

## LOUIS BARNETT PRIZE

### 2022 FINALISTS' RESEARCH ABSTRACTS

#### Enhancing Responsiveness to Māori in Bariatric Surgery

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#### Introduction

Understanding equitable access to bariatric surgery for Māori is an important and highly under-researched issue. Consequently, publicly funded bariatric services have limited guidelines on how they can enhance health equity for Māori. Counties Manukau Health (CMH) was chosen as a site to initiate an inquiry into this issue, as this site performs the highest number of bariatric procedures in the New Zealand public sector.

#### Methods

A mixed methods approach was used to address the overall study aim. First, the thesis aimed to set the context for Māori health in surgery and bridge the gap between what is known and what is not known in the space of Māori health and bariatric surgery through two systematic reviews. A review of print news media related to bariatric surgery was then performed to understand societal perceptions of bariatric surgery. Following this, a retrospective cohort review of all patients referred to CMH was undertaken to understand access inequities and then semi-structured interpersonal interviews with Māori who had bariatric surgery was performed (HDEC 16/449).

#### Results

Two systematic reviews conveyed a paucity of literature surrounding Māori and bariatric surgery. A review of print news media coverage highlighted fat stigmatisation and highlighted inequities in obesity and metabolic conditions. A retrospective review of all referrals to CMH conveyed that Māori are less likely to receive bariatric surgery compared to European patients, even after adjusting for patient factors (odds ratio [OR], 0.53; 95% confidence interval [CI], 0.42–0.68). Semi-structured interviews with 31 Māori bariatric patients identified four key areas of change needed. These included the institution of Kaupapa Māori standards of health, bariatric surgery mentors, a bariatric psychologist and integration with community-led programmes in South Auckland.

#### Conclusions

Māori face disproportionately lower access to bariatric surgery. Through this research a Kaupapa Māori bariatric program has been designed in line with reported Māori experiences of bariatric surgery.

#### The Learning Curve of BiZact TM Tonsillectomy

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## Introduction

The BiZact™ device (Medtronic) is a bipolar tissue sealer and divider designed for tonsillectomy. Tonsillectomy using this device was introduced at Starship Children's Hospital, Auckland in 2018. Medtronic claims that it reduces intraoperative bleeding, postoperative pain and improves procedural efficiency. A concern with introduction of new technology and techniques is the learning curve and potential impact on safety and efficacy. This is the first study to investigate the BiZact™ tonsillectomy learning curve.

## Methods

Prospective audit of consecutive BiZact™ tonsillectomies undertaken by incumbent trainee and fellow at Starship Children's Hospital July – December 2019. Primary outcomes measured were operative time, readmission and post tonsillectomy bleed rates. Secondary outcomes included need for bipolar rescue dissection, bipolar haemostasis, effect of tonsil size and depth. Operative time was plotted against number of procedures performed. Moving averages was used to investigate the learning curve. Generalised linear model applied to examine association between operation time and tonsil depth.

## Results

Mean operative time for trainee and fellow was similar (07 minutes 34 seconds versus 07 minutes and 37 seconds). We observed a trend of decreased operative time over number of procedures performed by the trainee but learning curve was short. The fellow's initial time was lower than trainee's and remained similar over time. No bipolar rescue dissection was required. Overall operative time for shallow tonsils was shorter than for deep tonsils (06 minutes 31 seconds versus 08 minutes 09 seconds,  $p=0.0066$ ). A learning curve for both surgeons combined was steeper for deep tonsils. There were no primary bleeds and secondary haemorrhage rate was 5.8% (3/51 cases) with no returns to theatre.

## Conclusions

BiZact™ tonsillectomy is quick, safe and easy to learn. We observed a trend of shallow tonsils being quicker to remove than deep tonsils using this technique. Secondary bleed rate of 5.8% is comparable to the previously published Starship rate of 4.7% for all tonsillectomies performed over a 10 year period. Moving averages is useful method to assess operative learning curves during training and beyond.

## Mā te Whakarongo: The Impact of Middle Ear Disease in Aotearoa

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## Introduction

The effects of Chronic Otitis Media have historically been reported in terms of complications of the disease or its treatment, hearing outcomes and the ability of the treatment to manage the pathology. There have been a few studies looking at quality of life measures with questionnaires, but the symptoms are merely listed and there has been little exploration of the impact of the associated symptoms, such as ear discharge. The purpose of this study is to explore the impact of these symptoms through a series of semi-structured patient interviews using Kaupapa Māori based methodology. We aim to increase the awareness of the impact that middle ear disease can have on an individual and their whānau.

## Methods

The qualitative study involved a series of 7 semi-structured interviews with Māori adults that suffer from middle ear disease. All interviews were conducted by a Māori researcher and thematic analysis was employed.

## Results

All participants felt that there were delays in recognition and treatment of their condition and that there were barriers to accessing the healthcare system. The condition prevents participation in cultural and recreational activities, particularly those involving water. Hearing loss affects education and employment opportunities, and together with otorrhea results in social isolation and in some circumstances disconnection from Te Ao Māori. Overall, the condition impacts negatively on mental and spiritual wellbeing.

## Conclusions

The study demonstrates that middle ear disease has a negative impact on the quality of life of Māori and their whānau. It is important that healthcare professionals are aware of this condition and the potential implications for Māori patients, prompting earlier recognition and referral to specialist care.

*Te Whare Piki Ora o Māhutonga*

## Otolaryngology Trainees' Experiences of and Attitudes Towards Workplace Based Assessments

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## Introduction

Workplace based assessments (WBAs) are frequently used assessment tools in medical education. As there is a move towards competency-based training across medical specialties WBAs are being used more often. This is the case in the Royal Australasian College of Surgeons Otolaryngology Surgical Education and Training scheme. A recently implemented change in moving towards competency-based training has led to an increase in the type and frequency of WBAs required for trainees.

## Methods

Following Corbin & Strauss (1990), this research draws on grounded theory. Semi-structured interviews were performed. Data was analysed for recurring themes using a constant comparison method.

## Results

Data derived from thirteen participant interviews revealed five major themes: 1) experience of managing the assessment load, 2) variability and value, 3) negative experiences and perceptions of WBAs, 4) perceived roles of WBAs in training, 5) aspects valued by trainees. These were used to build a theoretical model. The model suggests that negative and positive experiences of WBAs informs future engagement with the tool and trainee learning.

## Conclusion

Trainees' experiences of and attitudes towards WBAs significantly affect the way trainees perceive the value of WBAs within their training. Based on the findings five key recommendations were made: 1) allocating time for teaching and WBAs, 2) education of trainees and assessors in WBAs, 3) review of the current system, 4) change of focus with progression of training, 5) consideration of the use of technology.

## The Impact of Non-Structured Prostate Specific Antigen Testing on Prostate Cancer Outcomes Among Māori Men in New Zealand

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### Introduction

Ethnic disparities in Prostate Cancer (PCa) outcomes has been previously documented in New Zealand (NZ). Māori men have significantly worse cancer specific survival when compared to non-Māori. Moreover, they have lower rate of PSA testing in the NZ community. Recent international evidence has suggested that regular PCa screening with PSA testing can significantly improve cancer survival.

### Methods

Māori men aged 40 years or older, without prior history of PCa, and had a PSA test between 2006 - 2018 were included. The cohort was divided into two groups: the screened group (ScG), which consisted of men who had regular PSA testing every four years or less, and the non-screened group (non-SG). We measured the probability of cancer diagnoses, cancer grade at detection and the risk of death from PCa using competing risk regression analysis.

### Results

The study cohort included 63,939 Māori men. Median age and follow-up were 53 years and 6.3 years, respectively. Of the total cohort, 37,048 (58%) men were in the ScG and received a median of three PSA tests. More PCa were diagnosed in the ScG (3.7% vs. 3.0%,  $p < 0.001$ ). Higher proportion of high-grade cancers found in the non-SG (32.7% vs. 25.6%,  $p = 0.001$ ). In a multivariable risk model, testing frequency was an independent predictor of PCa mortality. (non-SG vs ScG - Adjusted hazard ratio: 2.43, [95% CI: 1.97 - 3.01],  $p < 0.001$ ).

### Conclusions

Low PSA testing was associated with more high-risk PCa detection and directly linked to higher risk of death from PCa in our cohort of Māori men. Therefore, it is likely that the higher PCa mortality seen in NZ Māori is due to lower and irregular PSA testing. Addressing these disparities in outcomes will require equitable access to PSA testing at a population level.

## The Surgeon's 'Gut Feeling' in Predicting Outcomes from Emergency Laparotomy

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### Introduction

Emergency laparotomy (EL) is a common procedure carrying a significant risk of morbidity and mortality. Multiple tools exist to predict surgical risk following EL that focus on the physiology and comorbidities of the patient. The surgeon's impression of risk or 'gut feeling' has not previously been explored with EL.

### Methods

EL patients aged 18 years and over were prospectively recruited in five metropolitan hospitals in New Zealand from January 2019 and ongoing. Data including age, sex, ASA, comorbidities, bloods and observations were recorded. Outcomes were morbidity, mortality, length of stay, and reoperations.

The surgical 'gut feeling' was assessed by a questionnaire before and after EL. The questionnaire asked the operating surgeon to mark on a Visual Analogue Scale (VAS) scale from 0 to 100mm the risk for morbidity and mortality.

The surgeon's preoperative mortality prediction was compared with observed mortality by exploring survivorship at different VAS values to find ideal cut-offs. A change in VAS pre and postoperatively was compared with outcomes.

### Results

501 patients were included in the study with both the questionnaires completed. Surgeons accurately predicted the operation performed at EL for 86% of patients. For the remainder, the surgeon performed an operation significantly different from what was planned.

The preoperative 'gut feeling' of risk on the VAS scale associated highly with mortality. A cut-off VAS of 40 or above carried a significantly higher risk of mortality at 21% (n=110,

p<0.0001). A VAS lower than 40 carried a 4.3% risk of mortality. However, there was significant heterogeneity in how the VAS was scored amongst surgeons.

A higher VAS for mortality postoperative (cf preoperatively) correlated with higher mortality 14.8% versus 3.6% (p < 0.0001) with less heterogeneity amongst surgeons. The same association was seen with VAS for morbidity (p = 0.049).

### **Conclusions**

The surgical 'gut feeling' correlated highly with outcomes of morbidity and mortality. We have described a reliable and effective way to measure surgical 'gut feeling'. Future work should focus on incorporating it into risk prediction.

## **Tendoachilles lengthening improves baropodometric pressures 1 year after surgery for Idiopathic toe walkers**

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### **INTRODUCTION**

Idiopathic Toe-walking (ITW) is a condition where children persistently walk on their toes in the absence of neurological or orthopaedic structural abnormalities. ITW affects 2% of children at the age of 5.5yr. This may eventually result in fixed ankle equinus. There is a paucity of long-term natural history studies in untreated ITW however persisting equinus contractures are implicated in common adult foot conditions.

### **METHODS**

23 patients (46 feet) diagnosed with ITW between 2017-2022; were treated with open zone III Achilles lengthening. We reported patient demographics, clinical resolution, or revision. Passive dorsiflexion range and hindfoot pressure percentage when standing and walking were measured on a baropodometric walkway and compared pre-operatively and at 12-18months postoperatively. We compared this to data from a previously studied normative cohort.

### **RESULTS**

87% of children had complete resolution of toe-walking. 3 had recurrence with 1 patient having a revision surgery. Mean pre-operative static heel pressure percentage was 16%, this improved to 59% (p<0.05). This neared normative average of 71%. Mean pre-operative dynamic heel pressure percentage was 6%, this improved to 45% (p<0.05). This neared the normative mean of 52%. Mean Passive dorsiflexion in extension and 90° knee flexion was -5° and 0.5° respectively. This improved on average by 17.4° and 14.5° to a new mean of 12.4° and 15.7° (p<0.05).

### **CONCLUSIONS**

Open Zone III Achilles lengthening for ITW has high resolution rates. Hindfoot contact pressures and passive ankle dorsiflexion show improvement at 1 year post operatively.

# Intravenous Local Anaesthetic Compared with Intraperitoneal Local Anaesthetic in Laparoscopic Colectomy: A Double-Blind Randomised Controlled Trial

W MacFater

## Purpose

Controlling perioperative pain is essential to improving patient experience and satisfaction following surgery. Traditionally opioids have been frequently utilised for postoperative analgesia. Although they are effective at controlling pain, they are associated with adverse effects, including postoperative nausea, vomiting, ileus and long-term opioid dependency. Following laparoscopic colectomy, the use of intravenous or intraperitoneal infusions of lidocaine (IVL, IPL) are promising emerging analgesic options. Although both techniques are promising, there have been no direct, prospective randomised comparisons in patients undergoing laparoscopic colon resection.

The purpose of this study was to compare intraperitoneal local anaesthetic with intravenous local anaesthetic in laparoscopic colectomy surgery.

## Methods

Double blinded, randomised controlled trial of patients undergoing laparoscopic colonic resection. The two groups received equal doses of either IPL or IVL which commenced intra-operatively with a bolus followed by a continuous infusion for 3 days postoperatively. Patients were cared for through a standardized ERAS program. The primary outcome was total post-operative opioid consumption over the first three post-operative days. Patients were followed for 60 days.

## Results

Fifty-six patients were randomised in a 1:1 fashion to the IVL or IPL groups. Total opioid consumption over the first three post-operative days was significantly lower in the IPL group (70.9 mg vs 157.8 mg  $p < 0.05$ ) and overall opioid consumption during the total length of stay was also significantly lower (80.3 mg vs 187.36 mg  $p < 0.05$ ). Pain scores were significantly lower at two hours post-operatively in the IPL group; however, all other time points were not significant. There were no differences in complications between the two groups.

## Conclusions

Perioperative use of IPL results in a significant reduction in opioid consumption following laparoscopic colon surgery when compared to IVL. This suggests that the peritoneal cavity/compartments is a strategic target for local anaesthetic administration. Future ERAS recommendations should consider IPL as an important component of a multimodal pain strategy following colectomy.