Moving on Up: Elevate Your NICU and US News and World Report Score With the Addition of a Psychologist

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Abstract

A designated psychologist in the Neonatal Intensive Care Unit (NICU) may seem like an obvious choice, given psychologists' expertise in trauma, attachment, neurodevelopment, mental health, and grief; however, few NICUs have a psychologist on staff. As National Network of NICU Psychologists members, we hope to increase access to psychology services as a routine part of care in NICUs. US News and World Reports (USNWR) ranks NICUs annually on multiple criteria, including having a "designated psychologist or psychiatrist" for consultations with families. We evaluated the psychology services provided by several NICUs of hospitals ranked in the top 50 by USNWR between 2015 and 2019. Many of these respondents had a designated NICU psychologist at varying capacities across the division of Neonatology. This indication should motivate other NICUs to hire a NICU psychologist as the standard of care for families and increase their overall USNWR score.

Key Words: *NICU, Psychologist, US News and World Report*

"A designated psychologist in the Neonatal Intensive Care Unit (NICU) may seem like an obvious choice, given psychologists' expertise in trauma, attachment, neurodevelopment, mental health, and grief; however, few NICUs have a psychologist on staff. As National Network of NICU Psychologists members, we hope to increase access to psychology services as a routine part of care in NICUs."

Integrating behavioral health into pediatric medical settings is paramount to fully addressing pediatric patients' and families' biopsychosocial needs. Historically, mental health needs have not been adequately addressed by the traditional role definitions of social work positions and their lack of specialty training in pediatric inpatient settings. With psychologists' doctoral-level training, they are well-positioned to provide behavioral health services within medical settings, allowing patients and families easier access to prevention, intervention, and evidence-based treatments for common mental health presentations (1). As medicine moves towards multidisciplinary collaboration and recognizes the interplay between the mind and body, there has been an expansion of psychology within various pediatric outpatient settings, including general pediatrics (2, 3), cardiology (4), and gastroenterology (5). Within inpatient settings, pediatric consultation liaison (C/L) psychology teams have seen increasing service demands, reflecting a growing need for medical teams to recognize and address mental health needs during medical admissions (6).

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A similar growing interest in pediatric psychology C/L services has been observed (7). Piazza-Waggoner et al. (2013) reported using a pediatric psychology C/L service within a larger medical center and observed nearly doubled annual services requested over five years. Psychology C/L received consults to address typical pediatric behavioral health concerns such as pain, adjustment, depression/anxiety, and treatment adherence. In addition to receiving consults where the child is the identified patient, psychology C/L services were also a frequent resource for caregiver concerns (e.g., adjustment, anxiety/depression). A majority of referrals came from neonatology, with presenting concerns primarily related to adjustment and depression for caregivers in the Neonatal Intensive Care Unit (NICU).

NICU Psychologists

The role of psychologists in the NICU began in the 1970s as a partnership to monitor developmental outcomes for NICU graduates. As the emphasis on "developmental care" and infant mental health garnered increasing attention in the field of neonatology, so did the role of psychologists as members of interdisciplinary teams to develop care plans incorporating an infant's developmental status, arousal level, medical condition, and continuing outpatient neurodevelopmental follow-up clinic needs (8). On the inpatient side, providers are increasingly acknowledging difficulties with adjustment and depression for caregivers even before NICU discharge.

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Parents of infants admitted to the NICU are at increased risk for developing stress disorders (e.g., adjustment disorders, post-traumatic stress disorder) along with perinatal mood and anxiety disorders (PMADs) (9). With the increasing incidence of PMADs and trauma-related disorders of parents with infants in the NICU, supporting caregiver coping warrants clinical attention. Psychologists in the NICU are best suited to provide dyadic intervention services to support infant mental health and attachment and reduce infant stress, which is especially pertinent with the growing focus on infant psychosocial health in the NICU (10, 11). Having a psychologist as part of the care team improves service efficacy and is often accompanied by increased patient satisfaction and improved outcomes (12–15). Embedding a psychologist directly in the NICU has the distinctive advantage of increasing the opportunity for informal collaboration among team members and proactive screening and intervention. Staff benefits, from access to psychological debriefing and staff support, cross-training opportunities with junior professionals (e.g., medical students and residents), and opportunities for research and quality improvement for NICU services, are all consistent with psychology offerings within similar departments like hematology/oncology (14).

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The National Perinatal Association (NPA), a leading organization in perinatal care, has recommended all NICUs have a psychologist as an integrated team member (17). The British Association of Perinatal Medicine (BAPM) Service and Quality Standards for Provision of Neonatal Care in the UK (16) echoed this recommendation for psychologists as "essential members of the neonatal team" (p. 34). BAPM (16) developed staffing standards of 1 full-time psychologist per 20 beds with higher staffing requirements for units with additional risk factors. While some NICUs have embedded psychology successfully, there remains a dearth of NICU psychologist positions and training opportunities available in the United States.

Training, Education, and Certifications

Psychologists are doctoral-trained professionals qualified to provide therapy, conduct research, administer assessments, and participate in quality improvement, program development, and evaluation. Psychologists complete at least three years of full-time graduate-level education before completing a full-time, one-year pre-doctoral internship. Students are expected to complete psychology externships or practica in different settings (e.g., schools, hospitals) and a doctoral dissertation during their education. The pre-doctoral internship is the final year of formal clinical training for psychology students before graduation. In most states, an APA-accredited doctoral program and internship are required to become a licensed clinical psychologist. Most state licensing boards require supervised clinical hours following graduation and meeting state-specific requirements. Those requirements could include passing the national licensure exam (i.e., Examination for Professional Practice in Psychology), state jurisprudence exams, and oral examinations, amongst other requirements. A post-doctoral fellowship is a formalized method for accruing supervised post-graduate hours, including didactics, supervision, a research/scholarly component, and clinical exposure to the specified population. While there are many specialties within the field of psychology, all clinical psychologists must have a basic understanding of research design and implementation, program development, test construction, psychological assessment, clinical interventions, and supervision.

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Following licensure, psychologists can choose to pursue board certification. This process is similar to medical board certifications; however, a difference is that this process is not required for clinical practice, and many psychologists curate advanced expertise without seeking board certification. The main benefit of this process is that it communicates to other psychologists, health service professionals, and the general public that the board-certified psychologist has advanced training and expertise in the specific

certification area. There are currently seventeen specialty boards offered through the American Board of Professional Psychology (ABPP). To date, there are no NICU-specific certifications for NICU psychologists. However, they might pursue further training and/or certification in other clinical areas (e.g., clinical neuropsychology, clinical health, clinical child and adolescent) to expand their knowledge and expertise in this highly specialized area. In addition to board certification through ABPP, several related certifications for NICU psychologists can include the Infant/Early Childhood Mental Health Endorsement (I/ECMH-E) sponsored by various infant mental health associations through The Alliance for Infant Mental Health or the Perinatal Mental Health Certification (PMH-C) sponsored by Postpartum Support International.

Psychology in the NICU

Perinatal Mood and Anxiety Disorders (PMADs):

A review of the literature shows an increased incidence of mental health concerns and diagnoses among parents of infants admitted to NICU as compared to parents of typical infants. Approximately 20–30% of NICU parents will meet the criteria for a mental health disorder, with many more experiencing sub-clinical yet still distressing symptoms (17). Common concerns include PMADs as well as trauma-related disorders. Parental mental health concerns can impact the infant in several ways, including reduced visitation/avoidance, diminished positive engagement with their infant and care team, and challenges related to reading and interpreting the infant's cues. These concerns can negatively impact the infant's long-term development and behavior. Therefore, NICU psychologists can directly impact the well-being of the family unit as a whole by addressing the parental mental health needs and the infants' social, emotional, and developmental needs.

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Many parents consider the NICU and/or their birth experience as traumatic or at least a very significant stressor. Chronic stress and trauma may impact parents' behavior and regulation as outlined above, necessitating a trauma-informed care (TIC) approach. TIC involves: "(1) realizing the impact that trauma has on people and those reactions to a past trauma may inform the person's current response to a potentially traumatic situation; (2) recognizing the signs and symptoms of trauma in people and the staff caring for them; and (3) resisting re-traumatization, to prevent a situation that represents a tolerable stress from evolving into a toxic stress" (18). NICU psychologists provide TIC to families and can also help educate medical and administrative staff on how to practice TIC.

Infant Mental Health/Infant and Early Childhood Developmental Assessment:

Psychologists with infant mental health experience and training are specifically equipped to address the parent-infant dyad with a focus on early attachment and bonding, parental engagement, parental reflective capacity, adoption of the parental role, and grief related to the loss of the expected pregnancy and delivery experience. Many NICU parents report feeling as though they are limited in what they can do for their infants. As part of the NICU care team, psychologists can educate and coach parents around developmentally appropriate and relationship-enhancing activities such as kangaroo care, positive touch, hands-on care, and reciprocal interactions to improve the dyadic relationship and parental confidence and competence in caregiving. Psychologists can support parents in understanding their role in facilitating infant neurodevelopment through interactions that engage the sensory systems (e.g., talking, singing, reading, and scent). Positive, safe, and attuned relationships with parents can buffer the infant against the negative impacts of prematurity, NICU stress, and medical complexities (19).

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Early Childhood Developmental Assessment:

Premature and medically complex infants are at higher risk for neurodevelopmental complications and delays as compared to typically developing infants. Assessing, monitoring, and treating these concerns is largely a multidisciplinary effort occurring during NICU admission and in the months and years post-NICU stay. Psychologists have the training and expertise to administer, score, and interpret a variety of developmental assessments to support the infant's developmental course better and help educate families about their child's areas of strength and areas for growth. The

Bayley Scales of Infant and Toddler Development, Fourth Edition (20), is the gold standard in developmental assessment across domains. Additionally, many psychologists are utilizing the NICU Network Neurobehavioral Scale (21) to assess at-risk infants' neurological integrity and behavioral functioning. Results from assessments such as these allow for early identification of concerns, coordination amongst team members, and early referrals to support services, facilitating more comprehensive planning and education for families.

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USNWR Benefits for having a NICU Psychologist:

As outlined above, psychologists bring specific and necessary expertise to NICUs that positively affect patient and family care and staff and provider well-being. However, taking a systems-level view of this impact is also essential. Hospital systems and related entities are motivated by ranking systems such as the US News and World Reports Best Children's Hospital Report (USNWR). This is a premier ranking system that analyzes data on hospital services, specialties, clinical outcomes, coordination of care, and provision of resources. These annual rankings are used to inform patient and family decision-making and demonstrate excellence in reputation. They are often utilized in quality improvement efforts by hospitals and systems of care (22). Neonatology is one of the specialties USNWR ranks annually, and the availability of a psychologist or psychiatrist in the NICU boosts this score. USNWR awards points for having a "designated psychologist or psychiatrist available for referrals and consultation with parents." The designated psychologist is ambiguous and could include an embedded NICU psychologist or a C/L psychologist who rotates through the NICU.

Methods:

The number of top-ranked USNWR hospitals in Neonatology that have met the criteria of "designated psychologist or psychiatrist available for referrals and consultation with parents" is unknown. In this study, we sought to determine how many top-ranked Neonatology programs had a designated psychologist. We obtained a list of the top 50 ranking hospitals in the specialty of Neonatology from 2015–2019. From the list of 67 unique institutions, we identified contacts at 53 institutions, including psychologists, social workers, nursing directors, parent coordinators, and administrative staff. A 19-question survey was emailed to these contacts. Participants were given a month to respond, and two reminders were emailed about the survey timeline. No incentives were provided to complete the survey.

Of the 53 institutions surveyed, 16 provided responses. Two respondents unintentionally completed the survey twice. The authors agreed on accepting the first response and deleting the second, as the responses did not significantly differ in the information provided, leaving a total *n* of 14. It is worth noting that almost all institutions that responded to the survey had psychology services available in their NICU or medical centers at varying capacities. Each institution was asked to respond to questions about the availability of psychology services provided within the NICU and other departments within neonatology. Given that NICU psychology is a new and growing field, it is not surprising that we were unable to gather more respondents. The 14 respondents indicate the need for more neonatology units to have a designated psychologist.

Results:

Data has been summarized in Table 1. Most hospitals (93%) were level 4 NICUs, and their bed capacity ranged from 30 to 250 beds, averaging 82. Most respondents reported having a psychologist in at least two service lines across inpatient and outpatient settings (i.e., NICU, NICU Follow Up Clinic, Fetal Care, Pediatric ICU, and Cardiac ICU). Although thirteen respondents reported having a fetal care center, only five reported having a designated psychologist in this department. Seventy-one percent of respondents reported having a designated psychologist in the NICU. The average percentage of clinical Full-Time Effort (FTE) within a workweek was 53%, ranging from 0% to 100%. Most psychologists within the NICU (71%) reported billing for their services. For psychologists who bill for services, 90% use Health and Behavior codes, and 20% use Psychotherapy codes (with some overlap depending on the setting where services are provided). Of the 14 respondents, 10 were funded, at least partially, by the hospital and/or academic department. Of the remaining respondents, philanthropic funds supported one, one was grant-supported, and a combination of sources funded two.

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Table 1: Summary of Survey Respondents' NICU Psychologist Service and Structure

Institution	NICU Level & Number of Beds		Is there a NICU psychologist? % FTE in NICU/NICU-related activities		Clinical Service Line	Psychologist bills for services?	Billing codes used	Presence of FCC	Is there a dedicated psychologist in your FCC?	Psychologist funding source(s)	Psychology training
Children's Medical Center Dallas	IV	47	Yes	100%	•NICU	Yes	•H&B Codes	Yes	No	•The medical/ academic dept	•Practicum •Internship •Fellowship
Johns Hopkins All Children's Hospital	IV	96	Yes	100%	•FCC •NICU •PICU/CICU •NICU FUC	Yes	•H&B Codes	Yes	Yes	•The hospital	•None
Nationwide Children's Hospital	IV	130 to 260	Yes	100%	•NICU •NICU FUC	Yes	•H&B Codes	Yes	No	•The hospital	•Internship •Fellowship
Oregon Health & Science University	IV	42	Yes	20%	•NICU •NICU FUC	No	•No billing	Yes	No	•The medical/ academic dept	•None
Duke University Medical Center	IV	65	No	10%	•NICU FUC	No	•No billing	Yes	No	•Grants •Teaching •Clinical receipts	•None
Children's Hospital of Philadelphia	IV	98	Yes	100%	•NICU •FCC •NICU FUC	Yes	•H&B Codes	Yes	Yes	•Each dept funds their respective psychologist	•Internship •Fellowship
University of Miami/ Jackson Memorial Hospital	IV	126	No	0%	•None	N/A	•N/A	Yes	No	•N/A	•None
University of Colorado Hospital/ UC Health System	III	50	Yes	90%	•NICU •Ante/L&D Unit •OP FIMC	Yes	•H&B Codes	Yes	No	•Grant(s)	•Fellowship
Children's Mercy Hospital - Kansas City	IV	84	Yes	30%	•FCC •NICU •PICU/CICU •NICU FUC	Yes	•Psych Codes •H&B Codes	Yes	Yes	•The hospital	•Practicum

Table 1 (continued): Summary of Survey Respondents' NICU Psychologist Service and Structure										
Institution	**NICU Level & Number of Beds**		**Is there a NICU psychologist? % FTE in NICU/NICU-related activities**		**Clinical Service Line**	**Psychologist bills for services?**	**Billing codes used**	**Presence of FCC**	**Is there a dedicated psychologist in your FCC?**	**Psychologist funding source(s)**	**Psychology training**
Children's Hospital Los Angeles	IV	50	Yes	100%	•FCC •NICU •PICU/CICU •NICU FUC •Other hospital areas	Yes	•Psych Codes •No billing	Yes	Yes	•Private funder/Philanthropy	•Fellowship
C.S. Mott Children's Hospital	IV	52	No	0%	•None	Yes	•H&B Codes	Yes	No	•The hospital •The medical school •Billing	•Fellowship
Cook Children's Medical Center	IV	98	No	0%	•NICU FUC	Yes	•H&B Codes •Unsure	No	N/A	•The hospital	•None
Boston Children's Hospital & Harvard Medical School	IV	30	Yes	80%	•PICU/CICU	No	•No billing	Yes	Yes	•All of the above (CICU)	•Practicum
Children's National Hospital	IV	60	Yes	10%	•NICU FUC	Yes	•H&B Codes	Yes		•The hospital	•None

**Note.* Abbreviations: FCC = Fetal Care Center; PICU = Pediatric ICU; CICU = Cardiac ICU; NICU FUC = NICU Follow Up Clinic; Ante = Antepartum; L&D = Labor & Delivery; OP FIMC = Outpatient Clinic for Families of Infants with Medical Complexity; H&B = Health and Behavior; Psych = Psychotherapy

We assessed training opportunities for pre and post-doctoral psychology trainees. Eight respondents reported having a training program with trainee development levels ranging from externs/practicum students to post-doctoral fellows. Of the training options, only one site endorsed offering training at all three levels (i.e., practicum/externship, internship, and fellowship). Five sites offered training at a single level (i.e., externship/practicum or fellowship); the remaining sites offered internship and fellowship training opportunities. Seven programs offered post-doctoral fellowships, the most advanced level of specialty training, and each of these institutions was also an institution where psychologists could bill for services provided.

Discussion:

Psychologists are integral to the NICU, providing clinical expertise for the infant's health and development and the family's overall well-being. NICU psychologists' contributions extend beyond direct patient care by enhancing interdisciplinary learning and heightening awareness of biopsychosocial factors that may affect decision-making and treatment planning, supporting the cultivation of family-integrated or family-centered care practice, implementing trauma-informed care approaches, and promoting provider well-being through staff support. Additionally, having a NICU psychologist improves the expertise of clinical service, appeals to patients' and families' desires for top-ranked care, and contributes to a national reputation for excellence.

Including a psychologist within the NICU can improve a hospital's ranking within the US News and World Reports (USNWR) for that hospital's Neonatology division. This ranking system influences patient and family decision-making and is often utilized for quality improvement efforts within hospitals or larger systems of care (22). One of the specific factors assessed is if there is a "designated psychologist or psychiatrist," and a NICU's overall score is improved if such a clinician is on the care team. While this factor is not clarified more thoroughly (i.e., what defines presence), it seems that the USNWR recognizes the importance of having a professional present to address mental health concerns for this population.

Including a psychiatrist and/or psychologist within a NICU would benefit families and staff and improve care and outcomes. Despite the difference in training, psychologists and psychiatrists often

work closely together to care for their patients. Both can provide in-depth/targeted assessment of mental health conditions, but treatments utilized generally differ. Psychiatrists are MDs (medical doctors) trained to understand the brain chemistry and biological aspects of mental health. Their training is less focused on psychotherapies, but some may utilize psychotherapy as a part of their approach. The inclusion of a psychiatrist as part of the treatment team would offer the unique benefit of having the option to utilize medication management for parents. The cost of integrating a psychiatrist is generally significantly greater than that of a psychologist, and the additional benefit of offering medication management may be less impactful as many new parents with an infant(s) in the NICU are often hesitant to utilize psychotropic medications as a first line of treatment. Families often worry that medications could impact milk supply, be dangerous for their infant(s), or be accompanied by undesirable side effects during what is already a vulnerable period. While psychiatrists may be trained in some psychotherapy techniques, to only access part of their skill set for the majority of patients they interact with would be an inefficient use of their clinical effort and challenging for many medical systems to justify financially. There are also systemic and medical-legal challenges related to documentation and prescribing medications when the identified patient is a neonate.

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Psychologists have expertise in psychological/neuropsychological assessment, brief interventions, evidence-based care, healthcare system navigation, and research/program development. A psychologist's training focuses more specifically on understanding emotions and utilizing targeted therapeutic techniques (such as Cognitive Behavioral Therapy [CBT]) to address the mental health needs of their patients. They are less costly to the NICU than a psychiatrist and can circumvent many medical-legal issues while operating at the top of their license. USMWR assigns credit when the psychologist collaborates with other subspecialties for neurodevelopmental programming and family services. A psychologist with a role in the NICU would be able to address all three of these areas with their single line of clinical effort while also engaging in program development, contributing to provider support and well-being efforts, supervising and teaching junior physicians and other trainees, and referring to psychiatric or other medical colleagues when appropriate.

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Despite a small sample size based on the availability of existing NICU psychologists, our survey results show that most respondents have a designated psychologist for NICU service lines. These institutions, highly ranked within the USNWR and well-respected academic medical institutions, have set a standard of care that other institutions should model. This standard is often continuously rated highly across various domains important to patients, families, staff, and the greater community. Our survey also found considerable variability in the percentage of FTEs, clinical responsibilities, inpatient vs. outpatient work, funding resources within these institutions, and training opportunities. In preparation for expansion, it is vital to ensure adequate training opportunities at each level for up-and-coming psychologists to be prepared to serve in a neonatal environment. Greater than half of the high-ranking survey respondents demonstrated their dedication to future growth in this field, as indicated by their established training programs for future NICU psychologists. However, to adequately prepare for the growth of this service, more NICU psychologists are needed to expand the training programs for psychology students. Survey results indicate that institutions recognize that NICU psychologists are a value-added service, positively impacting long-term parental health, infant/child outcomes, the culture of the NICU itself, and reducing long-term financial costs. NICU psychologists are essential in pursuing excellence in neonatal care,

and there is an increasing call for full-time psychologists in every NICU.

Future Directions:

The authors, members of the NNNP Advocacy Committee, plan to use the information gathered here to support expanding the availability of NICU psychology services in NICUs nationwide. Future directions for the NNNP Advocacy Committee include the creation of a NICU Psychologist toolkit. The purpose of this toolkit is twofold. The first is to assist individuals or units in providing a clear and concise rationale to hospital administration on the benefits of including a NICU psychologist within their NICU team. The second is to standardize the requirements for psychological support for NICU families. This toolkit will include a sample job description, guidance on identifying appropriate billing codes, possible funding sources to consider, education on infant mental health, and best practice recommendations for screening and intervention for PMADs. Finally, we want to encourage continued support for advancing NICU psychologists in more institutions to ensure the mental health needs of NICU families are addressed, maximizing the potential of and support for the developing infant.

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TG and LC created the format for the project, designed the survey, and distributed it. They also analyzed the data, created the outline, and participated in the manuscript's construction.

SE: Helped create the outline for the paper, analyzed the data, and participated in the manuscript's construction.

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