Video Observation of Hand Hygiene Compliance in a UK Manufacturer of Ready-to-Eat Pie and Pastry Products.

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Introduction

Hand hygiene is one of the most effective methods for preventing cross-contamination. Food handlers have a major role in the prevention of foodborne illness during food production, consequently food handler failure to properly wash hands is frequently reported to be implicated in the spread of foodborne illness. Although informative, food safety cognitions are not indicative of actual practices and may be subject to bias, therefore food handlers may demonstrate awareness of food safety, however may fail to translate knowledge into safe practices. For this reason observational data are superior to survey data. However, during direct observations, researcher presence can increase subject reactivity, whereas video observation provide a more comprehensive analysis over a sustained period, where familiarity reduces reactivity bias. Previous video observation research have assessed food handler hygiene behaviours at retail/catering settings, however, this method of assessment has been under-utilised in food and drink manufacturing and processing business (FDMPB) environments. Therefore, there is a need to explore the feasibility of conducting video observation of food handlers in FDMPBs to assess hand hygiene practices.

Purpose

To assess the feasibility of using video-observation to evaluate food handler hand hygiene practices in FDMPBs and utilise the technique to determine the compliance of hand hygiene practices in a FDMPB to company hand hygiene protocol.

Methods

- In-depth interviews with FDMPB managers/technical supervisors (n=11) identified hand-hygiene protocols, training procedures and explored the acceptability of video-observation to assess compliance.
- One FDMPB was selected to conduct the observational study.
- Footage from the production hygiene area (24 hours) was reviewed to assess compliance with procedure. Observed practices were recorded using a specifically designed Qualtrics database.
- Recorded data included; duration, occurrence (exit/entry), gender, role (food handlers/hygiene/engineering), personal protective equipment (PPE), observed malpractices, procedure adequacy and compliance.
- Descriptive analysis and inferential statistics were conducted using a Microsoft Excel database and IBM SPSS Statistics package 23.

Results

- Video Observation of Hand Hygiene Compliance in a UK Manufacturer of Ready-to-Eat Pie and Pastry Products.

FDMPBs had unique hand-hygiene protocols with variable details. Interviews identified positive attitude towards using video-observation to assess hand-hygiene compliance. Although it was common for FDMPBs to have cameras recording activity in factories including hand hygiene areas, none had the resource/time to conduct frequent/structured observation of footage, cameras were used for security and would be referred to in the event of an incident.

Significant behavioural differences between staff roles

Significant differences were determined between staff roles. Food handlers (identifiable in white overall) were observed implementing hand-hygiene practices of significant longer durations (Mdn=19 seconds, n=456) than engineering and hygiene staff (identifiable in blue overall) (Mdn=15 seconds, n=135) (U = 25066.5, z = -3.281, p<0.001, r = 0.12). Differences in hand hygiene practices before entering production were explored further. As indicated in table 1, it was determined that engineers/hygiene staff were significantly less likely (p<0.05) of wetting hands first, using soap, rubbing hands palm to palm and were significantly (p<0.001) more likely of failing to attempt to implement any hand hygiene procedure. Findings suggest food handlers may perceive hand-hygiene to be of greater importance than hygiene/engineering staff. However, no significant difference occurred in compliant attempts between engineering/hygiene staff and food handlers (p>0.05).

Observational outcomes indicate improvements in hand hygiene practices are required among all staff.

Hand Hygiene duration

The FDMPB protocol states the duration of the procedure should take 40–60 seconds (from wetting hands through to drying of hands). Hand-hygiene duration ranged from 1–69 seconds (Figure 2). In total, the duration of only 6.3% of attempts at point of entry were in adherence with the procedure (>40 seconds). The median duration of the entire hand decontamination procedure was 17 seconds.

Significance of study

- Video-observation data provided an in-depth insight into hand-hygiene compliance when entering production and thus illustrated a valuable and useful resource for FDMPBs.
- Although the majority implemented hand-hygiene practices, extensive malpractices were observed that were contrary to FDMPB policy, may compromise food-safety during food production.
- The study identified site-specific issues to inform the development of a training and educational intervention to improve hand-hygiene practices among staff.
- Cognitive research is required to explore potential factors that influence hand hygiene differences between hygiene/engineering staff and food handlers and identify the potential barriers that exist for staff to adequately implement hand-hygiene practices.

References


Handouts

All posters from the ZERO2FIVE Food Industry Centre are available for download from: www.cardiffmet.ac.uk/health/zero2five/research