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**Neonatal Abstinence Syndrome's Intersection with Foster Care: Exploring Challenges and
Improving Outcomes**

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Capstone submitted in partial fulfillment of the requirements
for the degree of
Bachelor of Social Work

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Abstract

Neonatal Abstinence Syndrome (NAS) diagnoses in the United States, especially in rural areas have skyrocketed in recent years in conjunction with the increase in opioid use disorders.

Neonates born with this condition possess a plethora of needs. The literature indicates the effects of NAS on substance-exposed infants are shown to have negative physical, cognitive, behavioral, and educational effects throughout the life course. Children with a NAS diagnosis are more likely to be involved in the foster care system due to stigma and legal implications facing the biological mothers of this population. The proposed intervention setting is AGAPE, which employs social workers who serve foster children in the urban and rural areas of middle Tennessee. Social Workers are called to serve the vulnerable and uphold the health and well-being of all youth. The literature demonstrates how NAS children need the services social work provides, current statistics demonstrate the negative effects this condition is having on children across the lifespan, as well as the barriers to care, including legislation, stigma, and gaps in care. Current evidence-based best practices and education are not being utilized to impact service delivery and elevate levels of care. The use of the proposed Educational Series at AGAPE works to address the current gap in services and ensure that staff and foster families working with this vulnerable population are better equipped to provide and elevate the care for these children. Long-term utilization of best-practice education and resources will help to elevate the level of care for children at AGAPE and the local foster care community.

Introduction

In the year 2017, seven out of every 1,000 newborn hospital stays were diagnosed with Neonatal Abstinence Syndrome, according to data collected by the Healthcare Cost and Utilization Project (HCUP) and published by the CDC. That is approximately one baby diagnosed with NAS every 19 minutes in the United States, or 80 newborns every day. The number of babies born with NAS increased by 82% nationwide from the year 2010 to 2017. (CDC, 2021).

Neonatal Abstinence Syndrome (NAS) is a group of conditions caused when a baby is exposed to drugs, most commonly opioids, during utero. Opioids are a class of drugs naturally found in the opium poppy plant; opioids work in the brain as pain relievers (March of Dimes, 2019). The data presented clearly communicates that the prevalence of NAS is becoming an increasingly large issue in our country. Drug use during pregnancy has negative effects on mother, baby, and the family unit. Due to current legislation, stigma, and other extenuating circumstances in a mother's life, a high number of children in our countries foster care system possess a NAS diagnosis. These children have unique needs and require higher levels of care throughout their life. Current gaps in services are preventing crucial education and services from being delivered to foster families and care givers of this vulnerable population.

This capstone research explores the impact of Neonatal Abstinence Syndrome (NAS) across the lifespan of substance-exposed infants at risk for out-of-home placements within the foster care system. Informed by the literature, this paper proposes the implementation of an educational curriculum for foster families to increase awareness, reduce placement disruptions, and promote attachment within the family system.

Practice Context: AGAPE Adoption and Foster Care Division

AGAPE is an organization that provides counseling, crisis support, adoption and foster care services, pregnancy and maternity care, emergency domestic violence relief, and court advocacy assistance. AGAPE is a Christian agency whose mission is “to strengthen children and families with the healing love of Christ through counseling and social services” (AGAPE, 2018). At AGAPE the primary concern is to embrace vulnerable people in need who have nowhere else to turn. The agency believes in showing the love of Christ to all through their faith-based services. The frontline staff embodies the belief that love works in the healing and lives of the people they serve. The organization is located in Nashville, Tennessee, and has met the needs of over 3,000 local children through its foster care and adoption services, since its founding in 1966. The agency’s adoption and foster care division specifically helps with providing crisis foster care services for children whose parents are facing issues such as homelessness, unemployment, drug addiction, mental health crisis, or incarceration. The agency strives to reunite children to their biological families whenever possible. Furthermore, their services extend to include, connecting newborn and older foster care children to forever families when reunification with the birth family is not a viable option. The agency works to recruit, train, and prepare Christian families to be equipped with the tools to be committed and supportive foster homes (AGAPE, 2018). One of the vulnerable groups of children AGAPE’s foster care and adoption division serves and fulfills its mission through, includes children who are affected by the substance misuse and substance use disorders. Children exposed to opioids prenatally and diagnosed with Neonatal Abstinence Syndrome (NAS) are frequently served by AGAPE and receive services of crisis foster care, facilitated reunification when possible, or facilitated connections to forever families. As such, children with the diagnosis of NAS are a vulnerable

and sizeable population currently being served at the agency. The NAS population is sizeable in Tennessee due to two factors, the rising incidence of Opioid misuse during pregnancy and the positive correlation between NAS diagnosis and foster care admission.

For example, the rate of children born with NAS increased in the year 2020, from 810 cases in 2019 to 824 cases in 2020. This data indicates that in Tennessee the rate of cases of NAS per 1,000 live births has increased from 10.0 in 2019 to 10.2 in 2020 (Tennessee Department of Health, 2020). In comparison, the national average for NAS was 7.3 cases per 1,000 live births (HCUP Fast Stats, 2020). Comparatively, Tennessee has a higher NAS and opioid use incidence than the national average.

A diagnosis of NAS is correlated with a higher rate of foster care admission. A study using data from 580 US counties in eight US states, (Tennessee is one of them) from the years of 2009 to 2017 found, one diagnosis of NOWS (Neonatal Opioid Withdrawal Syndrome) for every ten births was linked to a 41 percent higher incidence of foster care admittance. The study also found rural county residency was associated with a 19 percent higher rate of foster care infant admittance (Loch et al, 2021). According to the important data presented, foster care agencies in Tennessee, like AGAPE, have a higher instance of serving children with NAS diagnoses. AGAPE serves the middle Tennessee area, which includes several rural counties, such as Maury, Marshall, Bedford, etc. As such, rural counties pose an additional risk for foster care admittance. These alarming statistics effectively communicate the rising number of this susceptible population within the area, and the need for a proposed solution to meet the needs of both the population and those serving them.

Social Work and NAS in Foster Care

Promoting the health and wellbeing of children is an essential duty social work has been tasked with upholding. An identified grand challenge of social work is ensuring healthy development for all youth (Grand Challenges, 2022). The profession of social work's current goal is to reduce the incidence of behavioral health problems in adolescents through a variety of strategies intended to target preventative care for children (Grand Challenges, 2022). As a result of these methods, healthy development is hoped to be achieved for all youth. Children with a diagnosis of NAS are a part of "all youth" targeted in the Academy of Social Work and Social Welfare's initiative. These children are at risk developmentally due to the threats their condition poses to their physical, emotional, and behavioral health. Social workers must focus on preventive approaches for at-risk children that uphold the values of the profession and strengthen the family system. Early treatment of NAS during youth can potentially impact lifelong health outcomes for children and families.

Social workers serve individuals, families, and organizations impacted by substance misuse in a variety of practice settings. Infants impacted by drug misuse are a vulnerable population called to be served by the National Association of Social Workers. The NASW Code of Ethics specifically states the primary mission of the social work profession is to enhance human well-being of individuals and help meet the basic human needs of all people, with specific consideration to the needs and empowerment of populations who are vulnerable. (NASW, 2022). Children exposed to substance misuse are vulnerable due to their age, cognitive functioning, and physical health. They need the assistance and empowerment social work provides. The values of social work are service, social justice, dignity and worth of the person, importance of human relationships, integrity, and competence (NASW, 2022). These values encompass what social workers hope to embody. Children with NAS must be served, receive

justice, respected, and supported because social workers commit to aiding the vulnerable while upholding these values.

The NASW has specific standards of practice and guiding principles for Clients with Substance Use Disorders (SUD). In the NASW's guiding principles for SUD, the profession acknowledges clients with SUD are a part of a systems theory framework. Systems theory believes individuals' behavior is influenced by a variety of factors or systems. Every individual element in a person's life is a system i.e., job, family, friends, religion, economic class, health, etc., and all these smaller subsystems make up a larger system, the individual's life. A change in one system affects all other systems. Mothers struggling with SUD, systems are impacted by their addiction, including their family system. The guiding principles also assert that understanding how SUD impact parenting, the family system, and children is key to the field.

The NASW's third practice standard for clients with SUD asserts social workers must conduct ongoing assessments of SUD clients to ensure proper diagnoses and treatment plans are enacted. (NASW, 2012). Infants born dependent to opioids are clients of the social work profession and must be treated according to the NASW SUD practice standards. They are a sub-system of a SUD mothers' systems. SUD in the mother's system has affected countless systems in her baby's life, which must be addressed and treated. Social work holds the standard that these clients are entitled to proper medical diagnosis and treatment. Social workers possess the skills to identify these clients' needs, through data collection, standardized instruments and assessments, observations, surveys, interviews, and more. The accumulation of this data will inform workers' understanding of the issue and approach to treatment plan implementation.

The documents fifth standard asserts social workers must use data when informing their service delivery and evaluating their practice. Regular evaluation leads to the best standard of

care for clients (NASW, 2012). The needs of children with NAS need to be addressed thru social work services. Currently, there are gaps in the care and services for this population, and as social workers, we must use research to inform and expand our efforts. This population needs an extension of services within the foster care system. Social workers must increase awareness of NAS by informing and educating foster parents. The profession must also teach foster parents research-informed best practices, so that attachment may be facilitated, and placement disruptions be reduced. The implementation of better care for vulnerable substance abused infants will uphold the values and goals of social work and will serve to promote healthy development of all youth.

Review of the Literature

NAS Across the Lifespan

NAS is a condition that affects ten thousand infants annually (Maguire et al, 2016, p.278). Opioid use during pregnancy has risen with the increasing opioid epidemic beginning in the United States in the early 2000s. NAS refers to babies exposed to opioids either through illicit or medically supervised use in-utero, and upon birth begin to detox. The use of opioids during pregnancy, whether by exposure to illicit or prescribed opioids or by opioid-substitution treatment such as methadone or buprenorphine, results in NAS as a prevalent outcome at birth (McQueen & Murphy-Oikonen, 2016). NAS presents itself within 24 to 72 hours after birth, and withdrawing from the drugs typically consists of pharmacological and non-pharmacological treatments. Neonates are diagnosed with NAS after undergoing a scoring assessment to evaluate symptoms, typically the Finnegan Neonatal Abstinence Severity Score (Logan et al, 2013, p.3). The Finnegan assessment contains 31 items divided into 3 categories; Central nervous system, Metabolism, Vasomotor/Respiratory, and Gastrointestinal, and each item has a specific weight in

the cumulative score (Appendix A). The neonates are to be scored every 4 hours, and then every 2 hours if the scoring exceeds 8, indicating worsening status. Pharmacological treatments are administered when 2 subsequent scorings exceed 8. Once withdrawal symptoms recede medication can be weaned (Ciorniciuc, 2017) (Finnegan, 1975).

NAS has concrete and immediate short-term effects impacting the functioning and regulation of the central nervous, autonomic, and gastrointestinal systems of newborns. Neonates will exhibit dysregulation in the central nervous system, such as excessive high-pitched crying, poor quality of sleep and shortened length, tremors, and seizures (Logan et al, 2013). Autonomic symptoms include sweating, frequent yawning and sneezing, and increased respiration. Gastrointestinal symptoms present as excessive sucking, poor feeding, frequent vomiting, or diarrhea. Additionally, an immediate consequence of NAS is low birth weights, lengths, and head circumferences, an estimated 24 percent of methadone-maintained infants are born prematurely (Logan et al, 2013).

Research and literature evaluating the long-term effects of NAS have limitations. Evaluating the long-term effects is difficult because isolating the independent effects of opioids is challenging due to other environmental, medical, and social factors which may be present. In reviewing several studies evidence indicates negative long-term effects of NAS, however, further study and outside factors need to be considered. In the areas of cognition, behavior, and education, opioid-exposed infants have exhibited long-term negative effects. A study completed by Wilson et al (1979) studied children ages 3-6 exposed to heroin prenatally. Heroin-exposed children, compared to a non-exposed comparison group, performed more poorly in cognitive areas related to memory and general cognitive indexes on the McCarthy testing scales (Appendix

B). These same children were evaluated in a follow-up study, and 65 percent had repeated one or more grades or required special education services.

Another study analyzing Tennessee Medicaid data from 2008 and 2013, matched school children ages 3 to 8 with a history of NAS to children without a history of NAS. Children with NAS were significantly more likely to be referred for a disability evaluation (19.3 percent vs. 13.7 percent), meet the criteria for a disability (15.6 percent vs. 11.7 percent), and require classroom therapies or services (15.3 percent vs. 11.4 percent) (Fill et al, 2018).

In 2017 a study was completed evaluating the long-term outcomes of NAS based on test results collected from 2000 to 2006. Data was collected from the National Assessment Program all children in Australia take. The data was from the Literacy and Numeracy sections of the test, for grades 3 (ages 8-9), 5 (ages 10-11), and 7 (ages 12-13). South Wales, Australian children who had NAS were compared with similar children who did not possess the diagnosis. The results found that children with NAS were significantly lower academically in grade 3, and the deficit was progressive. NAS children in grade 7 scored lower than children in grade 5. This data indicates NAS correlates with deteriorating school performance (Oei et al, 2017). These studies demonstrate NAS affects long-term cognitive and behavioral outcomes resulting in learning difficulties and educational disabilities. Early interventions to treat this vulnerable population are crucial to minimizing significant long-term educational effects.

Barriers to NAS care

Since the rise in opioid use in the 1980's, policymakers have attempted to pass laws and policies which address the issue while promoting safety for mothers and babies. Nationally, legislators have primarily focused on passing laws that criminalize prenatal substance abuse.

This approach has been ineffective in reaching the desired goals. The primary federal legislation addressing child abuse and neglect is the Child Abuse Prevention and Treatment Act (CAPTA). Since 2010, this legislation has mandated healthcare providers to notify state child welfare agencies of newborns exposed to substances prenatally (Act, C.S., 2018). States have control of their interpretation and implementation of this provision; however, reporting can lay the foundation for a range of outcomes including the extreme, loss of parental rights (Terplan et al, 2015). Currently, 24 states and the District of Columbia consider substance abuse during pregnancy to be child abuse, 25 states and the District of Columbia require health care professionals to report suspected prenatal drug use, and 8 states require drug testing for suspected prenatal drug exposure (Guttmacher, 2022). These national policies focus on punishing pregnant women and may further contribute to aggravating the problem and ostracizing this population. National and statewide policies should instead advocate for medical, behavioral, financial, and social treatment for these women (Terplan et al, 2015). By supporting these women and enrolling them in early intervention treatment programs, we may increase the likelihood of improving the health of mothers and babies. Currently, 19 states have created or funded drug treatment programs targeting pregnant substance users (Guttmacher, 2022). This way of programming supports mothers and promotes their dignity and worth.

The Tennessee Department of Health became the first state in 2013 to require reporting of NAS for public health surveillance. Providers within the state have 30 days from the diagnosis to report (Tennessee Department of Health, 2020). Tennessee previously passed a law that defined substance abuse during pregnancy as assault; however, this law has not been in effect since 2014 (Burks et al, 2014). According to the Tennessee Department of Health's website, they are currently attempting to change the definition of NAS because the inconsistencies of the

definitions vary from state to state and diagnostic criteria. The new standardization is a positive move by the state to ensure more accurate screening for infants.

Stigma

Stigma by healthcare professionals and society serves as a barrier to mothers and babies receiving care. Numerous studies have shown that breastfeeding has a positive impact on NAS newborns (Holmes et al, 2017). Breastfeeding NAS infants has been found to reduce the length of hospital stays, decrease the chances of pharmacological treatment, and promote attachment. Additionally, breast milk is easier to digest, which may help with NAS infants who are having gastrointestinal issues (Holmes et al, 2017). The American Association of Pediatrics and Academy of Breastfeeding Medicine guidelines for breastfeeding infants with NAS recommend breastfeeding in most situations because of its positive association with less severe NAS that is less likely to use pharmacological treatment. Breastfeeding is discouraged if a mother is not engaged in a substance abuse treatment plan, has a positive toxicology screening, or relapses within 30 days postpartum. Although generally the positive effects are thought to outweigh the negative, there are risks to breastfeeding when mothers are actively using, including risks of increased sedation or seizures, HIV/AIDS, or sexually transmitted diseases being transferred to the newborn via breastmilk. Each case must be evaluated by the healthcare provider to ensure the practice is safe for the baby. (Holmes et al, 2017). Despite the positive clinical evidence and professional recommendations, many women are not encouraged but discouraged to breastfeed by their clinicians. Mothers often feel negative attitudes from healthcare providers which can lead to a decrease in breastfeeding and secure attachment (Maguire, 2014).

Social factors also cause mothers to feel unsupported, by society, friends, and family. The idea that substance misuse during pregnancy is an indicator of unfit motherhood has been

perpetuated (Terplan et al, 2015). Tennessee lawmaker Terri Weaver when advocating for a 2014 bill, was quoted saying, "These ladies are not those who would consider going to prenatal care...their only decision is how to get their next fix...These ladies are the worst of the worst." (Gonzalez & DuBois, 2014). Attitudes and statements of hate from public officials serve to further stigmatize mothers and drive them away from receiving crucial medical care. Uneducated comments made to the public by elected officials influence the public's perception and actions towards these mothers and work to further ostracize and discourage mothers from receiving treatment.

Gaps in Foster Care Education

Current foster care education is another barrier to NAS infants receiving optimal care. A 2018 study by Ramsey, conducted in Tennessee, evaluated the status of foster parent training and support relating to NAS and the relationship between foster parents' perceived abilities, with the likelihood of continuing fostering. Data from the study found that out of 164 participants, 75 of them had cared for an infant with NAS. The study found only 20 percent of participants who cared for infants with NAS were trained by the foster parent agency on best practices and techniques. 46 percent reported they were not trained in how to care for NAS infants. The data also indicated the education offered focused primarily on infant care with no long-term implications for care. However, despite the lack of training 93 percent of parents reported feeling confident meeting the needs of children placed in their homes. Currently, there is a gap in service delivery for foster parents caring for NAS-diagnosed children. Although training exists, they are not reaching the intended audience. Foster Parents believe they can care for NAS children despite being untrained, however, specialized training and information are needed because they can elevate the level of care.

According to the Tennessee Department of Children's Services guidelines for annual foster care parent training, each foster family must complete 15 hours of in-service training each year, while therapeutic foster parents must complete 24 hours annually. The required courses each year includes medication administration, CPR/FA, trauma-informed care, and specialty training for certain types of specialized care. The remaining hours can be obtained through electives offered. The department offers a course in NAS care, but it is an elective course and not required. It is a medical training listed as NAS or NAS/Safe Sleep (TNDCS, 2021). The curriculum provided offers definitions for NAS, symptoms and soothing techniques, transition to home care, safe sleep practices, and therapy for NAS (TNDCS, 2018). The education is not exhaustive but offers key information on best care practices for these children. This material is of great importance and use but is not being implemented and used in the capacities it should be. The implementation of this training as a requirement for all parents serving infants could help promote awareness, attachment, and care.

Best Practices

A multitude of research is available on best practices and models of care for infants with NAS. Treatment that is baby-centered, function-based, limits pharmacologic care and involves the birth mother is most effective in reducing the length of treatment and hospital stay (Whalen et al, 2019). Breastfeeding, rooming in care, and skin-to-skin contact is recognized as best care practices and promote attachment and healing. All NAS babies do not receive this level of care and may not have contact with their mothers due to various barriers. Foster parents may be unable to provide breastfeeding and rooming in care, but they can focus on skin-to-skin contact and forming an attachment with the babies by responding to their cries and needs. Long-term best practices of care for children with NAS vary depending on the child and their needs as they

age. The Tennessee Department of Children's Services (2018) suggests as children age, they may benefit from therapies that will meet their needs depending on the symptoms exhibited by the child. Therapists and physicians' recommendations include involving psychiatrists, and physical, occupational, and speech therapists. The combination of the treatment from professionals and the continuing therapeutic techniques practiced at home promotes the well-being of the child. The TDCS training is a helpful resource and model which needs wider use, in contingency with other available resources, to elevate levels of care. The Parent Educator program (2017) helps provide specialized education for parents at their specific hospital about their baby's care. Nurses for Newborns (2016) provides personalized medical treatment and advice from a nurse specializing in NAS from Tennessee. Increased awareness and education on the resources and practices available for foster care agencies and foster care parents will help address the current service delivery gap and promote the health of this population.

Proposal: NAS Educational Series to Improve Service Delivery

Based on the information collected through the literature review and personal field practicum experience, there is an established need to implement an Educational Series that focuses on an overview of NAS, the long-term implications across the lifespan, and the services and resources available, for staff at AGAPE's foster care and adoption division. The educational sessions will be led by Kennedy Bradshaw who has studied the topic and compiled the curriculum material. All staff will be invited to attend the educational series. The first goal of the curriculum will be to provide important information that will increase awareness of NAS for all agency personal. Secondly, it will serve to elevate the level of care for clients served by the agency who are impacted by NAS by equipping staff with the tools to connect and allocate suitable resources to clients. The intervention will increase staff's knowledge on NAS and

increase participants perceived levels of confidence and competence in serving our NAS foster families. Lastly, collected data will inform advocacy efforts for the implementation of NAS curriculum as required training for foster parents and agency staff at AGAPE.

The Educational Series will be divided into 3 individual hour-long sessions and will take place on the first Tuesday of the month, concluding after the weekly staff meeting. The topics covered will be, NAS Overview, NAS Across the Lifespan, and Services/Resources for NAS, in sequential order. Figure 1 details the curriculum table of curated topics and subtopics that will be covered in each respective session. The course curriculum will be compiled using a combination of available evidence-based resources, peer-reviewed studies, and information that is compiled in this literature review. Starting with an overview of NAS, staff will be able to build a foundation of knowledge on the causes, prevalence, symptoms, and factors associated with NAS affecting babies and caregivers. The material in this unit will highlight several medical definitions as well as the antecedents and statistics on prevalence of the condition in relation to nationwide, statewide, and within the foster care system. This session will also include the impact of past and current legislation, the stigma associated with birth mothers and babies affected by NAS, and how to recognize signs and symptoms of NAS.

Building on the foundational knowledge from session one, the second session will focus on specific impacts of NAS across the lifespan and implications for individual health and well-being. Studies with data from children from early childhood to high school will be presented to demonstrate the long term negative cognitive, educational, and behavioral effects the condition perpetuates. Finally, the series will conclude with services and resources that may be utilized to minimize negative effects to the child and support caregivers in administering care. This will include best practices such as keeping mother and baby together post-delivery for rooming-in-

care and breastfeeding. Also, the use of skin-to-skin contact with babies and primary caregivers to facilitate secure attachment (Whalen et al, 2019). The Tennessee DCS presentation on NAS will be highlighted as well as other local resources. The most recent evidence supporting treatments for NAS and the role of caregivers will be included. The intervention suggested will help staff to be better equipped in their service delivery to clients and will help to bring awareness to a prevalent issue. Staff’s expansion of knowledge and resources on the condition will be passed along to foster parents. Foster parents will be able to take the crucial information and resources to implement best care practices for the children they serve. This in turn will promote a greater awareness and understanding of the needs of this population and equip foster families with the knowledge and skills necessary for effective caregiving.

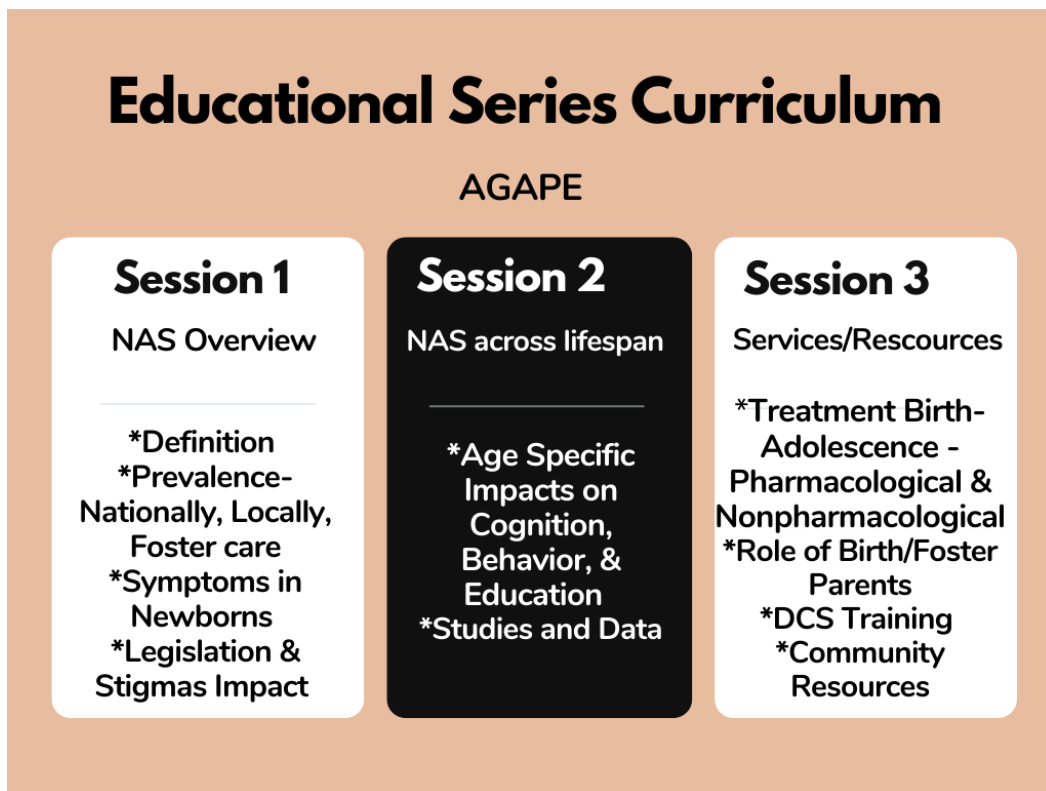


Figure 1

Educational Series Curriculum

To effectively carry out the proposed intervention a logic model has been utilized to conceptualize the necessary parts needed for the program. Figure 2 shows the necessary resources to achieve the desired outcomes for the project.

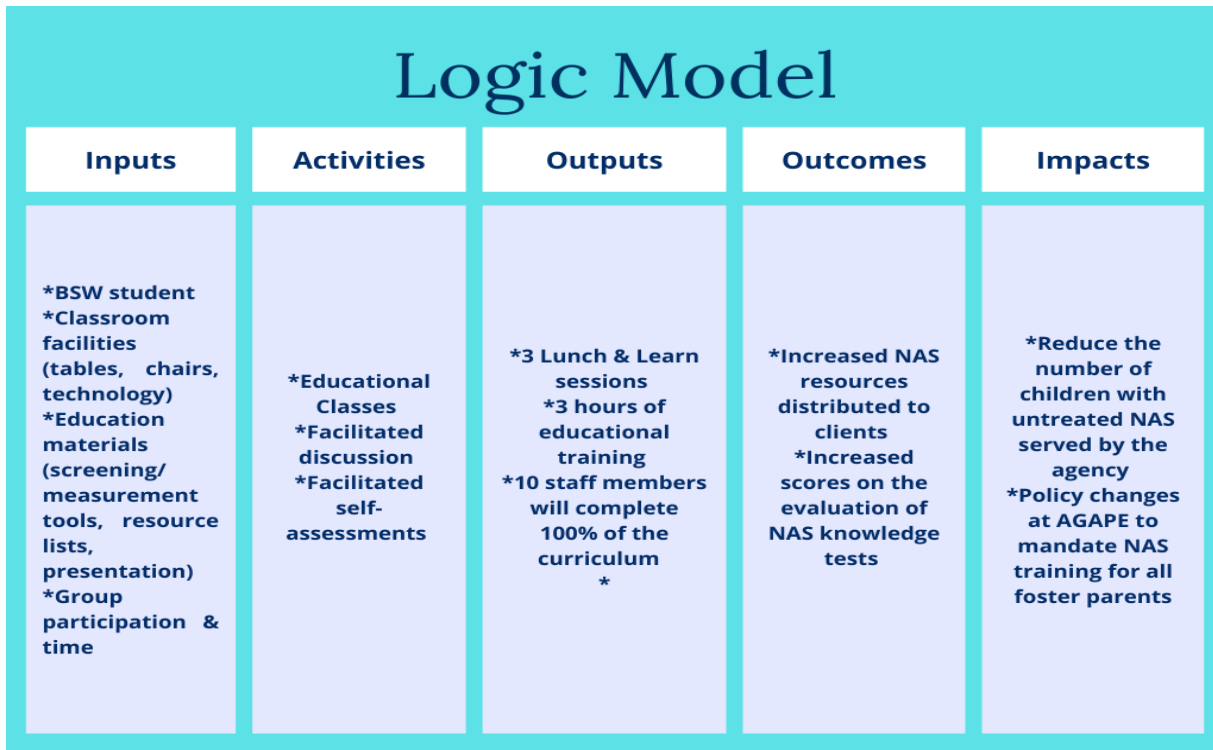


Figure 2 *Logic Model*

The interventions ultimate success depends on all factors outlined in the logic model. The allocation of physical resources and the delivery of the activities success leads to the tangible results which influence short term and long-term effects. In time hopefully long-term impacts can be made in agency policy and children affected by NAS will receive resources and treatment earlier and continuously to elevate levels of care.

Evaluation of Outcomes

The success of the intervention will be measured utilizing a one-group pretest/posttest design, with a satisfaction survey in conjunction with the posttest. The sample size for the

evaluation is the 10 staff at AGAPE who have participated in the intervention. The independent variable in the evaluation will be the intervention of an educational curriculum on NAS, and the dependent variable will be the employees' levels of knowledge on the subject. The chosen evaluation method is an example of a summative or outcome evaluation and is concerned with measuring if knowledge retention increased on NAS. As well as if participants reported an increase in perceived confidence and competence for treating NAS families. Internal validity is present in this evaluation because of the established time between a before and after test concerning the intervention. This allows measurement for increases or decreases in foundational knowledge and confidence.

The pretest will be administered at the beginning of the training and the posttest will be administered at the conclusion. The pretest will consist of a set of nominal multiple-choice questions to gauge the participant's foundational knowledge of NAS. To ensure the most accurate data, participants will be discouraged from randomly guessing, and instead selecting the answer choice labeled "I do not know". After the set of questions evaluating baseline knowledge, data will be collected using interval questions, including "How many times have you had clients with a NAS diagnosis?" which will be accompanied by a ranked and ordered number scale. Then questions using an ordinal level will be asked to evaluate the perceived confidence and competence level in working with and providing resources for clients with NAS. The purpose of these questions will be to gather data related to how many clients present with this issue, and to evaluate if staff's confidence and competence is affected by the intervention.

After the intervention has concluded, the post-test will be distributed. The post-test will contain the same questions as the pretest with the addition of a satisfaction survey to assess increases in knowledge. The satisfaction survey will measure how helpful and applicable the

curriculum was with an ordinal scale, and how likely participants are to refer the training to foster parents or use the resources provided. Open-ended questions will be included to gather qualitative data related to participants' experiences with the curriculum. This will enable future trainings to be improved upon and assess the subjective impact of the educational series. These questions will ask what the positives surrounding the training were and what could be improved upon (Appendix C).

The evaluation of a pretest/posttest assessment was utilized because of the validity it provided, and because it can help determine how much was learned during the intervention. The baseline data can be analyzed in conjunction with the post-evaluation data to determine how effective the curriculum was at increasing knowledge of NAS, which was the first intervention goal. Secondly, the use of nominal multiple-choice questions with the inclusion of the "I don't know" choice used to assess foundational knowledge helps to eliminate guessing and collection of more accurate data. A variety of levels of measurement were chosen to get a more accurate and diverse data pool. The use of ordinal scales was also a way to evaluate satisfaction and individuals' personal perceived growth from the training as well as the likelihood to use the information. This data collection helps to evaluate the goal of increasing staff's confidence in the subject so staff may accomplish the goal of elevating services to clients. This will also help to assess how beneficial the staff found resources to be and assess their level of interest in mobilizing them to address the needs of clients.

The questions that assess qualitative data will help to inform on how the training can be improved or changed. This data will be important for improvement and the long-term goal of mobilizing this curriculum for all agency staff and foster parents. The data collected will inform how agency staff perceives the curriculum concerning its applicability, informativeness, and

necessity. The data from these assessments can help argue for the implementation of this training on a larger scale. Advocacy proposals need to be backed up with concrete data and evidence. If the data collected indicates there is an established need for wider use of this training as a resource to agency staff and foster parents, the data will communicate the need. The data will inform the outcome of this intervention, there is the possibility of continued use of this curriculum or for the curriculum to be used as a one-time project.

Strengths and Limitations

The strengths of this research and project proposal include its depth and its scope. The literature review was informed by various sources and current best practice data. Further, the studies included interdisciplinary research incorporating the perspectives of physicians, therapists, women's health care providers and pediatricians. The research included the perspectives of multiple individuals providing a multidisciplinary collection of information. The literature review also looked at data and studies on NAS from a national standpoint as well as specifically to Tennessee. The proposed intervention will fill a needed gap within programming at AGAPE with the goal of improving service delivery as well as long term retention of foster care placements. Moreover, it is feasible to implement within the context of practice as employees regularly participate in evidence-based training to build knowledge and skills to improve service delivery. The knowledge learned from the Educational Series is directly applicable to clients and families served by the agency.

In addition to several strengths of this project, the research presents some limitations. Limitations of the project include gaps in literature regarding long-term effects of NAS. This is because not many studies have had time to collect data long-term because NAS only in recent years has begun to be studied in infants. Also, it is hard to isolate the variable of NAS from other

environmental factors when collecting data. This may be minimized in future studies by more data being available in the future, and by accounting for the fact other environmental factors also influence data collection. Another limitation includes the small homogenous sample size limiting generalizability; however, this is not the goal of this project. This may impact data collection and does not account for much diversity. In future studies, this limitation can be minimized by having a larger and more diverse group of study participants. Additionally, other local agencies may already have pieces of training in place that educate on NAS or may not serve many clients with a NAS diagnosis. In future studies, this limitation may be limited by piloting the training in several agencies for a more diverse data pool. Additionally, implementing my intervention on a wider scale through out Davidson county or other surrounding areas may be difficult due to the high turnover rates within DCS and case management positions. The limitation could be minimized in the future if DCS staffing becomes more permanent or if DCS bylaws could be updated to include NAS trainings as a requirement. Lastly, there may be logistical barriers to implementation at a wider scale with families and caregivers.

Implications for Practice

The proposed project has the potential to create positive change at AGAPE, which will impact clients, employees, and the community. The education provided in the training curriculum will be used in direct practice and influence clients on a micro level. Clients possessing a NAS diagnosis can benefit from their foster parents and caseworkers having more training on their condition. This positively influences the child to have their needs met with best care practices and optimal support from family and staff. The training will be used on a mezzo level to influence foster families and staff. The training will increase the staff's knowledge base on a condition affecting clients and will elevate their confidence and competence levels in

serving this population. This training will affect the foster families by providing them with aid from agency staff and information on evidence based best practices and resources available. Also, staffs elevated confidence and competence in serving this population will allow foster parents to feel more supported by the agency. On a macro level, the curriculum can be implemented on a larger scale to impact the local adoption, foster care, and DCS community. Data collection at the end of the intervention process will help to evaluate the effectiveness and applicability of the training. This data will be used to advocate for policy change within TDCS. The long-term goal is to have a policy that institutes mandatory NAS training for those who work within the foster care system and have foster care placements in their home of drug-exposed children. Staff at AGAPE, DCS, foster parents and other local foster care agencies would benefit from training on NAS. Large-scale policy implementation within DCS bylaws would allow for a larger number of the NAS population to receive vital and appropriate care. The collected data in the literature review communicates how large of an issue opioid use during pregnancy and NAS is in the state of Tennessee. Policy changes that promote preventive and best-practice care are steps in addressing this problem by helping to meet the needs of those affected through education.

The stated proposal advances and upholds the causes of social work by engaging in practice-informed research, research-informed practice, and policy practice to address gaps in services and improve service delivery for clients. It assesses, intervenes, and evaluates the practice with individuals within a vulnerable population served by the agency. It upholds the dignity and worth of vulnerable populations and provides them with the resources and services they need. The proposal educates staff and increases their service and competence in practice

with clients. This proposal has the opportunity to advance the cause of social work within AGAPE and in time the surrounding area by enhancing the well-being of NAS children.

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Appendix A

Finnegan Neonatal Abstinence Severity Score

System	Signs and Symptoms	Score	AM				PM				Comments
Central Nervous System Disturbances	Excessive high-pitched (or other) cry < 5 mins	2									
	Continuous high-pitched (or other) cry > 5 mins	3									
	Sleeps < 1 hour after feeding	3									
	Sleeps < 2 hours after feeding	2									
	Sleeps < 3 hours after feeding	1									
	Hyperactive Moro reflex	2									
	Markedly hyperactive Moro reflex	3									
	Mild tremors when disturbed	1									
	Moderate-severe tremors when disturbed	2									
	Mild tremors when undisturbed	3									
	Moderate-severe tremors when undisturbed	4									
	Increased muscle tone	1									
	Excoriation (chin, knees, elbow, toes, nose)	1									
	Myoclonic jerks (twitching/jerking of limbs)	3									
Generalized convulsions	5										
Metabolic/Vasomotor/ Respiratory Disturbances	Sweating	1									
	Hyperthermia 37.2-38.3C	1									
	Hyperthermia > 38.4C	2									
	Frequent yawning (> 3-4 times / scoring interval)	1									
	Mottling	1									
	Nasal stuffiness	1									
	Sneezing (> 3-4 times / scoring interval)	1									
	Nasal flaring	2									
	Respiratory rate > 60/min	1									
	Respiratory rate > 60/min with retractions	2									
Gastrointestinal Disturbances	Excessive sucking	1									
	Poor feeding (infrequent/uncoordinated suck)	2									
	Regurgitation (> 2 times during/post feeding)	2									
	Projectile vomiting	3									
	Loose stools (curds/seedy appearance)	2									
	Watery stools (water ring on nappy around stool)	3									
	Total Score										
	Date/Time										
Initials of Scorer											

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Appendix B

McCarthy Testing Scales

Variable	Placebo (<i>n</i> = 396)	DHA (<i>n</i> = 401)	<i>P</i>
Raw McCarthy score			
Verbal	50.9 ± 11.5	50.6 ± 11.1	0.67
Perceptual-performance	46.7 ± 9.3	46.9 ± 9.3	0.73
Quantitative	20.1 ± 6.4	19.9 ± 6.3	0.60
Memory	25.3 ± 7.6	25.3 ± 7.6	0.98
Motor	37.8 ± 7.0	38.1 ± 6.8	0.53
General cognitive	117.9 ± 23.3	117.7 ± 22.0	0.94
Scale index McCarthy score			
Verbal	43.5 ± 8.7	43.3 ± 8.5	0.69
Perceptual-performance	48.7 ± 8.3	49.0 ± 8.3	0.60
Quantitative	45.3 ± 9.7	45.1 ± 9.6	0.70
Memory	42.1 ± 8.7	42.2 ± 9.0	0.92
Motor	47.9 ± 8.8	48.3 ± 8.9	0.54
General cognitive	92.9 ± 13.3	92.4 ± 13.4	0.64

Appendix C

Pre and Post Test Survey

Pretest and Posttest Questions

1. What does NAS stand for? (Medical diagnosis)

- Nasal Airway Suture
- Neonatal Abstinence Syndrome
- Nerve Attacking Syndrome
- Narrow Area Storage
- I don't know

2. What are identifiable symptoms of NAS in newborns? Check all that apply.

- excessive high-pitched crying
- frequent yawning and sneezing
- tremors and seizures
- poor feeding
- frequent vomiting and diarrhea
- increased respiration
- poor quality and length of sleep
- I don't know

3. How might NAS affect a child educationally?

- They are more likely to be referred for a disability evaluation
- They are more likely to have an IQ above 100

- They are more likely to drop out
- I do not know

4. How many clients and families have you served where a NAS diagnosis was present?

- 1-5
- 5-10
- 10-15
- 15-20

5. What would you rate your current knowledge level on NAS?

- 1. Not very knowledgeable
- 2. Somewhat knowledgeable
- 3. Knowledgeable
- 4. Very Knowledgeable

6. What would you rate your current confidence level in serving families with NAS diagnoses?

- 1. Not confident
- 2. Somewhat confident
- 3. Confident
- 4. Very Confident

7. How would you rate the current resources for NAS?

- 1. Insufficient
- 2. Somewhat Sufficient
- 3. Sufficient
- 4. Very Sufficient

Post Test Only Questions

8. How applicable is this training for caseworkers and staff at AGAPE?

- 1. Not Applicable
- 2. Somewhat Applicable
- 3. Applicable
- 4. Very Applicable

9. How applicable is this training for foster parents?

- 1. Not Applicable
- 2. Somewhat Applicable
- 3. Applicable
- 4. Very Applicable

10. How likely are you to use the resources in the curriculum with foster families?

- 1. Not Likely
- 2. Somewhat Likely
- 3. Likely
- 4. Very Likely

11. After this training I feel more confident to recognize the signs of NAS

- 1. Strongly Agree
- 2. Agree
- 3. Neutral
- 4. Disagree
- 5. Strongly Disagree

12. After this training I feel better prepared to work with children impacted by NAS

- 1. Strongly Agree
- 2. Agree
- 3. Neutral
- 4. Disagree
- 5. Strongly Disagree

13. What did you like about this training/curriculum?

14. How would you improve this training/curriculum?