Schools serve an estimated 32 million meals daily through the National School Lunch Program (USDA, 2011).

Schools are increasing the amount of scratch cooking, which may result in a need for more cooling.

To keep food safe, the current Food and Drug Administration Food Code (2009) requires that food be cooled to 70°F within two hours and then below 41°F within a total of six hours.

Cooling procedures are needed to ensure adequate cooling and should be part of the school's Food Safety Program.

There is limited research that allows foodservice managers to make informed decisions about cooling methods to assure that food code requirements are met.

The purpose of this study was to determine the effectiveness of food product cooling methods used in school foodservice operations. Methods examined included:

- Walk-in cooler
- Walk-in freezer
- Walk-in cooler with the use of a chill stick
- Walk-in cooler with an ice bath

Two common food products were tested: Chili con Carne with Beans and Tomato Sauce (Meatless).

Both products were prepared using USDA recipes developed for school foodservice operations.

Food was cooled in a walk-in cooler and freezer filled to 80% capacity.

Food was placed at two- and three-inch depths (or 3 gallons of product in a stock pot when using the chill stick) and remained uncovered during cooling.

Food product temperatures were recorded at one-minute intervals during the 135°F to 41°F cooling range.

Three replicates of each method were conducted to establish the average cooling curve.

Three pans of food product were tested in each replicate.

Neither product met either cooling requirement. Three of the four cooling methods did not cool foods within the time guidelines of the FDA Model Food Code. Food cooled using a still chill stick did not meet cooling requirements. This method required the longest cooling time.

Cooling procedures in the walk-in freezer was the only cooling method that met FDA Model Food Code requirements.