

Optum

Women's Health Clinical Education Series: Parental Mental Health & Infant NICU Admission

Impact, Risks, Screening and Strategies for Support

Alison Cook, DO

Session objectives

- Identify impacts of infant NICU admission on maternal and paternal mental health.
- Articulate how parental mental health impacts infant outcomes.
- Recognize interventions that effectively target parental mental health screening and outcomes.
- Discuss how to collaborate across disciplines to implement integrated mental health interventions for NICU families.

Agenda

- 1 Impact of NICU admission on parental mental health
- 2 Impact on bonding and development of infant
- 3 Why screening in the NICU is imperative to provide appropriate support
- 4 Screening tools and support

Disclosures

- I have nothing to disclose.

About Me

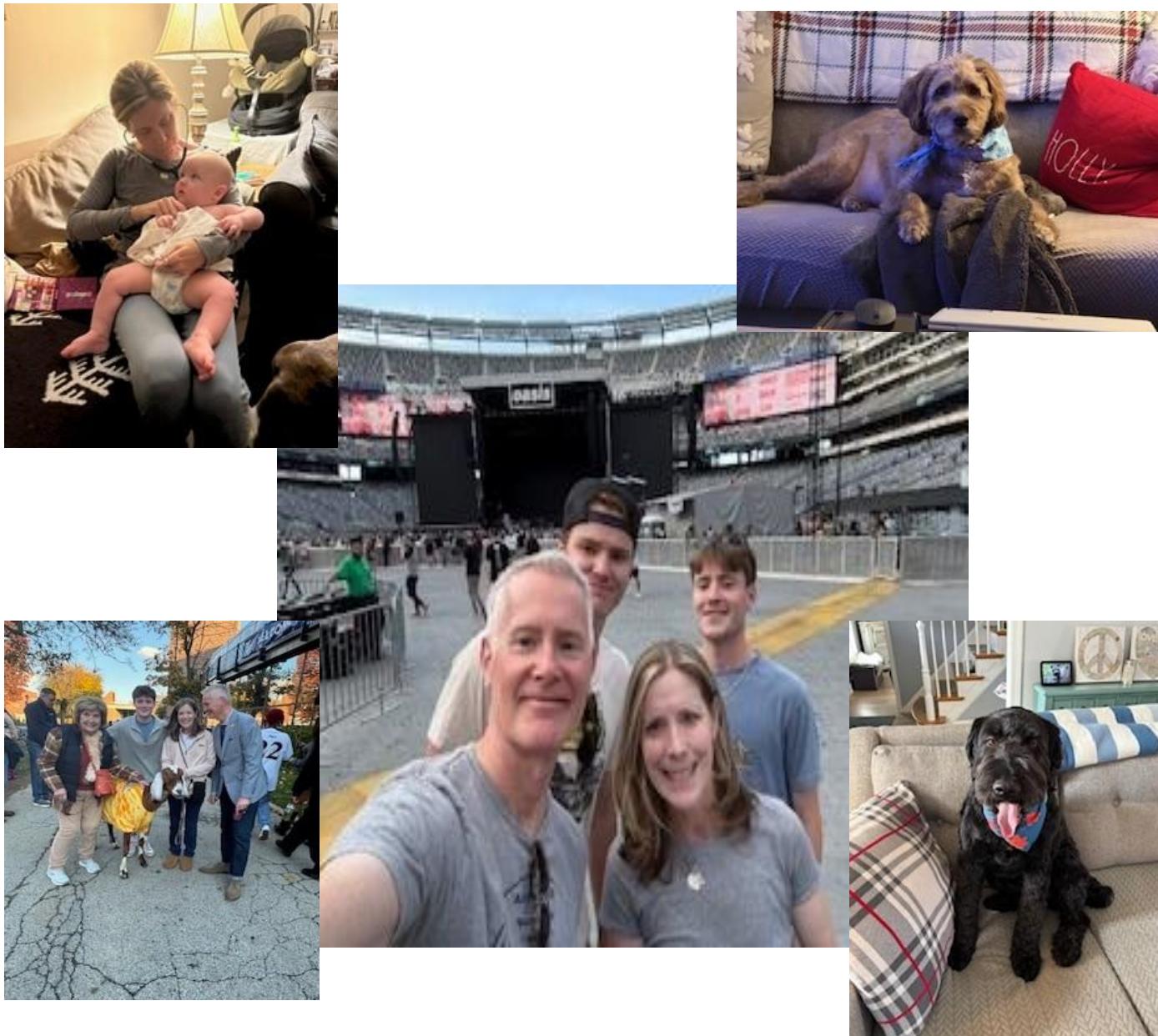
Alison Cook, DO

Professional

- Neonatologist for over 20 years
- Optum since 2016
- NRS Medical Director for over 7 years; 2 years as Case Management Medical Director
- Clinical interest: Family centered care
- Whole person care

Personal

- Resides in Wayne, Pennsylvania about 30 minutes outside of Philadelphia
- Married with two children and two dogs



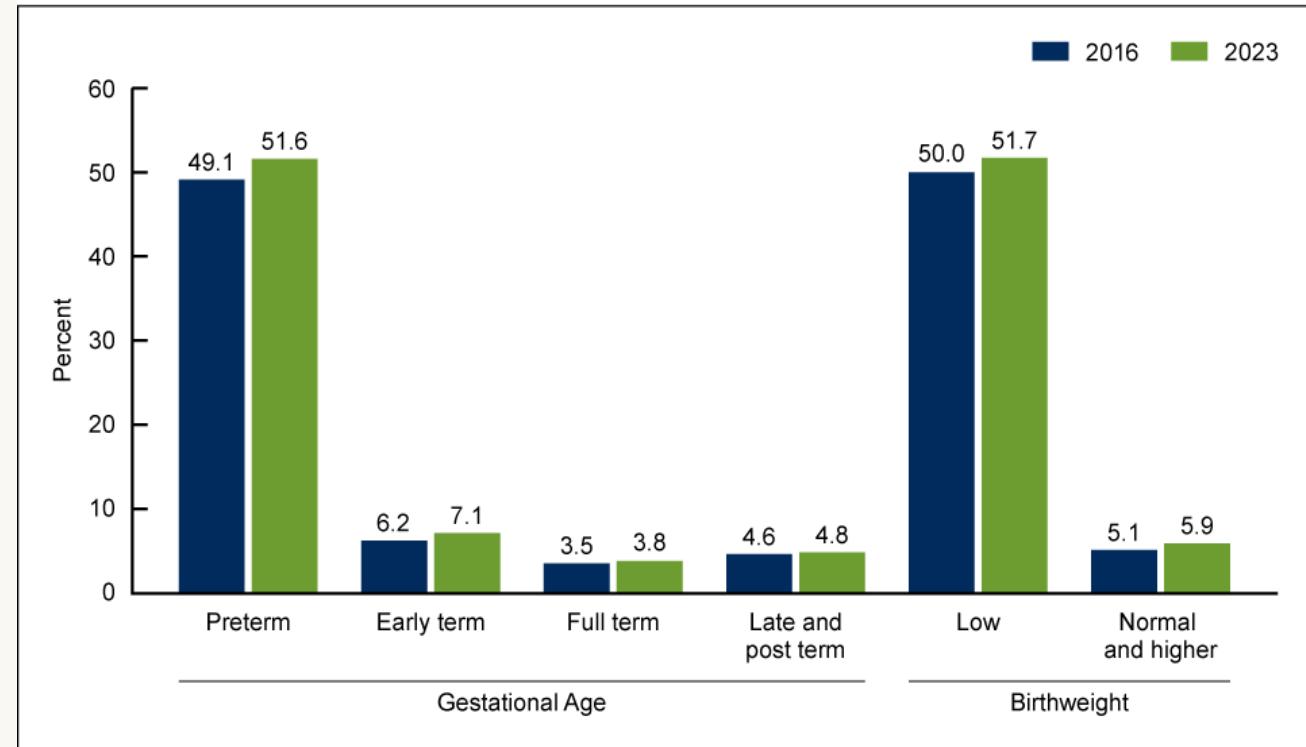
Parental Mental Health and the NICU

Why this matters

- Parents experience high psychological stress during hospitalization and post-discharge
- Parental mental health impacts infant development, bonding and long-term outcomes

SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Figure 4. Percentage of infants admitted to a NICU, by gestational age and birthweight: United States, 2016 and 2023



NOTES: Significant increases from 2016 to 2023 were observed for each gestational age and birthweight category ($p < 0.05$). Significant differences were observed between gestational age categories for 2016 and 2023 ($p < 0.05$); significant differences between birthweight categories were observed for 2016 and 2023 ($p < 0.05$). NICU is neonatal intensive care unit. Preterm is less than 37 completed weeks of gestation, early term is 37–38 weeks, full term is 39–40 weeks, and late and post term is 41 weeks and later. Low birthweight is less than 2,500 grams, normal and higher birthweights are 2,500 grams or more.

SOURCE: National Center for Health Statistics, National Vital Statistics System, natality data file.

Emotional Distress and the NICU

In the general population:

- ~10-15% of mothers experience postpartum depression (PPD)

In the NICU:

- Rates increase to 28-70%
- Parental acute stress disorder (ASD) → later post traumatic stress disorder (PTSD) symptoms
- Up to 41% of NICU parents can have PTSD for as long as 14 months following infant discharge
- Estimated at least 20-30% of NICU parents experience a diagnosable mental health disorder during first postpartum year



SOURCE: Moreyra, Angelica; Dowtin, LaTrice L.; Ocampo, Maria; Perez, Emily; Borkovi, Tonyanna C.; Wharton, Emily; Simon, Stephanie; Armer, Erin G.; Shaw, Richard J.. Elsevier B.V.. Published March 1, 2021. Volume 154. Article 105279-105279. © 2020.

Mental Health Challenges in NICU Parents

NICU Mothers

40-85% experience anxiety or PTSD in first postpartum month

Symptoms decrease over time, but can persist

39% have clinically significant depression within the first week; **33%** report suicidal thoughts

NICU Fathers

60% experience significant depression within one week of admission



Anxiety rates are equal to or higher than depression

40-85%

39%

60%

Anxiety/PTSD

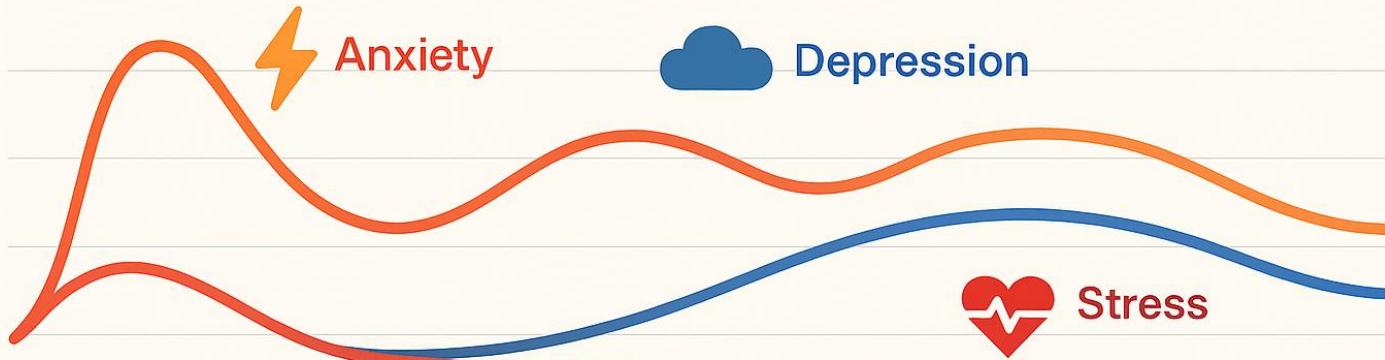
Maternal depression

Paternal distress

SOURCE: Grunberg, V. A., Geller, P. A., Hoffman, C., Njoroge, W., Ahmed, A., & Patterson, C. A. (2022). Parental mental health screening in the NICU: A psychosocial team initiative. **Journal of Perinatology, 42*(3), 401–409.
<https://doi.org/10.1038/s41372-021-01217-0>

Mental Health Challenges in NICU Parents

Parental Mental Health Progression Across a NICU Admission



Admission / Crisis Phase Early NICU Stay Mid-Stay / Adaptation Discharge Preparation Post-Discharge

Bernardo J, Rent S, Arias-Shah A, et al., *NeoReviews* 2021;22(8):e496–e505, doi:10.1542/neo 22-8-496
Osborne AD, Yasova Barbeau D, et al., *Journal of Perinatology* 2025;45:873–880, doi:10.1038/s41372-024-02187-9, Grun 1^{ra}, et al., *Journal of Perinatology* 2022;42:401–409. doi:10.1038/s31372-021-0127-0

Parental Mental Health

Impact on Bonding and Infant Development

Impact on Bonding and Infant Development



What we already know:



Emotional maladjustment



Delayed growth



Lower IQ



Poorer fine motor outcomes

SOURCE: <http://neoreviews.aappublications.org/content/22/8/e496>

Infant and Parental Stress in the NICU

Families experience high psychological and biological stress due to:

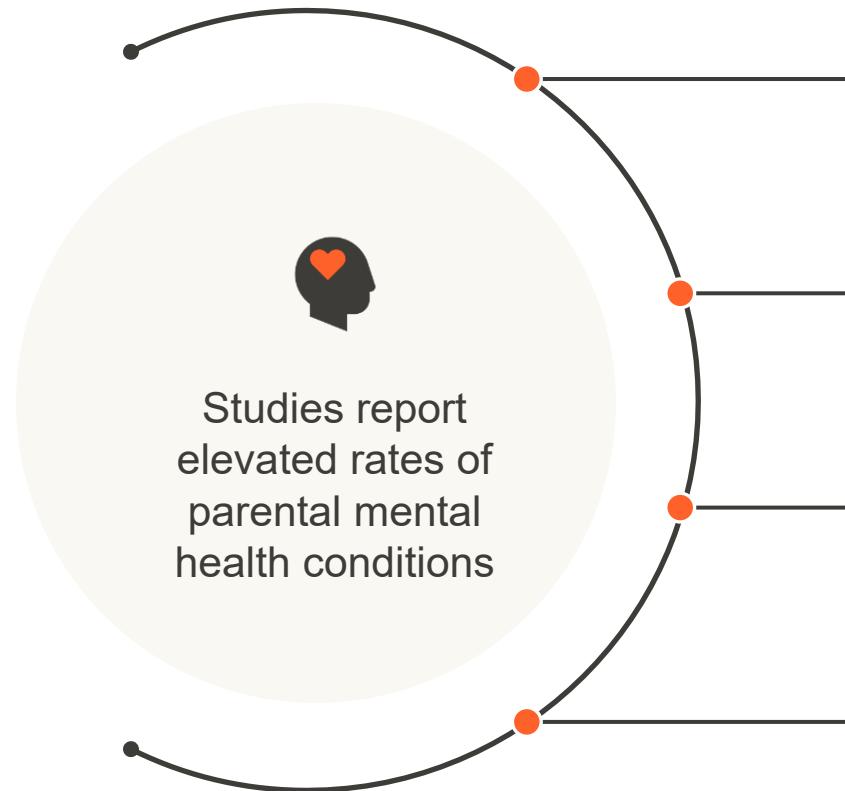
- Separation and altered parenting roles
- Noisy, technical NICU environment
- Appearance and fragility of preterm infants
- Multiple invasive procedures and uncertainty
- Financial burden and long hospitalizations



Vulnerable child syndrome: Even if child is in good health, parents continue to worry about the health and wellness of their child and have exaggerated perceptions of child vulnerability

SOURCE: Barrero-Castillero, A., Morton, S. U., Nelson, C. A., III, & Smith, V. C. (2019). *Psychosocial stress and adversity: Effects from the perinatal period to adulthood*. *NeoReviews*, 20(12), e686–e696. <https://doi.org/10.1542/neo.20-12-e686>

Mental Health Impacts



Anxiety → lower cognitive function in first few years of life

Depression → child maladjustment, delayed growth and lower IQ.

PTSD → insecure, disorganized attachment

Maternal NICU anxiety associated with lower neurodevelopmental scores

Infant Stressors in the NICU



Infants also experience multiple biological stressors in the NICU:

- Newborn brain increased plasticity **AND** vulnerability
- Increased sensitivity to both positive and negative neurosensory exposures
- Painful and invasive procedures
- High noise levels and intense sensory exposure
- Separation from parents and disrupted bonding
- Particularly severe in extremely preterm infants (<28 weeks)



SOURCE: Barrero-Castillero, A., Morton, S. U., Nelson, C. A., & Smith, V. C. (2019). Psychosocial stress and adversity: Effects from the perinatal period to adulthood. *NeoReviews*, 20(12), e686–e693. <https://doi.org/10.1542/neo.20-12-e686>

Summary



Serious Consequences
(*Mortality Risk*)



Attachment & Interaction
(*Bonding*)



Child Development
(*Outcomes*)



Healthcare Utilization
(*Access & Use*)

Risks to consider:

Parental mental health conditions are a leading cause of pregnancy-associated mortality; risks to maternal wellbeing.

Depression, anxiety, PTSD weaken attachment and reduce responsiveness, affection, and healthy play behaviors.

Lower parenting self-efficacy; adverse emotional, behavioral, and cognitive outcomes in children.

Decreased use of preventive infant care; increased urgent/emergency care and higher child hospitalization rates.

SOURCE: Klawetter, S., Cetin, N., Ilea, P., McEvoy, C., Dukhovny, D., Saxton, S. N., Rincon, M., Rodriguez-Jenkins, J., & Nicolaïdis, C. (2022). "All these people saved her life, but she needs me too": Understanding and responding to parental mental health in the NICU. **Journal of Perinatology*, 42*(10), 1496–1503. <https://doi.org/10.1038/s41372-022-01426-1> view

Parent & Provider Perspectives: The Emotional Reality of the NICU

Parent Voices



- “All these people saved her life, but she needs me too.”
- “About four months after delivery... I started exhibiting symptoms of PTSD.”

Provider Voices



- “I’m sorry this is happening to you and it’s not your fault.”
- “They hide depression pretty well... everyone is anxious, stressed, depressed.”

Megan’s Story



[Optum Neonatal Resource Services member story](#)

Interventions

Screening

Why Screen



Symptoms can be hidden or subtle



Staff impressions alone often underestimate parental distress



Self-report alone also misses cases

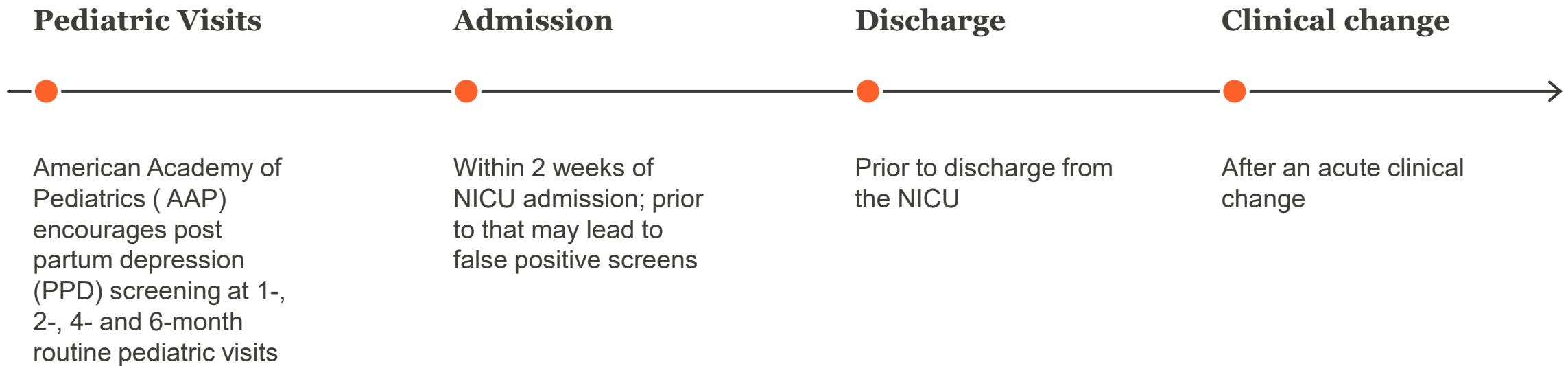


Standardized screening – due to psychological distress being unanticipated and undetected

Infant severity and length of stay does not predict parents at highest risk

When to Screen

- There is no nationally accepted standard for MH screening or access to support in US NICUs
- Under 50% of NICUs are routinely providing screening for PPD or MH symptoms



Screening Tools

		Target population	Description	Cost	Language(s)	Sensitivity/Specificity
Depression Measures	Edinburgh Postnatal Depression Scale (EPDS)	Postpartum mothers	<ul style="list-style-type: none"> 10-item self-report 	Free	Multiple	0.85/0.84
	Postpartum Depression Screening Scale (PDSS)	Postpartum mothers	<ul style="list-style-type: none"> 35-item self-report Requires training to administer 	\$35-150	English, Spanish, Italian	0.91/0.72
	Beck Depression Inventory (BDI)	Mothers & fathers	<ul style="list-style-type: none"> 21-item self-report 	\$100-150	English, Spanish	0.81/0.92
	Patient Health Questionnaire-9 (PHQ-9)	Mothers & fathers	<ul style="list-style-type: none"> 9-item self-report 	Free	English, Spanish	0.88/0.88
Anxiety Measures	Patient Health Questionnaire-2 (PHQ-2)	Mothers & fathers	<ul style="list-style-type: none"> 2-item self-report 	Free	English, Spanish	0.82/0.87
	General Anxiety Disorder-7 (GAD-7)	Mothers & fathers	<ul style="list-style-type: none"> 7-item self-report 	Free	Multiple	0.92/0.76
	Beck Anxiety Inventory (BAI)	Mothers & fathers	<ul style="list-style-type: none"> 21-item self-report 	\$100-150	Multiple	0.85/0.88
	Edinburgh Postnatal Depression Scale – Anxiety (EPDS-A)	Postpartum mothers	<ul style="list-style-type: none"> 3-item subscale of EPDS 	Free	Multiple	0.67/0.88
Trauma Measures	Perinatal PTSD Questionnaire-II (PPQ-II)	Mothers	<ul style="list-style-type: none"> 14-item self-report 	Free	Multiple	Sensitivity 0.82
	City Birth Trauma Scale (City BiTS)	Mothers & fathers	<ul style="list-style-type: none"> 29-item self-report 	Free	Multiple	Cronbach alpha = 0.92
	Impact of Events Scale – Revised (IES-R)	Mothers & fathers	<ul style="list-style-type: none"> 22-item self-report 	Free	Multiple	Cronbach alpha = 0.84
	Posttraumatic Stress Disorder Checklist	Mothers & fathers	<ul style="list-style-type: none"> 20-item self-report 	Free	Multiple	0.74/0.70
Family Psychosocial Risk	Psychosocial Assessment Tool (PAT – NICU)	Mothers & fathers	<ul style="list-style-type: none"> 13-item self-report 	Free	English	0.43/0.70

Osborne, A. D., Yasova Barbeau, D., Gladdis, T., Hansen, K., Branche, T., Miller, E. R., Pazandak, C. C., Hoge, M. K., Spencer, M., Montoya-Williams, D., Barbeau, R., Padratzik, H., & Lassen, S. (2025). Understanding and addressing mental health challenges of families admitted to the neonatal intensive care unit. **Journal of Perinatology, 45*(6), 873–880.
<https://doi.org/10.1038/s41372-024-02187-9>

Parental Stressor Scale (PSS): NICU Domains & Scoring Overview



The **Parental Stressor Scale** (PSS) is a self-report tool that reflects sensory, emotional, role-related and relational stressors parents experience in the NICU

Domains (Subscale)

- Sights and Sounds of the NICU
- Infant Appearance and Behavior
- Parental Role Alteration
- Staff Behaviors and Communication

Scoring Overview

- Low Stress: 1.0 – 2.9
- Moderate Stress: 3.0 – 3.9
- High Stress: 4.0 – 5.0

Permission is needed to use this tool

Barrero-Castillero, A., Morton, S. U., Nelson, C. A., & Smith, V. C. (2019). Psychosocial stress and adversity: Effects from the perinatal period to adulthood. *NeoReviews*, 20(12), e686–e693. <https://doi.org/10.1542/neo.20-12-e686>

Who Screens



At-Risk-Groups

POPULATION	UNIQUE STRESSORS
Black mothers	Higher prematurity rates, distress from NICU environment
Spanish-speaking families	Language barriers, lower social support
Immigrant families	Isolation, cultural differences, increased depressive symptoms
Mothers with lower education	Greater worry about infant health
Low socioeconomic status	Anxiety during transition to home care
Fathers	Depression and anxiety, role expectations
Same-sex couples	Stigma, lack of tailored support
Adoptive families	Bonding challenges, emotional stress
Military families	Deployment-related separation, logistical issues

Components of an Effective Screening Program



What

- Determining which tool to use



Who

- Who administers the screening tool
- Who follows up the results



When

- Determining when to screen



How

- How to use the results
- Incorporation of screening into workflows
- Program champions
- Multidisciplinary staff support and engagement

Interventions

Providing Support

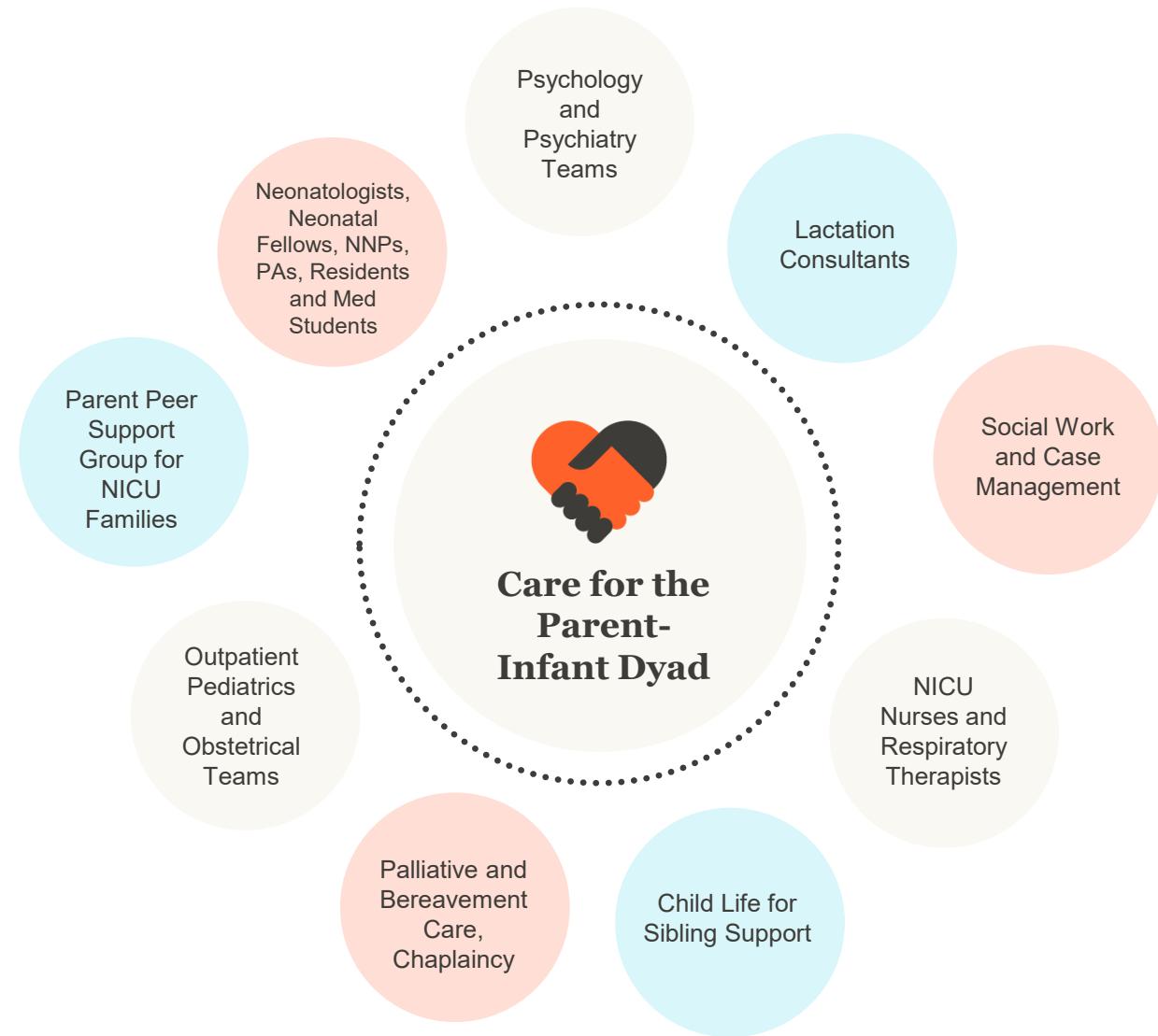
Multidisciplinary Team



- Neonatologists
- Obstetricians
- RNs
- Social workers
- Lactation
- Psychology/Psychiatrists
- Chaplains
- Care coordination

Care for the Parent- Infant Dyad

Holistic care of parents and their newborn depends on the support of many groups within the hospital system



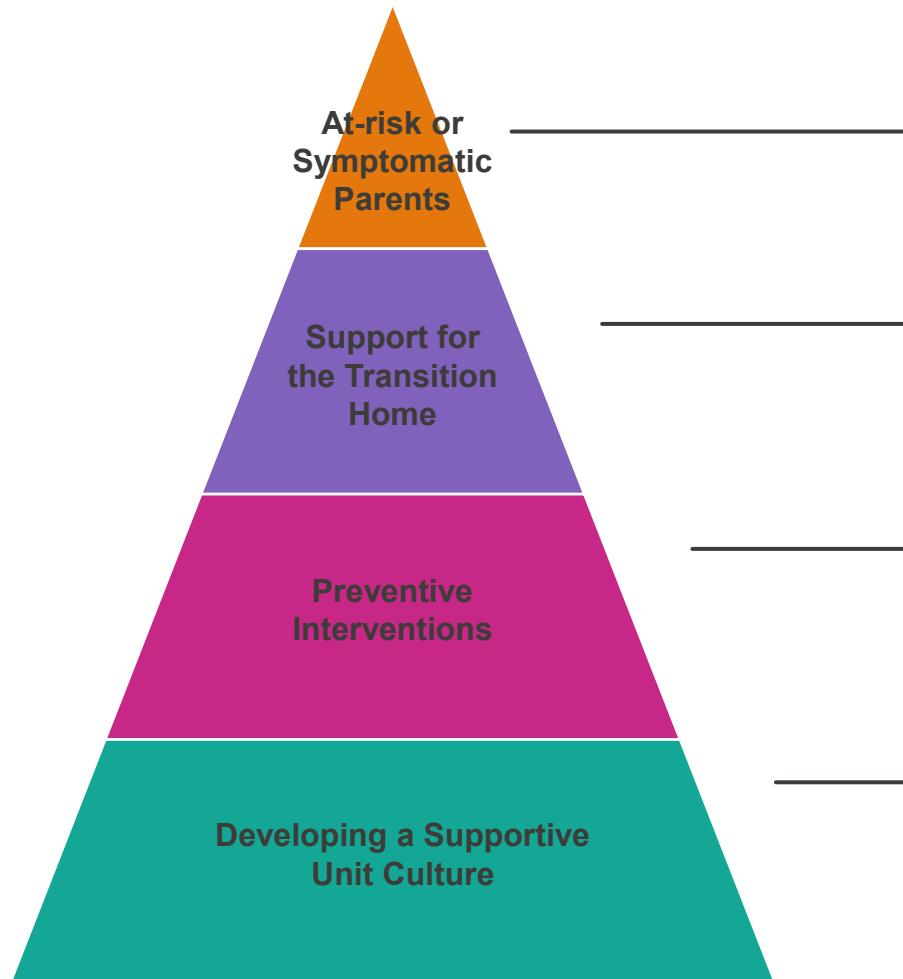
SOURCE: Bernardo, J., Rent, S., Arias-Shah, A., Hoge, M. K., & Shaw, R. J. (2021). Parental stress and mental health symptoms in the NICU: Recognition and interventions. *NeoReviews*, 22(8), e496–e505.

Implications of Stress and Potential Interventions

Prenatal Period	Infancy (Prematurity/NICU admission)	Childhood			
<p>Filling in the Knowledge Gap</p> <ul style="list-style-type: none">Studies evaluating stress effects during development (prenatal and postnatal)Characterizing stress in different types of families; risk and resiliency factors	<p>Screening</p> <ul style="list-style-type: none">Detailed social history, including adversity and prenatal stressRoutine developmental screening of at-risk populationsBiomarkers and neurodevelopmental measures	<p>Resources and Services</p> <ul style="list-style-type: none">Hospital-based psychosocial supportCommunity support groups, medical legal services, lactation support, government-provided resourcesInvolvement of CPSSubstance abuse treatmentSupport for caregivers	<p>Cultural Competencies</p> <ul style="list-style-type: none">Culturally supportive and compassionate careEvaluate NICU cultureSupport different languages and literacy levelsFamily-centered care for immigrant families	<p>Medical Home/ Transition to Home</p> <ul style="list-style-type: none">Identify barriers and opportunities during admitTeaching materialsPrepare transition to homeRisk factors for readmissionMedical HomeFollow-up in “high-risk” infant clinicsEarly intervention	<p>Advocacy and Public Policy</p> <ul style="list-style-type: none">Advocacy at a national, state and local levelParental leaveImmigration policiesHospital and clinic policy supporting diversity and inclusionAccess to mental health services

SOURCE: Barrero-Castillero, A., Morton, S. U., Nelson, C. A., & Smith, V. C. (2019). Psychosocial stress and adversity: Effects from the perinatal period to adulthood. *NeoReviews*, 20(12), e686–e693.

Evidence Based Interventions



- Access to hospital-based Psychology team
- Partnership with Obstetrics
- Involvement of Social Work and Case Management
- Practice of “Wellness Rounds”

- Access to post-discharge parental peer support
- Referral to Psychology or counseling support
- Home visits by trained support staff

- Validated screening tools for PPD, anxiety, stress, PTSD and vulnerability
- Education of clinicians about developmental care
- Psychoeducation for parents about common emotional reactions
- Referral to parent peer support groups
- Inclusion of meditation classes and journaling

- Staff education on mental health
- Integration of Social Work, Spiritual/Religious representatives, Palliative Care, and Child Life
- Creation of a strong parent support group
- Incorporation of policies and protocols focussed on parental mental health
- Recognition that mental health symptoms/willingness to ask for help varies based on culture, race, ethnicity, gender, sexual orientation, age and personal experience

SOURCE: Bernardo, J., Rent, S., Arias-Shah, A., Hoge, M. K., & Shaw, R. J. (2021). Parental stress and mental health symptoms in the NICU: Recognition and interventions.

Recommendations to support parents' mental health in the NICU

Individual Clinicians

- Be familiar with mental health risks associated with NICU admission and understand they persist beyond the neonatal period
- Understand that parental mental health impacts long-term infant development and outcomes
- Recognize that non-birthing parents/caregivers have underrecognized mental health needs
- Acknowledge that high-risk populations for mental health conditions need further support
- Normalize the range of caregiver reactions to having an infant admitted to the NICU
- Be aware of the evidence-based practices that can mitigate parental distress and facilitate parent involvement at the bedside
- Be familiar with community support resources
- Incorporate practices that support the entire family and their unique cultural needs
- Assess families for psychosocial needs and refer to appropriate mental health professionals
- Include families in decision making for your unit, community and research design

Institutions

- Establish a universal screening program for parental psychological distress
- Foster connections with existing community organizations, create opportunities for peer (parent-to-parent) support, and consider implementation of emotional-behavioral programs and therapies (e.g. COPE, CBT interventions) to promote parental mental health
- Employ mental health professional(s) in the NICU
- Incorporate mental health awareness, knowledge and communication skills into neonatology training programs

National Level

- Develop standardized policies for parental mental health screening and treatment
- Advocate for extended, universal, paid parental leave, accessible and affordable childcare, and comprehensive access to health care
- Attention and funding to provide equity in mental health resource utilization
- Support scholarly work surrounding screening and enabling technology-assisted assessments/therapy

Specific Interventions To Support Mental Health

Organizational Practices	Peer Support	Bedside Intervention	Educational-behavioral Programs & Therapies
Family Center Care	Peer support group	Skin to Skin or Kangaroo care	Creating Opportunities for Parent Empowerment (COPE)
Information-sharing	Parent "buddy" program	Infant massage	Mother-Infant Transaction Program (MITP)
Training aimed toward improving sensitive, compassionate communication		Interventions that focus on mindfulness	Cognitive Behavioral Therapy
Neonatal Fellows-course on providing psychosocial support to NICU families		Journaling	
Trauma Informed Care (TIC)		Reading or talking to infant	

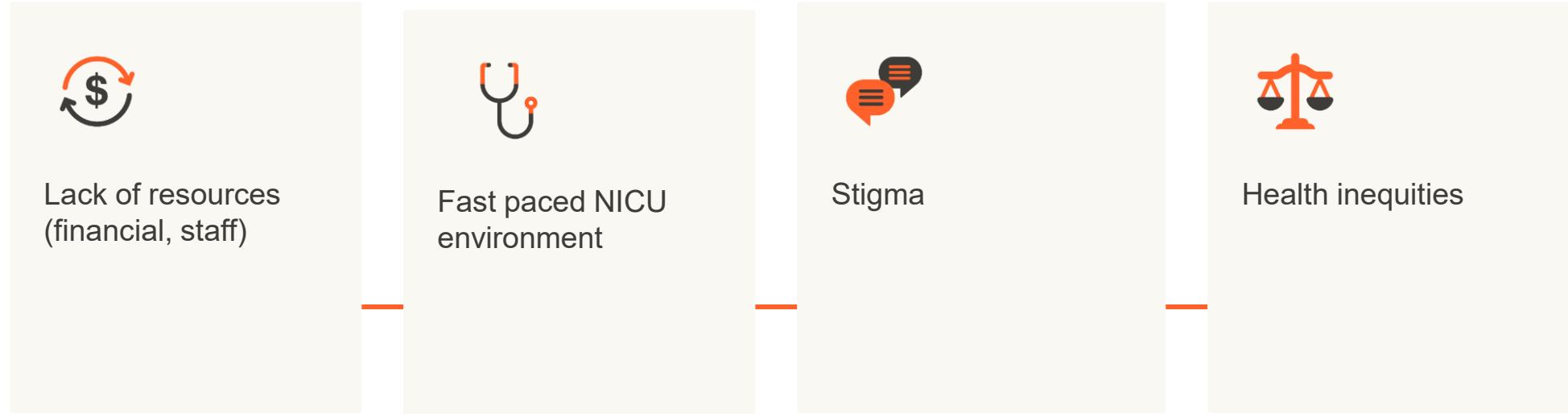
Interventions



- Kangaroo Care
- Supporting breastfeeding
- Participation in developmentally appropriate care
- Peer Support Groups/Individual Therapy



Barriers to Care



References

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Implications of Stress and Potential Interventions

	Prenatal Period	Infancy (Prematurity/NICU admission)	Childhood
Filling in the Knowledge Gap	<ul style="list-style-type: none">Further studies evaluating stress effects during the prenatal and postnatal developmentEpidemiologic studies to examine how early life adversity modifies the outcomes in human cohortsExperimental animal models to identify potential causal pathwaysCharacterizing stress in different types of families; identifying risk and resiliency factors during NICU stay		
Screening	<ul style="list-style-type: none">Detailed social history, including questionnaire to identify history of adversity and prenatal stressRoutine developmental screening of at-risk populations including premature infants as they grow into children and adults, through programs such as NICU Graduate clinicsIdentify biomarkers and neurodevelopmental measures with clinical utilityAssess satisfaction of parental experience during NICU admission		
Resources and Services	<ul style="list-style-type: none">Hospital-based psychosocial support for children and families at risk of stress (prenatal diagnosis, history of adverse childhood experiences, socioeconomic stressors, mental health needs)Identify community support groups, medical legal services, lactation support, government-provide resourcesInvolvement of child protection services in cases of violence and/or neglectAccess to substance abuse treatmentSupport for caregiver (spouses, partners, grandparents)		
Cultural Competencies	<ul style="list-style-type: none">Provide culturally supportive and compassionate care to all familiesContinue to evaluate NICU culture – procedures, attachmentAdequate system to support different languages and literacy levelsFamily-centered care addressing additional causes of stress in immigrant families in the NICU		
Medical Home/ Transition to Home	<ul style="list-style-type: none">Identifying barriers and opportunities while infant is admittedImprovement of teaching materials during hospitalization	<ul style="list-style-type: none">Prepare transition to homeKey risk factors for readmissionDischarge readiness measuresFamily early involvement with infant care/ Family-Centered Care	<ul style="list-style-type: none">Medical HomeFollow-up in “high-risk” infant clinicsEarly intervention
Advocacy and Public Policy	<ul style="list-style-type: none">Advocacy at a national, state and local level (between and within NICUs)Prolonged and supported parental leaveImmigration policies promoting families stay togetherHospital and clinic policy supporting diversity and inclusionAccess to mental health services		