Thesis Title	Study on Bacterial Contamination and Associated Factors of Bottle Milk in Infants under 6 Months
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ABSTRACT

The levels of bacteria isolated from bottle milk samples, and factors associated with the bacterial contamination in bottle milk samples obtained from the infants under 6 months of age who came to the Outpatient Department of the Children's Hospital were determined during May to November 1991. Five hundred infants were randomly selected and their parents were interviewed using questionnaires. The bottle milk samples prepared from home were collected for bacteria examination. The results in this study found that 91.8% (459/500) of bottle milk samples contained all types of bacteria and 8.2% (41/500) did not contained any bacteria. Among the positive bottle milk samples, 82.8% (380/459) contained enteric bacteria, and 17.2% (79/459) contained unidentified bacteria. The dominant enteric bacteria isolated from bottle milk samples was Klebsiella spp. (56.6%), followed by Enterobacter spp. (41.3%), Aeromonas spp. (14.4%),

Escherichia. coli (13.4%) which were further identified as enteropathogenic E. coli (EPEC) (7.8% ; 4/51), and enterotoxigenic E. coli (ETEC) (3.9%; 2/51), and Vibrio cholerae non O-1 (1.8%). Among the bottle milk samples, 74.2% contained one type of enteric bacteria, 23.7% contained two types, 1.8% contained three types, and four types of enteric bacteria were found only one sample.

In this study, 94.1% (432/459) of samples had total bacteria count greater than the US government limited number (USGLN; $2x10^4$ CFU/ml) with the geometric mean (GM) of $2.9x10^6$ CFU/ml. The bottle milk samples had coliforms greater than the USGLN ($1x10^2$ CFU/ml) in 87.6% (333/380) with GM of $1.3 x10^4$ CFU/ml. The GM of E. coli was $5x10^3$ CFU/ml, EPEC $1.02x10^4$ CFU/ml, ETEC $1.2x10^6$ CFU/ml, and Aeromonas spp. was $3.5x10^3$ CFU/ml.

The number of feeding-bottles, washing the utensils, and family income were the factors of general characteristics, health behaviors, and socioeconomic status to be significantly associated with the levels of isolated bacteria ($p<0.05$), whereas the other factors were not significantly associated with the isolation of bacteria from bottle milk samples ($p>0.05$). Therefore, information from this study implied that the maternal and child health and sanitation, especially provision of safe drinking water should be improved and emphasized on the health education of bottle feeding, particular on bottle milk preparation, and cleansing the utensils correctly. Each baby should have at least 4 bottles and freshly prepared bottle milk is desirable for feeding.