

Research and policy priorities for addressing prenatal exposure to opioids in Alaska

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ABSTRACT

The current opioid crisis in Alaska and the USA will negatively affect the health and wellbeing of future generations. The increasing number of infants born with neonatal opioid withdrawal syndrome (NOWS) has had a profound impact on families, health care providers and the child welfare system. This manuscript summarises the main themes of a Symposium held in Anchorage, Alaska with health care providers, researchers, elders and public health officials that focused on identifying emerging challenges, trends and potential solutions to address the increasing number of infants and children affected by maternal opioid use. Five areas of importance for research and policy development that would direct improvement in the care of infants with NOWS in Alaska are outlined with the goal of supporting a research agenda on opioid misuse and child health across the circumpolar north.

Abbreviations: NOWS - neonatal opioid withdrawal syndrome; NAS - neonatal abstinence syndrome; MAT - medication-assisted treatment; NICU - neonatal intensive care unit; OATs - opioid agonist treatments; OCS - office of children's services; ANTHC - Alaska Native Tribal Health Consortium; OUD - opioid use disorder; SBIRT - screening, brief intervention and referral to treatment; ISPCTN - IDeA States Pediatric Clinical Trials Network; NIH - National Institutes of Health; ANMC - Alaska Native Medical Center; DHSS - Department of Health and Social Services; AAPP - All Alaska Pediatric Partnership

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Introduction

Opioid and heroin dependence is a growing public health crisis in the USA (US) that has had a direct or indirect impact on everyone, including infants, children and women [1–5]. In Alaska, the incidence of neonatal opioid withdrawal syndrome (NOWS) among Medicaid-enrolled births increased 581% from 2.7 births per 1,000 in 2004 to 18.4 in 2015 [6]. Nationally, the number of NOWS cases increased 300% from 1999 to 2013 [6–9]. Pregnant women using opioids have a 55–94% chance of having a baby with NOWS [10]. Increased use of opioid agonists in medication-assisted treatment (MAT) for treatment of opioid-dependence disorder and avoidance of withdrawal during pregnancy has also contributed to the rise in NOWS cases [11–14].

Opioid misuse during pregnancy increases the probability of intrauterine death, preeclampsia and premature labour [5,15,16]. Newborns with NOWS may have effects on the metabolic and respiratory system (e.g. fever,

sweating, tachypnea, poor weight gain), gastrointestinal functioning (e.g. excessive vomiting, disorganised feeding and diarrhoea) and central nervous system (e.g. seizures; tremors and excessive crying) [5,10]. In addition to symptoms of opioid withdrawal, infants with NOWS are more likely to have a smaller head circumference; lower birth weight; poor vision and abnormal heart patterns [13,17–19]. Guidelines for NOWS treatment recommend supportive (non-pharmacologic) and pharmacologic therapies that aim to reduce the negative symptoms of NOWS on infant development, such as weight loss and poor sleep patterns, while increasing mother-baby bonding. Non-pharmacologic therapies include rooming in and breast feeding when medically appropriate [10,12,16,20,21], as well as caring for infants in dim, quiet rooms with limited handling to reduce stimulation [17,21]. Opioid agonist treatments (OATs) such as oral morphine and methadone or the partial agonist buprenorphine are required in up to 60–80% of infants with NOWS in order to control neuro-behavioral and physiologic symptoms [22]. The initial

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management of withdrawal symptoms requires inpatient care for a minimum of 4–5 days of observation and once pharmacologic therapy is initiated, the hospitalisation is prolonged (an average of 15–21 days), usually in a neonatal intensive care unit (NICU) [23,24]. In 2012, NOWS births were estimated to cost \$1.5 billion to the US health care system which was predominantly reimbursed through Medicaid [2,25]. Alaska Medicaid spent nearly \$4.4 million in 2016 to treat infant with neonatal abstinence syndrome (NAS) related to any maternal drug use, including a large proportion with NOWS from maternal opioid use [26,27].

The long-term development of infants with NOWS is highly influenced by their familial and social environment. Infants with NOWS are at greater risk of adverse childhood experiences due to unstable family structures that can contribute to parental use of illicit drugs, particularly if the mother does not continue treatment and enter recovery [28,29]. Under Alaska Statute, health care providers are required to report infants deemed to have been adversely affected by exposure to a controlled substance to child protection services through Alaska Office of Children's Services (OCS) [30]. The reauthorisation of the federal *Child Abuse Prevention and Treatment Act* (CAPTA) mandates states to have policies and procedures that address the needs of infants exposed to substances that negatively affect the health of infants (including opioids, alcohol and other substances). The increasing number of infants with NOWS has a direct impact on demand for child protection services [31,32]. From 2004 to 2015, 38.7% of Medicaid-enrolled infants with NOWS in Alaska were temporarily or permanently placed in protective custody by OCS within 28 days of birth [33]. In 2015–2016, among infants admitted into Alaska Regional Hospital's Neonatal Abstinence Evaluation Support Treatment (NEST) Unit: 50% were discharged into OCS custody; 24% had OCS review with a safety plan outlined before discharge to the parents; 20% had OCS notification without action and 6% had no OCS referral. Previous studies have found that infants with NOWS generally require additional services and supports, and they are typically engaged in the child welfare system more often and longer than infants without NOWS [34]. Long-term follow up of babies born to mothers with substance abuse issues is not available in Alaska and many other states, due to lack of a coordinated tracking/follow-up systems in the state.

The rising prevalence of NOWS has had a profound effect on Alaska NICUs, inpatient paediatric units, mother-baby units and child welfare services, who have had to respond to substantial increases in the number of infants exposed to opioids in-utero in recent years. Increasing demand for NICU beds to manage infants going through

withdrawal, as well as increasing referrals to OCS, have placed additional demand on existing services that are already at capacity. In this context, health care providers, public health leaders, researchers and Alaska Native elders from across Alaska met in March 2018 in a breakout session at the Opioid Epidemic Research Symposium hosted by the Alaska Native Tribal Health Consortium (ANTHC) to build capacity for future research on maternal health and neonatal exposure to opioids. This manuscript outlines the themes of this discussion, and the next steps for development of evidence-based practice, research and policies that support infants, children and families affected by opioid use in Alaska and inform work in other circumpolar regions.

Current trends and issues

The Symposium breakout session participants outlined key trends and challenges related to the opioid use crisis in Alaska. Participants identified rising rates of opioid misuse in pregnancy leading to an increased number of infants with NOWS in Alaska as the central issue. Participants also emphasised polysubstance abuse as a significant problem for children and families. In particular, concurrent abuse of methamphetamine and opioids by adults in their homes is a serious challenge for the long-term health and wellness of children.

Participants identified the complex geography and logistics of treating rural infants with NOWS and women with opioid use disorder (OUD) as an immediate challenge requiring attention. Many villages in Alaska are accessible only by air travel, which limits their access to preventative care both before and after a baby is born. In addition, women from rural areas typically must travel to Anchorage or other regional centres to deliver babies, which can complicate health care for the mother and foster care placements for the baby after delivery. Symposium participants described cases where infants were placed in foster care in Anchorage while parents returned to rural areas, with no timeline for visits or reunification. This imposed separation negatively affects neonatal development and parental bonding, as well as the parents' access to additional treatment and other services, and further decreases the likelihood of successful family reunification. One Alaska Native Elder participating in the symposium said: "we need help; we have lost two generations already to this problem."

Research and policy priorities

Symposium participants identified five main priorities for research and policy activities that would work to address existing challenges, and improve access to preventive and prenatal services, MAT, and addictions treatment.

Routine screening for maternal opioid use and early detection of NOWS

Participant suggestions

Participants prioritised the implementation of a standardised and evidence-based method for identifying women with OUD who are pregnant or likely to get pregnant. Hospitals and prenatal clinics in Alaska currently use different tools to detect opioid and other drug misuse during pregnancy, and within facilities, the use of tools varies among staff members. Routine standardised prenatal screening for maternal drug use and NOWS was as highlighted as an immediate priority for improvement.

Relevant literature

Routine prenatal screening for maternal drug use increases early identification of at-risk women, improves compliance with prenatal care and facilitates MAT and other substance use disorder treatment [35]. Prenatal care and substance use disorder treatment during pregnancy can reduce the severity of NOWS and improve infant health outcomes [16,35]. However, data from Alaska have shown that only 34.6% of pregnant women with OUD obtain adequate prenatal care [33].

Prior work: 4Ps Plus[©] is a standardised clinical screening tool developed to identify pregnant women at risk for misusing alcohol or other drugs. Prior to the Symposium, the State of Alaska Division of Behavioral Health, Section of Women's, Children's and Family Health collaborated with hospitals in four regions of Alaska (Anchorage, Mat-Su Valley, Fairbanks and Juneau) to administer the 4Ps Plus[©] screening at the time of delivery. While screening during prenatal care is ideal for optimal intervention, universally screening pregnant women for use of harmful substances at the birthing facility can reduce stigmatisation, and help health care providers identify babies who had prenatal exposure and whose mothers were not previously identified as using substances [26].

Next steps

The state has committed to maintain funding for and support expansion of the Alaska Prenatal Screening Program's (APSP's) 4Ps Plus[©] screening to include all delivering facilities, and expand to prenatal care visits. Some tribal health organisations are assessing their current prenatal care processes for best approaches of integrating the APSP's 4Ps Plus[©] screening, brief intervention and referral to care (SBIRT).

Health care provider training and awareness of NOWS

Participant suggestions

Participants in the Symposium breakout highlighted the need for increased awareness and education among health care providers who are likely to treat women with OUD, including health care providers in emergency, family medicine, paediatric, obstetric departments and practices.

Relevant literature

Research suggests that many pregnant women with OUD do not seek prenatal health care due to many barriers to care—including stigmatisation by health care providers, fear of prosecution, fear of state child welfare services and loss of custody and/or parental rights, negative health behaviours and poor access to financial resources and transportation [36–38]. Previous studies have found that health care provider cultural attitudes and beliefs influence their opinions of, as well as interactions and relationships with, patients with substance use disorders [16,36,39–41]. Feeling dismissed or judged by health care providers discourages women from seeking health care and social services. Symposium participants discussed that reducing stigma among health care providers towards pregnant women using opioids and other drugs is a critical step towards encouraging greater engagement and treatment adherence among women seeking help.

Prior work

In 2015, under the leadership of The Children's Hospital at Providence Alaska Medical Center, six Alaska hospitals participated in the Vermont Oxford Network (VON) National Collaborative on NAS, which includes NOWS. These six hospitals attended structured webinars that provided guidance on development of (1) a scoring system for NOWS with trainings to improve inter-rater scoring reliability, (2) management tools that promote evidence-based effective non-pharmacologic approach to babies with NOWS and (3) facility-based treatment guidelines that are evidence based and designed to minimise variations in practise among providers. The Alaska collaboration results were presented at the 2015 VON Annual Congress.

Next steps

Alaska facilities are continuing to evaluate evidence-based practise and refine their institutional OUD screening and NOWS management guidelines. Future research and programme evaluation of screening tools

are needed in order to understand the effects of these changes on identification of NOWs.

Treating the family

Participant suggestions

Participants identified family-based approaches that incorporate parents and other family members into the care of infants as essential to addressing systemic social factors that influence the health and wellbeing of children exposed to opioids.

Relevant literature

Studies and experience show that it is desirable to keep families together to promote strong family units that can support children with NOWS and reduce the inter-generational effects of addiction on children. Treating the family includes working with expectant women while pregnant to assist them with accessing effective addictions treatment and building the necessary social supports to enable infants to leave the hospital with their parents or extended family members [17,22,28]. Participants recognised that many hospital-based maternity units have operational constraints such as the design of NICUs, which limit family-based treatment and rooming-in.

Prior work

At Fairbanks Memorial Hospital, the NICU and inpatient paediatric staff have collaborated with MAT providers to provide paediatric consultations for pregnant women prior to delivery. Pregnant women in treatment programmes have an opportunity to meet with an inpatient NICU nurse to discuss the inpatient management of infants with NOWS. After delivery, the paediatric team maximises dyad care and rooming-in for mothers and babies with NOWS in both the NICU and inpatient paediatric unit. The Alaska Regional Hospital's NEST Unit was developed in 2014, and is designed to incorporate available evidence-based management programmes that emphasise optimal environmental design, non-pharmacologic therapy, family involvement, intense social work involvement and case management support to facilitate maternal referral to appropriate treatment programmes. Parents are encouraged to participate as part of the care team, and the hospital staff providing care receive focused training on the principles of care unique to the NEST Unit. The foundation of the NEST model is to maintain the mother-baby dyad to facilitate the parent bonding process.

Next steps

Other Alaska hospitals are incorporating the mother-baby dyad model of care as allowed by operational constraints. Future research is needed to evaluate the impact of family focused care on infant outcomes.

Evaluating new and existing approaches

Participant suggestions

Participants recommended a review of current practices in maternal screening, maternal MAT, and NOWS screening and management and ongoing research and quality improvement initiatives to institute best practices.

Relevant literature

Routine prenatal screening for opioid use increases the opportunity for behavioural interventions in combination with MAT, which can increase NOWS rates but ultimately improve other treatment outcomes [42]. For opioid-exposed newborns, physicians use scoring tools to quantify the severity of NOWS withdrawal syndrome and guide pharmacotherapy; however, the commonly used scoring Finnegan scoring tool has not undergone rigorous validation and there is significant inter-observer variation. A new NOWS scoring tool, Eating Sleeping Consoling (ESC) is a simplified scoring tool which focuses on clinically relevant symptoms and emphasises family engagement in care [43].

Prior work

As mentioned in priority 1, the Alaska 4Ps Plus[®] is established as the APSP with the goal of improving the quality of prenatal care by working towards universal screening in all birthing facilities and outpatient prenatal care clinics. On the paediatric side, the NEST Unit, ANTHC, and other Alaska hospitals are evaluating the use of the ESC scoring tool in their newborn nurseries. In 2016, ANTHC received NIH funding as a clinical site in the IDeA States Pediatric Clinical Trials Network (ISPCTN) which adopted NOWS as a priority issue. As part of this network, ANMC participated in the "ACT NOW Current Experience" study to evaluate the baseline characteristics and treatment of infants with NOWS during 7/2016–6/2017.

Next steps

Session participants agreed to collaborate on policy, clinical care and research activities to address increased demand for medical and social services by infants with NOWS and improve access to addictions treatment for women in Alaska. Participants recommended increasing the number of obstetrics providers who have a waiver

to provide outpatient MAT for pregnant women. ANMC hopes to participate in a network clinical trial to introduce ESC scoring tool. Participants agreed to a goal of all facilities in the state using the same Nows scoring tool to enhance consistent care delivery.

Building on existing networks and resources

Participant suggestions

Alaska facilities and agencies have developed support services and research activities to address increased demand for services by infants with Nows and improve access to addictions treatment for women in Alaska. Participants identified the need to build on these existing collaborations.

Relevant literature

Research and policy collaborations comprised of policy makers, researchers and health care providers have developed in Alaska around a range of health topics. These networks are critical to support evidence-based programmes [42,43].

Prior work

Heading the initiative to address the opioid crisis in Alaska, then Governor Bill Walker created the Alaska Opioid Policy Task Force, which was comprised of 20 volunteers representing diverse stakeholder groups from across the state. The Task Force met 11 times to hear presentations from field experts and to seek public comments. In January 2017, the task force drafted final recommendations, which support a public health approach to prevention and reduction of opioid use, misuse and abuse in Alaska [44]. The State approach drafted by the Task Force is comprehensive and encompasses harm reduction, treatment and prevention for all affected Alaskans. The document emphasised the importance of priority access to treatment for pregnant women, and a recommendation for prevention of adverse childhood experiences that increase risk for substance abuse in the future. A separate state-wide Perinatal Task Force also worked with the State of Alaska Department of Health and Social Services (DHSS) to publish a new pamphlet in November 2017, "Helping Babies with Neonatal Abstinence Syndrome" with education about Nows, a parent tool and list of available community resources [45]. In rural areas, community members have formed informal networks to take care of infants, women and families affected by opioid misuse. Many existing services, such as Alaska Regional's NEST Unit, have developed based on evidence-based programmes in the US and Canada [46–48].

Other Alaska resources for addressing maternal opioid use and Nows include:

- The All Alaska Pediatric Partnership (AAPP) has created Help Me Grow Alaska, a programme that will provide active case management to link families to needed services, including addiction services.
- Alaska DHSS, Office of Substance Misuse and Addiction Prevention, provides technical assistance to opioid response community coalitions across the state and is coordinating the opioid response across departments in state government.
- MAT by obstetrics providers, in addition to community methadone and buprenorphine programmes, expands the treatment options for mothers.
- Alaska DHSS, Infant Learning Program coordinates services for infants with disabilities.
- Alaska DHSS, Office of Children's Services (OCS) serves as Alaska's child welfare agency. OCS is the lead agency tasked with developing a system and policy to support the implementation of Plans of Safe Care as required under CAPTA. Plans of Safe Care encompass family support, interventions that build the capacity for communities to support substance-affected babies and their families, and includes comprehensive care for the baby, mother, family and community.
- Alaska DHSS Division of Behavioral Health funds APSP and SBIRT efforts.
- The Alaska Perinatal Quality Collaborative was launched in January 2019 to promote high quality maternal and newborn care across Alaska.
- Alaska DHSS Public Health Centers in 22 communities perform SBIRT on pregnant women.
- Alaska Regional Hospital 180 Program provides an Inpatient Behavioral Health Treatment Program for Substance Abuse with 1-year case management.
- Stone Soup Group provides support to families of children with disabilities.

Next steps

Historically, Alaska has lacked a systematic way to track babies with Nows after discharge from the hospital. In addition, there were few resources for ongoing support and facilitated entry of affected children into supportive developmental/learning programmes. ANMC and Providence Hospital recently developed paediatric developmental clinics at their facilities to provide developmental diagnostic and referral services. In addition, Alaska Neonatology Associates is embedding a long-term NICU follow-up programme at ANMC and in

a community-based NAS/NOWS Follow-Up Clinic focused on providing developmental follow up evaluation of babies with prenatal exposure to substances.

The participants recognise the need for programmes to address re-integration of these parents and families into society, especially in rural areas. This would involve ongoing case management to help navigate the complex, often fragmented health and social service systems in the outpatient setting, providing education and vocational training, parenting support, affordable childcare and programmes to assist in maintaining substance-free living. To accomplish this task, Alaska will need to coordinate services from many different entities, including tribal health organisations, local community services, programmes offered by the State of Alaska, and other state-wide programmes such as Help Me Grow and Stone Soup Group.

Research is needed to track the developmental trajectories of children with NOWs in the months and years following release from hospital from adolescence to adulthood. Efforts are underway to use linked administrative health data available through Medicaid and OCS to examine health care utilisation and foster care placements in the first 3 years of life for children with NOWs born in the State of Alaska from 2015 to 2017.

Conclusion

The Opioid Symposium breakout session was successful in bringing together health care providers from birthing hospitals around Alaska, including paediatricians, family medicine providers, obstetricians, state public health staff, epidemiologists and community representatives to explore strengths and challenges in addressing maternal opioid use and NOWS in Alaska which are applicable to other circumpolar regions. To date there has been limited research on prenatal opioid and other drug exposure in arctic areas of circumpolar countries; however, literature on programmes from Canada suggests prenatal opioid exposure is a challenge across the circumpolar north [49,50]. Workshop participants outlined priorities for next steps and have already made progress in increasing prenatal screening for opioid use, evaluation of NOWS scoring tools and making plans to meet with rural community representatives to address rural treatment options. The Alaska Opioid Policy Task Force's Final Recommendations serve as a guide to policymakers for addressing Alaska's opioid crisis and the Statewide Opioid Action Plan provides a template for comprehensive prevention and treatment of opioid abuse; however, implementation is challenging and will require inter-

facility collaboration to enhance networking and sharing of resources and minimise duplication of efforts [44,51].

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