

BACTERAEMIA IN NEONATES : A THREE MONTHS  
PROSPECTIVE STUDIES AT HOSPITAL  
KUALA TERENGGANU, TERENGGANU

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A research project submitted  
in partial fulfillment of the requirement for the degree of  
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**UNIT SAINS BIOLOGI  
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UNIVERSITI PUTRA MALAYSIA TERENGGANU**

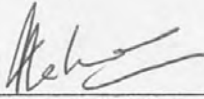
**BORANG PENGESAHAN DAN KELULUSAN**

**LAPORAN AKHIR PROJEK**

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Dengan ini disahkan bahawa saya telah menyemak laporan projek ini dan

- i. Semua pembetulan yang disarankan oleh pemeriksa telah dibuat.
- ii. Laporan ini telah mengikut format yang diberikan dalam panduan BIO 4999 (projek) Unit Sains Biologi, Fakulti Sains dan Teknologi, 1999/2000.

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## ABSTRACT

This final year's report covered some brief techniques and procedures for Clinical Microbiology Laboratory, which employed at Department of Microbiology, Hospital Kuala Terengganu, Terengganu. Clinical Microbiology Laboratory plays an important role in assisting the physicians in their diagnosis of neonates suspected of bacteraemia. Numerous studies have been conducted to better define the clinical relevance and interpretation of positive blood cultures. The techniques involved in the detection of microorganism in the bloodstream have steadily improved with the introduction of continuous-monitoring systems, BACTEC Machine 9240. Specimens collected for microbiological analysis include blood and cerebrospinal fluid (CSF) that were directly sent to the laboratory for culture and sensitivity test procedures.

Blood sample was cultured to detect and identify bacteria or other cultivable microorganisms. The presence of such organisms in blood is called bacteraemia and is usually pathological.

This study was carried out to determine the percentage of bacteraemic infections, their relationship with birthweights, gestational weeks, the incidence of hospital and community acquired. It was also conducted to identify bacteriology of ethiologic agents isolated from neonates and to find prevalence risk factors associated with bacteraemia.

The results of the study indicated that blood and CSF in 39 out of 393 neonates showed the presence of bacteria. The bacteria identified are *Staphylococcus aureus*, *Staphylococcus Coagulase Negative* (SCoN), Methicillin Resistant *Staphylococcus aureus* (MRSA), Group B *Streptococcus* (GBS), Group D *Streptococcus*, *Streptococcus pneumoniae*, *Streptococcus viridans*, *E. coli*, *Klebsiella pneumoniae* and *Citrobacter diversus*.



## ABSTRAK

Laporan projek tahun akhir ini meliputi teknik dan prosedur ringkas di Makmal Klinikal Mikrobiologi di bawah penyelenggaraan Jabatan Mikrobiologi, Hospital Kuala Terengganu, Terengganu. Makmal Klinikal Mikrobiologi memainkan peranan penting dalam membantu Juruteknologi Makmal Perubatan menentukan bakteria dalam darah bayi yang disyaki bakteremia. Beberapa kajian dijalankan untuk mendapatkan perkaitan klinikal dan huraian kultur darah positif dengan baik. Ini termasuklah penggunaan teknik dalam memperkenalkan sistem pengawalan berterusan mesin BACTEC 9240. Specimen termasuk darah dan air tulang belakang bayi diambil dan dihantar ke makmal untuk dikultur dan dijalankan ujian sensitiviti.

Sampel darah dikultur untuk mengesan dan mengecam kehadiran bakteria atau pertumbuhan mikroorganisma yang lain. Kehadiran bakteria dalam darah dikenali sebagai bakteremia dan keadaan ini dikaitkan dengan penyakit.

Kajian ini dijalankan untuk menentukan peratus kadar jangkitan bakteremia, perkaitannya dengan berat lahir dan jangkawaktu lahir serta perkaitannya dengan jangkitan bakteria dari komuniti dan hospital. Kajian ini juga dilakukan untuk mengenalpasti bakteria penyebab kepada penyakit yang diasingkan dari unit perinatal serta faktor yang berisiko bersangkutan denganya.

Hasil kajian menunjukkan bakteria yang dikenalpasti adalah *Staphylococcus aureus*, *Staphylococcus* Coagulase Negative (SCoN), Methicillin Resistant *Staphylococcus aureus* (MRSA), Group B *Streptococcus* (GBS), Group D *Streptococcus*, *Streptococcus pneumoniae*, *Streptococcus viridans*, *E. coli*, *Klebsiella pneumoniae* and *Citrobacter diversus*.

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