



Background

The Alberta Health Services (AHS) Provincial Psychology Professional Practice Council (PPPPC) identified an opportunity to support local efforts to advance clarity of the psychologists' role and evidence based practice in health care. Each of these resources is developed independently by AHS psychologists, and reviewed by the AHS PPPPC. We are pleased to share this information to support both psychologists' practice and leaders' awareness of the quality and cost-effective impacts psychologists can bring to programs, to further quality, patient and family centred care.

Andrea L. Nelson, Ph.D., R.Psych, Acute Care, Foothills Medical Centre, Alberta Health Services

For further information or enquiries, please contact the AHS Professional Practice Consultation Service at practice.consultation@ahs.ca or 1-855-735-3043

The Role of Psychologists on NICU Health Care Teams

Psychologists provide:

- Screening and assessment of psychological issues common in the NICU and perinatal populations, including anxiety and mood disorders, acute and posttraumatic stress, role transition, interpersonal problems, infant bonding and attachment, obsessive-compulsive behaviours, substance use, and sleep difficulties.
- Communication of mental health diagnoses, collaborative feedback and case conceptualization of parental mental health concerns and psychoeducation.
- Evidence-based individual interventions to reduce heightened levels of parental stress, anxiety, depression, and other mental health concerns.
- Crisis intervention, including assessment and interventions for suicidal and infanticide risk.
- Consultation to multidisciplinary staff in the management of infant's family members regarding a wide range of emotional responses to premature delivery and infant illness, psychological disorders, and infant bonding and attachment.
- Recommendations and facilitation to community referrals for mental health concerns and psychosocial supports.

- Program evaluation, program development and research collaboration.
- Ethical consultation concerning patient and family centred care.
- Training multidisciplinary healthcare professionals to support families with emotional and psychological needs and to identify indicators for parental mental health referrals.
- Mentorship and supervision to clinical trainees.

Psychology in the Neonatal Intensive Care Unit (NICU)

- Approximately 11% of infants born in Canada are admitted to the NICU for highly specialized medical care, however rates vary by province between 10% and 40% [1]
- Guidelines developed by the National Perinatal Association in the United States recommend that there should be at least one full-time or part-time doctoral level Psychologist for any NICU with 20 or more beds [2]; no similar guidelines have been published in Canada to our knowledge.
- For the purposes of this document, a survey was sent through the Canadian Neonatal Network (see below for link) in June, 2018 to inquire about Psychological services for parents in level 3 NICUs across Canada. Twenty-two of the 33 sites provided data (67% response rate) and 4 out of the 22 sites reported available Doctoral level Psychology services for parents (18.2%). Thus, psychology services are not available to most parents in the NICU across Canada.

Mental Health Issues Encountered by Families in the NICU

Psychological Distress

- Research indicates that mothers and fathers of premature infants who are admitted to the NICU are at greater risk of experiencing increased psychological distress relative to other parents. [4] [5].
- The most common forms of parental psychological distress in the NICU are anxiety, acute stress, depressed mood, loss of control and adjusting to parental role [4] [6].

- Parent of premature infants show elevated symptoms of stress, anxiety and depressed mood following delivery relative to parents of term infants and these symptoms have been shown to be elevated at six to twelve months postpartum [5] [7].
- Specific risk factors for emotional distress in the NICU include perceived severity of infant illness [8], perceived parental role alteration [9], length of ventilation [9] [10], and length of stay in the NICU [10].
- It is estimated that 20-30% of NICU parents experience a diagnosable mental disorder in the first year after delivery or *postpartum period* [11].
- One study found that at 2 years corrected age, 26% of parents of preterm (<32 weeks) infants reported significant mental health problems relative to 12% of parents of term infants [12].

Anxiety

- Parents in the NICU report greater anxiety symptoms than other perinatal populations and are often more common than depressed mood symptoms in the NICU [6].
- One longitudinal study found that 48% of mothers and 47% of fathers of infants (<30 weeks' gestational age) in the NICU reported clinically significant anxiety symptoms shortly after birth with 25% of mothers and 20% of fathers reporting significant anxiety symptoms at 6 months after delivery [5].
- The most common anxiety-related disorders with onset in the perinatal period include Panic Disorder, Generalized Anxiety Disorder and Obsessive Compulsive Disorder [13].
- Anxiety disorders are more prevalent in the postpartum period than in other periods of women's lives [13].

Acute and Traumatic Stress

- Several studies have found elevated acute and posttraumatic stress symptoms in mothers and fathers of infants in the NICU relative to term parents [14].
- Research in the general population indicates that up to 10% of women experience a severe traumatic stress response following delivery and 1%-2% are likely to develop posttraumatic stress disorder (PTSD) [15].

- One study found that in a NICU sample, 35% of mothers and 24% of fathers met diagnostic criteria for Acute Stress Disorder (ASD) at admission and 15% of mothers and 8% of fathers met diagnostic criteria for PTSD one month following delivery [16].

Depression and Mood Disorders

- Approximately 10 – 15% of women meet Diagnostic and Statistical Manual of Mental Disorder (DSM-5) criteria for a Major Depressive Episode (MDE) in the postpartum period; this prevalence rate is similar to the general population of women [17].
- Approximately 10% of fathers meet DSM-5 criteria for a MDE in the postpartum period, which is higher than the general prevalence rate in the general population of men [18].
- Mothers of preterm infants are 40% more likely to develop depression in the postpartum period than those in the general population [7].
- One longitudinal study found that 40% of mothers and 36% of fathers of infants (<30 weeks' gestational age) in the NICU reported clinically significant depression symptoms shortly after birth with 14% of mothers and 19% of fathers reporting significant depression symptoms at 6 months after delivery [5].
- Greater risk of depression in mothers of preterm and/or low birth weight infants was associated with earlier gestational age, lower birth weight, ongoing infant illness/disability and perceived lack of social support [7].
- Women with Bipolar Disorder, characterized by episodes of depression and mania, are at high risk of relapse during the postpartum period, up to 66% for those women who discontinue mood stabilizing medication [19].
- Women with Bipolar Disorder are at increased risk of psychotic symptoms in the postpartum period and these symptoms warrant a medical emergency [20].

Bonding and Attachment

- The attachment process, or the formation of a relationship between a caregiver and an infant, can be delayed and/or disrupted by the NICU environment [21].

Suicide & Infanticide

- Maternal suicide and infanticide are rare [22] [23].
- Nonetheless, suicide is one of the leading cause of maternal death in the postpartum period [13] [23].
- Mental illness is a risk factor for maternal suicide and infanticide [13] [24].

Postpartum Psychosis

- Postpartum psychosis refers to the sudden onset of psychotic symptoms (e.g., hallucinations, delusions) following childbirth; these symptoms require immediate assessment and psychiatric treatment (e.g., hospitalization) [13] [25].
- Postpartum mood episodes with psychotic features occurs in 1 in 500 to 1 in 1000 births [25] [26].

The Impact of Parental Mental Health in the NICU

- Untreated maternal depression in pregnancy has been associated with a range of adverse outcomes, including increased risk of premature delivery, admission to the NICU, lower APGARs, growth retardation, preeclampsia and obstetric complications [27].
- Results of a meta-analysis indicate that maternal depression in the postpartum period has a moderate to large effect on maternal-infant interactions and bonding, such that depressed mothers tend to be less affectionate with their infants, less responsive to infant cues and/or more hostile and intrusive with their infants [28].
- Poor psychological wellbeing in mothers, fathers, or both parents of very low birth weight infants (<1500g) predicted increased child behavioural and emotional problems at 3 years of age [29].
- Poor maternal mental health can have a greater negative impact on infant development of preterm infants relative to full term infants [30] [10].

Psychological Screening and Assessment Services in the NICU

- The Canadian Task Force on Preventative Healthcare in 2013 recommended screening pregnant and postpartum women only when symptoms of depression are apparent [31], however research suggests that many perinatal women with severe symptoms of depression are not identified by health care providers' [32] [33].
- In the NICU, screening for emotional distress, depressed mood and posttraumatic stress symptoms is recommended for both mothers and fathers within the first week of admission [2].
- Early detection and intervention of depression and anxiety symptoms is likely to result in better outcomes for parents and their families [34].
- It is recommended that parents' history of mental health symptoms is assessed to identify potential risk factors for mental health concerns following discharge from the NICU [35].
- There are a range of validated screening and assessment measures for parental depression in the postpartum period and NICU that require a trained health professional to administer [13].
- Currently, there are no well validated screening or assessment measures for anxiety specific to the postpartum period, thus a clinical diagnostic interview is recommended [13].
- For mental health symptoms in the postpartum period, a diagnostic clinic interview is the gold standard of assessment and is needed to make clinical and differential diagnoses [13].

Psychological Interventions in the NICU

Anxiety

- The British Columbia Best Practices Guidelines for Mental Health Disorder in the Perinatal Period indicates that for mild to moderate anxiety symptoms in the postpartum period, first-line interventions include psychoeducation, improved self-care and psychotherapy. For severe anxiety, additional medication is recommended [13].
- There is currently a lack of empirical research on interventions for anxiety implemented in

the NICU [34], however there is substantial evidence to suggest that Cognitive Behavioural Therapy (CBT) is effective for a range of anxiety disorders in the general population [36].

Acute and Traumatic Stress

- Literature to date recommends brief CBT interventions for acute stress symptoms and longer term CBT for posttraumatic stress disorder associated with traumatic delivery [15].
- A NICU CBT treatment program that involved psychoeducation, cognitive restructuring, progressive muscle relaxation and writing a trauma narrative significantly reduced maternal trauma and depression symptoms relative to a control education group [37].

Depression

- Treatment recommendations for mild to moderate depression in the postpartum period include psychoeducation, improved self-care, psychotherapy and/or bright light therapy. For severe depression, additional medication is recommended [13].
- A recent meta-analysis of NICU-based interventions that included 12 randomized-controlled studies concluded that the strongest reduction of maternal depressive symptoms resulted from CBT over other approaches, including educational-based programs on prematurity and maternal-infant responsiveness training (e.g., kangaroo care) [34].

Bonding and Attachment

- Behavioural interventions that increase parental sensitivity to interpret and respond effectively to infant cues has been shown to improve bonding and attachment [38].

General Practice Considerations

- A recent meta-analysis indicated that almost one-third of eligible NICU mothers refused to participate in a range of interventions to reduce depression and anxiety symptoms in the NICU; the authors recommended that *flexible* interventions, such as individual CBT, may be more likely to engage NICU parents [34].

Resources & Guidelines

Canadian Neonatal Network <http://www.canadianneonatalnetwork.org/portal/>

British Columbia Reproductive Mental Health Program & Perinatal Services BC (March, 2014), Best practice guidelines for mental health disorder in the perinatal period. Retrieved from: <http://www.perinatalservicesbc.ca/Documents/Guidelines-Standards/Maternal/MentalHealthDisordersGuideline.pdf>.

Hynan M, Mounts K, Vanderbilt D (2013). Screening parents of high-risk infants for emotional distress: rationale and recommendations. *Journal of Perinatology*, 33, 748–53.

Hynan, M. T., Steinberg, Z., Baker, L., Cicco, R., Geller, P. A., Lassen, S., & Segre, L. (2015). Recommendations for mental health professionals in the NICU. *Journal of Perinatology*, 35, S14-S18. doi:10.1038/jp.2015.144.

References

1. Fallah, S., Chen, X. K., Lefebvre, D., Kurji, J., Hader, J., & Leeb, K. (2011). Babies admitted to NICU/ICU: Province of birth and mode of delivery matter. *Healthcare Quarterly*, 14(2), 16-20.
2. Hynan, M. T., Steinberg, Z., Baker, L., Cicco, R., Geller, P. A., Lassen, S., ... & Segre, L. (2015). Recommendations for mental health professionals in the NICU. *Journal of Perinatology*, 35, S14-S18. doi:10.1038/jp.2015.144
3. Obeidat, H. M., Bond, E. A., & Callister, L. C. (2009). The parental experience of having an infant in the newborn intensive care unit. *The Journal of Perinatal Education*, 18(3), 23. doi:10.1624/105812409X461199
4. Pace, C. C., Spittle, A. J., Molesworth, C. M. L., Lee, K. J., Northam, E. A., Cheong, J. L., ... & Anderson, P. J. (2016). Evolution of depression and anxiety symptoms in parents of very preterm infants during the newborn period. *JAMA pediatrics*, 170(9), 863-870. doi:10.1001/jamapediatrics.2016.0810
5. Busse, M., Stromgren, K., Thorngate, L., & Thomas, K. A. (2013). Parents' responses to stress in the neonatal intensive care unit. *Critical care nurse*, 33(4), 52-59. doi: 10.4037/ccn2013715
6. Vigod, S. N., Villegas, L., Dennis, C. L., & Ross, L. E. (2010). Prevalence and risk factors for postpartum depression among women with preterm and low-birth-weight infants: a systematic review. *BJOG: An International Journal of Obstetrics & Gynaecology*, 117(5), 540-550. doi: 10.1111/j.1471-0528.2009.02493.x
7. Shields-Poë, D., & Pinelli, J. (1997). Variables associated with parental stress in neonatal intensive care units. *Neonatal network: NN*, 16(1), 29-37.
8. Rogers, C. E., Kidokoro, H., Wallendorf, M., & Inder, T. E. (2013). Identifying mothers of very preterm infants at-risk for postpartum depression and anxiety before discharge. *Journal of Perinatology*, 33(3), 171-176. doi: 10.1038/jp2012.75
9. Poehlmann, J., & Fiese, B. H. (2001). The interaction of maternal and infant vulnerabilities on developing attachment relationships. *Development and psychopathology*, 13(1), 1-11.
10. Hynan M, Mounts K, Vanderbilt D (2013). Screening parents of high-risk infants for emotional distress: rationale and recommendations. *Journal of Perinatology*, 33, 748–53. doi: 10.1038/jp2013.72
11. Treyvaud, K., Anderson, V. A., Lee, K. J., Woodward, L. J., Newnham, C., Inder, T. E., ... & Anderson, P. J. (2010). Parental mental health and early social-emotional development of children born very preterm. *Journal of Pediatric Psychology*, 35(7), 768-777. doi: 10.1093/jpepsy/jsp109
12. British Columbia Reproductive Mental Health Program & Perinatal Services BC (March, 2014), Best practice guidelines for mental health disorder in the perinatal period. Retrieved from: <http://www.perinatalservicesbc.ca/Documents/Guidelines-Standards/Maternal/MentalHealthDisordersGuideline.pdf>.
13. Shaw, R. J., Bernard, R. S., DeBlois, T., Ikuta, L. M., Ginzburg, K., & Koopman, C. (2009). The relationship between acute stress disorder and posttraumatic stress disorder in the neonatal intensive care unit. *Psychosomatics*, 50(2), 131-137. doi:10.1176/appi.psy.50.2.131
14. Ayers, S. (2004). Delivery as a traumatic event: prevalence, risk factors, and treatment for postnatal posttraumatic stress disorder. *Clinical Obstetrics and Gynecology*, 47(3), 552-567. doi: 10.1097/01.grf.0000129919.00756.9c
15. Lefkowitz, D. S., Baxt, C., & Evans, J. R. (2010). Prevalence and correlates of posttraumatic stress and postpartum depression in parents of infants in the Neonatal Intensive Care Unit (NICU). *Journal of clinical psychology in medical settings*, 17(3), 230-237. doi:10.1007/s10880-010-9202-7
16. O'Hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression—a meta-analysis. *International review of psychiatry*, 8(1), 37-54. doi:10.3109/09540269609037816
17. Paulson, J. F., & Bazemore, S. D. (2010). Prenatal and postpartum depression in fathers and its association with maternal depression: a meta-analysis. *Jama*, 303(19), 1961-1969. doi:10.1001/jama.2010.605

18. Wesseloo, R., Kamperman, A. M., Munk-Olsen, T., Pop, V. J., Kushner, S. A., & Bergink, V. (2015). Risk of postpartum relapse in bipolar disorder and postpartum psychosis: a systematic review and meta-analysis. *American Journal of Psychiatry*, 173(2), 117-127. doi: 10.1176/appi.ajp.2015.15010124
19. Khan, S. J., Fersh, M. E., Ernst, C., Klipstein, K., Albertini, E. S., & Lusskin, S. I. (2016). Bipolar disorder in pregnancy and postpartum: principles of management. *Current psychiatry reports*, 18(2), 13. doi: 10.1007/s11920-015-0658-x
20. Bialoskurski, M., Cox, C. L., & Hayes, J. A. (1999). The nature of attachment in a neonatal intensive care unit. *The Journal of perinatal & neonatal nursing*, 13(1), 66-77.
21. Porter, T., & Gavin, H. (2010). Infanticide and neonaticide: a review of 40 years of research literature on incidence and causes. *Trauma, Violence, & Abuse*, 11(3), 99-112. doi: 10.1177/1524838010371950
22. Lindahl, V., Pearson, J. L., & Colpe, L. (2005). Prevalence of suicidality during pregnancy and the postpartum. *Archives of Women's Mental Health*, 8(2), 77-87. doi:10.1007/s00737-005-0080-1
23. Spinelli, M. G. (2004). Maternal infanticide associated with mental illness: prevention and the promise of saved lives. *American Journal of Psychiatry*, 161(9), 1548-1557. doi: org.ahs.idm.oclc.org/10.1176/appi.ajp.161.9.1548
24. DSM-5 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. Arlington: American Psychiatric Publishing.
25. Sit, D., Rothschild, A. J., & Wisner, K. L. (2006). A review of postpartum psychosis. *Journal of women's health*, 15(4), 352-368. doi:10.1089/jwh.2006.15.352
26. Bonari, L., Pinto, N., Ahn, E., Einarson, A., Steiner, M., & Koren, G. (2004). Perinatal risks of untreated depression during pregnancy. *The Canadian Journal of Psychiatry*, 49(11), 726-735. doi: 10.1177/070674370404901103
27. Beck, C. T. (1996). A meta-analysis of the relationship between postpartum depression and infant temperament. *Nursing research*, 45(4), 225-230.
28. Huhtala, M., Korja, R., Lehtonen, L., Haataja, L., Lapinleimu, H., Rautava, P., & PIPARI Study Group. (2012). Parental psychological well-being and behavioral outcome of very low birth weight infants at 3 years. *Pediatrics*, 129(4), e937-e944. doi: 10.1542/peds.2011-2411
29. Bugental, D. B., Beaulieu, D., & Schwartz, A. (2008). Hormonal sensitivity of preterm versus full-term infants to the effects of maternal depression. *Infant Behavior and Development*, 31(1), 51-61. doi: 10.1016/j.infbeh.2007.06.003
30. Joffres, M., Jaramillo, A., Dickinson, J., Lewin, G., Pottie, K., Shaw, E., ... & Canadian Task Force on Preventive Health Care. (2013). Recommendations on screening for depression in adults. *Canadian Medical Association Journal*, 185(9), 775-782. doi:10.1503/cmaj.130403
31. Heneghan, A. M., Silver, E. J., Bauman, L. J., & Stein, R. E. (2000). Do pediatricians recognize mothers with depressive symptoms? *Pediatrics*, 106(6), 1367-1373.
32. Evins, G. G., Theofrastous, J. P., & Galvin, S. L. (2000). Postpartum depression: a comparison of screening and routine clinical evaluation. *American journal of obstetrics and gynecology*, 182(5), 1080-1082. doi: 10.1067/mob.2000.105409
33. Mendelson, T., Cluxton-Keller, F., Vullo, G. C., Tandon, S. D., & Noazin, S. (2017). NICU-based interventions to reduce maternal depressive and anxiety symptoms: a meta-analysis. *Pediatrics*, e20161870. doi: 10.1542/peds.2016-1870
34. Cherry, A. S., Blucker, R. T., Thornberry, T. S., Hetherington, C., McCaffree, M. A., & Gillaspay, S. R. (2016). Postpartum depression screening in the Neonatal Intensive Care Unit: program development, implementation, and lessons learned. *Journal of multidisciplinary healthcare*, 9, 59. doi: 10.2147/JMDH.S91559
35. Hofmann, S. G., & Smits, J. A. (2008). Cognitive-behavioral therapy for adult anxiety disorders: a meta-analysis of randomized placebo-controlled trials. *The Journal of clinical psychiatry*, 69(4), 621.
36. Shaw, R. J., St John, N., Lilo, E. A., Jo, B., Benitz, W., Stevenson, D. K., & Horwitz, S. M. (2013). Prevention of traumatic stress in mothers with preterm infants: a randomized controlled trial. *Pediatrics*, 132(4), e886-e894. doi: 10.1542/peds.2013-1331
37. Bakermans-Kranenburg, M. J., Van Ijzendoorn, M. H., & Juffer, F. (2003). Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological bulletin*, 129(2), 195.

Copyright © (2019) Alberta Health Services.

This material is protected by Canadian and other international copyright laws. All rights reserved. These materials may not be copied, published, distributed or reproduced in any way in whole or in part without the express written permission of Alberta Health Services. These materials are intended for general information only and are provided on an "as is", "where is" basis. Although reasonable efforts were made to confirm the accuracy of the information, Alberta Health Services does not make any representation or warranty, express, implied or statutory, as to the accuracy, reliability, completeness, applicability or fitness for a particular purpose of such information. These materials are not a substitute for the advice of a qualified

health professional. Alberta Health Services expressly disclaims all liability for the use of these materials, and for any claims, actions, demands or suits arising from such use.

