

Evaluation of Food Hygiene Rating Scheme Inspection Reports in UK Food-service Establishments.

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Introduction

Internationally, catering establishments are associated with the largest proportion of foodborne illness (FBI) (Jones *et al.* 2008). Restaurants are particularly implicated in the occurrence of foodborne outbreaks in England and Wales (Gormley *et al.* 2012). Small and medium-sized enterprises (SMEs) account for 43% of catering establishments (DEFRA, 2016) and may not be as highly regulated as food manufacturing organisations. However, good hygiene practices and an effective food safety management system (FSMS) are essential to minimise the risk of FBI. In the UK, Environmental Health Officers (EHOs) monitor and regulate such businesses using enforcement inspections under the Food Hygiene Rating Scheme (FHRS) previously referred to as 'scores on doors' (FSA, 2015). It aims "to reduce the incidence of food-borne illnesses in the UK population" (Vegeris, 2015) and comprises assessment of hygiene, structure and confidence in management and businesses rated between 0 to 5.

Purpose

This study evaluated enforcement inspection reports to quantify food-hygiene contraventions in catering SMEs with the aim of identification of frequently occurring violations.

Methods

- Food Hygiene Inspection reports were analysed from two local authorities (rural and urban) in South-West England, selected using opportunistic sampling.
- Twenty percent of catering inspection reports from 2013 to 2016 were selected (n=299) using an archive retrieval approach (Green and Kane, 2014) and predetermined inclusion/exclusion criteria.
- The inspection reports sample included restaurants, pubs, cafés, mobile vans, hotels and bed & breakfasts serving food. Establishments that were part of a chain were excluded due to potentially being subject to independent audits commissioned by a parent company and operated to standardised food safety management systems.
- Hygiene contraventions were categorised into 19 categories and analysed using content-analysis.
- A descriptive statistical analysis was undertaken using Microsoft Excel (2016) and SPSS (Version 23).

This study received ethical approval from the Cardiff Metropolitan University Healthcare and Food Ethics Panel (Reference 8172).

References

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Results

- Overall, 299 inspection reports were analysed (Table 1).
- The majority of catering SMEs were based in an urban location (54%) and 46% based in a rural setting.
- The majority (65%) of business types were classified as 'restaurants', 'cafes' or 'canteens'.
- Common hygiene contraventions associated with increased risks FBI were identified.

Table 1. Profile of sampled inspection reports

Type of Business	Urban LA n=161 (%)	Rural LA n=137 (%)	Overall sample n=299 (%)
Hotel Guest House	1 (<1)	17 (12)	18 (6)
Mobile Food Unit	10 (6)	2 (2)	12 (4)
Pub Club	30 (19)	14 (10)	44 (15)
Restaurant Café Canteen	97 (60)	95 (69)	193 (65)
Takeaway	20 (12)	9 (7)	29 (10)
Restaurant Caterer other	3 (2)	0	3 (1)

Food Hygiene Ratings

- Cumulative Food Hygiene Ratings are presented in Table 2; findings indicate the majority (72%) of catering SMEs achieved a score of 4 or 5; however, the specific scores associated with 'hygiene' assessment indicated no serious contraventions requiring 'major' or 'urgent improvements'.
- Whilst overall 85% of catering SMEs rated specific hygiene scores as 'good' or 'very good' across both Local Authorities, the proportion in the rural location was higher (93%), compared with (78%) in urban area.
- Proportionally, takeaways were associated with higher Food Hygiene Scores than other catering SME businesses.



Table 2. Hygiene Contraventions by Business Type

Type of Business	Cumulative Food Hygiene Rating (including Hygiene, Structure and Confidence in Management categories) (n=299) n (%)					Specific Food Hygiene Scores					
	1	2	3	4	5	Very Good (0)	Good (5)	Generally satisfactory (10)	Improvement necessary (15)	Major improvement necessary (20)	Urgent improvement necessary (25)
Hotel Guest House (n=18)	2 (11)	0	0	2 (11)	14 (78)	6 (33)	10 (56)	1 (6)	1 (6)	0	0
Mobile Food Unit (n=12)	0	0	1 (8)	4 (33)	7 (58)	4 (33)	6 (50)	2 (17)	0	0	0
Pub Club (n=44)	2 (5)	2 (5)	5 (11)	11 (25)	24 (55)	11 (25)	25 (57)	7 (16)	1 (2)	0	0
Restaurant Café Canteen (n=193)	10 (5)	4 (2)	10 (5)	35 (18)	134 (69)	71 (37)	90 (47)	24 (12)	8 (4)	0	0
Restaurant Caterer other (n=3)	0	0	0	2 (67)	1 (33)	2 (67)	1 (33)	0	0	0	0
Takeaway	5 (17)	2 (7)	1 (3)	7 (24)	14 (48)	5 (17)	15 (52)	7 (24)	2 (7)	0	0
All	19 (6)	8 (3)	17 (6)	61 (20)	194 (65)	99 (33)	147 (49)	41 (14)	12 (4)	0	0

Hygiene contraventions in catering SMEs

- Cumulatively, 160 (53%) catering SMEs food hygiene inspection reports included up to seven food-hygiene contraventions (see Table 3).
- Cross contamination was included in 72 (24%) of reports indicating lack/inadequate segregation of raw and cooked items, uncovered food and dirty food contact surfaces.
- Stock rotation contraventions were indicated in 65 (22%) of reports, concerned with mainly out-of-date or non-labelling of food.
- Poor temperature control was recorded in 47 (16%) of reports indicating high-risk food above 8°C or food stored at ambient temperature.
- Personal hygiene contraventions were recorded in 42 (14%) of reports predominately associated with inadequate facilities for hand-washing and failure to provide / inadequate protective clothing.
- Reasons for violations may be multifaceted and underlying issues need to be addressed/corrected to ensure consumer safety and regulatory adherence.
- Some hygiene issues were commonly associated with a business type e.g. poor temperature control more prevalent in takeaways; rice left at ambient temperatures was notably commonly recorded in Chinese cuisine takeaways and restaurants (see Table 4).

Table 3. Frequent hygiene contraventions.

- Cross Contamination**
 - Inadequate segregation raw & cooked items, uncovered foods
 - Dirty work surfaces
 - Use of inappropriate chemicals
- Stock Rotation**
 - Food not labelled or incorrectly labelled
 - Items beyond use by / best before dates
- Poor Temperature Control**
 - High risk foods held above 8°C in storage / left at ambient
 - Hot Food held below 63°C
- Personal Hygiene**
 - Hand wash facilities not provided/inadequate
 - Protective clothing not worn

Table 4. Hygiene contraventions according to business type.

Contravention Type	Total sample n=299 (%)	Hotels/Guest house/B & B n=18 (%)	Mobile Food Unit n=12 (%)	Pub/Club n=44 (%)	Restaurant / Café/Canteen n= 193 (%)	Restaurants and caterers n=3 (%)	Take-away n=29 (%)
Personal Hygiene	42 (14)	0	2 (17)	8 (18)	24 (12)	0	8 (28)
Temperature Control	47 (16)	3 (17)	2 (17)	5 (11)	30 (16)	1 (33)	6 (21)
Cross contamination	72 (24)	4 (22)	5 (41)	18 (41)	42 (22)	0	3 (10)
Cleaning	48 (16)	2 (11)	1 (8)	9 (20)	23 (11)	1 (33)	12 (41)
Stock rotation	65 (22)	5 (45)	1 (8)	8 (18)	42 (22)	1 (33)	8 (27)

Significance of study

- Three of the most common factors cited in outbreaks - time/temperature abuse, poor personal hygiene and cross contamination - are directly related to food safety practices of employees, organisational factors and are preventable if recommended practices are implemented, resources provided and food safety behaviours enforced.
- Contravention frequency data can inform the development of targeted interventions approaches to focus/maximise impact and reduce the risk of FBI. Such data has implications for the understanding and improvement of food safety culture.