

## Nurses' Knowledge of Blood Culture Sampling Procedure

Wulan Ardhana Iswari,<sup>1</sup> Chrysanti Murad,<sup>2</sup> Ida Parwati<sup>3</sup>

<sup>1</sup>Faculty of Medicine Universitas Padjadjaran, <sup>2</sup>Department of Microbiology & Parasitology, Faculty of Medicine Universitas Padjadjaran, <sup>3</sup>Department of Clinical Pathology, Faculty of Medicine, Universitas Padjadjaran/Dr. Hasan Sadikin General Hospital Bandung

### Abstract

**Background:** False-positive blood culture results due to contaminated samples have shown to increase patients' health costs, including the use of broad spectrum antibiotics and prolonged hospital length of stay. While previous research have suggested that increasing staff knowledge on proper specimen collection lowers contamination rates significantly, staff's current knowledge of hospital-recommended sample collection procedure have yet to be assessed in Dr. Hasan Sadikin General Hospital, Bandung, Indonesia.

**Methods:** This was a cross-sectional descriptive study on 81 Emergency Department nurses in Dr. Hasan Sadikin General Hospital, Indonesia. Subjects were asked to complete a questionnaire in order to measure their knowledge of blood culture sampling procedure in accordance with the hospital's standard operating procedure.

**Results:** Among 81 subjects enrolled, 51 managed to adequately describe the prerequisites in proper blood culture sampling procedure and their purpose as dictated by Dr. Hasan Sadikin General Hospital's standard operating procedure.

**Conclusions:** Up to 67% of nurses conducting blood sampling procedure in Dr. Hasan Sadikin General Hospital's Emergency Department understood the prerequisites of hospital-recommended blood culture sampling procedure and their purpose. [AMJ.2015;2(1):250-2]

**Keywords:** Blood culture, knowledge, nurses

### Introduction

Blood culture remains the most important diagnostic procedure to detect systemic bacterial infection<sup>1</sup>. However, contaminated samples resulting in false-positive cultures significantly increase patient's financial burden compared to true negative results by prolonging hospital length of stay<sup>2</sup>, prompting the need for additional laboratory tests including second blood cultures<sup>3</sup> and broad spectrum antibiotics<sup>2-4</sup>. Contamination rates vary among institutions from 0.6–6% despite a set target rate of 3%<sup>5</sup> and tends to be higher in teaching hospitals where blood culture sampling is not conducted by a specialized phlebotomy team<sup>6</sup>. Several prevention methods have been proposed, from procedure modifications, installing a dedicated phlebotomy team<sup>5</sup>, to supplementing instruction sheets on blood culture sampling kit<sup>7</sup>. Roth et al.<sup>6</sup> study found that in a setting where phlebotomy is conducted

by nurses and auxiliary nurses, increasing the knowledge of the phlebotomy staff about proper blood culture procedure reduce the rate of contamination significantly (2.59% pre-intervention; 2.23% post-intervention, 95% CI, 0.76 to 0.98)<sup>6</sup>

This study aimed to measure the knowledge of nursing staff in Dr. Hasan Sadikin General Hospital's Emergency Room on proper blood culture procedure according to the guidelines published by Dr. Hasan Sadikin General Hospital's Clinical Pathology Department<sup>8</sup>.

### Methods

This was a cross-sectional descriptive study conducted in Dr. Hasan Sadikin General Hospital Bandung, Indonesia, from October 2012 to December 2012. All 96 nurses in the Emergency Room were asked to fill a self-completed 11-item questionnaire on blood culture sampling procedure tailored according

**Correspondence:** Wulan Ardhana Iswari, Faculty of Medicine, Universitas Padjadjaran, Jalan Raya Bandung-Sumedang Km.21, Jatinangor, Sumedang, Indonesia, Phone: +62 821 1650 7473 Email: wulanardhana@gmail.com