

## U21 health sciences

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### DOCTORAL STUDENTS ABSTRACTS

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#### OPTIMISING PAEDIATRIC VENTILATION

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##### **Purpose**

The concept of lung recruitment has evolved as a consequence of the conceptual shift towards lung protective ventilation strategies (LPVS).<sup>1,2</sup> Atelectrauma from the cyclic opening and closing of alveoli may be minimised by LPVS yet atelectasis of distal and dependant regions of the lung becomes problematic. This de-recruitment of alveoli is exacerbated with each ventilator circuit disconnection.<sup>3-5</sup> The application of sub atmospheric pressure via suction to the airways worsens this de-recruitment and results in alveolar injury.<sup>6,7</sup> Inadequate alveolar recruitment at end expiration results in shearing injuries and contributes to the incidence of Ventilator Associated Lung Injury (VALI).<sup>6-9, 10</sup> VALI is the term applied to the adverse effects of intubation and positive pressure ventilation.

Recruitment manoeuvres propose to reverse de-recruitment by an intentional and rapid reinflation of the alveoli. The evidence to support the application of recruitment manoeuvres in paediatrics is at present, sparse and inconclusive. However, it is physiologically sound to suggest that prompt reinflation will minimise atelectasis and minimise the incidence of VALI as has been shown in adult populations.<sup>4</sup>

The purpose of our study is to establish whether manipulating Positive End Expiratory Pressure (PEEP) improves outcomes in terms of end expiratory lung volume and oxygenation in mechanically ventilated paediatrics.

##### **Method**

We are conducting an RCT with a crossover design to determine which of two methods of manipulating PEEP improves relative end expiratory lung volume and oxygenation. Each child becomes their own control by having no recruitment conducted post initial endotracheal suctioning. We then compare two different methods of lung recruitment. The first, a double baseline PEEP for two minutes; the second an incremental increase and decrease of PEEP over eight minutes. The order of intervention is randomized and a washout period of two hours between treatments is allowed to eliminate any hangover effect.

End expiratory lung volume is measured by the use of Electrical Impedance Tomography (EIT). EIT is a non-invasive tool using adhesive electrodes. It generates a circulating electrical stimulus which measures the impedance of biological tissues in real time. Using EIT we are able to quantify both the change in impedance due to air in the lungs and also the regional distribution of gas. Physiological parameters are measured such as heart rate, blood pressure and via a non-invasive ultrasonic cardiac output monitor we are able to measure cardiac index and oxygen delivery. In addition to the RCT, we are conducting Cochrane reviews titled; Lung Recruitment in Mechanically Ventilated Paediatrics to Reduce Respiratory Morbidity and, Lung Recruitment in Mechanically Ventilated Neonates to Reduce Respiratory Morbidity.

##### **Results**

Thus far we are at 90% of recruitment. The time taken to recruit participants is longer than predicted but we anticipate conclusion of data collection by August, 2010. An independent, interim analysis of data indicates that at least one of the methods of lung recruitment has better outcomes than the control arm and that the safety of participants is assured. Nil adverse effects from lung recruitment have been noted.

##### **Conclusion**

We anticipate that one or perhaps, both methods of lung recruitment will improve outcomes in mechanically ventilated children in terms of end expiratory lung volume. Whether this has a positive effect on oxygenation or physiological parameters is unknown at this stage. This research has the potential to improve outcomes for critically ill children that require mechanical ventilation.

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## NURSING STUDENTS' PERCEPTIONS AND ATTITUDES OF SPIRITUALITY AND SPIRITUAL CARE IN PRACTICE

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### Background

Spiritual care is a central element of holistic and multidisciplinary care, but is not often integrated into practice. Some nurses may confuse spirituality with religion and refer this aspect of care to other professionals. There is little exploration of student nurses' perceptions and attitudes towards spirituality and spiritual care. Identifying student nurses' perceptions may inform educational content and practice development activities.

### Purpose

This exploratory study investigated nursing students' perceptions and attitudes about spirituality and spiritual care in practice.

### Method

In-depth interviews were conducted with 16 final year pre-registration nursing students from three different educational institutions offering a degree or diploma programme in Singapore. Data were analysed using the Miles and Huberman (1994) research method.

### Results

Three themes emerged in regards to the construct of spirituality: (1) being human, (2) spiritual well-being, and (3) spiritual awareness. The construct of spiritual care revealed three themes: (1) antecedents for spiritual care, (2) role of nurses in spiritual care, and (3) nurses' spirituality. Themes relating to the construct of factors influencing spiritual care were: (1) personal factors; (2) system factors and (3) patient factors.

### Conclusions

Students perceived spirituality as an innate characteristic of individuals. Spiritual awareness was perceived to develop across the lifespan and was essential for spiritual well-being. Spiritual care required nurses to engage patients in meaningful ways. cursory attention to spiritual care was considered ineffective and students perceived that a comprehensive spiritual assessment was important for care. Participants identified that nurses need to connect with patients in a unique spiritual care-giving relationship. Students also identified that nurses with certain attributes and spiritual awareness were more likely to provide spiritual care. However, students recognised that some nurses may not be equipped to address deeper levels of spiritual care. Education and professional development for effective spiritual care needs to be offered to nurses.

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# QUALITY OF LIFE OF WOMEN NEWLY DIAGNOSED WITH BREAST CANCER

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## Background

In Singapore, breast cancer is the most common cancer diagnosed in women. Over the last three decades, the rate of incidence of breast cancer has risen significantly, with approximately 1100 new cases diagnosed yearly. Women from all three major ethnic groups (Chinese, Malays and Indians) are equally affected. Though it has been reported that breast cancer and its treatment can result in debilitating physical and psychological effects, no studies have been conducted examining the effects of the breast cancer diagnosis and its treatment on the QoL of women in the local setting.

## Study aims

This study aims to examine the effects of the breast cancer diagnosis and its treatment on the QoL of women newly diagnosed with breast cancer.

## Design

The pragmatic paradigm using mixed methods would be the overarching methodology for the current study. Both quantitative and qualitative methods would be used in an integrative way during data collection.

## Significance

The results of this study could lend insight into the domains of QoL most strongly affected by women newly diagnosed with breast cancer. As most studies on breast cancer and QoL have been conducted in the western setting, it remains unclear if the results would be similar among the ethnically diverse population of women in Singapore. The findings of the study will provide more accurate information and would enable the design and implementation of strategies that could help these women come to terms with their emotions and to cope with the disease and its treatment-related effects.

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# HEALTH EXPERIENCES OF ERITREAN REFUGEE FAMILIES IN NOTTINGHAM

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## Background

Health care needs of refugees are complex, reflecting the diversity in their countries of origin and hosting countries. Therefore, exploring the health experiences of refugees from different perspectives, from refugees with various demographic and socio-cultural backgrounds, would be of value. Also, how being a refugee family impacts the health experiences of the family as a unit and compares with health experiences of other refugees is not well understood.

## Aim

The study seeks to explore the health experiences of Eritrean refugee families living in Nottingham by critically examining their: migration journey, health and illness beliefs, experiences of raising children and being refugees, views about health care services they receive, and ways of adjustment to ill health.

## Methods

Utilizing a qualitative research design, the study follows a snowball sampling approach to select participants. Semi-structured in-depth interviews are being conducted with eligible voluntarily consenting refugee parents (approximately 20 refugee families proposed). The interviews are being conducted in Tigrinya or Bilen (Eritrean languages). All interviews are being audio-recorded, transcribed, translated into English, and then will be analyzed thematically using NVIVO-8.

## Progress

The study has been approved by the Medical School Research Ethics Committee, University of Nottingham. As of May 2010 seven interviews each lasting from two to three hours duration have been conducted with 13 parents (40% of the proposed sample). Overall the study has been set to be completed by September 2011.

## Conclusion

This study will add to the existing knowledge of refugee health in general and refugee family health in particular by exploring the health experiences of conveniently selected sample of Eritrean refugee families.