The Food Standards Agency (FSA) commissioned NatCen Social Research to explore the impact of the Food Hygiene Rating Scheme (FHRS) and the Food Hygiene Information Scheme (FHIS) on levels of business compliance with food hygiene law and on the incidence of foodborne illness. The report has recently been published on the FSA website at: http://www.food.gov.uk/sites/default/files/fhrs-fhis-eval2011-14foodborne.pdf

As the report is detailed and technical, we have produced this short summary.

What are these schemes?

1. The Food Hygiene Rating Scheme (FHRS) operating in England, Wales and Northern Ireland was formally launched in November 2010 and the Food Hygiene Information Scheme (FHIS), operating in Scotland, was piloted from November 2006 with full roll out beginning in January 2009.

2. The schemes are FSA/local authority partnership initiatives which provide consumers with information about hygiene standards in food premises at the time they are inspected to check compliance with legal requirements. The FHRS rating or FHIS result given to the business reflects the inspection findings. The transparency that the schemes provide enables consumers to make informed choices about where to eat out or shop for food and aims to incentivise businesses to improve hygiene standards.

3. Under the FHRS, businesses are given one of six ratings on a numerical scale from ‘5’ (very good hygiene standards) at the top to ‘0’ (urgent improvement required) at the bottom. Under the FHIS, businesses are given either a ‘Pass’ result or an ‘Improvement required’ result.


What were the aims of the study that NatCen Social Research undertook?

5. As highlighted above, one of the FSA’s aims in introducing the FHRS and FHIS was to provide an incentive for businesses to improve hygiene standards so
that they meet (comply with) the requirements of food hygiene law. In doing so, we wanted to reduce the number of cases of food poisoning in the UK. The NatCen study was undertaken to explore these two issues.

How were hygiene standards and levels of food poisoning measured?

Hygiene standards
6. Data on levels of compliance with hygiene legislation in food businesses – their hygiene standards - is collected annually by the FSA from local authorities across the UK. This data was used to explore the impact of the FHRS and FHIS on food hygiene standards using different measures:
   - the proportion of ‘poorly compliant’ premises – this means businesses that had compliance levels at the time of the last inspection equivalent to a FHRS rating of either 0 or 1;
   - the proportion of ‘broadly compliant’ premises – this means businesses that had compliance levels at the time of the last inspection equivalent to a FHRS rating of 3, 4 or 5; and
   - the proportion of ‘fully compliant’ premises – this means businesses that had compliance levels at the time of the last inspection equivalent to a FHRS rating of 5 (as such ‘fully compliant’ premises are a subset of those that are ‘broadly compliant’).

Although these measures are described in terms of equivalent FHRS ratings, they can still be used for businesses in Scotland that are covered by the FHIS as all UK local authorities make an underlying assessment of compliance levels in a business using the same approach.

Food poisoning
7. To explore the impact of the schemes on food poisoning, the number of formally notified food poisoning reports,¹ confirmed Campylobacter laboratory reports and confirmed Salmonella laboratory reports were used. The number per million of population was calculated for each of these three measures.

How was the impact of FHRS and FHIS assessed?

8. The impact of the FHRS and FHIS on hygiene standards and on food poisoning was assessed using a statistical technique known as difference-in-difference. In essence, this involved comparing data for two groups of local authorities: one group that had introduced the FHRS or FHIS; and an equivalent group that had not. For hygiene standards, the change in the proportion of ‘poorly compliant’, ‘broadly compliant’ and ‘fully compliant’ businesses was compared. For food poisoning, the change in the number of cases of food poisoning per million of population was compared. Comparisons were made using data for 2011/12 and 2012/13 - one year and two years after the schemes were introduced.

¹ Registered medical practitioners have a statutory duty to notify their local council or local health protection team of suspected cases of certain infectious diseases including food poisoning. Further details may be found at [https://www.gov.uk/government/collections/notifications-of-infectious-diseases-noids](https://www.gov.uk/government/collections/notifications-of-infectious-diseases-noids)
9. Comparisons of food hygiene standards were made for FHRS for England, Wales and Northern Ireland together, and for England separately. It was not possible to assess Wales and Northern Ireland separately as the number of authorities is small and the majority adopted the FHRS at the same time. A separate comparison was made for Scotland using data for local authorities that had adopted FHIS and those that were still to do so. As regards food poisoning, data was available at the level of individual local authority only for England and Wales so Northern Ireland and Scotland were not included in this part of the study.

10. The trends in food hygiene standards and the number of food poisoning cases in each of the two groups of local authorities were first assessed for the period before 2011/12. This was to check there were no major differences between the groups in terms of general trends, both in direction and rate of change, before the FHRS was introduced or the FHIS was rolled out. This does not mean that both groups have the same starting values for each measure, just that they were moving in the same direction at similar rates.

11. It was recognised that factors other than the introduction of the FHRS or FHIS might also have had an impact on the hygiene standards and the number of cases of food poisoning during the period of interest. These include factors such as: the population density; the proportion of the population of 14 years of age or under; the density of businesses in different areas; and the number of local authority officers dealing with food hygiene. These factors were included in the statistical analysis and adjustments made to reflect their impact.

12. It was also recognised that take-up of both the FHRS and the FHIS by local authorities occurred more quickly than originally anticipated, with 95% adopting FHRS and 75% adopting FHIS by end of 2012/13. This restricted the number of authorities that could be included in the analysis and meant that any impact found may be an under-estimate of the full impact.

What were the findings?

Hygiene standards

13. The findings are summarised in Table 1.

14. For FHRS as a whole (England, Wales, and Northern Ireland) in the first year, the increase in the proportion of businesses that were ‘broadly compliant’ was statistically significant increasing to 91.0%.\(^2\) This is 2% higher than it is estimated would have happened without FHRS. Similarly, the increase in the proportion of businesses that were ‘fully compliant’ in the second year was statistically significant moving to 54.7%, which is 3.3% higher than would be expected without FHRS. The findings also show a greater reduction in the proportion of ‘poorly compliant’ businesses for the group of local authorities operating the FHRS. For both years, this was statistically significant. Similar findings were also found in England on its own.

\(^2\) The likelihood that a result or relationship is caused by something other than mere random chance. This can be assessed at different levels of likelihood, in this case at 95% and 99% confidence levels. If a result is statistically significant at the 95% level then there is a 1 in 20 chance of getting such a result randomly. At 99% level this increases to a 1 in 100 chance.
15. For the FHIS in Scotland, although the general pattern was the same, the differences in compliance levels in local authorities operating the scheme compared with those that were yet to launch it were not statistically significant.

Table 1 – Impact on compliance rates in local authorities that had adopted the FHRS or the FHIS

<table>
<thead>
<tr>
<th>Time after roll-out</th>
<th>Proportion of ‘poorly compliant’ businesses (%)</th>
<th>Proportion of ‘broadly compliant’ businesses (%)</th>
<th>Proportion of ‘fully compliant’ businesses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Est. without FHRS / FHIS</td>
<td>Impact of FHRS /FHIS</td>
</tr>
<tr>
<td>FHRS in England, Wales and Northern Ireland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td>5.8</td>
<td>7.7</td>
<td>-1.9***</td>
</tr>
<tr>
<td>2 years</td>
<td>4.7</td>
<td>6.4</td>
<td>-1.7**</td>
</tr>
<tr>
<td>FHRS in England only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td>4.6</td>
<td>6.3</td>
<td>-1.7***</td>
</tr>
<tr>
<td>2 years</td>
<td>4.0</td>
<td>5.5</td>
<td>-1.5**</td>
</tr>
<tr>
<td>FHIS in Scotland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year</td>
<td>7.0</td>
<td>8.2</td>
<td>-1.2</td>
</tr>
<tr>
<td>2 years</td>
<td>7.1</td>
<td>7.6</td>
<td>-0.5</td>
</tr>
</tbody>
</table>

Note - ** and *** denotes statistical significance at the 95% and 99% confidence level respectively

Food poisoning

16. In undertaking this work, significant data limitations were acknowledged. The number of reported food poisoning cases is known to be significantly lower than the actual numbers that occur, because, for example, many people do not visit their GP when they become ill. There is also an absence in most reported cases of information on the location where the illness was contracted including whether it was acquired in the home or outside the home. Additionally, for Campylobacter and Salmonella it was not possible to distinguish between cases attributable to food and to those attributable to other sources. Although a statistically significant result was found one year after FHRS roll-out, which suggests the scheme reduced the incidence of food poisoning, there was no evidence suggesting that the scheme reduced the incidence of either Campylobacter or Salmonella. Given the data limitations, and that this was the only significant result, these findings must be treated with extreme caution.

What next?

17. Since this work was completed, legislation was introduced in Wales to provide for mandatory display of ratings at food premises and similar legislation is expected to be introduced in Northern Ireland in 2016. The FSA is now working to strengthen the case for mandatory display in England and, as part of that, is
planning to undertake a study in 2015 to explore the impact of mandatory display on compliance levels.

Food Standards Agency
April 2015