Prenatal Substance Exposure and the Implications of Collaborative Plans of Safe Care

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Substance Use During Pregnancy in the U.S.

There was a 131% increase in women with opioid-related diagnosis documented at the time of child delivery from 2010-2017 in the United States. Self-reported data from 2019 showed that 7% of women reported using opioids in the form of prescription painkillers during pregnancy. Among these women, 1 in 5 reported the misuse of opioids, meaning they used them for a reason other than to relieve pain or obtained the opioids from someone other than a healthcare provider. More prevalent than the use of opioids during pregnancy is the consumption of alcohol during pregnancy. In 2022, CDC researchers found that 14% of pregnant women reported drinking at least one drink in the past 30 days. More concerning, 5% of women reported binge drinking in the past 30 days, characterized as consuming four or more drinks in one time period. The American Journal of Preventative Medicine found that the current use and binge drinking of alcohol among U.S. women aged 18-44 years increased from 2011-2018.

Neonatal Abstinence Syndrome (NAS) and Fetal Alcohol Spectrum Disorders (FASD)

Neonatal abstinence syndrome (NAS) is a withdrawal syndrome that results from exposure to substances, typically opioids, prior to birth. Signs of withdrawal typically appear within 72 hours following the infant's birth and can include symptoms such as tremors, sleep problems, seizures, poor feeding, vomiting, and irritability. Poor birth outcomes such as low birth weight, pre-term birth, and still birth are also associated with prenatal substance exposure. Long term development delays have also been associated with NAS such as increased likelihood of being evaluated for educational disabilities, diagnosed with a speech language impairment, and the need for receiving classroom support or speech therapy. NAS is diagnosed roughly every 25 minutes in the United States, with an incidence of 6.8 per 1,000 hospital births in .

Fetal alcohol spectrum disorders (FASD) are a group of conditions that result when an individual is prenatally exposed to alcohol. Depending on the severity of exposure, FASDs can manifest in physical symptoms, poor coordination, speech and language delays, intellectual disability, or behavioral problems. While estimating the full extent of FASDs in the U.S. has proven difficult, the CDC estimates a range of 0.2 to 1.5 infants per every 1,000 births having a FASD. In some communities, rates of fetal alcohol spectrum disorder (FAS), the most severe FASD, are estimated to range from 6-9 cases per every 1,000 children.

Plans of Safe Care (POSC)

As of 2016, the Child Abuse Prevention and Treatment Act (CAPTA) requires the development of a Plan of Safe Care (POSC) for infants born with or affected by substance abuse, withdrawal symptoms, or FASD. A POSC ideally incorporates a variety of services to meet the diverse needs of the affected infant and their caregivers. These plans can include a range of services such as substance use assessments, mental health services, assistance obtaining safe housing, vocational training, and medical services. CAPTA requirements specify that both the infant *and* their caregivers receive the supports they need based upon their situation. The rational is that for infants with prenatal substance exposure to have improved health outcomes from infancy through childhood, their family system must also have it's needs met. Improved health of the family directly impacts the improved health of the infant and helps to mitigate the risk of negative consequences associated with substance use, such as child removal from the home due to parental substance abuse or household unemployment.

Key Findings from Literature

Through research of literature relating to prenatal substance use, the findings were at followings:

- The prevalence of opioid use during pregnancy has risen drastically since 1999, with a 333% increase over the 15-year period of 1999-2014.
- Between 2010 and 2017, the rate of NAS increased from 4 cases to 7.3 cases per 1,000 hospital births. This is an increase of 82%.
- A 2002 study on the lifetime cost of one individual with FAS estimated costs to be $2 million due to direct costs of medical care, education, and criminal justice as well as indirect costs of lost work productivity.
- The range of health needs and risk levels among families requiring POSC make multi-agency collaboration the most efficient way to deliver quality services.
- Strategies for POSC implementation are not specifically outlined under CAPTA, therefore state jurisdictions have the discretion to develop their own community pathways and protocols for POSC delivery.
- State and local teams should prioritize integrating a variety of agencies and partners in POSC delivery so that each group can provide guidance in their area of expertise.
- Collection and submission of data under CAPTA creates challenges in cross-system collaboration, with agencies aiming to maintain individual agency privacy and follow data sharing standards. For this reason, few states have been successful in consistently gathering or sharing data related to infants born with substance use symptoms and the implementation of POSC.

The following findings are based upon literature detailing the success of *the Children and Recovering Mother*s (CHARM) collaborative located in Burlington, Vermont and a 2012 study conducted by the Journal of Addiction Medicine:

- As of 2016, CHARM included 10 organizations offering specialties such as prenatal care, MAT assessment, buprenorphine treatment, parent education on NAS, individual and group substance abuse treatment, and residential treatment for infant and mother.
- Members of the collaborative meet once a month for two hours to discuss client needs, with each meeting discussing roughly 40 families to coordinate care. These meetings have been found to promote efficiency and better quality of care.
- From 2003 to 2006, 86% of CHARM infants were able to be discharged from the hospital in the custody of their mother.
- Following the implementation of POSC at CHARM, 94% infants who underwent developmental screening at 8 months of age were within normal developmental parameters.
- Families working with CHARM were found to have healthier pregnancies, increased likelihoods of families remaining together or being reunified, increased MAT access to pregnant women, and decreased need of pharmacological treatment for affected infants.
- CHARM has served as a model for similar cross-system, collaborative program throughout the United States aiming to improve the health of mothers and infants exposed to substances..

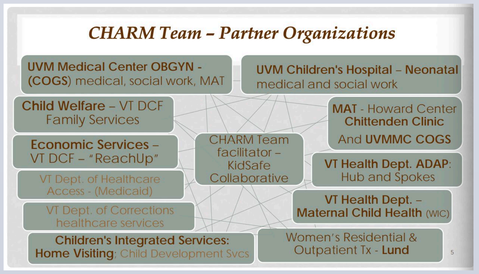

Figure 1: Depicts the numerous partner organizations involved in CHARM. Retrieved from a PowerPoint on the Rhode Island Care Transformation Collaborative website.

Conceptual Framework

The Five Point Intervention Framework, also referred to as the Substance Exposed Infant Framework, conceptualizes the ability to prevent or reduce negative health outcomes at multiple points in time. The framework was developed by the NCSACW and funded by SAMHSA to create a model for the multiple time frames in the life course when intervention could reduce potential harms of prenatal substance exposure. The framework aims to illustrate two key issues; birth is only one of multiple opportunities to impact the health outcomes of the substance exposed infant and regardless the point in time that interventions are established, cross-system linkages are crucial in ensuring interventions are effective.

The five possible times throughout the life course that could prevent potential harms of substance exposure are pre-pregnancy, prenatal, birth, neonatal/infancy/post-partum, and childhood and adolescence. Interventions in each of these time frames differ and can include promoting awareness, screening and making referrals to treatment, testing infants, conducting developmental assessments, and providing ongoing services to meet developmental needs or delays. The necessary services required in differing time frames of the substance exposed infant framework demonstrates that no single entity has all the necessary resources, information or influences to serve prenatally exposed infants and their families. Collaboration between entities is necessary to ensure policies are met, mandates are followed, and the likelihood of child well-being is increased.

Figure 2: Visual depiction of the Substance Exposed Infant Framework developed by NCSACW and SAMHSA. Based upon a NCSACW publication on the five points of family intervention

Significance to Public Health

Prenatal substance exposure is large concern in public health due to the short- and long-term health implications for affected infants as well as the increased cost and burden placed on society. The almost immediate symptoms experienced by exposed infants necessitate immediate health care attention but are compounded by potential services and needs later in life relating to developmental delays, consequences of poor decision making, and needs for additional aid in areas such as education. The capacity of POSC to improve immediate health outcomes of patients as well as prepare families to create a stable, supportive, and safe environment for their children with NAS or FASD can have significant implications on individual, community, and nation level health and associated costs. Lastly, services provided to caregivers engaging in substance abuse could help decrease public health crises related to addiction and overdose.

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Figure 3: Logo of the Syracuse University Lerner Center

Internship Related Activities

The Lerner Center for Public Health Promotion, located in the Maxwell School at Syracuse University, produces health promotion programming focused on the social, spatial, and structural determinants of health and health disparities. The center aims to improve population and community health through conducting and coordinating health research, education, and advocacy. Some primary responsibilities as an intern included researching topics such as addiction and nutrition, writing literature reviews, developing issue briefs, and developing visual material. Specifically related to prenatal substance exposure and addiction, responsibilities involved:

- Researching recent data on prenatal substance exposure, associated impacts, and outcomes associated with POSC implementation.
- Compiling material into a literature review to inform Plan of Safe Care Workshops hosted by the Lerner Center and Crouse Health.
- Creating promotional flyers and educational infographics for the Plans of Safe Care Workshop attendees.

Recommendations

The cross-system collaborative approach is necessary for POSC to achieve the fullest possible impact, However, states must prioritize policy and guidelines relating POSC oversight and the organization of comprehensive data collection. Oversight models will ensure that POSC are being implemented and monitored to the degree required by CAPTA. The NSCACW recommends the establishment of oversight committees and a state leadership team as two ways of making the collaborative structure of POSC better organized and promoting modes of communication between agencies.

With the organizations involved in providing POSC differing from one state jurisdiction to another, proper educational initiatives for healthcare, child welfare, and other involved personnel are necessary. In doing so, a uniform understanding of processes of collaboration and implementation will be created across systems. This will improve efficiency of delivery as well as ensure each family is receiving the full extent of resources and services that they need.

Lastly, improved methods of data collection and reporting could be helpful in better monitoring national POSC implementation and serve a way to measure improved infant outcomes. The lack of comprehensive data systems monitoring POSC delivery create challenges gaging health outcomes and rates of implementation, and this makes it difficult to analyze costs and benefits. Increased data reporting requirements under CAPTA and improved state-level systems of collection could aid in improving service delivery and indicating specific models of delivery that lead to the most improved health outcomes.

References

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