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Harm Reduction in the Management of Neonatal Opioid Withdrawal (NOW)

Lily Martorell-Bendezu, MD and T. Allen Merritt, MD, MHA, FAAP

Opioid use during pregnancy results in unique medical issues and complex public health problems for the woman and her unborn infant. The fivefold increase (23) in antepartum maternal opioid use between 2000 and 2009 as well as the development of neonatal opiate withdrawal (NOW) in 55 to 94% of opiate-exposed infants (18) makes it a serious public health concern. Close interaction and collaboration among obstetrical, pediatric, neonatal, behavioral health providers and opioid treatment programs can have a positive effect on the outcome of both mother and infant. Health care professionals caring for opioid using pregnant mothers and their infants need to be aware of a variety of federal, state, and community programs and resources available to assist this population.

Our aim is to present harm reduction strategies for opioid using women and their infants, focusing on effective and compassionate interventions that supports mothers where they are, whether they chose to stop taking drugs or not. These strategies need to be provided along a continuum that starts prior to pregnancy, throughout drug exposed pregnancies, in the perinatal and postpartum period and following discharge. Although interventions along the continuum are all important and will be briefly touched on, we will focus on two specific strategies: 1) Rooming-in: mom-baby dyad staying together from birth until discharge decreases risk of developing NOW, decreases need for medications to treat NOW, improves breastfeeding rates and improves parental-infant bonding, all of which have been shown to have positive long-lasting effects on mom and baby; 2) community health workers who develop a trusting relationship with the pregnant woman and can assist them to attend their appointments and provide resources needed prenatally, during hospitalization and after discharge home.

Extent of the problem and cost

Opioid use is no longer limited to inner-city, low income populations but is present in any socioeconomic group (10, 18 in NEJM2016). Paralleling the opioid epidemic, there has been a rise in opioid prescription drugs among women of reproductive age (15-44 years) with 39.4% of Medicaid women and 27% of privately insured women being prescribed hydrocodone, codeine, or oxycodone annually (3). Women taking opioids start its use for various reasons. Some with chronic pain or certain medical conditions are prescribed opioids; others receive opioid agonists for their recovery from opioid addiction; others misuse or abuse medically prescribed medications; yet others actively use heroin. Whatever the reason may be for the opioid use in a pregnant woman, the growing fetus becomes exposed and is at risk of developing NOW or neonatal abstinence syndrome (NAS) as it is often referred to in the literature.

Infants with NAS can present with central nervous system irritability (tremors, increased muscle tone, high-pitched crying, difficulty sleeping or seizures), gastrointestinal dysfunction (feeding difficulties, emesis, diarrhea, poor weight gain) or temperature instability (18). In addition, infants who develop NAS

have statistically significant increased number of complications when compared to other hospital births: low birth weight (24.4% vs. 7.2%), transient tachypnea of the newborn (11.7% vs. 3.1%), meconium aspiration syndrome (2.8% vs. 0.4%), respiratory distress syndrome (4.5% vs. 2.0%), jaundice (32.8% vs. 19.1%), feeding difficulty (17.3% vs. 3%), seizures (1.4% vs. 0.1%) and possible sepsis (14.8% vs. 2.2%) (1). The development of complications and need for pharmacologic treatment in these infants, often requires prolonged hospitalizations. Between 2009-2012, the length of stay for uncomplicated term infants was 2.1 days, while the mean length of stay for NAS infants was 16 days and for those requiring pharmacologic treatment, 23 days (1).

NAS incidence has increased throughout the United States from 1.2 per 1,000 births in 2000, 5.8 per 1,000 birth in 2012 to 7.3 per 1,000 births in 2013 (1,?)//. Some geographic areas have been affected significantly more than others. In 2013, NAS incidence ranged from 0.7 per 1,000 births in Hawaii to 33.4 per 1000 births in West Virginia (24). One study showed an NAS incidence rate of 16.2 per 1,000 hospital births in 2012 in Kentucky, Tennessee, Mississippi and Alabama (1), yet another showed incidence rates >30 per 1,000 hospital births in Maine, Vermont and West Virginia during 2012-2013 (24). These rates are likely underestimates, since hospital administrative data usually identify fewer cases of NAS than does clinical reporting (25).

As NAS incidence rises, costs have increased resulting in substantial expenditures for NAS. During 2012, infants with NAS born in Tennessee accounted for 1.7% of live births, yet 13% of Medicaid expenses went to provide for their care (26). Inpatient data from January 2013 to March 2016 from 23 hospitals in the Pediatric Health Information system found that average costs per admission were 10-fold greater for neonates with NAS. Seventy percent of infants who developed symptoms of NAS required pharmacologic treatment resulting in more than doubling of their hospital stay and costs when compared to neonates with NAS not treated with medication (5).

Harm reduction strategies along a continuum and barriers

“Too often negative views of maternal opioid use deter pregnant women from accessing health and social services for fear of being judged, treated poorly, or suffering legal consequences.”

Health care providers often have limited opportunities in the life of a pregnant woman using opioids to reduce harm to herself and her infant. These opportunities to provide support and develop trusting relationships are counterbalanced by barriers that limit accessibility to healthcare. Some of these barriers include, social stigma, unsupportive, controlling or abusive partners, waiting lists for opioid treatment programs, fear of being judged or treated



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poorly, law enforcement intervention, child welfare involvement, and/or having a child removed from their care (7,8). Women who use opioids are too frequently blamed and held responsible by society for their circumstances, and therefore deemed undeserving of care (6).

Essential components of harm reduction that must be present throughout the life of a woman using opioids include:

1. Access to primary health care, prenatal care, testing for sexually transmitted infections, antiviral therapies, dental care, and social services evaluation with behavior health intervention as indicated.
2. Support for reduction or quitting of tobacco or cannabis smoking, including access to pharmacotherapy and cognitive behavior therapies.
3. Substance use counseling and treatment including withdrawal management using opioid agonist therapies.
4. Advocacy, and assistance with attendance to medical appointments (transportation and reminders).
5. Nutritional support through the Women and Infant's Care program including food vouchers, and recommendations regarding nutritional supplements or meal planning for herself and her infant.
6. Safe and stable housing.
7. Advocacy, legal and financial aid regarding child welfare and/or prior arrests.
8. Reduction in the morbidities often associated with substance use including testing of partners and education on safe sexual practices.

Harm reduction strategies prior to conception

It is imperative that a woman of childbearing age receive opioid prescriptions only when absolutely necessary and after being educated about the devastating effects that can develop after only 5 days of use. Alternative methods for pain control such as physical therapy, exercise, and relaxation techniques need to be explored with the women. Prescription drug monitoring programs have been helpful in various states.

Medical providers should discuss family planning with women who are using opioids and inquire about the idea of weaning opiates prior to becoming pregnant. Women who are taking opiates and desire to have children should be counseled on the risk of NOW to their newborn infant.

Harm reduction strategies during pregnancy

Harm reduction strategies endorsed by American College of Obstetricians and Gynecologists during pregnancy include (17):

1. Universal screening for opioid use to be completed during the first prenatal visit, starting with a validated verbal screening tools.
2. Immediate referral to opioid treatment program when use is identified

3. Increase engagement and retention in prenatal services and substance use treatment programs.
4. Evaluation and treatment of sexually transmitted infections to be completed not only in first trimester but in third trimester as well.
5. Ultrasounds in first trimester to assist with dates, in addition to routine mid-second trimester ultrasound. If concern for fetal growth, a third trimester ultrasound may be appropriate.
6. If no contraindications to breastfeeding (illicit drug use, HIV infection), women should be educated about the benefits of breastfeeding (improved bonding, improved immunity, decreased risk NAS, decreased need for medication if infant develops NAS and decrease length of hospitalization).
7. Assistance with reduction or abstinence of alcohol and other harmful substances during pregnancy.
8. Improve nutrition.
9. Improve health outcomes, including fewer preterm infants and infants born with low birth weight.

Other recommendations include:

1. Close communication between opioid treatment program and obstetric provider (11).
2. Depression screening since 30% of pregnant women who are in opioid treatment programs report severe depression (17)
3. Close follow up by community worker who can assist with appointments and develop rapport with mom leads to early identification of challenges, risk behaviors or relapse (10, 11)
4. Prenatal education provided about symptoms of NOW and expectations for hospitalization prior to and following delivery (10, 11, 14).

“The aim of harm reduction after delivery is to maintain maternal-infant bonding while providing the care they each need and ensuring adequate support as they transition home.”

Harm reduction post delivery

The aim of harm reduction after delivery is to maintain maternal-infant bonding while providing the care they each need and ensuring adequate support as they transition home. Rooming-in is now the standard for most mothers and their infants, but not so for opioid-exposed infants who are most at-risk for poor attachment and abandonment. “Separation of mother-infant dyads in the early postpartum period is detrimental to the development of mother-infant bonding and attachment. It is predictive of infant abandonment, abuse and neglect in non-addicted populations,

and is even more likely to be so for high-risk populations". (27,28). Below we share some of the evidence accumulated over the past decade that strongly supports rooming-in of infants being monitored for symptoms of NAS as well as those who are requiring pharmacologic treatment. It is important to note that most of these studies relied on community programs to help women transition from antepartum to postpartum to home (10,11,14).

Rooming-in is a harm reduction strategy for opioid-exposed infants and their mothers that was first studied by Abrahams and his team in British Columbia. They conducted a retrospective review of deliveries between 2003 and 2006, comparing those who delivered at BC women's Hospital (rooming-in group) with those born at one of the other 12 hospitals in BC (standard group admitted to specialized nurseries at birth). Rooming-in was associated with a significant decrease in admissions to NICU, shorter NICU stay, increased likelihood of breastfeeding during hospitalization and increased odds of baby being discharged home with mother (11). The success for those rooming-in was to a great extent due to the extensive prenatal and postnatal care and education received at Fir (Families in Recovery) Square, a specialized unit that provides care, detoxification and stabilization of pregnant and postpartum women with substance use problems. Mothers and their babies were cared for together following delivery at Fir Square and mothers received extensive education in the care of their babies and how to identify signs of withdrawal.

Newman and associates in Toronto, Canada used a community and hospital-based multidisciplinary team to support a rooming-in program for opioid dependent women with their newborns (10). This single center study compared outcomes of full term infants between an era of mandatory NICU admission at birth and a rooming-in program that admitted infants to NICU only if they developed severe symptoms of NOW requiring medications. They found significant reduction in the use of oral morphine therapy for neonates in the rooming-in cohort, from 83% to 14.3%, $p < 0.001$ and the average length of stay decreased from 25 days to 8 days, $p < 0.001$. Eighty-six percent in the rooming-in group were breastfeeding at 2.5 months and all reported a positive experience. Part of the success for this program was the community and hospital-based multidisciplinary team approach developed to support addicted mothers that started during pregnancy. These women were assessed prenatally to identify needs, risk factors and criteria for rooming-in. Pregnant mothers were educated about signs and management of NAS (nonpharmacologic and pharmacologic) by a nurse practitioner and goals for rooming in were discussed. In addition, they had access to a community-based worker who supported them at home, accompanied them to their clinic appointments and reinforced the rooming-in goals.

Two other studies in the UK (12) and Germany (13) showed similar results; rooming-in resulted in less infants with NAS requiring medications, shorter duration of therapy and lengths of hospital stay. In New Hampshire, Holmes and coworkers (14) went one step further and showed that infants requiring medications to control symptoms of NAS could remain with their mothers in an area outside the NICU and be treated safely. In this multidisciplinary quality improvement program, opioid-exposed infants and their mothers were cared for on the inpatient pediatric unit in a low-stimuli environment. A strong emphasis was placed on family involvement in symptom monitoring and nonpharmacologic treatment and showed decreased need for

pharmacologic treatment by 27%, decreased hospital length of stay by 4.6 days, reduced cost per treated infant by more than 50%. This positive result reflects multiple changes made over several years including standardizing scoring, the collaboration with opioid treatment units parentally and obstetricians to provide education material on NAS to expectant mothers, support from neonatology and a robust volunteer program.

In a recent systematic review and meta-analysis of rooming-in with outcomes for infants with Neonatal Abstinence Syndrome, MacMillan and coworkers focused on 6 trials of 549 infants. There was consistent evidence that rooming-in is preferable to the NICU environment for reducing the use of pharmacotherapy and length of stay, and in 3 studies inpatient costs were lower, breastfeeding rates higher, and there were higher rates of infants being discharged home in familial custody. Importantly, rooming-in was not associated with higher rates of readmission or in-hospital adverse events (16).

“Whether an opioid-exposed infant is being monitored for symptoms of NOW or is showing signs of withdrawal requiring pharmacologic treatment or has other medical complications requiring medical treatment in a NICU, the infant will benefit from staying with their mothers. ”

Infants with NAS are more likely to have difficulties that require NICU admission (1), yet interference with mother-infant bonding may result in infants experiencing more severe NAS and increased need for medications. Whether an opioid-exposed infant is being monitored for symptoms of NOW or is showing signs of withdrawal requiring pharmacologic treatment or has other medical complications requiring medical treatment in a NICU, the infant will benefit from staying with their mothers. A paradigm of harm reduction for pregnancies that are complicated by substance use by using a rooming-in model is a fundamental foundation for an effective public health strategies that shapes a health pregnancy, a healthy newborn, and a supportive for both women and their infants during the postpartum period.

Apart from rooming-in and community worker support, other harm-reduction strategies following delivery include:

1. Toxicology screening of urine and/or meconium performed when there are clinical indications or when practitioners are unable to obtain a history from the mother. When possible parental consent should be sought and the medical indications for testing should be clearly described in the infant's medical record.
2. Educate mother about signs and symptoms of NOW. They should be aware that even though most infants develop these signs within 4-5 days of birth, some develop them later.

Harm Reduction Strategies

<p>Must be present at all times for a woman using opioids</p> <ul style="list-style-type: none"> • Access to primary health care, prenatal care, STI testing, antiviral therapy, dental care • Social services evaluation with behavior health interventions as needed • Support abstinence or reduction of tobacco, alcohol or other harmful substances • Substance use counseling and treatment • Advocacy in understanding complex medical system and assistance with attendance to medical appointments (Community Worker Support) • Nutritional support • Safe and stable housing • Advocacy, legal and financial aid regarding child welfare and/or prior arrests • Testing of partners and education on safe sexual practices
<p>Prior to conception</p> <ul style="list-style-type: none"> • Prescribe opioids only when absolutely necessary • Explore alternative methods for pain control (NSAIDS, PT, exercise, relaxation techniques) • Educate women about current epidemic and devastating effects of opioid use • Support the use of prescription drug monitoring programs in your area • Discuss weaning opioids prior to conception and support family planning as needed • Counsel women using opioids who desire to become pregnant about the risk of NOW in their infant
<p>During pregnancy</p> <ul style="list-style-type: none"> • Universal screening for substance use during initial prenatal visit • Immediate referral to opioid treatment program when use is identified to ensure continued use through pregnancy • Improve retention in prenatal services and substance use treatment programs • May need additional ultrasounds during first trimester for dating and during third trimester if there is concern for growth • Support breastfeeding if no contraindications (illicit drug use, HIV). Educate expectant mothers about the multiple health benefits for herself and her child, including decreased likelihood of developing NOW • Reinforce importance of abstaining from or reducing use of tobacco, alcohol or other harmful substances which will have an impact on growing fetus • Close communication/interaction between OB provider and opioid treatment program • Depression screening (at high risk) • Close support by Community Worker (help with appointments, identify challenges) • Prenatal education about symptoms of NOW and expectations at time of delivery
<p>Post delivery</p> <ul style="list-style-type: none"> • Urine and/or meconium toxicology screening when clinical indications present • Close monitoring and management of NOW • Use of standardized NOW assessment tools • Set protocols for starting and weaning medications, including when adjuncts are started • Encourage and support breastfeeding if no contraindications • Adequate caloric support for optimal growth • Caring and nonjudgmental personnel trained to work with families struggling with addiction and recovery • Emphasis on nonpharmacologic care: swaddling, non-nutritive sucking, rooming-in, care in low-stimuli environment away from NICU, parents as caretakers providing skin-to-skin, breastfeeding, and giving feedback on infant responses, volunteer swaddlers when parents not present • Educate parents about routine infant care, safe sleep practices, avoidance of second-hand smoke exposure and car seat use. Encourage them to provide all cares while in hospital and provide encouragement as they become proficient. • Child protective services referral when indicated, parents involvement and support through process. • Referral to home based programs such as early intervention
<p>At home</p> <ul style="list-style-type: none"> • Support parent as caregiver considering various models: part-time, other family support, open adoption • Encourage substance use treatment program to detoxify or minimize use as they desire • Provide information about programs that support early identification of infants with developmental or learning disabilities, eg. Early start • Continued support by trusted Community Worker

3. Close monitoring and management of NOW by skilled practitioners from birth to hospital discharge. Monitoring may be performed in the hospital (including low acuity hospitals) or in an outpatient setting using clinical judgment but with the continuous availability of follow-up and partnering with the parents.
4. Although most infants with NOW can be managed in low acuity hospital settings, transfer to a higher level of care may be required for those infants requiring pharmacologic interventions, showing severe symptoms, and taking into consideration the comfort level of the caregivers. All facilities are encouraged to develop specific management protocols for the management of NOW.
5. Use of standardized NOW assessments (modified Finnegan scoring system or other). Neonatal caregivers should undergo training and demonstrate a high degree of inter-rater reliability in score reporting (28).
6. Protocols in place for starting and weaning of oral morphine, or methadone and for when adjuncts such as phenobarbital or clonidine are indicated (17).
7. Encourage and support breastfeeding if there are no contraindications. Monitor nutrition and weight gain closely. Increased caloric intake with breastmilk or formula fortification may be needed to provide adequate calories. (18)
8. Care provided in a supportive and nonjudgemental manner with personnel trained on how to best work and communicate with families struggling through addiction and recovery (14).
9. The goals of treatment should be primarily focused on non-pharmacologic care including swaddling, non-nutritive sucking, a low stimulation environment where there is decreased lighting and noise, frequent feedings, skin-to-skin.
10. As for all newborns, parents should be instructed in safe sleep practices, avoidance of second-hand smoke exposure, and infant safety practices including car seat usage. When possible, this education should be provided prior to delivery to allow for parents to absorb information.
11. Referral to home based programs including early intervention programs, infant mental health programs, or mother infant support programs enhances the likelihood of a successful transition. Some hospitals have community health workers who will be following infant in community, meet family and round with the team to assist with adjustment.
12. Depending on jurisdiction, an infant's positive toxicology screening may or may not require a mandatory report to Child Welfare Services or Child Protective Services in the state where the infant is born. If the pediatrician or other pediatric providers believes that a substantial risk to the infant is present in the presence of a positive toxicology report, then a child protective services.

Harm reduction after discharge to home

Using harm reduction strategies also applies to parents of these infants because those who use substances are often perceived to be at greater risk to their children. Many view alternative care (foster or kin care) as more ideal because parental substance use has been recognized as a risk factor for child welfare involvement (19). Recent population-based evidence suggests greater adverse outcomes throughout childhood including behavioral, vision, and poorer academic performance of infants exposed to opioids during pregnancy (20). In New South Wales, Australia, Oei and associates (21) studied 410 children diagnosed with NOW compared with 359 children without this diagnosis as a newborn and found lower test scores of academic performance in grades 5 and 7, and a 2.5 fold risk of not meeting educational standards in the group with a history of NOW. Enrolling infants and their families into state and community funded infant development programs, infant early intervention programs, including Early Head Start and preschools may afford an improved opportunity for school success and improved family functioning.

Efforts need to focus on harm reduction at every step to afford greater opportunities for success in our treatment of both mothers and infants exposed to opioids. At every point of contact with medical providers, opportunities should be sought to improve the mother's health and to encourage maternal infant attachment, reduce pharmacologic approaches when possible, and reduce hospital stay and cost. These efforts will ultimately make substantial progress in the achievement of better care and outcomes for in utero opioid exposed infants and their families.

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Rethinking the Impact of Maternal Opioid Drug Use during Pregnancy: A European Approach based on Inclusion and Compassionate Care

Thomas A. Clarke, MD, FRCPI, FRCPC, T. Allen Merritt, MD

Substance abuse has been a worldwide problem at all levels of society since ancient times, and "congenital morphinism" was described in 1873 (1). All psychoactive drugs including alcohol, tobacco, and some prescribed medications (such as opioids) have adverse effects on pregnancy, the unborn child and the newborn (2). Different drugs act differently on the mother and the fetus, and thereby affect the newborn in a variety of ways from being a teratogen to creating a drug dependency after birth. This may be the result of not only the specific form of the drug itself, but also the often poorer overall health and nutritional status of the drug-using expectant mother. The degree of impact of drug use during pregnancy largely depends on the duration, dose, and frequency of use during specific times of pregnancy, as well as, to unique pharmacologic attributes of each drug or their combinations.

Prevalence estimates for prenatal substance use vary widely and have been difficult to establish in many EU countries (3). These difficulties are likely attributable to such things as the use of different sampling methods, different drug-detection methods, and the rigor of screening for drug use throughout pregnancy. There also will be differences depending of whether the sample being investigated is a community sample, or a targeted sample such as women who are in drug treatment or are incarcerated. The use of specific drugs waxes and wanes over time nationwide as the "popularity" of certain drugs and other substances changes. Although the prevalence of neonatal abstinence syndrome (NAS) has remained stable between 1997 and 2011 in England and Australia (4) NAS has increased significantly in the United States over the past several years from 7 cases/1000 neonatal intensive care unit admissions in 2004 to 27 cases/1000 admissions for 2013 (5).

Data on the prevalence of opioid use among pregnant women is not available for most European Countries (3). In many countries programmes aimed at helping pregnant drug users may be unaware of the size of the target groups.

Pregnant women using opioids who aim to stabilize their lives face several challenges, including access to treatment, stabilization of their drug use, social reintegration and referral for health problems other than drug use. National reports indicate that legislation in Europe strives to keep families united rather than take away the children. No EU country reports that maternal drug use was a reason per se to remove a child from the parent. Legislation applying to pregnant drug users or to children before birth facilitates eligibility to treatment in many countries. In addition to legislation, a variety of interventions -many of them evidence based- have been developed in European countries to assist pregnant drug users and their children once born. For example, the majority of treatment interventions for pregnant women follow the evidence of providing substitution treatment to those dependent on opioids. Furthermore, to ensure that pregnant drug users receive proper and timely care, some countries organize outreach services and referral systems, and offer multidisciplinary comprehensive programmes during and after pregnancy, and therapeutic communities where recovering parents and their children can remain together. Interventions responding to the needs of drug-using parents and their children include measures enabling the children to stay with their biological families, family-based interventions, provision of or referral to care services, psychosocial support, em-

powerment and skills building.

These treatment services that exist may have several impediments that prevent them from increasing the scope of their coverage. For example, a potentially general issue relates to public funding: as drug treatment services are often dependent on funding from local or governmental authorities, budget cuts resulting from financial crisis may have negatively affected, among other things, the functioning of interventions and services targeting drug users with children. Diminished funding may have led to a loss of treatment centres, an insufficiency of medications, a decrease in the variety and diversity of services, and the eventual closure of such services. As recovering from drug use and problems related to it may be lifelong processes, securing long-term government or other funding is an essential attribute of preventive efforts.

Appropriate interventions that strengthen the resilience of children can also help prevent children of drug users from becoming drug users themselves. The variety and coverage of appropriate preventative interventions based on such approaches still have room for improvement, as has the evidence base for interventions for pregnant drug-users, drug-using parents and their children.

One of the strongest messages is the need for a coordinated services response in addressing parental substance misuse in a child protective context. There is some evidence that combining family-based interventions with drug treatment services has positive effects on children of substance users when it builds family routines and promotes strong bonds to non-drug-using family members. Other studies have found that re-abuse and re-entry to care for children are less likely the more time, assistance and supports that families received (6).

“ There is some evidence that combining family-based interventions with drug treatment services has positive effects on children of substance users when it builds family routines and promotes strong bonds to non-drug-using family members.”

Case Planning: Case management and family group conferencing are all strategies aimed at bringing services together with families to discuss decisions and strategies with the aim of working collaboratively to reduce risks to children. The development of a case plan that incorporates a safety plan is the first stage in any comprehensive intervention with substance-using pregnant women (7). Jones and Kaltenbach suggest that there are some key elements that need to be incorporated for the successful engagement with service interventions. These include: (i) women-led and owned care plans; (ii) priority given to addressing basic survival needs; (iii) involvement in decisions about any treatment interventions, such as opioid agonist medication or medication-assisted withdrawal (e.g. phenobarbitone or benzodiazepines); (iv) assessment of mood disorders after a period of stabilization of drug use; (v) monitoring of the case plan; and (vi) recognition of

the capacity of women to address goals and to break down goals into those that realistic and can be managed.

One study in Australia, found that early engagement of pregnant women in case planning could lead to the avoidance of a crisis response, coordinated planning before birth for the care of the infant, and timely referral and links to services (8). Canfield et al found that this early engagement was most predictive of reducing the number of women who eventually might lose care of their children (9)

Case Management: In the context of substance-using pregnant women case management has been described as a comprehensive, coordinated continuum of services to optimize recovery on the aspects of women's lives that have been affected by substance use. The literature supports case management as an integral part of a comprehensive treatment plan for substance use disorders in pregnant women (7). Case management is broad in concept and practice but specifically elements have been identified in the literature as key principles toward a "best-practice model of care" for pregnant women. These elements include (i) establishment of rapport at intake; (ii) reaching out the pregnant women to maintain engagement, including home visiting; (iii) undertaking an assessment of women's needs, which can also enhance the trust and relationship between service providers and client; (iv) linking women to appropriate services; and (v) advocacy on their behalf (7).

It should be noted that a recent study from the U.S. with a sample of 302 substance-dependent mothers recruited from welfare offices and their 888 children examined the impact of "intensive case management" on child protection system involvement. While the findings showed an initial reduction in child protection involvement, there were no clear benefits of intensive case management over usual care in the long term. In addition, a lower proportion of children were removed from participants in the intensive care management programme compared to usual care, but this effect decreased over time (10) It is unclear why programmes found to be effective in Europe and Australia have lesser effects when implemented in the U.S.

Family Group Conferencing (FGC): FGC is a family-led decision-making process that provides parents, extended family members, children/youth, child protection workers and service providers with an opportunity to come together to discuss and develop strategies that will protect the safety and well-being of children. Conferences are typically facilitated by a neutral third party, or facilitator, who ensures that all participants have an opportunity to speak, are listened to, and remain focused on the needs of their children. Research into the effectiveness of FGC have been generally positive and found that (i) the majority of families have been able to develop appropriate family plans that address the identified child welfare concerns and meets the requirements of the child protective agency; (ii) families are more likely to engage in services identified through conferences; (iii) children have increased contact with their extended family; and (iv) families report an improved working relationship with the child protective agency (11). The literature has noted tensions that emerge when two very different discourses attempt to integrate the "democratic" participatory discourse of FGC versus the legalistic, bureaucratized discourse of conventional children welfare practice (12).

Integrated Programs or programs that integrate onsite pregnancy, parenting or child related services with substance use treatment have been developed to address the barriers to accessing care, and the unique needs of pregnant women who misuse substances (13). Substance using women require integration of obstetric and specialist treatment services including education in caring for newborns, particularly those with neonatal abstinence syndrome

(7). Marsh and Smith found that when substance abuse and child welfare programmes were well integrated that women were more likely to reduce substance use and reunify with their children (14), and Huang and Ryan (15) reported that mothers who received residential treatment combined with other community-based transitional programmes, including outpatient, recovery homes, and methadone maintenance, were more likely to achieve reunification compared to mothers who received only inpatient residential treatment.

One of the earliest integrated programs was "Early Start" a program introduced in Northern California in the 1990s as an obstetric clinic-based perinatal substance abuse intervention program (16). This program provided pregnant women with screening and early identification of substance use problems, early intervention, counseling and case management by a clinical therapist with expertise in substance abuse. The programme's unique feature was that the Early Start specialist was co-located in the prenatal clinic as an integral part of the perinatal care process.

Milligan and colleagues (17) undertook a meta-analysis of studies evaluating the impact of integrated programs on birth outcomes. They found that compared to women with substance abuse not in treatment, women in integrated programmes had infants with significantly higher birth weights, larger head circumferences, fewer birth complications, fewer positive toxicology screens, and low birth weight classification.

In Dublin, a specialized Drug Liaison Midwife service was created among three maternity hospitals (18) that documented sociodemographic backgrounds, substance use, and medical histories of women in addition to maternal and neonatal outcomes. This programme has resulted in fewer infants experiencing symptoms of withdrawal, and united mothers and infants for ongoing care during the postpartum period. At two maternity hospitals in Dublin a total of 117 pregnant women on methadone maintenance were recruited between 2009 and 2010; of 114 liveborn infants 9.6% were born preterm, 42.9% were small-for gestational age, 49.1% had a NICU admission, and 25.4% were treated medically for symptoms of withdrawal using the Addiction Severity Index. Neonates exposed to methadone-only (mothers in a maintenance program) has shorter hospitalization (median 5 days) versus 6 days for those with methadone and concomitant drug exposure (benzodiazepine or cocaine) during pregnancy (19).

Three years ago, Dublin Lord Mayor Christy Burke, said Ireland's addiction problem is worse no than the heroin epidemic of the 1980s. "It was heroin in my day; today it's prescribed pills, cocaine, benzos, hash, Dalmane, Librium, valium: it's a whole cocktail. It's very hard to say "no" when you're vulnerable to addiction." In Ireland it was a city centre issue in the past but now it is countrywide. While pregnant drug users need "intensive medical and social supports", since the global recession began "addiction services have experienced significant cuts and this has undoubtedly impacted on services" (20).

Punitive measures miss the mark! Compassion and understanding are essential if we are to evolve as thriving humane and caring society. Have we as physician's gone far enough with compassion, understanding and integration of care to make changes in not only our attitudes but those of others about maternal drug use in pregnancy and how we can better the lives of their children?

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Two Approaches with a Common Goal: European and U.S. Approaches to Focus on Maternal Opioid Use During Pregnancy

Elba Simon-Fayard, MD

If someone were to say there was a way to prevent addiction and mental health disorders, some might say “not in our lifetime.” And, truth be told, it might just take a generation or two, but the possibility exists, and both the models used in Europe as discussed by Clarke and the Harm Reduction Strategy discussed in this issue by my colleagues offers encouragement.

There are two sayings that are prescient to the above concerns. The Gaelic phrase “it is not easy to straighten in the oak, the crook that grew in the sapling,” and Thoreau’s statement that “for every thousand beating at the leaves of evil, we have one striking at the root.”

While in some U.S. states the focus has been on criminalizing maternal drug use during pregnancy (including opioids), Europe has been more enlightened in focusing on prenatal and postnatal intensive focus on community efforts to reduce addiction, protect the newly born from potential harm, and supporting pregnant women and mothers in their healing from their addiction. Certainly, there are many good things that are happening in communities in Ireland and the U.S., charity and goodwill abound using evidence based approaches focused on long term support for these mother and have proven beneficial in Europe, Australia, and in some areas of the U.S. Many of the infants and children grow up to be hard-working, good kids with bright futures who give us hope. But, can these positive attributes offset the trends that cause us concern? Some studies have shown that maternal drug during pregnancy and parental drug use increase risk for child maltreatment significantly, continued community based services (including those provided through spiritual centers, clinics, and drug rehabilitation centers may have a long-term favorable effects in reducing potential harm to children.

It is known that chronic fear, anger and dysfunction in more and more mothers and their children will cause alterations in the chemical profile encoded in genes. Epigenetics plays a large role in the future of these mothers and their children and promoting a stable environment, promoting mental health services, and early interventions may prevent long-lasting ill effects. To continue to evolve, to grow and to thrive, we need to focus and educate on the “root” of our problems: dysfunction in our early beginnings and the impact of the environment on brain development in gestation, birth and infancy. We now know that 95 percent of the brain will develop in this period and that who we become will be determined by the relationship between the primary provider and the brain.

Much is now finally being said on the effect of adverse childhood events and the impact they have on our “sapling” years. The fact that there is a two- to fivefold increase in chronic disease states, a six- to 12-fold increase in mental illness and addiction disorders and a reported 32-fold increase in learning disabilities and behavioral disorders in adults who had dysfunction in their first three years, makes it imperative that we make this period our highest priority. It is a child’s right that each be given a good start. Anyone that is involved with raising and caring for a child needs to be aware of the relationship between a caring environment and the development of the brain.

Babies are a reflection of the world in which they develop. The brain organizes to reflect the environment. Almost every disorder and social problem that has been mentioned has its genesis in this critical period when the core of an individual’s ability to think, feel and relate to others is formed. If the child is raised in an environment of toxic stress or indifference, stress hormones will cause damage and pruning of the critical pathways for empathy and self-regulation. Bad habits form to calm the inner storms, school becomes a difficult, if not impossible, challenge and disregard for other’s feelings undermines human relationships. The children who break our hearts for their unfortunate beginnings will become marginalized teenagers and adults who stress our legal, social and health systems.

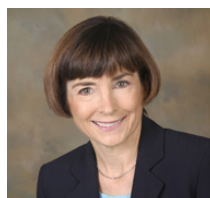
Nurturers of our children, be they parents, extended family, friends, clergy or paid caregivers, need the tools, skills, information and social valuing to adequately do their job. Perinatal and postnatal home visitation is a vital component. Educational opportunities in hospital maternity units, medical clinics, nurseries, community health departments and even in school curriculums are essential in the realm of prevention.

Punitive measures miss the mark! Compassion and understanding are necessary if we are to evolve as a thriving, humane society. Our focus needs to be on both harm reduction during pregnancy and the immediate neonatal period and intensive postpartum community involvement.

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Substance Use in Perinatal Women: A Systemic-Whole Person Approach

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Perinatal substance use is a worldwide epidemic. Globally, 10% of pregnant women engage in alcohol use and 2% engage in opioid use (Ordean, Graves, Chisamore, Greaves, & Dunlop, 2017). Nearly 15% of infants born in the U.S. have been exposed to alcohol and 5.9% have been exposed to illicit drugs during the gestational period (United States Department of Health and Human Services, 2012). Women with a lifelong drug abuse history have a 4.5 times greater incidence of mental illness than those who had never used drugs before (Helzer, Burnam, McEvoy, 1991). Among pregnant women, 36 to 40 percent of substance-using pregnant women meet criteria for major depressive disorder (Fitzsimons, 2007; Martin et al., 2009). Additionally, pregnant women with substance misuse disorders tend to have poor living conditions and a more difficult personal and family history (Strengell, Väisänen, Joukamaa, Luukkaala, & Seppä, 2015). Infants exposed to opioid in utero face many medical, developmental, and social complications, complications that his or her family may be ill equipped to handle. To address these problems, we need a coordinated system of care that matches the complexity and multilayered nature of substance use and their precursor in pregnant women with opioid use disorder (United States Department of Health and Human Services, 2016).

Mental illness and substance use in pregnant women can have devastating and long-lasting effects (Cantwell & Smith, 2009), especially when mental illness and substance use within the perinatal population go under-detected and/or under-treated. Notably, in the United States, there is a significant gap in effective identification and treatment of psychiatric problems. Nearly 15-29% of pregnant women have psychiatric problems and only 5-14% of those women receive treatment for these disorders (Vesga-Lopez, Blanco, Keyes, Olfson, Grant, & Hasin, 2008). Addressing comorbid psychiatric conditions is critical to successful substance use treatment outcomes as pregnant women with mood disorders are less likely to adhere to substance use treatment than their non-mood disordered counterparts (Fitzsimons, Tuten, Vaidya, & Jones, 2007). Pregnant women dealing with depression, anxiety, and/or substance abuse problems are at greater risk of experiencing a number of negative outcomes during and post pregnancy including “pregnancy loss, preterm delivery, low birth weight, small-for gestational age (SGA) births, and sudden infant death syndrome” (Tabet, Flick, Cook, Hong, & Jen Jen, 2016). In particular, the offspring of women who use opioids during pregnancy are at risk of birth defects, altered brain development (Anand & Campbell-Yeo, 2015; Fajemirokun-Oduyeyi, Sinha, Tutty, Pairaudeau, Armstrong, Phillips, & Lindow, 2006) and symptoms of neonatal abstinence syndrome (NAS). A 5-fold increase in the number of babies born with NAS was recorded between the years of 2000 and 2012, with a total of 21,732 babies born with NAS in 2012 (Patrick et al., 2012; Patrick et al., 2015). In 2013, nearly six in every 1,000 hospital births in the U.S. resulted in NAS (Patrick, Davis, Lehmann, & Cooper, 2013). Symptoms of NAS include excessive crying (high-pitched, inconsolable), decreased sleep periods, poor feeding due to uncoordinated sucking reflex, autonomic instability and seizures due to opioid withdrawal (Finnegan, Connaughton, Kron, & Emich, 1975; Tolia, et al., 2015). NAS often results in a longer length of hospital stays for the newborn. Newborns with NAS remain in the hospital for approximately 16.9 days, whereas the average hospital stay for newborns without NAS is 2.1 days (Patrick et al., 2012; Patrick et al., 2015). The

hospital cost of newborns with NAS is approximately \$66,700, compared to \$3,500 for term newborns without NAS (Patrick et al., 2012; Patrick et al., 2015). Further, mothers with babies in the Neonatal Intensive Care Unit (NICU) tend to experience increased maternal stress and, in some cases, posttraumatic stress disorder (PTSD; Mercer, 1981, 2004). Therefore, in addition to the higher risk of complications during pregnancy, symptoms experienced by the newborn, and lengthier/costlier hospital stays, we must also consider how prenatal mental illness and substance use further impact the family unit and contribute to a systemic vicious cycle. For example, substance use may inhibit mothers’ ability to implement protective prenatal/postnatal care behaviors and provide adequate caregiving (Kelly et al, 1999), increasing the risk of limited or disrupted parental care, chaotic and violent home environments, child neglect and abuse, and multiple foster care placements (Kalland, 2001; Pollack, Danzinger, Seefeldt, & Jayakody, 2002). All of this are important factors that contribute to poor child outcomes including developmental, behavioral and social problems.

The effects of various biopsychosocial risk factors and vulnerabilities combine, overlap, and intersect in a complex and cumulative manner, where the intersectional experience is greater than the sum of its individual factors. For example, women who engage in perinatal opioid use are also more likely to face psychosocial adversity associated to the intersecting social and contextual categories inherent in their personal and family history (Strengell, Väisänen, Joukamaa, Luukkaala, & Seppä, 2015). Exposure to psychosocial stressors tends to be greater in minority populations and plays a big role in affecting racial/ethnic health disparities (Williams, 2017, personal communication). And the accumulation of multiple stressors leads to worse physical and mental outcomes (Thoits, 2010; McEwen, 1998) that accentuates existing health disparities (Thornton, Glover, Glick et al., 2016). This is highly relevant to our particular patient population. According to the 2017 US Census there are 2,423,266 residents in Riverside County (our catchment area), of which 48.4% Hispanics, 36.2% Caucasian, 7.1% African American, 6.9% Asian, and 1.9% American Indian. For our patients, issues such as low socioeconomic status, job hazards, poverty, legal status and acculturation are frequently encountered stressors.

“ Given the complex way in which risk factors intersect and mutually reinforce one another, an adequate treatment approach will necessarily address the phenomenon of converging multiple vulnerabilities as a whole by providing access to an integrated and co-located system of care. ”

Given the complex way in which risk factors intersect and mutually reinforce one another, an adequate treatment approach will necessarily address the phenomenon of converging multiple vulnerabilities as a whole by providing access to an integrated and co-located system of care. In order to address the existing gap in

treatment access and utilization for women with perinatal mental illness and substance abuse, we have developed the following system of care to be implemented at Riverside University Health Systems (RUHS) in a program known as:RUHS Integrated Care System for Pregnant Women with Substance Use and Mental Illness

All patients who become pregnant while receiving care at any one of the RUHS Department of Behavioral Health (DBH) substance use and methadone clinics will be referred to the RUHS Medical Center Maternal Fetal Medicine (MFM) clinic for ongoing high-risk pregnancy care. RUHS Mental Health, Perinatology and Neonatology work with Riverside County Methadone clinics to ensure that the pathways and processes of care, for mothers and babies (exposed to opioids), are aligned for success. The following components are planned:

1. Specialty Medical Services

The perinatologist will provide an initial consultation and make individualized recommendations for the oversight and ongoing care of the pregnancy and post-partum period. The perinatologist and the MFM clinic therefore, become a “hub” for a system of integrated care, engaging other medical professionals as needed to address medical, psychological, obstetric, fetal and genetic issues prior to, during, and after the pregnancy. An individualized whole-person pregnancy plan, with access to specialized and higher levels of care, will be available to all pregnant women eligible for Riverside County services who engage in opioid use, designed to address some of the specific difficulties that these mothers and their babies may encounter. The MFM specialist at RUHS is equipped with expertise in working with high risk pregnant women across multiple complications, including substance use problems. Specifically, the MFM physician holds a valid certification in order to administer opioid replacement therapy, such as Suboxone (buprenorphine and naloxone), an opioid antagonist.

2. Early Identification and Coordination of Services

Since substance use is highly comorbid with other psychiatric conditions, it is essential that mental health needs of each patient are well understood and addressed in order to improve outcomes for baby and mother (Fitzsimons, Tuten, Vaidya, & Jones, 2007). Therefore, early identification of other mental and behavioral health problems is imperative in order to provide the necessary interventions to reduce prenatal distress (Cantwell & Smith, 2009). Our model proposes that indications of mental illness and substance use problems may be identified through administration of screening measures such as the Patient Health Questionnaire-9 (PHQ-9), General Anxiety Disorder 7-item (GAD-7) Scale, and the Cut Down, Annoyed, Guilty, Eye-opener- Adapted to Include Drugs (CAGE-AID). The PHQ-9 as a measure of the severity of depression, the GAD-7 as a measure of anxiety, and the CAGE-AID as a measure of substance abuse have all been found to be valid and reliable measures of the symptoms measured (Lowe et al., 2008; Mdege & Lang, 2011; Kroenke, Spitzer, & Williams, 2001). It is important to recognize the face validity of these tools and acknowledge the stigma that is associated with substance use and mental distress during pregnancy (Roper, & Cox, 2017). Thus it is essential that providers are attuned to the types of problems that their patients may be facing in order to reduce response bias, gain an understanding of their patients’ problems/concerns, and engage the appropriate services. Trained clinicians utilize these tools in combination with skillful interviewing techniques to gain an indication of a pregnant woman’s mental health functioning and addictive behaviors.

When positive screening results are identified (through cut-offs set by best practices), Clinical Psychologists, that are co-located

in the MFM clinic, further investigate the severity of the pregnant patient’s depression, anxiety, and/or addictive behaviors. This is done via a 20-minute in-clinic consultation followed by coordination of services with other providers, as needed. Identification of the level of severity and matching it to appropriate services is most important. Below is a brief overview of the planned follow-up services that include comprehensive case management, individual, group, and family education and counseling, life skills classes, drug and alcohol interventions, and child development and parenting classes. The co-location of services in the MFM clinic and collaboration across medical and mental health/substance abuse services will help to reinforce skills that the patient is learning in treatment as well as ensure that patients have access to appropriate levels of care in all areas of need.

3. Educational Services

As prenatal patients are provided with coping strategies and resources to manage their mental and behavioral health, RUHS also provides patients with education about the birthing process, potential risks to their babies or their conditions, and an introductory tour of the Labor/Delivery/Recovery and Neonatal Intensive Care Unit (NICU). Specifically, between 20-24 weeks of gestation, all pregnant patients will be offered a Neonatal Intensive Care Unit (NICU) tour which will include a discussion with NICU physicians and staff to review what to expect during the immediate period after birth. This introduction is meant to increase the focus on “family-centered care principles” and to “promote family empowerment” (Harris, 2014). Further, RUHS provides child birthing classes that address various elements of birthing including the labor and delivery process, relaxation and breathing techniques, medications and anesthesia, cesarean section births, breastfeeding, and skin to skin. The composition of the current and proposed services will provide high risk mothers with the additional wrap around support that they may need along with strategies for coping when the baby arrives.

This component of the RUHS program is modeled after the Morey and Gregory (2012) article which showed the benefits of how nurse-led education mitigates maternal stress and enhances knowledge in the NICU. The family centered intervention consists of three major components and several teaching strategies: “(1) an educational video developed by the hospital NICU team, (2) a detailed description of the clinical aspects of prematurity, the care requirements of premature infants, and the family involvement in the NICU, and (3) a tour of the NICU, offered at the conclusion of the intervention” (Morey & Gregory, 2012, p. 183). The results of this intervention demonstrated decreased maternal stress and an increase in the parents’ knowledge of who would provide the care their child needed, information about their newborn’s body and needs, and about the equipment used in the NICU. RUHS will be adopting this model in order to provide mothers and families with similar interventions at the time of their regular MFM clinic appointments. Our aims are to help mothers and families feel more prepared and better equipped to address challenges that they may face within the next months.

Additional educational/psychosocial support group topics include: healthy lifestyle skills (common pregnancy discomforts, exercise and nutrition during pregnancy), CPR and First Aid for family and friends (skills to respond to and manage illnesses and injuries), family finances workshop (skills to manage income and expenses, establish goals and build savings, understand how to get out of debt, and in general, prepare patients for a likely change in the family financial situation with the birth of a new family member), newborn care, preparing for breastfeeding, and domestic violence and safety planning. Efforts will be made to engage family members (partners, siblings, grandparents) in order to assist patients to strengthen their support system. For example, a sibling prepa-

ration group will consist of age appropriate programs and activities to prepare children for the new arrival; a grandparents' class in which the entire family is invited to find out what is new and not so new in childbirth and infant care, in order to enhance the bond between expectant grandparents and the new family.

4. Mental Health and Substance Abuse Treatment and Levels of Care

a. Individual and Family Psychotherapy

A thorough psychodiagnostic assessment and ongoing psychotherapy will be available to individuals and families who may need these services. Frequently used interventions include elements of psychoeducation as well as evidence-based practices such as Cognitive Behavioral Therapy (CBT) (e.g., for depression and anxiety) and motivational interviewing for substance use and behavior change (Haug, Duffy, & McCaul, 2014).

b. Substance Abuse Intervention

Continuing the substance use/methadone treatment will be a critical aspect of care. The MFM clinic has developed close relationships with methadone clinics in Riverside County that provide methadone administration management. Additionally, a DBH assigned substance abuse specialist will be stationed within the MFM clinic and will work with the Psychologist to ensure the pregnant and/or post-partum patient have access to all needed resources to successfully parent their newborn. Multiple approaches for pregnant women with opioid addictions offers the patient choices and affirms empowerment for overcoming their opioid addiction. Moreover, the "joint empowerment" approach can be suitable in order to foster medication adherence" to increase positive outcomes for baby and mother (Náfrádi, Nakamoto, & Schulz, 2017).

c. Intensive Outpatient (IOP) Services

An IOP will be established for pregnant/post-partum patients who have mild to moderate depression, anxiety, and/or substance use problems to narrow the gap in individual psychopathology and social isolation and to reduce the health-related consequences of social isolation (Cornwell, & Waite, 2009). The IOP is a group-based treatment approach, with a primary goal of supporting successful, long-term recovery, strengthening the family, and creating a social ecology that supports community wellbeing. This approach addresses "the often-overlooked fact that nearly all our present ecological problems arise from deep-seated social problems" (Bookchin, 1986). In keeping the social ecological perspective in mind, this intervention will aim to reduce "individual risk behavior" through a focus on social interventions and construct community coalitions within the RUHS population. Individual risk behavior includes (but not limited to) maladaptive coping strategies, medical non-adherence, and social isolation (Wandersman, 2001). The IOP will consist of three, three-hour days per week, broken down into group sessions that will address mental health education, social skills, coping strategies, spirituality, health education, food education, and group/skill activities (e.g., beading, yarn craft, painting, mindfulness, etc.) with concurrent process/interpersonal exercises.

d. Community Outreach

Community Health Workers (CHW) will be trained in low-intensity psychological interventions using evidenced-based protocols developed by the World Health Organization for peripartum women (World Health Organization, 2015). These in-home interventions are meant to aggressively seek out those women who may have difficulties keeping their clinic-based appointments or may need additional support.

e. Referral and Coordination

Appropriate referrals to more intensive care, such as hospitalization and rehabilitation may be necessary. As mentioned previously, the RUHS BH substance use clinics and the Riverside County methadone clinics are aligning practices and pathways for delivery of care in order to provide care for women who become pregnant during the course of treatment. Additionally, a clear system for seamless communication between the MFM clinic and the NICU is being designed. The goal of this communication is to ensure that pregnant patients and their significant other(s) are provided adequate care, resources, and education regarding the expected course of the newborn after birth.

f. Post-natal follow-up

Our program hopes to engage the parent as a member of the treatment team if the baby needs to be admitted to the NICU. Ideally, we hope to implement couplet care, as much as possible so that the mother and newborn can bond adequately. We know that there is a significant reduction in the length of stay for a newborn who stays with mom rather than being admitted to the NICU (Holmes, et al., 2016). Couplet care also has been reported to reduce caregiver stress as the parent learns cues from the baby more quickly (Browne, Martinez, & Talmi, 2016).

In both the NICU and the couplet setting, the parent will be engaged in a type of daily "family-centered rounds" with the purpose of assisting the parent(s) with the various difficulties the baby may be having and discussing the ongoing care of the baby, so that the parent/caretaker understands and is prepared to deal with similar problems once the baby goes home (Harris, 2014). Given that these may be difficult babies to manage, family-centered rounds provide the opportunity for the medical team to assess, and if needed increase the caretaker's ability to recognize and respond to baby's needs, develop a sense of mastery, and assist with bonding.

Prolonged hospitalization of neonates with NAS tends to affect the family system as it may impact infant attachment and disrupt families (Sanchez, Bigbee, Fobbs, Robinson, & Sato-Bigbee, 2008). Research by Abrahams and colleagues (2007) found that separation due to hospitalization decreased maternal attachment with the newborn, increased relapse of maternal chemical abuse, and ultimately increased incidence of neonatal abandonment and/or loss of custody. This emphasizes the importance providing the newborn's mother or caregiver with education, support, mentoring, behavioral health services, and continued substance abuse treatment. The goal of providing mothers with these services is to improve attachment and bonding, care-giving behaviors, develop a stronger ability to recognize and respond to their baby's behavioral cues, prevent caregiver burnout, and increase the likelihood of postnatal follow up visits. Mothers who are approved/encouraged to breastfeed would also benefit from extra services from lactation nurses given that newborns with NAS experience poor feeding due to uncoordinated sucking reflex.

“New mothers in similar circumstances are likely to experience high levels of stress due to perinatal hospitalization, premature birth, and the NICU experience.”

It is important to be mindful of the newborn's mother or caregiver's

mental health status during the post-partum period. New mothers in similar circumstances are likely to experience high levels of stress due to perinatal hospitalization, premature birth, and the NICU experience. Mothers with babies in the NICU tend to experience maternal stress which has the added potential to interfere with initial bonding and attachment (Mercer, 1981, 2004). This may also affect the production of breast milk (Boucher, Brazal, Graham Certosini, Carnaghan-Sherrard, & Feeley, 2011). Research has shown that the perinatal hospitalization, premature birth, and the NICU experience are often traumatic and produce symptoms related to posttraumatic stress disorder (PTSD). In studies, women who have given birth to premature infants reported at least one symptom of PTSD (Holditch-Davis, Bartlett, Blickman & Miles, 2003). This further reinforces the need for women to have access to behavioral health services during the perinatal period.

Due to the aforementioned risk factors, it is crucial for these women to be assessed for post-partum depression, anxiety, and even PTSD. Additionally, it is important for women with opioid use histories to be counseled on appropriate contraception use given that there is an 86% rate of unintended pregnancies in opioid abusing women (Heil et al., 2011). It is also crucial for the women to continue engaging in their substance abuse treatment. Emphasis on the need for the mothers to attend follow up appointments and comply with medical providers' recommendations are important and will be a concept that will be highlighted to the mothers at RUHS as well as the methadone clinics.

Conclusion:

The accumulation of multiple conditions that encompass physical, mental, social, and spiritual domains of life require an integrative approach to care. Pregnant women with histories of substance use typically encounter a number of complications and barriers, which not only places the mother at risk, but may also set a difficult trajectory for the baby's development. Therefore, we propose a whole-person, interdisciplinary program that aims to connect available medical, mental health, and social services.

Through comprehensive interviewing, barriers are identified and a collaborative effort (between patient and provider) is made to mitigate non-compliance. Our program at RUHS will access and provide resources for education, support, transportation, housing, food, clothing, and additional child care to ensure that the patient's more basic needs are being met as well as the patient's biological, psychological, spiritual, and social needs. This unique program will be offered to RUHS patients with high risk pregnancies and services will be available throughout the pregnancy. To ensure continuity in services and support throughout the postnatal period, CHWs trained in the provision of health education as well as low intensity psychological interventions. The elements of this proposed program offers a unique patient-provider experience that uses a whole person approach to promote a healthy future for perinatal women with substance use and their offspring.

In summary, as the opioid epidemic continues to grow and mental/behavioral health often remains untreated in pregnant women across the globe, the consequences (both personal and systemic) continue to increase. The aforementioned proposed approach to whole person care for prenatal women, with a keen eye toward the opioid use problem in this population, addresses many facets of the multi-layered intersectionality of these women with the utmost courtesy and respect. This proposed whole-person care intervention is built with inherent flexibility allowing room for expansion as further needs within this population are identified. Finally, by providing these services we believe that the reduction in systemic costs will decrease and the positive outcomes for the mother and child will increase.

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Letters to the Editor

To the Editor (via email),

From: Adam Rhodes <ajrhodes87@gmail.com>

Subject: Case Report and Submission

Date: April 3, 2018 at 5:08:37 PM EDT

My name is Dr Adam J Rhodes. I am a pediatric resident at Staten Island University Medical Center in NY. I am emailing to inquire for a case report submission to Neonatology Today. I have been instructed to email before going through process of submitting because at times Journals change whether or not they are accepting Case Reports. In simple I am emailing to inquire if the Journal is still accepting case reports, if there is a maximum amount of images that can be included for a case report submission, and if there are any fees for submission that we should be aware of? Thank you for your time.

Sincerely,

Adam J Rhodes DO
Pediatric Resident
Staten Island University Medical Center in NY

(via email)

Dear Adam,

Thank you for your letter of interest. I think that you will find that Neonatology Today meets your requirements. We encourage submission of case reports especially from those in training. There are no costs for submission, no costs for acceptance, no costs for additional color graphics or photos, and no cost for publication. Subscriptions are also free. We do not have a defined limit to your submission, but the case report should proceed logically from presentation to conclusion. Your manuscript will be peer reviewed, and we will try to get a response to you within 14 days after submission. Please let me know if you have any additional questions.

Sincerely,

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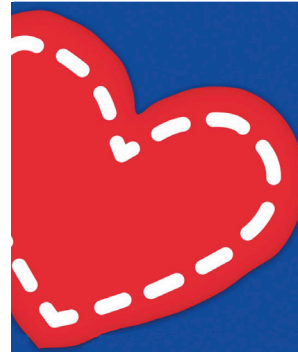
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The Alliance for Patient Access (allianceforpatientaccess.org), founded in 2006, is a national network of physicians dedicated to ensuring patient access to approved therapies and appropriate clinical care. AfPA accomplishes this mission by recruiting, training and mobilizing policy-minded physicians to be effective advocates for patient access.



A U.S. federal government program created over 25 years ago to incentivize care for those patients unable to afford their own care or treatment faces increasing scrutiny from both the President and lawmakers.

Section 340B of the Public Health Service Act, which constitutes the so called “340B Drug Discount Program,” passed in 1992 under President George H.W. Bush. The program was developed as a benefit to underinsured, uninsured, and indigent patients for their outpatient treatments. Lowering medical costs and increasing health services for this patient population was achieved through defining program eligibility for health care organizations, namely hospitals, and Congress sought to offset costs for hospitals by requiring pharmaceutical companies to give these hospitals a 25-50 percent discount on medications in exchange. The hospitals continue to bill Medicaid and privately insured patients at their negotiated price, creating a profit intended to offset the cost of care for the underserved.

The United States Congress has seen recently an uptick in legislation that would peel back the curtain on hospital reimbursements and funding, demand further program transparency, and require data and reporting from health care entities as it relates to 340B drug discounts.

Reports of the 340B program morphing into a windfall for hospitals and eligible entities has mounted pressure for congressional oversight. Critics of the program’s growth believe that health systems are not using the program properly to benefit underserved and vulnerable patient populations, per the intent of the law.

Lawmakers have responded by introducing legislation, including the 340B Pause Act (H.R. 4710), the Ensuring the Value of the 340B Program (S. 2453), and, most recently, the 340B Optimization Act (H.R. 5598). The legislation is aimed at finding out whether 340B eligible health organizations are using the savings from the discounted drugs to provide care and treatment for indigent patients, per the program’s original intent.

Providing treatment for the most vulnerable group of patients without insurance or whose families may be underinsured - including newborns, infants, and children - helps to qualify a health care system for the 340B drug discount program across the country. Entities eligible for 340B coverage include pediatric hospitals and hospitals treating a large proportion of low-income patients.

“ Beyond public outcry and concerns with the program raised by physicians, patient groups, and other health care stakeholders, the program has swelled from a mere 185 participating hospitals to nearly 1,000 over the last decade.”

Beyond public outcry and concerns with the program raised by physicians, patient groups, and other health care stakeholders, the program has swelled from a mere 185 participating hospitals to nearly 1,000 over the last decade. Meanwhile, some hospitals have multiplied the value of their 340B discount by acquiring satellite clinics. Between 2009 and 2012, hospitals acquired at least 140 oncology clinics – and increased their 340B drug use by roughly 120 percent. Lawmakers want to know if the program and revenue growth has led the program off track, contributing more to the bottom lines of hospital systems than to the care of needy patients.

The 340B Optimization Act (H.R. 5598) introduced by Rep. Earl “Buddy” Carter (R-Ga.), currently the only pharmacist in Congress and a Member of the House Doctor’s Caucus, seeks to increase transparency for 340B eligible hospitals, who are enrolled based on their Medicaid disproportionate-share hospital status (DSH hospitals).

“I believe the 340B program is very important, but it needs to be improved,” said Rep. Carter said in a written release. “340B is an outpatient program and currently hospitals do not have to report low-income utilization in outpatient settings. This legislation adds an additional layer of transparency to allow us to better understand the patient makeup of DSH hospitals to improve the program and ensure it is truly being used in the most effective way for our nation’s most vulnerable patients.”

Additionally, a fellow member of the House Doctor’s Caucus and a board-certified cardiothoracic surgeon in Congress, Rep. Larry Buschon, M.D. (R-Ind.) has introduced bipartisan legislation called the 340B Protecting Access for the Underserved and

Safety-Net Entities Act (340B PAUSE Act) to put a moratorium on new enrollment of DSH hospitals, essentially a pause on further 340B expansion, until further reporting and data can be collected on how 340B hospitals provide charity care for patients.

Last, the Ensuring the Value of the 340B Program (S. 2453) introduced by one of only a few physicians in the Senate, Sen. Bill Cassidy, M.D. (R-La.) requires reporting on aggregate acquisition costs for 340B drugs and revenues received as reimbursement by all payors - including Medicaid, Medicare, CHIP, private plans & uninsured. The aim is to gather the information necessary to determine whether program is working as intended.

The sponsors of these bills are not calling for an end of the 340B program. The theme throughout these proposed policy changes amounts to prevention of abuses through proper oversight, while still protecting the patients received benefits from the program as intended. The proposals seek to gather information to help understand the programs rapid growth; growth that may be impacting patient access by causing practice consolidation – particularly in oncology care.

As Congress continues to employ oversight, the U.S. Senate Committee on Health, Education, Labor & Pensions Committee announced at least one more hearing on the 340B drug discount program before the end of this year. On May 15, the Committee invited members of the Trump Administration to testify on oversight reports from the U.S. Department of Health and Human Services (HHS) and the U.S. Government Accountability Office (GAO). The House Energy and Commerce Committee issued its own 80-page oversight report to examine weaknesses in the 340B programs inception and implementation.

Beyond Congress, President Donald Trump’s “Blueprint to Lower Drug Prices” notes the discrepancies in the 340B program implementation whereby some hospitals “under the 340B program ... do not provide meaningful levels of charity care to low-income and vulnerable populations, ultimately pushing up drug prices for patients with private health insurance.”

Pressure is growing for hospitals benefiting from the 340B program to be more transparent about the way they use this money and to ensure indigent patients are benefiting by having more access to care.

NT

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Medical News, Products & Information

Compiled and Reviewed by Mitchell Goldstein, MD Editor in Chief

Springer Nature Announces Search for New Editor-in-Chief of the Journal of Perinatology

An international search for a new Editor-In-Chief is under way.

Editor-in-Chief

Journal of Perinatology

The official journal of the Section on Neonatal-Perinatal Medicine, American Academy of Pediatrics, and of the National Perinatal Association of the United States

Springer Nature, together with the Section on Neonatal-Perinatal Medicine, American Academy of Pediatrics and the National Perinatal Association of the United States, announce an exciting opportunity for an exceptional candidate to serve as Editor-in-Chief of the Journal of Perinatology (JPER).

The Journal of Perinatology provides all members of the perinatal/neonatal healthcare team with original information pertinent to improving maternal/fetal and neonatal care, embracing the full scope of the specialty, including clinical, professional, political, administrative and educational aspects. The Journal also explores legal and ethical issues, neonatal technology and product development.

Candidates should have a Ph.D., M.D., or equivalent degree, and a comprehensive knowledge and understanding of the field of perinatal and neonatal healthcare. In addition, candidates should have a distinguished research and publication record, high standing among peers, and prior experience in peer-review activities related to the publication of research in the field of perinatology.

Responsibilities include timely review of manuscripts under consideration by the journal, closely collaborating with the Publisher to appoint Section Editors and the Editorial Board, and commissioning submissions in areas of interest and scope. The Editor-in-Chief will work routinely with the Publisher, the Section on Neonatal-Perinatal Medicine, American Academy of Pediatrics and the National Perinatal Association of the United States, on journal development with the goal of raising the journal's impact and advancing the field of perinatology.

A full description of the responsibilities involved is appended to this announcement. The appointment will be a five-year term, and a small editorial stipend is included.

Interested candidates should submit their curriculum vitae, statement of interest, and a vision statement for the journal to Nickie Roake, Publishing Manager of JPER, at nickie.roake@nature.com.

com.

Deadline for applications: 31st July 2018

Duties and responsibilities of the Editor-in-Chief

The Editor-in-Chief is responsible for driving the strategic direction of the journal in collaboration with the Editorial Board and Springer Nature, and with input from the Section on Neonatal-Perinatal Medicine, American Academy of Pediatrics and the National Perinatal Association of the United States. He/she is the figurehead of the journal and is responsible for raising the journal's profile within the community, and ensuring that content published meets the editorial strategy and policies of the journal, as stated in the journal's aim and scope.

The Editor-in-Chief is responsible for the content of the journal, normally making all final decisions (i.e., accept, revise, or reject) regarding the disposition of manuscripts. In addition, the Editor-in-Chief has the following responsibilities:

- To work with the Publisher and editorial team to develop improved ways to optimized the content, quality and speed of publishing of high quality articles. This includes:
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- To continually seek to improve the journal's standing among perinatal/neonatal journals via maintaining and increasing the impact factor.
- To recruit an international and diverse expert panel of Section Editors and Editorial Board members.
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- To perform initial evaluation of submitted manuscripts to ensure that they are properly within the scope of the journal and meet minimum requirements for a research paper, and to reject outright swiftly those which do not merit external review.
- To monitor the progress of manuscripts to ensure timely processing with help from the Editorial Assistant.
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with the Springer Nature JPER Publishing Manager.

- To manage the annual publication target/ page budget as set by Springer Nature.
- To promote the journal among the community of authors in order to maintain a pipeline of quality submissions.

NT

Many newborn screening recommendations do not assess key evidence on benefits and harms

Evidence based policy decisions around screening are vital, say researchers

Newswise — Many national recommendations on whether to screen newborn babies for rare conditions do not assess the evidence on the key benefits and harms of screening.

The warning is made by University of Warwick researchers in a study, Association between use of systematic reviews and national policy recommendations on screening newborn babies for rare diseases: systematic review and meta-analysis published by The BMJ.

Effective screening programmes can save lives, whereas ineffective programmes can do more harm than good, yet decisions about which conditions to screen for vary widely between countries, despite similar populations and healthcare systems.

Reasons for these differences are unclear, but it has been suggested that differences in the evidence review process used to generate policy - in particular the use of systematic reviews - may play a role.

Systematic reviews bring together evidence from existing studies and use statistical methods to summarize the results, to help make evidence-based decisions.

To explore this further, a team of research-

ers led by Dr Sian Taylor-Phillips associate professor at Warwick Medical School, assessed whether use of a systematic review affects national decisions on whether to screen for a range of conditions using the newborn blood spot test, which is offered to every baby to detect rare but serious health conditions.

Their analysis included 93 reports that assessed 104 conditions across 14 countries, giving a total of 276 recommendations.

Screening was favoured in 159 (58%) recommendations, not favoured in 98 (36%), and not recommended either way in 19 (7%).

Only 60 (22%) of the recommendations were based on evidence from a systematic review. Use of a systematic review was associated with a reduced probability of screening being recommended (38% v 63%).

Evidence for test accuracy was not considered in 115 (42%) of recommendations, while evidence around the benefits of early detection and the potential harm of overdiagnosis were not considered in 83 (30%) and 211 (76%) of recommendations, respectively.

The researchers point to some study limitations, the key one being that use of systematic review methods may have been driven by country level factors. However, strengths include the large number of documents analyzed and the ability to take account of potentially influential factors across different conditions.

Dr Sian Taylor-Phillips said: "This study showed that many national policy decisions about whether to screen for conditions are being made without systematically reviewing the evidence.

"Yet it remains essential to make evidence based policy decisions because once screening programmes are started they are difficult to stop."

She calls for further research "to understand why policy makers do not employ systematic review methods in their evalua-

tions of evidence" - and they propose more international collaboration to undertake such reviews.

For more information, contact Nicola Jones, ~~Media Relations Manager, University of Warwick~~ 07920531221 or N.Jones.1@warwick.ac.uk

NT

Fetal Immune System Rejects the Mother in Preterm Labor

UNIVERSITY OF CALIFORNIA - SAN FRANCISCO HEALTH SYSTEM

Discovery Upends Conventional Thinking About Immune Development

Preterm labor, a common pregnancy complication, has long been a mystery to scientists. But a new study from UC San Francisco shows it may sometimes happen when the fetal immune system "wakes up" too early and begins to reject the mother, causing the uterus to start contracting.

The researchers think the fetal immune system becomes triggered in a case of mistaken identity. An initial infection in the mother can result in inflammation and arouse the fetal immune system. The fetal immune cells confuse the mother's cells for an invader and mount an attack, in the form of inflammatory chemicals. These chemicals then trigger contractions, leading to preterm labor, the leading cause of infant mortality.

"The dogma has always been that the fetus has a very immature immune system, and as a result, people haven't really considered its possible role in pregnancy complications," said senior author Tippi Mackenzie, MD, associate professor in the UCSF Division of Pediatric Surgery, the Fetal Treatment Center, and the Center for Maternal-Fetal Precision Medicine. "We showed that in patients who have preterm labor as a result of some kind of infection or inflammation—the most common cause

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of preterm labor—the fetal immune system awakens prematurely and may trigger labor.”

In the new study, published Wednesday, April 25, 2018, in *Science Translational Medicine*, the researchers tested umbilical cord blood, which contains fetal cells, along with blood taken from 89 women who had healthy pregnancies and 70 who went into early labor. But the scientists saw no signs of an immune response in the mother’s blood. Instead, they detected activation in two types of immune cells in the cord blood of preterm infants. The researchers also found greater numbers of the mother’s cells circulating in the cord blood of preterm infants.

During pregnancy, cells from the mother and the fetus travel back and forth across the placenta. Just as in an organ transplant, the immune systems of the mother and the fetus have to tolerate one another, so the fetus is not rejected. This tolerance is governed by immune cells known as regulatory T cells, which dampen the immune system by keeping the other types of T cells in check.

However, during preterm labor the infant’s immune system was found to be activated specifically to attack the mother’s cells. The researchers detected higher levels of both dendritic cells and effector T cells in the cord blood of preterm infants; dendritic cells present foreign substances to the T cells to signify that they are a potential threat, and T cells—the primary fighter cells of the immune system—then mount an attack by releasing inflammatory chemicals.

T cells from preterm infants made significantly higher levels of these inflammatory chemicals, TNF alpha and interferon gamma than those from full-term infants, and in a laboratory model of uterine contraction, the researchers discovered that these chemicals induced contraction of uterine cells.

“If you’re a fetus and your immune system is developing in a healthy environment, it’s in your best interest to keep things quiet so that you can develop and be born at a normal time. But if you encounter trouble in the form of an infection or inflammation, then that can trigger your dendritic cells and T cells to wake up,” said first author Michela Frascoli, PhD, a former postdoctoral researcher in MacKenzie’s lab, now an adjunct assistant professor at the University of Massachusetts Medical School. “Ultimately, it could be a defense mechanism to exit a hostile uterine environment.”

MacKenzie, a member of the Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research at UCSF, has long studied the fetal immune system in the context of fetal stem cell transplants. She became interested in preterm labor during her own pregnancy, when she experienced a long period of bed rest because she was at risk of delivering her baby early.

“The medicines we use to treat preterm labor right now are just aimed at stopping the uterus from contracting. But at that point, the horse is out of the barn,” MacKenzie said. “What we really have to do is diagnose and treat fetal immune activation, which is probably starting weeks before the patient comes in with the uterine contractions.”

Her lab is now pursuing biomarkers in the mother’s blood that can identify whether the fetal immune system is activated and increasing risk for preterm labor.

Other authors on the study were Lacy Coniglio, Russell Witt, Cerine Jeanty, Shannon Fleck, Dana Henry, and Qizhi Tang of UCSF; Tzong-Hae Lee, Sheila Keating, Michael Busch, and Philip Norris of the Blood Systems Research Institute; Giovanna Cruz and Lisa Barcellos of UC Berkeley; and Nardhy Gomez-Lopez and Roberto Romero of Wayne State University.

The research was supported in part by funding from the Swiss National Science Foundation, the March of Dimes, the California Institute of Regenerative Medicine, the National Institute of Allergy and Infectious Diseases (R01 AI116880), the UCSF Center for Maternal-Fetal Precision Medicine, and the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

NT

Fetal exposure to moderate/high caffeine levels linked to excess childhood weight gain

Should moms-to-be cut out caffeine altogether, ask the researchers?

BMJ - Exposure to moderate to high caffeine levels while in the womb is linked to excess weight gain in early childhood, suggests a large observational study published in the online journal *BMJ Open*.

The findings, which back general advice to limit caffeine intake while pregnant, prompt the researchers to query whether mums-to-be should cut out the world’s most widely consumed central nervous system stimulant altogether.

Caffeine passes rapidly through tissues, including the placenta, and takes the body longer to get rid of during pregnancy. It has been linked to a heightened risk of miscarriage and restricted fetal growth.

The researchers wanted to try and find out if caffeine intake during pregnancy might also be associated with excess weight gain in the child’s early years.

They therefore drew on just under 51,000 mother and infant pairs, all of whom were part of the Norwegian Mother and Child Cohort Study between 2002 and 2008.

At 22 weeks of pregnancy, the mums-to-be were asked to quantify their food and drink intake from among 255 items, including caffeine, using a specially adapted Food Frequency Questionnaire.

Sources of caffeine included coffee, black tea, caffeinated soft/

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energy drinks, chocolate, chocolate milk, sandwich spreads; and desserts, cakes, and sweets. Daily intake was grouped into: 0-49 mg (low); 50-199 mg (average); 200-299 mg (high); and 300 + mg (very high).

Their children's weight, height, and body length were subsequently measured at 11 time points: when they were 6 weeks old; at 3, 6, 8, and 12 months; and then at 1.5, 2, 3, 5, 7, and 8 years of age.

Excess weight gain was assessed using World Health Organization criteria, while overweight and obesity were assessed according to International Obesity Task Force criteria. Growth trajectories for weight and length/height were calculated from the age of 1 month to 8 years using a validated approach (Jenss-Bayley growth curve).

Just under half of the mums-to-be (46%) were classified as low caffeine intake; 44 percent as average intake; 7 percent as high; and 3 percent as very high.

The higher the intake, the greater was the likelihood that the mother was older than 30, had had more than one child, consumed more daily calories, and smoked during her pregnancy. And women with a very high caffeine intake during their pregnancy were more likely to be poorly educated, and to have been obese before they got pregnant.

Average, high, and very high caffeine intake during pregnancy were associated with a heightened risk--15, 30, and 66 percent, respectively--of faster excess growth during their child's infancy than low intake, after taking account of potentially influential factors.

And exposure to any caffeine level while in the womb was associated with a heightened risk of overweight at the ages of 3 and 5 years, although this persisted only for those 8 year olds whose mums had had a very high caffeine intake during their pregnancy.

Children exposed to very high levels of caffeine before birth weighed 67-83 g more in infancy (3-12 months); 110-136 g more as toddlers; 213-320 g more as pre-schoolers (3-5 years); and 480 g more at the age of 8 than children who had been exposed to low levels.

This is an observational study, so it can't confirm causality, while questionnaires can only provide a snapshot in time of dietary behaviour.

Nevertheless, the researchers point to the large sample size, the consistency of their findings, and a plausible biological explanation--fetal programming.

"Maternal caffeine intake may modify the overall weight growth trajectory of the child from birth to 8 years," they write.

"The results add supporting evidence for the current advice to reduce caffeine intake during pregnancy and indicate that complete avoidance might actually be advisable," they add.

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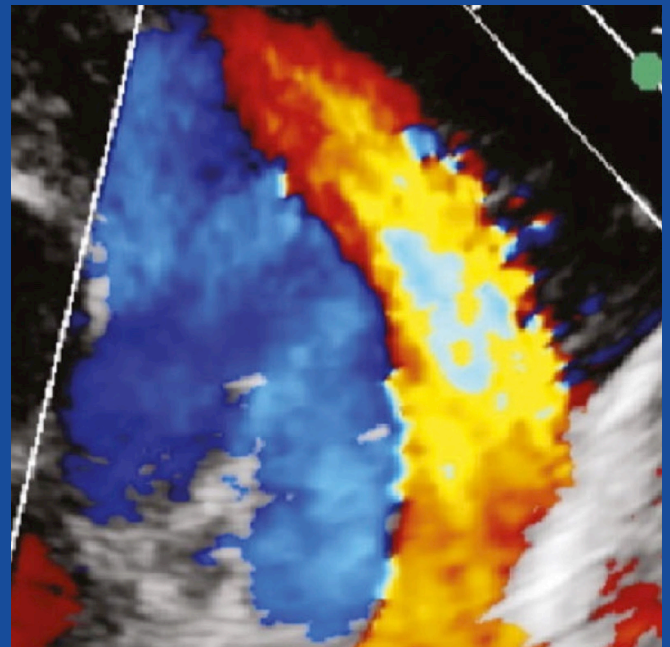
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FROM THE NATIONAL PERINATAL INFORMATION CENTER: MATERNAL OBESITY ANALYSIS

Carolyn Wood, PhD, RN and Melissa Maher, RN, BSN

Dr. Carolyn Wood is presently serving as a nurse consultant to NPIC to assist with planning and implementing continuing education programs and providing perinatal clinical expertise. She comes to the NPIC with over 30 years of teaching experience in a variety of nursing programs. Dr. Wood has been involved in research projects related to maternal child health, nursing internships, nursing program curriculum development and nursing competencies for future health care. She has been a practicing nurse in the area of women's health in a variety of clinical setting including labor and delivery, nursery, postpartum and emergency /triage. She has served as a on a number of community health committees. Dr. Wood is a Professor Emerita at Rhode Island College School of Nursing, Providence, RI. She has a PhD in Education from the University of Connecticut and a Master's Degree in Science from Boston University with a specialty focus in maternal child health.

Melissa J. Maher has been the nurse director of the Obstetrics and Gynecology Care Center at Women and Infants Hospital, Providence, Rhode Island since 2015 and has been with the organization since 2001. Ms. Maher oversees and manages the clinical operations within the Obstetrics and Gynecology Care Center. She is a member of the American Academy of Ambulatory Care Nurses and the Sigma Theta Tau International Honor Society of Nursing. Ms. Maher received her Bachelor of Science in Nursing from the University of Rhode Island in 1998 and is currently pursuing her Master of Science in Nursing with a concentration in Population/Public Health from Rhode Island College.

In the United States, between 1999 and 2010, the Body Mass Index (BMI) of women ages of 20-39 increased by 5.2% including an increased prevalence of women with BMI 35.0-39.9 and BMI 40 or greater (Centers for Disease Control, 2016; The American College of Obstetricians and Gynecologists, 2015) . The World Health Organization defines obesity as a BMI at and above 30kg m⁻² and divides obesity into three classes: class 1 includes BMI 30-34.9 kg m⁻², class 2 BMI 35-39.9 and class 3 includes those with a BMI 40 kg m⁻² and above. (often referred to as morbid obesity) (WHO, 2000)

The National Perinatal Information Center recently completed a maternal obesity analysis on its Perinatal Center Data Base (PCDB) of more than 300,000 deliveries during the period October 1, 2016 through September 30, 2017. Just over 10% (10.5% or 32,265) cases were coded with the ICD 10 code O99.21x: Obesity Complicating Pregnancy, Childbirth or Puerperium. Within that code grouping, the majority (93.3%) were coded with O99.214-Obesity complicating Childbirth. ICD 10 coding guidelines recommend also coding the specific BMI range when using this obesity code. A notable percent of these cases (28.5%) were missing a BMI code, but 28.7% had a BMI of 30.0-39.9 (Obesity Class I and II) and 41.7% had BMI \geq 40.0 (Obesity Class III).

Obese women are at risk of pre-pregnancy conditions such as hypertension, diabetes, and cardiovascular disease. In addition,

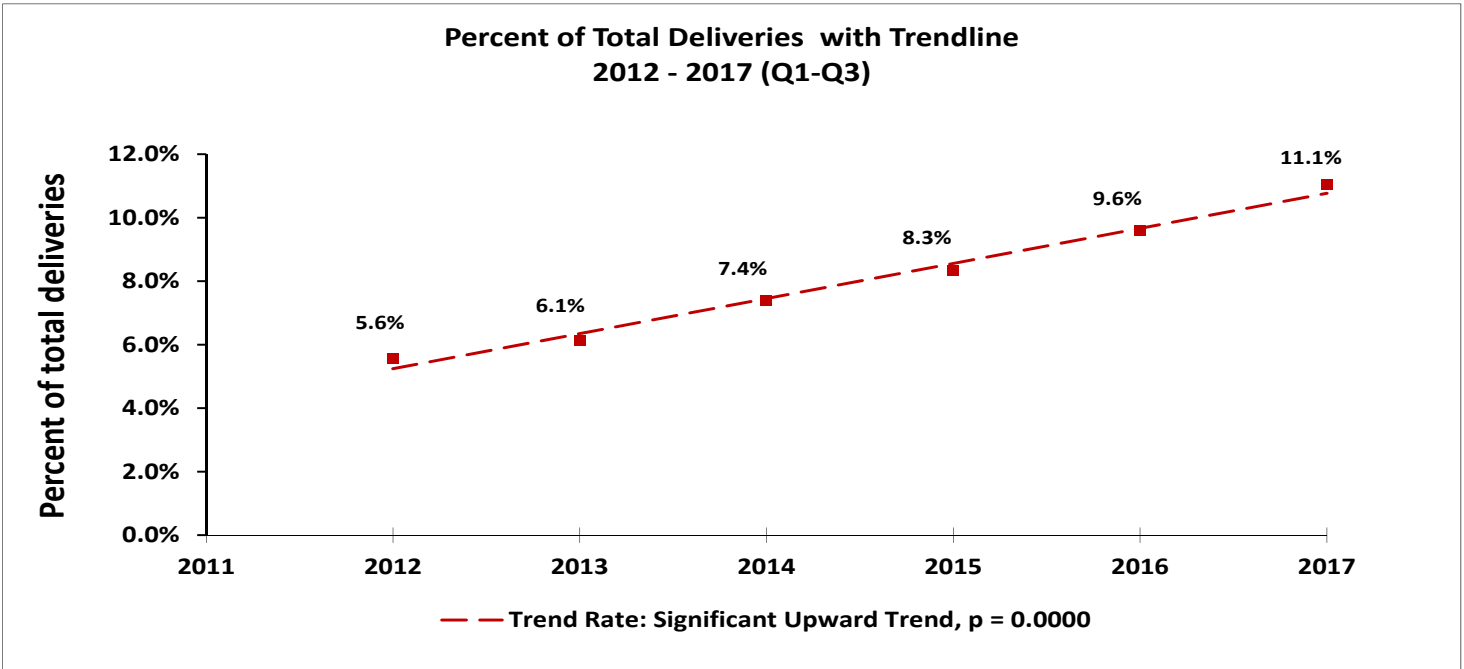
the risk of VTE appears to increase with increasing levels of obesity (Martin et al, 2014). Given these pre-conditions, pregnancy can become a complicating factor. The risk of hypertensive disorders in pregnancy among obese women is increased. Maternal BMI was significantly associated with an increased risk of diabetes, hypertension, and pre-eclampsia and the likelihood of a NICU admission increased from 18% in women with class I BMI (30-34.9kg) to 68% in class II and 89% in class III respectively (Suk et al., 2016) . In a study of 1736 mothers with singleton live-birth >35 weeks gestational age, maternal BMI and underlying co-morbidities of gestational diabetes, hypertension, and pre-eclampsia were examined for their correlation to NICU admission (Suk et al., 2016) . A BMI of >30kg was noted in >50% of study participants, 11.6% having a class II BMI (35.0-39.9kg) and 7% a class III BMI (>40kg), with the incidence of NICU admission increasing per BMI category (Suk et al., 2016).

In the NPIC analysis cases in Obesity Classes I and II (BMI \geq 30.0-39.9) showed a cesarean section delivery rate of 48.1% with an average length of stay of 4.1 days. These cases were coded with hypertension 23.9% of the time; gestational diabetes 4.2%; early onset of labor 3.3%; postpartum hemorrhage 4.6%; excessive fetal growth 4.8% of the time and 16.8% of their infants were admitted to a special care nursery.

Cases in Class III (BMI \geq 40.0) had a cesarean section delivery rate of 59.3% and an average length of stay of 4 days. Hypertension was coded on 37.4% of the cases; 4.5 % with gestational diabetes; 2.7% experienced early onset of labor; 3.6% postpartum hemorrhage; 8.2% excessive fetal growth and 17.9% of their infants were admitted to the special care nursery.

Every year NPIC updates its Trend Data Base which is comprised of hospitals that have participated in the PCDB for the previous five years. This Trend Data Base is used to track the direction of outcomes and utilization metrics over time with a consistent cohort of hospitals. The trend for more than 1,364,000 deliveries reflected in the data period 2012 – 2017 (Q3) shows an increase in the percent of total deliveries coded with obesity complicating childbirth from 5.6% of total deliveries in 2012 to 11.1 % through Quarter 3 of 2017, a significant upward trend. (Graph 1) Though the introduction of ICD-10 codes in the fall of 2015 may have had some level of influence on the data, the upward trend was in place prior to ICD-10 implementation and continued after.

Clearly obesity places pregnant women at great risk for pregnancy complications and adverse fetal outcomes. Strategies for the management of obesity in women should begin prior to conception and continue through the postpartum period (ACOG, 2015). Providers expressed the benefits of group settings with social support as an ideal approach to address health issues in obese women (Kominiarek et al) . Providing programs that are sensitive to the issues of body weight and image, culturally-tailored and provide education on healthy eating and exercise are a key component to addressing the complex problem of obesity in pregnancy.



Graph 1: 2012-2017 (Q 3) Trend of Cases Coded with Obesity Complicating Childbirth

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Perinatal Substance Use: Evidence-Based Solutions and Support for the Family. Abstracts from the National Perinatal Association Annual Conference on March 14-16, 2018 at Loma Linda University Children's Hospital

The National Perinatal Association (NPA) is a interdisciplinary organization that strives to be the leading voice for perinatal care in the United States.

Our diverse membership is comprised of healthcare providers, parents & caregivers, educators, and service providers, all driven by their desire to give voice to and support babies and families at risk across the country.

Every year the NPA accepts abstracts for presentation at its annual meeting. Accepted abstracts are also published in Neonatology Today. The conference agenda can be found on the next page.

2018 Poster Awards

Innovative Model of Care

Neonatal Abstinence Syndrome: A Family Centered Approach in a Community Hospital. Authors: Lisa Z. Klein DNP, CNS, RNC-OB, RNC-LRN, CCRP, Bridget Buckaloo MSN, RN, Nancy Forsyth NNP, Theresa Crowson, RNC-OB, Ann Regacho BSW. Women's and Children's Services, Beebe Healthcare, Lewes DE

Applied and Basic Research

The Use of Weighted Blankets in the Care of Infants with Neonatal Abstinence Syndrome. Virginia Summe, RN; Margaret Eichel MSN, RN, RNC-NIC; Rachel Baker, PhD, RN, CPN TriHealth: Good Samaritan Hospital, Cincinnati, OH

NPA2018-1

Understanding Pregnancy and Postpartum-Related Mood Disorders. Diana Lynn Barnes, Psy.D Gabrielle Kaufman
Innovative Models of Care

Background: Pregnancy is a psychologically vulnerable time for women. Approximately 10% of expectant moms will experience a mood and/or anxiety disorder during pregnancy which research recognizes is the single most significant predictor of depression during the first year postpartum. An untreated mood disorder during the antenatal period leads to poor health behaviors including inconsistent prenatal care, as well as increased use of alcohol and drugs which clearly has a negative impact on maternal and birth outcomes. Unfortunately, mood disorders during pregnancy are misunderstood and frequently undiagnosed because some antenatal depressive symptoms look remarkably like many of the common and expected symptoms of pregnancy.

Content/Action: This workshop looks at the clinical presentation of depressive symptoms during pregnancy and the postpartum period in addition to highlighting risk factors and current treatment protocols. There is an emphasis on psychosocial history because of the known links between complex trauma, depression and substance abuse. Screening instruments that are used in primary care settings will be discussed.

Lessons Learned:

Untreated mood and/anxiety disorders during pregnancy increase the risks for low birthweight, prematurity, organ malformation, stillbirth, and placental abruption among other known complications. Although perinatal depression is the most common complication

of pregnancy, it is also the most treatable with an excellent prognosis when proper screening and assessment protocols are in place.

Implications for Practice:

Understanding perinatal mood and anxiety disorders by assessing risk has tremendous implications for practice. Identifying risk enables providers to put treatment and safety protocols in place so that women can maintain good mental health during pregnancy and into the postpartum period.

NPA2018-2

Applying our Family Centered model of Care and the Power of the Patient Story to change our Hypertension management practices for Expedient Treatment of Maternal Blood Pressures. Rebecca Bass, Adrienne Waugh
Innovative Models of Care

Introduction:

The model of care at our facility is family centered care and we were one of the first facilities in the United States to fully implement family centered care as taught by Celeste Philips in the late 1980's. With her consultation, we designed the largest LDRP facility in the country which includes 52 universal Obstetrical beds (LDRP rooms) and 16 Level III single room care NICU beds.

We encourage family members to be an active part of the patients stay during normal labor and delivery as well as through the care of a sick neonate. Families are included in education and facilitated in playing a vital role in the well-being of our moms and newborns. Within that model of care at Caromont Regional Medical Center's Birthplace, we value promoting women's health and wellness and strive to continually educate our patients. We address all our clinical patient care problems through the lens of our Family Centered care model.

Content/Actions:

According to ACOG, "pregnant women with acute onset of severe hypertension require urgent treatment with antihypertensives" (ACOG, 2017). Controlling Blood pressures is the optimal intervention to prevent strokes in women with preeclampsia.

Based on our typical patient census per month, about 14% of our patients are affected by maternal hypertension. Therefore, ensuring prompt treatment of hypertension is crucial for the safety of our patients and our goal is for that to be standardized care.

Upon chart audits, we determined that there was room for improvement in the expedient treatment of maternal hypertension. Audits indicated that 80% of our patients with hypertension have at least one BP over recommended parameters during their stay that were not being addressed within 30-60 minutes as recommended by ACOG.

Developing a policy to better manage and monitor adherence to hypertension best practices became our mission as we walked alongside one of our own nurses who was going through preeclampsia at 21 weeks gestation. Then as we started our improvement work on this problem, we had another familiar face from our hospital team present with extraordinary preeclampsia and the need for emergency Cesarean birth within minutes of her arrival. While baby did well and went to neonatal intensive care, this mother appeared to experience a stroke while in the operating room. We were all shocked.

Our unit "annual competencies" had focused on hypertension

March 14 Wednesday Wong Kerlee

8:00-8:45 Exclusive Human Milk Diet for the Drug-Exposed Infant
Terry Johnson, NNP-BC, ASPPS, CLEC, MN
CE not offered

Conference Registration 8:00 to 4:00

9:00-Noon FREE Seminar sponsored by NPA's Family Advocacy Network

Licit or Illicit Use: Nicotine, Alcohol, Caffeine and Cannabis with Joelle Puccio, BSN, RN

The Real Expert Panel: Lived Experience from Parents Who have Navigated the System with Ria Tsinas
www.nationalperinatal.org/fan

Noon-1:00 Lunch on Your Own

1:00-1:30 Welcome Amy Akers, NPA President

1:30-2:30 An Historical Perspective on Caring for Mothers with SUDs and Babies with NAS
Loretta Finnegan MD, LLD (HON), SCD (HON)

2:30-3:00 How People Use Drugs
Shilo Jama, People's Harm Reduction Alliance

3:00-3:30 Break - Exhibits - Posters

3:30-5:00 How Do You Convince Your Hospital Leadership Your Idea is Best for Care?
Robert Insoft, MD, FAAP

How to Reshape Your Approach to NOWs
Adam Czynski, DO, FAAP

5:00-5:30 Wrap Up of Day 1

5:30-6:30 View Posters - Visit Exhibitors

Dinner on Your Own or with Colleagues

March 15 Thursday Wong Kerlee

8:00-8:45 Babywearing and Skin-to-Skin for Substance Exposed Infants
Lela Williams, PhD
CE not offered

Conference Registration 8:00 to 5:30

9:00-9:10 Welcome Joelle Puccio, BSN, RN, Chair

9:10-10:10 Understanding the Legal Landscape
Lynn Paltrow, JD

10:20-11:30 Substance Use and Addiction: Separating Fact from Fiction
Carl Hart, PhD

11:30-Noon Break - Exhibits - Posters

Noon-1:00 Kaiser-Permanente Early Start Program
Amy Conway, MPH

1:00-2:00 Networking Lunch - provided

2:00-3:00 Drug Testing: Medical, Legal, Ethical Implications
Bethany Medley, HRC

It's Us Too: Substance Use in the Medical Professions
Cris Click, MD

Family NAS Care Program
Lisa Grisham, NNP-BC
Maureen Kane, NNP-BC

3:15-4:15 Fetal Assault Law: Understanding Its Impact on Marginalized Women in Tennessee
Cherisse Scott
Orisha Bower, BFA, MA, MEd., ABD

Project Nurture, Oregon
Kasey Edwards, CRM, CADC
Telia Anderson-Grant, PRC, CS (DONA)

4:15-4:45 Posters - Exhibitors - Networking

March 16 Friday Centennial Complex

5:00-6:00 Just of Out Reach: Drug Use, Stigma and Barriers to Care
Erin Bortel, MSW & Lyla Hunt

Support for Pregnant and Parenting Drug Users
Ria Tsinas

6:00 Adjourn

March 16 Friday Centennial Complex

8:00-8:45 mamaRoo Infant Seats in the NICU: Do They Help Calm Babies with NAS?
CE not offered Maria Synan and Chery Milford, EdS

9:00-9:10 Welcome Amy Akers, NPA President

9:10-9:45 NPA: Past, Present, Future
Annual Meeting

9:50-10:50 The Texas Integrated Model of Care - Mommies Model
Karen Palumbo, LCSW, LCDC

11:00-Noon Pharmacology of Methadone and Buprenorphine in Pregnancy
Evelyn Fulmore, PharmD

Noon-1:00 Lunch on Your Own

1:00-2:00 Disparities in Screening and Reporting in Communities of Color
JaNeen Cross, DSW, MBA, MSW

2:15-3:15 Trauma-Informed Care and Harm-Reduction Practices
Lenora Marcellus, BSN, RN, MN, PhD

3:15-3:30 Break

3:30-4:30 Understanding the Clinical Guidelines and Recommendations
Lenora Marcellus, BSN, RN, MN, PhD
Erika Goyer, Joelle Puccio, BSN, RN

4:45-5:45 Pregnancy Recovery Program
Stephanie Bobby, BSN, RN, CARN

5:45-6:00 Closing Remarks

management since 2014. Therefore we were surprised when we found in our data collection that though nurses and providers are educated in hypertension definitions, correct blood pressure procedures and the importance of expedient management of severe blood pressures, we were falling short of our goal as a highly reliable organization in facilitating zero harm for our obstetrical patients with hypertensive disorders of pregnancy.

We reviewed our policy and determined to incorporate evidence based practice guidelines and hardwire response to signs and symptoms of hypertension in obstetrical patients at the Birthplace. Nursing worked with our providers to create a "Severe Hypertensive Emergencies" order set for our electronic medical record which includes an algorithm to be initiated when severe blood pressures are confirmed.

The importance of the patient's perspective cannot be underestimated in developing best practices for patient care. The patient perspective is essential to family centered care and our colleague helped us appreciate the importance of preparing families for milestones when the patient needs to stay pregnant to achieve optimal gestational age for the neonate.

After recreating our policy, a teaching plan was developed to assist nurses in use of the order set and scenarios were used to talk through all the possible variations that nurses would face in managing patients with severe hypertensive episodes. The entire nursing team was educated in huddles at shift change and one on one education by our project leaders.

Data was collected at three intervals to determine whether the new policy was adopted by nursing staff in the care of our hypertensive patients. Our overall compliance in our follow up data collection was 90%! Education was continued by going to nurses that missed timely response timeframes by reviewing individual cases with them.

Lessons Learned:

Lessons we have learned from our project as we continue to push for 100% expedient response of every severe range blood pressure, is the power of the patient story to add passion and compassion to our delivery of best practices for patients with hypertension in pregnancy disorders.

We also learned that front line nurses need to be part of the approval process for new order sets proposed such as the "emergency hypertension order set". In remedy, our nursing practice council will review order sets prior to going live to address any issues that could present in implementation, address questions and to assist in planning and hardwiring new practices.

Implications for Practice:

The "family" directs care at The Birthplace as we continue to push toward our goal for zero harm. We appreciate the meaning we derive from real stories our families show us each and every day and the power of patient stories will continue to push us toward excellent safe care.

We believe this project exemplifies family centered care as a delivery model of care and not a "pretty environment". When families are educated and they are the focus, perinatal outcomes for mother and baby are optimized.

We are grateful that both our patient stories had positive outcomes for both the mother and baby in both the perinatal and neonatal intensive care family centered focused environments at Caromont Regional Medical Center.

NPA2018-3

Improved Service Delivery for Women who use Substances during Pregnancy. Martina Besters, CNC. Royal Prince Albert Hospital.

Innovative Models of Care
Background

Royal Prince Alfred Hospital (RPA) is Sydney Local Health Dis-

tricts (SLHD) principal referral hospital and a provider of specialist healthcare. RPAH is responsible for providing care to more than 530,000 people; the local population is expected to reach 642,000 by 2021. Within SLHD more than 8,500 babies are born every year which is more than 9 per cent of all births in NSW. RPA's Perinatal and Family Drug Health (PAFDH) service works with women and their families who identify problematic substance use in pregnancy. The PAFDH team receives approximately 100 referrals per year for assessment, support and advocacy for women who identify problematic substance use in pregnancy.

Historically, inpatient withdrawal management were delivered in an ad hoc manner to pregnant women. The care was primarily driven by drug health services with limited co-ordination with obstetric services and social work services. A coordinated and consistent approach to inpatient withdrawal management has meant that women remain engaged in hospital services and decreases the assumption (removal of children from the care of their parents by child protection authorities) of care at birth.

For women who are substance using during in pregnancy presenting to services can be met with a mixture of emotions and negative attitudes. Often women and their families would present in crisis and may have had previous negative experiences with health services, especially child protection services. Women that required inpatient withdrawal management were admitted to a general inpatient withdrawal unit in a general hospital. Women who were greater than 20 weeks gestation were not admitted. This was identified as a gap in service treatment for this marginalised population.

Providing an inpatient withdrawal management/ stabilisation service to women during pregnancy provides an opportunity for rapport building and developing trust to ensure a therapeutic relationship with a service that is non-judgmental, empathetic and respectful. The women and their families have an opportunity to be active participants in their treatment plan rather than treatment being predetermined by services. It has been well documented that substance use in pregnancy has negative impacts on a baby such as birth defects, premature birth, miscarriage, low birth weight, neurological defects and potential for neonatal abstinence. The safest management of this cohort of women is for closely supervised admission under medical /nursing care in a supportive environment.

Admission to the antenatal ward is able to provide a safe environment for baby and mother and this creates an opportunity to initiate and facilitator motivation for change, access to other services such as Aboriginal liaison midwife, perinatal psychiatry, social work, neonatology, and parent education with midwives focusing on the baby, rather than an admission to a conventional withdrawal management unit for drug and alcohol patients which is not standard practice. An admission is arranged the day of presentation in order to ensure that the patient can access support whilst motivated as pregnancy is often a time that people are motivated to address substance use issues.

Content/Action

Gaps were identified when providing care to women who identified with substance use in pregnancy. Women found it hard to complete general ward admissions, left without notice or were lost to the service which risked harm to themselves and their baby and increased the potential for child protection services to be involved. A literature review was undertaken a treatment guideline was developed by a working party focussing on collaboration and respect to provide evidence based practice for this population.

The aims of this guideline are:

- To provide information and guidance about clinical care for pregnant women admitted to hospital for withdrawal management
- To facilitate engagement into drug and alcohol treatment
- To outline rights and responsibilities of pregnant women admitted for withdrawal management

- To outline referral pathways for pregnant women admitted for withdrawal management (e.g. housing, child protection, legal services, relapse prevention counselling)

- Provide collaborative discharge planning and follow up to ensure continuity of quality care between the hospital and the community supports she and her family may require

Perinatal support plans are completed collaboratively; this facilitates consistent communication between all services involved in the client's management and treatment. Pre-admission drug and alcohol and psychosocial assessments are completed in consultation with each woman and partner if applicable. Treatment care planning and discharge planning is collaborative process amongst all members the multidisciplinary team including, relevant community supports to promote a seamless service and to prevent potential barriers.

During admission all psychosocial concerns will be addressed and the woman is supported in referrals to appropriate services such as housing, legal services for debt or family law, community mental health, domestic violence services, counselling and introduction to child protection caseworkers in a supported environment to act as an advocate for the women and her family. During the admission women are provided an orientation of the neonatal intensive care unit, parenting and birthing education, neonatal abstinence education and re-assurance around what to expect with their newborn baby.

The inpatient withdrawal management process enables identification of substance use, withdrawal management plans, stabilisation of current opioid substitution therapy, managing risk of obstetric complications, medical and psychiatric conditions, enables withdrawal management prior to admission to longer term residential rehabilitation facilities if required.

Once a woman has completed the inpatient withdrawal management program, the discharge plan which was commenced at initial assessment includes antenatal follow up appointments and an integrated care plan for the rest of her pregnancy, labour and birth and immediate postnatal period. Relapse prevention strategies are included in discharge planning to reduce the risk of women returning to substance use during her pregnancy and beyond. The woman's general practitioner will be included to ensure that her treatment and follow up plans are relayed accurately.

Lessons Learnt

We are currently trailing the RPA Antenatal Inpatient Management procedure guideline for women being admitted to an obstetric ward with collaborative treatment planning. It has been identified that patients are able to gain an improved understanding into their treatment and what may be required by them to address issues of child risk and safety to ensure positive outcomes and have baby remain in a safe environment within their care.

Midwifery staff have reported feeling more informed and comfortable in provide care to women who identify substance use in their pregnancy as they can sometimes have pre conceived ideas or feelings around this group of women. Rights and responsibilities for admission are discussed with the women to help optimise their goals of abstinence or stability and better treatment outcomes for both mother and baby post-delivery.

There has been difficulty gaining admission to residential rehabilitation facilities due to lack of placement for mother and baby to remain together, this is due to the limited number of beds available to keep mothers and children together. There is approx 30

beds state- wide within New South Wales that are able to provide services to women with substance use issues and maintain their babies with them during this time.

Implications to practice

- Provides a standard of care to enable best care outcomes for mother, baby and their families
- Ability to address issues of concern and remain abstinent or stable on opioid substitution program
- Collaboration between relevant services for coordinated care plans
- This quality improvement project has enabled the working party to attend to a retrospective file audit where within the last 12 months. 23 women were offered inpatient withdrawal management and 18 of these women gained admission to a residential rehabilitation facility with their babies, where the baby may have been previously removed until the mother had attended a residential service
- This guideline is still to be fully evaluated

NPA2018-4

Neonatal Abstinence Syndrome: A Family Centered Approach in a Community Hospital. Authors: Lisa Z. Klein DNP, CNS, RNC-OB, RNC-LRN, CCRP, Bridget Buckaloo MSN, RN, Nancy Forsyth NNP, Theresa Crowson, RNC-OB, Ann Regacho BSW. Women's and Children's Services, Beebe Healthcare, Lewes DE

Innovative Model of Care

Background: Neonatal Abstinence Syndrome (NAS) is a national issue that is a direct result of the current Opioid epidemic. Neonates that were exposed to opiates in utero are at risk for NAS. NAS is defined as: A constellation of neurological and behavioral signs and symptoms resulting from abrupt discontinuation of opioids after extended intrauterine exposure. Evidence indicates that utilizing a family centered approach and standardized plans of care for women with substance abuse disorders and their newborns with NAS improves outcomes for both. These neonates often require medication for treatment of their withdrawal symptoms which results in extended length of stay, utilization of resources, and increased hospital costs. Traditionally throughout the United States, this care is provided in a Neonatal Intensive Care Unit where the mother is separated from her newborn. At Beebe Healthcare, we are providing this care in a well – infant environment.

Content and Action: In 2014 Beebe Healthcare implemented a family centered program that includes rooming-in for the mother/infant couple, standardized care and medication guidelines, and intensive case management. The dedicated case manager for Women's and Children's services has worked outside of the hospital to establish partnerships with the local substance abuse treatment centers. Also, the case manager attends a weekly pregnancy group at the treatments centers which has allowed her to build relationships with many of the pregnant women prior to delivery, provide information and education to them about NAS, as well as the expected hospital course. We have found that this intervention works greatly to decrease their fears and anxiety about the process.

The program is introduced to the patient/family upon admission in labor including parental expectations, and the plan of care. A team



The National Perinatal Association (NPA) is an interdisciplinary organization that gives voice to the needs of parents, babies and families and all those interested in their health and wellbeing. Within NPA, parents and professionals work together to create positive change in perinatal care through education, parent programs, professional guidelines and events.

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approach is utilized to include: the mother/family, nursing staff, neonatal nurse practitioners, social work, and a community navigator. The mom is included in the NAS scoring of infant to promote her understanding of the progression or regression of symptoms in the infant. The medication protocol promotes consistency in the dosing and weaning among the providers. Compared to other programs in our state, our hospital has become a model of care and is currently the only hospital utilizing this family centered approach. An additional benefit is improved bonding and parenting as mothers feel ready to care for their infants at discharge.

Rooming in is our standard of care. Once the mother has been discharged post-partum and the newborn has begun treatment, the newborn remains in a standard postpartum room and the mother is allowed to room in with her infant to provide non-pharmacologic care and promote positive parenting. From the beginning, the mother is included in the NAS scoring of the infant to promote her understanding of the progression or regression of symptoms in the infant. In addition, it is important to help the mother recognize how her calm presence can affect the newborns symptoms and the staff make a point to note her success in calming her infant. This helps her to feel important and to appreciate that she is the best medicine for her infant. We developed a parental partnership agreement that is reviewed with the mother/family once the newborn has initiated treatment. The goal of the agreement is to establish healthy boundaries for the patient/family for the rooming-in aspect of the newborn's care. The agreement also allows the mother to identify additional family members whom she designates to provide care to her infant in her absence. Another goal is to review how important a calm environment is to the healing of her infant and how she can be the most calming influence.

The case manager begins working with these women within the first twenty four hours after delivery. She will then meet with the mother/family daily to work on the therapeutic relationship and begin goal setting. There are many themes uncovered during these visits including histories of family drug use, trauma, and abuse. The case manager works with her to find her sense of value and to encourage her to continue on her path to recovery, as well as connect her to resources. This is where the plan of safe care for the newborn begins.

Once the infant is weaned off of medication, we conduct a discharge planning meeting that includes the patient/family, the case manager, neonatal nurse practitioner, primary nurse, Division of Family services, the mother's recovery coach, and our service line navigator. The goal of the meeting is to review the plan of safe care for the newborn. The medical component of our discharge plan includes a referral to a community pediatric care provider and to refer the newborn to a skilled nursing care agency to evaluate the infant in the home to evaluate continued weight gain and absence of any signs of relapse. In addition, the mother is referred to one of several Evidenced based home visiting agencies to assist her in her recovery and successful parenting. The role of the nurse navigator is to connect the mother/family to other providers in the community including primary care, mental health, or other family services. During the discharge meeting, the mother is encouraged to share with the team aspects of the program that worked for her as well as any opportunities for improvement in the program.

Our NAS subcommittee meets periodically to review and update our guidelines. Over time we have modified our parental partnership agreement to incorporate our lessons learned as well as the input and experiences from our patient's themselves.

Lessons Learned:

These mothers/families are confronted with challenges on many levels, including having to leave the hospital each day to go to the treatment center, juggle additional children at home, lack of transportation, dysfunctional relationships, nicotine addiction, as well as other day to day issues. We have learned that it is important to meet these mothers where they are and to foster their recov-

ery and positive parenting. Mutual purpose coupled with clearly defined practice guidelines and open and direct dynamic communication daily among provider and nursing staff provide for the provision of standards of care, and safe outcomes. Our multi-disciplinary discharge meetings with the mothers/families allow the exchange of information that we use to adjust our care.

Implications for practice:

Standardized care and medication guidelines, including rooming in, intensive case management, and a team approach to the development of plans of safe care, combined with a formalized discharge planning meeting with the family, promotes safe outcomes in a community hospital setting.

NPA2018-5

Healthy Mothers, Healthy Babies: A Client-Centered, Early Advocacy Program for Pregnant Women. The Bronx Defenders. Innovative Model of Care

For 20 years, The Bronx Defenders' (BxD) interdisciplinary teams of attorneys, social workers, and advocates have reunified parents with their children and provided innovative, holistic, client-centered representation to address the underlying issues driving people into the criminal and child protection systems and the collateral consequences of that involvement.

This workshop will focus on the groundbreaking approach of Healthy Mothers, Healthy Babies (HMHB), a reproductive-justice-informed, innovative program housed within a public defender office in the South Bronx. HMHB is the national model for an advocacy-based program that specializes in working with pregnant women who are at risk of child welfare involvement. HMHB is dedicated to reducing the harm of the child protection system by keeping vulnerable families safely together and newborns out of foster care and preserving the maternal infant bond. This presentation will address the program's client-centered, early advocacy approach to working with pregnant women who use drugs, and the barriers and stigma they face in seeking health care and social services.

While much attention has been paid to the disastrous consequences to maternal and fetal health and well-being that result when criminal laws are applied to punish women for giving birth despite having used an illegal drug, there has been very little discussion of the equally punitive application of civil child welfare laws. This presentation will discuss the range of social service responses to the issue of pregnancy and drug use, focusing particularly on child welfare interventions. These responses vary considerably and presenters will address how they operate when the state must show harm or risk of harm as a result of the drug use. The presenters will discuss and compare the range of public policy approaches used to address issues concerning pregnant women who use drugs as well as share the barriers pregnant women face in seeking health care and social services.

Presenters will also introduce the innovative approach of The Bronx Defenders. The Bronx Defenders legal teams advocate with children's services and the court for what our clients want for their families and what they feel they need in order to address the issues in the home. When working with an expectant mother, the attorney and HMHB advocate work together to secure the assistance the clients feels she needs to prepare for her baby's birth. This could be anything from emergency material goods such as diapers, wipes, and formula, to linkages to rehabilitation programs where pregnant women can reside before and after giving birth. In the past fiscal year, HMHB connected 43 women to drug treatment programs that would support her sobriety or safe drug use. Twenty-five of those referrals were to mother-child inpatient drug treatment programs. When working with a mother who uses drugs, perhaps the most important role of an HMHB advocate is to advocate and support her as she moves through a system de-

signed to stigmatize and disempower her.

HMHB advocates are members of the woman's confidential legal team, and it is indisputable that HMHB advocates are uniquely suited to meet the needs of pregnant women and their families in our community. Owing to being housed within a public defenders' office, HMHB's duties of loyalty and confidentiality are solely to the women they serve. Clients are more likely to open up to their HMHB advocate about issues such as prenatal drug use because they know that their advocate will not implement a punitive intervention, such as child removal, or judgement when this information is disclosed. Instead, HMHB advocates connect women to high-quality community- or home-based services that support both the expectant mother and, eventually, her newborn.

Participants will walk away from this presentation with a better understanding of the child welfare system's response to pregnant women using drugs, as well as the practical, harmful, implications of this response within vulnerable populations. Presenters will arm participants with research pertaining to pregnant women who use drugs, and will ask participants to think critically and compare the child welfare response to the public health response.

NPA2018-6

Bridge to Hope. Emily Hall, DO, FAAP; Katie Bateman, LCPC; Tera Sperry, RN; Barbara Tracy, RN. Providence St. Joseph Medical Center, Polson, Montana.

Innovate Models of Care

Providence St. Joseph Medical Center in Polson, Montana is providing support for mothers living on the Flathead Reservation whose newborns are experiencing Neonatal Abstinence Syndrome (NAS). The Bridge to Hope Project is designed 1) to reduce the rate of maternal-infant separation in the hospital setting as a result of NAS treatment; 2) to engage addicted mothers in the care of their infant through support group sessions; and 3) to increase addicted mothers' voluntary participation in area drug treatment programs by the time of their infants' discharge. Mothers receive materials and modeling related to the holistic care of their infants aimed at facilitating mother-infant bonding. An ongoing series of ten maternal support sessions are being conducted by a multidisciplinary team including a licensed addiction counselor, a pediatrician, and nursing staff while the newborns are hospitalized for NAS treatment. The project is funded by a Montana Health Care Foundation Grant and conducted in partnership with the Confederated Salish and Kootenai tribal government and Wrapped in Hope staff at St. Joseph Medical Center who work with women impacted by substance abuse during and after pregnancy.

Background:

Prior to this initiative, common practice at SJMC was to transport infants experiencing Neonatal Abstinence Syndrome to hospital facilities up to 90 miles away, separating infants from their mothers for a median period of 19 days. According to data collected in 2016, 27% of the 62 deliveries indicated positive for drug use. The drug analysis indicated Marijuana (71%), Opiates (18%), Methamphetamines (12%), Amphetamines (12%), Methadone (12%), Buprenorphine (12%), Cocaine (6%), and Tricyclics (6%). Of those deliveries indicating positive for drug use, 29% tested positive for multiple substances. It is important to note that only one of these women who delivered had a valid prescription for licit use of opiates. Of the women who tested positive at delivery, 82% identified as Native American and 29% identified as Caucasian. As of September 2017, babies born with NAS at St. Joseph Medical Center are able to receive services locally for infant NAS, maternal substance use (if desired), and maternal-infant bonding classes along with any additionally required medical treatment. The participants in the inpatient Bridge to Hope program then are invited to transition to an already established outpatient maternal substance use support program called Wrapped in Hope.

Content/Action:

The Bridge to Hope Project is being implemented over the course of one year to develop, pilot, and evaluate a series of ten maternal support group sessions delivered by the multi-disciplinary team. During the time of infant hospitalization for the resolution of withdrawal symptoms, an opportunity exists to have supportive conversations with mothers regarding their drug rehabilitation while guiding maternal-infant bonding and establishing a maternal support system critical to the well-being of the at-risk infants. The sessions are planned for one hour each over ten days with rolling enrollment for one year as babies with NAS are born at SJMC.

Session 1 welcomes new mothers and introduces them to other mothers of infants with NAS to begin to establish a support system including the addictions counselor, the pediatrician, and nursing staff. The session includes a time for mothers to express concerns and describe the immediate needs of their families.

Session 2 focuses on the excitement and challenges of parenting a new baby including changing roles. The intent is to normalize emotive responses to the new role.

Session 3 is based upon the psycho-education on attachment as a developmental system. An emphasis is placed on developing sensitive caregivers who are attuned to their baby's needs and can establish a relationship which leads to trust and self-worth in the infant. Ways to create a responsive environment are modeled and practiced with the infants and a gift of a Baby Wrap is distributed.

Session 4 guides mothers in recognizing internal states and cues of babies, such as recognizing signs of colic and what to expect during NAS withdrawal. Swaddle Sacks are distributed to participants.

Session 5 focuses on caring for the physical and emotional needs of their infant. The importance of the mother's behaviors in directly impacting the safe and healthy development of the baby is stressed. The language of newborns is observed, such as feeding cues, diapering, bedtime, and likes and dislikes (such as overstimulation).

Session 6 addresses ways to nurture and secure attachment through "Play." In the group session, mothers "play" with their newborns and practice ways to engage during bathing, feeding, and changing the baby.

Session 7 prepares the mothers to establish routines to increase feelings of security for the infant and to make time for the mothers to meet their needs. Bedtime, feedings, and night feedings are discussed and the book *Baby 411* is disseminated.

Session 8 includes a discussion of intentional parenting, parenting styles, goals, and plans. The session assists mothers in the ability to respond to unpredictable situations and has the potential for reflection on a mother's own childhood and/or trauma.

Session 9 provides support for dealing with setbacks, disruptions in care, and stressful situations, such as Neonatal Intensive Care Unit placement, breastfeeding expectations, issues with partners, Child Protective Services involvement, sleep deprivation, social isolation, and guilt from "using."

Session 10 addresses the importance of self-care including recognizing stress triggers, combating stress, self-care strategies, knowing when to seek help and where, and recognizing signs of postpartum depression. Certificates of Completion are awarded to participants.

Lessons Learned:

Stress on hospital nursing staff needs to be acknowledged and addressed. Nurses often reflect a personal struggle between a desire to employ their technical nursing skills and the need to provide expected maternal care to infants experiencing Neonatal Abstinence Syndrome (NAS). Serving mothers with addiction challenges nurses' values about parenting. Further understanding of mothers struggling with addictions is necessary. To overcome these challenges, The Bridge to Hope Project identified two lead nurses who are a part of the multi-disciplinary team with the ad-

diction counselor to facilitate mother-infant bonding and champion changes or modifications to the curriculum as well as reinforce the material during the day and night shifts.

New mothers sometimes experience the hospital environment as stressful. However, concerns for a substance-using mother are intensified, fearing exposure as a “bad” parent and fearing losing her baby to the child welfare system. These fears can result in mothers distancing themselves from their infants. For babies born with prenatal opioid exposure, more time with parents next to them eases withdrawal symptoms and shortens their hospital stay. The value and impact of this project on infants experiencing NAS is consistent with research findings in this regard. The impetus to change the course of their addiction is being documented and early signs of enrollment in treatment programs is encouraging.

Implications for Practice:

When nurses are utilized and trained for a new role in care this can result in stronger multidisciplinary relationships and important community intervention.

Feelings of guilt experienced by substance-using mothers and their consequent addictions are a barrier to participation in the Bridge to Hope Project. Offering a welcoming, supportive, and nonjudgmental environment for maternal-infant bonding is critical to infant and maternal care.

Breaking the stigma of seeking treatment for any drug addiction is a challenge. A program designed to support mother-infant bonding can have secondary gains on building trust, empowering caregivers, and introducing the idea of voluntary drug treatment enrollment.

NPA2018-7

Bridging the Gap: A Model for Interprofessional Collaboration with NICU Graduate Parents for Development and Validation of an Online NICU Staff Education Course Focusing on Psychosocial Support of NICU Parents. Sue L. Hall, MD, St. John's Regional Medical Center, Oxnard, CA, Sage N. Saxton, PsyD, Oregon Health and Science University, Portland, OR, Sara Mosher, RN, MHA, Patient + Family Care, Bend, OR, Keira Sorrells, Founder & President, Premie Parent Alliance (PPA), Jackson, MS, Erika Goyer, Co-Chair of Family Advocacy Network National Perinatal Association, Austin, TX, Cheryl A. Milford, EdS, Neonatal Psychologist, Infant/Toddler Development Consultant, Huntington Beach, CA, Tiffany A Moore, PhD, RN, Assistant Professor, College of Nursing, University of Nebraska Medical Center, Omaha, NE, Jenene Craig, PhD, MBA, OTR/L, CNT Associate Professor/Department Chair, Brenau University, School of Occupational Therapy, Gainesville, GA, Piedmont Athens Regional Medical Center

Background and Purpose:

Hospitalization of a baby in a Neonatal Intensive Care Unit (NICU) has been described as a traumatic experience for both parents and baby leading to higher rates of postpartum depression and posttraumatic stress disorder in parents and to adverse developmental, cognitive and behavioral outcomes in their infants. While the focus of care in the NICU has historically been on “curing” the baby, it is now broadening and evolving to emphasize the importance of supporting the family-infant relationship, since ultimately, the well-being of the family affects the well-being of the baby. Research documents that NICU parents both desire and benefit from psychosocial support from NICU staff, yet many staff, including neonatologists and neonatal nurses, do not feel they have adequate skills to support these needs. NICU staff need knowledge and tools beyond what typical nursing/medical education provides. A need to fill this crucial educational gap to improve the social and emotional environment for babies, family, and staff is necessary to advance family-centered care in the NICU environment. Further, there is a move to involve parents in every aspect

of their babies' care, and for parents who are on Parent Advisory Committees, even giving input into NICU policies and procedures. Development of this NICU staff education course went one step further, involving parents in creation of content that both identifies their needs and reflects their experiences.

Design and Methods:

An online NICU staff education course was developed through a collaboration between five perinatal professionals from the National Perinatal Association (a neonatologist, two psychologists, an occupational therapist, and a parent advocate), a NICU nurse running an online educational portal maintained by Patient + Family Care, and members of The Premie Parent Alliance who served as “experts by experience.” The course “Caring for Babies and their Families: Providing Psychosocial Support in the NICU” is based on the “Recommendations for Psychosocial Support of NICU Parents” published in December, 2015, and consists of seven one-hour modules. The modules are clinically relevant, evidence-based, story-driven, resource-rich, and family-centered and include the following content areas:

- Communication Skills
- Emotional Support of NICU Parents
- Peer to Peer Support
- Family Centered Developmental Care
- Palliative and Bereavement Care
- Discharge Planning and Follow Up Support
- Caring for the Caregiver (Staff Support)

The vision is for entire NICU staffs to engage in the educational program at the same time, so as to transform the NICU culture by providing staff with the skills to improve their support of NICU families, and to engage in self-care.

During development of this NICU staff education course, including the “parent voice” was deemed to be an essential component of the course's creation, reflecting the move towards integrating patients and families into designing healthcare delivery systems that reflect their needs. Therefore, 15 graduate NICU parents were selected to be involved, and 2 or 3 were assigned as “experts by experience” to each of the 7 course content modules. An online survey about parents' experiences in the NICU was created, and 128 responses received. The graduate NICU parents were involved in: 1- selecting quotes from the parent survey to use in course content, 2- authoring trauma-informed care scripts for caregiver interactions with parents, 3- producing audio clips of their experiences, 4-reviewing content written by the technical experts, and 5-supplying resources to support course content.

Prior to the NPA conference the course will have been piloted with over 200 staff at the University of Mississippi Medical Center Level IV NICU, in Jackson, MS, including nurses, neonatologists, and neonatology fellows and over 50 NICU staff in the Level III NICU at St Johns Regional Medical center, Oxnard, CA. Staff will participate in an evaluative survey both before and after the course to determine: their knowledge of the content and their confidence in interacting with distressed parents and supporting families; their understanding of self-care, and its impact on their interactions with patients and families; and their view of the contributions of NICU graduate parents; and their opinion of the accessibility and ease related to the online content and audio/video narrative. Modifications based on course feedback will be determined before the course's anticipated national launch in January, 2018. A follow-up survey will be submitted at 6 months' time.

It is estimated that completion of all 7 modules will take approximately 8 hours (to include time to familiarize with the online platform).

Impact or Results:

We present the process we used to develop this NICU staff education course on providing comprehensive psychosocial support to NICU parents as a model for collaboration between a multidisciplinary group of professionals and NICU stakeholders, i.e., parents of NICU babies. Our hope and belief is that parental in-

volvement in the course's development will greatly enhance its relevance and credibility with staff. This universal education program will be offered to NICU staff around the country.

Implications for Practice:

Interprofessional collaboration with NICU parent graduates is a viable model for developing NICU staff education that truly is truly inclusive of the parent's voice and thereby enhances its relevance. NICU staff can benefit from a continuing education course that focuses on how to best provide psychosocial support to families of babies hospitalized in the NICU; this course therefore has the potential to improve the social and emotional environment of the NICU for babies, family and staff.

Learner Objectives:

1. Gain a greater understanding of the conceptualization and development of the online course "Caring for Babies and their Families: Providing Psychosocial Support in the NICU."

1. Identify barriers and solutions to implementation of "Caring for Babies and their Families: Providing Psychosocial Support in the NICU."

2. Gain a greater understanding of the importance of interdisciplinary and parent-professional collaboration in the creation of programmatic content.

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NPA2018-8

Establishment of Normative Data on the Neurodevelopmental Infant Screening Tool (NIST) During the First Year of Life. Joanne S. Katz, PT, DPT, PhD, Agnes Perenyi, MD, Tzipporah Sklar, MD, State University of New York, Downstate Medical Center, Physical Therapy Program (This research was previously presented as a platform presentation at the New York Physical Therapy Association statewide conference on October 20, 2017 in Troy, NY)

Applied Research

INTRODUCTION:

The Neurodevelopmental Infant Screening Tool (NIST) was developed to be a measure of global central nervous system func-

tion in nine streams of development in the first year of life and is intended to be used to screen infants at risk for neurodevelopmental delay. It includes a whole repertoire of development, and assesses developmental delays as well as focusing on qualitative impairments, which may not be detected in other multidimensional tests. The intended use of the NIST will be to identify neurodevelopmental problems so that relevant services may be implemented in a timely fashion. The purpose of the current study was to obtain age-related norms among healthy, typically-developing (TD) infants for developing a scoring system for the NIST. We hypothesized that the scores obtained on the NIST for infants from birth to one year of age would correlate with their chronological age.

METHODS:

This is a correlational study with the intent of examining the relationship between the age of a TD infant and scores on the NIST. The study was approved by the Institutional Review Board of our medical center. Healthy infants born from birth to 12 months of age, who were a single birth born term without medical, neurological or maternal complications, whose birth weight was normal for gestational age, were recruited. Parents/guardians from the community and from our outpatient clinics were asked by one of the investigators if they would like to have their child participate in the study. After an informed consent form was read and signed, investigators ascertained if the infant was eligible for the study based on a completed health questionnaire by the parent. The NIST was then performed during the outpatient visit or in the infant's home. A Pearson product-moment correlation coefficient was calculated to determine the correlation between the age in months and the total NIST score and individual scores on each stream of development on the NIST.

RESULTS:

A total of 225 TD infants from birth to 12 months of age participated in the study. This included 103 females and 122 males, with a mean age of 6.5 months. Correlation between age and NIST scores were high, with r values ranging from 0.87 to 0.95.

DISCUSSION:

This study provides validation for the use of the NIST with typically developing infants and supports our hypothesis. Since NIST scores were shown to be well correlated with infant age from birth to 12 months, the use of this instrument with infants who are at risk for developmental delay will demonstrate if the infant is on target with various developmental milestones on the NIST. This will assist pediatric practitioners to determine if early intervention is warranted. Screening tools that help us to determine an infant's need for early intervention at a young age may help improve the child's neurodevelopmental outcome.

NPA2018-9

Christiana N Oji-Mmuo¹, MD, Lucia Liao², BS, Eric Schaefer³, MS, Deepa L Sekhar⁴, MD, MSc

¹Division of Newborn Medicine, Penn State Health Children's Hospital, Hershey, Pennsylvania. ²College of Medicine, Penn State University Hershey, PA. ³Department of Public Health Sciences & Biostatistics, Penn State College of Medicine. ⁴Division of Academic General Pediatrics, Penn State Health Children's Hospital. Determining the optimal length of time to monitor newborns for neonatal abstinence syndrome (NAS)

Background:

The American Academy of Pediatrics recommends that infants born to mothers with a prenatal history of opioid use be observed for 4 to 7 days for symptoms of withdrawal, yet most mothers are discharged within 72 hours and individual centers vary widely in their policies on NAS length of stay. Unnecessary length of stay leads to disrupted breastfeeding limited maternal-infant bonding in the first week and increased hospital costs.

Objective:

To determine whether hour-by-hour distributions of the modified Finnegan Scoring tool (MFS) scores for infants could be used to guide clinicians regarding whether infants could be safely discharged home after 72 hours for outpatient follow-up versus extended inpatient monitoring.

Methods: MFS recorded in the medical record were examined prior to pharmacologic treatment in the first 7 days after birth on term infants monitored for NAS born between Jan. 2011 to Dec. 2016 at the Penn State Milton S Hershey Medical Center. In accordance with clinical practice, mean MFS scores were calculated from the 3 most recent scores. Quantile regression was used to estimate the percentiles of mean MFS scores as a function of time after birth and prior to treatment.

Results:

Estimated percentile curves (Fig. 1) were based on 5066 mean MFS scores from 202 infants obtained prior to treatment, of which 81 (41%) were treated for NAS within the first 72 hours. Among the remaining 121 infants not treated or discharged at 72 hours, 42 had a mean MFS below 25th percentile at 72 hours and none were ultimately treated; 69 infants had a mean MFS between 25th and 90th percentile and 5 of them (7%) were eventually treated; 10 infants had a mean MFS score above 90th percentile and 7 of them (70%) eventually treated. The trend is highly significant ($p < 0.001$) using a Cochran-Armitage test.

Conclusion:

This is the first study to evaluate percentiles of MFS in neonates with NAS. It is hoped this work will be the starting point for collecting data on a larger, multi-institutional sample of infants to develop an evidenced-based tool for providers to safely make discharge plans for infants being monitored for NAS. These data will have significant implications for length of stay, hospital costs, breastfeeding success and maternal-infant bonding.

NPA2018-10

Infant feeding experiences of mothers receiving medication assisted treatment for an opioid use disorder. Kelly McGlothen, PhD, RN, IBCLC, NTMNC. University of Texas Health Science Center at San Antonio

Applied Research

Background:

Opioid use disorders (OUDs) affect a growing number of women of childbearing age. In 2009, more than 23,000 pregnant women in the United States were reportedly using opioids when they delivered; a 475% increase from 2000. Currently, medication assisted treatment (MAT) with methadone is the standard of care for pregnant women who are dependent on opioids. The Academy of Breastfeeding Medicine recommends breastfeeding for mothers receiving MAT who have no other contraindications to breastfeeding. Breastfeeding also offers multiple benefits for infants that may be of specific significance to opioid-exposed infants. Despite the known benefits and recommendations for breastfeeding, mothers receiving MAT often face challenges due to misconceptions about the effects of MAT on the infant and the stigma associated with addiction. Little research exists to explain how mothers receiving MAT make infant feeding decisions. The purpose of this qualitative study is to explore the infant feeding experiences of mothers receiving MAT for an OUD.

Methods:

A multiple case study approach was used to explore the phenomenon of infant feeding experiences among mothers receiving MAT for an OUD from multiple perspectives including the mother, family members, health care providers, and social service providers (N=29). The study was grounded in an intersectional feminist perspective using the Socio-Ecological model as a sensitizing framework. Participant recruitment took place at the local county hospital and substance use treatment centers. Participant interviews, participant observations, and policies and protocols were used as data sources. The data was analyzed using qualitative content analysis.

Results:

Three major themes emerged from the data analysis. The first theme was "it's all for the baby" consisted of the two subthemes "breast is best vs what is best" and "a special bond," and emerged as mothers described their experiences surrounding infant feeding for their infant diagnosed with neonatal abstinence syndrome. The second theme "so that's why I did it," consisted of the two subthemes "gathering information" and "maternal concerns," and emerged as mothers described how they made their infant feeding decisions. The third theme was "between a rock and a hard place" which consisted of the two subthemes "the rocks" and "the hard places," and emerged as mothers described factors that influenced the infant feeding decisions. Findings from each theme describe the experiences of managing infant feeding from the perspective of the mother's family member, healthcare providers, and social service providers.

Discussion:

The findings from the current study contribute to the body of knowledge surrounding infant feeding experiences in mothers receiving MAT for an OUD, and highlight the major tenets of intersectionality. The inherent facilitators and barriers to breastfeeding for the participants were described through the analysis of multiple sources, further addressing the complexity of oppression, stigma, and resilience associated with maternal substance use. This knowledge provides a basis for creating and testing sustainable interventions as well as developing effective health policies to improve infant feeding outcomes in this population of mothers and infants.

NPA2018-11

Addressing Behavioral Health as Routine Perinatal Care Improves Health Outcomes. Jennie Oberkrom, MSW, LCSW; Maribeth Hollinshead, RN, MSN. Signature Care Management (We presented a similar abstract as a poster at the 2016 National Perinatal Association Conference)

Background:

There is an urgent need to address opiate addiction amongst pregnant women to ensure the health of mothers and babies. Prenatal opiate and cocaine use are proven risk factors for preterm births, elevating preterm birth levels far above the national average. Preterm births are associated with a higher level of infant mortality and carry a lifelong higher risk of illness and complications for the child. Given these risk factors, it is essential for health care providers to help pregnant women with addiction well before the baby is born.



The National Perinatal Association (NPA) is an interdisciplinary organization that gives voice to the needs of parents, babies and families and all those interested in their health and wellbeing. Within NPA, parents and professionals work together to create positive change in perinatal care through education, parent programs, professional guidelines and events.

www.nationalperinatal.org

Behavioral health concerns beyond substance use, including depression and anxiety, can have a large impact on pregnancy outcomes. Drug use is one way to cope with the effects of toxic stress and trauma. By incorporating behavioral health into prenatal care and addressing the stress and trauma patients experienced, patients have a better chance to overcome their addiction. Yet, despite behavioral health and social determinants of health having a large impact on health outcomes, most OB/GYN offices do not have the capacity to address the variety of needs patients face that negatively affect pregnancy, including substance use, which are especially common for pregnant Medicaid beneficiaries.

Signature Care Management began an innovative maternity care program in 2013 to incorporate behavioral health into routine perinatal care with social workers addressing behavioral health concerns including substance use. Through care coordination provided by an interdisciplinary care team and reliable referrals to community partners, the unique needs, stressors, and behavioral health concerns of each patient were addressed to reduce the likelihood of costly preterm births and adverse birth outcomes.

Content/Action:

Signature Care Management implemented a maternity care home model that provided pregnant Medicaid beneficiaries with patient-centered, physician-driven care that incorporated behavioral health. This comprehensive perinatal model addressed all aspects of a woman's health, including physical, mental, and environmental aspects within a trauma-informed framework. An interdisciplinary care team composed of an OB/GYN clinical team, nurse care manager, and master's level social workers coordinated care to address the unique needs and stressors for each patient. Social workers conducted biopsychosocial risk assessments, including screens for mental health and substance use concerns, to identify factors patients were experiencing that negatively impact pregnancy including trauma, substance use, toxic stress, intimate partner violence, and perinatal mood and anxiety disorders (PMAD). Many women entered the program in a crisis state with emergency needs, experiencing stressors such as unmanaged medical and dental conditions, chronic unemployment, inadequate food supply, unsafe living conditions, interpersonal violence, substance use, and mental health concerns. In addition to substance use counseling, all patients had access to nutritionists, childbirth education classes, smoking cessation programs, family planning, and behavioral health services. For substance use treatment, patients were provided with a reliable referral to the appropriate level of treatment. Simultaneously social workers provided motivational interviewing and support to throughout the process to encourage treatment. All patients were connected to vital community resources needed throughout their pregnancy. To encourage timely prenatal care, patients were assisted with the Medicaid application and approval process. We implemented the model in eight participating OB/GYN practices in Missouri, located in St. Louis, Kansas City, and Bolivar.

Results/Lessons Learned:

In nearly three years of implementing the model for high-risk pregnancies, over 1,500 pregnant Medicaid beneficiaries completed the program. By expanding the OB/GYN clinical team to incorporate social workers as essential members of the care team to address behavioral health needs, preterm births were reduced by 15 percent compared to historical data. The average gestational age at initiation of OB care was 13 weeks, reduced by a week since program inception. Regarding prenatal care, 85 percent of patients attended over 80% of the recommended visits. For postpartum care, 78 percent of patients received postpartum care. The C-section rate was reduced by 31 percent compared to historical data. In addition to improved prenatal outcomes, 95 percent of patients report satisfaction with the program.

Within an evidence-based context, our program takes a strengths-based, goal-oriented approach that emphasizes a patient's right to self-determination. While the patients would not necessarily

share their stressors with their OB physician, social workers were able to take the time necessary to build trusting relationships with patients. As a result, patients felt more comfortable disclosing personal information so action could be taken to address their needs. Patients were supported and empowered to take action to address risk factors associated with preterm births including seeking substance use treatment.

Implications for Practice:

The improved prenatal outcomes demonstrate the impact of a comprehensive maternity care model that includes social workers as part of the care team to address behavioral health concerns and social determinants of health. By addressing medical care, mental health care, and additional psychosocial needs, patient risks are reduced and maternity outcomes are improved. Our innovative program is not just reactive to babies born to mothers with substance abuse or other conditions. Instead, we help mothers prepare for the arrival of their child by providing resources for their needs and helping them change when they are ready and supporting them after delivery. The perinatal period is a time when behavioral change can have the biggest impact for long-lasting change to improve health outcomes for both the mother and child. Our maternity care home model, using an interdisciplinary team, is breaking down barriers to healthcare, providing a support system for pregnant women, and improving maternal and child health.

NPA2018-12

Promoting Utilization of Alcohol SBI/SBIRT among Perinatal Nurses with Reimbursement Policy. Becky R. Porter, MS, LPC, Bridget Hanson, PhD. Center for Behavioral Health Research and Services. University of Alaska, Anchorage.

POLICIES – Perinatal Substance Use

Introduction:

More U.S. women are drinking alcohol and consuming higher quantities of alcohol than in previous decades. Although the rate of unintended pregnancy has slightly decreased in recent years, approximately 48% of pregnancies are unintended. Taken together, these trends combine into risk for alcohol-related birth defects. The teratogenic effects of alcohol exposure to a developing embryo and fetus during pregnancy can cause a range of impairments known collectively as fetal alcohol spectrum disorders (FASDs). Although most women stop drinking alcohol upon pregnancy recognition, an estimated 2-5% of children in the U.S. are affected by an FASD. FASDs are lifelong, can be severe, and are costly in terms of healthcare and societal impacts. Therefore, prevention is critical. Alcohol screening and brief intervention (SBI), also known as screening, brief intervention, and referral to treatment (SBIRT), is an effective and economical clinical practice used to identify patients at-risk for alcohol misuse and intervene through brief counseling to promote behavior change and prevent negative health outcomes. Despite federal recommendations and ongoing efforts to train healthcare providers and support implementation of alcohol SBI/SBIRT within clinical systems, barriers to routine provision persist. Reimbursement reform for alcohol SBI/SBIRT services addresses one oft-cited barrier and may facilitate adoption of the practice.

Context:

A comprehensive review of Medicaid policies was conducted to understand alcohol SBI/SBIRT reimbursement variations across states. A reimbursement status was assigned to each state (i.e. active billing codes and reimbursement policy; active billing codes, no policy; inactive billing codes) and compared to surveillance data from the Pregnancy Risk Assessment Monitoring System (PRAMS). PRAMS data included six maternal behavior/health indicators specific to alcohol use. Results of the comparison highlighted geographic areas with risk factors for alcohol-exposed pregnancies and the extent to which Medicaid policies

allowed for financial compensation for alcohol SBI/SBIRT use in clinical settings.

Practice Application:

Reimbursement policies are an important means to support alcohol SBI/SBIRT utilization and, subsequently, FASD prevention. However, states vary considerably with regard to compensation for alcohol SBI/SBIRT services. Very few states had comprehensive reimbursement policies for alcohol SBI/SBIRT. Many with existing policies did not allow for a variety of healthcare provider types to be eligible for alcohol SBI/SBIRT reimbursement, or for the service to be based on clinical need or health condition. Among states with no reimbursement policies, policy adoption could be promoted through collaboration with key stakeholders in order to ensure quality Medicaid services and to address feasibility issues among provider groups so that maximal use of the service is realized. Ongoing monitoring of other available data will allow states to track the impact of policy on health outcomes of interest and can be used for policy refinement. Finally, perinatal nurses can advocate for inclusion as allowable service providers and among practice settings eligible for reimbursement. Alcohol SBI/SBIRT delivered universally by perinatal nurses' can be used to promote healthy pregnancy outcomes, potentially reducing cases of FASD.

NPA2018-13

Clinical Strategies to Prevent Unintended Teratogen Exposure during Pregnancy. Carolyn Shaputnic, RNC, MPH, Becky R. Porter, MS, LPC. Center for Behavioral Health Research and Services. University of Alaska, Anchorage.

INNOVATIVE MODELS OF CARE

Background:

Alcohol use and misuse among U.S. women is increasing, especially among reproductive-age women who are college educated, middle-class, and white. Additionally, unintended pregnancy rates are known to occur among nearly half of U.S. pregnancies. Alcohol is a well-known teratogen. Its use at varying levels during any point in pregnancy has been acknowledged as potentially harmful to a developing embryo and fetus and can include lifelong impairments associated with fetal alcohol spectrum disorder (FASD). An estimated 2-5% of children in the U.S. are affected by FASD making it more common than autism spectrum disorder. Further, mothers of children with FASD are known to be highly stigmatized for their past behavior. These combined trends underscore perinatal nurses' ideal position to inform women, their partners, and their families of the risks associated with alcohol consumption during pregnancy, and give rise to the use of evidence-based strategies to reduce harms and promote healthy pregnancies.

Content/Action:

Currently, there is no known safe amount or type of alcohol use at any time during pregnancy. With only one in six U.S. adults ever having talked with a healthcare professional about their drinking, many women of reproductive age may be unaware of the potential risks of alcohol use to their own health or to the health of a developing embryo or fetus. Additionally, stigma may increase a woman's fear of being judged or devalued by others and contribute to the decision whether or not to disclose alcohol use as part of the client encounter, particularly during pregnancy. Thus, perinatal nurses have the responsibility to provide clear, fact-based information regarding risks of alcohol consumption through an empathic and non-judgmental conversational approach as part of preconception and prenatal care. This presentation will highlight the teratogenic effects of alcohol use and the neurobehavioral and developmental risks of prenatal alcohol exposure, offer the perspective of a birth mother's experience of having a child living with FASD, and promote perinatal nurses' routine use of evidence-based practices to prevent alcohol-exposed pregnancies.

Lessons Learned

Pregnant women are well-informed of the potential risks for harm to themselves and/or unborn child associated with contaminated foods, certain over-the-counter medications, and occupational chemicals. A disconnect between alcohol use and pregnancy persists. Sensitivity and clear messaging from healthcare providers when addressing this issue is of importance.

Implications for Practice:

Evidence-based strategies, including alcohol screening and brief intervention (SBI) and screening, brief intervention, and referral for treatment (SBIRT), can be used by perinatal nurses' to identify, inform, and advise women who are at-risk for an alcohol-exposed pregnancy. Such universal practices have the potential to reduce cases of FASD.

NPA2018-14

The Use of Weighted Blankets in the Care of Infants with Neonatal Abstinence Syndrome. Virginia Summe, RN; Margaret Eichel MSN, RN, RNC-NIC; Rachel Baker, PhD, RN, CPN. TriHealth: Good Samaritan Hospital, Cincinnati, OH.

Purpose:

To generate new knowledge and advance nursing practice in the care for infants with neonatal abstinence syndrome (NAS). This staff nurse-led pilot study examined the use of weighted blankets to reduce symptoms of NAS and promote optimal health and well-being of these infants.

Background/Significance:

Because of the limited benefit in alleviating symptoms and potential adverse effects of pharmacologic interventions, it is important that the best non-pharmacologic interventions are used initially to reduce the need for drug therapy. However, there is little evidence on the effectiveness of non-pharmacologic interventions in this patient population. This study sought to fill a gap in the literature by evaluating a novel intervention, weighted blankets, to decrease symptoms among NAS infants.

Methods:

This pilot study assessed the feasibility of a cross-over randomized control design to study the impact of weighted blankets on infants with NAS symptoms. 15 infants admitted to the NICU with gestational age greater than, or equal to 37 weeks, and positive maternal drug screen were enrolled. Informed consent from the infant's mother was obtained. Each patient was provided a One pound weighted blanket. All subjects received alternated care between weighted and non-weighted blanket placement prior to feeding or sleeping, with weighted blankets used a maximum of four times daily. A Finnegan score and vital signs were obtained before placement of the blanket, immediately upon blanket removal, and 30 minutes after blanket removal.

Results/Preliminary Findings: Preliminary data have been analyzed on 5 males and 7 females with a mean age of 5.8 days (SD=7.5) and a mean weight of 3110.8 grams (SD=353g). Half the infants were exposed to a single drug in utero and the rest were exposed to multiple drugs. Weighted blankets were used for 30 sessions. Nurses reported the weighted blankets were easy to use and there were no adverse events using them. There was no change in infant's temperature, respiratory rate, or Finnegan score before weighed blanket use and after the weighted blanket had been in place for 30 minutes. However, there was a greater decrease in infant's heart rate after weighted blanket use compared to non-weighted blanket use ($p=0.025$).

Conclusions and Implications for Practice:

Weighted blankets are a safe intervention to use with infants with NAS. Infants appeared to sleep more and their heart rate decreased. These findings support the need for a well-powered study examining the effectiveness of weighted blankets to promote nursing practice and improve patient outcomes.

NPA2018-15

Fauquier Community Coalition of Family Centered Neonatal Abstinence Syndrome (NAS) Care

Kelly Walsh-Hill, PT, Elsie Mainali, MD Fauquier Health, Warrenton, Virginia

Innovative Models of Care

Background:

Fauquier County, Virginia is located in the rural Piedmont Valley, 45 miles from Washington, DC and 25 miles from the Blue Ridge Mountains and Skyline Drive. Population in 2014 was estimated at 68,248. Fauquier Hospital, located in the County Seat of Warrenton, is the only hospital in the County and has an average of 750 births annually.

The Opioid epidemic is a national crisis and the Fauquier Community is not immune. In 2015, Fauquier Hospital had 6 babies diagnosed with NAS and this jumped to 19 in 2016. The growing number of opioid dependent Mothers demanded the community's attention. The Medical and Mental Health community, led by Neonatologist, Dr. Elsie Mainali, recognized that, in a rural county with limited resources, a collaboration of care was essential to protecting the health of babies and preserving the Mother-Infant dyad.

Content/Action:

Phase 1 was to identify the scope of the problem. Universal Urine Toxicology Screening of all Mothers at the time of delivery was initiated in 2016, and positive urine screens quadrupled from 2015 to 2017. Positive toxicology in the urine, meconium, and cord of their babies doubled, as did the number of NAS diagnoses.

Result: Universal screening opened an honest dialogue between Obstetricians and their pregnant Mothers early in the pregnancy, which resulted in an earlier referral to pre-natal counseling with the Neonatology (NEO) Team. This reduced anxiety in expectant Mothers.

Phase 2 was to establish a Protocol for the management and treatment of NAS. The interdisciplinary Neo-Team developed a Non-Pharmacological plan of care (neuroprotective, developmental methods) and a Pharmacological protocol. Education of Staff was conducted to increase inter-rater reliability in Finnegan scoring; increase knowledge in neuroprotective developmental care methods; and proper collection of toxicology. The Neo Team consisted of Neonatologist, Neonatal Nurse practitioners, bedside Nurse, Pediatric Physical Therapist, Pharmacy, and Social Worker.

Result: The average length of stay (LOS) for babies who stayed with their Mothers during the post-partum period reduced from 5 to 3 days. The number of babies admitted to the Intensive Care Nursery (ICN) remained the same. Mothers with babies in the ICN visited less and were anxious about Child Protective Services (CPS) involvement and losing their baby.

Phase 3 focused on expansion of the Neo-Team Pre-natal counseling program to a Family Centered Care model that emphasized a Family-Provider Partnership contract; Family Centered Care Curriculum, and NAS education materials. Mothers were provided rooming-in accommodations with meals and trained in neuroprotective, developmental methods and encouraged to participate and provide daily care for their babies, at a minimum of 10 hours/day. Lactation support was available for those Mothers who wished to pump and, when possible, breastfeed. Mothers were invited to attend weekly rounds with the Neo-Team to discuss progress. CPS Social Worker was invited and began attending weekly rounds. The collective goal of preserving the family unit was consistently conveyed by all Team members. Automatic referral and eligibility to Early Intervention (EI) for the baby was established prior to discharge. An interagency agreement was established between the Community Services Substance Abuse (SA) Counseling Program and Social Services to provide one-on-one SA counseling for the Mother, as part of the CPS Safety Plan.

Both EI and SA services were provided home-based for the Family. Community Support Group information was provided to the Mother and her family.

Result: 50% of Mothers attended pre-natal counseling; 57% roomed-in for a minimum of 10 hrs. /day; and LOS decreased from avg. of 33 days to 21 days for NAS babies. Parent-Staff relationships were strengthened with increased communication and interaction. Mothers (and family members) gained confidence in techniques to help their baby such as reading infant cues, managing stress, and feeding. Increased trust in post-discharge community resources resulted in greater compliance with after-care programs such as Early Intervention for the babies and Substance Abuse Counseling for the Mothers. In Mothers with opioid dependency, the number of Mother-Infant family units separated decreased from 27% in 2015 to 20% in 2017.

Phase 4 (in progress) Goal will focus on the establishment of a Comprehensive Health Clinic where services will include OB/GYN care, substance abuse care, and pediatric care. Securing a central case management agency to assist Mothers/Caregivers in navigating both medical and social services and supports is a priority. Peer to Peer Support program involving former patients is being explored.

Lessons Learned:

The unique characteristics of the opioid dependent pregnant Mother requires a unique method of service delivery. Distrust, dishonesty, and denial are barriers that must be met with sensitivity, transparent communication, and parent empowerment. Pre and Post-natal service planning must start as soon as the Mother is identified to allow time for relationship building and the allocation of resources. Reassurance for the Mother that she is valued is essential to her participation in the care of her baby during withdrawal and in accessing community supports and services after discharge. Cost-efficiency in both medical and community services can be achieved with collaborative agreements. Small rural communities with limited resources have the capability to provide quality care when education and interagency collaboration are made a priority in public health.

Implications for Practice:

Family centered care for this Mother-infant dyad should focus on education, interventions, and case management supports. Collaboration between medical, social and mental health services is required in order to achieve positive outcomes. A funded continuum of care, that begins prenatally and continues after discharge, is necessary in order to insure optimal health and development of the Mother and baby. Ongoing training and staff support should be provided and funded to achieve best practice, as care management continues to evolve.

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The Genetics Corner: A Consultation for Nasal Hypoplasia

Robin Clark, MD

Case History:

This 7-month old African American female presented to the Craniofacial Team with severe congenital maxillonasal hypoplasia. Her G3 P2 mother denied teratogenic exposures, including medications such as warfarin. Her pregnancy was complicated by early onset, severe and prolonged hyperemesis gravidarum, from 6 weeks gestation. She was treated at home with IV fluids 4 times a week from 9-22 weeks gestation. Between 6-12 weeks gestation, the mother lost 15 lbs. (9% of her prepregnancy weight). In the third trimester, she gained 10-15 lbs. but there was no net weight gain above her prepregnancy weight. The patient was born at term with a birth weight of 5 lbs 15 oz (10th%ile). Aside from her small nose, she had no health problems. She was healthy and she grew and developed normally. Her brain MRI was unremarkable. On physical exam, her nose was flat and broad with a short columella. She also had a wide philtrum, midface hypoplasia, infraorbital creases and a concave facial profile. Her extremities, including her digits, were normal. Skeletal radiographs have been ordered.

Consultant's report:

This infant has the characteristic short nose and flat profile of Binder phenotype (or Binder syndrome). Prenatal exposure to warfarin causes a similar facial phenotype, with the additional findings of stippled epiphyses (punctate calcifications) and distal hypoplasia

of the digits. These features are caused by first trimester Vitamin K deficiency. Warfarin, a synthetic coumarin, is a Vitamin K antagonist that has its fetal effects from 6-9 weeks gestation. Hyperemesis gravidarum, when it causes a maternal dietary deficiency of Vitamin K, produces a similar phenotype to warfarin embryopathy (called a "phenocopy").

Vitamin K's important role in blood clotting was recognized when it was first discovered, which is why it was named for the German word *koagulation* (Howe and Webster, 1994)¹. Several hepatic coagulation factors require Vitamin K for their production. Vitamin K deficiency in the 2nd and 3rd trimesters is a well-known cause of fetal and neonatal hemorrhage. Less well known, however, is Vitamin K's role in controlling calcification of skeletal and other tissues. Both of these functions are disrupted by early maternal Vitamin K deficiency or antagonism in the first trimester. Rat pups exposed to warfarin have reduced snout length and heavy calcification of the normally cartilaginous nasal septum. The same mechanism is likely to cause nasal hypoplasia in human fetuses as a consequence of the teratogenic effects of Vitamin K deficiency.

The skeletal effects of Vitamin K are mediated through two extra-hepatic Vitamin K-dependent proteins, MGP (matrix gla protein) and BGP (bone gla protein). BGP is secreted by osteoblasts and odontoblasts and is found in bone and dentine. MGP is secreted by chondrocytes and accumulates in cartilage, including the de-



The nasal bridge is flat and the nose is underdeveloped, short and wide. The columella is short. The philtrum is long and wide. There are infraorbital creases, a sign of midface hypoplasia.



This 7 month old female has maxillonasal hypoplasia and a concave profile. Note that her lips are more prominent than her nose.

veloping nasal septal cartilage. MGP functions early in gestation during initial stages of mineralization. Active MGP keeps cartilage uncalcified when the developing human skeleton starts to ossify at 7-8 weeks gestation, which corresponds to the critical period for warfarin embryopathy. Both MGP and BGP require Vitamin K as a co-factor for carboxylation, a key step in their activation. Vitamin K deficiency or antagonism keeps these proteins in their inert state and ablates their function.

In this patient, Binder phenotype was caused by Vitamin K deficiency early in the first trimester as a consequence of maternal malnutrition due to severe hyperemesis gravidarum (HG)². Only 9 similar cases have been reported in the medical literature. In 2013, Toriello, *et al.*, described the neonatal effects of Vitamin K deficiency in eight patients with maternal malnutrition caused by HG (6 cases), bulimia (1 case) or Crohn's disease (1 case)³. Lane, *et al.* (2015) added one additional case with fetal ultrasonographic evidence of Binder phenotype at 14 weeks in a pregnancy complicated by severe HG from 7 weeks gestation². These authors recommend considering Vitamin K deficiency whenever hospitalization is required for HG, screening affected women with PT and PIVKA-II (Protein Induced by Vitamin K Absence) levels for early evidence of Vitamin K deficiency and treating with Vitamin K replacement therapy.

The differential diagnosis of Vitamin K deficiency during pregnancy also includes maternal malnutrition due to bariatric surgery, malabsorption due to chronic pancreatitis, deficient Vitamin K metabolism due to severe liver dysfunction, Vitamin K antagonism due to maternal consumption of warfarin, anticonvulsants, alcohol, salicylates and autosomal recessive Vitamin K deficiency states (VKCFD1, MIM 277450; VKCFD2, MIM 607473).

The association between Vitamin K deficiency and early severe HG may be rare, but it is also likely to be underascertained, because the history of early hyperemesis gravidarum is not sought or its significance is not appreciated. Most patients with Binder syndrome are undiagnosed until adolescence.

Assessment: The diagnosis is Binder phenotype. This infant's nasal hypoplasia was caused by Vitamin K deficiency due to severe first trimester hyperemesis gravidarum. This is a teratogenic phenomenon without any known genetic etiology.

Practical applications:

1. Review maternal health history. Ask about teratogenic exposures and early hyperemesis gravidarum when taking a pregnancy history. Note severity of HG, therapy, timing, maternal weight loss.
2. In a baby with unexplained nasal hypoplasia, consider various causes of first trimester Vitamin K deficiency or antagonism (warfarin embryopathy) in the differential diagnosis.
3. Examine the digits for hypoplasia and consider radiographs for stippled epiphyses or ectopic punctate calcification when Vitamin K deficiency is suspected.

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Diversity and Disparity: Breaking Down Access Barriers



Dear Colleagues,

For the third year in a row, the Institute for Patient Access and National Coalition for Infant Health hosted the 2017 Infant Health Policy Summit in Washington, DC on October 26.

Health care providers, patient advocates, and policy makers gathered to discuss patient access issues facing vulnerable infants and their families.

Expert panels explored how the opioid crisis is bringing a baby boomer disease to pregnant women and how an attempt to fix hospital tubing mix-ups could endanger preemies in a new way. Other discussions centered on how existing problems, such as preemies' inability to access preventive treatment for respiratory syncytial virus or an exclusive human donor milk for optimal nutrition, continue to pose risks.

The summit's keynote address featured Adam Busby, star of TLC's "OutDaughtered." The show chronicles the life of he and his wife, Danielle, as parents of all-girl quintuplets. Earlier this year, during the show's third season, Adam came public with his experience of paternal postpartum depression.

Attendees also heard from Andrew Rosenberg, director of the Newborn Health Initiative. Once a preemie himself, Rosenberg advocates for medicines that are designed for and tested on infants. There has not been a new drug approved to improve survival and outcomes in premature infants in over 25 years.

The National Coalition for Infant Health invites providers and organizations affiliated with premature infants through age two to submit a request for coalition membership. There is no charge to become a member, however membership is determined by the NCfIH Steering Committee on a monthly basis. We welcome new members and look forward to your active participation.



Adam Bisby is interviewed by Susan Hepworth, Director of the National Coalition for Infant Health



Suzanne Staebler leads a panel discussion on the risk of vertical transmission of Hepatitis C.

We have the summit video and recap here:

<http://www.infanthealth.org/summit/>



Diversity & Disparity: Breaking Down Access Barriers



Mitchell Goldstein discusses the benefits of an exclusive human milk diet for preterm infants with the panel. Sincerely,

Mitchell Goldstein, MD
 Medical Director
 National Coalition for Infant Health

The National Coalition for Infant Health is a collaborative of more than 150 professional, clinical, community health, and family support organizations focused on improving the lives of premature infants through age two and their families. NCFIH's mission is to promote lifelong clinical, health, education, and supportive services needed by premature infants and their families. NCFIH prioritizes safety of this vulnerable population and access to approved therapies.

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NCFIH National Coalition for Infant Health

Protecting Access for Premature Infants through Age Two

A collaborative of professional, clinical, community health, and family support organizations improving the lives of premature infants and their families through education and advocacy.



The National Coalition for Infant Health advocates for:

- **Access to an exclusive human milk diet** for premature infants
- **Increased emotional support resources** for parents and caregivers suffering from PTSD/PPD
- **Access to RSV preventive treatment** for all premature infants as indicated on the FDA label
- **Clear, science-based nutrition guidelines** for pregnant and breastfeeding mothers
- **Safe, accurate medical devices** and products designed for the special needs of NICU patients

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National Coalition for Infant Health Values (SANE)

Safety. Premature infants are born vulnerable. Products, treatments and related public policies should prioritize these fragile infants' safety.

Access. Budget-driven health care policies should not preclude premature infants' access to preventative or necessary therapies.

Nutrition. Proper nutrition and full access to health care keep premature infants healthy after discharge from the NICU.

Equality. Prematurity and related vulnerabilities disproportionately impact minority and economically disadvantaged families. Restrictions on care and treatment should not worsen inherent disparities.

www.infanthealth.org

The Necessity of Forensic Testing for Newborn Toxicology

Joseph Jones, Ph.D., NRCC-TC

With the drug epidemic our country is facing today, and the drastic changes in the substance abuse landscape, the validity of newborn toxicology results has never been more imperative. It is easy to think that a newborn drug test is like any other test that needs to be performed, but the results have implications far beyond point of birth. It is clear there is a need for newborn drug testing for clinical purposes, and due to the potential consequences of a positive test, it is crucial to make sure that testing is performed under complete forensic protocol from the beginning.

One of the great misconceptions of recent years is the notion that newborn toxicology specimens should be treated as clinical tests. In a world where clinical testing is “medical testing” and forensic testing is “court testing”, these two worlds rarely collide for Labor & Deliver or NICU Departments, except with newborn toxicology testing, when positive results shift from a medical issue to a legal one (mandatory reporting). These results are a once in a lifetime chance to give the newborn a voice for the rest of their life. Understanding the benefits that forensic testing provides over clinical testing can make all the difference for these vulnerable lives we are all trying to protect.

Clinical VS. Forensic Newborn Toxicology Testing:

Clinical tests, intended to treat or diagnose, miss some of the vital steps that forensic testing requires to produce sound evidence of substance exposure.

Forensic toxicology tests are done with the purpose of being used as evidence in legal proceedings, which entail stringent requirements:

1. The data generated during the analysis is expected to be used for the provision of legal scientific evidence.
2. The subject must consent to the test or there must be a surrogate official requesting the test such as a judge demanding a court ordered test or a physician/government official acting in the best interest of a minor or incapacitated adult.
3. The identity of the specimen, its aliquots, and or extracts must have complete assurance from the time of collection to the destruction of the specimen.
4. All positives must be confirmed using a second aliquot or portion of the original specimen and a second analytical method, when available.

Most hospital policies state that only newborns at high-risk of prenatal exposure to substances of abuse be tested. Therefore, when newborn toxicology is ordered, there is a clear documented suspicion of prenatal exposure, and several events are set into motion.

Indicators of prenatal substance exposure may include a history of maternal drug use, prostitution, sexually-transmitted diseases, lack of prenatal care, unexplained placental abruption, unexplained premature labor, admission to the neonatal intensive care unit, or signs/symptoms of withdrawal. The United States Supreme Court case, *FERGUSON et al. v. CITY OF CHARLESTON et al.* (2001), concluded that maternal specimens cannot be tested without maternal consent or a warrant. As the second point above indicates, newborn specimens require no maternal consent when acting in the interest of a minor, such as cases of newborn drug or alcohol exposure.

A positive result, in most jurisdictions, requires mandatory report-

ing of this information to the State, moving the newborn drug test out of the realm of clinical testing and into the realm of forensic testing. This means that newborn toxicology tests should be analyzed according to accepted guidelines for forensic drug testing which include (1) documenting a chain of custody and (2) performing confirmation testing using a second aliquot and a different analytical method, when available.

Chain of Custody

Chain of custody is the first step in guaranteeing the integrity of a specimen and the process of forensically defensible testing. According to LexisNexis, a chain of custody is a document or process that demonstrates the integrity of the identity of evidence that has been maintained from the time of its collection to the time of its destruction.

The following elements are required for a documented chain of custody:

- Name of the individual or secure location that received the evidence.
- Name of the individual or secure location that released the evidence.
- Date and or time of the transfer.
- Purpose of the transfer.

Affixing tamper-evident seals to specimens at the time of collection assures that the specimen has not been altered or tampered with from the time of collection until it is received into the laboratory. In addition to tamper-evident seals, specimens must be labeled with unique identifying information, which assures the identity and origin of the specimen.



Chain of custody may be established by first hand testimony or by using written documentation. Each individual that possessed a piece of evidence can be interrogated to discover when they had possession of the evidence, why they had possession of the evidence, and who they transferred the evidence to. Because of this, first hand testimony (verbal chain of custody) has obvious limitations, especially for professionals that may handle dozens or even hundreds of pieces of evidence in a single day. Therefore, written documentation of the chain of custody during the process, and in real time, is critical. This is also the key component that differentiates a forensic laboratory (written) from a clinical laboratory (verbal).

The results of a newborn toxicology test provide the appropriate authorities with objective forensic evidence for their case. Therefore, maintaining a documented chain of custody is critical to demonstrate to the State the identity and integrity of the specimen whose result will be used for major life changing decisions. Therefore, all forensically accredited laboratories are required to have a chain of custody for all of their tests, without exception.

Confirmation Testing

In addition to chain of custody, forensic testing methods require confirmation testing. As mentioned above, under the stringent forensic requirements, all positives must be confirmed using a second aliquot or portion of the original specimen and a second analytical method, when available. This serves two very important purposes.

First, a confirmation test mitigates frame shift errors. For instance, if a specimen were switched during an initial testing run, this discovery would not be detected. However, for a specimen that did not screen negative during initial testing, repeating with a second aliquot of specimen would reveal the frame shift error if the two results do not agree. Confirmation results that do not agree with the initial test results alert the laboratory to the possibility of a frame shift error, so an investigation of the event can be initiated.

The second purpose of confirmation testing is the use of a different analytical method. The initial test is generally done on instrumentation that is sensitive and quick, used for weeding out negatives. The confirmation test is usually done with much more specific and complex instrumentation.

An example of a screening and confirmation test using different

analytical techniques would be using an immunoassay technique for initial testing. This is a biochemical test that measures the presence or concentration of a small molecule through the use of an antibody. All specimens that do not screen negative through that initial technique could then be confirmed (with a second aliquot) by a more specific method such as gas chromatography/mass spectrometry (GCMS), gas chromatography/tandem mass spectrometry (GCMSMS), or liquid chromatography/tandem mass spectrometry (LCMSMS). These are specific and expensive instruments that take more time to process than using an immunoassay technique. The gold standard techniques for confirming drugs of abuse in a variety of biological fluids and tissues.

An example of a screening and confirmation test using the same analytical technique (when another is not available) is the detection of Fatty Acid Ethyl Esters (FAEE), a metabolite of Ethyl Alcohol in meconium. An immunoassay does not exist for FAEE detection therefore, all specimens are screened using the more specific GCMS techniques. All specimens that do not screen negative are then confirmed with a second aliquot of specimen using GCMS as well.

Choosing a Laboratory for Newborn Toxicology

Much like hospitals have accreditations, like The Joint Commission (TJC), forensic drug testing laboratories work with the oversight of forensic accrediting bodies. These accrediting bodies review the laboratory processes regularly for accuracy and compliance. Laboratories that don't have proper oversight can put an organization's reputation and integrity at risk if their processes are determined to be forensically indefensible.

Simply being housed at a well-respected nationally/internationally acclaimed organization is not assurance that laboratory staff and processes are properly executed in a competent forensic environment. Recently, it was discovered that the Motherisk Drug Testing Laboratory (MDTL), housed at the Hospital for Sick Children at the University of Toronto (two distinguished institutions), was serving as a forensic toxicology laboratory without meeting any recognized forensic standards. MDTL marketed these services for over 10 years and their leadership had provided expert testimony across Canada, yet leadership never appreciated the difference between clinical and forensic testing. Because of a very public inquiry, the laboratory has been dismantled and now over 25,000 child cases may need to be reviewed. Legal outcomes for these indiscretions are still unknown, but they have affected both orga-



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nizations, their reputations, and the lives of numerous donors and families for years to come.

Healthcare Systems that utilize accredited forensic laboratories for their newborn toxicology will not only receive more valid results, but will be adding a layer of protection to their organization. Ask about accreditation, chain of custody, and confirmation testing. If you don't like the answer, look for a more responsible laboratory. The necessity of forensic testing goes far beyond the actual tests. We are responsible for providing an opportunity to become the voice for the voiceless, an opportunity to provide help to the helpless. The true cost is paid by the newborn if their court case lacks forensic evidence to prove they were exposed to drugs or alcohol. It is our duty as advocates for these newborns to make sure we are taking every step possible, whenever possible, to make their lives better.

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Disclosure: Dr. Joseph Jones is Chief Operating Officer at USDTL, with over 25 years of experience in the forensic toxicology industry. Jones is listed by The National Registry of Certified Chemists as a Toxicological Chemist, is a CAP Laboratory Inspector, and is a qualified expert in drug testing in several venues including union arbitration, unemployment hearings, family court, civil and criminal court, and Military courts-martial.

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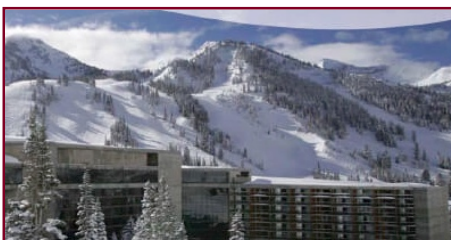
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Monthly Clinical Pearls: Certain Cases Just Stick in Your Mind: Preparation is Paramount

Joseph R. Hageman, MD and Marin Arnolds, MD

The author has identified no conflicts of interest.

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We had a pretty eventful evening on call at Prentice Women's. Prenatal diagnosis with the advantages of refined diagnostic tools has become what could be perceived as a double-edged sword for Maternal Fetal Medicine physicians and for Neonatologists in their management of fetuses and newborns. The level of sophistication is such that prenatal interventions for such conditions as congenital diaphragmatic hernia or prenatal drainage of fetal urinary obstruction with posterior urethral valves or thirdly, drainage of fetal pleural effusions in non-immune hydrops fetalis have been carried out (1-3). We, as neonatologists, have been full of anticipation that these interventions will result in survival with excellent outcomes for our patients and their families. We are well prepared by our MFM colleagues about what to expect with all of their expertise with ultrasound with Doppler flows, assessment of lung maturity, genetic analysis, and intrapartum heart rate monitoring (1-3). However, each of us who have been on the receiving end of these infants, full of anticipation and hope, then feel disappointed for the baby, her/his parents and for our colleagues, as well as for the medical community as a whole when the baby has pulmonary hypoplasia for example, and does not survive (1-3).

I have clinical anecdotes of babies I have been involved with caring for in clinical scenarios as I have outlined above who have not survived. I still see their parents around the hospital and they still thank me and our team for doing what we could. Marin Arnolds has conducted interviews and done qualitative research analysis with parents of infants who were born at the margins of viability, had Trisomy 13, or an otherwise uncertain prognosis (her other 3 criteria were >60% FiO₂ on the ventilator at 1 month (pulmonary hypoplasia), infants with bilateral Grade 3-4 Bilateral IVH and ECMO) and asked them about their experiences in the NICU and beyond (4). For all of us who still carry the burden of what we perceive as negative experiences with poor outcomes in the NICU and shortly thereafter, Arnolds tells us in her research that parents in general have very different, positive feelings about their experiences, and are grateful for the care provided to their infants. (4).

Please take solace in these data and continue to do the best you can to be prepared, thoughtful and supportive to parents making decisions in these difficult situations as investigators continue to do the clinical and basic science research to figure out what is possible for these fetuses and newborns.

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Clinical Pearls are published monthly.

Submission guidelines for "Clinical Pearls":

1250 word limit not including references or title page.

May begin with a brief case summary or example.

Summarize the pearl for emphasis.

No more than 4 references.

Please send your submissions to jhageman@peds.bsd.uchicago.edu

NPA Position Statement 2018

Perinatal Mood and Anxiety Disorders



Public Policy and Advocacy:

Mental health complications during the perinatal period, from time of conception through the infant's first year of life, are a growing concern for our community. Like other public health problems, Perinatal Mood and Anxiety Disorders (PMADs) by their complexity require broad interdisciplinary approaches and solutions. The National Perinatal Association (NPA) works in partnership and collaboration with other organizations that advocate for perinatal health care, including Mental Health America, Postpartum Support International, Premie Parent Alliance, National Association of Perinatal Social Workers, and the NPA NICU Psychologists Association to address these issues. Together with these organizations, NPA is focused on increasing awareness of these health conditions, advocating for assessment and treatment, and educating policy makers on the needs of these families. NPA supports de-stigmatization of perinatal mental health complications by providing education and awareness on the issue. A healthy society includes a focus on addressing the mental health needs of parents, their children, and their communities.

Issue:

The impact of mental health conditions can be felt in all communities, workplaces, and families in the United States. Assessment and treatment of PMADs is critical to optimal developmental and psychological functioning of the whole family. The National Perinatal Association (NPA) convened its 38th Annual Conference in March of 2017 on this topic. As a result of the two-and-a-half-day conference, an interdisciplinary work-group was created to write this NPA position statement on PMADs.

Pregnancy and the birth of a child is an exciting and celebratory time for many families. However, for approximately 20-25% of these women and their families, PMADs can have profound adverse effects on the women, children, and their family's mental, physical and emotional health. Postpartum depression is the most common complication following childbirth, affecting one in every seven women.^{1,2} Prevalence estimates of prenatal anxiety range from 13-21% of all new mothers, with postpartum prevalence estimated between 11-17%.³ Symptoms of a PMAD may develop during pregnancy or in the postpartum period. Symptoms usually present within 3 weeks to 3 months after birth, but can occur anytime during the first year after delivery.^{4,5} In fact, women are more likely to develop depression and anxiety during the first year after childbirth than at any other time in their life.⁴ Without treatment, PMADs can persist

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for a year or more. Indeed, Woolhouse and colleagues found one in three mothers report depressive symptoms at four years following birth.⁶ Symptoms may include depressive or anxious features such as:

- Persistent sadness
- Anxiety
- Feeling overwhelmed or “empty”
- Crying episodes
- Panic attacks
- Chronic fatigue
- Loss of interest in previously enjoyable activities
- Avoidant behaviors
- Persistent self-doubt
- Changes in sleeping and/or eating patterns
- Feelings of hopelessness, helplessness, guilt
- Experiencing irritable and/or angry moods
- Fear of being alone or separated from baby
- Problems with concentration or making simple decisions

Perinatal mood and anxiety disorders are associated with increased risks of maternal and infant mortality and morbidity and are recognized as a significant patient safety issue.¹ While postpartum depression is the most commonly discussed PMAD, there is a much broader class of psychiatric conditions commonly encountered by women of reproductive age. The broader spectrum of PMADs’ symptomatology and diagnoses includes:

- Depression
- Anxiety
- Obsessive-Compulsive Disorder
- Post-Traumatic Stress Disorder
- Bipolar Disorders
- Psychosis

Onset of these disorders can occur at any time during one’s life. However, there is a marked increase in prevalence of these disorders during pregnancy and the postpartum period. Of particular concern is that up to 50% of mothers with symptoms will not seek mental health treatment.⁷

Fathers, Partners, and Non-Gestational Parents:

While there is a large body of data demonstrating the prevalence of PMADs among women, little research and attention has been given to the rates of depression and anxiety among fathers. There is also a paucity of research around the experience of PMADs for non-gestational and non-biological parents, which may include a second parent in a same sex relationship, multiple parents in a polyamorous family, foster parents, or adoptive parents. As the literature emerges, evidence reflects that fathers, partners, and other non-gestational/non-biological parents (e.g. foster and adoptive parents) are also affected by the stress of having a newborn and may experience anxiety and depression. They are also at risk for anxiety and depression which directly relates to poor outcomes for the child.⁸ Based on a meta-analysis performed by Paulson and Bazmore, the 3-6-month postpartum period had the highest rate of depression for partners, with the first 3 months having the lowest. This analysis also spoke to the variation regarding country of origin, with U.S. fathers demonstrating a greater rate of depression than fathers internationally.⁸

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O'Brien and colleagues found 10% of fathers experience depression and anxiety during the perinatal period. Fathers have been shown to exhibit symptoms of irritability, self-isolation, overworking, substance abuse, and hopelessness.⁹ Research also demonstrates that the most significant risk factor for depression in fathers, both prenatally and in the postpartum period, is maternal depression.⁸ It is plausible that a non-gestational or non-biological parent might be at risk for perinatal depression or anxiety. However, more research is needed in this area.

The Impact of Perinatal Mental Health Conditions:

The impact of parental depression and anxiety, especially the mother, can be quite significant both on the attachment relationship and on the neurodevelopment of the baby. This impact is exacerbated when the parent experiences more clinically significant mental health issues, such as psychosis. The significant impact that a parent's mental health has on their baby's development has been repeatedly demonstrated in the literature.^{10,11} Tronick's well-known Still Face Experiment demonstrates how emotionally distressed a child can become when a parent "checks out" or is emotionally unavailable.¹²

Recommendation 1: Routine Screening

Routine screening of pregnant and postpartum women for perinatal depression has been recommended by the American College of Obstetricians and Gynecologists (ACOG), The American College of Nurse-Midwives, U.S. Preventive Services Task Force, and the American Academy of Pediatrics (AAP).¹³⁻¹⁵ ACOG recommends universal screening for depression for all women, both as a part of routine gynecological care and during the perinatal period.¹³ AAP recommends screening for postpartum depression at 1, 2, 3, and 6 months post-delivery. ACOG's Committee Opinion also adds that women at high risk of depression – for example, those with a history of depression or anxiety – warrant especially close monitoring.¹³ The necessity of universal screening becomes even more apparent when considering that only a small percentage of women will disclose symptoms of a PMAD. There are several screening tools validated for use during and following pregnancy (Table 1).

Screening Fathers and Partners:

In 2013, the NPA published a position statement on screening for new fathers for depression. This position statement recommended that fathers be screened at least twice during the first year postpartum. However, there was no guidance on the timing of these screenings. Given that most fathers experience depression between 3 and 6 months postpartum, the 2, 4, and 6 month well baby visits provide ideal opportunities to screen fathers.⁸ However, screening should not be limited to these times. Screening can happen during the obstetric visits, in the delivery nursery, during well child visits, and during a family practitioner visit too.¹⁶

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Perinatal Mood and Anxiety Disorders Screening Tools

Screening Tool	Items	Time	Language	Administrator	Where to access/purchase
Edinburgh Postnatal Depression Scale	10	< 5 min.	18 languages	Health care professional	pesnc.org/wp-content/uploads/EPDS.pdf
Postpartum Depression Screening Scale	35	5–10 min.	✓ English ✓ Spanish ✓ Italian	Health care professional	www.wpspublish.com
Patient Health Questionnaire 9	9	< 5 min.	Numerous languages	Health care professional	www.phqscreeners.com
Beck Depression Inventory	21	5–10 min.	✓ English ✓ Spanish	Health care professional	www.pearsonclinical.com/psychology
Beck Depression Inventory–II	21	5–10 min.	✓ English ✓ Spanish	Health care professional	www.pearsonclinical.com/psychology
Center for Epidemiologic Studies Depression Scale	20	5–10 min.	✓ English ✓ Spanish	Health care professional	www.chcr.brown.edu/pco/c/esdscale.pdf
Zung Self-rating Depression Scale	20	5–10 min.	English	Health care professional	www.mentalhealthministries.net/resources/flyers/zung_scale/zung_scale.pdf

Table 1: Perinatal Mood and Anxiety Disorder Screening Tools

Screening Black and Latina mothers:

There should be special consideration given to the effects of racial identification and racial status when screening mothers for PMADs who are from minority populations. Robert Keefe evaluated the differences in PMADs for Black, Latina, and White women and found that while Black women are less likely to express feelings of depression or anxiety, their rate of depression and anxiety is much higher rate than their White counterparts. He also found that Black and Latina women are less likely to seek support, treatment, and follow up after an initial psychiatric appointment.¹⁷ This suggests there may be an unmet need for culturally respectful and appropriate services for these communities. Additionally, he found that when Black and Latina women sought services, the time span between symptomatology and engagement with treatment was much longer than for White women.¹⁸ For these reasons, it has

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been recommended that a lower cutoff score be considered for these populations. It is proposed that a cutoff score of 2-3 points lower (greater than or equal to 7-8) will help to capture distress among these mothers and improve identification of depression and anxiety, which will hopefully increase likelihood of support and treatment.¹⁹

Screening Adolescent Mothers:

Screening for perinatal mood and anxiety disorders should be inclusive of adolescent mothers (under 20 years of age). The rate of reported depression amongst this population is 28-59%. With over 300,000 births to adolescent mothers annually, the rate of depression among adolescents is greater than in the adult population. Venkatesh and colleagues determined the Edinburgh Postpartum Depression Scale (EDPS) was appropriate for accurately identifying depression and anxiety in postpartum adolescent mothers.²⁰

Screening timeline for Perinatal Mood and Anxiety Disorders*					
	During Pregnancy	With OB/GYN	By Pediatrician or Primary Health Care Provider		
Mother	At least once. Preferably each trimester.	6 week postpartum visit	2 month well baby/NICU	4 month well baby/NICU	6 month well baby/NICU
Partner	_____	_____	2 month well baby/NICU	4 month well baby/NICU	6 month well baby/NICU

Table 2: Screening timeline for Perinatal Mood and Anxiety Disorders

*Minimum recommendations, screening should be done as often as needed.

Recommendation 2: Training and Education of Healthcare Professionals

There are numerous perinatal specialists (e.g. Obstetricians, Pediatricians, Neonatologists, Nurses, Occupational Therapists, Physical Therapists, Psychologists, Social Workers, Speech Language Pathologists, and Lactation Consultants) who contribute to maternal-infant care. While some of these specialties are based in mental health, many specialists lack education regarding those mental health conditions associated with pregnancy and their potential to negatively impact child development. NPA encourages comprehensive training and education in perinatal mental health for all healthcare providers who serve families during the perinatal and postpartum period. NPA believes all healthcare providers should have an informed understanding of the signs and symptoms of PMADs, should be familiar with available treatment options, and should be empowered to make referrals to services and treatment. Moreover, NPA strongly recommends relevant professionals have the necessary skills to recognize and treat families as it relates to their scope of practice.

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Summary:

In order to improve the care of a family's mental health during the perinatal period, routine screening must occur. NPA recommends that:

- The Edinburgh Postpartum Depression Scale (EPDS) be administered at least once during the pregnancy, but ideally in each trimester, as well as at the 6-week postpartum visit.
- Screening should, at minimum, be administered using the EPDS at the 2, 4, and 6 month well baby visits or in the NICU, if the baby has not yet discharged.
- All healthcare providers receive adequate training on identifying the warning signs of PMADs and establish an appropriate referral process for further assessment and/or treatment, when needed.

Given that research has demonstrated that the EPDS is useful in the detection of PMADs for adolescents, it is recommended that:

- Adolescents should be included in the screening population.

NPA is sensitive to the varying expressions of depression and anxiety as influenced by race, culture, class, and ethnicity and recommends:

- Using a cutoff score 2-3 points lower (greater than or equal to 7-8) for women of minority populations, as suggested in the clinical literature.

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May 2018

Resources:

To support and enhance screening, practitioners should be familiar with perinatal mood and anxiety disorder resources in their community. Contact the following organizations for more information:

- Postpartum Support International (PSI)
<http://www.postpartum.net>
- Mental Health America (MHA)
<http://www.mentalhealthamerica.net>
- Massachusetts Child Psychiatry Access Program (MCPAP) for Moms
<https://www.mcpapformoms.org/Toolkits/Toolkit.aspx>
- National Institute of Mental Health (NIMH)
<https://www.nimh.nih.gov/health/publications/depression-in-women/index.shtml>
- National Alliance of Mental Illness (NAMI)
<https://www.nami.org/>
- The Blue Dot Project – Maternal Mental Health Toolkit
<https://www.thebluedotproject.org/mmh-week-2018-tool-kit>



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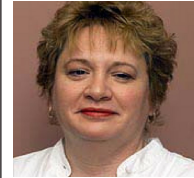
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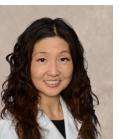
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