Essential Knowledge and Competencies for Psychologists Working in Neonatal Intensive Care Units

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Abstract

A training and competencies workgroup was created with the goal of identifying guidelines for essential knowledge and skills of psychologists working in neonatal intensive care unit (NICU) settings. This manuscript reviews the aspirational model of the knowledge and skills of psychologists working in NICUs across six clusters: Science, Systems, Professionalism, Relationships, Application, and Education. The purpose of these guidelines is to identify key competencies that direct the practice of neonatal psychologists, with the goal of informing the training of future neonatal psychologists. Neonatal psychologists need specialized training that goes beyond the basic competencies of a psychologist and includes a wide range of learning across multiple domains, such as perinatal mental health, family-centered care, and infant development. Achieving competency will enable the novice neonatal psychologist to successfully transition into a highly complex, medical, fast-paced, often changing environment, and ultimately provide the best care for their young patients and families.

Keywords NICU · Psychologist · Competence · Education · Training

As the emotional and behavioral components of medical illness have gained greater attention, psychologists have found a home in many integrative medical disciplines. Neonatology, a relatively new subspecialty, is following suit and beginning to incorporate psychologists in both neonatal intensive care units (NICUs) and affiliated clinics. The United States did not have its first official NICU until 1965 at Yale-New Haven Hospital, but by the early 1970s, every state in the country had at least one hospital-based NICU (Rojas, 2012). Initially, the role of neonatal

psychologists—those working with infants with high medical acuity—was primarily focused on developmental follow-up after NICU discharge to determine how early medical issues and the NICU environment impacted infant development. Over time, the role of neonatal psychologists expanded into the NICU to provide services addressing developmental care, caregiver mental health, infant-caregiver attachment behavior, and staff education and support. The neonatal psychologist is increasingly being seen as providing vital and valuable mental health and developmental support services

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to infants, families, and staff in the NICU (Hynan et al., 2015).

Currently, there are over 1000 NICUs in the United States alone (American Academy of Pediatrics, 2011). With growing recognition of the need for psychological services within the NICU, the demand for psychologists prepared to practice in a highly specialized medical setting is rapidly increasing. However, guidelines for providing training and supervision in this highly specialized field have yet to be determined. This manuscript combines the experience and expertise of psychologists working in NICU settings to identify essential knowledge, skills, and competencies of neonatal psychologists. The aim of this manuscript is to provide a framework for training and competency standards for psychologists and trainees aspiring to practice as neonatal psychologists.

Brief History of Neonatal Psychology in the United States

As previously mentioned, in the mid-1970s neonatal psychologists made their start by partnering with neonatologists to monitor developmental outcomes following NICU discharge. Over the next two decades, these partnerships evolved and psychologists began to engage in practice in the NICU setting, in addition to staffing outpatient follow-up clinics. By the 1990s, the provision of “developmental care” became best practice in the NICU. Neonatal psychologists became increasingly involved in care for infants in the NICU by working with interdisciplinary teams to create care plans based on the infant’s developmental status, medical condition, and arousal level (Zeanah, 2009).

At the turn of the 21st century, the emerging discipline of Infant Mental Health (IMH) entered the NICU with neonatal psychologists providing mental health services to infants and their families. Within the IMH model, the dyadic relationship between the infant and parent is the core unit of intervention and this focus was congruent with a movement toward family and patient-centered care in NICUs. In addition, the IMH model recognizes the strains of working in a NICU and posits a parallel process of support and care for NICU staff. This shift in focus from infant to the infant-caregiver dyad also highlighted a need to direct more attention and care toward the well-being not only of parents and siblings in the NICU, but staff as well.

Finally, in the past decade, growing recognition and conversations about postpartum depression (PPD) and other perinatal mood and anxiety disorders (PMADs) and their effects on the developing child became an increasing focus of pediatric and women’s healthcare. As a result, neonatal psychologists have become more focused on assessing and

treating PPD and other PMADs in mothers and fathers in the NICU, in addition to the other previously discussed roles.

In 2011, a small group of neonatal psychologists across the United States connected and began regular conference calls to provide professional support to one another in this growing field. This group met monthly via telephone and was led by Michael Hynan Ph.D. These “Hynan Calls” provided information on evidence-based practices, innovative models of care, and opportunities for collaborative problem-solving. The group grew in numbers and many contributed to the National Perinatal Association’s (NPA) “Interdisciplinary Recommendations for Psychosocial Support of NICU Parents” (Hynan et al., 2015). One of the recommendations was for every NICU to include a doctoral level psychologist, as well as a master’s level social worker. These recommendations have been embraced by the NICU community; having a neonatal psychologist integrated within the NICU setting is now considered the “gold standard” of care. The first in-person retreat of neonatal psychologists was held in Atlanta, GA in March 2017 and annual retreats, multiple workgroups, and an active listserv have subsequently evolved as part of the new National Network of NICU Psychologists (NNNP). Parallel to this process, neonatal psychologists have become more visible as an outgrowth of pediatric psychology and an active Neonatology Special Interest Group (SIG) exists within APA’s Society of Pediatric Psychology (Division 54).

At the first annual retreat in 2017, a training and competencies workgroup was created, with the goal of identifying guidelines for essential knowledge and skills of neonatal psychologists. This resultant manuscript provides competency areas based on the contributions of the workgroup consisting of a team of psychologists with over 80 years of combined practice in NICU and related settings (e.g., NICU follow-up clinics, fetal care centers). An additional four psychologists and three psychology trainees also reviewed the guidelines to provide input and feedback.

Formation of Training and Competency Guidelines

Today, the role of the neonatal psychologist is multifaceted, with psychologists embedded in inpatient NICU settings, outpatient NICU follow-up developmental clinics, and fetal care centers. A fundamental training guideline is that a neonatal psychologist should have obtained a doctoral degree in psychology, with training in interdisciplinary healthcare settings. Neonatal psychologists work in pediatric settings, and training experiences in healthcare settings with infants and young children, as well as clinical work with parents of children with complex medical conditions, provide the foundation for the specialty practice of neonatal psychology. Similar to other subspecializations of psychology that

involve inpatient consultation-liaison work, the neonatal psychologist should be skilled in short-term consultative work and also have a keen understanding of the medical challenges facing the hospitalized infant, particularly as they relate to development and emotional well-being in the infant and family. Additionally, the ability to engage in therapeutic work with adults, particularly surrounding issues related to perinatal mental health, is essential.

Consistent with efforts of other subspecializations to delineate training and competency guidelines that would prepare psychologists in subspecialty fields (e.g., Jerson, Cardona, Lewallen, Coleman, & Goyette-Ewing, 2015; McDaniel et al., 2014; Palermo et al., 2014), the following presents an aspirational model that begins to define competency in the subspecialization of neonatal psychology. Our general framework was adapted from a paper on training and competency standards for psychologists in primary care (McDaniel et al., 2014), which was based on competency models in psychology that focus on achievement of measurable, behavioral objectives for learning rather than a focus on curriculum (for a review, see Kaslow, 2004). The organization and description of the various competencies in primary care that were presented in the paper by McDaniel et al. (2014) was adopted and adapted for this manuscript as both primary care and neonatal psychology involve integration of psychological services in a medical setting. The model includes six clusters: Science, Systems, Professionalism, Relationships, Application, and Education. Each of these clusters is subdivided into associated competency groups (refer to Table 1), and each of the competency groups has its own table with specific knowledge/skills (Tables 2, 3, 4, 5, 6, 7). McDaniel indicates, “clusters and competencies are not expected to be completely independent of one another but are designed to provide a conceptual framework to guide clinical practice and education and training” (p. 414).

The purpose of the guidelines presented in this manuscript is to identify key competencies that direct the practice of neonatal psychologists, with the goal of informing the training of future neonatal psychologists.

Procedures

To identify the key knowledge and abilities to be included within each competency table, the workgroup evaluated literature of behavioral health issues that present in NICUs, consulted with psychologists enrolled in the Neonatology SIG of the Society of Pediatric Psychology, and consulted with those who had signed up to be part of a listserv and network of psychologists working in the NICU or related settings (now the NNNP). Over a 2-year period (2017–2019), the primary members of the workgroup worked in small groups to generate a list of key knowledge and abilities for each competency group. Monthly calls were held to discuss

Table 1 Clusters and competency groups of neonatal psychology practice

Cluster	Competency groups
Science	Science related to the biopsychosocial approach Research and evaluation
Systems	Leadership/administration Interdisciplinary systems Advocacy
Professionalism	Professional values and attitudes Individual and cultural diversity Ethics and decision-making Reflective practice, self-assessment, and self-care
Relationships	Interprofessionalism Building and sustaining relationships
Application	Practice management Assessment Intervention Clinical consultation
Education	Teaching Supervision

Adapted from McDaniel et al., (2014)

progress and clarify conceptualization of competencies. Once all tables were populated, each workgroup member reviewed all material contained across the competency tables and identified areas of overlap within and across tables, added any additional items they felt were omitted, and indicated the six to ten over-arching themes that summarized the items within each competency group. Each workgroup member also made suggestions for placements of competencies within clusters when a different cluster was thought to be more appropriate to contain a specific competency. The first and second authors then reorganized the information in the tables to reduce overlap and condense the number of items in each competency group into broader themes, providing examples as appropriate. Finally, a request was sent to the network listserv (at the time it had 102 email addresses) for volunteers to critically review and offer feedback.

The focus of the resulting guidelines is limited to specific aspects of knowledge and abilities the workgroup considers foundational components to a subspecialization in neonatal psychology. Notably, there are many competencies for psychologists who work within various medical settings that were not listed in this manuscript, but which neonatal psychologists should meet as they are also relevant to the practice of neonatal psychology (see Dobmeyer & Rowan, 2014). It is also important to note that these areas of knowledge and abilities are provided for general reference and are not intended to be prescriptive. Psychologists pursuing this area of subspecialty are not expected to have expertise in all of these areas. The utility of each competency and specific

Table 2 Cluster 1: science*Science of biopsychosocial approach*

Knowledge of	<ul style="list-style-type: none"> • Pregnancy complications (e.g., gestational diabetes, pre-eclampsia), neonatal conditions (e.g., prematurity, cardiac conditions, common congenital anomalies), and risk factors (e.g., advanced maternal age, multiple gestation) • Normative psychological processes of uncomplicated pregnancy and impact of preterm birth/medically-compromised birth on all family members • Parental coping/adjustment in NICU settings, including risk and resiliency factors (e.g., prior trauma/loss, infertility, prior NICU experience, NICU environmental factors) • Impact of parental mood and anxiety disorders on infant-caregiver relationship and on the child's cognitive and emotional development • Infant mental health and development of infant-caregiver relationship (i.e., attachment theory) and importance of parents' involvement in care • NICU interventions to promote child development, attachment, and family wellness (e.g., skin-to-skin care/infant holding, supportive touch, breastfeeding/expressing breastmilk, parental participation in/assumption of cares tasks, sharing parent smell, infant-directed speech) • Common diagnoses (e.g., acute stress disorder/posttraumatic stress disorder, depression, anxiety) and their differing presentations in family members and staff • Mortality and morbidity outcomes/developmental trajectory for early and late preterm infants, as well as infants with other complications (e.g., hypoxic-ischemic encephalopathy) • Integrated models of family- and patient-centered care including trauma-informed care • Palliative care/neonatal death, end of life care support, and grief counseling • Variables affecting child development, child health, and family functioning after NICU discharge (e.g., parental perception of child vulnerability, prematurity stereotyping)
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Research and evaluation

Knowledge of	<ul style="list-style-type: none"> • Grant-writing and resources for grants • Strengths and limitations of various quantitative and qualitative clinical research methods to study NICU specific topics (e.g., infant-caregiver relationship, staff-parent interactions) • Implementation science to guide systemic change in the NICU based on the body of existing research • Knowledge of quality improvement, program development, and evaluation frameworks (e.g., lead versus lag indicators of program success) • Understand strengths and limitations to common approaches of assessing and monitoring developmental outcome
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knowledge area will vary depending on the psychologist's role, setting, time dedicated to NICU work, and/or service level of the NICU. Workgroup members engaged in lengthy discussion about whether to rank order or specify the most critical competencies. However, due to the variations in roles/activities across NICU environments, the workgroup decided to acknowledge that psychologists should work within their areas of competence and seek additional training as their roles shift and expand across settings.

Cluster 1: Science

Science Related to the Biopsychosocial Approach

A vital component underlying all roles and activities of neonatal psychologists is the conceptualization of the infant-caregiver dyad relationship as the “patient” and focus of intervention—as opposed to the infant in isolation (Shah, Browne, Poehlmann-Tynan, 2019). The NICU poses many challenges to a more natural and evolving dyadic relationship, thus, an emphasis on healthy infant-caregiver interactions is essential to lay the foundation for effective parental functioning and healthy infant development. The neonatal

psychologist therefore must have an understanding of infant development and factors affecting formation of healthy infant-caregiver attachment. Therefore, although the infant and this dyadic relationship is at the center of awareness for a neonatal psychologist, the primary psychological work is with adults (e.g., parents, extended family, and NICU providers/staff) (Steinberg & Patterson, 2017). It is critical that the neonatal psychologist have an understanding of the normative aspects of one's transition into parenthood and how the addition of a child changes the family system. This is true in uncomplicated pregnancies/neonatal periods and more so when the NICU setting may disrupt this process (Shah et al., 2019). The neonatal psychologist should further understand that NICU parents are at high risk for negative emotions such as intense anxiety and depression, as well as uncertainty, shame, and guilt, all of which impact this transition and the developing infant-caregiver relationship (Roque, Lasiuk, Radünz, & Hegadoren, 2017). See Table 2 for the list of knowledge and abilities in this subdomain.

Research and Evaluation

One of the charges of the neonatal psychologist (in comparison to other behavioral health providers who may

Table 3 Cluster 2: systems*Leadership/administration*

- Knowledge of
- Key organizational/governing structures that influence the activities within the NICU (e.g., nursing leadership and structure, hospital and medical school leadership, external contracting agencies, physician/provider groups)
 - Specific teams and committees that set clinical policies and procedures within the NICU (e.g., bereavement/palliative care, developmental care) and in the overall hospital setting (e.g., clinical informatics, quality and safety, internal review boards) and the procedures for obtaining approval for programs and initiatives
 - Approaches to leading change and providing leadership within systems
 - Key priorities of the hospital and medical school (recognizing that these are sometimes not in alignment)
- Ability to
- Evaluate and intervene in setting-specific cultural and systemic factors that may be barriers to optimal care

Interdisciplinary systems

- Knowledge of
- Predominant fetal diagnostic centers in the region and basic awareness of the education and counseling practices that families may receive within these centers
 - Available hospital-based resources that support caregivers experiencing an unexpected and/or prolonged hospital stay (e.g., financial, legal, ethics board, chaplaincy, patient advocacy)
 - Early intervention programs and methods for referral
 - Social support agencies that can assist families as appropriate (e.g., home visiting programs, Department of Health and Human Services, Ronald McDonald Housing)
 - Community-based mental health services (e.g., websites, support groups, referral agencies) and national resources (e.g., Postpartum Support International, National Perinatal Association, Hand to Hold, Premie Parent Alliance, March of Dimes) to support families in their NICU experience
 - Locations and practices of various follow-up programs (and possible involvement in) that provide medical and developmental care and behavioral health support to infants and families following NICU discharge
- Ability to
- Consult with and contribute to interdisciplinary teams beyond the NICU including hospital, medical school, and other administrative units that guide practice

Advocacy

- Knowledge of
- Materials and organizations that support the need for psychologists in the NICU (e.g., National Perinatal Association position statements, materials and resources from the National Network of NICU Psychologists and American Psychological Association Division 54 SIG in Neonatology)
- Ability to
- Advocate at the regional and national level for increased research, grant funding, and/or training opportunities for neonatal psychologists
 - Evaluate and advocate for quality family-centered and trauma-informed care practices and evidence-based practices, particularly pertaining to behavioral health care delivery within the NICU
 - Describe and advocate for the unique skill set of neonatal psychologists as opposed to other behavioral health professionals with differing areas of focus and expertise (e.g., social workers, child life specialists)
 - Work with hospital, regional, and state professionals to advocate for reimbursement for infant mental health and health/behavior services in the NICU setting

work in the NICU setting) is to advance the field of neonatal psychology through research and dissemination of new practices. Evaluating and incorporating existing empirical support for family/staff interventions, as well as designing research studies are often a part of the neonatal psychologist's role. Neonatal psychologists may be involved in collaborative research and quality improvement studies with other members of multidisciplinary teams. Even when the role of a neonatal psychologist does not include active engagement in research, the neonatal psychologist must be a careful consumer of research related to NICU psychosocial care, and can design research projects that test interventions for the family/infant relationship and the medical staff/family relationship. See Table 2 for the list of knowledge and abilities in this subdomain.

Cluster 2: Systems

Leadership/Administration

It is imperative that a neonatal psychologist working in a hospital setting understand the unique organizational structure of the NICU. Neonatal psychologists need to understand the interplay of different disciplines, communication channels, and chains of command involved in the individual NICU and larger hospital community. Neonatal psychologists must also be aware that the structure, organization, and culture of each NICU is different and therefore, must possess the skills to obtain an understanding of the unique systems in which they are working at the outset of

Table 4 Cluster 3: professionalism*Professional values and attitudes*

Knowledge of	<ul style="list-style-type: none"> • Organizations related to the NICU that support, promote, and educate neonatal psychologists (e.g., National Perinatal Association, American Psychological Association Division 54 SIG in Neonatology, Postpartum Support International, National Network of NICU Psychologists)
Ability to	<ul style="list-style-type: none"> • Adhere to professional ethics and legal standards and educate others about how these dictate practice (e.g., obtaining informed consent from legal guardians) • Conduct a needs assessment and engage in program development to deliver high-quality psychological care to NICU families • Set appropriate and professional boundaries with patients, families, and NICU staff

Individual and cultural diversity

Knowledge of	<ul style="list-style-type: none"> • Communication skills that allow exchange of information with families in a culturally-sensitive manner • Variations in beliefs and practices across cultures pertaining to decision-making and treatment considerations (e.g., assisted reproductive technology, medical intervention, bereavement)
Ability to	<ul style="list-style-type: none"> • Consider cultural, language, and other diversity factors in selecting screening measures, engaging in diagnostic decision-making, and implementing interventions • Recognize and accept diversity in family structure and parenting practices across gender, sexual orientation, and/or culture • Work compassionately with families to deliver quality care, even in challenging social and cultural situations (e.g., perinatal substance use, religious beliefs that conflict with medical advice)

Ethics and decision-making

Knowledge of	<ul style="list-style-type: none"> • NICU specific practice guidelines and legal and medical mandates used in ethical decision-making • Shared decision-making framework and ways to facilitate this process • Common ethical/moral dilemmas in decision-making encountered by families and staff during the perinatal period (e.g., selective reduction, pregnancy interruption due to fetal anomaly, fetal surgery) and neonatal period (e.g., “heroic” lifesaving measures, continuation of care versus withdrawal)
Ability to	<ul style="list-style-type: none"> • Support families in the decision-making process related to these difficult scenarios

Reflective practice, self-assessment, and self-care

Knowledge of	<ul style="list-style-type: none"> • Various methods of self-care related to sleep, nutrition, exercise, attitudes, behaviors, and interpersonal support • The importance of peer-to-peer mentorship and the process for facilitating peer-to-peer mentorships for NICU staff • The need to seek supervision and/or consultation to maintain professional boundaries in the NICU • Reflective practice and supervision models
Ability to	<ul style="list-style-type: none"> • Identify early signs of moral distress and/or burnout in staff (e.g., vicarious traumatization/secondary trauma, compassion fatigue, burnout) • Seek ongoing professional development through relevant continuing education opportunities • Facilitate both group and individual work to address common concerns for staff and families, such as teaching techniques for stress management (e.g., mindfulness, meditation) and coping skills (e.g., deep breathing, positive affirmations, muscle relaxation, guided imagery)

their integration into the system. See Table 3 for the list of knowledge and abilities in this subdomain.

Interdisciplinary Systems

Quality NICU care often begins before an infant’s admission and continues long after his/her discharge. Fetal medicine programs have increasingly been able to prenatally diagnose and, in some cases, treat conditions that would lead to a NICU admission. It is recommended that those working in the neonatology setting are also a part of interdisciplinary teams in fetal care centers (Chock, Davis, & Hintz, 2015). Quality NICU care also continues well beyond discharge and it is critical that a neonatal psychologist has at least a basic understanding of the various systems involved in an infant’s care. Ideally, the neonatal psychologist would also be able

to develop a strong working relationship with these local agencies and programs to facilitate referrals and services for NICU graduates and their families. See Table 3 for the list of knowledge and abilities in this subdomain.

Advocacy

Neonatal psychologists serve as advocates for optimal care practices that improve health and wellness for infants, families, and providers in the NICU. Advocacy revolves around the developmental needs of the infant and the infant-caregiver dyad, the attachment process for families, and the mental health needs of families and staff. Neonatal psychologists provide their expertise to support best practices in each of these areas and to facilitate communication between stakeholders. Advocacy also includes advocating for the role

Table 5 Cluster 4: relationships*Interprofessionalism*

Knowledge of	<ul style="list-style-type: none"> • Interdisciplinary team composition including medical (e.g., physicians, nurses, respiratory therapists), rehabilitation/developmental (e.g., occupational, physical, and speech therapists), psychosocial (e.g., social workers, psychologists, child life specialists, chaplains), and supportive consultants (e.g., lactation specialists, case managers) • Unique contributions of all NICU staff in provision of high-quality patient- and family-centered care and recognition of when to involve them in care plans
Ability to	<ul style="list-style-type: none"> • Serve on and contribute collaboratively to multidisciplinary teams focused on quality improvement, patient safety, and family satisfaction • Collaborate with other providers to coordinate care for families during the NICU stay and after discharge

Building and sustaining relationships

Knowledge of	<ul style="list-style-type: none"> • Group dynamics, including facilitation strategies, negotiation, and conflict resolution in times of high-stress
Ability to	<ul style="list-style-type: none"> • Conduct needs assessments and then identify and engage in program development that can sustain and support staff both at the individual and systemic levels • Use and lead critical incident stress debriefing models • Adapt professional role to the best interests of family members (e.g., bedside consultant, therapist, simply “sitting with”) • Engage in conflict resolution in an oftentimes emotionally-charged, fast-paced environment • Engage in appropriate empathic conversations with family and other care providers • Provide services to all NICU staff in a patient, respectful, and calm manner • Facilitate healthy communication and formation/maintenance of a collaborative relationship between families and staff • Model for staff appropriate, respectful, and collaborative relationships with family • Normalize the range of psychological reactions a family might have • Use interpretative services (i.e., translators, interpreters, visual aids) to reduce communication barriers for family discussions

of the neonatal psychologist in the NICU and requires maintaining accurate records of one’s activities and accomplishments. See Table 3 for the list of knowledge and abilities in this subdomain.

Cluster 3: Professionalism

Professional Values and Attitudes

A neonatal psychologist engages in diverse activities within the NICU beyond traditional provision of support to the family. Such activities include, but are not limited to, needs assessment and programmatic development, assessment and intervention, consultation, advocacy, and education. Given the multitude of roles it is imperative for the neonatal psychologist to engage in ongoing efforts to obtain continuing education and this is particularly important in the ever-evolving and highly technical field of neonatology. Neonatal psychologists need to have awareness of professional organizations and educational opportunities within their field to better support their continuing professional development. See Table 4 for the list of knowledge and abilities in this subdomain.

Individual and Cultural Diversity

Neonatal psychologists need to be aware of issues of cultural and disciplinary diversity to be effective providers within

the NICU. Individuals come from many backgrounds and thus, have differing views on childcare, provision of support, and medical intervention. The neonatal psychologist must be aware of these various cultural and individual differences to provide culturally responsive and ethical care and to encourage others to do so, as well. Additionally, the neonatal psychologist must recognize and address his/her own cultural identity and beliefs and how these impact interactions with families and staff. Ongoing reflective consultation to support work with families with differing backgrounds is recommended. See Table 4 for the list of knowledge and abilities in this subdomain.

Ethics and Decision-Making

Neonatal psychologists need to adhere to reporting requirements as mandated by their state boards and professional associations. Moreover, many situations within the NICU require specialized training and awareness related to the high levels of emotion accompanying medical complication, trauma, and grief (Sanders & Hall, 2018). The neonatal psychologist should know the body of literature on neonatal ethics. Medical ethical decision-making, ideally a joint process with staff and family, will involve careful consideration of family values and goals and the neonatal psychologist should be aware of this process and the effects on family coping in both the short- and long-term (Kraemer & Steinberg, 2016). Additionally, in times of high-stress and conflict, a hospital ethics committee consultation should be

Table 6 Cluster 5: application*Practice management*

Knowledge of	• Appropriate documentation and billing processes related to inpatient care in the NICU setting (e.g., health and behavior codes, developmental assessment/testing codes, multidisciplinary team meeting codes)
Ability to	• Provide clear, concise written documentation in the medical record with awareness of best practice guidelines for documenting parent/caregiver status within an infant's medical record • Use and/or develop metrics to evaluate implemented programs • Demonstrate flexibility and recognize when it is appropriate to triage a family to other providers and/or support resources both within the NICU/hospital and community setting

Assessment

Knowledge of	• Common screening and assessment tools for perinatal mood and anxiety disorders and trauma reactions and their strengths and limitations • Guidelines for ongoing neurodevelopmental monitoring and evaluation through preschool years and beyond
Ability to	• Differentiate normative perinatal emotional, cognitive, and behavior changes and adjustment for parents in a NICU setting from more serious clinical presentation • Evaluate family functioning using validated measures • Conduct a risk assessment (both harm to self and others) and determine risk level and appropriate triage or intervention • Assess the infant-caregiver dyadic relationship (e.g., clinical observations of interactions, and participation in infant care) • Differentiate typical from atypical neonatal behavior and development • Use common developmental measures to assess cognitive, language, motor, social-emotional, behavioral, and adaptive functioning in the context of medical condition(s) and hospital course

Intervention

Ability to	• Use evidence-based therapeutic strategies to address perinatal mood and anxiety disorders and trauma (i.e., cognitive behavioral therapy, interpersonal therapy) • Use various empirically-validated short-term treatment modalities to address a range of behavioral health concerns in the NICU setting (e.g., transition to parent role, grief and bereavement, active problem-solving, stress management) • Deliver interventions to improve parent-infant interaction and to increase parent engagement in behaviors that foster infant health and development (e.g., parent perception of the infant, fostering parental sensitivity to infant needs)

Clinical consultation

Ability to	• Train and support providers in communication skills, conflict resolution, cultural considerations, stress management • Advocate for providers to conceptualize the patient as the infant-caregiver dyad across all care activities, including when considering discharge planning/needs, engaging in decision-making, and supporting infant development • Provide individual consultation and ongoing follow-up to providers about delivering care to complex and challenging families • Clearly and concisely relate assessment and treatment findings to appropriate professionals and specifically address how these findings relate to care approaches for the particular patient/family • Serve as a consultant to NICU and hospital leadership when developing policies and procedures that directly impact the family and/or the care of the baby • Facilitate team communication across providers

obtained. See Table 4 for the list of knowledge and abilities in this subdomain.

Reflective Practice, Self-assessment, and Self-care

Neonatal psychologists need to engage in their own self-care to continue to provide high levels of support to families and staff and mitigate compassion fatigue and vicarious traumatization, both of which can lead to burnout. Psychological work in the NICU involves working with families with intense grief and heightened emotional distress. Therefore, it is imperative that neonatal psychologists remain vigilant in maintaining boundaries, reflect on personal emotions related to challenging clinical situations,

and engage in proactive steps to promote personal wellness to avoid burnout and compassion fatigue. Furthermore, neonatal psychologists should identify readily available resources for consultation and peer supervision related to their own clinical practices (Steinberg & Kraemer, 2010). Due to their ability to evaluate, recognize, and intervene to promote self-care and resiliency, neonatal psychologists are also frequently tasked to provide support to staff members. This is particularly important as high staff turnover is problematic in many NICUs, and the cost to replace and retrain staff is high (by some estimates up to \$85,000.00) (Sansbury, Graves & Scott, 2015; Tawfik et al., 2017). See Table 4 for the list of knowledge and abilities in this subdomain.

Table 7 Cluster 6: education*Teaching*

- Knowledge of • Adult learning theory and applications for teaching and training
- Ability to • Develop educational materials and train staff on topics relevant to mental health and development in the NICU including infant development, posttraumatic stress, provider self-care, and coping with loss
- Critically evaluate clinical literature and distil it into usable components for dissemination to NICU staff
 - Develop family-friendly materials discussing infant conditions, developmental practice, etc
 - Train students from diverse disciplines through didactic and experiential learning opportunities

Supervision

- Knowledge of • Appropriate training methodologies for psychology graduate students, interns, and postdoctoral fellows, including use of reflective supervision
- Contributors to and symptoms of trainee burnout, particularly in situations of high-stress and/or ambiguity often found in the NICU setting
 - Appropriate documentation for trainee completion requirements
 - Alternative learning modalities and opportunities, such as NICU simulations, medical rounds, and/or coursework that can supplement trainee knowledge
- Ability to • Provide supervision to trainees in other disciplines (e.g., NICU fellows, medical students, occupational/speech/rehabilitation therapists, nursing students, social work students)
- Prepare trainees for supporting patients/families during the process of death and dying, as well as providing adequate supervision and support to trainees during and after these experiences
 - Supervise trainees in delivering family-centered care in fetal care, NICU, and neurodevelopmental follow-up settings

Cluster 4: Relationships

Interprofessionalism

The ability to effectively work in a fast-paced interdisciplinary setting cannot be over-emphasized. Most NICUs focus on the team approach to healthcare and a neonatal psychologist needs to be able to collaborate effectively and efficiently with other team members. Similar to psychologists working in other integrated medical settings, the neonatal psychologist must be aware of differences in training environments and culture among mental health and medical settings. Furthermore, although often an essential and valued member of an interdisciplinary team, recognition that the neonatal psychologist is operating within a “host” culture (medical home) is important so the neonatal psychologist can work to maintain his/her own professional identity and ethics while also acculturating into the medical culture. See Table 5 for the list of knowledge and abilities in this subdomain.

Building and Sustaining Relationships

At the foundational level, healthcare is a relationship-based system built on trust with a careful eye toward collaboration, knowledge, sharing, and respect. Strong communication skills that allow the neonatal psychologist to be a liaison between families and NICU staff are essential. The NICU setting is often an environment of high anxiety and uncertainty, stress, fear, and/or trauma; relationships within and between families and care teams may be strained. The

neonatal psychologist understands the impact of the NICU environment on the development of relationships, has the expertise and training to support the building and sustaining of positive relationships, and strives to encourage, model and educate all involved on interactions that are developmentally appropriate, sensitive, and respectful (Hall et al., 2017). See Table 5 for the list of knowledge and abilities in this subdomain.

Cluster 5: Application

Practice Management

Neonatal psychologists need to assess the psychosocial needs within the NICU population and understand how key stakeholders view the neonatal psychologist’s role to operate most efficiently. Neonatal psychologists should be flexible with respect to service delivery. Assessment of family functioning and well-being may occur during a medical team meeting, in private conference, and/or at bedside during nursing care activities. Importantly, neonatal psychologists must recognize the limitations of the NICU setting and, when appropriate, refer parents to community-based mental health services for further assessment and treatment. Neonatal psychologists must also be aware of issues surrounding psychology practice specific to the NICU setting, including billing, confidentiality of parent information in the infant’s chart, and documentation/communication with referring providers and staff. See Table 6 for the list of knowledge and abilities in this subdomain.

Assessment

Assessment is a cornerstone skill of a neonatal psychologist. Results of assessments are utilized for case conceptualization, problem-solving, diagnosis, treatment planning, intervention evaluation, and prediction of outcome. For a neonatal psychologist, the scope of assessment ranges from infant and early childhood neurodevelopment to parental emotional health and family functioning, as well as assessment of the broader NICU system. A neonatal psychologist should develop specialized expertise in the assessment of infants and young children against the backdrop of medical disorders and complications, developmental, behavioral and environmental changes. Additionally, influencing factors such as such parental emotional health, postpartum functioning, trauma, grief, and stress must also be evaluated. See Table 6 for the list of knowledge and abilities in this subdomain.

Intervention

Knowledge of distinct theories, models, and interventions that enhance therapy and consultation in the NICU setting is a must (Sabnis et al., 2019). The neonatal psychologist will consider the infant-caregiver dyad to be the focus of intervention. Given the NICU is an environment that involves exposure to trauma, it is critical for the neonatal psychologist to understand how the experience of trauma impacts interpretation of a situation and subsequent behaviors (Sanders & Hall, 2018). Additionally, the neonatal psychologist must be aware that the traumatic experience in the NICU is often ongoing throughout an infant's hospitalization, rather than a one-time event. See Table 6 for the list of knowledge and abilities in this subdomain.

Clinical Consultation

Multiple disciplines collaborate in the care of patients and families in the NICU. Neonatal psychologists offer consultative services to families, as well as to the NICU provider team, which may include neonatologists, advanced practice providers, nurses, developmental specialists, respiratory therapists, rehabilitation therapists, dietitians, and other healthcare specialists (Steinberg & Kraemer, 2010). Given their strong background in mental health, child development, parent–child attachment, and communication strategies, neonatal psychologists can consult with providers about how to best deliver care, particularly in challenging situations. See Table 6 for the list of knowledge and abilities in this subdomain.

Cluster 6: Education

Teaching

Neonatal psychologists are frequently asked to work with trainees and seasoned providers across various disciplines to provide education and to support the skill development needed to deliver optimal family-centered and trauma-informed services to infants and families. A neonatal psychologist should be prepared to organize a flexible curriculum that can be tailored to the unique professional goals of trainees (e.g., interns, fellows, residents) and providers (e.g., nurses, developmental therapists). See Table 7 for the list of knowledge and abilities in this subdomain.

Supervision

Supervision is one of the primary ways to transmit information regarding the practice of psychology and has been identified as a core competency for psychologists (Fouad et al., 2009). Neonatal psychologists who provide training need to demonstrate appropriate knowledge of training methodologies, approaches to direct and indirect supervision, and have strong knowledge of the legal and ethical requirements related to trainee and supervisory roles in their state of practice. Within the NICU setting, adoption of a developmental approach to supervision is usually appropriate, with trainees gradually moving toward more independence over the course of the supervisory relationship. Due to the high level of acuity and fast-paced nature of the NICU setting, it is strongly recommended that supervisors be onsite and available for “in the-moment” supervision in addition to more formal, scheduled supervision sessions. Adoption of supervision contracts is recommended to individualize training goals and expectations, specify supervision times, and indicate how to contact the neonatal psychologist in case of emergency. See Table 7 for the list of knowledge and abilities in this subdomain.

Discussion and Conclusions

The contributions of neonatal psychologists in NICU settings has been noted with increasing frequency through the development of various guidelines, position statements, and position descriptions (Hynan et al., 2015). Neonatal psychologists are involved in improving clinical service, research initiatives, and program development to help infants and families reach best outcomes. Neonatal psychologists need specialized training that goes beyond the basic competencies of a psychologist in general practice and includes a wide range of learning across multiple domains, such as perinatal mental health, neonatal ethics, family-centered care, family functioning,

and infant development. Although there is much specialized knowledge that would further improve psychological service delivery in NICU settings, it is the hope of this workgroup that the above guidelines will help those who are interested in such subspecialization hone and target their skills and also provide a framework for developing training programs at the graduate, internship, and postdoctoral levels. For both trainees and practicing psychologists who seek to work as neonatal psychologists, we strongly recommend seeking education and training in (1) infant mental health, focusing on the dyadic relationship; (2) identification and treatment of perinatal mood and anxiety disorders and trauma; (3) family systems practice and impact of pediatric medical condition on coping/adjustment, and (4) provision of integrated mental health services in a medical setting. Additionally, the mental health needs and the neonatal psychologist's role may vary greatly across NICUs; the ability to conduct a needs assessment and develop and evaluate programs is critical, particularly when establishing new psychological services. Achieving competency will enable the novice neonatal psychologist to more successfully transition into a highly complex, fast-paced, often changing medical environment, and ultimately, provide the best care for their young patients and families.

Compliance with Ethical Standards

Conflict of interest Sage N. Saxton, Allison G. Dempsey, Tiffany Willis, Amy E. Baughcum, Lacy Chavis, Casey Hoffman, Celia J. Fulco, Cheryl A. Milford and Zina Steinberg declare that they have no conflict of interest.

Research Involving Human and Animals Rights and Informed Consent This article does not contain any studies with human participants or animals performed by any of the authors.

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Seminal Resources

Given that the field of NICU psychology is constantly evolving the workgroup/authors have agreed to periodically update materials, literature, resources, conferences, training opportunities on the National Perinatal Association's website. That website can be found here: <http://www.nationalperinatal.org>. The following resources are provided as "seminal resources" in the field and it is our hope they will help build the professional library and provide a secure foundation for the new Neonatal Psychologist.

Seminal Books

- Beck, C., & Driscoll, J. (2006). *Postpartum mood and anxiety disorders: A clinician's guide*. Sudbury, MA: Jones and Bartlett Publishers.

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- Zeanah, C. (2009). *Handbook of infant mental health* (3rd ed.). NY: The Guilford Press.

Seminal Websites

- <https://nidcap.org/wp-content/uploads/2016/12/http-www.eicolorado.org-Files-SupportingDevelopmentFinal2012-1.pdf>.
- <https://www.zerotothree.org/resources/353-early-arrival#downloads>.
- <http://support4nicuparents.org/for-parents/family-centered-developmental-care/>.
- <https://exclusivepumping.com/nicu-advice-pumping/>.
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Seminal Articles

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Practice Guidelines

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Video

- No Matter How Small: A Parent's Guide to Preterm Infant Development (2006). Vida Health Communication.

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