

## Peer Review File

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### Reviewer A:

#### General comment and recommendation:

This study looks at the differences in presentation and post-operative care between Māori and non-Māori children in one health care region in NZ. As such it touches on issues of health access, inequalities and bias. It is the first NZ study to use tonsillectomy as a marker for delivering equitable health care. It raises some worrying health care inequities both at the primary care level and tertiary level.

Given that sleep-disordered breathing is associated with poorer neurocognitive and educational outcomes the importance of providing care to a population already disadvantaged in these outcomes raises important national health care aspirations.

We thank the reviewer for these encouraging comments. Please find a detailed list of our revisions below.

#### Comment 1:

Many global studies have looked at the disparities between socioeconomic status, ethnicity and adenotonsillectomy, this is the first NZ study and as such, I would encourage the authors to consider how this fits into the world literature. Is NZ doing better or worse? As a starting point, I would suggest this paper which reviewed 33 global papers - including one NZ study.

Boss, Emily F., David F. Smith, and Stacey L. Ishman. "Racial/ethnic and socioeconomic disparities in the diagnosis and treatment of sleep-disordered breathing in children." *International journal of pediatric otorhinolaryngology* 75.3 (2011): 299-307.

#### Reply 1:

We acknowledge the above comment and would like to thank the reviewer for suggesting these important points. We have considered our findings in the context of global data, as outlined below:

#### Changes in the text 1:

##### Discussion:

*"These findings are consistent with global data demonstrating socioeconomic and ethnic disparities in the management of children with adenotonsillar disease worldwide (3–6)."*

#### Comment 2:

A useful addition would be a determination of the rate of tonsillectomy in the Maori to non-Maori population within this study group and region. Is there an increased rate of sleep-disordered breathing in the Maori population? Global studies would suggest rates are higher within ethnicities and lower socioeconomic groups.

Some health care systems manage this better than others with the USA reporting high rates but lower access, reflecting their health care model based on insurance. Can the authors comment on the socioeconomic status of the Maori population and their access to health care?

#### Reply 2:

We would like to thank the reviewer for raising such a valuable point regarding our patient cohort. Both a limitation and a key driver of this study was the absence of data on the burden of adenotonsillar disease in New Zealand. Besides knowing the rates of tonsillectomy nationwide, little other data is available on the distribution and burden of disease in New Zealand, particularly by ethnicity, socioeconomic status and/or access to healthcare. In response to your suggestion, we have chosen to elaborate on these points further in the discussion section of our manuscript, to reinforce the importance of studies such as this, as shown below:

#### Changes in the text 2:

##### Discussion:

批注 [1]: I was unsure whether you wanted to elaborate further here, as I've done in the question below.

"In 2015, the national rate of tonsillectomies in New Zealand was 3.7 per 100,000 children, as compared to the rate of tonsillectomies in Māori children in Auckland District Health Board (3.5 per 100,000) and Counties Manukau District Health Board (2.9 per 100,000) in the same year (7). Differences in the rates of RT and SDB based on ethnicity nationwide remain unknown."

批注 [2]: Unsure if we wanted to add an extra sentence at the end to further reinforce the importance of this study?

**Comment 3:**

**Some of these studies also identify an increased persistence of SDB despite AT in certain ethnicities, reflecting factors including obesity in some populations. This obviously wasn't looked at within the author's results but carries implications to the management of these populations.**

Reply 3:

We would like to thank the reviewer for this suggestion. We have included this point in our discussion as shown below:

Changes in the text 3:

*Discussion:*

*"Childhood obesity has also been associated with an increased risk of persistent SDB symptoms despite adenotonsillectomy (9)."*

**Comment 4:**

**Can the authors comment on why a significant proportion are discharged with antibiotics? Cochrane reviews have consistently found no benefit for post-tonsillectomy antibiotics.**

**Dhiwakar M, Clement WA, Supriya M, McKerrow W. Antibiotics to reduce post-tonsillectomy morbidity. Cochrane Database of Systematic Reviews 2012, Issue 12. Art. No.: CD005607. DOI: 10.1002/14651858.CD005607.pub4.**

**Is there any evidence from these results that would suggest this is beneficial or could it be an unconscious bias on the part of the surgeon? It may play into why the Maori group are less likely to get antibiotics from their GP, given they have been sent home with antibiotics. But it would seem it doesn't reduce the risk of representation to GP.**

Reply 4:

We would like to thank the reviewer for raising this point. We too were interested in this finding, and subsequently published a study that investigated the use of antibiotics in children undergoing tonsillectomy. Our study titled "Effect of tonsillectomy on antibiotic prescribing in children", highlighted the continued prescription of perioperative antibiotic prescription in Auckland, New Zealand, despite recent global guideline changes and robust systematic reviews showing no associated improvement in postoperative outcomes with antibiotic use. We recognise that addressing this overprescription is a critical step towards reducing the burden of antibiotics in children with tonsillar hyperplasia. In turn, we have amended our manuscript to now raise this point and cite our study, as shown below:

Changes in the text 4:

*Discussion:*

*"This is despite recent evidence showing no benefit in prescribing peri-operative antibiotics to improve post-operative outcomes in children undergoing tonsillectomy (18-21). Non-Māori patients were more likely to see their GP in the post-operative period and be prescribed antibiotics at this time. Together, these findings should be considered when surgeons are deciding whether to prescribe antibiotics post-operatively."*

**Comment 5:**

**Line 188 - “ a likely explanation” this may be a stretch. It is a possible explanation but the interaction of antibiotic prescribing and atopy is not reliably determined. No treatment for a disease does not mean it doesn't exist and may also represent further health care equalities in diagnosis and management.**

Reply 5:

We would like to thank the reviewer for raising this point. We have amended this sentence accordingly:

Changes in the text 5:

*Discussion:*

“Another possible explanation for this observation, however, is due to the association between antibiotic exposure in infancy and the development of atopy, asthma, and eczema in early childhood (14).”

**Comment 6:**

**Discussion should spend one paragraph on limitations. The obvious limitation is the size of this study. It represents one health care region in NZ. Is this representative of the whole country? It is likely that access to care in Auckland is better than in the rest of the country which may mean the results can't be extrapolated to the rest of the country.**

**It would also be interesting within the non-Maori group to break down further into ethnicity. Auckland has a high Polynesian population, do their health care needs more closely mirror the Maori population?**

Reply 6:

We acknowledge the above comment and would like to thank the reviewer for suggesting these important points. We have now included a paragraph on limitations, including the suggested points, as shown below:

Changes in the text 6:

*Discussion:*

“Limitations of this study include its sample size and retrospective nature. Furthermore, these findings may not generalisable to the whole of New Zealand, due to differences in ethnic distribution and availability and access to specialist care, particularly between urban and rural centres. These limitations demonstrate the need for robust follow-up epidemiological studies investigating differences in the clinical presentation, management and outcomes of children undergoing tonsillectomy based on ethnicity nationwide. Further analysis should also delineate between all ethnic groups, particularly of Pacific peoples, given the known disparities in health outcomes in this ethnic group, across multiple markers of health and disability (27,28).”

**Comment 7:**

**A closing paragraph in the discussion should focus on implications moving forward. What do these results mean to patients, surgeons, health systems, policymakers?**

Reply 7:

We would like to thank the reviewer for raising such a valuable point. We have elaborated on the implications of this study's findings moving forward, as shown below:

Changes in the text 7:

*Discussion:*

“Ultimately, this study highlights important and inequitable differences in the clinical characteristics, management and outcomes of Māori and non-Māori children undergoing tonsillectomies in Auckland, New Zealand. These findings raise critical questions as to the drivers of these disparities in New Zealand's indigenous population, and has important implications on the need for further research investigating and addressing these inequities nationwide.”

**Reviewer B:**

**General comment and recommendation:**

An interesting commentary.

We would like to thank the reviewer for their encouraging comments and have made the following revisions.

**Comment 1:**

**I don't think you should discuss the role of atopy or GORD without formal investigation - total IgE, RAST etc. Who made the diagnosis of rhinitis or GORD? Was a endoscopy done in cases of GORD?**

Reply 1:

We thank the reviewer for their comments.

...

We have added this information to our manuscript, as shown below:

Changes in the text 1:

*Discussion:*

“x”

**Comment 2:**

**PPI's are prescribed for all kinds of random symptoms. Or is it that there is a difference in rates prescription of medication or compliance with meds for rhinitis/GORD/Asthma eczema et al?**

Reply 2:

We would like to thank the reviewer for raising this point....

Changes in the text 2:

*Discussion:*

“x”

**Comment 3:**

**You cannot state that the Maori were more likely to present with secondary bleed when there was no statistical difference in the groups.**

Reply 3:

We would like to thank the reviewer for this comment and have amended this sentence accordingly, as shown below:

Changes in the text 3:

*Results:*

*“No significant differences were observed in the rate of secondary haemorrhage (Māori 7.5% and non-Māori 5%;  $p = 0.117$ ).”*

**Comment 4:**

**Why is the rate of Ibuprofen prescription so low?**

Reply 4:

We would like to thank the reviewer for raising such an important point. We have now elaborated on this further in our discussion, as shown below:

Changes in the text 4:

*Discussion:*

*“Additionally, Māori were more likely to be prescribed ibuprofen post-operatively for pain, with no associated increase in secondary haemorrhage rate. The low overall rates of ibuprofen prescription demonstrated in this study may reflect ongoing surgical concerns of increased post-tonsillectomy bleeding, despite robust systematic reviews supporting its safety in children following tonsillectomy and subsequent reduction in opioid requirement for pain management (19,22-26).”*

**Comment 5:**

**I would suggest you round the tonsil grade to the nearest whole number**

Reply 5:

We would like to thank the reviewer for these comments and we have amended this data accordingly.

Changes in the text 5:

*Discussion:*

*“Tonsils were significantly larger in the Māori population with a mean grade of  $4 \pm 0.04$  compared with non-Māori  $3 \pm 0.04$  ( $p < 0.001$ ). Adenoids were also larger in the Māori population with a mean grade of  $3 \pm 0.06$ , and with non-Māori  $2 \pm 0.04$  ( $p < 0.001$ ).”*

批注 [3]: James, are you okay with these values as they are? Or do you want them rounded too?