

Preparation of infant formula in hospitals: evaluation of the degree of hygiene and utensils, surfaces and equipment

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The feeding of infants in hospital involves use of powdered infant milk formulas, which, may not be totally sterile, require the implementation of a set of procedures for control and monitoring circuitry implemented in any area of preparation. Milk-based formulas have been identified as a potential vehicle of emergent microorganism, *Enterobacter sakazakii*. The proliferation of cases of *E. sakazakii* infections in neonatology services, has led European and U.S. authorities to put in question the preparation of food in health institutions and to revise its guidelines. This microorganism can survive for long periods of idle time on formula milk powder until there is reconstitution of the product with water during preparation. The implementation of HACCP (Hazard Analysis of Critical Control Points) and GMP (Good Manufacturing Practice) in a hospital came to promote improved quality and safety in food preparation, being the preparation of infant formula milk powder a special status.

This study's main objective was to evaluate the hygiene of surfaces, utensils and equipment in a unit for preparation of infant formula milk powder of a hospital in Oporto city. The hygiene conditions was evaluated by checking the procedures / operations applied for observation and quantification of total of mesophilic microorganisms (37°C) and Enterobacteriaceae on surfaces, utensils, equipment and still in daily milk after reconstitution of the powder. The results showed some flaws related to sterilize some instruments, reconstitution of powdered infant formula with water at temperatures not recommended and lack of control of temperatures of refrigerators carrying the preparations ready to eat. The results of microbiological testing of surfaces/ utensils/equipment showed that 18/51 samples showed levels of contamination by mesophilic microorganisms. The presence of Enterobacteriaceae (4 CFU / piece) was detected in one place. The analysis of powdered infant formula reconstituted in the day, showed no contamination with Enterobacteriaceae, however, the reconstituted preparations (with 24 hours) had levels of contamination by mesophilic microorganisms significant in 50% of samples. This result is indicative that procedures should be reconsidered, especially those after reconstitution of the formula involving waiting times higher, although they were stored at refrigeration temperatures.