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Interventions to Reduce Psychological Morbidity after PICU Discharge: Challenges to Establishing Efficacy

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EDITORIAL

Although mortality from critical illness during childhood is low, survivors of critical illness are at risk for adverse psychological and behavioral outcomes. For example, post-traumatic stress disorder (PTSD) has been estimated to occur in 5–28% of children following a pediatric intensive care unit (PICU) admission, and post-traumatic stress symptoms (PTSS) occur in 35–62% (1). Among parents of PICU patients, PTSD has been reported in 10–21% and PTSS in as many as 84%. Psychological morbidity following a PICU admission can lead to serious disturbances in child and family functioning; these disturbances, in turn, can have a major impact on child health.

In this issue of *Pediatric Critical Care Medicine*, Baker and colleagues report the results of a systematic review of interventions to reduce psychological morbidity in parents and children after discharge from the PICU (2). Only 6 studies were identified that could be included in the review; three of these were reported as full randomized controlled trials (RCT) (3–5) and three as feasibility studies (6–8). Two of the feasibility studies also had RCT designs (6, 7) and one was an intervention without a control arm (8). Participants included parents and children. In some studies, all families discharged from the PICU were eligible; in others, only families at high risk for psychological morbidity were included. The interventions evaluated primarily included psychoeducation and parental support in written and verbal formats (in-person or telephone) delivered during the hospital stay or at a follow-up clinic visit. Outcomes included self-report scales of mental health focusing on PTSD, depression and anxiety. Overall, family participation in the interventions was low and attrition high, especially for those studies in which the intervention was administered after hospital

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discharge. None of the studies reported harm, but most showed only a small treatment effect, if any.

In light of the increasing awareness of psychological morbidities after a child's PICU stay, why have so few interventions been developed and tested for efficacy? The answer is perhaps partly related to the many challenges investigators face in attempting to conduct RCTs of psychosocial interventions in the PICU setting (9). In designing such trials, an interdisciplinary team including, for example, physicians, nurses, and psychologists, can be beneficial; however, managing diverse disciplinary perspectives is not always easy. The resultant experimental methods need to be accepted as scientifically legitimate by all team members. Input from patients and families may also be needed to design interventions that can be implemented without undue family burden and to identify meaningful outcomes.

As demonstrated in Dr. Baker's review (2), low participation rates are typical of interventional trials aimed at reducing psychological morbidity in PICUs, and participation is greater among mothers than fathers and among whites than minorities. To adequately recruit subjects with a range of backgrounds, recruitment methods must be developed with gender, culture, and language sensitivity, which increases the cost and complexity of the trial. Patients and families at high risk for psychological morbidity may show the largest treatment effect in an interventional trial. However restricting recruitment to those at high risk requires screening of patients and families (typically with self-report measures) during their PICU stay, at a time when many patients and families will be unwilling or unable to participate in screening. Inclusion of all PICU patients and families may waste study resources and dilute findings as many families will adjust without psychological morbidity.

Randomization of patients and families to psychosocial interventions may itself be problematic. Even if the concept of random assignment is understood and accepted, patients and families may have a preference for one study arm or the other. For example, a family with a preference for the intervention may be randomized to control and thus seek a similar form of intervention (e.g., support group, counseling) outside of the study. Or, a family with a preference for the control arm might be randomized to the intervention and refuse to adhere.

As in any RCT, the intervention to be tested (and the control) must be adequately defined and its implementation standardized across study sites and over time. This can be difficult in psychosocial interventions in PICUs where the intervention may be implemented by several individuals with various levels and types of expertise, as well as personalities, backgrounds, beliefs and values. The "active ingredients" of the intervention must be explicit. Regardless of how well-defined, keeping the intervention separate from the control arm can also be challenging in PICUs. Parents may talk to each other in the waiting room, for example, and share psychoeducational materials (pamphlets, videos, etc.) administered as part of the intervention arm.

Interventions to reduce psychological morbidity may require repeat patient/family care visits or long-term follow-up to assess symptom change; this can be problematic not only because of participant attrition, but also because of a lack of a pre-existing mechanism by which

intensivists routinely follow patients after PICU discharge. As shown in Dr. Baker's review (2), patient/family attrition is high in these interventional trials, and can result in a substantial proportion of subjects failing to complete outcome measures. Differential attrition between intervention and control groups might occur if the intervention under investigation is perceived as burdensome or unhelpful by the family. Differential attrition may undermine the effects of randomization and result in outcomes being compared between groups that are substantially different at baseline.

Selection of robust outcome measures can also be challenging when investigating interventions to reduce psychological morbidity in PICUs. Self-report measures with Likert-style responses are routinely used because they are less expensive and time consuming than structured clinical interviews. However, self-report biases can occur, such as with patients and families describing themselves in a more or less healthier state than truly exists.

Despite the many challenges to investigating psychosocial interventions in PICUs, the need for such interventions is substantial. Interdisciplinary cooperation and creative designs to overcome research obstacles are needed to move the field forward. Dr. Baker and colleagues are to be commended for presenting the research to date and thereby setting the stage for future investigations.

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References

1. Nelson LP, Gold. Posttraumatic stress disorder in children and their parents following admission to the pediatric intensive care unit: A review. *Pediatr Crit Care Med*. 2012; 13:338–347. [PubMed: 21499173]
2. Baker SC, Gledhill JA. Systematic review of interventions to reduce psychiatric morbidity in parents and children after paediatric intensive care unit admissions. *Pediatr Crit Care Med*. 2017 (in press).
3. Bouve LR, Rozmus CL, Giordano P. Preparing parents for their child's transfer from the PICU to the pediatric floor. *Appl Nurs Res*. 1999; 12:114–120. [PubMed: 10457621]
4. Melnyk BM, Alpert-Gillis L, Feinstein NF, et al. Creating opportunities for parent empowerment: Program effects on mental health/coping outcomes of critically ill young children and their mothers. *Pediatrics*. 2004; 113:e597–e607. [PubMed: 15173543]
5. Colville GA, Cream PR, Kerry SM. Do parents benefit from the offer of a follow-up appointment after their child's admission to intensive care?: An exploratory randomized controlled trial. *Intensive Crit Care Nurs*. 2010; 26:146–153. [PubMed: 20347311]
6. Als LC, Nadel S, Cooper M, et al. A supported psychoeducational intervention to improve family mental health following discharge from paediatric intensive care: feasibility and pilot randomized controlled trial. *BMJ Open*. 2015; 5:e009581.
7. Samuel VM, Colville GA, Goodwin S, et al. The value of screening parents for their risk of developing psychological symptoms after PICU: A feasibility study evaluating a pediatric intensive care follow-up clinic. *Pediatr Crit Care Med*. 2015; 16:808–813. [PubMed: 26218258]
8. Gledhill J, Tareen A, Cooper M, et al. Joint Paediatric and psychiatric follow-up for families following paediatric intensive care unit admission: An exploratory study. *Advances in Critical Care*. 2014:1–5.
9. Nezu, AM., Nezu, CM. The “devil is in the details” Recognizing and dealing with threats to validity in randomized controlled trials. In: Nezu, AM., Nezu, CM., editors. *Evidence-Based Outcome*

Research. A Practical Guide to Conducting Randomized Controlled Trials for Psychosocial Interventions. Oxford University Press; 2008. p. 3-24.

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