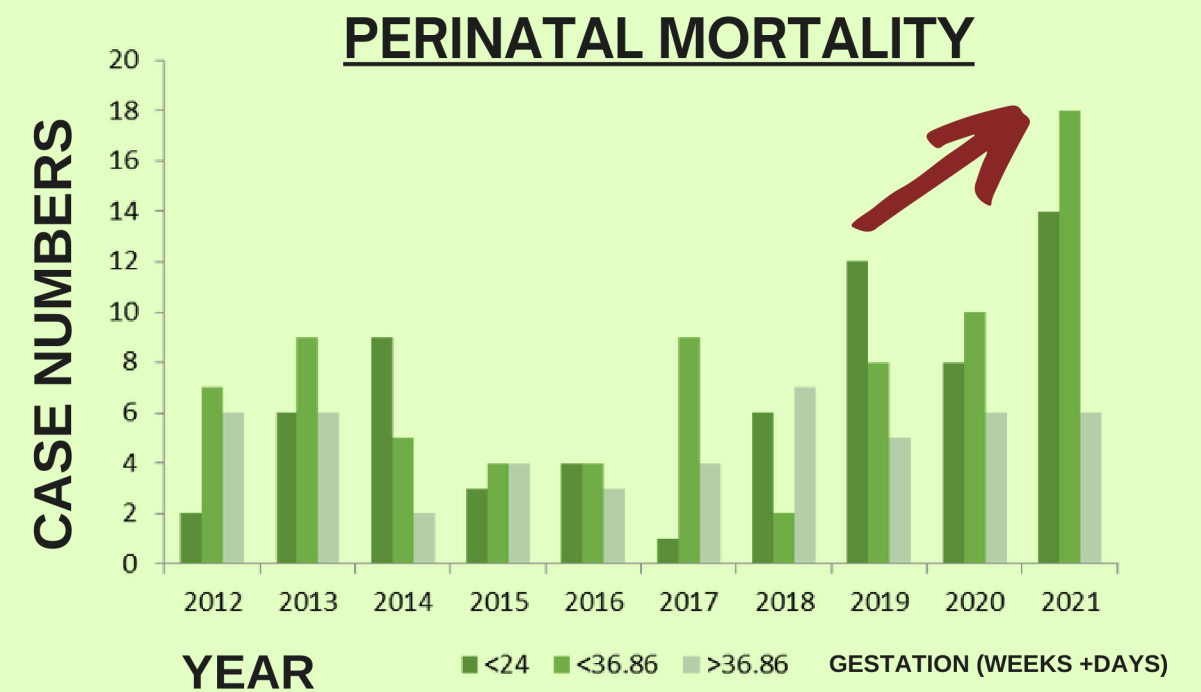


A RETROSPECTIVE CASE SERIES ANALYSIS EXAMINING THE FACTORS CONTRIBUTING TO THE RISING PERINATAL MORTALITY RATE WITHIN A DISTRICT HEALTH BOARD

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INTRODUCTION

The Perinatal and Maternal Mortality Review Committee (PMMRC) have reported that the perinatal mortality rate (PMR) at Northland District Health Board (NDHB) is high compared to the national average. PMR decreased from 2012-17, but has increased significantly since - particularly in the pre-term population. There were 20 peri-mortality events from 2016-18 compared with 70 in the 2019- 2021 period. This increase has occurred primarily in pre term cases.



OBJECTIVE AND METHODOLOGY

A retrospective case series looking at perinatal deaths between 2012 and 2021 (190 cases) has been conducted to look at the following potential contributory medical and social factors to help explain an upward trend over the past three years...

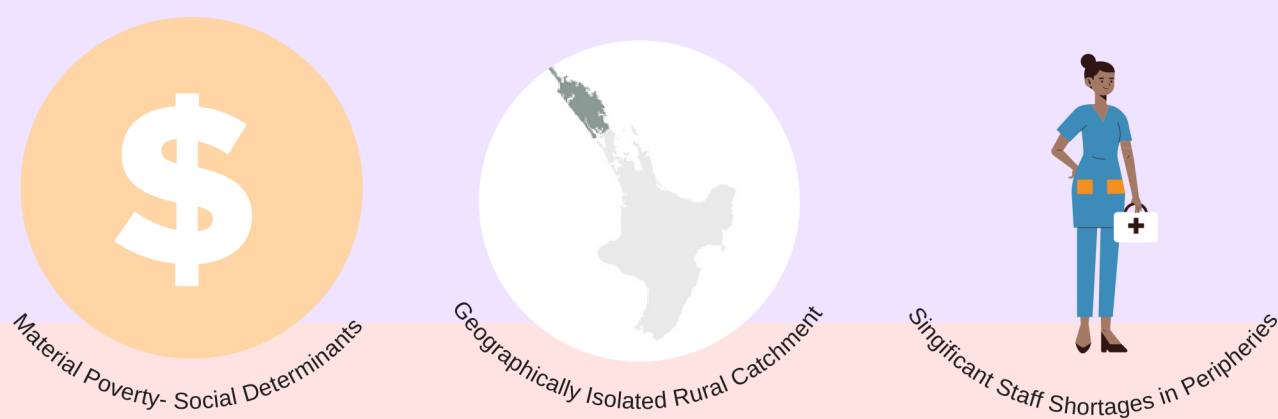
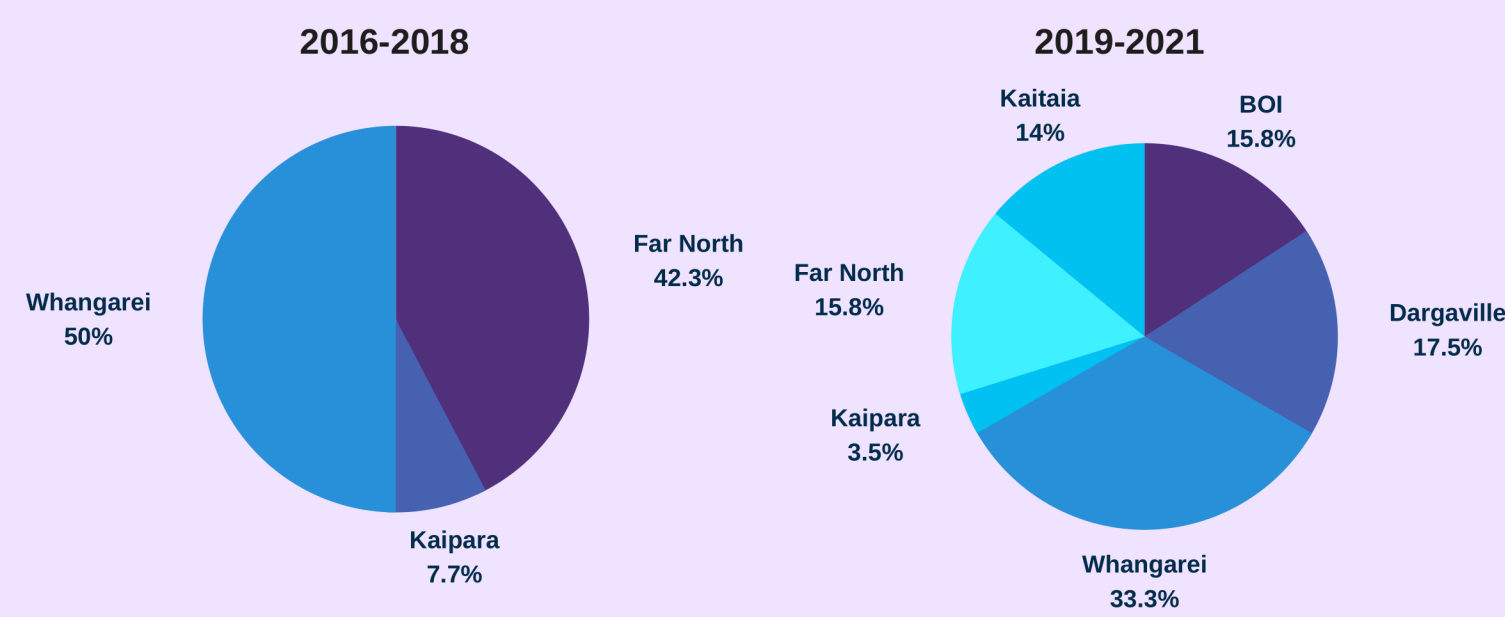
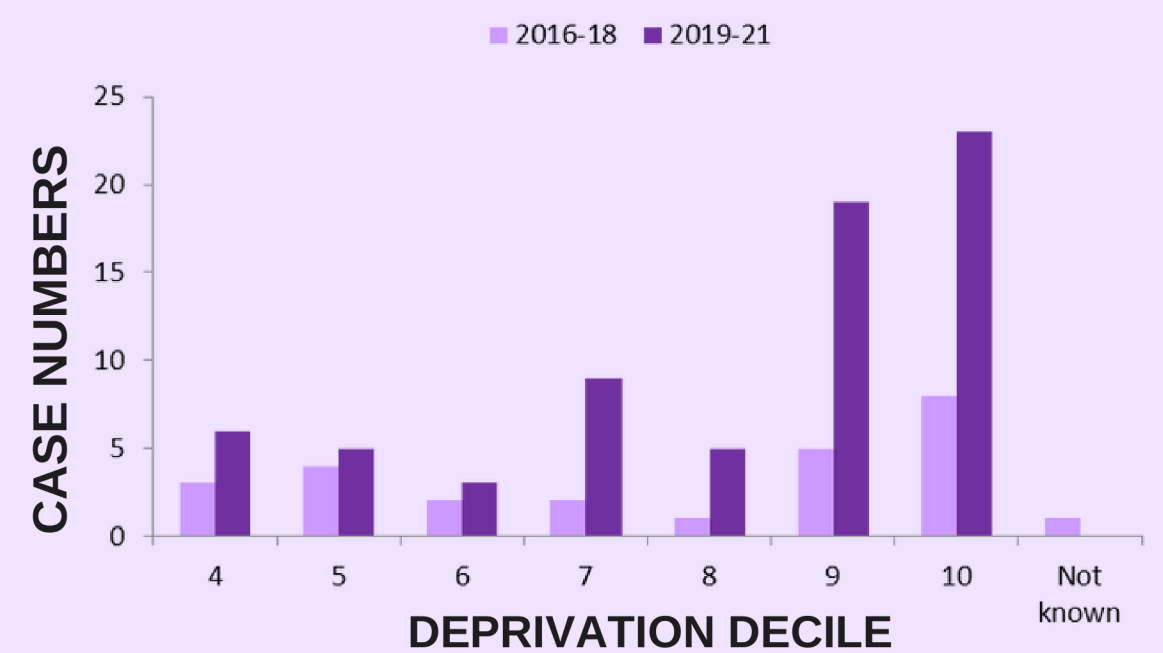
- Hypertensive Disorders
- Diabetes
- Multiple Pregnancy
- BMI
- Maternal Age
- Smoking Status
- Ethnicity
- Parity
- Domicile
- Deprivation Score (1- least deprived, 10 - most deprived)

Of note, PMR averages between 2012-18 and 2016-18 are broadly similar and 2016-18 represents a similar duration. Therefore the 2016-18 period is used to compare with 2019-21 in further analysis

RESULTS

Comparing the past three years (2019-2021) to the immediately preceding three year period (2015-2017)

- The increase in mortality is **very heavily biased** towards **more deprived areas**
- 40 of 44 extra cases** relate to patients living in areas where the **deprivation decile is 7 +**
- Extra cases **outside Whangarei** are also significant - particularly in the Bay of Islands, Kaitaia and Dargaville (peripheral cases **increased by 92%**)
- Analysis of all other available categories did not show any corollary contribution to the increased PMR



ANALYSIS + FUTURE STUDY

Social Determinants of Health: The New Zealand Deprivation Score is a geography-based measure of socioeconomic deprivation which takes into account education levels, employment statuses and housing conditions within an area. (1). The correlation between increased cases and higher representation in more deprived areas suggests that systemic societal factors may be the primary driver behind the increased case numbers.

Unfortunately, accurate data on two significant social contributors- family violence and illicit drug were not available for analysis. Given that the burden of family violence is felt most acutely in economically deprived areas (2) and that Northland has the largest methamphetamine burden per capita (3). These are both factors which may play significant roles in Northland's PMR. As such future study is warranted.

Geography : The geographical distances to and from staff and hospitals, the patchy infrastructure (poor roads in places), and the aforementioned social determinants which will likely make car ownership and fuel costs less readily available will also be a barrier to timely access to antenatal care

COVID 19 Pandemic: Although the highest PMR coincided with the Covid19 pandemic, the PMR was rising before the pandemic in 2018-19. The impacts of COVID in Northland were mitigated due to a significantly lower COVID caseload than in larger regions. However factors such as converting in person clinic to telehealth clinics, fewer available scan slots, and patients fear of contracting COVID in hospital settings may have provided additional access barriers

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1. EHZINZ [Internet]. Ehinz.ac.nz. <https://ehinz.ac.nz/indicators/population-vulnerability/socioeconomic-deprivation-profile/#people-in-more-deprived-areas-are-more-vulnerable-to-environmental-risks> 2. Family violence and economic deprivation in New Zealand [Internet]. free range statistics. <http://freerangestats.info/blog/2017/07/02/family-violence> 3. Meth Trends in New Zealand - MethSolutions [Internet]. MethSolutions. <https://www.methsolutions.co.nz/meth-trends-new-zealand/>