



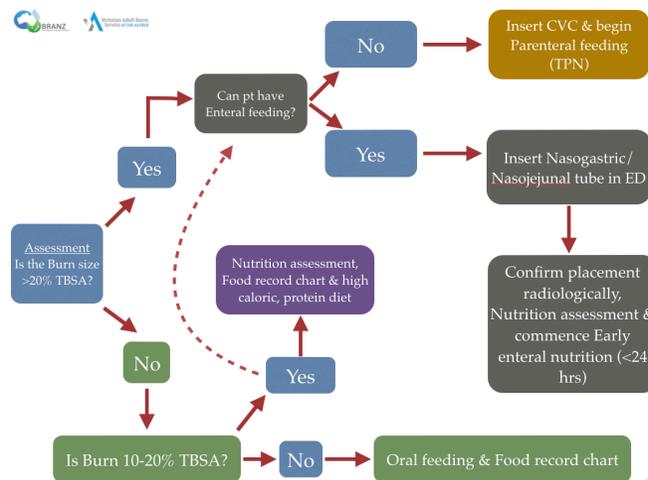
## Meeting nutritional requirements following severe burn injury (>20%TBSA): a Victorian Adult Burns Service (VABS) systems review: How can Burn Registry of Australia & New Zealand (BRANZ) data improve care? Ian Loh, Yvonne Singer, Heather Cleland

### Introduction

- Severe burn patients (>20%TBSA) experience endocrine, inflammatory, metabolic & immune changes which require tailored nutritional support.
- Best practice evidence demonstrates that nutritional support should begin within 24 hours of injury & the best route is via early enteral feeding (EEF), attenuating the levels of stress hormone, reducing the hyper-metabolic response & reduces the rates of stress ulcer, ileus, risk of malnutrition & dampening the hyper-metabolic response.
- The Burns Registry of Australia & New Zealand (BRANZ) utilises a clinical quality indicator (QI) to measure individual unit adherence to Enteral/Parenteral feeding within 24 hours of injury. This QI was validated as an appropriate predictor of burn care quality based on a retrospective analysis of BRANZ data, conducted using quantitative registry data from July 2009 to June 2014 (n=11,653).
- In 2014, a retrospective cohort study on VABS admissions from 2009-2012 was performed to assess VABS performance in relation to the above QI & identify systemic issues that influence compliance with this QI. VABS developed admission protocols in conjunction with ED, dietetics and within the Burns unit with the aim of improving quality of care based on initial burn injury findings. This study evaluates compliance with the early enteral nutrition guidelines initiated in 2014 & analyses how the installed protocols have affected severe burn patient's quality of care in the intervening 4 years (2014 -2018)

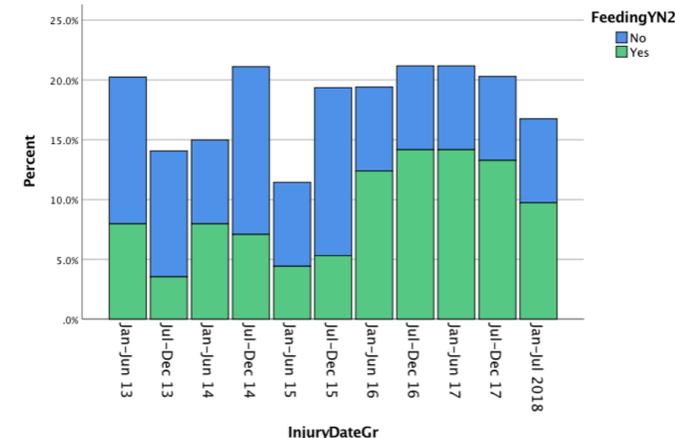
### Methods

- Utilising BRANZ data, a retrospective review of medical records identified timing of enteral nutrition following admission, time of the first nutritional assessment, recommended nutritional regime and admission destination (Ward vs. ICU).
- Data extracted was for VABS patients with burns >20% TBSA including: age, sex, %TBSA, Length of stay (LOS), ICU LOS, if EEF was commenced <24hrs following admission, positive blood cultures
- Hospital structures and processes related to patient admission, nasogastric (NG) tube insertion and the commencement of enteral feeding were also reviewed.
- Data from the 2010 - 2012 period (59% of patients with severe burn injury admitted to the VABS commenced EEF within 24 hours of admission) was compared to the 2014-2018 period.



### Results

- 170 pts - 28 pts palliated = 142 valid pts. Average Age = 42.6 years
- Gender: Female = 27 Male = 115. Average LOS = 36.1 days
- Average TBSA = 35% - EEF (38.4%) No EEF (25.6%), p=0.001
- EEF: Yes = 104 (73.2%) No = 38 (26.8%)
- ICU = 100 (92%) Ward = 42 (30%)
- +ve Blood cultures: EEF = 21% No EEF = 5.3%, Pearson-Chi2 p=0.025
- LOS: EEF = 43.1 days No EEF = 18.4 days, p=0.002
- Disposition: 16 deaths (12% not fed), 56 Rehab (7.1% not fed) & 70 Home (38.5% not fed)



### Discussion & Conclusion

- Improvement seen in the provision of nutritional support <24 hours
- Tube insertion delay noticed over 2015-16 coincides with introduction of a separate hospital wide protocol for feeding NGT to be inserted by credentialed staff
- EEF +ve patients sustained larger burns, were mostly in ICU, stayed in for longer but once the palliated patients were removed = No benefit in bacteraemia rate or mortality - predicted from validation analysis
- This study reviewed VABS capacity to initiate EEF in severely burnt patients according to the BRANZ standard. Initially, VABS did not meet the required standard and issues that delayed EEF were identified.
- Changes to VABS current practice were developed to overcome structural and process issues delaying EEF. These changes have improved the quality of nutritional care provided at VABS. The study also demonstrates the potential of BRANZ to drive regional improvements of patient care