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The language environment of the hospitalized neonate

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COMMENTARY:

Hospitalised infants have long been known to be physiologically and neurodevelopmentally vulnerable, yet hypothesised risk factors seem to contribute only part of the puzzle (1). Recently there has been an upsurge in research and commentary questioning whether language exposure during an infant's hospital stay might constitute a significant risk factor for poor outcomes – and thus fertile ground for early intervention.

In this systematic review, Best, Bogossian, and New (2) examined observational and intervention studies of language exposure for hospitalized preterm neonates. Ten studies met their inclusion criteria. The authors found evidence that hospitalized preterm infants are exposed, simultaneously, to high levels of noise and low levels of language. Further, intervention studies, though reporting some promising outcomes in the short term, have been limited by heterogeneity and risk of confounding. The timeliness of this review is demonstrated by the contemporaneous publication of more intervention studies in the area of language exposure in the NICU (3,4), and similarly targeted systematic reviews. (5,6)

The authors reflect that the literature is currently limited, given factors mentioned above. Correspondingly, language intervention (as a component of neurodevelopmental care) and speech language pathology services are not standard in neonatal hospital contexts (7,8). Yet if the growing number of publications is any indication, interest is increasing, and a more robust evidence base will soon emerge. Adequately powered, randomized controlled trials using

appropriate stimuli will be critical, and, as the authors suggest, longer term follow up is indicated. The authors suggest “2 years’ corrected age and beyond” (2) as a target for longitudinal studies of intervention outcomes. We emphasise “and beyond”, given that language development is notoriously unstable at two years’, and longer-term follow up may be necessary to obtain valid outcomes. (9)

While awaiting the outcomes of such studies, clinicians may elect to trial strategies that increase language exposure for hospitalized preterm infants, given that the hospital language environment is considerably more impoverished than the in-utero language environment at equivalent gestational age, and that the literature seems to suggest some benefit (2,5,6). Language exposure is pertinent to everyone who interacts with hospitalized infants, but speech language pathologists and music therapists are particularly well suited to promote optimal input, and to train parents and staff in how to increase language exposure safely and appropriately. Increasing metrics such as Adult Word Count could be as simple as adopting practices that are already promoted to parents of infants in the community: reading and singing to babies, narrating care tasks etc. Importantly, the infant’s response to language exposure should be individually targeted, ensuring the sound level is appropriate, and the infant maintains physiological and neurobehavioural stability.

The sensory deprivation experienced by hospitalized preterm infants is increasingly perceived as problematic. Paucity of language exposure is a critical component of this deprivation, but further investigation will be required to determine the relationship between language deprivation and relevant outcomes (especially language development); and to explore whether simple language- and music-based interventions are effective in protecting preterm infants from the effects of an extra-uterine environment.

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CONFLICTS OF INTEREST:

The authors have no potential conflicts of interest to declare

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