Preventing Bacterial Transmission in the Kitchen

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Abstract

In recent years, human illness attributed to foodborne pathogenic microorganisms has been prominent in the mass media. This case study was devised with a practical approach, drawing on real life situations in the common kitchen to highlight practical means for controlling organisms like *salmonella* and *E. coli* during food preparation, as well as providing more information on sanitary practices for the general public. The hypothesis was that plastic, a non-porous surface, would hold onto less bacteria than a wooden surface and that antibacterial soap would kill off more bacteria than would non-antibacterial soap. It was also thought that the highest temperature of the lab's tap water (48 C) would kill off all traces of bacteria in the hypothesized conditions. All four variables were tested independently by contaminating the surface with raw chicken, washing the surface, and then bringing a piece of lettuce into contact with the clean board. The observation of the bacteria swabbed and grown on nutrient agar plates showed that the combination of a plastic surface and non-antibacterial dish detergent killed the most bacteria, but not all of it. Another experiment was then set up in response to the initial findings to test the water heat variable. The plastic board was washed with non-antibacterial detergent and 50 C water for the first trial, 60 C water for the second trial, and 80 C water for the last trial. Bacterial growth was found on the plates for both 50 C and 60 C, but the 80 C plate showed no growth. The hypothesis was not only refuted, but also redirected; this study showed water heat to be the most important variable. The study also brought up the issue that the water heater temperature in most households might be too low to completely prevent the chance of bacterial transmission.