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Social Ecological Examination of Factors That Influence the Treatment of Newborns With Neonatal Abstinence Syndrome

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ABSTRACT

Health care systems are challenged with issues of overdiagnosis and overtreatment. Neonatal abstinence syndrome (NAS) may be overdiagnosed with standardized assessment protocols and may be overtreated with current NICU-based models of care. Clinical approaches to caring for neonates with NAS and their families have not significantly changed for 40 years, and there is growing interest in revisiting long-standing routine practices. I used Bronfenbrenner's social ecological systems framework to organize an exploration of factors that contribute to overdiagnosis and overtreatment in the care of neonates with NAS.

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In the United States, newborns with neonatal abstinence syndrome (NAS) compose a rapidly growing population that requires care in NICUs. These neonates are reflective of the growing epidemic of prescription opioid overuse and a resurgence in heroin use among women during pregnancy (Alpert, Powell, & Pacula, 2017; Ko et al., 2016; Kolodny et al., 2015; Patrick, Schiff, & Committee on Substance Use and Prevention, 2016; Tolia et al., 2013). Up until the past 5 to 10 years, clinical approaches to care of neonates with NAS had not significantly changed in more than 40 years (Marcellus, Loutit, & Cross, 2015; McQueen & Murphy-Oikonen, 2016; Patrick, Schumacher, et al., 2016; Sarkar & Donn, 2006). Policy documents from the World Health Organization (2014) and the U.S. Substance Abuse and Mental Health Services Administration (2018) show that the evidence base for the care of neonates with NAS is still lacking, limited, insufficient, and of low quality.

There has been growing interest in revisiting long-standing routine care practices for neonates with NAS, such as admission to the NICU and separation of mother and newborn (Abrahams et al., 2010; Grossman, Osborn, & Berkwitt, 2017; Holmes et al., 2016; Patrick, Schumacher, et al., 2016). This interest aligns with the increasing attention focused on the concepts of overdiagnosis and overtreatment as collective challenges for health systems (Elshaug et al., 2017). Some practitioners and researchers claim that the current NICU-based model of care for neonates with NAS is not only linked to overtreatment but is also harmful to neonates and their families (Boyd, 2004; Nikoo et al., 2015). In this article, I used Bronfenbrenner's social ecological framework to organize multilevel exploration of factors that influence the treatment of neonates with NAS. The argument is made that NAS is overdiagnosed and overtreated. Recommendations are provided for practice and future research.

Increased opioid use among women during pregnancy and subsequent neonatal withdrawal have sparked re-examination of longstanding clinical practices for infants with neonatal abstinence syndrome.

Treatment Models for NAS

Historically, women have used opioids freely to relieve a wide range of ailments. In the United States, opioids were consumed in the 1800s as components of elixirs and medicines that were marketed to treat female problems (nervous disorders, painful menstruation, and childbirth; Boyd, 2004). Opium and cocaine were ingredients in infant medication syrups (also called preservatives or "quieteners") that were used to treat excessive crying, colic, and illness and to keep infants of working-class parents docile while their mothers went to work. Heroin use has been identified as a major global health and social problem since the post-World War II years (Kuehn, 2013). More recently, prescription opioid misuse has reached epidemic proportions across the United States, and the Centers for Disease Control and Prevention (2017) reported that sales of prescription opioids quadrupled between 1999 and 2015.

U.S. Model of Care for NAS

The current U.S. model of care for neonates with NAS emerged in the 1970s from the work of pioneer pediatrician and researcher Loretta Finnegan (Finnegan, Connaughton, Emich, & Wieland, 1972; Finnegan, Connaughton, Kron, & Emich, 1975). At that time, there was no model of medical diagnosis and no standard practices for neonates who experienced withdrawal from in utero exposure to opioids. Untreated withdrawal in neonates led to excessive fluid losses from vomiting and diarrhea, seizures, respiratory instability, and apnea. In their review of the historical origins of NAS, H. Jones and Fielder (2015) noted that NAS was frequently fatal to neonates because of lack of knowledge of the cause of these signs.

During the next 10 years, Finnegan and colleagues developed their program of research and approach to care of neonates with NAS. They constructed an assessment instrument, developed standardized clinical guidelines, and offered a comprehensive program of care for women who were pregnant and dependent on addictive drugs. Implementation of these innovative practices brought about significant improvements in neonatal outcomes, including less need for pharmacologic management, fewer days of treatment, and reduction in total length of hospital stay (Finnegan, 1982; Finnegan et al., 1975). Over time, these practices became well established for the acute care of neonates in NICUs across the United States and elsewhere. However, the development of comprehensive programs of support that incorporated health care, social services, substance use, and mental health services lagged. Since the 1980s, practices and treatments for the care of neonates with NAS have remained relatively unchanged despite rapidly shifting health care values and systems and sociocultural and political contexts. Recent quality improvement initiatives at the local, state, national, and international levels (such as the Vermont Oxford Network, an international quality improvement collaboration of NICU teams) have reinvigorated NICU teams to improve and innovate in the care of neonates with NAS (Patrick, Schumacher, et al., 2016).

European Model of Care for NAS

During the 1990s, a different paradigm of care for neonates with NAS emerged in Western Europe, particularly in the United Kingdom (Hepburn, 1993; Siney, 1999). Here, NAS care was influenced by several structurally and philosophically different approaches to health care and social services. Maternity care was provided primarily through a midwifery-led service model and was more women-centered, home and community based, and inclusive of addressing complex social issues. Those who provided addiction services offered abstinence-based treatment from a harm reduction perspective, and early publications about this approach to care emerged from programs offered in Liverpool, England (Siney, 1999) and Glasgow, Scotland (Hepburn, 1993). Key caregiving strategies in the UK models included keeping mother and infant together, encouraging breastfeeding, and connecting the mother–infant dyad as early as possible to community services (Hepburn, 1993; Siney, 1999). This approach is gradually being adopted by North American NICU teams as full-scale practice shifts or through integration of some elements with extant practices (Patrick, Schumacher, et al., 2016).

The Concepts of Overdiagnosis and Overtreatment in Health Care

The concepts of overdiagnosis and overtreatment are parts of the broader concept of overuse in the