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Submitting author: Dr Shing Yan Robert Lee

Post title: Consultant, Pamela Youde Nethersole Eastern Hospital, NULL

Poultry Model to Teach Neonatal Chest Drain Insertion

Robert Lee, LY So

Department of Paediatrics and Adolescent Medicine, Pamela Youde Nethersole Eastern Hospital

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Introduction

The incidence of pneumothorax requiring chest drain insertion in a neonatal population was quoted as 0.27%.¹ It is highly unlikely for a trainee to master the skill in a short time. A non-animal simulator model and a dead rabbit model have been reported in literature.^{2, 3}

Objectives

To develop an inexpensive and acceptable simulator model that enables trainees to learn chest drain insertion in neonates in a risk-free environment

Methodology

1. Whole chicken was purchased from supermarket 2. A simulation section was organized for 5 paediatric Resident Trainees as a pilot project with two instructors. Insertion of two kinds of chest drains, namely chest tubes and pigtails, was practiced under supervision of instructors. Technique practiced included incision of skin, blunt dissection with mosquito forceps into intercostal muscles, assembling of parts of pigtails and insertion of drains. 3. Feedback from instructors and trainees after simulation was collected. Direct questioning of three options of simulator models are directed to instructors and trainees.

Result

1. Feedback from instructors: The poultry has size and texture resembling closely neonatal chests. The realistic parts are: the presence of skin, ribs and intercostal muscles.. The non-realistic parts are absence of lungs, absence of breathing movement and little blood oozing. 2. Feedback from trainees: They find the section of simulation helpful. 3. Choice of three models: plastic models versus dead rabbit models versus the current poultry model in use. All the trainees preferred the current poultry model. They found the ideas of using dead rabbits repulsive. They suspected that plastic material is not realistic enough. The instructors prefer poultry

model for several reasons. It is inexpensive costing only 35 Hong Kong dollars. No ethical approval is needed unlike experimenting on other animals. For other expensive models, it is inclined to involve as many staff as possible causing disturbance to departmental service. Conclusion: Our poultry model for neonatal chest drain insertion creates a risk-free environment where trainees can have ample practice to improve their skills and gain confidence. It is inexpensive and easily available. References: 1. Ramesh Bhat Y; Ramdas V. Predisposing factors, incidence and mortality of pneumothorax in neonates. *Minerva Pediatrica* 2014; 65:383-8. 2. Gupta AO, Ramasethu J. An innovative nonanimal simulation trainer for chest tube insertion in neonates. *Pediatrics* 2014; 134:e798-805 3. S Garg, Buckely C, Sharp Z, Byrne S. Chest drain insertion and training of neonatal doctors: use of an animal model. *Arch Dis Child* 2012; 97:A501-A502