Occurrence of pathogenic bacteria in Danish child care centres
T. Ibfelt*, L. Andersen (Copenhagen, DK)

Background: Pre-school children in day care are often sick, in average they have 6-8 disease episodes per year and most of these are caused by infections. Infections spread not only by direct contact, but also indirectly via toys, nursing pillows and other surfaces in day care centers. There is little knowledge about the type and prevalence of bacteria on these surfaces. Our objective was therefore to determine the prevalence of human pathogenic bacteria in Danish child care center environments. Methods: 220 Environmental samples from 6 Danish child care centers in Copenhagen were analyzed during summer 2011. 40 predetermined spots in each center were sampled using 3M Dip slide™ TV, TSA sampling plates and cotton swabs. After incubation, human pathogenic bacteria were isolated and identified using conventional identification and Maldi-Tof MS. The predetermined spots were situated in the toilet, play room and kitchen and were, among others, toys, tables, nursing pillows and kitchen tables. Results: All samples were polymicrobial, but mostly low-pathogenic bacteria such as Bacillus sp., Acinetobacter sp. and CNS were grown. Pathogenic bacteria were found in 59 (27%) samples. Coliform bacteria were found in 22 (10%), airway bacteria in 33 (15%) and S. aureus in 4 (~2%) samples. The most prevalent coliform bacteria found were Enterobacter and Pantoea sp., whereas the dominant findings in airway bacteria were Non-hemolytic streptococci. These are all bacteria with low pathogenicity, but can be used as indicators of fecal and nasopharyngeal contamination. We did, however, also find more virulent bacteria such as S. pneumonia in 5 samples and S. aureus in 4 samples. The sites with the highest prevalence of coliform bacteria were the nursing pillows, kitchen tables and sinks. Most airway bacteria were found on toys, tables and pillows in the playroom. Conclusion: 27% of all samples contained pathogenic bacteria, most of which were low-pathogenic coliform and airway bacteria. Coliform bacteria were most frequently found on nursing pillows and in the kitchens whereas the most common site for airway bacteria was on toys, tables and fabric surfaces in the playroom. These sites appear to be the most important sites for indirect transmission of infectious microorganisms and therefore need special attention when cleaning and disinfecting in the day care centers.