Confidence levels of veterinary nurses using a range of anaesthetic monitoring devices available in New Zealand.

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Introduction

There have been significant advancements in the complexity and widespread availability of anaesthetic monitoring devices in veterinary practices over the last thirty years (Sano et al., 2018; Richardson and McMillan, 2019; Grubb et al., 2020). The use of specialised equipment for monitoring a patient's physiological parameters contributes to a high standard of care and overall reduction of morbidity and mortality associated with veterinary anaesthesia (Brodbelt, 2009; Grubb et al., 2020; Carter and Story, 2013).

Although it is true that provision and access to these devices may improve veterinary anaesthetic standards alone, these devices are only as useful and accurate as the knowledge and experience of the operator (Flaherty and Musk, 2005). Anecdotally, anaesthetic monitoring devices are more widely available in practices now than ten years ago (Sano et al., 2018; Gates et al., 2020), however, there is little evidence available in the literature to describe the confidence levels of New Zealand veterinary nurses when using such equipment.

This research aimed to determine the confidence levels of New Zealand veterinary nurses when using various anaesthetic monitoring devices in a clinical setting, along with quantifying the nationwide availability of such equipment. This study also aimed to examine factors that might impact confidence, and ultimately competence, of New Zealand veterinary nurses when using these devices.

Method

An anonymous, self-selecting survey was made available to New Zealand veterinary nurses involved in veterinary anaesthesia in the previous 12 months OR those who had completed 6 consecutive months working in a veterinary practice. Confidence was rated for setting up, interpreting results and troubleshooting devices. Simple descriptive statistics only were performed for this pilot study.

The survey was disseminated online through social media and to New Zealand Veterinary Nursing Association (NZVNA) members via email. Ethics approval was obtained via the Unitec Research Ethics Committee prior to distribution and the survey remained open for 21 days.

It was hypothesised that factors such as age, experience and education may affect levels of confidence; and that the lower availability of certain devices would correlate with decreased confidence levels. The outcome of this study may help to determine whether current education settings, regarding anaesthetic monitoring devices, for veterinary nurses meet the evolving needs of the New Zealand veterinary industry.

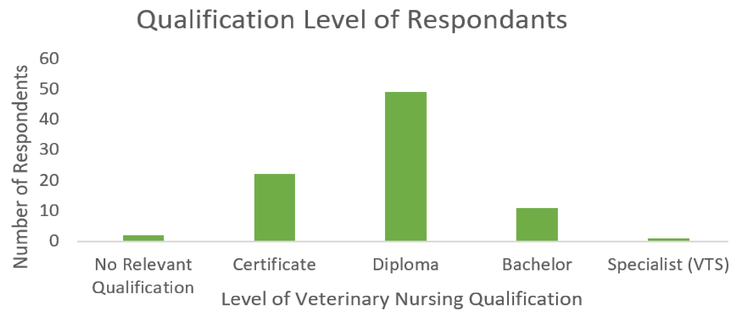

***Figure 1**. The veterinary nursing qualification level of survey respondents*

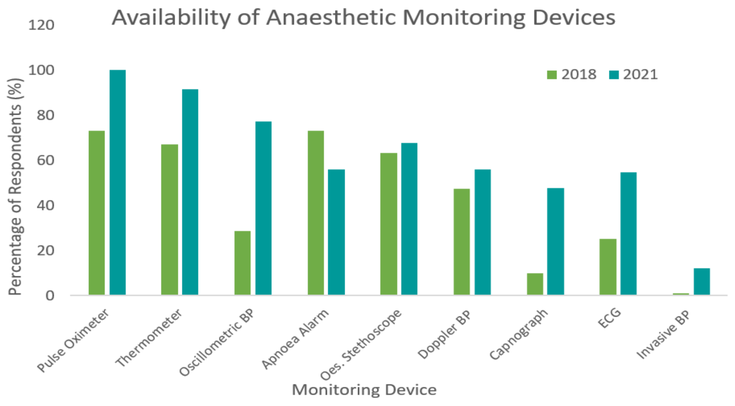

***Figure 2**. Availability of monitoring devices in comparison to a study by Sano et al. (2018)*

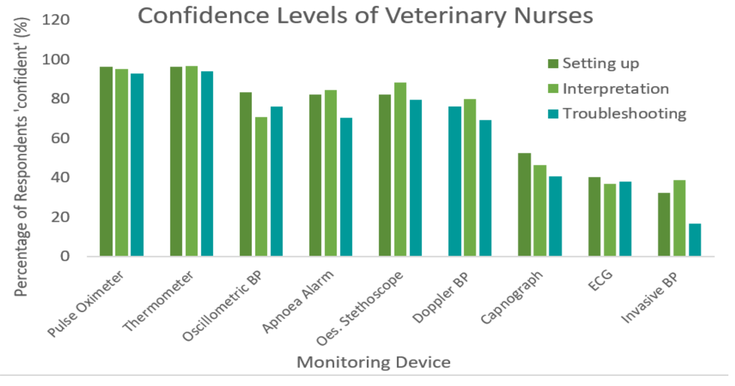

***Figure 3**. Percentage of respondents that self identified as at least 'somewhat confident' when setting up, interpreting and troubleshooting anaesthetic monitoring devices*

Results and Discussion

Of a total 85 respondents, 84 met the criteria to be included in this study. Diploma qualified veterinary nurses had the highest representation (n= 49, 57.6%) followed certificate level qualifications (n=22, 25.9%) and then Bachelor qualified veterinary nurses (n=11, 12.9%). One respondent (n=1, 1.2%) was a qualified Veterinary Specialist Technician (VTS) while the remaining 2.4% (n=2) of respondents had no relevant qualification (Figure 1).

When comparing the availability of monitoring devices in veterinary practice to a study by Sano et al., (2018), it is apparent that there has been a shift, even within the last three years (Figure 2). Most notably, in 2018, only 9.8% of respondents indicated the presence of a capnograph in their workplace (Sano et al., 2018), whereas, in 2021, 47.6% of respondents indicated so. Similarly, Sano et al., (2018) revealed that 25% of respondents had access to electrocardiography (ECG), compared to 54.7% in 2021, and 77.3% of respondents had access to an oscillometric blood pressure (BP) monitor in 2021, compared to just 28.6% in 2018. The obvious shift in accessibility to these devices could be due to rapid advancements in veterinary technology, or these devices becoming more financially viable.

As hypothesised, three of the least available monitoring devices in 2021 (capnography, ECG and invasive BP monitoring), correlated directly with the devices that respondents felt overall 'least confident' with (Figure 3). This suggests that lower exposure to these devices in the workplace impacted veterinary nurses confidence when setting up, interpreting and troubleshooting the equipment.

Additional statistical analysis of raw data is necessary to determine a link between education status, continuing professional development (CPD) and experience (years) with confidence levels of the monitoring devices. Further research in this area should explore the possibility of measuring and comparing competence with confidence when using the devices, alongside the development and implementation of methods to improve confidence and competence levels in the formal education and CPD space.

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