

MICROBIOLOGICAL QUALITY AND HANDLING PRACTICES OF COOKED PIZZA FROM A SELECTION OF PIZZERIAS IN TORONTO'S NORTH REGION

INTRODUCTION

Pizza is a potentially hazardous food (PHF) that provides a hospitable environment for harmful microorganisms to grow without proper time and temperature control (1). Baking destroys vegetative pathogens as moisture is removed from the exterior surface, impeding bacterial growth (2). Recent amendments to the Ontario Food Premises Regulation requires PHF to be held at room temperature for a maximum of 2 hours, challenging a long-standing exemption made for cooked pizza. The purpose of this study was to determine operator compliance to current regulations by evaluating food handling practices and potential contamination of cooked pizza in select pizzerias.

METHODS

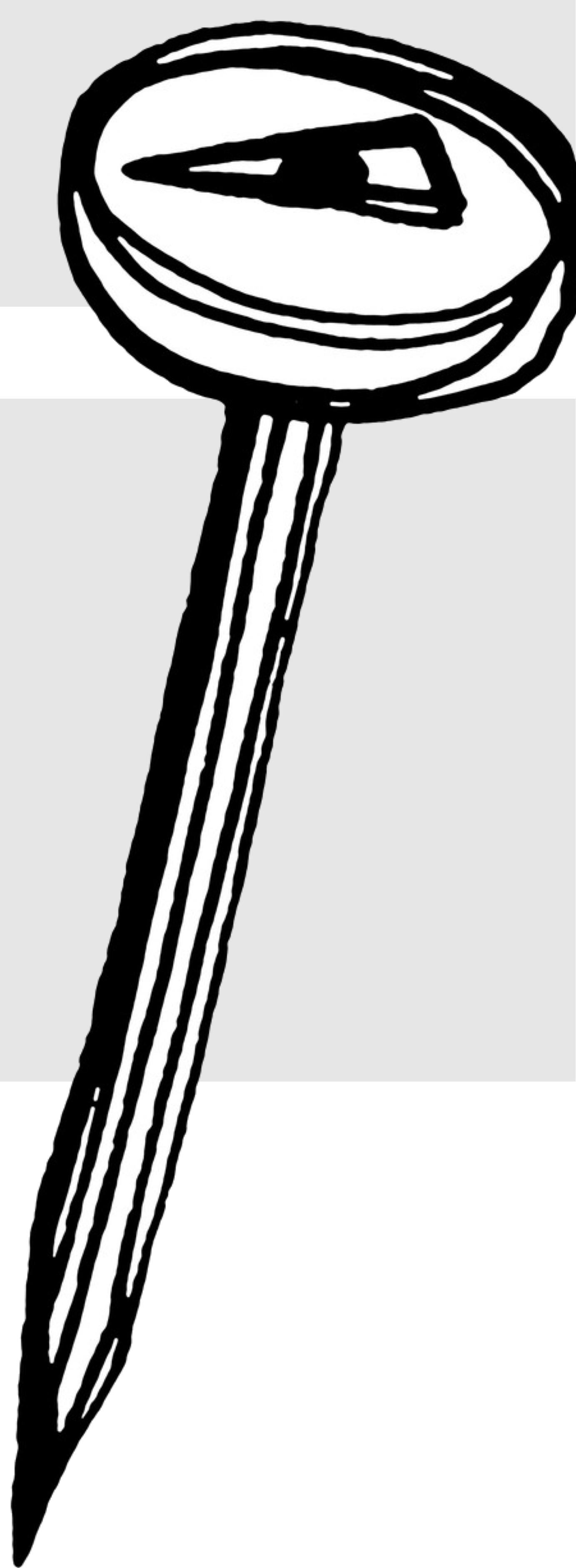
All pizzerias in the study area were identified using the DineSafe database maintained by Toronto Public Health. A randomized selection of restaurants ($n = 14$) were visited over 2 days in November 2018. A paper-based questionnaire was administered to consenting operators to identify food handling practices, in addition to demographic and restaurant characteristics. Cooked pizza samples ($n = 28$) were collected at each restaurant using aseptic techniques. Depending on the availability at the time of the visit, 2 slices were collected: either two cheese or two pepperoni. One slice was placed immediately in a chilled cooler. The second slice was held for an additional 5-6 hours at room temperature, then chilled. Samples were examined for the presence of Enterobacteriaceae (EB) and *Staphylococcus aureus*. Reported counts of <100 CFU/100g for EB was considered satisfactory (3) with reported counts of <25 CFU/g considered as acceptable for *S. aureus* (4).

DISCUSSION

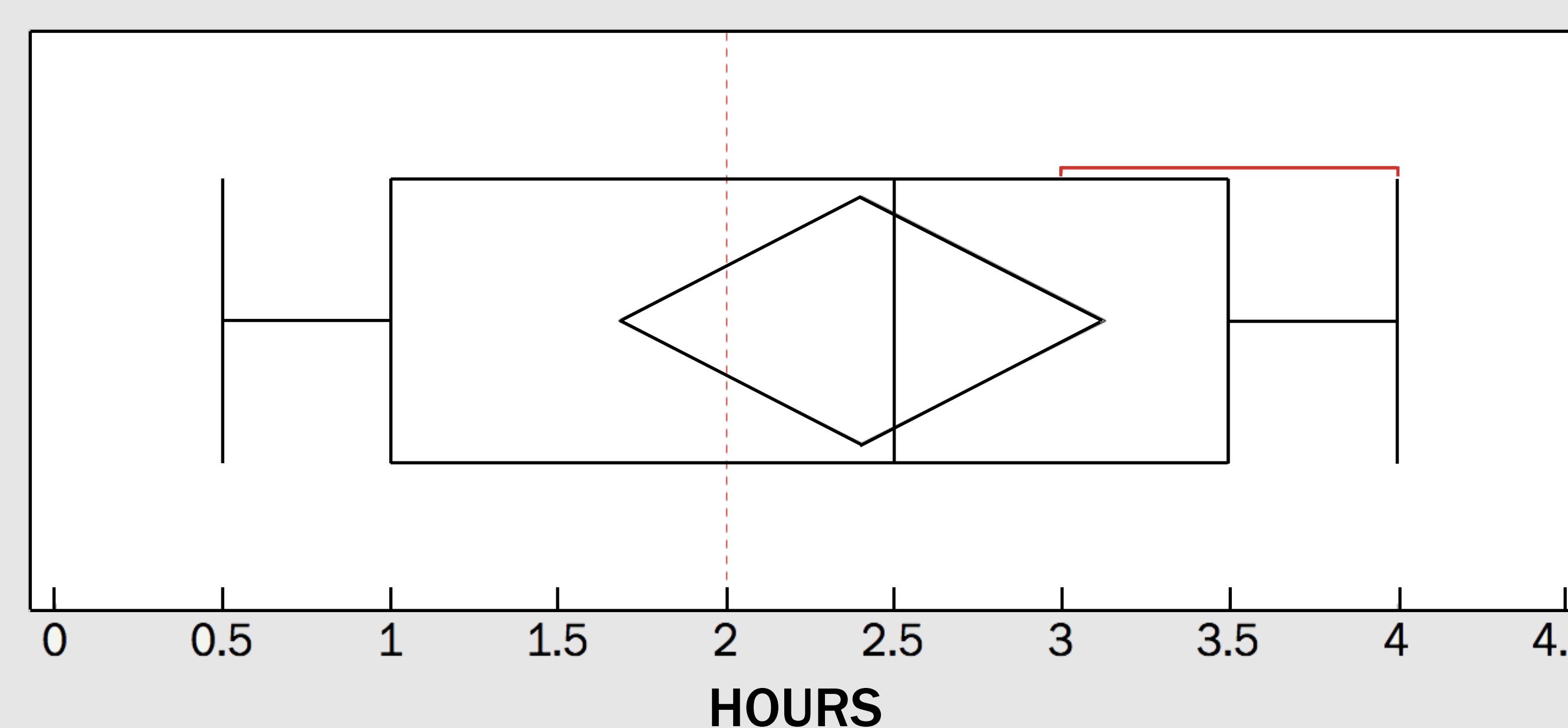
Time as a public health control is becoming a practical alternative to conventional temperature control. However, application in the field can be challenging when procedures are inconsistently enforced by public health inspectors and/or followed by food premise operators (5). Results from this study suggest a knowledge gap and inconsistencies in food handling and sanitary practices among operators serving cooked pizza; consequently, creating opportunities for potential post-processing contamination to occur.

CONCLUSION

Cooked pizza can be safely held for 2 hours at room temperature given that criteria for time, temperature, and sanitary controls are met. Delayed compliance to current regulations by operators suggests complacency; therefore, the previous exemption should remain terminated. To ensure compliance, public health inspectors should prioritize the enforcement of this PHF during routine food safety inspections.



REPORTED MAXIMUM HOLDING TIME



RESULTS

- 78.6%** Monitored the holding time of cooked pizza at room temperature
- 21.4%** Correctly identified the maximum 2 hour holding time
- 57.1%** Disposed cooked pizza immediately when maximum holding time was reached
- 28.6%** Had documented cleaning schedules and records
- 50.0%** Had at least one certified food handler on premise during operating hours
- 27/28** Samples reported satisfactory/acceptable results for EB and *S. aureus*
- 1/28** Single sample reported a marginal count of 280 CFU/100g for EB

AERI CHUNG, RICHARD MELDRUM & IAN YOUNG
School of Occupational and Public Health
Ryerson University

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