

# Evidence of relationship between food business hygiene compliance and measures of food safety

Area of research interest: [Innovative regulator](#)

Conducted by: Food Standards Agency

## About this research

Estimating the direct impact of food business hygiene compliance on food safety is challenging due to a variety of reasons including:

- underreporting of foodborne illnesses
- difficulty of linking foodborne illness to particular food establishments
- differences in reporting practices and access to health care between local authorities
- difficulty in determining whether the illness was contracted through food or other sources e.g. person to person contact

This project looks at the relationship between compliance with food hygiene law, as reflected in Food Hygiene Rating Scores (FHRS), and measures of food safety.

## Research approach

In order to build up evidence for the relationship between compliance with food hygiene law and food safety, a series of statistical analyses were conducted using intermediate measures of food safety:

- The relationship between food business compliance and microbiological contamination sample outcomes
- The relationship between food business compliance and identified foodborne disease outbreaks

Data was taken from two different datasets holding microbiological samples results. These provided 37,304 and 7,115 sample results respectively which were linked to the premises FHRS rating prior to the sample being taken. Similarly, 150 outbreaks were linked to premises to obtain their FHRS rating prior to the outbreak. Once the data had been linked a statistical analysis was undertaken to determine if there were differences between a premises FHRS rating and the likelihood of an unsatisfactory microbiological result or an outbreak of foodborne illness.

## Results

Although compliance with food hygiene law does not eliminate the risk of outbreaks or unsatisfactory samples results, this analysis indicates that premises with higher Food Hygiene Rating Scheme (FHRS) ratings are less likely to have unsatisfactory results or encounter outbreaks.

- For microbiological contamination, broadly compliant (FHRS rating 3, 4, or 5) premises are likely to have a smaller proportion of unsatisfactory samples than not broadly compliant (FHRS rating 0, 1, and 2) and poorly compliant (FHRS rating 0 and 1) premises. Fully compliant (FHRS rating 5) premises are likely to have a smaller proportion of unsatisfactory samples than all other premises.
- Similarly, outbreaks are less likely to occur at broadly compliant premises than not broadly compliant premises

This approach is suitable for identifying an association between variables but cannot be used to determine causation. Therefore, the evidence presented may show that the food safety measures change as FHRS ratings change but cannot be used to conclude that the changes in ratings drive the changes in the food safety measures.

The report has also been published as a [journal paper on ScienceDirect platform](#).

Research report

PDF

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