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PREVALENCE, PHENOTYPIC CHARACTERISTICS
AND ANTIBIOGRAMS OF THE CLINICAL
ISOLATES OF METHICILLIN RESISTANT
Staphylococcus aureus (MRSA) AMONG
PEDIATRIC PATIENTS

THESIS

BY JANE C. ANACAN

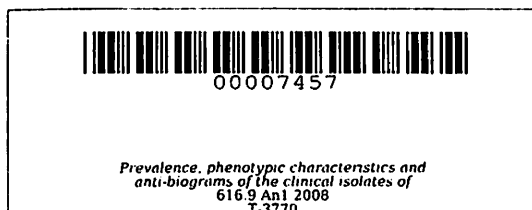
College of Arts and Sciences
CAVITE STATE UNIVERSITY
Indang, Cavite

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**PREVALENCE, PHENOTYPIC CHARACTERISTICS AND ANTIBIOGRAMS
OF THE CLINICAL ISOLATES OF METHICILLIN RESISTANT
Staphylococcus aureus (MRSA) AMONG
PEDIATRIC PATIENTS**

**Undergraduate Thesis
submitted to the faculty of the
Biological Science Department
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Indang, Cavite**

**In partial fulfillment
of the requirements for the degree of
Bachelor of Science in Biology**



**IVY JANE C. ANACAN
April 2008**

ABSTRACT

ANACAN, IVY JANE CORTEZ. PREVALENCE, PHENOTYPIC CHARACTERISTICS AND ANTIBIOGRAMS OF METHICILLIN RESISTANT *Staphylococcus aureus* AMONG PEDIATRIC PATIENTS IN GENERAL EMILIO AGUINALDO MEMORIAL HOSPITAL TRECE MARTIRES CITY, CAVITE. Undergraduate Thesis, Bachelor of Science in Biology. Cavite State University, Indang, Cavite. April 2008. Adviser: Dr. Yolanda A. Ilagan

A study was conducted to assess the prevalence rate, phenotypic characteristics and antibiograms of Methicillin Resistant *Staphylococcus aureus* (MRSA) among pediatric patients in General Emilio Aguinaldo Memorial Hospital Trece, Martirez City, and Cavite.

Nasal swab and questionnaire were provided to each pediatric patient. From 155 children who participated in the study, 88 (57%) were positive for *S. aureus* while 27 (17%) were positive for MRSA.

All isolated *S. aureus* colonies were yellow, circular and with entire margin. The isolates differed in hemolysis: 17 (63%) were gamma hemolytic while 10 (37%) were beta-hemolytic when grown on Blood Agar Plates.

The MRSA isolated from pediatric patient were highly susceptible to kanamycin, tetracycline, gentamicin, norfloxacin, erythromycin, ciprofloxacin, chloramphenicol, vancomycin, lincomycin, clindamycin, rifampicin, and streptomycin. MRSA isolates exhibited low intermediate resistance to β -lactam and non- β -lactam antibiotics. The MRSA isolates resistant in β -lactam were 15 (56%) while in non- β -lactam, 19 (79%) MRSA isolates were resistant to nalidixic acid.

Four MRSA isolates exhibited mono-drug resistance, five bi-drug resistance, two each tri- and tetra-drug resistance and one each hepta- and hexa-drug resistance to non- β -

lactam antibiotics.

The Minimum Inhibitory Concentration (MIC) of β -lactam and non- β -lactam antibiotics to MRSA isolates ranged from less than 4 $\mu\text{g/ml}$ to more than 328 $\mu\text{g/ml}$.

The demographic characteristics of the pediatric patients such as gender, age, address, residential area and number of siblings were not significantly related with MRSA acquisition among pediatric patients in General Emilio Aguinaldo Memorial Hospital Trece Martirez City.

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IVY JANE CORTEZ ANACAN

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INTRODUCTION

Staphylococcus aureus is often associated with skin and soft tissues infections. It is frequently found on the skin or in the nose of a person causing a range of illnesses from minor skin infections, (pimples, boils, cellulites and abscesses) to life-threatening diseases, such as pneumonia, meningitis, endocarditis, toxic shock syndrome (TSS), and septicemia. It is also a common cause of hospital- and community- acquired infections (Kuehnert et al., 2006).

Methicillin-resistant *Staphylococcus aureus* (MRSA) is an infection caused by *S. aureus* which are resistant to the action of methicillin related antibiotics. They are often found in the nose or in the skin of a person. When these bacteria penetrate the skin or invade other parts of the body, infection may result. MRSA are not only resistant to all penicillin-like antibiotics, but they are often resistant to many other types of antibiotics as well (Maranan et al., 1999). Infection with MRSA is costly and difficult to treat because of limited antibiotic options.