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Intensive care nurses' knowledge of evidence based guidelines regarding weaning the mechanically ventilated patient

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INTENSIVE CARE NURSES' KNOWLEDGE OF EVIDENCE BASED GUIDELINES REGARDING WEANING THE MECHANICALLY VENTILATED PATIENT

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Faculty of Health Sciences, University of the Witwatersrand, Johannesburg
in partial fulfilment of the requirements for the degree
of
Master of Science in Nursing

Johannesburg, 2014

DECLARATION

I, Jacquie Fischer, declare that this research report is my own work. It is being submitted for the degree of Master of Science (in Nursing) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

Signature …….

……day of …… 2014

Protocol number: M130732

DEDICATION

Special dedication to all my family, friends and colleagues for their patience, encouragement and support for the duration of my studies at the University of the Witwatersrand, Johannesburg.

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ABSTRACT

Evidenced based practice (EBP) guidelines have been developed to reduce variation in weaning, provide quality of care and patient satisfaction. Nurse led weaning has been shown to reduce weaning time, and therefore it was important to identify whether nurses have sufficient knowledge to implement EBP regarding weaning (Hansen, Fjaelberg, Nilsen et al, 2008);(Crocker, 2002:272). Weaning protocols are associated with 25.0% reduction in the duration of mechanical ventilation time, a 78.0% reduction in weaning duration, and 10.0% reduction for length of stay in ICU (Blackwood, Alderdice, Burns et al, 2011:9). The purpose of the study was to evaluate and describe intensive care nurses' knowledge of EBP guidelines with regard to weaning the mechanically ventilated patient. Five adult intensive care units at two tertiary public sector academic hospitals were used to conduct the study in order to determine barriers to EBP.

A non-experimental, descriptive, prospective two-staged design was utilized in this two part study. In *Stage I* of the study, the sample size comprised six (n=6) specialist expert members selected from the ICU's at the study site using a non-probability purposive sampling method. In *Stage II* of the study, the sample size comprised eighty (n=80) intensive care nurse respondents selected from the ICU's using simple random sampling. The data collection instrument developed by the researcher comprised 40 items relevant to nursing practice derived from EBP weaning guidelines. Respondents were asked to rate all the items independently using a 4-point Likert scale.

Findings indicated that intensive care nurses lack adequate knowledge on weaning the critically ill patient from the mechanical ventilator. The Dreyfuss model of skill acquisition shows that improved skill performance in nursing is based on experience as well as education, yet this study showed the opposite (Dracup & Bryan-Brown, 2004). Years of experience did not influence nurses' knowledge level, as there was no statistical difference in these items. Differences in knowledge scores between the primary nurse and shift leaders were minimal, although significant ($p<0.05$), indicating that shift leaders were more knowledgeable than primary nurses.

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LIST OF ABBREVIATIONS

The following abbreviations are used consistently throughout the study

ICU	Intensive Care Unit
EBP	Evidence based practice
VAP	Ventilator associated pneumonia
VILI	Ventilator induced lung injury
ETT	Endotracheal tube
COPD	Chronic obstructive pulmonary disease
ARDS	Acute respiratory distress syndrome
PEEP	Positive end expiratory pressure
Hb	Haemoglobin
Hct	Haematocrit
NIP	Negative inspiratory pressure
PSV	Pressure support ventilation
T-piece	Thermovent
SBT	Spontaneous breathing trial
SIMV	Synchronised intermittent mandatory ventilation
GCS	Glasgow coma scale
RSBI	Rapid shallow breathing index
CPAP	Continuous positive airway pressure
VADD	Ventilator associated diaphragmatic dysfunction
LTMV	Long term mechanical ventilation
AACCN	American Association Critical Care Nurses
SANC	South African Nursing Council
FiO_2	Fraction of inspired oxygen
$pC0_2$	Partial pressure of carbon dioxide in the blood
$Pa0_2$	Partial pressure of oxygen in arterial blood
$Sa0_2$	Arterial oxygen saturation