.2%	--	--	--
Intrauterine growth restriction	1.6%	0.4%	3.8	0.0001
Respiratory distress syndrome	14.2%	9.5%	1.6	<0.0001

SUD=substance use disorder; AOR = adjusted odds ratio; adjusted for birth hospital; p<0.05 considered statistically significant

More infants born to people with substance use disorder require additional care. We determined the percent of infants who required high-needs care, which is care that goes beyond the routine care typically provided to a newborn (**Exhibit 3**). We found that significantly more infants born to someone with a substance use disorder required additional care compared to those without a substance use disorder (32.5% vs 10.5%, respectively). Infants born to a person with a substance use disorder had 3.6 times the odd of requiring high needs care.

Exhibit 3. Additional Care for Infants

	SUD exposure N=954	No SUD exposure N=17,013	AOR	p-value
Routine care (no additional care needed)	67.5%	89.5%	1.0 (Ref)	<0.0001
High-needs care (additional care needed)	32.5%	10.5%	3.6	

SUD=substance use disorder; AOR = adjusted odds ratio; adjusted for birth hospital; p<0.05 considered statistically significant

More continuing care required for infants born to people with substance use disorder. The level of additional care can vary by hospital, but the intensity increases from continuing care (least amount of additional care) to intensive care (most amount of additional care). For those infants that required additional care, we determined the maximum level of high-needs care they received. Our results show that significantly more infants born to people with substance use disorder required continuing care compared to infants born to people without substance use disorder (**Exhibit 4**). Significantly fewer infants born to someone with substance use disorder required intermediate care, and there was no difference in the percent of infants requiring intensive care.

Exhibit 4. Severity of High Needs Care for Infants

	SUD exposure N=310	No SUD exposure N=1,785		
High needs care stays			AOR	p-value
Continuing care	58.7%	52.1%	1.5	0.0024
Intermediate care	20.3%	27.8%	0.6	0.0034
Intensive care	21.0%	20.1%	0.9	0.5111

SUD=substance use disorder; AOR = adjusted odds ratio; adjusted for birth hospital; p<0.05 considered statistically significant

Increased length of stay and costs of care. People with substance use disorder had longer average length of stay in the hospital for their birth event and significantly greater costs (**Exhibit 5**). Infants born to people with substance use disorder also stayed in the hospital longer and had significantly greater costs for their care – in total the costs of their infant stay was increased by approximately \$3,000 per infant.

Exhibit 5. Length of Stay and Costs

	SUD N=1,330	No SUD N=19,416		
Maternal			Adj. Diff.	p-value
Avg. # days (mean, SD)	2.6 (0.9)	2.3 (0.8)	0.3	<0.0001
Costs	\$6,900 (\$2,215)	\$6,435 (\$2,054)	\$358	<0.0001
Costs/day	\$2,706 (\$1,158)	\$2,981 (\$1,315)	\$259	<0.0001
	SUD exposure N=906	No SUD exposure N=16,162		
Infant				
Avg. # days (mean, SD)	2.8 (1.3)	2.1 (1.0)	0.7	<0.0001
Costs	\$7,014 (\$6,485)	\$3,580 (\$1,470)	\$2,926	<0.0001
Cost/day	\$1,940 (\$1,540)	\$1,470 (\$1,270)	\$334	<0.0001

SUD=substance use disorder; Adj. Diff.=adjusted difference; adjusted for birth hospital; p<0.05 considered statistically significant, data trimmed at 95th percentile

Bottom Line

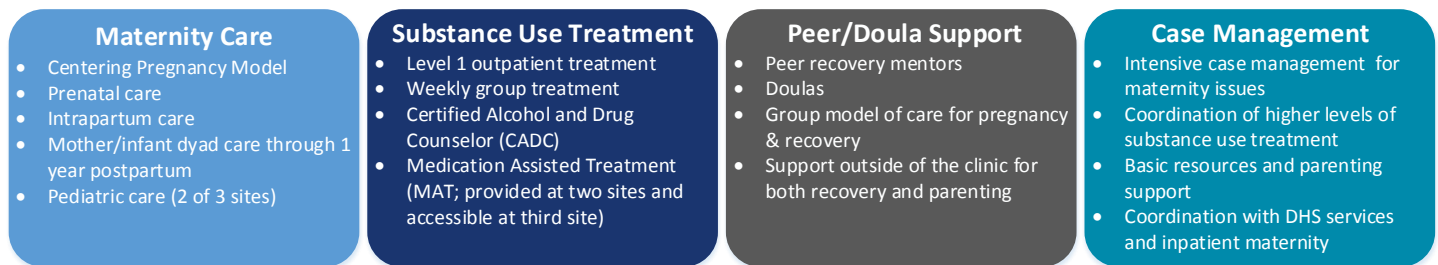
This data suggests that people who use substances during their pregnancy are at risk for poor maternal and infant health outcomes. In addition, they may have longer hospital stays, increased need for additional care, and higher costs of care than those who do not use substances during pregnancy.

Project Nurture Program

Project Nurture Model and Goals

Project Nurture integrates comprehensive prenatal and postpartum care with substance use treatment, case management, and peer support using a Center of Excellence health care model. Project Nurture provides four key components of care: 1) maternity care, 2) Level 1 outpatient substance use treatment, 3) peer/doula support, and 4) intensive case management (**Exhibit 6**). The goals of this new model are to improve medical and social outcomes for mothers and their infants, support the participants in parenting (if that is their goal), promote substance use recovery, and reduce cost of care for pregnant people experiencing substance use disorders.

Exhibit 6. Four Pillars of Project Nurture's Care Model



Project Nurture Sites

There are currently three Project Nurture sites: CODA/OHSU, Legacy/LifeWorks NW, and Providence Milwaukie. The delivery of the four components of care looks different depending on the partners that came together (**Exhibit 7**). Each site of Project Nurture developed from partnerships between organizations providing different aspects of care. CODA, Inc., a substance use treatment agency, partnered with OHSU Family Medicine, and Legacy Midwifery Clinic partnered with Lifeworks NW to establish the first two sites in 2014. Providence Milwaukie Family Medicine Clinic partnered internally with Providence Behavioral Health to form the third site in 2016.

CODA/OHSU. (*Established October 2014*). CODA, Inc. has a long history of providing Medication Assisted Treatment (MAT) for pregnant people with opioid use disorders. They began a more formal collaboration with OHSU Family Medicine to better coordinate their shared patients, and now a Family Physician and maternity case manager comes from the OHSU Richmond clinic to provide the maternity and pediatric care at CODA. People seen at this site must have a primary opioid use disorder, and MAT is provided on site. Support is provided by two doulas committed to the full spectrum of care.

Legacy/Lifeworks NW. (*Established October 2014*). Legacy Midwifery clinic has long been a highly-regarded clinic for caring for pregnant people whose social conditions make it difficult to get care elsewhere. They knew that many patients in their care struggled with substance use disorder, but they struggled to connect them to needed treatment. Legacy partnered with Lifeworks NW to add a Certified Alcohol and Drug Counselor (CADC) to their team, and hired two peer recovery mentors who were trained as doulas. This site sees patients with a range of substance use disorders. They do not provide MAT on site, but partner with MAT agencies as needed for patients with opioid use disorders.

Providence Milwaukie. (*Established January 2016*). Providence Milwaukie is Project Nurture's newest site. This site was established at the Family Medicine clinic in partnership with a Licensed Professional Counselor/ Certified Alcohol and Drug Counselor from Providence Behavioral Health Department. They contract with Mental Health America of Oregon for a peer recovery mentor, and see both patients and their children. Although they are open to people with any substance use disorder, they are primarily caring for pregnant people with opioid use disorders who want to use buprenorphine, as that is a new service at this clinic and not widely available in the community.

Exhibit 7. Project Nurture Care Components by Site

PROJECT NURTURE COMPONENTS OF CARE				
	Maternity Care	Substance Use Treatment	Peer/Doula Support	Case Management
CODA and OHSU	OHSU Family Medicine – Richmond provides maternity and pediatric care	- CODA provides CADC - Methadone and buprenorphine MAT	- Doulas - Facilitate weekly groups	- CODA social workers - Registered Nurse from OHSU also provides case management
Legacy and LifeWorks	- Legacy Midwifery provides maternity care - Midwives co-facilitate weekly groups	- LifeWorks provides CADC - CADC co-facilitates weekly groups - No MAT on site, refer for this service	Peer recovery mentors who are also trained as doulas	Legacy provides a social worker/case manager
Providence Milwaukie	Providence Milwaukie provides family medicine maternity care and pediatric care	- Providence Behavioral Health provides CADC - Buprenorphine MAT	Mental Health Association of Oregon provides peer recovery mentors; also trained as doulas	Providence provides a social worker/case manager

A Project Nurture Visit Snapshot

The Project Nurture sites logged their visits with participants for several months of the program (**Exhibit 8**). They counted each of the following types of visits: group sessions, substance use care, prenatal/postpartum care, peer recovery mentor/doula clinic visit, peer recovery mentor/doula offsite visit, case management, and phone/text hours. Across the three sites visit data was logged for 138 participants for an average of 4.8 months. Results show that the Project Nurture program has approximately 5 in person contacts with a Project Nurture participant each month. Additionally, they spend almost an hour (0.8 hours) a month on the phone or texting with participants. Please note that we were unable to link data sources in our analysis, so we could not consider the influence of the number of contacts on our outcomes of interest.

Exhibit 8. Per Member Per Month (PMPM) Contacts N=138

Contact Type	Total PMPM
Group visit	1.2
Substance Use Treatment visit	0.7
Prenatal/Postpartum visit	1.1
Peer Recovery Mentor/Doula visit in clinic	0.2
Peer Recovery Mentor/Doula visit offsite	0.3
Case Management visit	1.5
Phone/Text Hours (not in-person)	0.8 (hours)
Overall Contacts Per Month	5.0 in-person contacts + 0.8 hours phone/text

Project Nurture Participants

Project Nurture Program Data

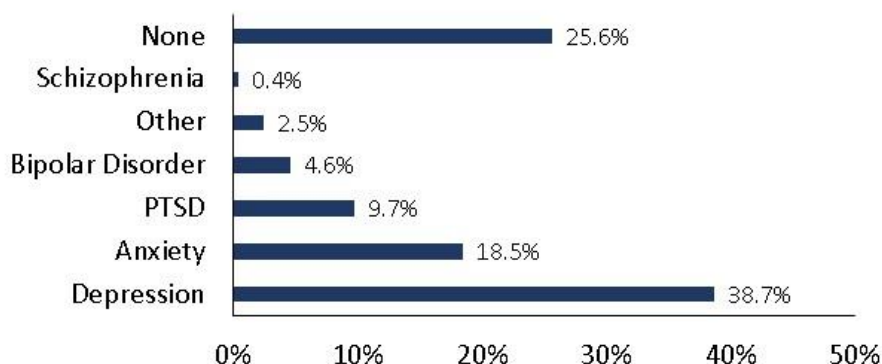
A total of 238 Project Nurture participants were tracked by the three program sites from 2016 to 2018 (**Exhibit 9**). Each site tracked information about the diagnoses and clinical care provided to participants in an attempt to capture the extent of primary active mental health diagnoses and primary substances used by each participant when they engaged with Project Nurture.

Primary mental health diagnosis. Project Nurture staff recorded if there was a primary active mental health diagnosis for the participant when they entered the program (**Exhibit 10**). Approximately 74% of participants had an active mental health diagnosis. Depression was the most common active mental health issue (~39%), followed by anxiety (~19%), and post-traumatic stress disorder (PTSD, ~10%).

Exhibit 9. Participants by Site in 2016 - 2018

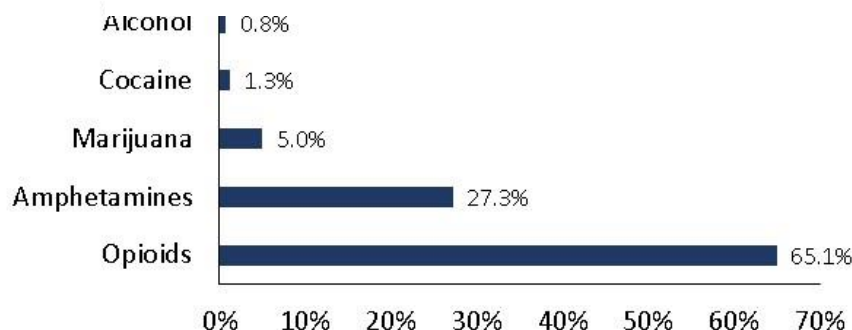
Site	Participants
CODA/OHSU	80
Legacy/Lifeworks	116
Providence	42
TOTAL	238

Exhibit 10. Primary Mental Health Diagnosis



Primary substances in use. Project Nurture staff also recorded the primary substance being used by the participant when they entered the program (**Exhibit 11**). Opioids, including heroin and opioid pills, were the most common primary substances used (~65%). This is not surprising as two of the Project Nurture sites specialize in opioid treatment. Amphetamines were the second most common primary substance being used (~27%) by Project Nurture participants. It is important to note that this represents the primary substance used, but the majority of participants in Project Nurture were also actively using other substances.

Exhibit 11. Primary Substance Used



Postpartum Project Nurture Survey Respondents

We surveyed postpartum Project Nurture participants in the Fall of 2017. We used a convenience sampling strategy that only provided surveys to participants who came to postpartum group or other visits (see Methodology, pg. 31 for details on survey development, fielding, and analysis). A total of 43 postpartum Project Nurture participants from the three sites completed this survey.

Limitations: This survey has a small total sample size and was not sampled to be representative of all participants in the Project Nurture program. Some survey questions ask about experiences that occurred a long time ago and may be subject to recall bias.

Demographics. Of the 43 respondents, 63% were white. None of the respondents had more than a high school education or GED. Furthermore, 45% reported that they did not complete high school. Only 16% were employed, but this may be because they had given birth recently, and more than 65% had a household income of less than \$15,000 a year. Approximately 63% reported their marital status as single; 9% were married or in a domestic partnership; 12% were divorced, separated, or widowed; and 12% reported their status as “other.” Complete demographic data for the survey is available in the Appendix (Exhibit S1, page 33).

Childhood trauma and adversity. The Project Nurture survey asked questions about childhood trauma and adversity (**Exhibit 12**). Almost 80% reported having a household (HH) member with substance use disorder and 47% reported experiencing sexual abuse. More than half of those surveyed reported dropping out of school (77%), witnessing violence between parents/caregivers (63%), verbal abuse during childhood (58%), or physical abuse during childhood (51%). Approximately 35% had been in foster care.

Adulthood trauma and adversity. The Project Nurture survey also asked several questions about trauma and adverse experiences in adulthood (**Exhibit 13**). Experiencing violence and abuse was prevalent among the respondents, with 77% reporting that they have been hit by a loved one, 81% reporting that they were verbally abused by a partner, and 58% reporting that they hit a partner or loved one. Almost a third had been threatened harm to force sexual contact. The majority of survey respondents (72%) reported being arrested and many said they had been in jail (62%). More than a third (37%) had one of their own children enter the foster care system. When asked the types of basic needs they had to go without over the past 12 months, about 40% reported they had to go without stable housing and about 40% had to go without food.

Exhibit 12. Childhood Trauma and Adversity

Experience	Project Nurture
Verbal Abuse	58.1%
Physical Abuse	51.2%
Sexual Abuse	46.5%
Witness Violence btw Parents/Caregivers	62.8%
HH member with SUD	79.1%
HH member depressed/mentally ill	53.5%
HH member in jail/prison	34.9%
Parents Separated/Divorced	67.4%
Ever drop out of school	76.7%
Ever in foster care	34.9%

HH= Household, SUD=substance use disorder

Exhibit 13. Adulthood Trauma and Adversity

Experience	Project Nurture
Ever been hit by partner/loved one	76.7%
Ever hit partner or loved one	58.1%
Verbal abuse by a partner	81.4%
Anyone threatened harm to force sexual contact	32.6%
Partner ever limited access to money/cars/phone/friends & family	30.2%
Ever been arrested	72.1%
Even been in jail	62.8%
Ever been involved in sex work	14.0%
Ever had child go in foster care	37.2%
Had to go without the following when needed over the past 12 months	
Stable housing	39.5%
Food	39.5%
Clothing	25.6%
Utilities	23.3%
Transportation	34.9%

Project Nurture: Impact on Clinical Outcomes

Key Findings

- Compared to people with a substance use disorder who were *not* participants of Project Nurture, people who received care at Project Nurture sites had the following outcomes:
 - 70% reduction in the odds of preterm birth;
 - Significantly reduced rates of C-section – from 36.5% to 28.1%;
 - Significantly increased prevalence of 7 or more prenatal care visits;
 - Significantly higher rates of use of Medication Assisted Treatment (MAT) among those with opioid use disorder;
 - Significantly decreased likelihood of infants requiring additional high needs care after birth, but no effect on other infant birth outcomes.
- Costs and length of stay remained stable between the participant group and the non-participant group.
- 93% of women who give birth with Project Nurture have long-term custody of their infants.

Specification of Study Groups

Claims data on birth parents and infants was provided by Health Share of Oregon. Due to the sensitive nature and federal regulations of substance use data, the only identifiable information in the claims data that could be shared with CORE were dates of service and zip code. Thus, to estimate the impact of Project Nurture, we used the non-identifiable elements of claims data, such as substance use diagnoses and facility codes, to construct a “likely Project Nurture” group and “non-Project Nurture” group (Methodology, pg. 29 for details). The groups consisted of pregnant people with substance use disorder and their infants in 2016 and 2017 (see Appendix Exhibit S3 for available demographics) and were defined as follows:

- **Project Nurture group:** pregnancy, a contemporaneous substance use diagnosis, and claims at a Project Nurture facility and/or with a Project Nurture provider.
- **Non-Project Nurture group:** pregnancy and a contemporaneous substance use diagnosis, NO claim at a Project Nurture facility and/or with a Project Nurture provider.

We also created subgroups of Project Nurture and non-Project Nurture participants with an opioid diagnosis. After the groups were constructed, we compared key birth outcomes for the birth parent and infant. Analyses were adjusted for differences in substance use and birth hospital between groups.

Limitations: We cannot be sure that the people in the Project Nurture group actually participated in Project Nurture or that the non-Project Nurture group did not participate. For those who may have participated in Project Nurture, we do not know the extent of their engagement with the program.

Results: Maternal Outcomes

Improvements in some maternal outcomes. Our results show improvements in some maternal outcomes for Project Nurture participants compared to those who were pregnant with a substance use disorder who were not seen at a Project Nurture site (**Exhibit 14**).

For birth outcomes, we saw significantly decreased preterm birth and C-section for pregnant substance users that were Project Nurture participants compared to those who were non-Project Nurture participants (**Exhibit 14**). The odds of a Project Nurture participant having preterm birth was reduced by 70% and the odds of having a C-section was reduced by 46%.

Significant reductions in preterm birth and C-section by Project Nurture participants were also observed in the opioid subgroup analysis (**Exhibit 14**). All other measured birth outcomes were not different between groups.

We found a significant increase in the prevalence of having 7 or more prenatal care visits for Project Nurture participants compared to those who were non-Project Nurture participants. Project Nurture participants had more than twice the odds of receiving 7 or more prenatal care visits (**Exhibit 14**).

An increase in prenatal care visits was also observed for Project Nurture participants in the opioid subgroup analysis compared to opioid user who were non-Project Nurture participants, but it was not a statistically significant difference. Additionally, there was significantly more MAT for people with an opioid diagnosis in the Project Nurture participant group compared to those with an opioid diagnosis in the non-Project Nurture participant group (**Exhibit 14**).

Exhibit 14. Maternal outcomes

	All Pregnant People with SUD				All Pregnant People with Opioid Use Disorder			
	Project Nurture N=114	Non-Project Nurture N=507	AOR	p-value	Project Nurture N=92	Non-Project Nurture N=217	AOR	p-value
Maternal Use of Care								
Prenatal care (7 or more visits)	11.4%	8.5%	2.4	0.0284	9.8%	4.6%	2.4	0.0945
MAT during pregnancy* (among opioid users)	---	---	--	--	76.1%	50.7%	3.1	<0.0001
Maternal Birth Outcomes								
Preterm birth	3.5%	11.1%	0.3	0.0139	3.3%	10.6%	0.3	0.0358
C-Section	28.1%	36.5%	0.5	0.0145	28.3%	39.6%	0.5	0.0241
Placental abruption	3.5%	3.0%	1.3	0.6574	3.3%	2.8%	1.0	0.9674
Hemorrhage	12.3%	11.1%	1.3	0.4527	12%	10.6%	1.2	0.6484
Hypertension	23.7%	21.9%	1.0	0.9364	27.2%	21.7%	1.3	0.3383

*MAT=medication assisted treatment (includes pharmacy and procedure codes); AOR=adjusted odds ratio; adjusted for substance use diagnoses and birth hospital; p<0.05 considered statistically significant

Cost of care for maternal birth event. There were no significant differences between groups in the average number of days the birth parent stayed in the hospital. Additionally, there were no significant differences in total costs of care or costs per day for the birth event. (**Exhibit 15**). This was also true in the opioid use disorder subgroup (**Exhibit 15**).

Exhibit 15. Maternal Birth Event Stay and Costs

Birth Event	All Pregnant People with SUD				All Pregnant People with Opioid Use Disorder			
	Project Nurture N=108	Non-Project Nurture N=481	Adj. Diff.	p-value	Project Nurture N=87	Non-Project Nurture N=206	Adj. Diff.	p-value
Avg. # of days (mean, SD)	2.8 (0.8)	2.6 (0.9)	0.1	0.4232	2.9 (0.8)	2.7 (0.9)	0.2	0.1388
Total Costs (mean, SD)	\$7,474 (\$2,580)	\$7,171 (\$2,363)	\$113	0.6935	\$7,314 (\$2,518)	\$7,169 (\$2,586)	\$93	0.7890
Costs per day (means, SD)	\$2,677 (\$1,186)	\$2,666 (\$1,124)	-\$2	0.9883	\$2,518 (\$1,082)	\$2,598 (\$1,110)	-\$56	0.7024

Adj. Diff.=adjusted difference; adjusted for substance use diagnoses and birth hospital; length of stay and costs trimmed at 95th percentile; p<0.05 considered statistically significant

Results: Infant Outcomes

Reduction in additional care for infants. All analyses of infant outcomes were limited to infants who could be linked to their birth parent in the Medicaid claims data; thus, there are fewer infants in the birth infant outcomes analyses than the birth parent outcomes analyses above. We examined whether infants required additional high-needs care that was considered beyond routine care that is given to a healthy newborn (**Exhibit 16**). The unadjusted percent of infants who needed additional care looks similar between the Project Nurture and comparison groups; however, when differences in population composition are adjusted for (including the higher rate of opioid use in the Project Nurture population), results show that Project Nurture births are half as likely (OR=0.46, p=.01) to need additional care after birth.

Results in the opioid subgroup analysis suggest that Project Nurture has had success in this population: Project Nurture infants born to mothers with an opioid use disorder diagnoses are significantly less likely to need additional care compared to similar infants in the non-Project Nurture group (43.8% vs. 57.7 %, respectively).

Exhibit 16. Additional Care for Infants

	All Infants Exposed to SUD				All Infants Exposed to Opioid Use Disorder			
	Project Nurture N=81	Non-Project Nurture N=378	AOR	p-value	Project Nurture N=64	Non-Project Nurture N=164	AOR	p-value
Routine care (no additional care needed)	61.7%	60.9%	1 (ref)	0.0110	56.3%	42.3%	1 (ref)	0.0394
High-needs care (additional care needed)	38.3%	39.2%	0.46		43.8%	57.7%	0.5	

AOR=adjusted odds ratio; adjusted for substance use diagnoses and birth hospital; p<0.05 considered statistically significant

Severity of higher level care for infants. The level of additional care can vary by hospital, but the intensity generally increases from continuing care (least amount of additional care) to intensive care (most amount of additional care). We used revenue codes from claims to determine the highest level of additional care each infant needed at any point during their stay and classified all infants accordingly. When infants *did* need additional care, we did not see evidence of a difference between Project Nurture infants and others in terms of how intensive that care was, but this results is unclear because of the small number of infants in each group and should be explored further (**Exhibit 17**).

Exhibit 17. Severity of High Needs Care, Among Those Who Needed At Least Some Additional Care

Highest Level of Severity Ever Associated with Infant	All Infants Exposed to SUD				All Infants Exposed to Opioid Use Disorder			
	Project Nurture N=31	Non-Project Nurture N=148	AOR	p-value	Project Nurture N=28	Non-Project Nurture N=95	AOR	p-value
Continuing Care (least severe)	48.4%	56.8%	1.12	0.8302	46.4%	58.5%	1.06	0.9164
Intermediate Care	22.6%	21.6%	1.47	0.5173	25.0%	18.1%	1.86	0.3216
Intensive Care (most severe)	29.0%	21.6%	0.64	0.4221	28.6%	23.4%	0.50	0.2795

AOR=adjusted odds ratio; adjusted for substance use diagnoses and birth hospital; p<0.05 considered statistically significant

No change in other infant birth outcomes. We measured a range of other infant birth outcomes for infants matched to pregnant substance users (**Exhibit 18**). We did not observe any statistically significant differences in these additional infant birth outcomes, either in the total study population or within the opioid use subgroup.

Exhibit 18. Infant Birth Outcomes

	All Infants Exposed to SUD				All Infants Exposed to Opioid Use Disorder			
	Project Nurture N=81	Non-Project Nurture N=378	AOR	p-value	Project Nurture N=64	Non-Project Nurture N=164	AOR	p-value
Premature	9.9%	16.7%	0.6	0.2762	10.9%	14.7%	0.6	0.3026
Extremely premature	0.0%	0.8%	-	-	0.0%	1.2%	-	-
Low birth weight	6.2%	9.0%	0.8	0.5990	7.8%	9.8%	0.9	0.8357
Extremely low birth weight	0.0%	0.8%	-	-	0.0%	0.6%	-	-
Small for gestational age	12.4%	9.0%	1.4	0.4141	12.5%	11.0%	1.3	0.5748
Neonatal abstinence syndrome	39.5%	22.0%	1.0	0.9003	48.4%	47.9%	0.9	0.7457
Intrauterine growth restriction	1.2%	1.9%	0.3	0.3218	1.6%	1.8%	0.5	0.5523
Respiratory distress syndrome	18.5%	18.3%	0.9	0.6505	23.4%	20.3%	1.1	0.7235

AOR=adjusted odds ratio; adjusted for substance use diagnoses and birth hospital; p<0.05 considered statistically significant

Length of stay for high needs care. For those infants who needed additional care, we determined the percent whose length of stay fit into categories ranging from less than 5 days to more than 28 days. The results descriptively represent the length of stay by each category for the entire birth event (including all levels of additional care), and then for those that specifically required additional care. We did not formally test for differences between groups because of the small sample size of the subgroups in the analysis (**Exhibit 19**).

Exhibit 19. Infant Length of Stay

	All Infants Exposed to SUD		All Infants Exposed to Opioid Use Disorder	
	Project Nurture	Non-Project Nurture	Project Nurture	Non-Project Nurture
Birth Event	N=81	N=378	N=64	N=164
Less than 5 days	25.3%	37.7%	14.5%	15.6%
5-10 days	36.7%	32.6%	40.3%	35.6%
11-28 days	13.9%	16.4%	16.1%	25.6%
More than 28 days	24.1%	13.2%	29.0%	23.1%
Continuing Care	N=15	N=83	N=13	N=55
Less than 5 days	26.7%	48.8%	23.1%	36.3%
5-10 days	40.0%	26.2%	38.5%	29.1%
11-28 days	13.3%	22.6%	15.4%	30.9%
More than 28 days	20.0%	2.4%	23.1%	3.6%
Intermediate Care	N=7	N=32	N=7	N=17
Less than 5 days	14.3%	25.0%	14.3%	11.8%
5-10 days	14.3%	25.0%	14.3%	23.5%
11-28 days	57.1%	21.9%	57.1%	29.4%
More than 28 days	14.3%	28.1%	14.3%	35.3%
Intensive Care	N=9	N=32	N=8	N=22
Less than 5 days	0.0%	3.1%	0.0%	0.0%
5-10 days	0.0%	25.0%	0.0%	27.3%
11-28 days	100.0%	59.4%	100.0%	63.6%
More than 28 days	0.0%	12.5%	0.0%	9.1%

AOR=adjusted odds ratio; adjusted for substance use diagnoses and birth hospital; p<0.05 considered statistically significant

Average length of stay and costs of infant care for birth event. We calculated the average length of stay and total costs of care (including the costs of any high needs care that was required) for the infant birth event (**Exhibit 20**). We also determined average length of stay and costs separately for those who required additional care. Again, our sample sizes were too low for meaningful statistical comparison. Our standard deviations suggest minimal differences in allowed costs between groups, but further study is needed to more accurately assess potential differences between groups.

Exhibit 20. Average Length of Stay & Costs for Infants

	All Infants Exposed to SUD		All Infants Exposed to Opioid Use Disorder	
	Project Nurture	Non-Project Nurture	Project Nurture	Non-Project Nurture
Birth Event	N=76	N=359	N=60	N=155
Avg. # of days (mean, SD)	5.9 (6.1)	4.9 (5.1)	9.2 (9.3)	7.5 (6.9)
Total cost (mean, SD)	\$12,346 (\$9,194)	\$10,513 (\$9,412)	\$13,530 (\$10,496)	\$15,338 (\$10,681)
Avg. per day (mean, SD)	\$2,130 (\$1,554)	\$2,240 (\$1,636)	\$1,795 (\$1,290)	\$2,316 (\$1,795)
Continuing	N=14	N=79	N=12	N=55
Avg. # of days (mean, SD)	14.2 (11.5)	9.2 (8.4)	10.1 (8.9)	9.0 (6.9)
Total cost (mean, SD)	\$16,939 (\$11,406)	\$18,692 (\$10,682)	\$12,782 (\$8,559)	\$18,344 (\$8,306)
Avg. per day (mean, SD)	\$1,408 (\$774)	\$2,603 (\$1,749)	\$1,516 (\$907)	\$2,561 (\$1,655)
Intermediate Care	N=6	N=30	N=7	N=16
Avg. # of days (mean, SD)	19 (9.5)	18.3 (14.9)	18.3 (11)	19.3 (16.7)
Total cost (mean, SD)	\$24,357 (\$12,830)	\$26,352 (\$14,726)	\$23,454 (\$15,297)	\$27,814 (\$13,374)
Avg. per day (mean, SD)	\$1,274 (\$276)	\$1,850 (\$1,224)	\$1,250 (\$282)	\$1,700 (\$1,089)
Intensive Care	N=8	N=30	N=7	N=21
Avg. # of days (mean, SD)	21.1 (4.2)	15.3 (7.3)	21.1 (4.5)	15.9 (6.3)
Total cost (mean, SD)	\$26,699 (\$9,438)	\$25,423 (\$13,174)	\$27,155 (\$9,984)	\$27,239 (\$12,951)
Avg. per day (mean, SD)	\$1,268 (\$325)	\$1,694 (\$882)	\$1,289 (\$341)	\$1,771 (\$1,002)

Adj. Diff.=adjusted difference; AOR=adjusted odds ratio; adjusted for substance use diagnoses and birth hospital; p<0.05 considered statistically significant; length of stay and costs data trimmed at 95th percentile

Limitations of Claims Payment Cost Analysis and Potential for Utilization-Based Cost Changes

Our cost analysis was done using claims payments data; it is important to note that claims payments contain considerable variability that may be driven by contractual or contextual factors unrelated to, and outside the influence of, a program like Project Nurture. For this reason, we recommend considering estimating potential cost savings using what is known about utilization changes attributable to the program. Imputing potential savings from utilization impacts eliminates the potential “noise” that may exist in paid claims.

For example, our results show clear reductions in births of infants requiring additional high-needs care. The average cost for care of an infant that receives routine care after delivery is \$3,600, while infants requiring continuing care cost an average of \$19,800, a difference of \$16,200 dollars¹. Our results suggest that, after adjusting for population differences, Project Nurture reduced the odds of the more expensive outcome occurring by half. This approach can be used to estimate potential cost savings attributable to improving the odds of healthy births in a substance using population. Similar estimates can be formulated based on the observed differences in C-sections (- \$2,900 per procedure²).

Additionally, there is potential for long-term cost reductions associated with reducing pre-term births and with engaging a traditionally stigmatized population in health care – but further study is needed to assess this potential.

1. Health Share claims average for C-section costs to birth parents with substance use disorder 2012-2017
2. Health Share claims average for high-needs care to infants born to birth parents with substance use disorder 2012-2017

Participant Child Custody Outcomes

The program data collected at each site tracked infant placement and caregiver status at hospital discharge and program exit for Project Nurture participants. We descriptively analyzed this data for all participants and for those with an opioid use disorder.

Limitation: We do not know if the Project Nurture participant exited the program due to program completion or if they were lost to follow-up. We do not have similar data on a non-Project Nurture group for comparison.

Infant placement Status. Approximately 83% of Project Nurture participants had their infant discharged into their care after delivery. A similar rate (81%) of the subset of Project Nurture opioid users had their infants discharged into their care after delivery.

At the time of program exit, 5% of participants had involuntarily relinquished permanent custody and an additional 2% of participants had voluntarily relinquished permanent custody (**Exhibit 21**). The remaining 93% of people either have both short and long term custody (74%) or long term custody after temporary removal of the infant (N= 19%). A very similar pattern of caregiver status was seen in the opioid subgroup (**Exhibit 22**).

Exhibit 21. Caregiver Status – All Project Nurture (N=127)

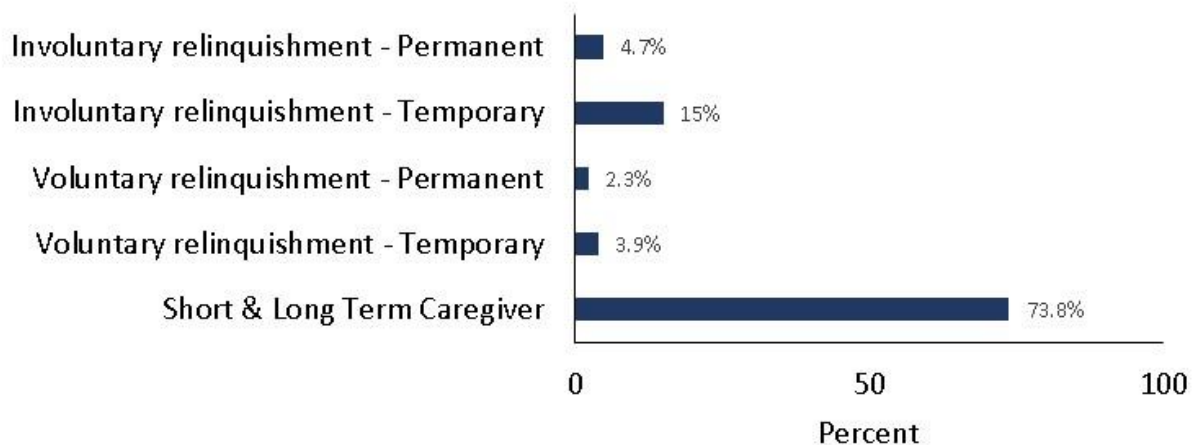
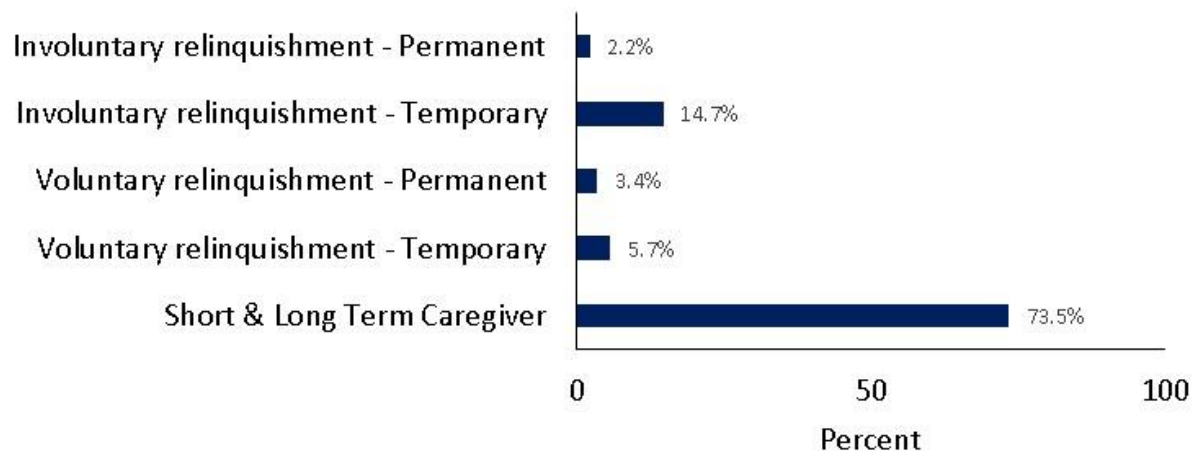


Exhibit 22. Caregiver Status – Project Nurture Opioid Users (N=83)



Project Nurture: Impact on the Health Care System

Key Findings

- Prior to Project Nurture, the health care system was not equipped to adequately treat pregnant people with substance use disorder, which left patients feeling judged and stigmatized.
- Integration of maternity and substance use treatment services removed many barriers to care.
- The multi-disciplinary team enables staff to take on complex care and provides more comprehensive support for patients.
- Project Nurture has made great strides in developing a trauma-informed workforce to manage the care of this complex population.

To understand the impacts of Project Nurture on the health care system, we interviewed 18 staff/stakeholders and 18 participants. We asked questions about what care was like before Project Nurture was implemented and how Project Nurture's care is different. Interviews were recorded, transcribed, coded, and analyzed for key themes. *Limitations: The experiences and opinions expressed in the interviews may not reflect those of all staff/stakeholders or participants.*

Status-quo before Project Nurture

Maternity care not equipped to treat pregnancy with substance use disorder. Project Nurture staff reported that, prior to Project Nurture, the maternity care system was not well-equipped to support pregnant people with substance use disorders. Staff interviewees said that when they encountered pregnant people with substance use disorders, they did not have the needed resources to adequately provide care to these patients. We heard that, as a result, patients were oftentimes receiving care in the emergency department or not accessing any care until delivery, both risking the health of the pregnant individual and infant and creating a chaotic scramble for hospital providers and the Department of Health and Human Services (DHS) to address the complicated needs of these patients.

Poor, judgmental, and stigmatizing care. We asked Project Nurture participants about their experience receiving care prior to Project Nurture, sometimes for a previous pregnancy. Participants reported struggling to find a program that would accept them or a provider who knew how to treat their addiction and their pregnancy. Many described that when they did share about their addiction, they experienced judgment and stigma from providers, caseworkers, or other staff, and for some this was so devastating that it made them regret seeking care.

No substance use treatment programs for pregnant

people. Project Nurture participants said they had a hard time finding any substance use treatment programs that would take someone who was pregnant. If they did, there were typically few or no other pregnant patients or new parents. Within these groups, the distinction of their pregnancy while managing addiction led to further stigmatization and made them feel misunderstood and misplaced.

QUOTES

"Maternity providers said, 'Substance use is our biggest issue,' and the substance use provider said, 'Pregnant women are our biggest issue.'" – Staff 15

"Where we were not that long ago was where people would just avoid the care [...] until they showed up in labor, in emergency with no prenatal care or very little prenatal care." – Staff 5

"I was crying and stuff, and she asked me why, and I was like, 'because I've been using meth,' and she's like, 'well, that's not good for the baby,' and that type of stuff. And I was just like, I should have never come." – Participant 3

"It seems like they don't want to spend any amount of time with you because they relate any of your problems [about substance use]. 'Well, you're just shopping for pills,' or, 'Oh, you're an addict.' [...] As soon as you walk in the door they are judging you." – Participant 4

"I was the only one that was pregnant that was struggling with substance abuse [in a substance use treatment group], and I don't want to say necessarily I felt judged or misplaced, but I definitely felt misplaced. I did." – Participant 12

Participant Story – Care Prior to Project Nurture

"I was already not going to tell my doctor in the first place, but [name removed] said, "make sure you tell them – like you need to, it's really important that you do," and I immediately regretted it. As soon as I told her there was judgment. Like right away she was telling me [consequences] [...] I was in tears when I was telling her because I felt guilty about it, and then she said, "I'm going to have to have a social worker and DHS are going to need to be informed, and they're going to have to be there when you give birth." That was like the second sentence out of her mouth. Like after I told her all of that. And of course that just made me cry harder [...] I thought they would take my baby away, you know?"

Integration of Care

The work of integration. In the Project Nurture staff interviews, we heard that integrating care is hard, but worth it. There was a great deal of upfront work required to integrate systems of care and learn more about the different roles and how they fit together. To integrate, interviewees spoke about the need for addiction and trauma-informed care training, process planning, establishing best practices, and planning the larger system implications of the program. Some Project Nurture sites had to create new jobs in their system for the peer recovery mentor role or contract out the role, and they needed to consider new needs for tracking in electronic health records and billing.

Integration makes access to care feasible. Project Nurture staff indicated that Project Nurture begins to remove some of the access barriers to health care by creating a "one-stop shop" for pregnant people with substance use disorders. Project Nurture participants are able to access addiction treatment and pre/postnatal care at the same place, and sometimes even during the same visit. Their children can be seen by providers to ensure they are getting their well-checks, vaccinations, and other needed care.

Project Nurture participants also spoke of the benefit of having all their care in one place, even citing it as a reason they joined. Participants shared stories of the convenience of having comprehensive care in one place, which allowed them to more easily meet their needs and the needs of their infant. This was preferred over having to travel to multiple locations in one day to get care.

QUOTES

"The more you fracture services, the less likely people are to go to multiple places to get them. What Project Nurture did was it literally brought the prenatal care here, so they can actually get the prenatal visits with the physician in the same place that they're getting the counseling, they have access to child care, and they're getting the medication. That's happening in-house."
– Staff 3

"We haven't really thought about how we can use integration in the upstream, into the prevention realm. And, so, for me, Project Nurture is particularly exciting and unique and innovative because we are trying to move into a little bit different part of the system."
– Staff 12

"I like that it had a lot of the benefits of having to go here or there, here or there, here or there, all in one setting [...] It just seemed really good for me because I didn't have a car at the time and I was on public transportation with an infant, which is really hard. So it was really appealing to know that I could just get all of my needs met [at Project Nurture]." – Participant 17

"I love that there's all kinds of resources, you know? I was thinking about having a doula, but I wouldn't have probably done it on my own, but everything is offered to you there [at Project Nurture]." – Participant 11

Workforce Development

A strong, interdisciplinary team. Project Nurture brings together a combination of caregivers – OBGYNs and midwives, peer recovery mentors, doulas, social workers, certified alcohol and drug counselors (CADCs), and, in some cases, family medicine – to create a team dedicated to supporting the continuum of care needed to treat the medical and social complexities of pregnant people with substance use disorders. We heard a lot about the interdisciplinary team and its role as a key driving force that makes Project Nurture unique from Project Nurture staff and participants.

Staff explained that by bringing this kind of team together, caregivers of different disciplines are able to collaborate on patient care, each having an equally important role, each engaging with the patient in a different way, and each treating a different facet of their care. This also made a difference for Project Nurture participants who indicated that they valued having so many types of support available to them and the staff's unique expertise on the intersection of pregnancy/parenting and substance use disorder.

Supporting Each Other Makes Complex Care Possible.

We learned from the staff that having an interdisciplinary team not only benefits Project Nurture participants – it also benefits the caregiving team members. Participating in this kind of care as a team takes the burden off of any one individual in treating medically and socially complex cases, creating an environment where the team has both the technical and emotional support needed to provide this kind of care.

Themes around the team aspect of Project Nurture included the benefit of feeling less alone in such complex care, increased willingness to take-on complex of care because of the presence of a supportive team, the importance of learning from each other, and the mutual respect team members had for one another.

QUOTES

"Another huge success is just the coordinated care team. It's so great to have a relationship with [PN PROVIDER] and be able to, you know – we call and text each other around patient care, other coordination issues, or whatnot – and just to have that component is really, really helpful so that again we can kind of help meet needs." – Staff 12

"Everybody being on site together [...] carrying different pieces of the care and bringing it together in a big whole is super powerful. It just makes it a little more sustainable [...] It's so nice for me to have my own peers and my own support, and it's nice knowing I don't have to hold everything – that we can participate as a team. Everybody has their own thing that they're working on and we bring it all together." – Staff 4

"There's a midwife, there's a drug and alcohol counselor, there's a doula – and she also has an addictive past – and then there's [PN Social Worker], and they always have a medical assistant, so it's nice that it's also part of it that you're getting constant care." – Participant 11

Participant Quotes about Staff in Different Project Nurture Roles

Peer
Recovery
Mentors &
Doulas

"[I was] like, 'they're not going to pursue me.' But, [PN PRM and/or Doula] did, and it really made me feel like I was cared about on purpose, and that was pretty amazing to me."

CADCs

"And, my counselor, [PN CADC] [...] I'm thankful for because I just love her, and she does her research and she brings in material that gives the class something to talk about [...] I get my stress out."

Social
Workers

"[PN Social Worker] is really here not to judge you and not just for a paycheck, she's taking the time to help me find stuff with housing and activities for my son to go do."

Providers/
Midwives

"[PN Provider/Midwife] is awesome. [Provider/midwife] is very nice and very non-judgmental and really good at making you feel safe and comfortable. [Provider/Midwife] is just a great listener and is very reassuring."

Non-judgmental, trauma-informed care. Project Nurture staff underlined the importance of non-judgmental and stigma-free approaches to care, which helps build trusting relationships with participants and keeps them coming back. Many Project Nurture staff received training on trauma-informed care because many Project Nurture participants have experienced and/or are currently experiencing, extreme trauma (see page 12). Interviewees believed that this trauma-informed and judgment-free care that permeates all aspects of Project Nurture's work creates a safe and affirming experience for people who have often been stigmatized in and outside of the health care setting.

Project Nurture participants frequently spoke about not feeling judged when seeking care at Project Nurture and how that created a space where they could be honest about their addiction and struggles without shame. They said that the staff take the time to get to know them as people and thoroughly consider all of their concerns, including their concerns about their infant's health. Receiving this kind of non-judgmental whole person care made them feel valued and positively impacted participants' health care experience, which helped to keep them engaged in care despite past traumas with the system.

Commitment to understanding addiction. In the interviews, we repeatedly heard about the importance of understanding addiction when providing this type of care – from both staff and participants. Pregnant people are seeking help from Project Nurture regardless of whether or not they are stable in, or ready to treat, their addiction. This has required the Project Nurture staff to “meet participants where they are at” in their addiction. Staff reported that they are receiving more addiction training and an enthusiasm to learn how to provide effective, stigma-free care. The peer recovery mentors, who have personal experience with addiction, have been an invaluable resource for staff in understanding addiction, and an essential source of engagement and trust with Project Nurture participants.

Project Nurture participants also reported how important it was to have caregivers who understood addiction because it improved their relationship with the caregiver and helped them to get the best care for their complex needs. Many participants also expressed their gratitude for and connectedness with the staff who had shared lived experience with addiction. They explained that receiving care from a person who has “been there” made them feel better about engaging with the system and built hope that they could also succeed in their recovery.

QUOTES

“My past experience with health care and substance abuse connected is very rigid. It's very shame-based. [...] what I found [in Project Nurture] is completely the opposite.” – Staff 8

“It's looking at people's historical trauma, past trauma, current trauma, and some of that is the way we think of it in terms of physical or sexual trauma. But it's also systems trauma. Their ex-hospital system trauma, clinical justice system trauma, DHS system trauma. [...] I really think the biggest successes are having people not feel traumatized. [...] so now you have an experience where the system doesn't hurt you, where you can get your needs met.” – Staff 2

“Having understanding staff and nonjudgmental staff when you go in for your OB care, that's huge. That not only approaches that topic in a way where, hopefully, you can discuss it and then not leave in tears [...] but that maybe you've got somebody [...] somebody on their side when maybe they have no one.” – Staff 11

“But, I just found that [the Provider/Midwife] is not judgmental at all. [Provider/Midwife] is almost like the counselors as far as like you can talk about anything and [...] [Provider/Midwife] understands addiction, which is, for [Provider/Midwife] to work with a program like this was super important to me and it was also awesome because if you go to a normal doctor, it seems like they judge you.” – Participant 5

“What I've been getting so far is a lot of support. I think we get a lot of support. Like, the women are always accessible. They're easy to talk to, and I find it really refreshing and really comforting to know that some of them have actually been down the same road.” – Participant 13

“Here [at Project Nurture], they actually know. It's not like they have to be, oh, let's look up your file and see who you are [...] Like, they know who you are, your name and your face and it's like they're invested in you.” – Participant 9

Participant Story

"I liked that [Project Nurture] had medical, it had an A&D counselor, and it had group. It had other people I could identify with. It had a social worker. It just seemed really good for me because I didn't have a car at the time and I was on public transportation with an infant, which is really hard. [...] Every single staff member that's part of my process here and my recovery here is very open-minded. They're very knowledgeable, they're very nurturing and supportive, and they really know their particular role or part. I haven't had any problems of feeling comfortable talking to them – talking to them about anything. I feel like they really understand and care for us, and I really feel like they really want to see us succeed in this program. Like I said, some of the staff members that have actually been through recovery, I feel even more of a connection to them just because I know and it gives me hope, like, dang if they went through it, and they were in the same situations, and look at them now, it makes me feel even more hopeful that maybe one day I can have a career like that and helpful and giving back. [...] So, I went through [another place]. I was in their process groups, and then their doctor was [at another clinic], which was across the street, so even though they provided the same things, it was the having to go to different places, you know? Like, your team literally is sitting next to you the whole time [at Project Nurture]. It just makes it so easy, you know?"

Staff Story

"I think what's great is that every Project Nurture clinic day, you've got that team coming together in the beginning of the day and the end of the day to talk about what's on the schedule, 'What do we need to do?' And at the end of the day, 'Okay, how did it go?' The way everybody is learning from each other, and the way that everybody is able to develop such a robust understanding of the patient, because of all these different perspectives that come together all at the same time. What's really amazing, is that everybody still talks in this very genuine, non-sarcastic, non-judgmental, optimistic way. It's really easy for people who grow close like that, and do this kind of work, to get really dark behind closed doors. And I was so impressed with what they were doing and how genuinely optimistic they were for these patients, and how hopeful they were."

Project Nurture: Impact on the Participant

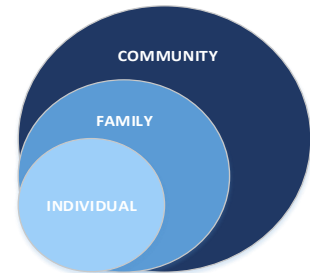
Key Findings

- Project Nurture helps to create a supportive community of peers for the participants.
- Project Nurture supports participants in keeping their families stable and together, breaking the cycle of addiction and foster care for many participants, which can lead to intergenerational change.
- Project Nurture fosters participants' self-determination by supporting them in their recovery goals, stability, and future plans.

Through interviews conducted with 18 participants in the Project Nurture program, participant impacts emerged and coalesced around three major themes that are embedded in different levels of their environment: 1) Community: Peer Community, 2) Family: Parent/Child Support, and 3) Individual: Participant Self-Determination.

Limitations: The experiences and opinions expressed in the interviews may not reflect those of all participants.

Participant Levels of Impact



Community Level: A Peer Community

A unique, supportive community of peers. Participants told us that Project Nurture weekly groups – both the prenatal and postpartum groups – fostered a strong sense of support, and that this support builds a community among peers that is unique, nonjudgmental, and nonexistent in other systems.

Many participants told us that being in a Project Nurture group reminded them that there are others that have “been there,” others who understand them and what they are going through. Aside from the social support gained in these groups, participants support each other in many other ways, too, from holding each other’s infants to bringing food to share. Participants shared that they would like this peer community to last beyond their participation in the one year of Project Nurture postpartum weekly groups, and expressed the desire to continue to connect with other participants outside of the weekly groups.

Space to share and receive advice. In the peer groups, many participants felt empowered to share pregnancy, treatment, and/or parenting advice with others, and many appreciated this type of peer-support and learning. During Project Nurture groups, participants were given space in to teach and learn from each other, connecting the curriculum or “weekly topic” to their own lives and the lives of their peers.

A treatment environment that supports pregnancy.

Some of the participants talked about their experiences with other recovery groups – like AA or NA – where few to no other participants were pregnant. In these groups, new or expecting parents sometimes felt misplaced or

QUOTES

“Just the community of the girls and having that experience and everyone in the room understand what you’re going through.” – Participant 7

“I really want to attend this group, I want to be a part of this. That’s just the thing. I don’t feel like I’m coming to therapy. I do feel like I’m coming to a group. Like, I’m uniting with other people. Like, I’m part of something not that I am the something.” – Participant 4

“Coming here really helps me because I can talk about it and not be judged by the other women here because they’ve also went through it [...] I can’t go to AA meetings. Those people will be like, it’s all about your [child]. We [at Project Nurture] all connect with it and are supportive of each other.” – Participant 11

“I fell in love with the community, I fell in love with knowing that I wasn’t judged. I felt comfortable. [...] I felt like I was at home [...]. When you’re going through a substance abuse period, it’s lonely, and then to be pregnant and struggling with it and feeling like you have to hide that because people are so judgmental towards it and then to find out there’s a program to help women with that. It’s nice.” – Participant 16

“We have bins of clothes and we’re always bringing food for each other. [...] It’s just the support.” – Participant 8

burdening to the group, and they felt that no one in these groups could connect with their unique challenges. In contrast, participants expressed feelings of belonging and empathy in Project Nurture groups, primarily because of the shared experience of their struggles with pregnancy, addiction, and parenting.

Family Level: Parent/Child Support

Support and advocacy with DHS and the foster care system. Many participants shared that Project Nurture staff supported their engagement with the Department of Human Services (DHS) and Child Protective Services (CPS). In many cases, program staff helped participants keep their infants out of the foster care system. This kind of family support came in the form of advocacy in the courtroom, assistance in navigating requirements of DHS/CPS, providing opportunities to prove progress towards recovery (results of urine analysis, group attendance and participation, etc.), and even home visits. Participants shared that Project Nurture staff were transparent about interacting with DHS/CPS and gave them pertinent information about the system and processes, which was very helpful for those who had open CPS cases.

Fostering stability. Participants reported that Project Nurture helped them and their families gain stability. This stability came through support in their recovery, in accessing needed resources, and in assistance in their day-to-day lives. Project Nurture helped participants to obtain stable housing and secure reliable transportation to prenatal appointments and treatment, and some staff conducted home visits. Through this support, participants spoke about how this stability created an environment that helped them be more successful and keeps families together.

Intergenerational change. We heard several participants discuss their parents' addiction and their desire for their children to have a different experience growing up. By supporting participants in keeping their children, for many, Project Nurture is helping participants to foster intergenerational change in their families. Several participants attributed the fact that they kept their children directly to the support provided by Project Nurture staff, recognizing the opportunity this provides to break the cycle of foster care and/or addiction in their families.

QUOTES

"I love it. I really, like honestly, in my heart, love Project Nurture. If it wasn't for Project Nurture, I wouldn't have my kids, in that, I probably would have killed myself to be honest. So, I really feel like Project Nurture really saved my life. My kids were never removed, and that's partially because Project Nurture was going to court with me for my first court date and helping me get enrolled in services right away." – Participant 10

"I definitely want to move onto a different path just because I don't want her to grow up like I did. Because I grew up in foster care. My mom was an addict, you know what I mean? And, I don't want her grow up like that. And, her dad's an addict. [...], I'm giving myself another chance, and I'm definitely giving my daughter a chance to grow up with parents [...] so she doesn't have to grow up that way." – Participant 2

"Yeah, I would. If it wasn't for them [Project Nurture], I wouldn't be here right now, [my child] wouldn't be here right now. I wouldn't have [my child]. I am so grateful for the program and everybody in the program." – Participant 14

"I am stable today. And, because of that and Project Nurture, I have my home, I have an amazing support here and outside. I have amazing clean time that I'm super proud of. I have amazing recovery I'm super proud of. I have both my children. I'm happy, so happy. I have food, a vehicle. So, I'm happy." – Participant 18

Individual Level: Participant Self-Determination

Motivation of pregnancy to make a change. For some, pregnancy can be a momentous time in a person's life – a catalyst for transformation and change. Several of the participants we spoke with explained that pregnancy and parenthood were what inspired them to get help and made them feel committed that things would be different this time. Many of the participants we spoke with discussed how well things were going for them in their recovery and how much Project Nurture helped them at this important time in their lives.

Planning for the future. Some interviewees shared that their participation in Project Nurture inspired future plans and hopes, some expressing the desire to become a drug counselor and others expressed confidence in gaining independence from parents or family. Some shared that Project Nurture bolstered their desire to pass along the knowledge and tools they have learned with others in similar situations. Project Nurture fosters self-determination by treating participants as experts in their own lives, offering nonjudgmental, quality care, and providing a space for parents to give and share advice and build a community among each other.

QUOTES

"Somebody told me one time when you have an addiction and you're pregnant, take advantage of that, because it's like you have that flame in you just gets brighter and bigger because you are carrying life, and it's almost like you don't want to take advantage of the baby inside you, but use that like a push. It's not just you that needs to get clean, you need to get clean for you and your baby, you know, and so I did [...] I'm probably not going to have as much strength as I have while I'm pregnant to fight through this addiction any other time because I was fighting for me and him."
– Participant 6

"I feel like if I did not have Project Nurture at the beginning of my pregnancy, I don't believe that it would have been as easy for me to stay clean. I almost have 9 months [...] I'll have 9 months and I really owe it all to Project Nurture, because even if I didn't attend my meetings during the week, I knew that if I came here, I would be okay." – Participant 13

"I've decided, after this whole program, after I'm clean for two years, [PN CADC] is going to help me get into the drug counselor program, so I think that's the way that I'm going to go is to try to be a drug counselor, too, just to be able to give back everything that's been given to me." – Participant 15

"I've really been thinking going to school and becoming a substance abuse counselor because this program has literally changed my life and I've learned so much about myself, about my inner strength, and everyone that's in addiction, they don't think they're ever going to get clean, but it takes the right people, the right program to really, really help somebody, and I want to be able to help other people and so I've really been thinking about becoming a substance abuse counselor."
– Participant 1

Project Nurture: Participant Program Satisfaction

Key Findings

- The majority (98%) of Project Nurture participants were ‘very satisfied’ or ‘satisfied’ with the Project Nurture program and its services.
- Participants had a high level of trust with Project Nurture staff.
- 93% of participants reported that they got all the care they needed, and 98% would recommend Project Nurture.

In the Project Nurture survey with postpartum participants, we asked several questions about their satisfaction with the Project Nurture program. A total of 43 postpartum Project Nurture participants from the three sites completed the survey and their satisfaction with the program is described below. We also heard participants discuss their satisfaction with the program in our interviews (N=18).

Limitations: This survey has a small total sample size and was not sampled to be representative of all participants in the Project Nurture program. The experiences and opinions expressed in the interviews may not reflect those of all participants

Results

Relevant demographics. Of the 43 participants, 50% had been receiving Project Nurture services for seven months or more, and 70% had given birth 4-6 months ago. See **Exhibit S1** in the Appendix for all survey demographics.

Strong satisfaction with Project Nurture. The majority of survey respondents (98%) were “very satisfied” or “satisfied” with the Project Nurture Program. Nobody reported being “dissatisfied” or “very dissatisfied.” We also asked about satisfaction with the different types of services offered in the Project Nurture program (**Exhibit 23**). Again, the majority of respondents were “very satisfied” or “satisfied” with each of the services offered by Project Nurture and very few reported any dissatisfaction.

Exhibit 23. Satisfaction with Project Nurture Services

Satisfaction with the following Project Nurture services:	‘Very Satisfied’ or ‘Satisfied’
Overall Program	97.7%
Addiction Treatment	90.7%
Pregnancy Care	93.1%
Care after birth/parental care	93.0%
Group sessions	90.7%
Peer/Doula support	93.0%
Care for your infant	87.7%

The Project Nurture care. A key part of the Project Nurture program is building trust with participants, especially because many of them had poor experiences engaging in care in the past. Approximately 93% of survey respondents report that they had “a lot” of trust in the Project Nurture staff (**Exhibit 24**). The majority (~93%) also reported that they received all of the care that the needed from Project Nurture and 98% would recommend the program to someone else (**Exhibit 24**).

Exhibit 24. Project Nurture Care

A lot of trust Project Nurture staff	93.0%
Received all needed care from Project Nurture	92.9%
Recommend Project Nurture to someone else	97.7%

Interviewee program satisfaction. In the interviews with postpartum Project Nurture participants, we heard a strong sense of satisfaction with the program. Very few had critical feedback and often they expressed the importance of maintaining this program for themselves and others.

QUOTES

“[...] It's hard to advocate for the program [Project Nurture] to explain it to other people when they don't know what it is. I've talked to different women about it who have had their babies here and I'm like, 'Well, hey, have you heard of Project Nurture? You should come and check this program out. It's really awesome. It's not'-and that's what I always tell people- 'it's not like your usual self-help group. It's like, this is a group of women and they are an amazing resource for sanity.' Because that's how I feel about it, you know? Because I do, I feel like I've gained a lot of my sanity back since I've started being in this program.” –Participant 16

“Any mom that's pregnant and struggling, I would definitely. I think it's just a good way to know that you're not alone, that even if you're carrying a child and you're struggling with addiction, like there's a place for you.”-Participant 13

“I honestly love Project Nurture. I feel like it saved my life. I just feel like, I belong here. This isn't the place where I feel shame about what I did or I don't have to be here. I want to be here because I love the people here and I know they love me and that's how it's supposed to be.” –Participant 1

Methodology

Overview

This was an observational study that used mixed methods and multiple data sources to understand the study population and address the study objectives. There were four key data sources: Medicaid claims, program data, qualitative interviews, and surveys. Each data source included different views of the study population and provided key content for analysis. None of the data was linked together, therefore, analysis of one dataset could not be considered in the analysis of other datasets. Details on the study population, data content, and analysis are described below.

Medicaid Claims

Population. We received data for Health Share of Oregon members who gave birth and their associated infants. This claims data only included two identifiers: service dates and zip codes. We used this data to compare outcomes for substance users who gave birth and their associated infants compared to non-substance users who gave birth and their infant. The timeframe for this analysis was 2012-2017.



The sensitive nature of the program required that Project Nurture participants not be explicitly identified in the Health Share of Oregon and FamilyCare medical claims data. Thus, we used a series of steps to identify a group of pregnant people with substance use disorder who were likely exposed to Project Nurture services and substance users who gave birth who were likely NOT in Project Nurture. The timeframe for the data used in this analysis was 2016 to 2017 and we used the following process to define each group:

1. Find all birth claims belonging to a birth parent.
2. Identify infants who could be reliably attached to a birth parent delivery on a 1:1 basis (with the exception of multiple births)
3. Used ICD9/ICD10 codes to find birth parents who had a substance use diagnosis code in the medical claims data between 9 months prior and 3 months after the birth of the infant
4. Using the same timeframe, identify birth parents as Project-Nurture-like members with a combination of facility and provider identifier codes in their claims history (using lists that providers generated to identify themselves and their facilities)

As a result, people who gave birth after Project Nurture was implemented (2016-2017), had a substance use history prior to the time of the birth, and had a combination of facility and provider codes at one of the three project sites around the time of the birth were categorized as exposed to Project Nurture. The comparison group (i.e. not exposed to Project Nurture) met all of the same criteria, but did not have any combination of facility and provide codes from one of the three sites.

Collection Process. This is an administrative dataset that did not require primary data collection.

Content. We obtained a limited claims dataset, all identifiers were removed except for dates and zip code, on Health Share members from 2012-2017 (of note, due to FamilyCare's closure, we obtained their former members from 2016-2017). The medical claims data was used primarily to understand the outcomes surrounding and immediately preceding the birth event. Outcomes were divided into birth parent and infant birth outcomes such as prenatal care, preterm birth, C-section, placental abruption, birth weight, prematurity, neonatal abstinence syndrome, and utilization of care.

Analysis. All analysis was done in R version 3.3.3. We used adjusted logistic and linear regression to test associations between dependent and independent variables while accounting for confounding factors and to measure the magnitude of the relationships. Logistic regression was used to identify associations in categorical data, and linear regression was used to identify differences for continuous data. Adjustments included substance use diagnoses and birth hospital.

Despite the difficulties in interpretation when proportions get higher, logistic regressions were still favored over relative risk models (logistic regressions with a 'log' link that estimate adjusted relative risk) for two reasons. The most important

of these is that logistic regressions are the standard analytic tool leveraged in retrospective observational study designs such as this one. Statistically, estimating adjusted risk ratios requires larger sample sizes than the population we have for the models to reliably converge. The robustness of logistic regression makes this problem considerably less likely.

Continuous data frequently violates the assumption of normality, with cost and length of stay data typically being positively skewed. However, our analysis used the small subset of the population experiencing a relatively rare event as well as truncating the higher outlying values. As such, the underlying distribution of the data in these subpopulations was more normally distributed. We chose to truncate our data rather than Winsorize it, as we believed that the highest values in our population represented an event that was fundamentally different to the overall population experience. Our goal was to understand the implications of our results for the average participant, and inclusion of the outlying values may have impacted those findings.

Limitations. In the substance user versus non-substance user analysis, we cannot account for severity of diagnoses or past pregnancy outcomes. Some people in the non-substance using group may have an undiagnosed substance use disorder. In the Project Nurture analysis, we cannot be sure that the people in the likely Project Nurture group actually participated in Project Nurture or that the likely non-Project Nurture group did not participate. For those who may have participated in Project Nurture, we do not know the extent of their engagement with the program. For those in the comparison group, we do not know if they are receiving treatment. We do not know the pregnancy histories of the people in each group and cannot account for the impact of previous poor outcomes. We also do not know severity of their substance use diagnosis. While we adjusted for birth hospital, there may be policies and procedures that vary by hospital that we cannot account for in this analysis.

Program Data

Population. All Project Nurture participant who engaged with the program from 2016-2018 at each site. As of April 2018, 238 participants had their enrollment data entered and marked as complete across all three sites. For those who delivered, information was also collected on their infant. Additionally, Project Nurture sites collected visits data for 138 participants over the course of several months.

Collection Process. CORE developed an Excel-based data collection tool for each of the three Project Nurture sites to store program information on their clients. The tool divided participation in Project Nurture into three key areas; Enrollment, Delivery, Completion. This data was de-identified and sent to CORE quarterly through April 2018. Visit data was collected on paper logs and sent to CORE.



Content. In the data collection tool, the 'enrollment' section gathered basic demographic and substance use history information. The 'delivery' section collected information on the delivery outcomes of both the mother and the infant, such as obstetric complications, abstinence during pregnancy, pain management during birth, gestational age, birth weight etc. The 'completion' section gathered information on the birth parent and infant status in the months following birth, such as contraception, substance use, infant care status, developmental screenings etc. Visit logs included tallies of visit types including: group sessions, substance use care, prenatal/postpartum care, peer recovery mentor/doula clinic visit, peer recovery mentor/doula offsite visit, case management, and phone/text hours.

Analysis. Program data was summarized and shared back with each of the Project Nurture sites to give an overview of their patient panel. Visit data was summarized as per member per month for each visits and for overall contacts.

Limitations. There is no comparison group for this data so we have no reference for these outcomes. Some of the data from participants at program completion may have been last know status before they were lost to follow-up. Also, we do not know the extent of engagement with the program and some participants joined the program after their delivery

Surveys

Population. We provided Project Nurture surveys to postpartum Project Nurture participants through group or other program touch points. We received a total of 43 surveys; CODA (n=7), Legacy (n=21), and Providence (n=15).

Collection Process. Project Nurture surveys were provided to Project Nurture staff. These staff handed out surveys to interested Project Nurture participants at program touch points, including group session. Staff collected completed surveys and mailed them to CORE. Participants were provided \$5 incentive for survey completion.



Content. The Project Nurture survey was developed, in part, from the LIFE survey (a recent study on life experiences and complex health performed by CORE on the Health Share of Oregon population). The LIFE survey used validated tools when possible and many additional question underwent cognitive testing with a sample of LIFE survey participants. The Project Nurture survey focused on childhood experiences, social support, partner abuse, stability, experiences with their children, and satisfaction with Project Nurture.

Analysis. The survey data was summarized, but not statistically analyzed due to the small sample size.

Limitations. This survey has a small total sample size and used a convenience sample that may not be representative of all participants in the Project Nurture program. Further, the CODA/OHSU site was particularly underrepresented. Some survey questions ask about experiences that occurred a long time ago and may be subject to recall bias. There also was no comparison group to use as a reference in our analysis; thus, all analyses are descriptive.

Qualitative Interviews

Population. Health Share of Oregon identified key staff and stakeholders for the qualitative interviews. Between October-November 2016, CORE interviewed 18 people: Project Nurture stakeholders, DHS partners, and staff members across all three Project Nurture sites for interviews. Project staff member roles included providers/midwives, doulas, peer recovery mentors, social workers, program leads, and others. Between September-November 2017, CORE interviewed 17 Project Nurture participants across the three Project Nurture sites: Legacy (n=7), OHSU/CODA (n=5), and Providence (n=5). The opportunity to participate in the interviews was offered by Project Nurture staff at group sessions and then participants had to opt-in to be recruited for the interviews. Almost all participants were postpartum.



Collection Process. The interview process was comparable for staff and participants, except Project Nurture participants who were interested in interviews signed a pre-consent form to share contact information with CORE prior to recruitment for the in-person interviews. All interviewees signed an informed consent prior to the interview. Interviews were recorded and transcribed by Type4Me. Participant interviewees were given \$35 for their time.

Content. Staff interviewees were asked questions about their organization and program implementation, the Project Nurture model of care, challenges and successes, and opportunities for program optimization. Project Nurture participant interviewees were asked questions about their experience with the Project Nurture program, challenges and successes, experiences outside of the program, and opportunities for program optimization.

Analysis. All transcripts were loaded into Atlas.ti for coding and qualitative analysis. We used a combination of a case study approach and framework analysis to identify key themes in the data. Quotes presented in this report were randomly assigned a staff or participant number separately in each quote section.

Limitations. The experiences and opinions expressed in the interviews may not reflect those of all staff/stakeholders or participants

Summary and Conclusion

Summary of Findings

Substance use in pregnancy. Existing evidence shows that substance use in pregnancy is on the rise. We found that people in the Health Share of Oregon population who used substances during their pregnancy had worse maternal and infant health outcomes, longer hospital stays, more additional care, and had higher costs of care than those who did not use substances during pregnancy.

The Project Nurture participants. Project Nurture participants come to Project Nurture from a variety of demographics, mental health diagnoses, and history of substance use. Many participants reported trauma in childhood, and 80% reported having a household member with substance use disorder while growing up. Many continue to report trauma in adulthood.

Project Nurture's impact clinical health outcomes. Those who were likely in Project Nurture showed significantly less preterm birth and C-sections, increased prevalence of 7 or more prenatal care visits, and a greater prevalence of medication assisted treatment (MAT) when compared to people who use substances but were likely *not* in the program. While we saw that costs remained stable for infant birth outcomes between the two groups (people with substance use disorder in Project Nurture and people with substance use disorder *not* in Project Nurture), more infants did not require additional high-needs care. Costs of care and length of stay remained stable between the two groups. Of note, in many cases our sample size was too small to draw clear conclusion; further study with a larger sample is warranted.

Project Nurture's impact on the health system. Before Project Nurture, the health care system was not well-equipped to care for people who were pregnant or parenting with a substance use disorder. We heard stories of traumatizing, fragmented care experiences that discouraged staff and broke the trust of patients. Interviewees said that Project Nurture is changing the way in which systems care for pregnant people with substance use disorder by providing integrated, non-judgmental care by an interdisciplinary team of providers and staff, some of whom have shared lived experience. This kind of care supports the development of a strong, supportive workforce, while also rebuilding trust and engagement of patients who have been historically hurt by the system.

Project Nurture's impact on participants. From interviews with Project Nurture participants, we found that Project Nurture impacts participants on three distinct levels in their lives: the community level, the family level, and the individual level.

Through prenatal and postpartum groups, Project Nurture helps participants build a community of peers that understands, supports, teaches, and learns from one another. This community reminds participants that others have been there, and in some cases, shows them examples of a positive path forward. On the family level, Project Nurture helps participants find stability by providing needed resources – like housing and transportation – and by providing support in navigation and advocacy with DHS/CPS, criminal justice, and other related systems. Many participants shared that Project Nurture was the reason why they were able to keep their family together, thus, breaking the cycle of foster care and addiction in their family. Project Nurture also fosters participants' individual self-determination by treating them as experts in their own lives and helping them to plan for the future. For those who expressed that recovery was one of their goals, Project Nurture also played a strong role in helping participants to stay clean.

Bottom Line

Project Nurture is changing the way the health and substance use treatment systems care for pregnant or parenting patients with substance use disorder. Through its unique, integrated, non-judgmental care approach, Project Nurture is likely impacting health outcomes and care utilization of its participants, as well as achieving positive outcomes on many levels of their lives.

Appendix

Exhibit S1

Survey Demographics	N=43
Race/Ethnicity	
White	62.8%
Non-White	20.9%
Multiple	9.3%
Education	
Less than high school	44.7%
High school diploma or GED	52.6%
Vocational training or 2-year degree	0.0%
A 4-year college degree or more	0.0%
Employment	
Yes, employed by someone else or self-employed	16.3%
Not currently employed	81.4%
Income	
\$1 to \$5000	40.0%
\$5,001 to \$10,000	16.7%
\$10,001 to \$15,000	10.0%
>\$15,001	16.7%
Marital Status	
Single, never married	62.8%
Married or domestic partnership	9.3%
Divorced/Separated/Widowed	11.6%
Other	11.6%
Project Nurture Clinic	
CODA	16.3%
Legacy	48.8%
Providence	34.9%
Length of time in Project Nurture	
Less than a month	2.3%
1 to 3 months	16.3%
4 to 6 months	27.9%
7-12 months	37.2%
More than a year	14.0%
Length of time since giving birth	
1 to 3 months	6.7%
4 to 6 months	70.0%
Less than a month	13.3%
More than 6 months	0.0%

Exhibit S2

Demographics for SUD vs Non-SUD population			
	Pregnant w/ SUD N=1,401	Pregnant without SUD N= 20,438	p-value
Age			<0.0001
Under 18	1.8%	3.6%	
19-30	59.9%	65.5%	
31-39	35.0%	27.7%	
40 and over	3.3%	3.2%	
Substance Use Diagnoses			
Alcohol	23.5%	0.0%	
Marijuana	17.6%	2.4%	
Hallucinogens	0.1%	0.0%	
Amphetamines	37.8%	0.0%	
Cocaine	3.3%	0.0%	
Opioids	48.1%	0.0%	
Other drugs	9.9%	0.0%	

Exhibit S3

	Project Nurture N=114	Non-Project Nurture N=507	p-value
Age group			0.6552
Under 18	1.6%	0.9%	
19-30	54.8%	57.9%	
31-39	40.8%	36.8%	
40 and over	2.8%	4.4%	
Drugs used (unadjusted)			
Alcohol	14.0%	24.3%	0.0136
Marijuana	20.2%	21.5%	0.7538
Hallucinogens	0.0%	0.2%	-
Amphetamines	34.2%	43.6%	0.0643
Cocaine	2.6%	4.3%	0.3781
Opioids	80.7%	42.8%	<0.0001
Other drugs	0.0%	9.1%	0.0136
Birth Hospital			<0.0001
OHSU	24%	9.5%	
Legacy Emanuel	34%	9.5%	
Providence	7%	9.5%	
Other (not attributed to above)	35%	72%	