Aboriginal and Torres Strait Islander infants admitted to the Hunter New England neonatal intensive care unit, 2016–2021: a retrospective medical record audit

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In Australia, 24.4% of newborn Aboriginal or Torres Strait Islander infants were admitted to neonatal intensive care units (NICUs) or special care nurseries during 2022, compared with 16.3% of non-Indigenous infants.[1] For Aboriginal and Torres Strait Islander people, culture is a protective factor for strong health and wellbeing,[2] but neonatal care can disrupt usual parent–infant care and cultural care practices. Understanding the characteristics of Aboriginal and Torres Strait Islander families receiving neonatal care is important for supporting their needs. Routinely collected national and state data do not typically provide detailed information about Aboriginal and Torres Strait Islander infants admitted to NICUs,[1] leading to gaps in knowledge about how to optimise care, particularly at the local level.

In this article, we describe the characteristics of admissions of Aboriginal and Torres Strait Islander infants to the John Hunter Children's Hospital NICU (Newcastle, Hunter New England Local Health District, New South Wales) in order to identify areas for potential improvement in care delivery. We undertook a retrospective medical record audit, using Indigenous quantitative methodologies[3] that drew on the lead author's Indigenous standpoint and social and cultural positioning as a NICU nurse and Aboriginal person. Data for all infants admitted during 1 January 2016 – 31 December 2021 were included. De-identified data were extracted from the Neonatal Intensive and Special Care Units' Data Registry (NICUS)[4] and iPM patient administration system. Data are summarised as numbers and proportions with 95% confidence intervals (CIs), or as means with 95% CIs. Mean length of NICU stay was calculated from Kaplan–Meier survival curves, with mode of separation or death as the censor indicator. Rurality was determined from the mothers' postcodes using the Monash Modified Model (MMM).[5] Analysis was undertaken in R 4.3.0 (R Foundation for Statistical Computing). The human research ethics committees of the Aboriginal Health and Medical Research Council of New South Wales (AH&MRC 993/14), the Hunter New England Local Health District (HNEHREC 13/12/11/4.11), and the University of Newcastle (H-2014-0035) approved the study, which was developed and conducted with ongoing consultation and collaboration with Aboriginal communities, organisations, and individuals. We report our study according to the CONSIDER statement (Supporting Information).[6]

A total of 7058 NICU admissions during 2016–2021 were identified, including 1385 of Aboriginal or Torres Strait Islander infants (19.6%; 1266 unique infants). In this article we report data only for Aboriginal and Torres Strait Islander infants. The mean gestation period was 34.9 weeks (95% CI, 34.6–35.1 weeks), the mean birthweight was 2493 g (95% CI, 2441–2546 g), and

Admissions of Aboriginal and Torres Strait Islander infants to the John Hunter Children's Hospital neonatal intensive care unit, Newcastle, 1 January 2016 – 31 December 2021

Characteristic	Number	Proportion (95% CI)
Infants	1266	—
Geographic location		
Metropolitan	674	53.2% (50.4–55.9%)
Regional/rural large and medium towns	454	35.9% (33.2–38.5%)
Small rural, remote, or very remote communities	138	10.9% (9.2–12.7%)
Gestational age category		
Extremely pre-term (20–27 weeks)	89	7.0% (5.7–8.5%)
Very pre-term (28–31 weeks)	170	13.4% (11.6–15.4%)
Moderate to late pre-term (32–36 weeks)	458	36.2% (33.5–38.8%)
Term (37 weeks to less than 42 weeks)	547	43.2% (40.5–45.9%)
Post-term (42 weeks or later)		0.2% (0.0–0.6%)
Admissions	1385	
Admission reason (primary)		
Prematurity	482	34.8% (32.3–37.4%)
Respiratory distress	406	29.3% (26.9–31.8%)
Jaundice	95	6.9% (5.6–8.4%)
Congenital abnormality	69	5.0% (3.9–6.4%)
Low birthweight	46	3.3% (2.5–4.4%)
Hypoglycaemia	41	3.0% (2.1–4.1%)
Suspected sepsis	28	2.0% (1.4–2.9%)
Low Apgar score or umbilical cord arterial pH	20	1.4% (0.9–2.3%)
Feeding	19	1.4% (0.9–2.2%)
Cyanotic episode	15	1.1% (0.7–1.8%)
Other	164	11.8% (10.2–13.7%)
Breast feeding intent: yes*	1095/1266	86.4% (84.5–88.3%)

Continues

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Characteristic	Number	Proportion (95% CI)
Breastmilk before discharge from NICU: yes*	777/1242	62.6% (59.8–65.2%)
Mode of separation		
Discharge	821	59.3% (56.6–61.9%)
Transfer	537	38.8% (36.2–41.4%)
Death	27	1.9% (1.3–2.8%)

CI = confidence interval. * Breastfeeding data not recorded for all infants. ◆

the mean length of NICU stay was 119 hours (95% CI, 110–139 hours). Birth was premature (before 37 weeks' gestation) for 717 infants (56.6%), and 674 infants had homes in metropolitan areas (53.2%). While the mothers reported the intention to breastfeed for 1095 of 1266 admissions (86%), only 777 of 1242 infants (63%) had received breastmilk during their NICU admissions. The three leading reasons for NICU admission were prematurity (482 admissions, 34.8%), respiratory distress (406 admissions, 29.3%), and jaundice (95 admissions, 6.9%). A larger proportion of admissions ended in direct discharge home from the NICU (821 admissions, 59.3%) than in transfer to other hospital care (537 admissions, 38.8%) (Box).

Aboriginal and Torres Strait Islander people have the right to culturally safe care.[7] Our study is one of the first to report detailed characteristics of Aboriginal and Torres Strait Islander infants admitted to a specific NICU. Aboriginal and Torres Strait Islander infants were most frequently admitted to the John Hunter Children's Hospital NICU because of prematurity, consistent with national information about NICU admissions of Aboriginal and Torres Strait Islander infants.[1] Almost half of the infants in our study lived in regional and rural areas, which adds to the complexity of being *off Country* while receiving health care.[8] Care that supports Aboriginal and Torres Strait Islander families in maintaining cultural care practices during NICU admissions is consequently critical.

The period covered by our study included part of the coronavirus disease 2019 (COVID-19) pandemic period, which may have affected access to and the quality of care, limiting the generalisability of our findings.

The disparity between the levels of intention to breastfeed and breastfeeding suggests inadequate support for breastfeeding of Aboriginal and Torres Strait Islander infants in the NICU. Our finding that large proportions of admissions were caused by prematurity, respiratory distress, or jaundice can inform efforts to deliver tailored, culturally safe care that meets the specific needs of Aboriginal and Torres Strait Islander infants. Effective strategies for culturally safe NICU care for Aboriginal and Torres Strait Islander infants, including localised approaches, will require further research.

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Data sharing: In line with Indigenous data sovereignty and Aboriginal and Torres Strait Islander ethical research principles, data sharing is available for this study. ■

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Supporting Information

Additional Supporting Information is included with the online version of this article.