Exploring food attitudes and behaviours in Scotland: Findings from the Food and You Survey 2012

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Exploring food attitudes and behaviours in Scotland: Findings from the Food and You Survey 2012

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Executive summary and Chapter 7: Looking ahead

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Executive summary

This report presents findings from Wave 2 of the Food and You survey for Scotland, commissioned by the Food Standards Agency (FSA). Food and You examines attitudes, reported behaviour and knowledge relating to food safety issues and healthy eating. It provides data on food shopping, storage, preparation, consumption and factors that may affect these, such as eating habits, influences on where people choose to eat out and experiences of food poisoning. Wider food safety issues, including levels of awareness, knowledge and concerns about new food production technologies such as genetic modification and irradiation were also explored. Two chapters on healthy eating examine attitudes, reported behaviour and knowledge towards healthy eating and nutrition.

The first wave of the survey was carried out in 2010, and this second wave provides data from 2012. This wave also saw the development of an index of recommended practice for food safety which has been used to explore socio-demographic differences in reported food safety practices in more depth.

The survey consisted of 507 interviews among a representative sample of adults aged 16 and over (with no upper age limit) across Scotland.

This summary brings together key findings from across the report (Chapters 2 -8). The concluding chapter (Chapter 9) discusses, from the perspective of FSA Scotland with input from the FSA's Social Science Research Unit, the contribution of Food and You to the wider evidence base on food safety practices and healthy eating, and considerations for the future.

Eating, cooking and shopping (Chapter 2)

Around two-thirds (68%) of respondents reported that they cooked and prepared food for themselves at least five times a week. When asked whether they had made any changes to their eating arrangements in the last six months for financial reasons, 28% reported that they had bought more items on special offer and 16% reported eating at home more (a decrease compared to 21% in Wave 1).

Half of respondents (55%) reported doing a main shop on a weekly basis and 96% said they used large supermarkets. Respondents in Scotland were more likely to report that they shopped at independent fishmongers (18%) than respondents in Northern Ireland (5%) and England (8%).

Food safety in the home (Chapters 3 and 4)

The extent to which reported food safety practices followed FSA recommendations varied substantially between socio-demographic groups and also differed depending on the type of practice.

Using a composite measure of domestic food safety practices, an index of recommended practice (RP) was developed (see Chapter 4) in order to identify which socio-demographic groups *overall* were less likely to report behaviour in line with recommended practice. Fourteen questions from the survey were included, based on FSA recommended practices which, if not followed, were most likely to increase the chances of contracting a foodborne illness. The index ranged from all reported practices being in line with Agency guidance (0), to all practices not being in line with Agency guidance (10). A fifth (22%) of respondents were classified in the upper band of the index (5 or more on the index). The most common areas that respondents reported practices that were not in line with RP were Use By dates (90%) and chilling (83%).

Using regression analysis, the following groups were found to be more likely to be in the upper band of the index (score of 5 or more) and therefore **less** likely to report food safety practices in line with Agency guidance:

- **Men**
  Male respondents were more likely than female respondents to be in the upper band of the index (their odds of being in the upper band were 90% higher than the odds for women[1]).

- **Older respondents** aged 55 to 64 and 75 or older.
  The odds of a respondent aged 75 or older being in the upper band of the index were 260% higher than the odds of a respondent aged 35-44. Likewise, compared with the odds of a respondent aged 35-44, the odds for a respondent aged 55-64 were 210% higher.

- **Respondents in Scotland**.
  Compared to respondents in Northern Ireland, respondents in Scotland were more likely to be in the upper band of the index (the odds of being in the upper band were 50% higher for respondents living in Scotland. The odds for respondents in England of being in the upper band were 90% higher than respondents in Northern Ireland.

Looking at individual food safety practices (Chapter 3), the survey found that the majority of reported **cleaning** practices were in line with Agency recommended practice; 83% of respondents stated they wiped down kitchen surfaces at least once a day and 86% reported always washing their hands after handling raw meat, poultry or fish while 85% reported doing so before starting to prepare or cook food.

[1] The odds refer to the odds ratio of the logistic regression used for this analysis. They indicate the size of the effect, that is, by how much a variable increases or decreases the likelihood of being in the upper band of the index compared with the reference category. For more explanation, see Chapter 4 and Technical Appendix 10.3.

Reported practices for **cooking and re-heating** were also largely in line with recommended practice; 85% of respondents reported always cooking food until it was steaming hot and most respondents reported never eating chicken or turkey (93%), or burgers or sausages (86%), if they were pink or had pink/red juices. Three-quarters (74%) of respondents reported that they would only re-heat food once.

Most respondents reported practices of fridge storage that were in line with FSA advice on preventing **cross-contamination**; three-quarters (74%) of respondents reported keeping food in certain parts of the fridge and, of these, 80% reported that the reason for this was to stop cross-contamination. Fewer respondents reported practices in line with FSA advice to never wash raw meat and poultry (32%).

Reported practices for **chilling** were the least likely to be in line with recommended practice; 38% of respondents reported that they check their fridge temperature and just over half (53%) reported that the fridge temperature should be between 0-5^{o}C.

More than half of respondents stated that **use by dates** were the best indicator of whether food was safe to eat (55%) and they always checked the use by date before buying (76%) and preparing or cooking food (77%).The most common source of information on food safety reported were family and friends (34%) and product packaging (33%). Four-fifths (79%) of respondents reported that they would not eat leftover food more than two days after it had been cooked.

Eating outside of the home (Chapter 5)

Over two-thirds (69%) reported that they had eaten out in the previous seven days. The type of establishments respondents most frequently reported eating out at over the previous seven days were restaurants (32%), cafés/coffee shops (23%) and take-away food outlets (22%).

Forty-two per cent of all respondents felt that food was less safe when eating out compared to eating at home, whilst 49% thought there was no difference and only 5% thought the reverse was true. When asked about what was important when deciding where to eat out, two thirds said that cleanliness and hygiene (65%) was important, an increase compared to Wave 1 (52%). Other frequently reported factors were good service (54%) and price (45%). A fifth (19%) of respondents said that a good hygiene rating or score was important when deciding where to eat out.

About three-quarters (77%) reported being aware of standards of hygiene when eating out. When asked how they know about the hygiene standards of places they eat out at or buy food from, respondents were most likely to say the general appearance of the premises (73%). Just under a quarter (23%) of respondents said they know about hygiene standards from a hygiene certificate (an increase compared to 16% in Wave 1) and 9% said a hygiene sticker (no difference from Wave 1).

Just under half (44%) of respondents in Scotland reported having seen a Food Hygiene Information Scheme (FHIS) certificate and/or sticker before. Respondents were most likely to have seen this certificate and/or sticker on the window or door of an establishment (88%). When deciding whether to eat in an establishment 6% of respondents reported having used a hygiene scheme such as the FHIS in the past 12 months.

Food poisoning and attitudes towards food safety and production (Chapter 6)

A quarter of respondents (26%) said they often worry about whether the food they had was safe to eat and a third (33%) reported having experienced food poisoning in the past. When asked what they did as a result of food poisoning, a third (32%) reported having stopped eating at certain food premises. Almost three quarters (72%) of respondents agreed with the statement 'I am unlikely to get food poisoning from food prepared in my own home' whilst a quarter (24%) of respondents agreed with the statement 'It's just bad luck if you get food poisoning'.

Over four-fifths of respondents (82%) agreed that 'restaurants and catering establishments should pay more attention to food safety and hygiene'. Of those concerned about food hygiene when eating out, 36% said they paid more attention to the cleanliness of establishments and 21% said they stopped eating at certain establishments.

Respondents expressed more concern about the food safety of imported products, and in particular imported meat; the proportion who said they were fairly or very concerned about this was 58% compared to 26% for meat produced in the UK.

There was substantial variation in reported awareness of new technologies involved in food production. Respondents reported being most aware about genetic modification (70%) and the least aware about nanotechnology (15%). Only a minority of respondents considered themselves to be knowledgeable about these technologies. The issue most respondents reported feeling uneasy about was animal cloning (66%), whilst levels of unease were lower for nanotechnology (34%), irradiation (44%) and genetic modification (56%).

Advice on healthy eating (Chapter 7)

Four-fifths (83%) of respondents reported that eating fruit and vegetables was very important for a healthy lifestyle. In Wave 2 there was an increase in the proportion of respondents who said that keeping to a healthy weight (65% compared to 57% in Wave 1), and eating the right amount of calories each day (41% compared to 32% in Wave 1) were very important.

Asked to place food groups into the different sections of a blank **eatwell** plate, 21% of respondents placed all five food groups in their recommended sections. Two-thirds (66%) placed 2-4 food groups, 10% one food group and 3% placed none of the food groups in

the recommended sections. The food groups least frequently placed in their recommended sections were starchy foods (39%) and protein (35%).

Looking at awareness and understanding of **recommended daily amounts** the survey found that just over a quarter of respondents reported the recommended number of daily calories (28% for women and 28% for men). Overall, 86% of respondents stated that the recommended number of portions of fruit and vegetables was five a day. More than three quarters of respondents identified that pure fruit juice (93%), tinned fruit or vegetables (85%), frozen vegetables (90%), fruit smoothies (78%), and dried fruit (85%) could count towards '5 a day'.

There was limited knowledge of the adult's maximum daily intake of salt, with 9% stating the recommended amount of 6g. Similarly, only a small proportion of respondents said that, in line with guidance, the maximum daily intake of total fat is 95g for men (under 1%) and 70g for women (6%). After being told what the recommended maximum daily intake of total fat is, 8% of men, and 9% of women said that the maximum daily intake for saturated fat was 30g and 20g respectively.

Eating and our health (Chapter 8)

When asked about attitudes towards healthy eating nearly all respondents said that what you eat makes a big difference to how healthy you are (93%) and that even if you don't have a really healthy diet it is worth making small changes (93%). The majority (86%) of respondents stated that the food they usually ate was very or fairly healthy and 60% said that they did not need to make any changes to the food they eat, as it was already healthy enough.

Asked about what foods are healthy three quarters (74%) of respondents said that the experts contradict each other over what foods are good for you and more than a third said that they get confused over what is supposed to be healthy (36%).

The foods respondents most frequently reported eating at least once a day were starchy foods (71%), fruit and vegetables (67%), and milk and dairy foods (79%). Nearly a third of respondents (29%) said they ate biscuits, pastries and cakes at least once a day and 54% of respondents said they eat these foods three or four times a week or more often. When asked about changes they may have made in the past six months just over a quarter (28%) said they had been eating more fruit and vegetables and just under a quarter (23%) said that they were eating smaller portions. A fifth said they were eating less food that is high in saturated fat (19%), high in fat in general (20%), and eating fewer calories (19%). Those who reported that they had made changes to their diet in the last six months were most likely to say that they had done so to be more healthy/have a healthier lifestyle (50%), to lose weight/maintain/stop gaining weight (42%) and for health reasons (28%).

When asked what difficulties, if any, they would have in trying to eat more healthily 37% of respondents said that they would not have any, an increase compared to 23% at Wave 1).

The most frequently reported barriers to eating more healthily were money/cost of food (16%) and time constraints (12%)

When eating out, the majority of respondents (56%) said that the food they ate outside of the home was less healthy than the food they ate when at home. When specifically asked if they would like to see more information displayed about how healthy different food options are, three-quarters (74%) of respondents stated that further nutritional information should be shown in at least one of the food establishments asked about. Looking at the specific places where people said they would want to see more information, respondents were most likely to mention restaurants (52%), fast food outlets (51%) and takeaway outlets (50%).

1. Introduction

This report presents findings from Wave 2 of the Food and You survey, commissioned by the Food Standards Agency (FSA or the Agency). Much of the Agency's work with the public is concerned with informing and influencing the ways in which food is purchased, stored, prepared and consumed. Food and You provides data about the prevalence of different attitudes, reported behaviour and knowledge on these topics.

The first wave of the survey was carried out in 2010, and this second wave builds on and extends previous findings. While it is possible to observe some differences between the two waves, trends cannot be reliably detected without further waves of data.

The main focus of this report is on findings in Scotland but the report also makes comparisons with the other regions of the UK, providing an overview of the key findings from Wave 2. The survey consisted of 3,231 interviews, of which 507 were in Scotland, from a representative sample of adults aged 16 and over (with no upper age limit), across the UK.

1.1 Background and objectives

1.1.1 Role of the FSA

The FSA was created in 2000 as a non-ministerial government department governed by a Board. The Agency was set up to:

“Protect public health from risks which may arise in connection with the consumption of food, and otherwise to protect the interests of consumers in relation to food”

The Food Standards Agency has a strategy to 2015 which sets out their approach to ensure the general public can have trust and confidence in the food they buy and eat. The six outcomes the FSA aims to deliver are:

- Foods produced or sold in the UK are safe to eat
- Imported food is safe to eat
- Food producers and caterers give priority to consumer interests in relation to food
- Consumers have the information and understanding they need to make informed choices about where and what they eat
- Regulation is effective, risk-based and proportionate, is clear about the responsibilities of food business operators, and protects consumers and their interests from fraud and other risks
- Enforcement is effective, consistent, risk-based and proportionate and is focused on improving public health

In providing guidance on food safety to consumers, the Agency aims to minimise the risk of food poisoning. Advice to the general population centres on four aspects of food hygiene: cleaning, cooking, cross-contamination and chilling (collectively known as the '4 Cs'), with advice given on each aspect. Guidance is also given on the use of date labels (such as 'use-by' and 'best-before' dates) and storage instructions on foods to help ensure the safety of food eaten at home. In Scotland and Northern Ireland, the Agency is also responsible for matters relating to nutrition and dietary health, which involves:

- Developing policy and proposing legislation
- Encouraging food producers and caterers to reduce the levels of saturated fat, salt and calories in food products
- Giving the public advice on diet and nutrition and food safety issues.

1.1.2 The Food and You survey

In 2008, the FSA's Social Science Research Committee (SSRC)[2] was asked to review the Agency's Consumer Attitudes Survey (CAS)[3], which had run for eight waves from the FSA's inception in 2000[4]. The SSRC recommended that a new rigorous regular survey was needed to provide evidence underpinning the FSA's policies[5]. The review of the CAS noted that using a random location quota sample risked introducing unquantifiable bias into the sample and recommended that a future survey should adopt a random probability approach. Given the large number of variables influencing attitudes and behaviour a minimum target sample of 2,500 achieved interviews was suggested. The review noted that the relationship between knowledge, attitudes, behaviour and individual characteristics is complex. Even with precisely worded questions, responses will vary according to knowledge and understanding of the subject matter. As such, it was recommended that the questionnaire be developed with input from an Advisory Group with representatives from the SSRC, and new questions piloted.

In 2009, the FSA commissioned a consortium comprising TNS BMRB, the Policy Studies Institute (PSI) and the University of Westminster to carry out the first wave of Food and You. The main aim of Wave 1 was to collect quantitative information as a baseline on the UK public's attitudes, beliefs and reported behaviour towards food issues (such as food safety and healthy eating). This provided an extensive evidence base to support policy making at the FSA and across other relevant government departments.

[2] The SSRC is an independent Scientific Advisory Committee set up to provide advice and challenge to the Agency on social science matters; further information can be found at: http://ssrc.food.gov /

[3] Further information on CAS can be found at: http://www.food.gov.uk/science/socsci/surveys/foodsafety-nutrition-diet/

[4] The SSRC's full discussion paper can be found at: http://www.food.gov.uk/multimedia/pdfs/ssrc0822v1.pdf

[5] http://food.gov.uk/multimedia/pdfs/ssrc0822v1.pdf

Wave 1 of the Food and You survey was carried out in 2010. A report on the findings, and methodological details, are available on the FSA website[6]. Results from Wave 1 of the survey were used to determine the theme of the 2012 FSA Food Safety week[7].

Wave 1 of the Food and You survey contained questions covering both healthy eating and food safety, and the findings were reported together. However, during Wave 1 of the survey, responsibility for nutrition policy (healthy eating) transferred in England and Wales to the Department of Health (DH) and the Welsh Assembly Government respectively. Nutrition policy in Scotland and Northern Ireland remains the responsibility of the Agency. Nutrition policy in Scotland is included in Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight (Scottish Government 2010), the Scottish Government's cross-portfolio and cross-sector policy to take action against obesity, and within Recipe for Success: Scotland's National Food and Drink Policy (Scottish Government 2009).

Wave 2 of the survey focussed solely on food safety issues for England and Wales but also included an additional question module on healthy eating for Scotland and Northern Ireland. This report covers the findings from the Scotland survey and therefore includes the healthy eating module; there are separate reports for the UK and Northern Ireland.

The objectives for the second wave of the Food and You survey were to collect quantitative information to enable the Agency to:

- Explore public understanding of, and engagement with, the Agency's aim of improving food safety, standards and nutrition;
- Assess public attitudes to new developments, such as emerging food technologies;
- Assess knowledge of, and response to, messages and interventions aimed at raising awareness and changing behaviour;
- Identify specific target groups for future interventions (e.g. those most at risk or those among whom FSA policies and initiatives are likely to have the greatest impact);
- Monitor changes over time (compared with data from Wave 1 or from other sources) in attitudes and behaviour; and,
- Broaden the evidence base and develop indicators to assess progress in fulfilling the Agency's strategic plans, aims and targets.

1.1.3 Other relevant surveys

The FSA in Scotland (FSAS) commissions projects to monitor the diet against Scottish Dietary Goals. This work ensures that Scottish issues are properly addressed at a UK and Scottish Government level and that the Agency's UK-wide research and surveillance programme takes full account of Scottish interests.

[6] http://www.foodbase.org.uk//admintools/reportdocuments/641-1-1079_Food_and_You_Report_Main_Report_FINAL.pdf
[7] http://www.food.gov.uk/news-updates/campaigns/germwatch/

FSAS funds additional participants in the National Diet and Nutrition Survey (NDNS)[8] in Scotland and as well as ongoing monitoring of diet and nutrient intakes of the Scottish population using secondary analysis of the Living Costs and Food Survey. The surveillance portfolio also includes surveys of salt intake in adults and sugar intake in children.

Outside of FSAS, the Scottish Health Survey (SHeS) provides a detailed picture of the health of the Scottish population in private households, and includes a module on eating habits[9].

Some measures have been included in Food and You to increase the explanatory power of the analyses (i.e. those on reported fruit and vegetable consumption and consumption of different foods). Other sources will provide more robust national estimates.

1.2 Methodology

In this section, an overview of the survey methodology is outlined; detailed information can be found in the technical report[10].

1.2.1 The Survey

The survey sample was a stratified[11] clustered[12] random probability sample of private households in the UK. The Postcode Address File (PAF)[13] was used as a sampling frame and in each eligible household; one adult aged 16+ (with no upper age limit) was selected for interview. Where there was more than one household or more than one adult in a household at an address, a random selection procedure was used to select the respondent. Weighting was applied at the analysis stage, to ensure the weighted sample was representative of the UK as a whole.

The survey comprised 3,231 interviews with adults across the UK, carried out face-to-face in respondents' homes. The samples in Scotland and Northern Ireland were boosted (increasing the sample to around 500 in each country) to enable more detailed analysis at a country level. The final results were weighted back to ensure that the countries where

[8] Further information on the NDNS can be found at:
http://www.food.gov.uk/science/dietarysurveys/ndnsdocuments/

[9] Further information on the SHeS can be found at:
http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey

[10] http://www.foodbase.org.uk//admintools/reportdocuments/805-1-1459_Wave_2_Technical_Report.pdf

[11] The sample was stratified by Government Office Region (GOR), the percentage of heads of households in a non-manual occupation (NS-SEC groups 1-3), the percentage of households with no car and population density (persons per hectare)

[12] The addresses selected to participate within the survey were clustered within postcode sectors to provide manageable interviewer workloads.

[13] The PAF lists all known UK postcodes and addresses and is the sampling frame commonly used in general population surveys.

the sample was boosted were not over-represented. The sample profile is shown in Table 1.1.

Table 1.1 Weighted and unweighted sample profile

	Unweighted (n)	Weighted (n)
Total	3,231	3,231
England & Wales	2,220	2,866
Scotland	507	274
Northern Ireland	504	91

The fieldwork for the survey took place between March and August 2012. Interviews in Northern Ireland and Scotland took, on average, 60 minutes to complete. Across the UK survey a response rate of 54% was achieved; this was slightly higher than Wave 1 where the response rate was 52%. The response rate in Scotland was 52% and in Northern Ireland it was 56%, both similar to those achieved at Wave 1 (50% in Scotland and 57% in Northern Ireland).

1.2.2 Questionnaire development

Before the main survey was carried out, an extensive development phase was undertaken to ensure that Wave 2 of the survey was effectively designed to collect information of interest to the FSA and that it produced high quality data. The development began with TNS BMRB, the FSA and the SSRC reviewing the Wave 1 questionnaire to determine which questions should be kept for Wave 2. The review stage also identified the following new areas of interest which were to be considered for inclusion in the survey. Following this review, a questionnaire was developed by the TNS BMRB/PSI research consortium based on the policy priorities for Wave 2.

There were three main stages of questionnaire testing:

- cognitive testing;
- omnibus testing; and
- a pilot survey.

A separate report has been produced which covers the questionnaire testing in detail[14].

[14] http://www.foodbase.org.uk//admintools/reportdocuments/805-1-1458_Food_and_You_W2_Question_testing_report_01_10_2012_FINAL.pdf

1.3 About this report

1.3.1 Self-reported behaviours

Interviews as a data collection method cannot capture people's actual behaviour. What respondents say in interviews about what they do is necessarily *reported* behaviour. Here self-reported behaviour is used as a proxy. Although for the sake of smoother reading, much of the report refers to behaviour, attitudes or knowledge without repeating that it is reported, the fact that it is not actual behaviour must none the less always be borne in mind.

At the questionnaire development stage, the risk of social desirability bias was identified as high i.e. respondents tended to answer questions based on what they thought they ought to say, rather than reflecting what they actually do, know or think. In particular, there were a number of topics in the questionnaire, for which respondents might be particularly reluctant to report behaviour which goes against 'best practice' (for example, not washing their hands before cooking or preparing food). As for Wave 1 of the survey, the questionnaire was carefully designed to mitigate this by asking questions about behaviour in specific time periods (e.g. 'yesterday' rather than 'usually'), and by ensuring that behaviours asked about included neutral items as well as recommended and not recommended practices.

1.3.2 Wave-on-wave analysis

As a result of the change in the remit of the FSA, the focus of the survey content was changed between Wave 1 and Wave 2. However, to minimise order effects (which can affect the way in which questions are answered) attempts were made to keep the structure of the questionnaire as similar as possible. Despite this, the removal of the healthy eating questions in the England and Wales questionnaires, and the move of these questions to the end of the Scotland and Northern Ireland questionnaires, introduced unavoidable differences between the two waves of the survey. As the context in which survey questions are asked is known to influence the way respondents reply we cannot rule out the possibility that differences in responses between waves may have been partly or wholly because of these changes.

Where question wording has remained consistent with Wave 1, statistical testing has been undertaken to determine whether results have significantly changed over the last two years. It is important, however, to exercise caution in the interpretation of apparent differences. As there are only two data points it is not possible to tell whether statistically significant differences indicate a trend. A third wave of data collection would allow greater confidence in identifying trends.

In Wave 1 of the survey, in order to cover additional topics without over-burdening respondents, three sections of the questionnaire (eating arrangements, eating out and shopping patterns) were each asked of a random third of respondents. In Wave 2, all of

the survey questions were asked of all respondents. Whilst in general comparisons can still be made between the questions in Wave 1 which were asked of a third of the sample and the questions in Wave 2, the smaller sample sizes in Wave 1 mean that for significant differences to be observed the differences have to be larger.

1.3.3 Analysis carried out

Throughout the report, bivariate analysis has generally been used to look at how attitudes and reported behaviours differ for key demographic groups (e.g. gender and age). Such analysis can be carried out quickly, allowing a large number of cross-tables to be produced, and it displays differences in a clear manner which is easily understood by readers. A drawback of bivariate analysis, however, is that other factors that may be the underlying cause of the differences seen between two groups cannot be controlled for.

Whilst the majority of statistical testing has used bivariate analysis, there is one topic area where multivariate analysis has been used to explore whether variation in the likelihood of following the FSA's recommended practice (RP) for food safety differs by certain demographic factors (see Chapter 4). In order to do this, a composite variable was created, based on answers given to a range of questions, to give each respondent a score on an index of RP for food safety. Respondents were grouped into three categories: lower band (0-1), mid band (3-4) and upper band (5-10) and multivariate analysis (logistic multivariate regression modelling) of the composite variable was carried out to analyse the significance and contribution of a number of demographic factors in predicting whether or not a respondent engaged in behaviours that were not in line with RP. See Chapter 4 and Technical Appendix 10.3 for further details.

1.3.4 Reporting conventions

Only those differences found to be statistically significant at the 95% level are reported. The identification of a difference as statistically significant means that we can be 95% confident that an observed difference is not down to chance. Owing to the small sample sizes in Scotland relative to the overall UK sample, percentage differences between Scotland and the UK need to be large to be statistically significant.

Percentages may not add to 100% as a result of rounding.

1.3.5 Further use of the findings and data

The survey collected a wide range of data and this report does not cover everything. Data tables are available online[15] and full data are available on the UK Data Archive[16] for further analysis.

[15] http://www.foodbase.org.uk//admintools/reportdocuments/805-1-1454_Food_and_You_FINAL_weighted_tables_v1.pdf

1.3.6 Structure of the report

The report is divided into nine chapters-

- Chapter 2 presents information about eating, cooking and shopping habits, providing background information and context for the rest of the report.

- Chapter 3 presents findings about the extent to which respondents were aware of and report practices that are in line with government advice on food safety, including practices relating to the '4 Cs' (cleaning, cross-contamination, chilling and cooking), use of leftovers and date labels and attitudes to food safety;

- Chapter 4 draws together differences in reported food safety practices between different groups of the population through the introduction and analysis of an index of recommended practice (RP) for food safety;

- Chapter 5 focuses on reported eating outside of the home, covering the type of establishments where people eat out, the frequency of eating out and the decision making process which goes into deciding where to eat out. Particular focus is placed on the use of Food Hygiene Rating Schemes (FHRS) and Food Hygiene Information Schemes (FHIS);

- Chapter 6 explores experience of food poisoning and concern about food safety and food production. The chapter also looks at whether concern has affected reported attitudes or behaviour.

- Chapter 7 presents information about the extent to which respondents were aware of and reported practices that were in line with the messages included in the Government's advice on healthy eating, including the eatwell plate, the '8 tips', recommended daily consumption of fruit and vegetables and recommended maximum daily intakes of salt, fat and calories.

- Chapter 8 links to Chapter 7 in exploring respondents' attitudes to healthy eating, perceptions of their own diets, any changes made to their diets and the barriers and motivations to change.

[16] http://www.data-archive.ac.uk/

2. Setting the scene: eating, cooking and shopping

To provide some context for the report, this chapter examines eating, cooking and shopping behaviours and changes in behaviour for financial reasons.

Summary

Eating and cooking at home

- Over the previous week, on average (mean) respondents ate their main evening meal at home on 6.1 days, their breakfast on 5.5 days and their lunch on 3.9 days.
- Around two-thirds (68%) of respondents in Wave 2 cooked and prepared food for themselves at least five times a week.
- The majority of respondents (83%) said they did not have specific dietary requirements, an increase compared with Wave 1 (64%). Only 6% of respondents reported avoiding certain foods for medical reasons and 8% said they followed a weight-reducing diet.

Shopping for food

- The majority of respondents (84%) reported at least some responsibility for household food shopping, with half (49%) of respondents saying that they were responsible for all or most of it.
- 55% of respondents reported that they shopped on a weekly basis and the vast majority (96%) said they went to large supermarkets.

Changes in food purchase and consumption for financial reasons

- When asked whether they had made any changes in their eating arrangements for financial reasons in the last six months, almost one in three (28%) reported that they had bought items on special offer more; around one in six reported eating at home more (16%), and eating out less (16%), and around one in seven said that they were eating fewer takeaways (15%) and making more packed lunches (14%).
- Compared with Wave 1, fewer respondents in Wave 2 reported cooking at home more for financial reasons (8% at Wave 2 compared with 21% at Wave 1).

Comparisons with the rest of the UK

- Respondents in Scotland were less likely than those in Northern Ireland to cook or prepare food for themselves at least once a day (61% versus 73% respectively). However, there were no significant differences in terms of the frequency of cooking/preparing food for others.

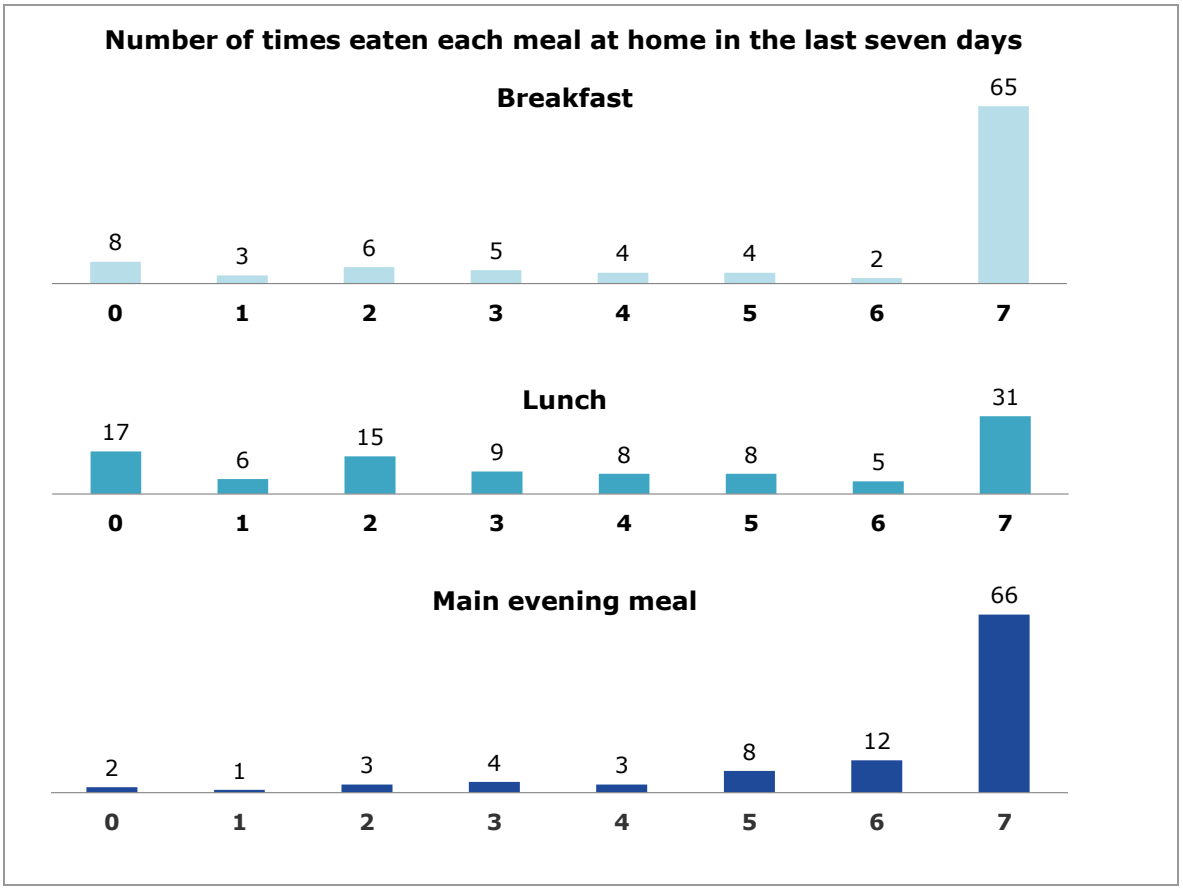
- Respondents in Scotland were more likely than those in England or Northern Ireland to shop at independent fishmongers (18% compared with 8% and 5% respectively.) Respondents in Scotland were also less likely than those in the other three countries to shop at independent greengrocers (10% compared to between 18-38%) and less likely than respondents in England or Wales to shop at markets (6% compared to 23% and 22% respectively).

2.1 Eating and cooking at home

2.1.1 Frequency of eating at home

Respondents were asked how often, in the last seven days, they had eaten breakfast, lunch, and their main evening meal at home. As shown in Figure 2.1, 65% of respondents ate breakfast and 66% ate a main evening meal at home every day. The picture was somewhat more mixed for lunch, with a third (31%) eating lunch at home every day, and a further 38% who said they ate lunch at home twice or less. Taking the average (mean) number of times respondents ate each of these three meals at home, the highest figure was for the main evening meal (6.1 times) followed by breakfast (5.5 times) and lunch (3.9 times).

Figure 2.1 Frequency of eating at home (Wave 2)

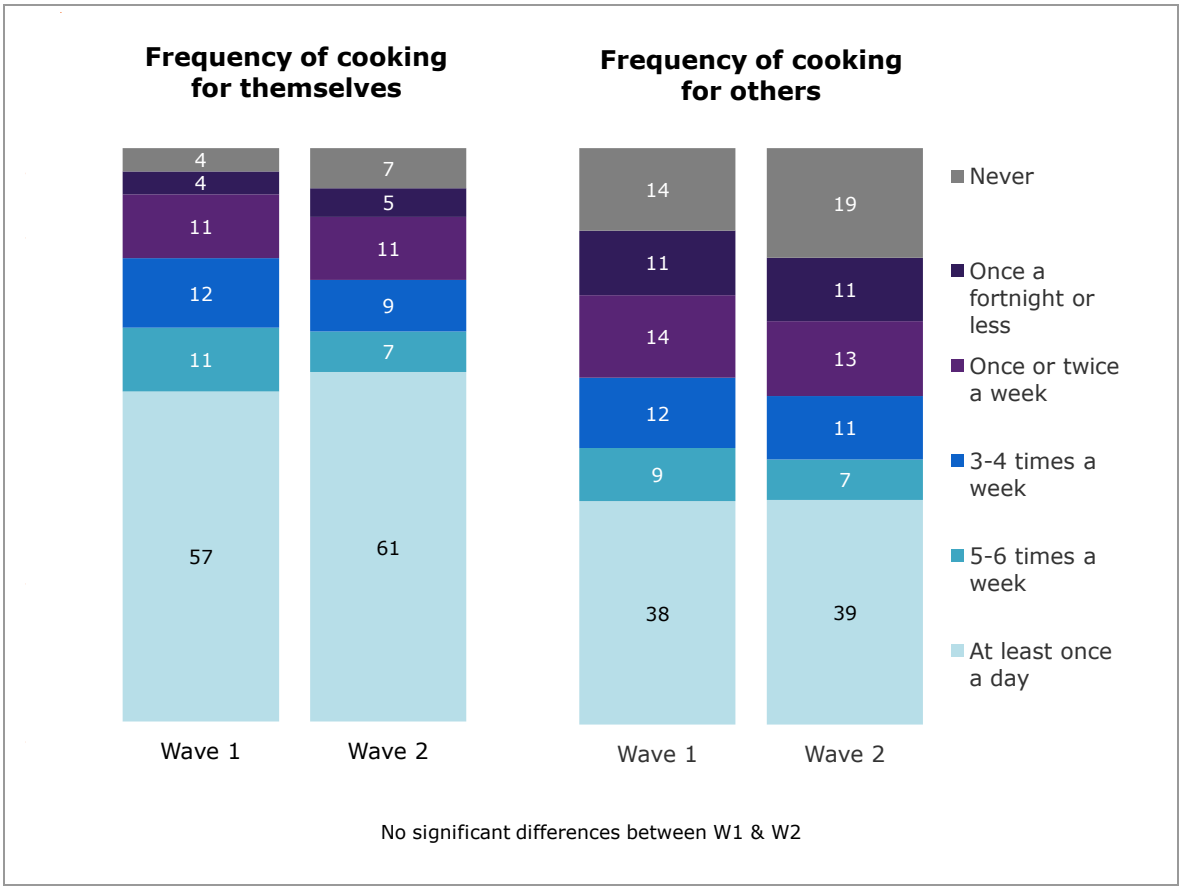


Source: Q2_7A/B/C In the last 7 days, that is since last ..., on how many days out of that seven did you eat BREAKFAST/LUNCH/MAIN EVENING MEAL AT HOME?
Base: All Scotland respondents - Wave 2 (507)

2.1.2 Cooking patterns

In Wave 2 the frequency distribution of home-prepared food remained unchanged from Wave 1, 68% of respondents reported cooking and preparing food for themselves, and 46% reported preparing food for others, at least five times a week (Figure 2.2).

Figure 2.2 Frequency of cooking meals for self and others (Wave 1 and Wave 2)

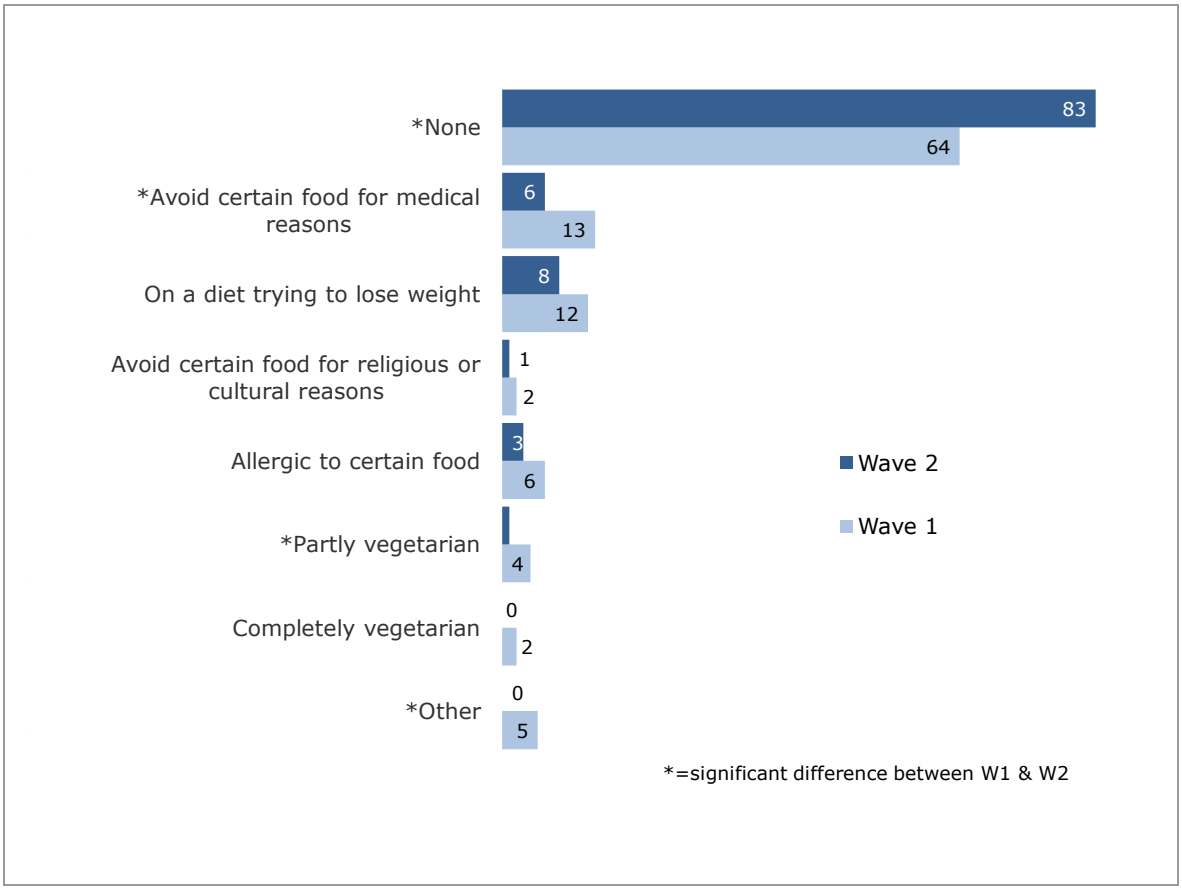


Source: Q2_3 How often do you cook or prepare food for yourself? & Q2.4 How often do you cook or prepare food for others?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

2.1.3 Eating restrictions

The large majority of respondents (83%) did not report having any specific dietary requirements; this was higher than in Wave 1 (64%). A small percentage reported avoiding certain foods because they were following a weight-reducing diet (8%), and for medical reasons (6%). The proportion reporting that they avoid food for medical reasons was lower in Wave 2 than in Wave 1 (13%). Other dietary restrictions/requirements such as being allergic to certain foods, vegetarianism and avoiding certain food for religious or cultural reasons were all mentioned by fewer than 4% of respondents. See Figure 2.3 for further detail.

Figure 2.3 Dietary restrictions (Wave 1 and Wave 2)



Source: Q7.1 Which, if any, of the following applies to you? Please state all that apply.
Base: All Scotland respondents - Wave 1 (511); All respondents - Wave 2 (507)

2.1.4 Variations in eating and cooking at home among different groups in the population

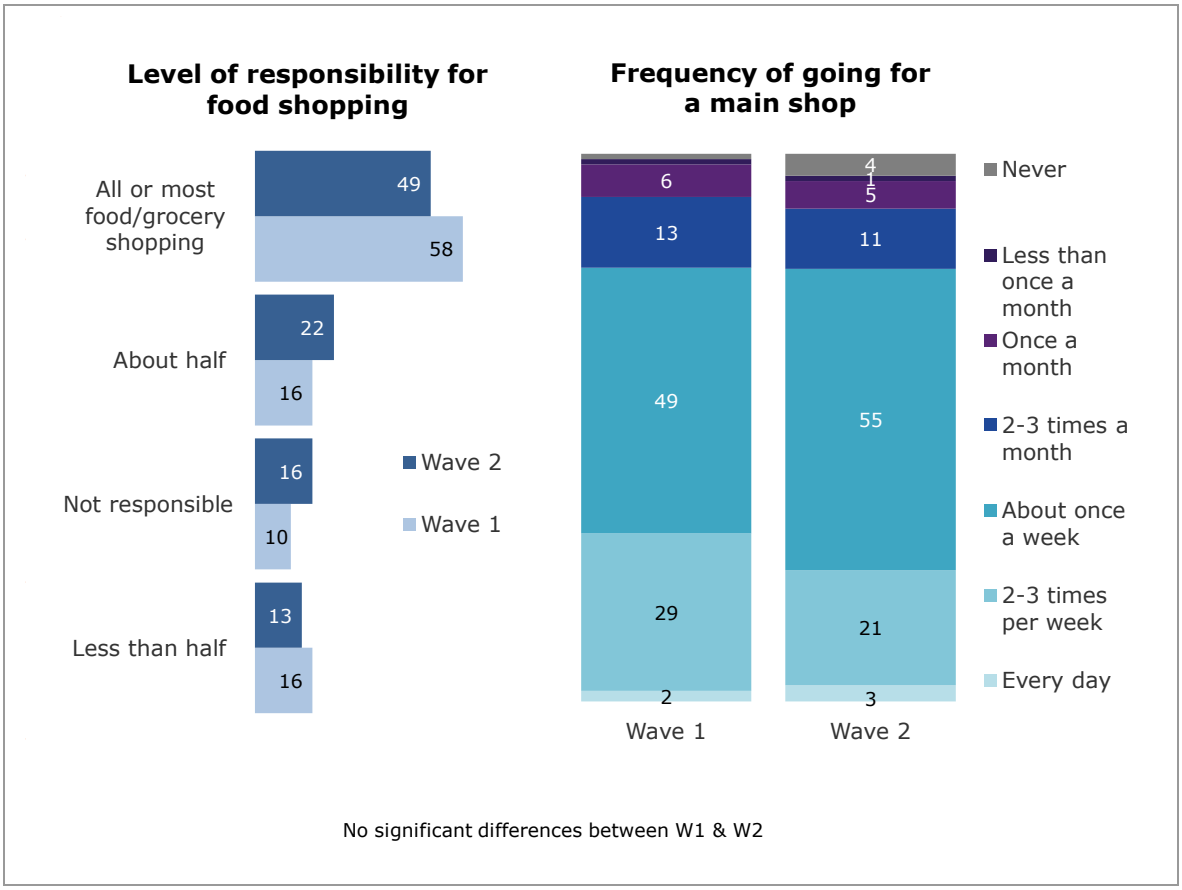
There was no significant difference between men and women in the reported frequency of eating breakfast, lunch and a main evening meal at home. Women were more likely than men to report preparing food for themselves (83% compared with 53%) and for others (63% compared with 27%) on a regular basis (at least five times a week).

Age was also a significant factor with older respondents being more likely than younger respondents to eat their meals at home. This was particularly the case for breakfast and lunch, with breakfast being eaten at home an average of less than 5 days out of the last week for respondents aged under 55 (4.9 times for 16-24s, 5.2 times for 25-34s, 4.9 times for 35-44s and 4.8 times for 45-54s), compared with 6.7 days in the last week for those aged 60 and over. Similarly lunch was eaten at home on average 3.3 days out of the last 7 by 16-24s and 25-34s, 3.1 days by 35-44s and 2.8 days by 45-54s, increasing to 5.6 days by those aged 60 and over.

2.2 Shopping for food

The majority of respondents (84%) had at least some responsibility for household food shopping, with half (49%) of all respondents saying that they were responsible for all or most of it. Fifty-five per cent of respondents reported that they shopped on a weekly basis, this was not significantly different from the proportion reported in Wave 1 (49%).

Figure 2.4 Responsibility for and frequency of food shopping (Wave 1 and Wave 2)



Source: Q3_1 Thinking about food/ grocery shopping, which of these best describes the level of responsibility you have for the shopping in your household? & Q3_7 How often do you (or someone else) do a main shop for your household food shopping?
Base: One third of total Scotland sample – Wave 1 (172); All Scotland respondents - Wave 2 (507)

Respondents were also asked where they did their food shopping. The vast majority (92%) said they shopped in-store (as distinct from on-line) at large supermarkets. The next most common answer was independent butchers (37%), followed by local/corner shops (23%) and mini supermarkets (21%). As this question was different in Wave 1 no comparison was possible.

Around a third (33%) of respondents relied solely on a large supermarket, while 56% combined their main shop at a large supermarket with top-up shops at local or independent stores or markets. A small proportion (5%) relied solely or mainly on local or independent stores.

2.2.1 Variations in shopping for food among different groups in the population

Clear differences were found by **gender** with women being more likely than men to be responsible for all or most of their household food shopping (69% compared with 28% of men).

There was also variation by **age**, with younger respondents (aged 16-24) much less likely than other age groups to be responsible for any food shopping in the household (65% compared with between 80% and 95% for other age groups).

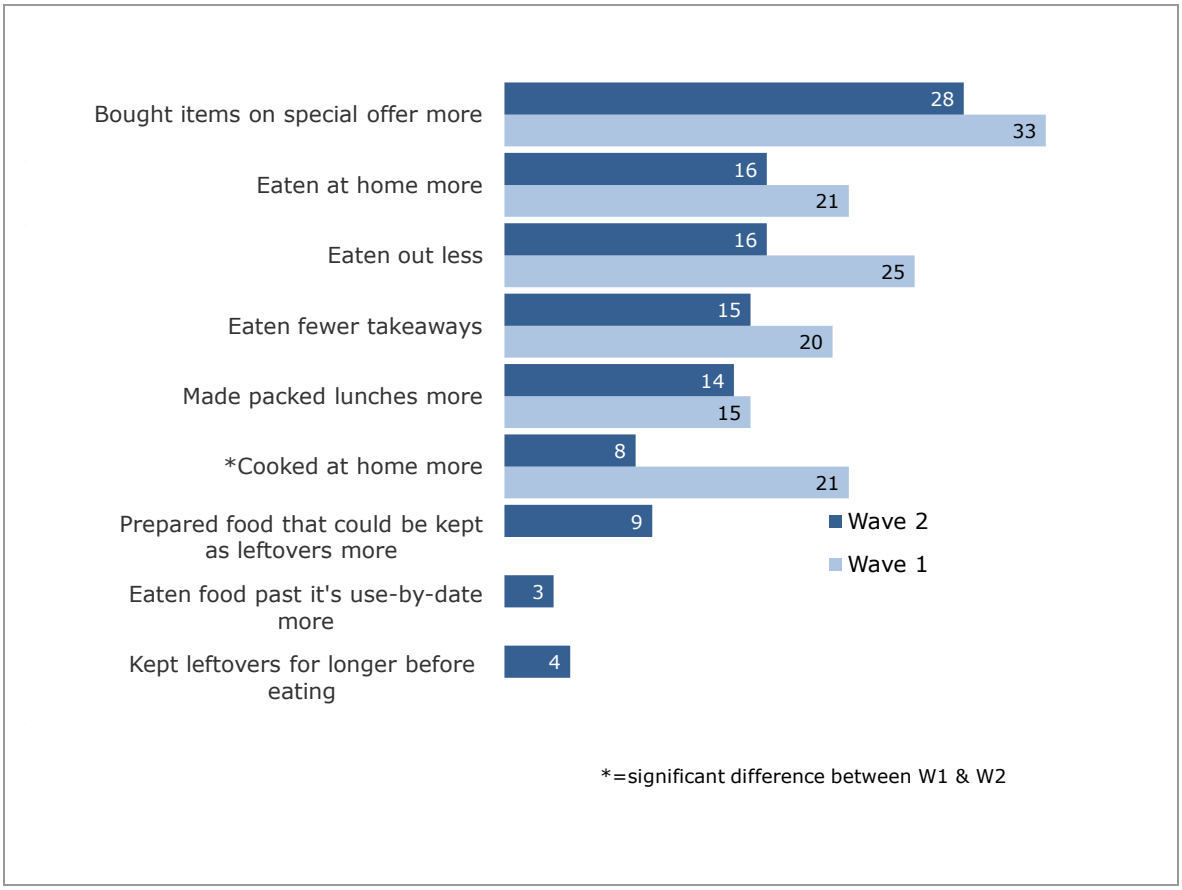
2.3 Changes in buying and eating arrangements for financial reasons

Respondents were asked whether they had made any changes in their eating arrangements for financial reasons in the last six months. Overall, 49% of respondents in Wave 2 said they had made at least one such change (there was no comparable figure for Wave 1 as a result of changes in the question between waves). Twenty-eight per cent reported that they had bought items on special offer more; around one in six (16%) reported eating at home more, and eating out less (16%), and around one in seven said that they were eating fewer takeaways (15%) and making more packed lunches (14%).

Compared with Wave 1, a considerably smaller proportion of respondents in Wave 2 reported that they had changed their eating arrangements by cooking at home more (8% at Wave 2 compared with 21% at Wave 1). Other differences between Wave 1 and Wave 2 were not statistically significant.

Nine per cent of respondents reported that over the previous six months they had prepared more food that could be kept as leftovers, 4% reported keeping leftovers for longer before eating them, and 3% ate more food past its use-by date. These findings suggest that changes in financial circumstances may have implications for consumer food safety. These questions were not included in Wave 1 so no wave-on-wave comparisons are possible.

Figure 2.5 Changes in buying and eating arrangements for financial reasons (Wave 1 and Wave 2)



Source: Q3_13 Have you made any of these changes in the last 6 months for financial reasons?
Base: One third of total Scotland sample – Wave 1 (172); All Scotland respondents - Wave 2 (507)

2.3.1 Variations by population group in changes in buying and eating

Differences were found by age. Respondents aged 25-34 were most likely (72%) and those aged 60 and over least likely (27%) to report having made at least one change to their eating arrangements in the last six months for financial reasons.

Men (41%) were less likely than women (56%) to report having made at least one of these changes. There was no significant variation by household income group in response to this question.

2.4 Comparisons between Scotland and the rest of the UK

There were some differences in reported eating, cooking and shopping habits by country, as shown in Table 2.1.

Respondents in Scotland were less likely than those in Northern Ireland to report cooking or preparing food for themselves at least once a day (61% versus 73% respectively). However, there were no significant differences in terms of the frequency of cooking/preparing food for others.

Table 2.1 Frequency of cooking/preparing food, by country (Wave 2)

	Scotland	England	Wales	Northern Ireland
Cook/prepare food for self at least once a day	*61*	*60*	*60*	*73*^{S}
Base	*(507)*	*(2116)*	*(104)*	*(504)*

Source: Q2_3 How often do you cook or prepare food for yourself? & Q2_4 How often do you cook or prepare food for others?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Responsibility for food shopping did not vary significantly by country.

Across all countries, between 91-96% of respondents reported shopping at large supermarkets (no significant differences between countries were found, Table 2.2). However, respondents in Scotland were more likely than those in England or Northern Ireland to shop at independent fishmongers (18% compared with 8% and 5% respectively.) Respondents in Scotland were also less likely than those in the other three countries to shop at independent greengrocers (10% compared to between 18-34%) and less likely than respondents in England or Wales to shop at markets (6% compared to 23% and 22% respectively). Respondents in Scotland were also less likely than those in Wales to shop at mini supermarkets (21% compared with 44%), and less likely than those in Northern Ireland to shop at garage forecourts (2% compared with 22%).

Table 2.2 Where people shop for food, by country (Wave 2)

	Scotland	England	Wales	Northern Ireland
Large supermarket	*96%[NI]*	*95%*	*91%*	*92%*
Mini supermarket e.g. Tesco Metro	*21%*	*34%[S]*	*44%[S]*	*27%*
Local/corner shop (including newsagents)	*23%*	*30%[S]*	*31%*	*32%[S]*
Market (including stalls or farmer's markets)	*6%*	*23%[S]*	*22%[S]*	*9%*
Independent greengrocer	*10%*	*18%[S]*	*34%[S]*	*18%[S]*
Independent fishmonger	*18%[NIE]*	*8%*	*11%*	*5%*
Home delivery – from a supermarket	*8%[NI]*	*10%*	*9%*	*4%*
Garage forecourt	*2%*	*4%*	*2%*	*22%[S]*
Base	*(507)*	*(2116)*	*(104)*	*(504)*

Source: Q3_3 Where do you/ does your household shop for food?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

The frequency of shopping for food was similar across the different countries (Table 2.3). The only significant difference observed was that respondents living in Scotland were more likely to shop two to three times a week than those in Northern Ireland.

Table 2.3 Frequency of shopping for food, by country (Wave 2)

	Scotland	England	Northern Ireland
2-3 times per week	*21%[NI]*	*19%*	*14%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q3_7 How often do you (or someone else) do a main shop for your household food shopping?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

In terms of changes respondents have made, due to financial reasons, in buying and consuming food in the past six months (see Table 2.4), respondents living in Scotland were *less* likely than those in England or Northern Ireland to have made the following changes:

- Bought items that were on special offer more
- Eaten at home more
- Eaten out less (England only)
- Eaten fewer takeaways
- Prepared food that could be kept as leftovers more
- Cooked at home more
- Eaten food past its use-by-date more (England only)

Table 2.4 Changes in buying and eating arrangements for financial reasons, by country (Wave 2)

	Scotland	England	Northern Ireland
Bought items that were on special offer more	*28%*	*38%[S]*	*38%[S]*
Eaten at home more	*16%*	*25%[S]*	*23%[S]*
Eaten out less	*16%*	*23%[S]*	*22%*
Eaten fewer takeaways	*15%*	*21%[S]*	*22%[S]*
Prepared food that could be kept as leftovers more	*9%*	*14%[S]*	*15%[S]*
Cooked at home more	*8%*	*16%[S]*	*14%[S]*
Eaten food past its use-by-date more	*3%*	*7%[s]*	*5%*
None of these	*51%[NI]*	*38%*	*38%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q3_13 Have you made any of these changes in the last 6 months for financial reasons?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

3. Food safety in the home

This chapter focuses on reported food safety practices in the home, how these practices compare with FSA recommended practice (RP), and whether there have been any significant changes since Wave 1.

Summary

Food safety practices
Overall, there was substantial variation in the extent to which reported food safety practices in the home reflected Agency recommended practices:

- Cleaning
  - 83% of respondents said they wiped down kitchen surfaces at least every day, and 42% reported they changed their tea towels at least every day.
  - 86% of respondents reported always washing their hands after handling raw meat, poultry or fish and 85% reported doing so before starting to prepare or cook food.
- Chilling
  - 38% of respondents reported that they check their fridge temperature and 53% reported that the fridge temperature should be between 0 and 5^{o}C.
- Cross-contamination
  - 61% of respondents reported that they stored raw meat on the bottom shelf of the fridge.
  - Three-quarters (74%) of respondents reported keeping food in certain parts of the fridge, and of these 80% reported that this was to stop cross contamination.
  - A third (32%) of respondents reported they never wash raw meat or poultry, and 21% of respondents that they never wash fish or seafood, both similar to Wave 1.
- Cooking
  - 85% of respondents reported always cooking food until it is steaming hot.
  - The large majority of respondents reported that they never ate poultry (93%), or burgers or sausages (86%) if the meat was pink or had pink or red juices.
  - 74% reported only re-heating food once. 11% said they would re-heat food twice or more.
- Whether food is safe to eat
  - Between 16% and 26% of respondents, depending on food type, reported that they would use the use-by date as a method of telling if meat, fish, milk/yogurt, fish or cheese were safe to eat.

- The most commonly reported method was ‘how it smells’. For example 73% of respondents cited using how it smells for milk and yogurt. For cheese, the most common method was ‘how it looks’, cited by 64%.
- Fifty-five per cent of respondents reported that the use-by date was the best indicator of food safety and around three-quarters stated they always check the use-by date before buying (76%) or cooking (77%) food.
- 79% reported that they would not eat leftover food more than two days after it had been cooked.
- The most common sources of information on food safety reported were family and friends (34%) and product packaging (33%). Respondents were most likely to report that they would look for future sources of information on an Internet search engine (37%).

Comparisons with the rest of the UK

- Respondents in Scotland were more likely than those in England to say they never store open tins in the fridge (79% vs. 69%), eat red meat if it is pink or has pink or red juices (59% vs. 45%), or eat burgers/sausages if the meat is pink or has pink or red juices (87% vs. 79%).
- Respondents in Scotland were more likely than those in England and Wales to say they use different chopping boards for different foods (54% Scotland vs. 46% England and 39% Wales).
- Those in Scotland were more likely than those in Northern Ireland to say they always wash vegetables which are going to be eaten raw (73% vs. 64%) or cooked (69% vs. 59%), cook food until it is steaming hot throughout (85% vs. 77%) and wash hands immediately after handling raw meat, poultry or fish (86% vs. 79%).

3.1 Background

Promoting food safety and protecting public health are central strategic objectives of the Food Standards Agency. Detailed understanding of the attitudes and practices of individuals in relation to food safety and the identification of any groups that are less likely to follow recommended practice helps the FSA to measure progress towards some of its strategic objectives and provide evidence for its strategy to reduce foodborne disease. To this end initiatives have been introduced to improve food safety and hygiene from ‘farm to fork’. With reference to food safety in the home, the FSA is committed to “ensuring that consumers better understand how to prepare and store food safely and more consumers follow best practice as a matter of course” (FSA, 2011).

Food preparation in the home is recognised as a critical step in the food chain and the FSA promotes the ‘4 Cs’ (Cleanliness, Cooking, Chilling and Cross Contamination) of good food hygiene which are aimed at reducing and preventing cases of domestic acquired foodborne illness. Agency recommendations surrounding the ‘4Cs’ are outlined below and where relevant in the following sections.

Principles of good food hygiene – the 4 C's

Cleanliness

- Prevent harmful bacteria from spreading by observing good personal hygiene.
- Wash hands after using the toilet, before beginning to prepare food and after you have finished. It is particularly important to wash hands after handling raw food, and before touching food which is ready to eat.
- Try to keep your pets out of the kitchen

Cooking

- Cook food thoroughly, especially meat and poultry.
- Make sure it is steaming hot in the middle before serving.
- If you have to reheat food, make sure it is steaming hot all the way through and only reheat it once.

Chilling

- Keep foods at the right temperature to slow down or stop bacterial growth. Your fridge should be between 0-5 degrees centigrade.
- Don't overfill your fridge and store raw meat and fish on the bottom shelf with salad and vegetables stored in the covered drawers of the fridge.

- Look at the label on foods to see how they should be stored, and never eat food past its use-by date

Cross Contamination

- Cross contamination, or the transfer of harmful bacteria from raw foods to ready-to-eat foods, can be controlled by :
- Use different chopping boards and utensils for preparing raw and ready to eat foods. Where this isn't possible wash the board thoroughly with hot soapy water between uses especially if you are switching between preparing raw and ready to eat foods. .
- Change your tea towels and dish cloths regularly
- Clean surfaces thoroughly using hot soapy water and when necessary a disinfectant spray.
- Store ready-to-eat foods above raw foods in the refrigerator.

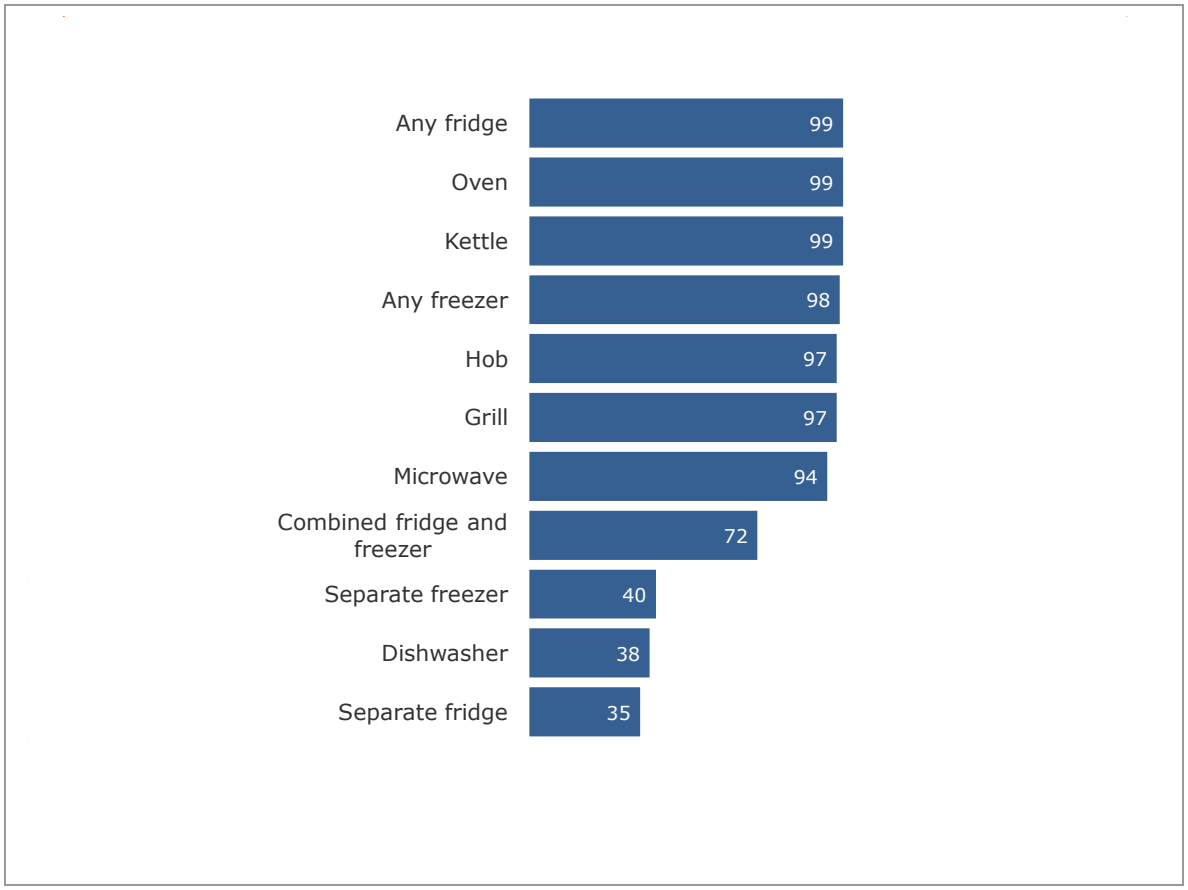
3.2 Domestic food safety practices

While there is now a fairly large academic literature on consumer **perceptions** of food-related risks (see Smeaton et al. 2010 for an overview), there are few studies that have investigated **actual** food safety practices in the home and even fewer conducted in the UK. Greenstreet Berman recently conducted a comprehensive evidence review of this work for the Food Standards Agency (Greenstreet Berman, 2011) and the Social Science Research Committee (2009) also reviewed the evidence, with a specific focus on the domestic food storage and handling practices of older adults. Whilst few studies explored in Greenstreet Berman's review can be directly compared with Food and You, and very few have examined all of the practices reported here either in such detail or so comprehensively, the review identified a consistent pattern of divergence in practice from the recommended '4 Cs' (albeit with some variability by area of practice). Areas with the most divergence were cooking (knowledge of recommended temperatures) and chilling practices (knowledge of recommended fridge temperature, use of fridge thermometers, thawing) whilst there was less divergence for practices relating to cleaning and cross-contamination (use of chopping boards and other utensils for cooked meat, storage of meat).

3.2.1 Access to kitchen and appliances

Respondents were asked whether they had access to a separate kitchen ('a separate room in which you can cook') and what kitchen appliances they had in the household (Figure 3.1). The large majority of respondents (90%) had the use of a separate kitchen, with nearly all respondents having an oven (99%), kettle (99%), hob (97%), grill (97%) and microwave (94%). Almost all respondents had a fridge (99%) (either a combined fridge and freezer or a separate fridge), and 98% had a freezer (again either a fridge freezer or a separate freezer). Just under two-fifths (38%) had a dishwasher.

Figure 3.1 Access to appliances (Wave 2)



Source: Q4_8C Which of the following appliances do you have in your household?
Base: All Scotland respondents (507)

3.2.2 Reported practices relating to the '4 Cs' - Cleaning

Wiping surfaces, cleaning sinks and changing tea towels and dishcloths

Respondents were asked about the frequency of their cleaning activities and how often they changed cleaning materials. **The FSA recommends changing tea towels and dishcloths on a regular basis** as they are likely to harbour microbes. Worktops should also be cleaned before food preparation and after contact with raw meat, including poultry, raw eggs or root vegetables contaminated by soil.[17]

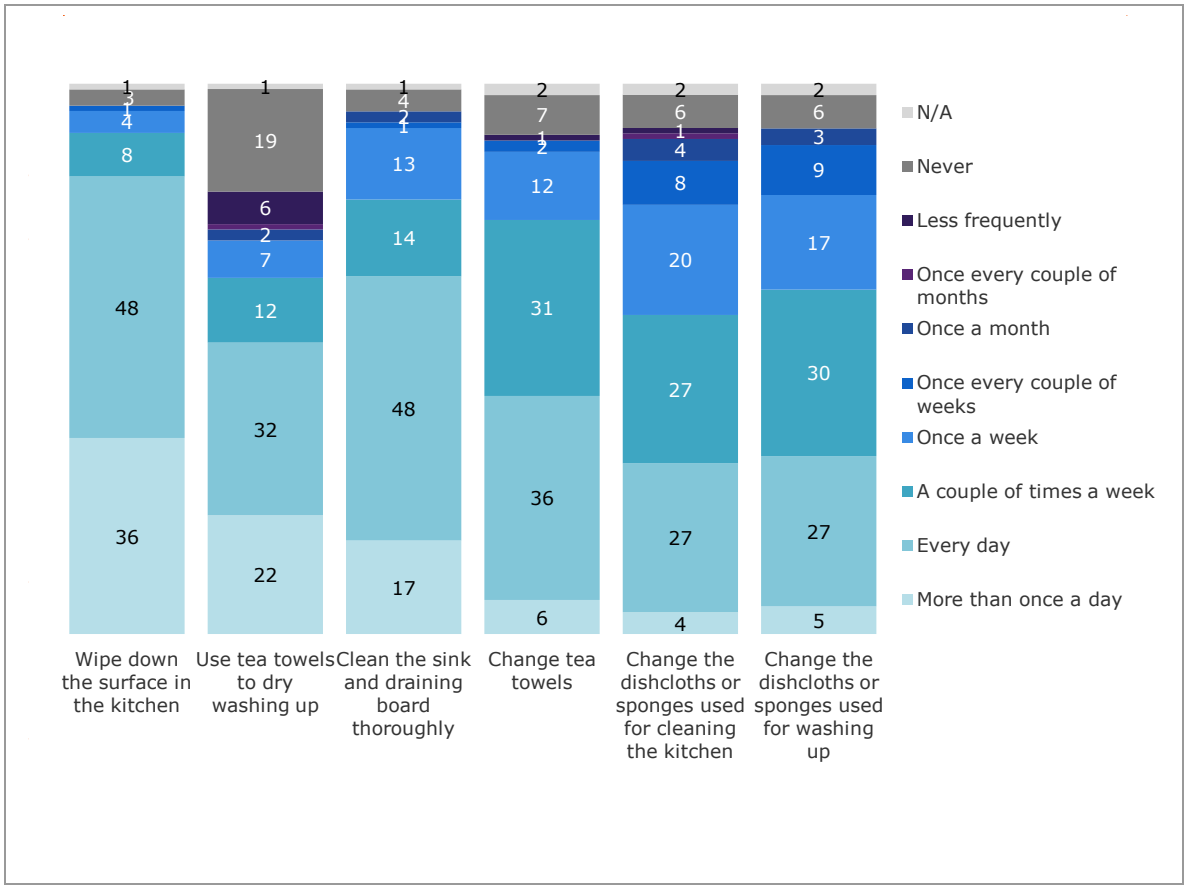
Results are shown in Figure 3.2. Respondents reported that the cleaning practices they engaged in most frequently (at least once a week) were wiping down their kitchen surfaces (95%) and cleaning their sink and draining board thoroughly (92%). Wiping down kitchen surfaces was also the most frequent daily practice, with 36% carrying this out more than once a day and 48% doing it every day (overall 83% at least once a day).

[17] http://www.eatwellscotland.org/keepingfoodsafe/cleaning/index.html

80% of respondents said that, at least once a week, they changed the dishcloths or sponges they used for washing up (either washing or replacing them), and 78% reported they changed dishcloths or sponges used for cleaning the kitchen. Over half reported changing dishcloths and sponges at least a couple of times a week (62% for washing up and 58% for cleaning the kitchen). For each of these cleaning practices, only 6% of respondents reported they never changed dishcloths or sponges.

86% reported changing their tea towels at least once a week. Half (54%) of respondents said they used tea towels to dry washing up at least once a day and about a fifth (19%) said they never used tea towels. Tea towels were changed at least once a day by 42% of respondents.

Figure 3.2 Cleaning practices in the kitchen (Wave 2)



Source: Q4_1A How often do you...?
Base: All Scotland respondents (507)

Hand washing

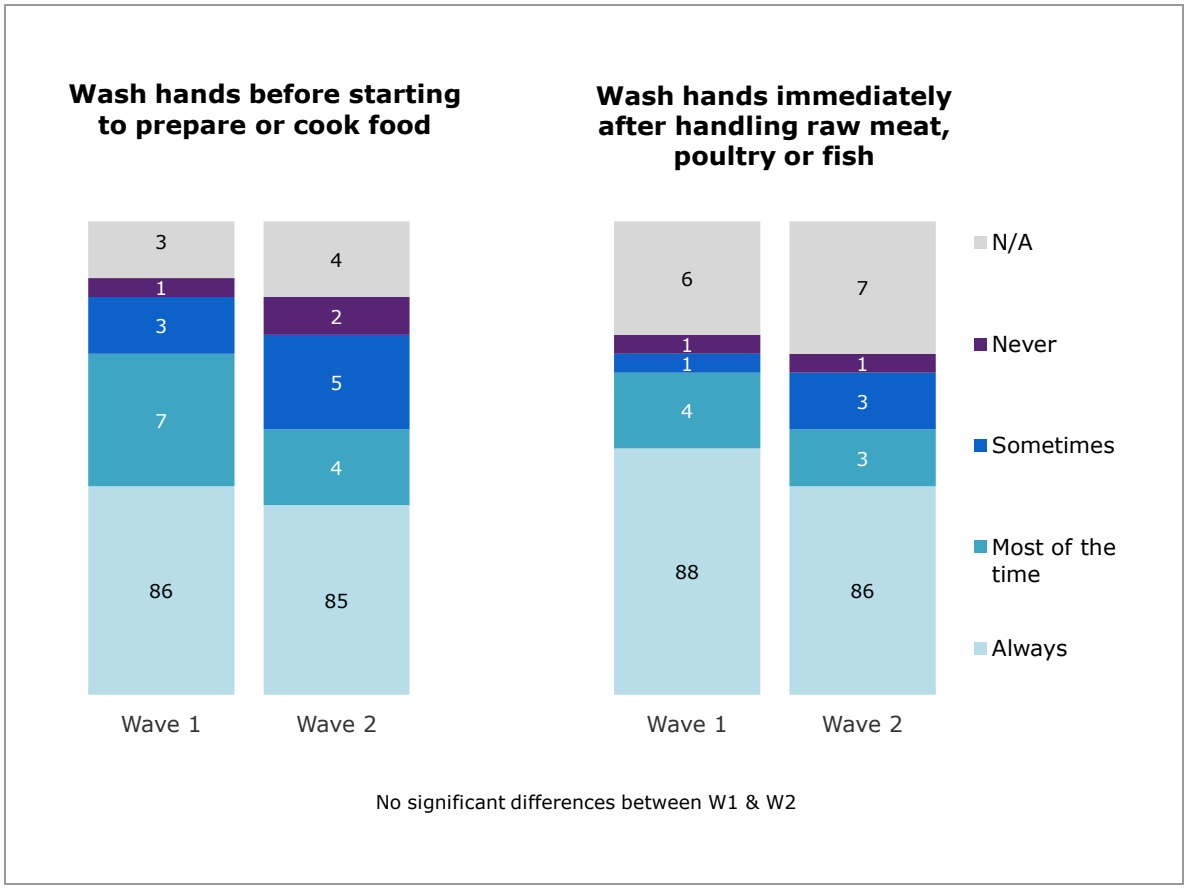
Respondents were asked how frequently they washed their hands before starting to prepare or cook food, and how often they washed their hands immediately after handling raw meat, poultry or fish. **FSA guidance is that hands should be washed thoroughly**

on a regular basis and in particular before preparing food, after touching raw food (especially meat) and after going to the toilet.

Overall, 85% of respondents said they always washed their hands before starting to prepare or cook food, with 94% reporting that they did this at least some of the time. A similar proportion of respondents (86%) reported always washing their hands immediately after handling raw meat, poultry or fish. Only 2% of respondents said they never washed their hands before preparing or cooking food and 1% said they never washed their hands after handling raw meat, poultry or fish.

There was no significant change in the frequency of hand washing before starting to prepare or cook food, or after handling raw meat, poultry or fish between Wave 1 and Wave 2. Full results are shown in Figure 3.3.

Figure 3.3 Reported frequency of hand washing (Wave 1 and Wave 2)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently:
Base: All Scotland respondents – Wave 1 (511); Wave 2 (507)

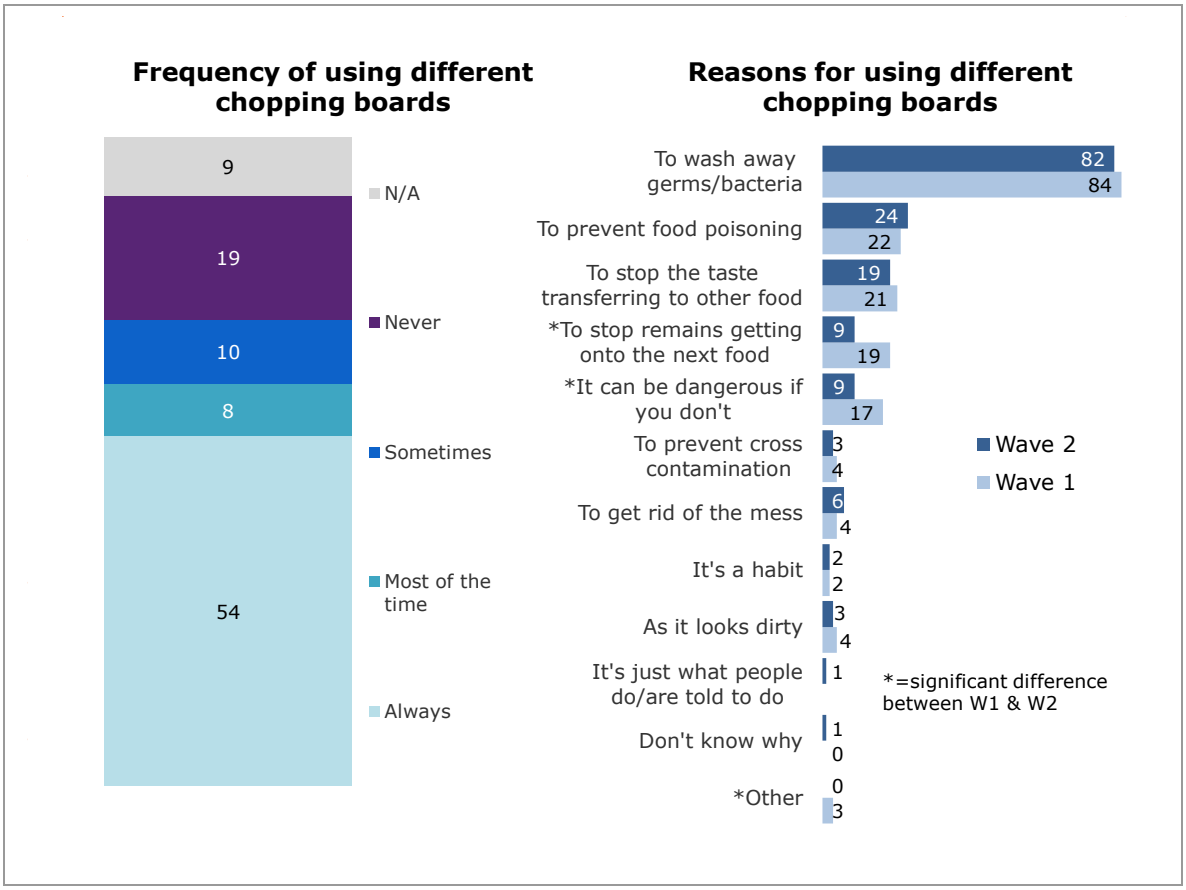
3.2.3 Reported behaviours relating to the ‘4 Cs’ - Cross-contamination

Chopping boards

Respondents were asked whether they used different chopping boards or clean chopping boards for different foods and what they thought the reasons were for doing so after having used it to prepare raw meat, poultry or fish. **The FSA recommends using different chopping boards for raw and ready-to-eat foods, or washing thoroughly in between preparing different foods, to avoid cross-contamination.**

Just over half of respondents (54%) said they always used different chopping boards for different foods, whilst 19% said that they never did. 82% of respondents reported that the reason behind washing a chopping board after preparing raw meat, poultry or fish on it, and before using it for other food, was to wash away germs or bacteria and a quarter (24%) of respondents said it was to prevent food poisoning. Other reasons commonly cited were to stop remains from getting onto the next food (9%, a decrease compared with 19% at Wave 1) and to stop the taste transferring to other food (19%), and that it can be dangerous if you don’t (9%, a decrease compared with 17% at Wave 1). See Figure 3.4 for more detail.

Figure 3.4 Frequency of and reasons for using different chopping boards (Wave 1 and Wave 2)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently & Q4_3 After using a chopping board to prepare raw meat, poultry or fish people might wash the board before using it again for other foods or use a clean board. Why do you think they do this?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

Food storage in the fridge

Respondents were asked about how they arranged the contents of their fridge and the reasons behind this, specifically in relation to storing raw meat, poultry and fish. **FSA guidance is to keep raw meat separate from ready-to-eat food and that raw meat and poultry should be stored in sealed containers at the bottom of the fridge, to avoid**

dripping on other food. The image below illustrates the FSA's advice on how food should be stored in the fridge[18].

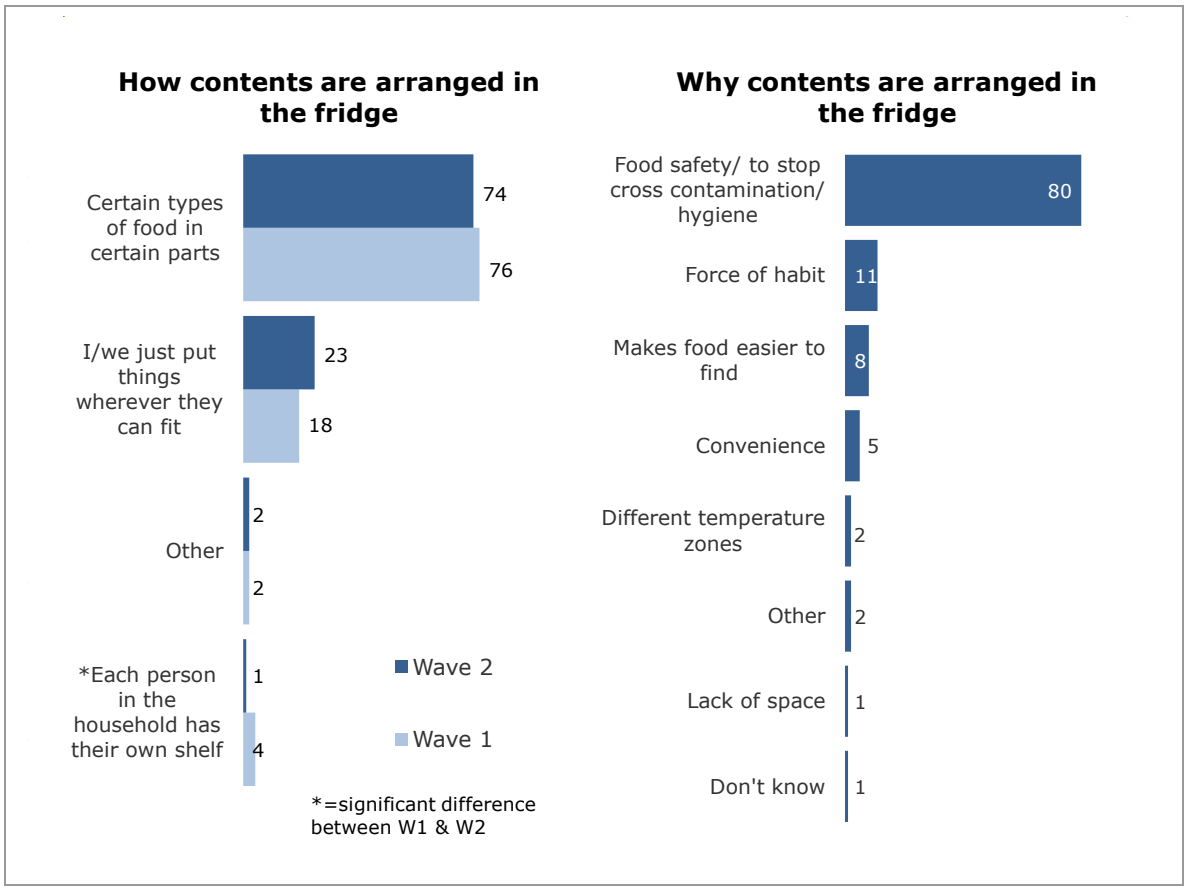
When asked how they arranged the contents of their fridge, three quarters of respondents (74%) said they always kept certain types of food in a specific part of the fridge, whilst 23% said they just put things wherever they would fit (Figure 3.5). Of those who said they kept certain foods in certain parts of the fridge, 80% said they did so for reasons of food safety, hygiene or to stop cross contamination. Eight per cent of respondents said they did this because it made food easier to find. These results suggest that, of all the respondents who

[18] http://www.eatwellscotland.org/keepingfoodsafe/storing/index.html

had a fridge in their household, 59% reported practices that were in line with FSA guidance on how food should be stored in the fridge.

There were no significant differences between Wave 1 and Wave 2 in how respondents reported food arrangement in the fridge, except for a slight decrease in the proportion of respondents who said each person in the household has their own shelf (1% compared with 4% in Wave 1).

Figure 3.5 How and why contents were arranged in the fridge (Wave 1 and Wave 2)

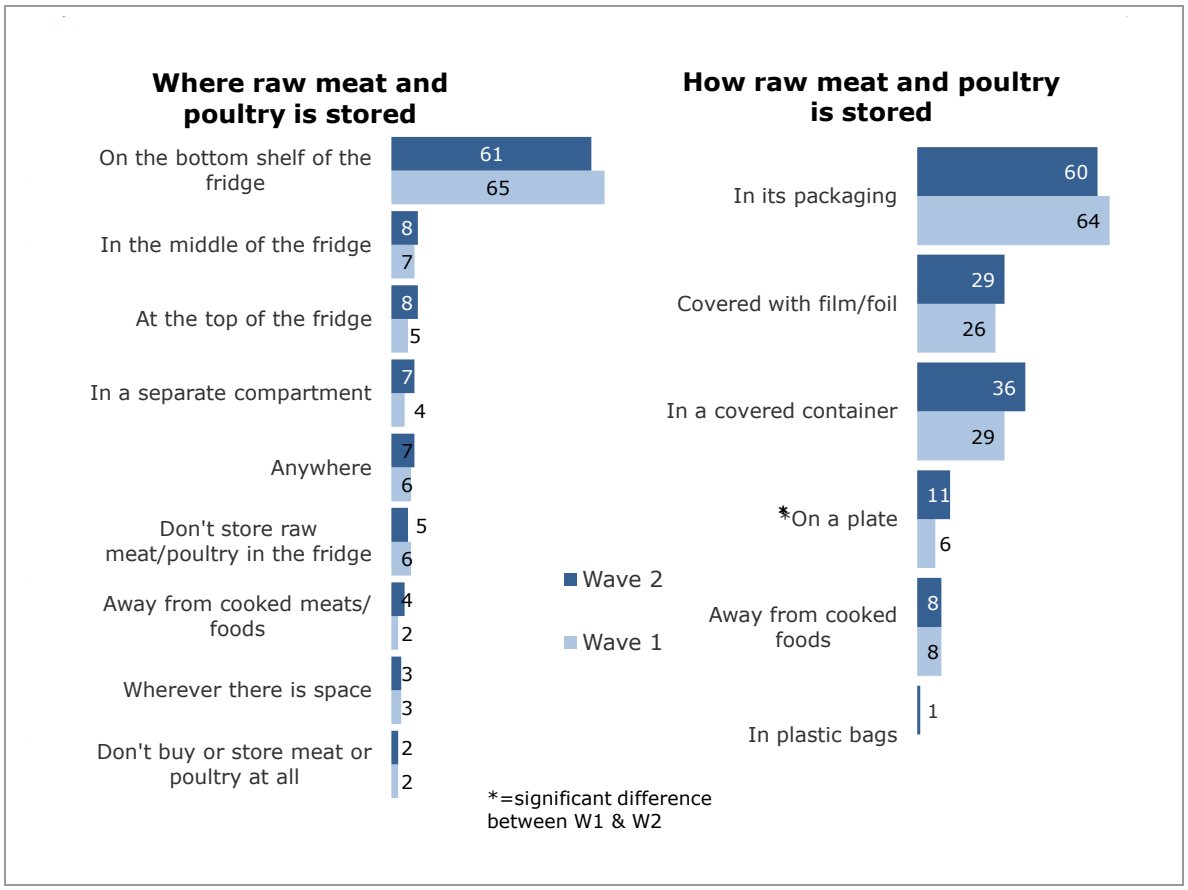


Source: Q4_13 And how do you arrange the contents of your fridge? & Q4_13A Why do you always keep certain types of food in certain parts of the fridge?
Base: Q4_13 - Wave 1-All Scotland respondents (511); Wave 2 - All Scotland respondents who have a fridge in their household (503); Q4_13A - All Scotland respondents who always keep certain types of food in certain parts of the fridge (385)

All respondents who said they had a fridge in their household were asked where they stored raw meat and poultry; 61% said they stored it on the bottom shelf of the fridge, and 16% said they stored it either in the middle or top of the fridge. Respondents were then asked how they store raw meat and poultry. Sixty per cent said they stored it in its packaging, 36% said they stored it in a covered container, 29% said they covered it with

film/foil and 11% said they stored in on a plate (an increase from 6% at Wave 1). (Figure 3.6).

Figure 3.6 Where and how raw meat and poultry were stored (Wave 1 and Wave 2)



Source: Q4_14 Where in the fridge do you store raw meat and poultry? & Q4_15 How do you store raw meat and poultry in the fridge?
Base: Q4_14 All Scotland respondents Wave 1 (511); All Scotland respondents who have a fridge in their household (503) & Q4_15 Scotland respondents who store raw meat and poultry: Wave 1 (459); Wave 2 (466)

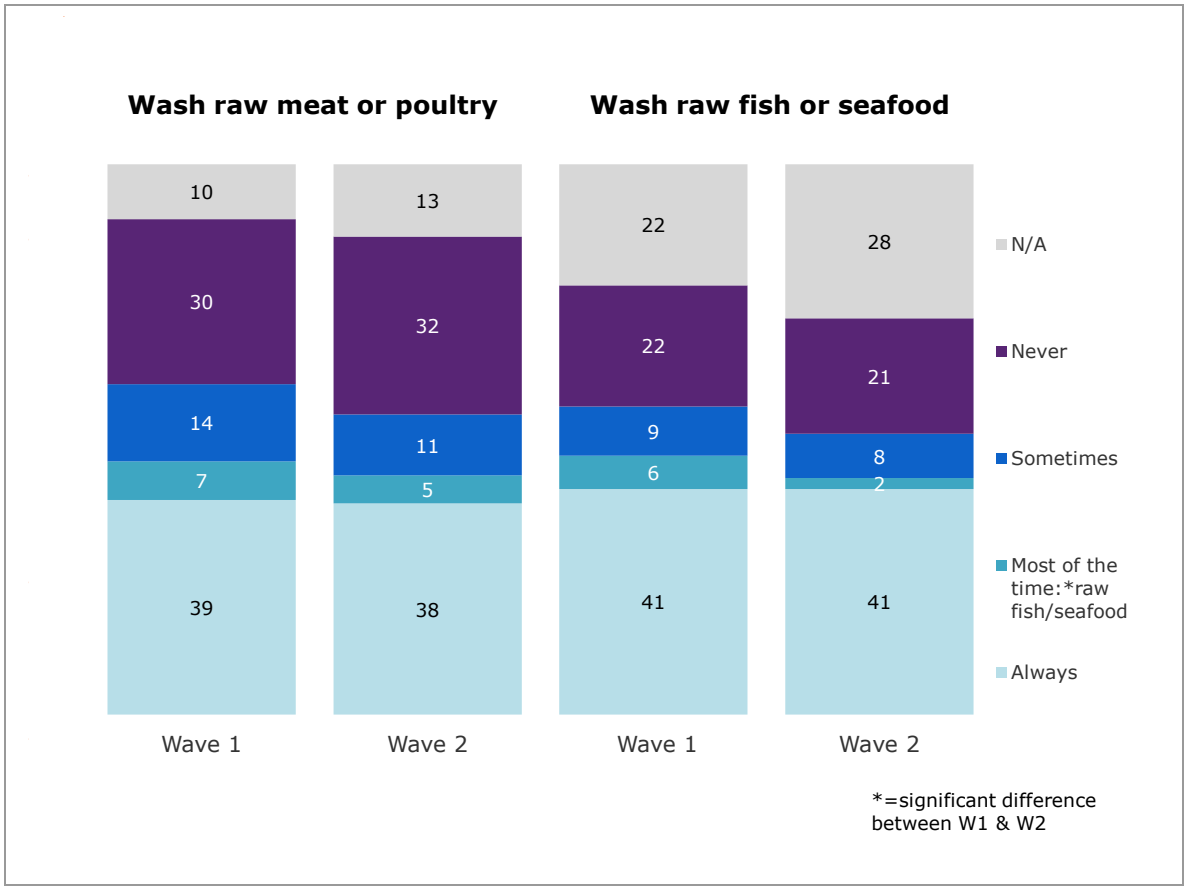
Washing raw meat and fish

Respondents were asked whether they washed raw meat, fish or seafood when preparing and cooking it. **The FSA recommends that meat and fish are not washed because of the risk of cross contamination**.

Twenty-one per cent of respondents reported that they never washed raw fish or seafood whilst 51% reported that they did at least some of the time. Forty-one per cent of Wave 2 respondents said they always washed raw fish or seafood. Whilst the proportion who said that they washed raw fish most of the time decreased at Wave 2 (from 6% at Wave 1 to 2%), there was no significant change across the two waves in terms of the overall proportion of respondents who said they washed raw fish at least some of the time.

Compared with washing fish and seafood, a higher proportion of respondents reported that they never washed raw meat or poultry (32%). Fifty-five per cent said they washed raw meat or poultry at least some of the time and 38% of respondents said they always washed raw meat or poultry. Results are shown in Figure 3.7.

Figure 3.7 Frequency of washing raw meat, fish or poultry (Wave 1 and Wave 2)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently
Base: All Scotland respondents: Wave 1 (511); Wave 2 (507)

Washing fruit and vegetables

In Wave 2, respondents were asked a new series of questions, about whether they washed fruit or vegetables, which were going to be eaten raw or cooked. **FSA guidance is that unless packaging around vegetables says it is 'ready-to-eat', these foods should be washed, peeled or cooked before consumption. Vegetables which are**

going to be eaten raw should be washed to help minimise the risk of food poisoning (for instance from soil).

Three fifths (59%) of respondents reported that they always washed fruit which was going to be eaten raw, while 82% said they did this at least some of the time and 11% said they never did. Respondents were more likely to say they washed vegetables (including salad) that were going to be eaten raw - 72% said that they always did, 86% said they did this at least some of the time and 3% said they never did.

When fruit was going to be cooked, a lower proportion of respondents said they would wash it compared with when it was to be eaten raw. Half (48%) of respondents said they always washed fruit that was going to be cooked and 61% said they did at least some of the time, while 13% stated that they never did. Respondents were more likely to say that they washed vegetables which were going to be cooked; 69% said they always did, 85% said they did this at least some of the time and 8% said they never did.

3.2.4 Reported behaviours relating to the '4 Cs' - Chilling

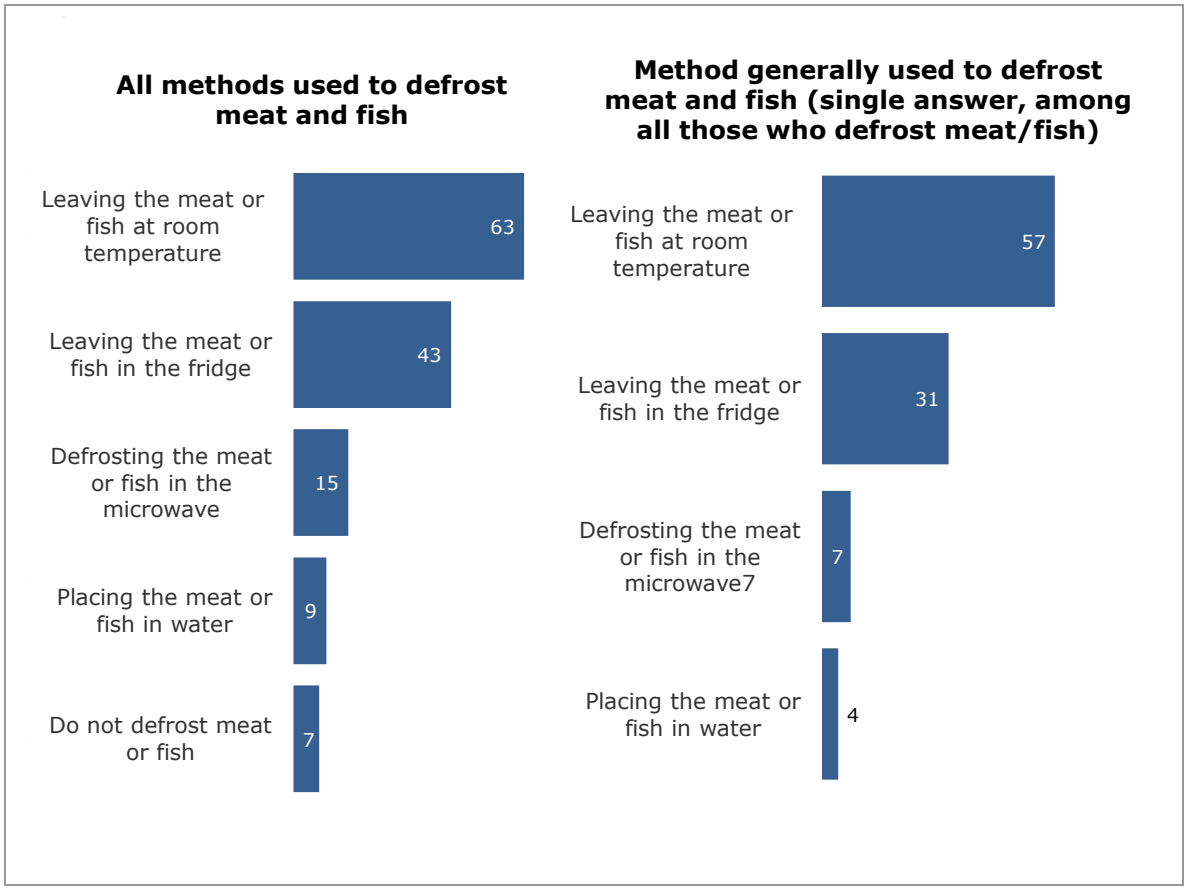
Chilling and defrosting

Respondents were asked about whether they store open tins in the fridge. The majority of respondents (79%) said they never did this, which is in line with recommended FSA guidance. Eighteen per cent said that they did this at least some of the time, and 3% said that they always did this. There were no significant differences between Wave 1 and Wave 2 in response to this question.

Respondents were also asked what methods they used to defrost frozen meat or fish. **FSA guidance is to defrost food slowly and safely overnight in the refrigerator or to use a microwave oven (carefully ensuring that the food is fully defrosted before cooking it straight away). The FSA recommends not to defrost food at room temperature as this provides ideal conditions for bacteria to grow.**

When answering the question, respondents could select more than one response. The most frequently given answer, was leaving the meat or fish at room temperature (63%). Forty-three per cent of respondents said that they defrosted meat or fish in a refrigerator, and 15% in a microwave, in line with FSA guidelines (Figure 3.8).

Figure 3.8 Defrosting meat and fish (Wave 2)



Source: Q4_1B Which of the following methods do you use to defrost frozen meat or fish? & Q4_1C And which method do you generally use to defrost frozen meat or fish?
Base: Q4_1B All Scotland respondents (507) & Q4_1C All Scotland respondents who defrost frozen fish or meat (464)

All respondents who said they did defrost meat or fish were asked which method they generally used. Just over half (57%) of respondents said they generally left the meat or fish at room temperature. In line with recommended practices, 31% reported that they generally defrosted meat or fish in a refrigerator, and 7% said they generally used a microwave oven.

Checking fridge temperatures

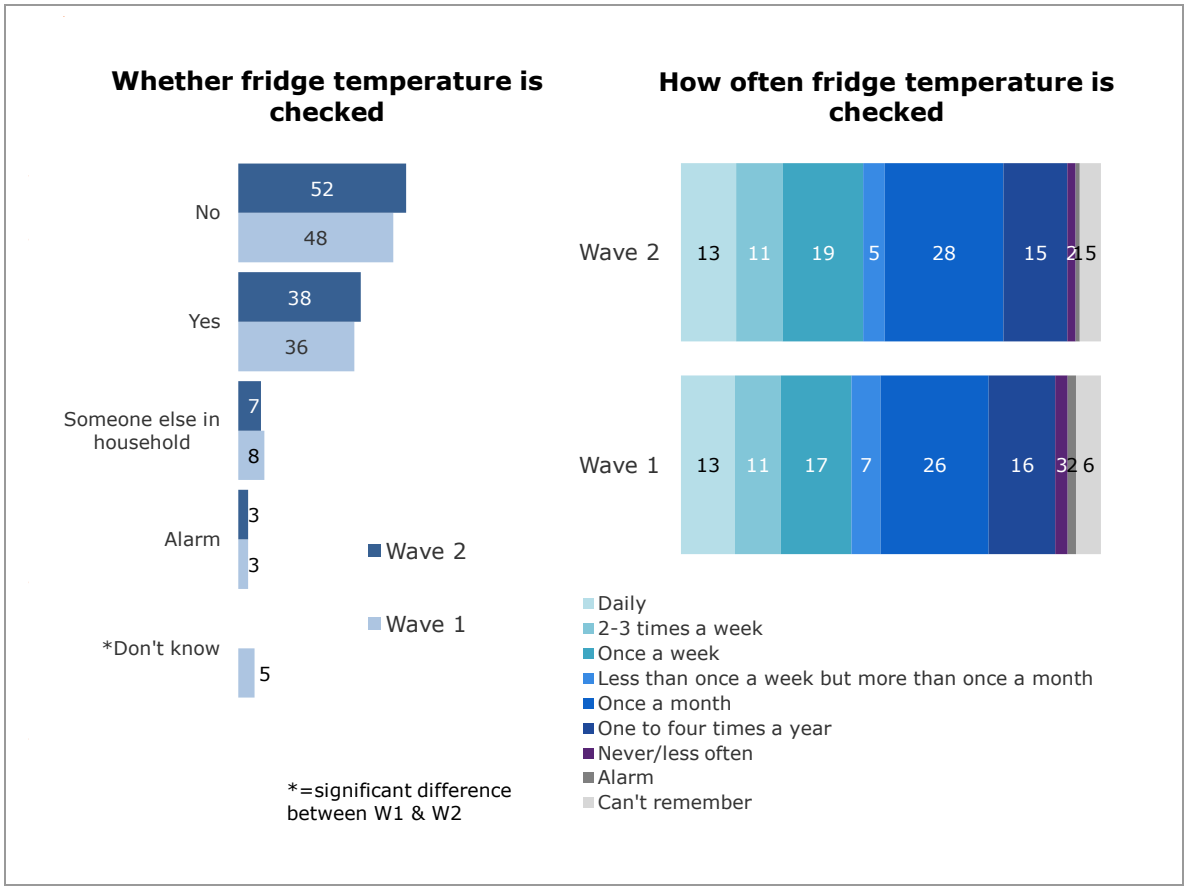
Respondents were asked various questions about their knowledge of appropriate fridge temperatures and how frequently, if at all, they checked their fridge temperature. **The FSA recommends that fridge temperatures be checked regularly and that the temperature is kept between 0-5°C to help stop food poisoning bacteria such as listeria from growing in food.**

Amongst respondents who had a fridge, 38% said that they did check the temperature whilst 52% said that they never checked. A small minority of respondents (3%) said they did not need to check as their fridge had an alarm if it was too hot or cold and 7% said someone else in the household checked. Results are shown in Figure 3.9.

Just over two fifths (43%) of all respondents who checked their fridge temperature did so at least once a week. Thirteen per cent said they checked it on a daily basis, and 45% said they checked it once a month or less.

There were no significant differences between Wave 1 and Wave 2 in the proportion of respondents who said they checked their fridge temperature or the frequency of checking.

Figure 3.9 Checking fridge temperatures (Wave 1 and Wave 2)

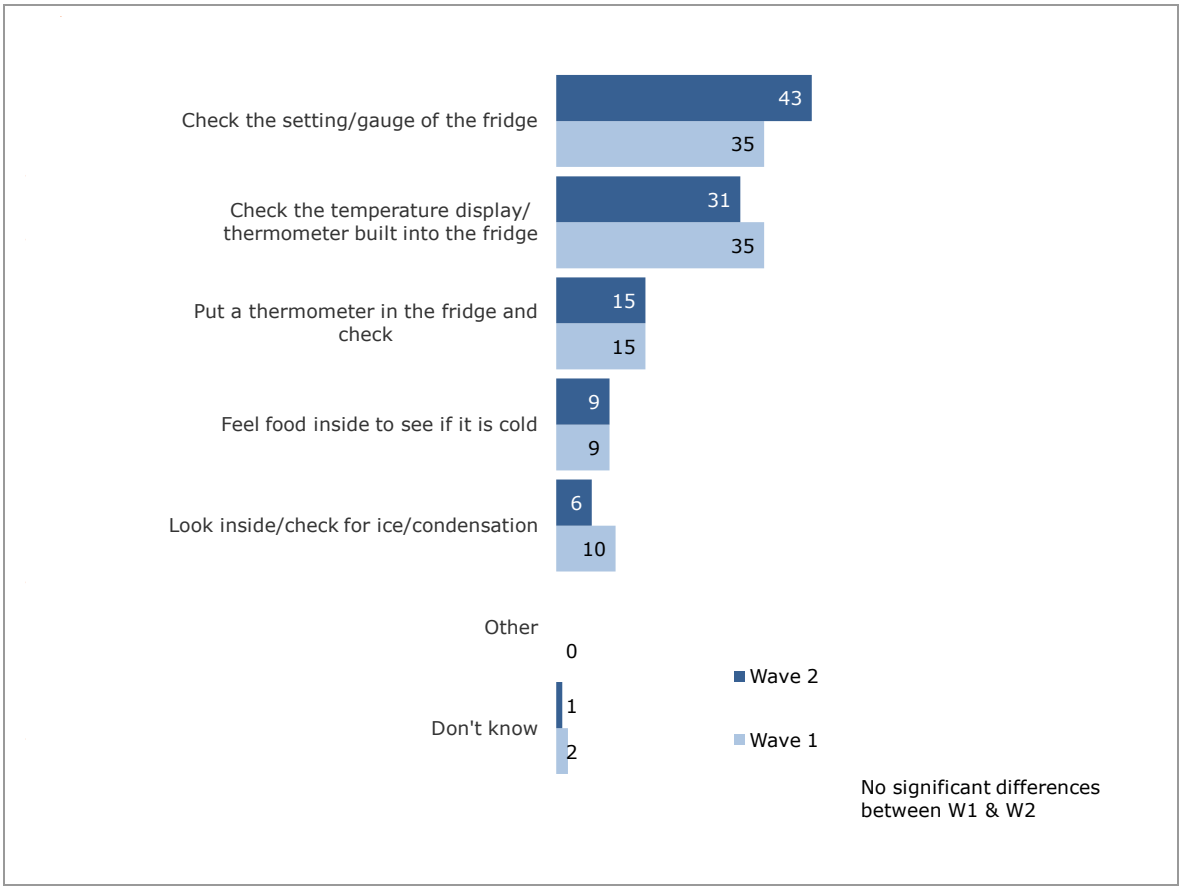


Source: Q4_9 Do you ever check your fridge temperature? & Q4_10 How often do you or another person in your household check the temperature of the fridge?
Base: Q4_9 Wave 1 - All Scotland respondents (511); Wave 2: All Scotland respondents who have a fridge in their household (503) & Q4_10 All Scotland respondents who check their fridge temperature – Wave 1 (224); Wave 2 (209)

Respondents who said they checked their fridge temperature, but did not have an alarm, were asked how they normally checked it. **The use of a thermometer is the**

recommended method for checking fridge temperature and 15% of respondents reported using this method. The most common method (43%) was to check the setting/gauge of the fridge, followed by looking at the temperature display/thermometer built into the fridge (31%).

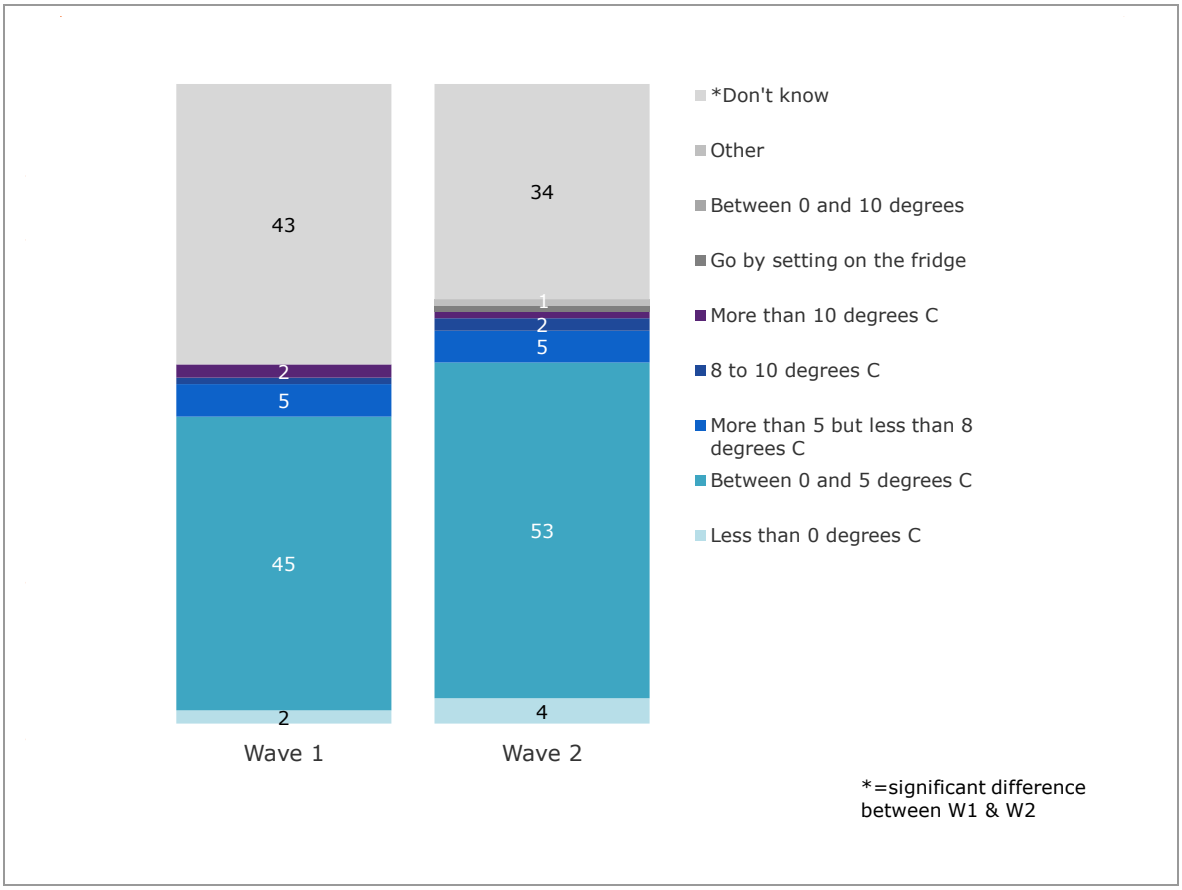
Figure 3.10 How fridge temperature is checked (Wave 1 and Wave 2)



Source: Q4_11 Still thinking about fridge temperatures, can you tell me how you normally check the temperature?
Base: Q4_11 Scotland respondents who do not have a fridge alarm- Wave 1 (221); Wave 2 (207)

When all respondents were asked what they thought the temperature inside a fridge should be, 53% said between 0 and 5°C, which is in line with the FSA's guidelines. Although the proportion was 45% at Wave 1, this increase was not statistically significant. Thirty-four per cent of respondents in Wave 2 reported that they did not know what the fridge temperature should be, a decrease from 43% in Wave 1. Other respondents gave a range of answers. Full results are shown in Figure 3.11.

Figure 3.11 Knowledge of what fridge temperature should be (Wave 1 and Wave 2)



Source: Q4_12 What do you think the temperature inside your fridge should be?
Base: Q4_12 Wave 1 All Scotland respondents (511); Wave 2 All Scotland respondents with a fridge in their household (503)

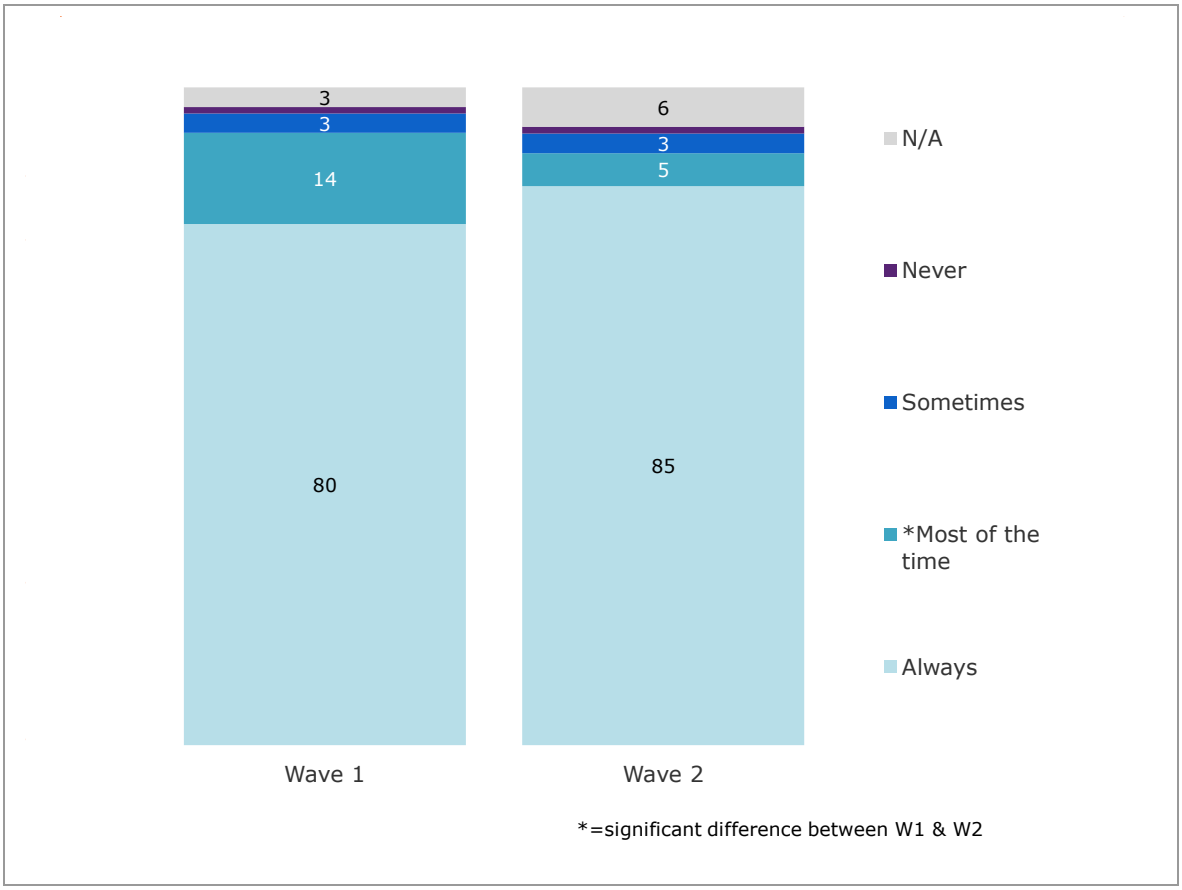
3.2.5 Reported behaviours relating to the '4 Cs' – Cooking

Cooking food until steaming hot

The FSA recommends that all food is cooked to steaming hot. In Wave 2 85% of respondents reported that they always did this, with only 1% of respondents reporting that they never did this (Figure 3.12).

The proportion of respondents who said that they would cook food until it was steaming hot most of the time decreased from 14% in Wave 1 to 5% in Wave 2.

Figure 3.12 Frequency of cooking food until it is steaming hot (Wave 1 and Wave 2)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently?
Base: Q4_1 All Scotland respondents- Wave 1(511); Wave 2 (507)

Cooking meat, poultry and sausages or burgers

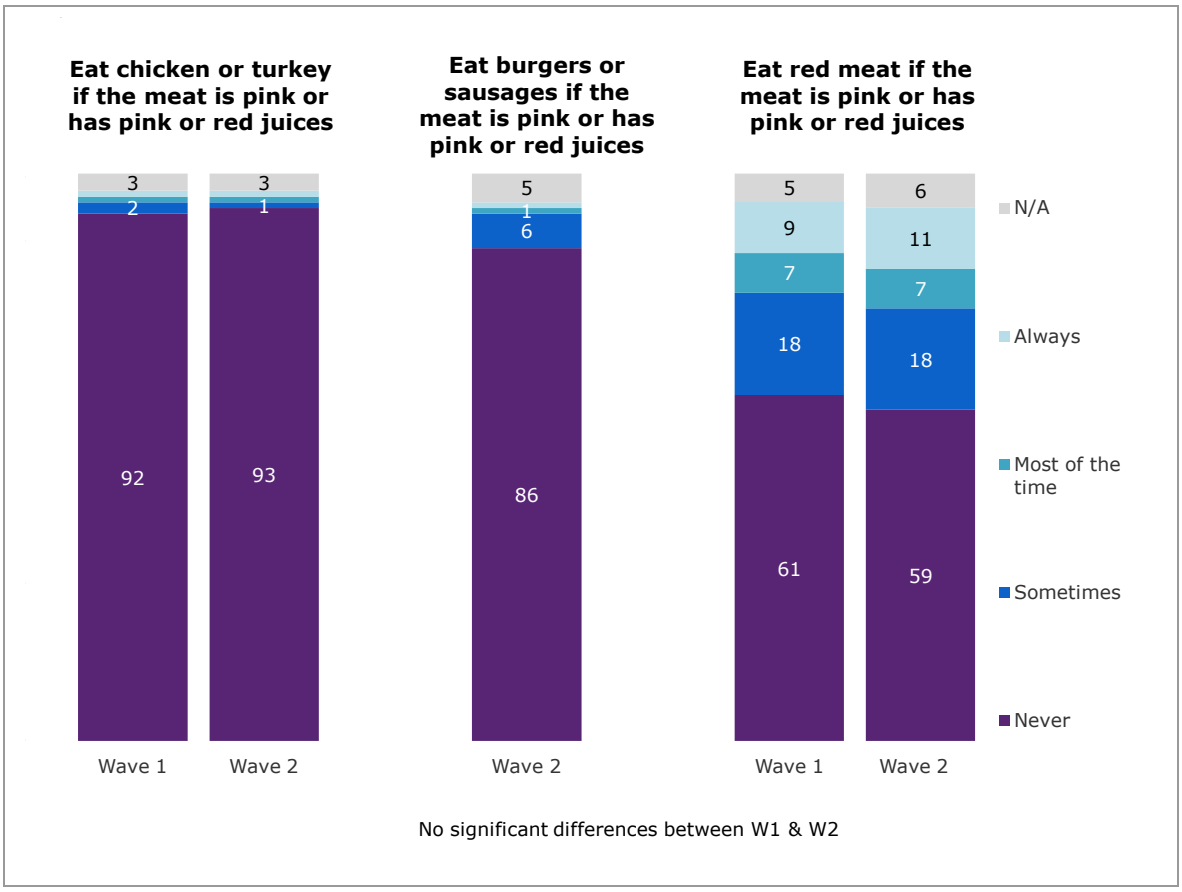
Respondents were asked how often they ate meat when it was pink or had pink/red juices. **The FSA guidance is to ensure that poultry, pork, burgers, sausages and kebabs are properly cooked all the way through, that is, they are not pink and have no pink/red juices. Steaks and other whole cuts of beef and lamb may be eaten rare, as long as they have been properly cooked and sealed on the outside**[19].

Ninety-three per cent of respondents reported that they never ate chicken or turkey if the meat was pink or had pink/red juices. Only 1% of respondents said they always ate chicken or turkey if the meat was pink or had pink/red juices whilst another 1% said that they sometimes did. Eighty-six per cent of respondents said they never ate burgers of

[19] Advice about steak and beef is fine for the majority, but the FSA advises at risk groups (especially pregnant mothers, the very elderly and those who are immuno-compromised) not to eat rare lamb owing to risk of toxoplasmosis.

sausages if the meat was pink or had pink/red juices. One per cent of respondents said that they always, and 6 % said they sometimes, ate burgers or sausages if the meat was pink or had pink/red juices. For red meat, 59% reported they never ate red meat if it was pink or had pink/red juices, and 11% reported they always did. Eighteen per cent said they sometimes did and 7% said they did most of the time. All these proportions are similar to Wave 1 (Figure 3.13).

Figure 3.13 Frequency of eating chicken or turkey and burgers or sausages or red meat if the meat is pink or has pink/red juices (Wave 1 and Wave 2)



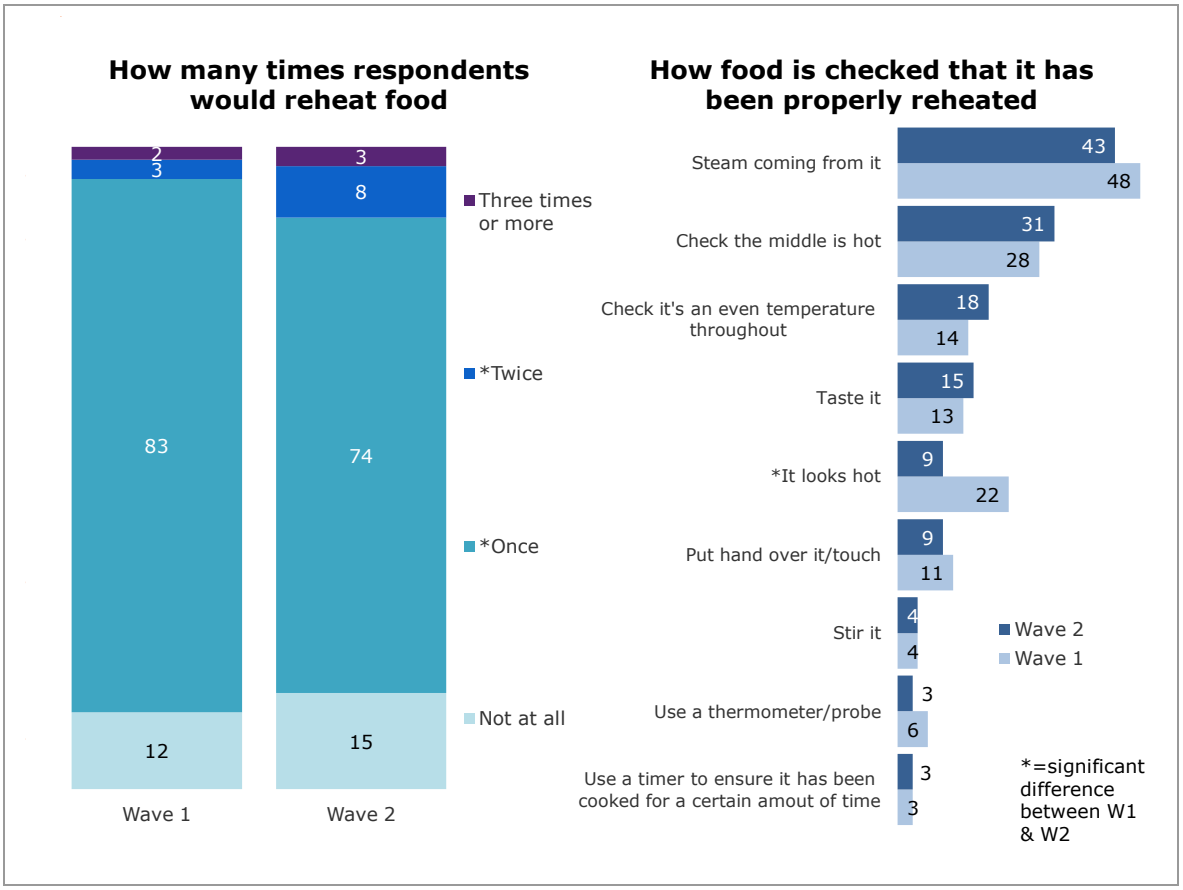
Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently?
Base: Q4_1 All Scotland respondents- Wave 1(511); Wave 2 (507)

Reheating

All respondents who reported they ate leftovers were asked how many times they would consider re-heating food, and how they could tell that food had been re-heated properly. **FSA guidance is not to reheat leftovers more than once and to cook the leftovers until they are steaming hot throughout.** Seventy-four per cent of respondents said that they would only re-heat food once, while 15% said that they would not re-heat food at all. Eight per cent said they would re-heat food twice and 3% said they would reheat food three times. Comparing the results at Wave 2 with those at Wave 1 there was a decrease in the proportion of respondents who said that they would consider re-heating food only once (from 83% to 74%), with a corresponding increase in the proportion who would consider re-heating twice (from 3% to 8%). (Figure 3.14).

The most common method reported by respondents to tell if food had been reheated properly was to check that steam was coming from it (43%). This was followed by checking the middle is hot (31%). A small minority of respondents (2%) said that they did not check to see if food had been re-heated properly. Compared to Wave 1, a decrease was seen in the proportion of respondents reporting they checked to see if food had been properly reheated by seeing if it looks hot (from 22% to 9%).

Figure 3.14 Reheating food (Wave 1 and Wave 2)



Source: Q4_25 How many times would you consider re-heating food after it was cooked for the first time? & Q4_26 And how do you usually tell that food has been re-heated properly?
Base: Q4_25 All Scotland respondents who have leftovers: Wave 1(460); Wave 2(455) & Q2_46 All Scotland respondents who have leftovers and would consider re-heating: Wave 1(404); Wave 2(391).

3.2.6 Methods used to tell whether food is safe to eat

Respondents were asked a series of questions about:

- how they could tell if food was safe to eat or use in cooking;
- what they thought was the best indicator of whether food was safe to eat; and,
- whether they checked use-by dates when buying and using food.

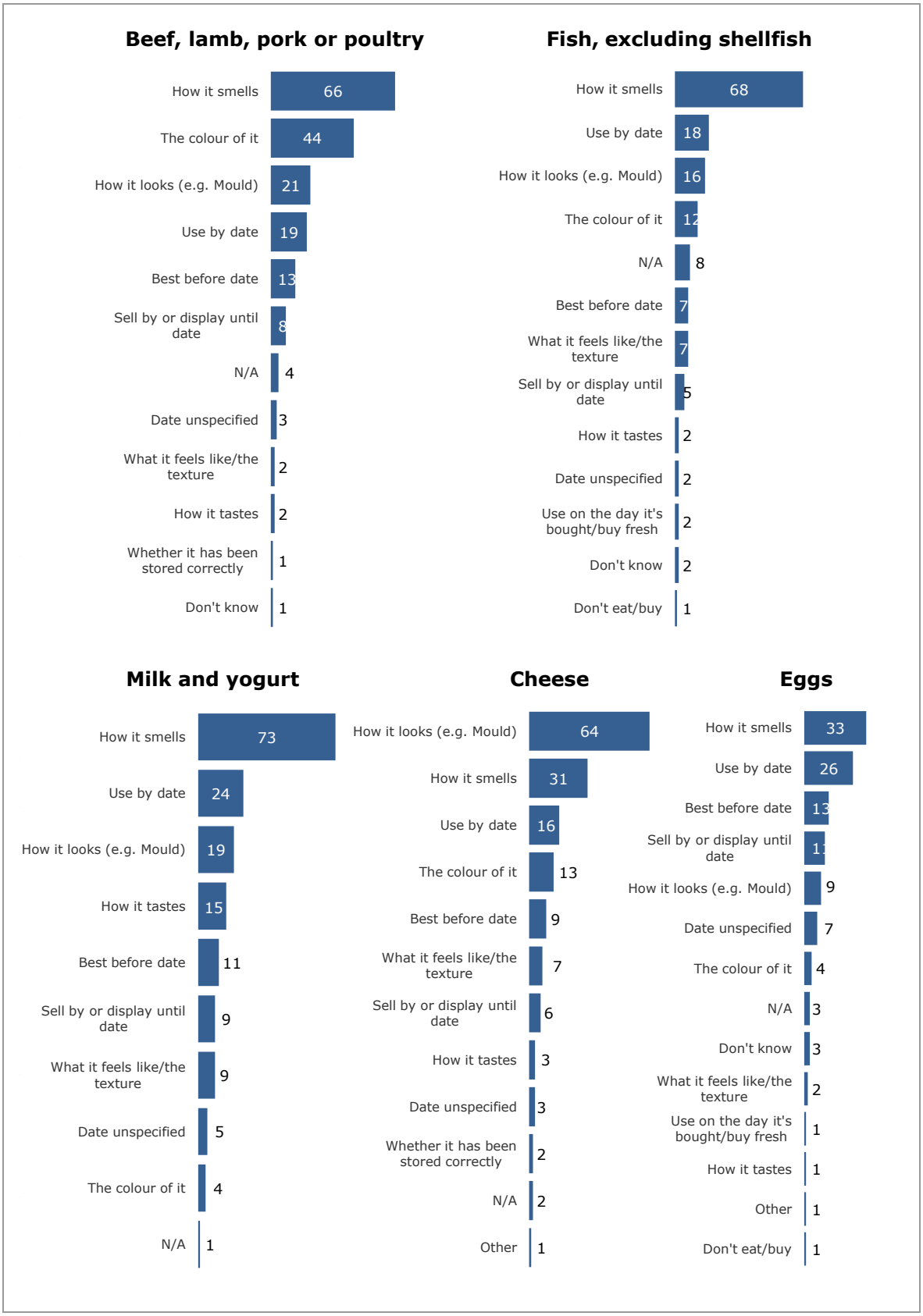
FSA guidance is that even if the food looks and smells fine, the use-by date is the best indicator of whether food is safe to eat.

How food smelled was one of the most common ways respondents said they could tell whether a food was safe to eat, and was the most commonly reported method for meat, fish, milk/yoghurt and eggs. For example, around three quarters (73%) of respondents said they used this method when checking whether milk or yoghurt was safe to eat and 68% used smell as an indicator for fish. How food looks (for example the appearance of mould)

was the most common practice (64%) for telling whether cheese was safe to eat. For meat, colour was the second most commonly reported method (44%).

Use-by dates were also mentioned as an indicator of whether food was safe; 26% said they used this for checking eggs, and 24% for milk/yoghurt. Fifteen per cent also said they checked whether eggs floated in water to tell whether they were safe to eat. Very few respondents said they used food on the day it was bought or bought it fresh so that they knew it was safe to eat (Figure 3.15).

Figure 3.15 Methods used to tell whether food is safe to eat (Wave 2)



Source: Q4_18 For each of the following foods, please say how you can tell whether it is safe to eat or use in cooking? Base: All Scotland respondents (507)

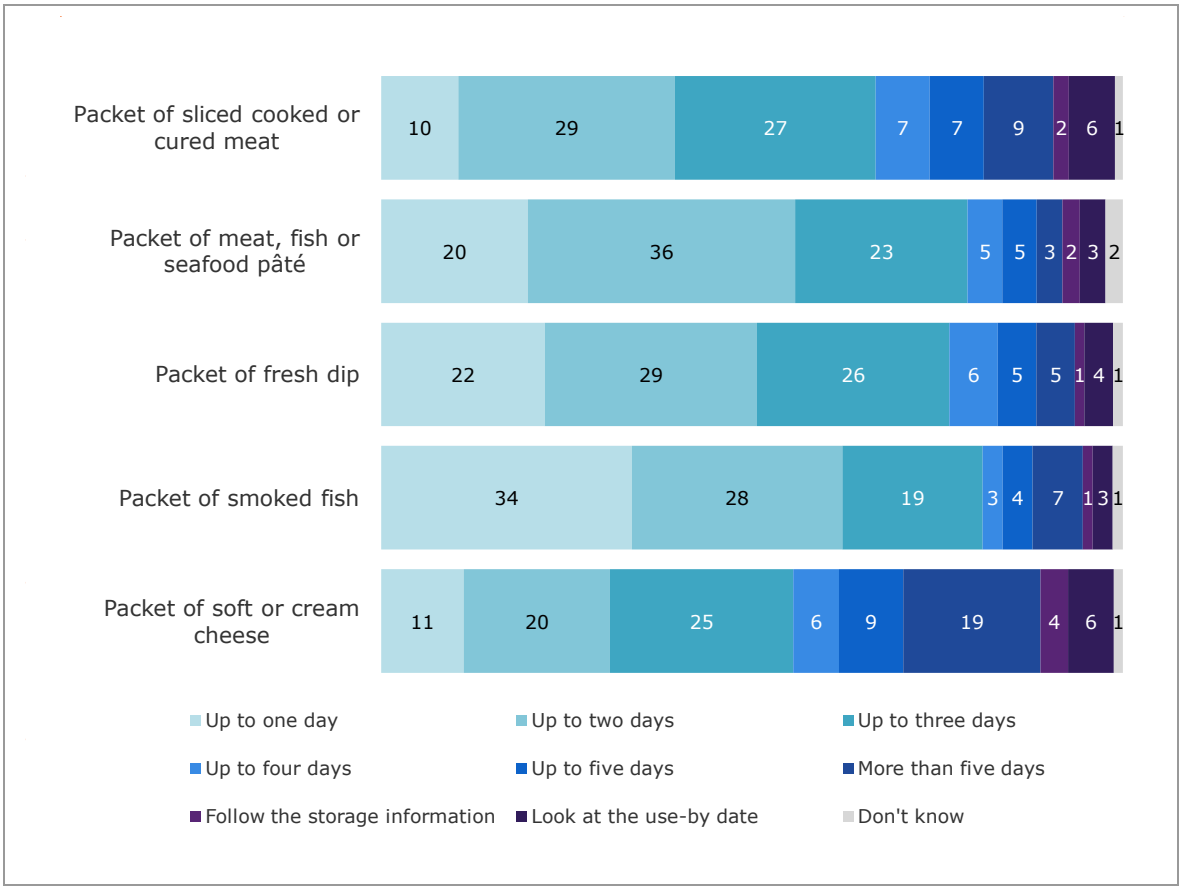
Storage information

Respondents were asked what would be the maximum number of days they would keep various food items in the fridge after opening them. All respondents were asked about a number of different food items, but were given the option to state that they did not eat/use each item[20]. These respondents have been removed from the data reported, so that it is reflective only of those actually using each item, making it easier to make comparisons across the different food types. **The FSA recommends using opened foods within two days, unless the manufacturer's instructions on packaged labels say otherwise.**

Respondents were most likely to report consuming food within two days for 'smoked fish' (52%) and 'meat, fish or seafood pâté' (56%). Respondents were least likely to report consuming soft cheese (32%) within two days. A minority of users reported that they would look at the use-by date or follow the storage information on the product (between 3% and 6% of respondents stated they would look at the use-by date and between 1% and 3% stated that they would follow storage information). See Figure 3.16 for more detail.

[20] Out of all respondents, 5% said they did not eat/use packets of sliced cooked or cured meat, 14% did not eat/use packets of meat, fish or seafood pâté, 21% did not eat/use packets of fresh dip, 25% did not use packets of smoked fish and 19% did not eat/use packets of soft or cream cheese.

Figure 3.16 Maximum time respondents would eat/use food after opening it (Wave 2)



Source: Q4_23A If you open ... and keep it stored in the fridge, what is the maximum number of days you would keep it in the fridge for before deciding you would definitely not eat/drink it?
Base: Q4_23A All Scotland respondents, excluding those who do not eat/use each food item – Packet of sliced cooked or cured meat (474); Packet of meat, fish or seafood pâté (418); Packet of fresh dip (382); Packet of smoked fish (357); Packet of soft or cream cheese (408)

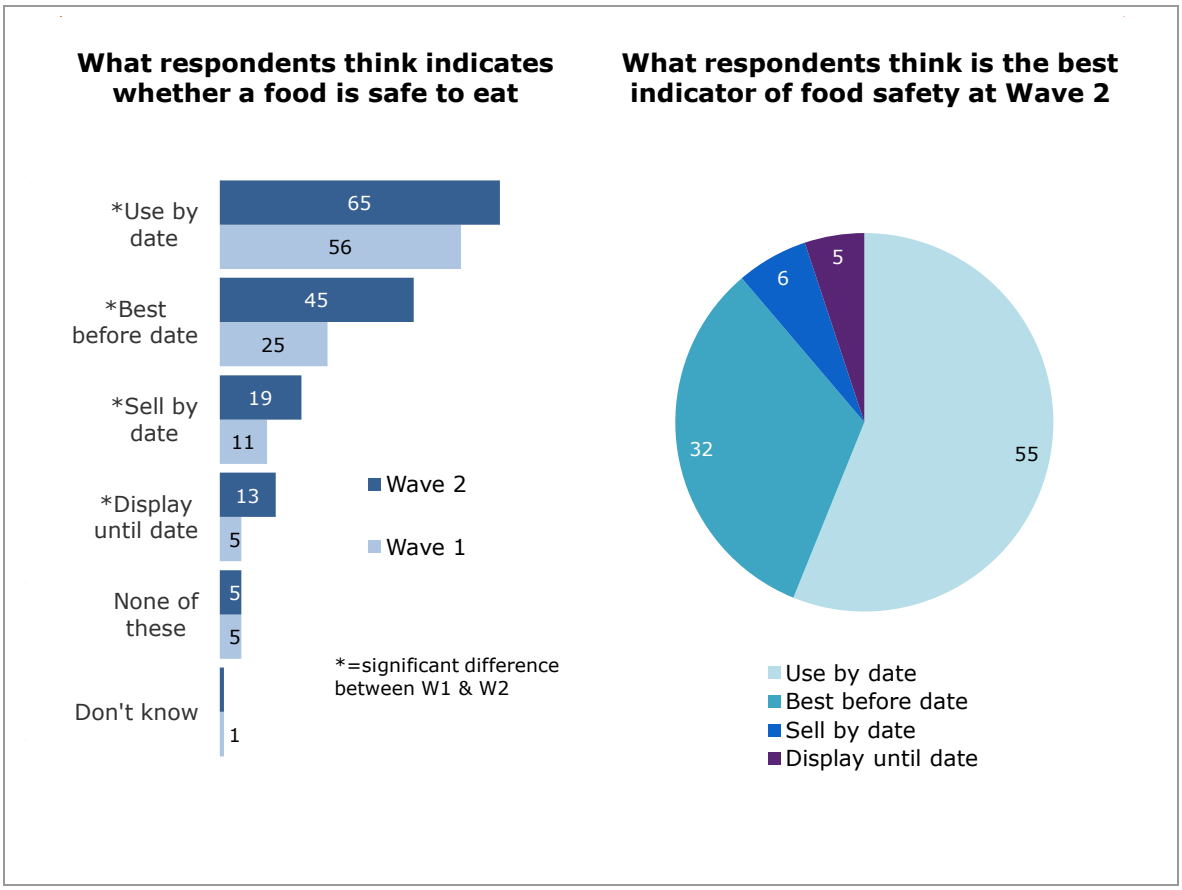
Use-by and best-before dates

Respondents were presented with a list of indicators which are typically found on food packaging and were asked which of these indicated whether food was safe to eat; respondents were able to select more than one response in both waves therefore the increase seen across all indicators should be interpreted with this in mind. **FSA guidance is that the use-by date is the best indicator of whether food is safe to eat and food should not be eaten after this date.**

The majority of respondents (65%) cited the use-by date as an indicator of whether food was safe to eat. This was an increase compared with Wave 1 (56%). However, the proportion of respondents who *only* mentioned the use-by date was the same in Wave 2 as in Wave 1 (39% and 38% respectively). Seven per cent of respondents mentioned all four options (use-by, best-before, sell-by, display until dates) as indicators.

Respondents were then asked which one of the four dates was the best indicator of food safety; 55% selected the use-by date while 32% selected the best-before date. Results are also shown in Figure 3.17.

Figure 3.17 Indicators of food safety (Wave 1 and Wave 2)

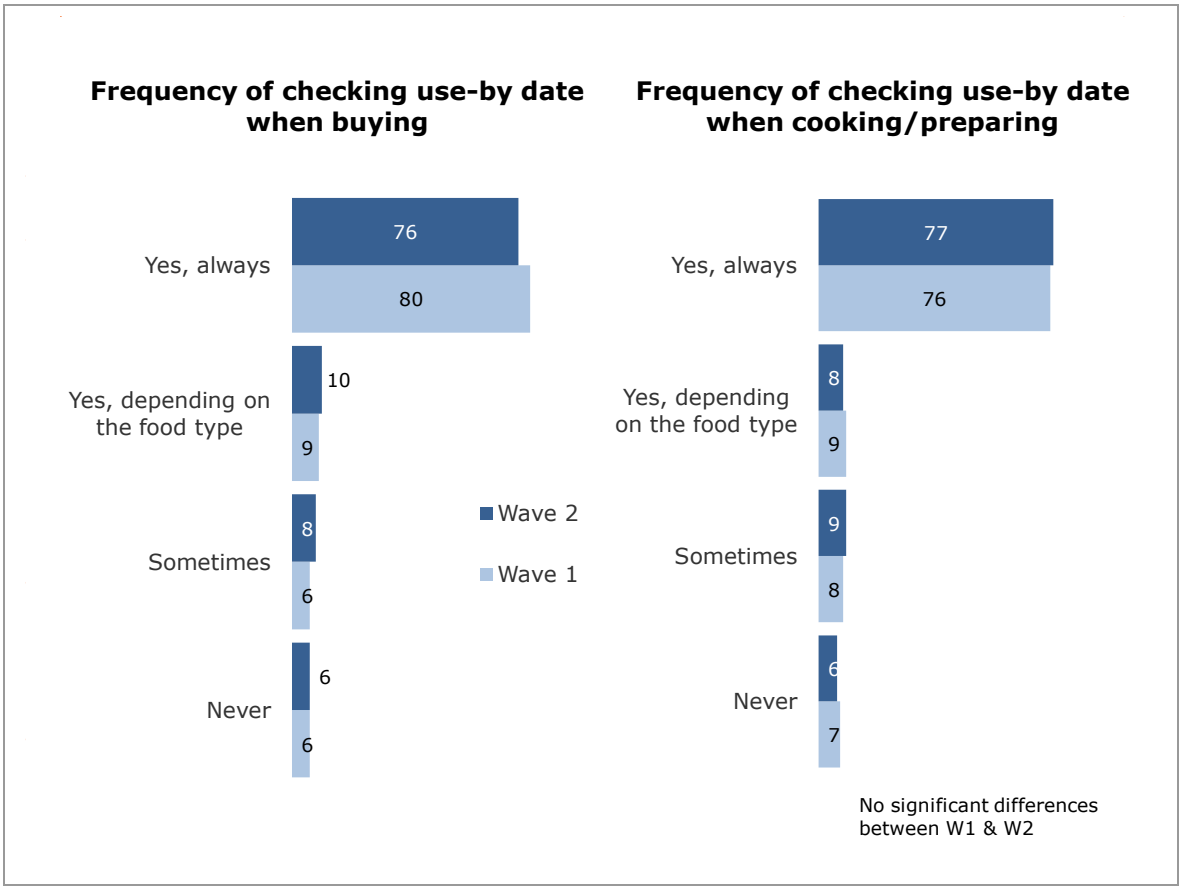


Source: Q4_19 Which of these indicates whether food is safe to eat? & Q4_19B Which of these is the best indicator of whether food is safe to eat?
Base: Q4_19 All Scotland respondents: Wave 1 (511); Wave 2 (507) & Q4_19B All Scotland respondents: Wave 2 (507)

When asked if they checked use-by dates when buying food: 76% said that they always did regardless of food type (not significantly changed from 80% at Wave 1), and 10% reported that they did depending on food type (unchanged from 9% at Wave 1). A very small proportion in both waves (6%) said they never checked.

Three quarters (77%) of respondents said that they always checked use-by dates when cooking or preparing food and this was also similar to the result at Wave 1 (Figure 3.18).

Figure 3.18 Frequency of checking use-by date (Wave 1 and Wave 2)



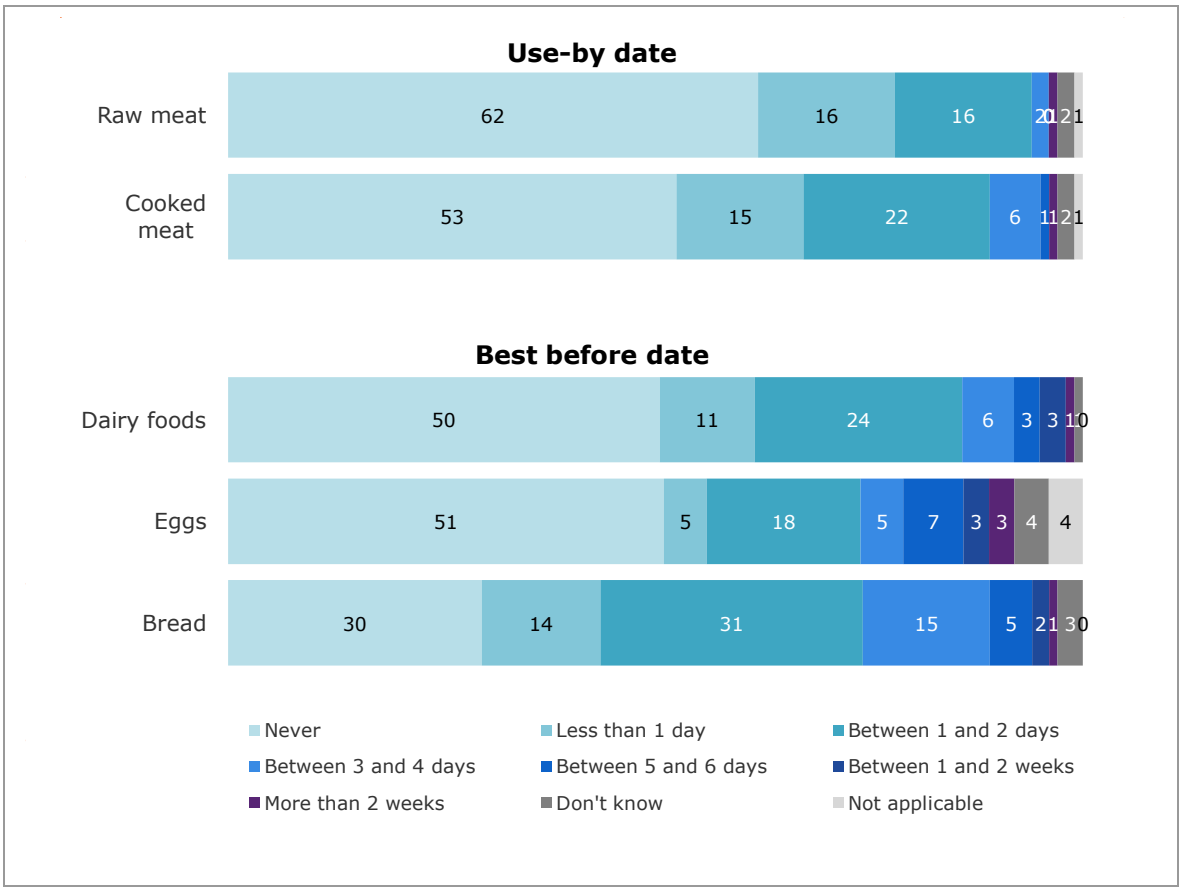
Source: Q4_21 Do you check use-by dates when you are buying food? & Q4_22 Do you check use-by dates when you are about to cook or prepare food?
Base: Q4_21 & Q4_22 All Scotland respondents- Wave 1(511); Wave 2(507)

Respondents were asked what would be the maximum time after the use-by or best-before date that they would eat certain foods. **FSA guidance on use-by dates is that foods should be consumed by the use-by date specified on the label as it could be dangerous to eat food after this, even though it might look and smell fine.** Best-before dates appear on food with a longer shelf life. They show how long the food will last

at its best quality. Using food after the best-before date does not mean it will be unsafe with the exception of eggs which should be used by the best-before-date.

At least half of all respondents said that they would never use or eat beyond the use-by/best-before date any raw meat (62%), cooked meat (53%), eggs (51%) or dairy foods (50%). Respondents were less likely to say they would never eat bread after its use-by/best-before date (30%). A third or more of respondents said they would use or eat raw meat (32%), dairy products (35%), cooked meat (37%) and bread (45%) up to two days after the use-by/best-before date and just under a quarter (23%) said they would do so for eggs. Only a minority of respondents said they would eat the products more than two days after the use-by/best-before date, with bread the most commonly mentioned food (24%), followed by eggs (19%) and dairy products (13%). A significant minority said that they would use eggs five to six days after the best-before date (7%); 3% said they would use eggs 1-2 weeks after the best-before date and a further 3% more than two weeks after the best-before date (Figure 3.19).

Figure 3.19 Maximum time after use-by date/best-before date that respondents would eat/use food (Wave 2)



Source: Q11_6 What is the maximum time after the USE-BY/BEST-BEFORE END date that you would use/eat...?
Base: All Scotland respondents (507)

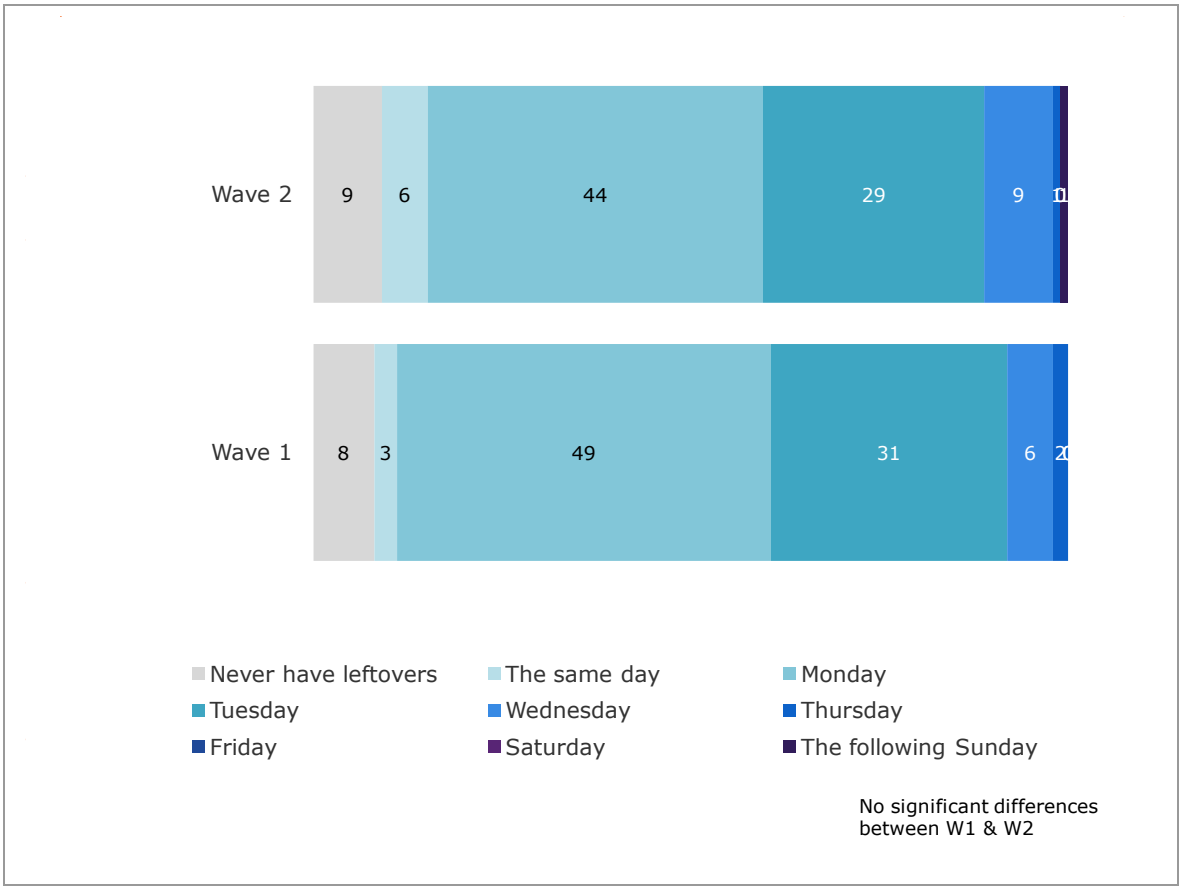
Maximum time for keeping leftovers

Respondents were asked what would be the last day they would consider eating leftovers if they made a meal on Sunday. **FSA guidance is that leftovers should be used within two days (that is, up to Tuesday).** Results for both waves are shown in Figure 3.20.

Seventy-nine per cent of respondents reported that, if they cooked a meal on Sunday, they would eat the leftovers within two days (44% reported that they would eat leftovers the next day and 29% said they would eat them on the Tuesday). Eleven per cent of respondents said they would eat the leftovers three days or more after cooking (i.e. Wednesday or after).

The results from Wave 1 and Wave 2 were similar.

Figure 3.20 Last day respondents would consider eating leftovers from a meal (having cooked it on Sunday) (Wave 1 and Wave 2)



Source: Q4_24 If you made a meal on Sunday, what is the last day that you would consider eating the leftovers? Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

3.2.7 Variation in food safety practices (4Cs and methods used to tell whether food is safe to eat) by different groups in the population

Reported food safety practices were found to vary considerably by **gender.** In general, women were more likely than men to report food safety practices in line with Agency recommended practice (RP). For example:

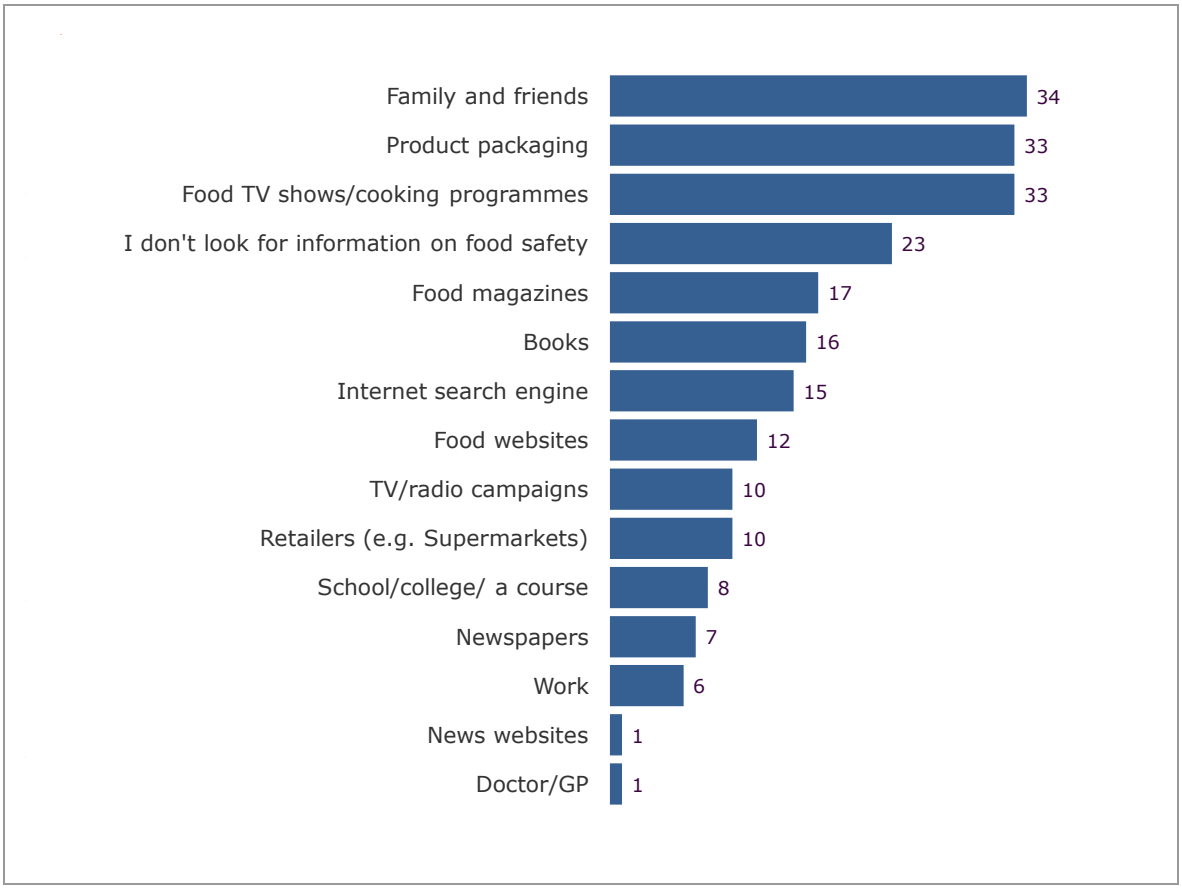
- Cleaning the sink and draining board thoroughly at least once a week (96% of women reported this compared with 87% of men);
- Always using different chopping boards for different foods (65% compared with 42%);
- Always washing vegetables which are going to be eaten raw (77% compared with 67%);
- Always washing fruit which is going to be eaten raw (67% compared with 50%);
- Always washing hands after handling raw meat (91% compared with 80%);
- Always cooking food until steaming hot throughout (91% compared with 77%).

However, for washing raw meat or poultry, women were less likely than men to report practices that were in line with RP (61% compared with 47%).

3.3 Sources of information on food safety at present and in the future

Respondents were asked what sources they used for information on how to prepare and cook food safely. Thirty-four per cent said they used family and friends whilst a third said they relied on product packaging (33%) and Food TV shows/cooking programmes (33%). Just under a quarter (23%) said that they did not look for information on food safety (Figure 3.21).

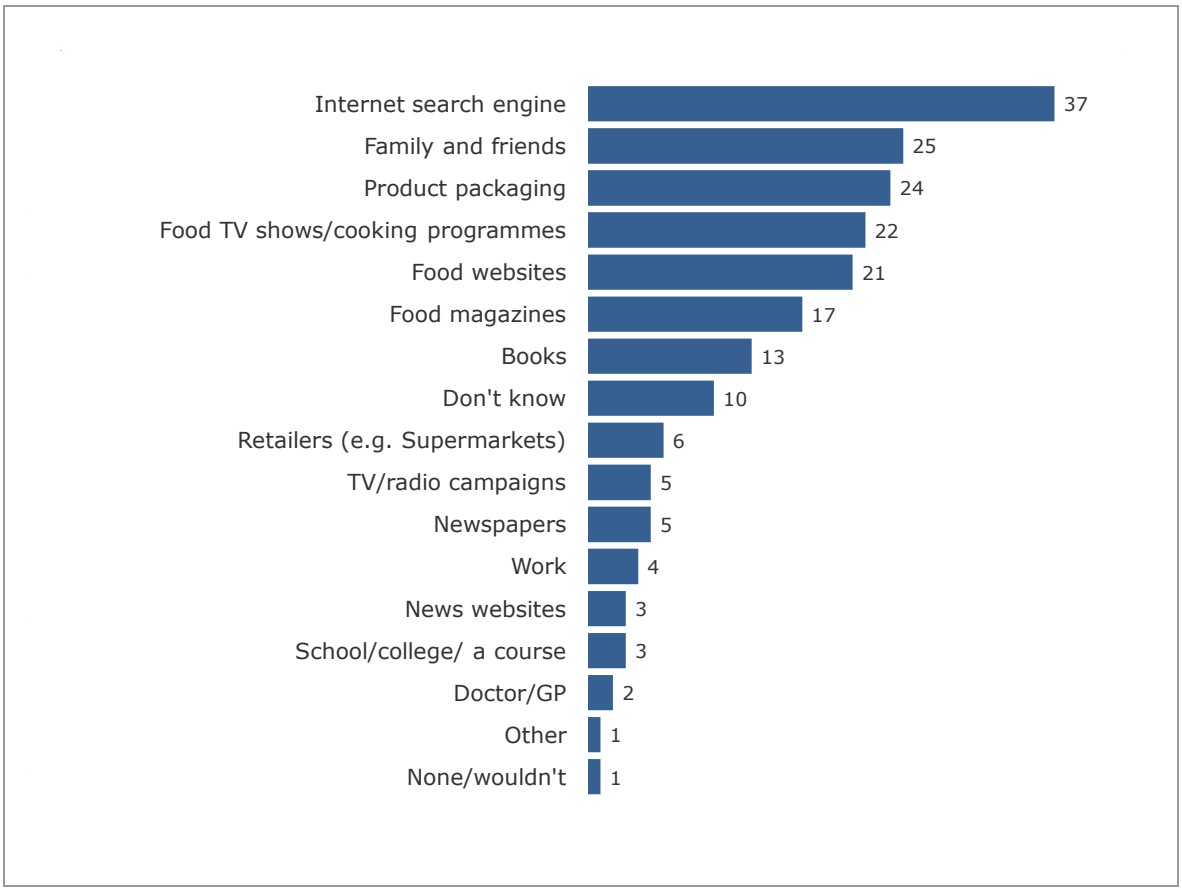
Figure 3.21 Sources of information on food preparation and cooking food safely (Wave 2)



Source: Q11_8B Looking at this screen, do you get information about how to prepare and cook food safely at home from any of these sources?
Base: All Scotland respondents - Wave 2 (507)

When asked where, if they decided to look for it, respondents would get information about safely preparing and cooking food in the future, the top two sources were different to the sources respondents reported they currently used. The most popular source for future information was an internet search engine, which was selected by 37% of respondents compared with 15% who said they currently use this source. Similarly, the proportion of respondents that said they would use food websites in the future was higher (21%) than the proportion that said they currently use them (12%) (Figure 3.22).

Figure 3.22 Future sources of information on food preparation and cooking food safely (Wave 2)



Source: Q11_8C In the future if you decided to look for more information about how to prepare and cook food safely at home, where would you look for this information?
Base: All Scotland respondents - Wave 2 (507)

3.3.1 Variation in sources of information on preparing and cooking food safely by different groups in the population

Both the reported current and future sources of information on preparing and cooking food safely were found to vary by **age**. Younger people were more likely than older people to say they currently got information from family and friends (53% of those aged 16-24 compared with 20% of those aged 60 and over), and the internet (25% 16-24 compared with 5% 60 and over).

As for **gender**, men and women did not vary greatly when reporting current sources of information on preparing and cooking food safely. Women were more likely than men to use food magazines to get their information (22% compared with 11%).

3.4 Comparisons between Scotland and the rest of the UK

There were some differences in food preparation behaviour by country. Table 3.1 shows a breakdown by country of the proportions of respondents who reported carrying out a domestic food safety practice that was in line with Agency recommended practice (either never or always, depending on Agency guidance). Respondents in Scotland were more likely than respondents in England to say they never stored open tins in the fridge, to never eat red meat or burgers or sausages if they are pink or have pink or red juices and to always wash hands before starting to prepare or cook food. Respondents in Scotland were less likely than respondents in Northern Ireland to say they never wash raw fish or seafood.

Table 3.1 Food preparation behaviour - % who reported carrying out a food safety practice, by country (Wave 2)

	Scotland	England	Northern Ireland
Never			
Store open tins in the fridge	*79%^{E}*	*69%*	*77%*
Eat red meat if it is pink or has pink or red juices	*59%^{E}*	*45%*	*61%*
Eat burgers or sausages if the meat is pink or has pink or red juices	*86%^{E}*	*79%*	*86%*
Always			
Use different chopping boards for different foods	*54%^{EW}*	*46%*	*50%*
Wash vegetables (including salad) which are going to be eaten raw	*72%^{NI}*	*68%*	*64%*
Wash hands immediately after handling raw meat, poultry or fish	*86%^{NI}*	*84%*	*79%*
Cook food until it is steaming hot throughout	*85%^{NIE}*	*79%*	*77%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q4_1 Thinking about when you are storing, preparing and cooking food in the kitchen do you...
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

There were also some differences in reported behaviour around cleaning practices; Table 3.2 shows the percentage of respondents who reported that they did each cleaning activity, broken down by country. Respondents in Scotland were more likely than those in England to say they changed the dishcloths or sponges used for washing up at least a couple of times a week. They were more likely than those in both England to say they changed the dishcloths used for cleaning the kitchen at least a couple of times a week. Respondents in Scotland were also more likely to change their tea towels at least every day (42%) than respondents in England (29%).

Table 3.2 Kitchen cleaning - % who said they did each task, by country (Wave 2)

	Scotland	England	Northern Ireland
Change dishcloths or sponges used for washing up - at least twice a week	*63%[E]*	*43%*	*66%*
Change dishcloths or sponges used for cleaning the kitchen - at least twice a week	*58%[E]*	*42%*	*60%*
Change tea towels - at least every day	*42%[E]*	*29%*	*36%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q4_1A How often do you use...
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Respondents in Scotland were less likely than those in England to say they checked their fridge temperature. There were no significant differences by country between respondents who said they didn't check the fridge temperature or those who said someone else in the household checks it. Results are shown in Table 3.3.

Table 3.3 Checking fridge temperature, by country (Wave 2)

	Scotland	England	Northern Ireland
Whether respondent checks fridge temperature:			
Yes	*38%*	*42%[S]*	*36%*
Base	*(503)*	*(2105)*	*(494)*

Source: Q4_9 Do you ever check your fridge temperature?
Base: All respondents who have a fridge in their household
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Responses on what the temperature inside the fridge should be did not vary significantly by country. Likewise, the proportion who said they always kept certain types of food in certain parts of the fridge did not vary significantly between countries.

There were a few differences by country in reported practices of reheating food. Respondents in Scotland were more likely than those in Northern Ireland to say that they never reheat food (15% compared with 8%). In contrast, respondents in Scotland were less likely to say they would reheat food once (74%), compared with respondents in Northern Ireland (86%) and in England (81%) and Wales (86%).

Table 3.4 shows differences by country in reported sources used for information on preparing and cooking food safely. Respondents in Scotland were less likely than those in Northern Ireland to report TV or radio campaigns and food websites as a source of information. Respondents in Scotland were also less likely than those in Northern Ireland to have obtained information from news websites. Respondents in Scotland were less likely than those in Wales to have obtained food safety information from food magazines or from work.

Table 3.4 Sources of information on preparing and cooking food safely, by country (Wave 2)

	Scotland	England	Wales	Northern Ireland
Food magazines	*17%*	*18%*	*31%*^{S}	*14%*
TV / radio campaigns	*10%*	*12%*	*15%*	*17%*^{S}
Food websites	*12%*	*13%*	*15%*	*18%*^{S}
News websites	*1%*	*3%*	-	*6%*^{S}
Base	*(507)*	*(2116)*	*(104)*	*(504)*

Source: Q11_8B Do you get information about how to prepare and cook food safely at home from any of these sources?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

When asked where, if they decided to look for it, respondents would get information about safely preparing and cooking food in the future there was some variation by country. Respondents in Scotland were more likely to say they would get information about food safety in the future from:

- Product packaging (24% compared with 13% of respondents in Northern Ireland)
- Food TV shows or cooking programmes (22% compared with 15% in Northern Ireland)
- Food magazines (17% compared with 11% in Northern Ireland)

- Work (4% compared with 1% in Northern Ireland)

However, compared to other countries, respondents in Scotland were less likely to report future sources of information as:

- Internet search engine (37% compared with 48% in England)
- Food websites (21% compared with27% in England)
- Books (13% compared with 19% in England)

Table 3.5 Future sources of information on preparing and cooking food safely, by country (Wave 2)

	Scotland	England	Northern Ireland
Internet search engine	*37%*	*48%*^{S}	*42%*
Food websites	*21%*	*27%*^{S}	*26%*
Product packaging	*24%*^{NI}	*21%*	*13%*
Books	*13%*	*19%*^{S}	*13%*
Food TV shows/ cooking programmes	*22%*^{NI}	*17%*	*15%*
Food magazines	*17%*^{NI}	*13%*	*11%*
News websites	*3%*	*3%*	*7%*^{S}
Work	*4%*^{NI}	*3%*	*1%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q11_8C In the future if you decided to look for more information about how to prepare and cook food safely at home, where would you look for this information?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

4. Further analysis of food safety practices among different groups of the population

This chapter explores, in more depth, variation in reported food safety practices by different socio-demographic groups. An index of recommended practice (RP) for food safety was constructed by combining a number of food safety practices into a single composite measure. This index was then analysed to explore the characteristics of respondents who are more or less likely to follow Agency RP.

Summary

Frequency and distribution of the index

- The index is a scale from 0-10. Higher numbers indicate a lower likelihood of reporting food safety practices that are in line with Agency recommended practice (RP). A fifth (22%) of respondents were classified in the upper band of the index (5 or more on the index).

- The most common areas that respondents reported practices that were not in line with RP were use-by dates, e.g. checking the use-by date before eating food (90%) and chilling, e.g. method of checking the fridge temperature (83%). Only 4% of respondents reported a practice that was not in line with RP for hand washing.

Variations in the index by socio-demographic groups

Key groups found to be *less* likely to report food safety practices in line with RP were:

- Men.
  The odds of a male respondent being in the upper band of the index were 90% higher than the odds of a female respondent.

- Older respondents aged 55 to 64 and 75 or older.
  The odds of a respondent aged 75 or older being in the upper band of the index were 260% higher than the odds of a respondent aged 35-44. Likewise, compared with the odds of a respondent aged 35-44, the odds for a respondent aged 55-64 were 210% higher.

- Being unemployed
  The odds of being in the upper band of the index were 160% higher for those that were unemployed compared with those in work

4.1 Derivation of the index of recommended practice (RP) for food safety

The index measures the extent to which reported food safety behaviour was in line with Agency recommended practice (RP). The food safety practices included in the index were selected by the FSA from all the RPs asked about in Wave 2, on the basis that if they were not followed they were most likely to increase the chance of contracting a foodborne illness. The index is a scale from 0-10, with higher numbers indicating a lower likelihood to report behaviour that was in line with Agency recommended practice. So, a score of zero would indicate that all reported food safety practices were in line with RP, while a score of 10 would indicate that all reported food safety practices were not in line with RP.

The specific food safety practices that make up the index and the weighting given to them are detailed in Technical Appendix 10.2.

4.2 Frequency and distribution of the index

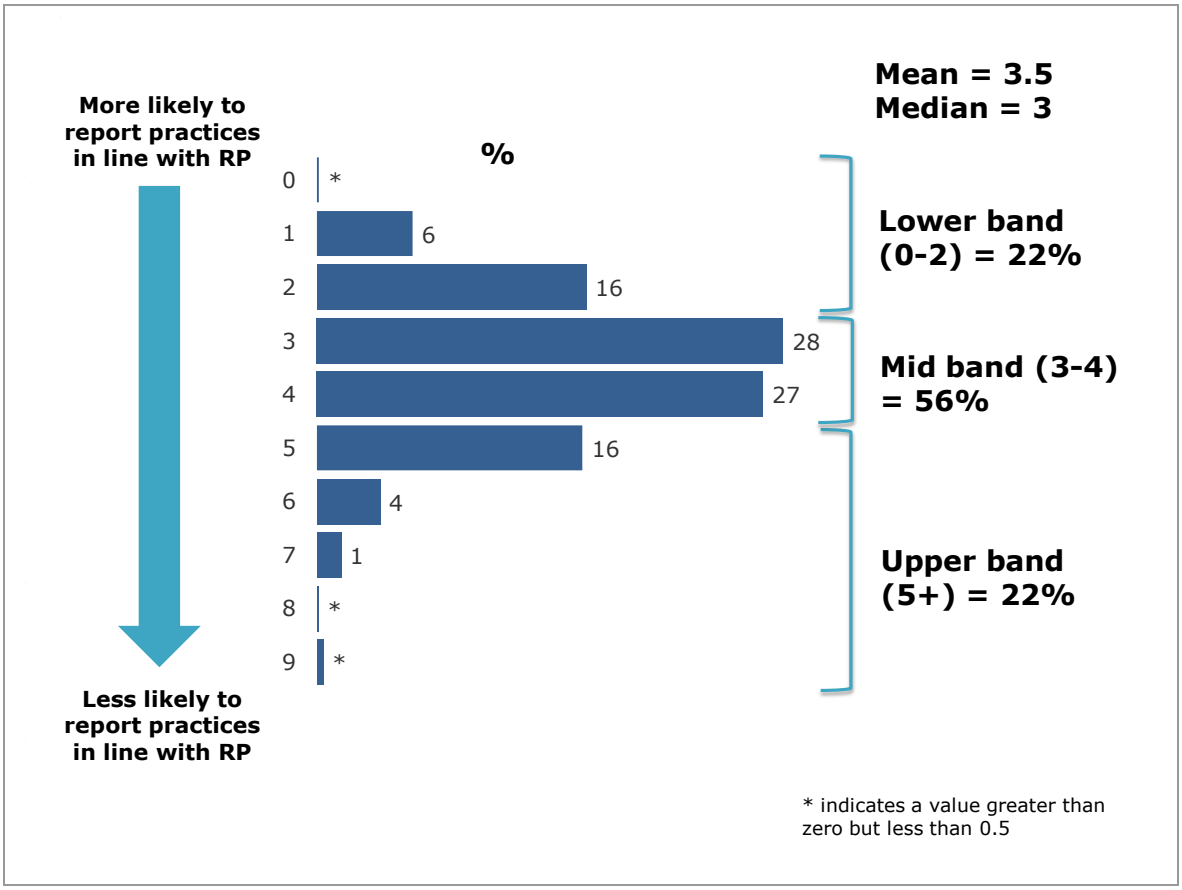
All respondents had a RP index score within the range 0-9 meaning there were no respondents who reported food safety practices that were fully not in line with RP. However, only a very small minority (0.1%) of respondents in Scotland had an RP index score of 0, indicating reported practices were fully in line with RP. The median index score was 3 (mean 3.5).

Figure 4.1 shows the distribution of raw index scores, and a summary classification which categorises respondents into three bands:

- Lower band (score 0-2, most likely to report practices that are in line with RP);
- Mid band (score 3-4); and
- Upper band (score of 5+, least likely to report practices that are in line with RP).

As shown, around half were classified into the mid band, while a fifth was classified into the upper band.

Figure 4.1 Distribution of the index of RP for food safety (Wave 2)



Source: Derived index of RP for food safety- a full explanation can be found in Technical Appendix 10.2.
Base: All respondents: (507)

Table 4.1 shows how the distribution within the three bands varied by country. Respondents in Scotland were less likely than those in Northern Ireland to be classified in the lower band.

Table 4.1 Distribution of the index of RP for food safety, by country

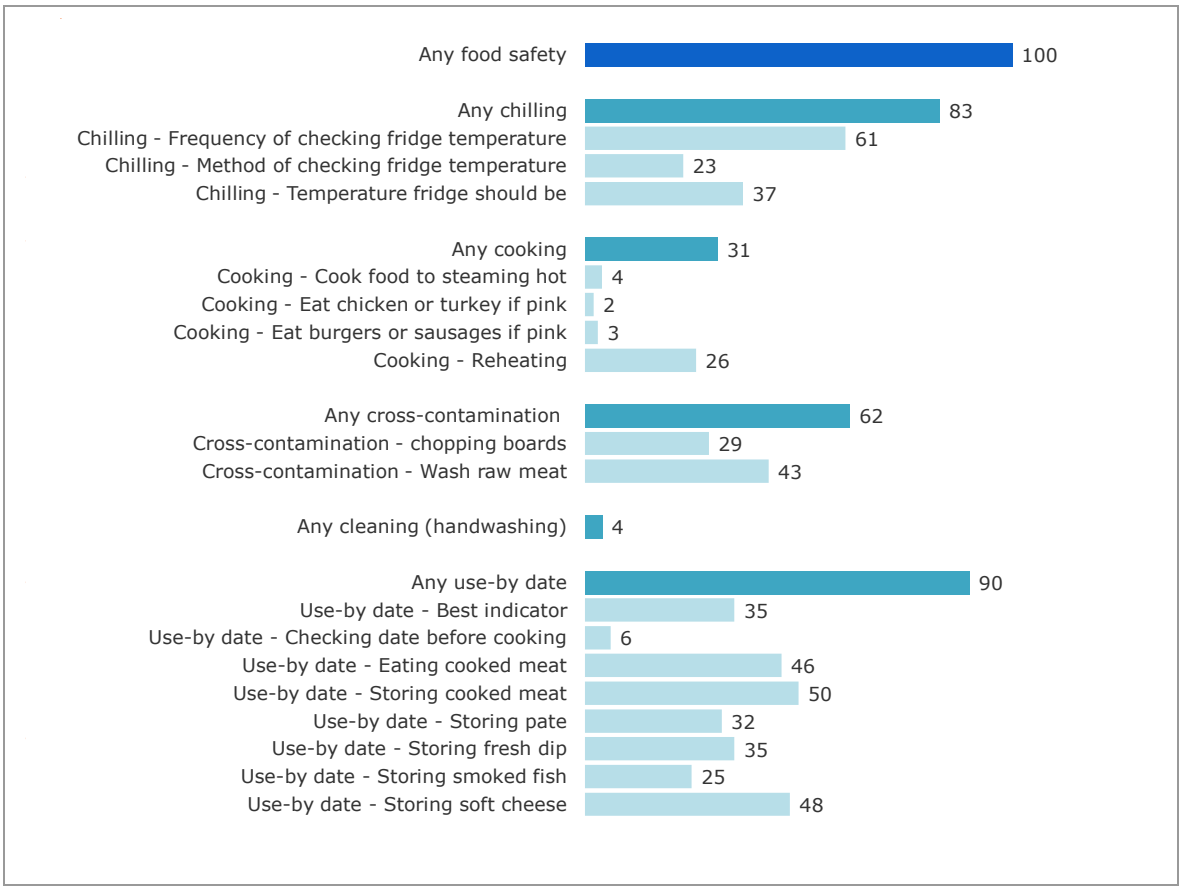
	Scotland	England	Northern Ireland
Lower band (0-2)	22%	21%	28%[S]
Medium band (3-4)	56%	52%	52%
Higher risk (5+)	22%	27%	19%
Base	*(507)*	*(2116)*	*(504)*

Source: Derived index of RP for food safety
Base: All respondents

4.3 Components of the index of RP for food safety

Looking at the different components that make up the index, the most common area in which reported practice was **not** in line with RP was use-by dates, with 90% of respondents reporting at least one non-RP practice in this category. The second most common area was chilling, with 83% of respondents reporting at least one chilling practice that was not in line with RP. The areas where reported practice was most in line with RP was cooking and cleaning, with only 4% of respondents reporting any cleaning practice, and 31% of respondents reporting any cooking practice, that was not in line with RP (Figure 4.2).

Figure 4.2 Percentage of respondents reporting practices that were not in line with RP by different components of the index of RP for food safety (Wave 2)



Source: Derived index of RP for food safety - explanation can be found in Technical Appendix 10.2.
Base: All respondents - (507)

For chilling, the reported practice which was most commonly not in line with RP was frequency of checking fridge temperature (61%). For cooking, the most commonly reported practice that was not in line with RP was checking that food was properly reheated (26%).

Under the cross-contamination heading, the practice which was most commonly not in line with RP was washing raw meat (43%). For the use-by date component, half of respondents reported practices that were not in line with RP in relation to storing cooked meat (50%), storing soft cheese (48%) and eating cooked meat (46%).

4.4 Introduction to the regression analysis

A logistic regression model was used to analyse the significance and contribution of a number of demographic factors to the extent in which a respondent reported food safety practices that were not in line with RP[21].

A forward stepwise approach was adopted, whereby the model starts with the variables used in the weighting and then tests the addition of each new predictive variable in turn. The model only added variables which were found to improve the predictive power. The approach was used to run regression models on the UK sample, the Scotland sample and the Northern Ireland sample[22].

Table 4.2 below shows the summary outcomes of the regression analysis for Scotland. The principal output from logistic regression is the **odds ratio**. The odds ratio indicates the size of the effect, that is, by how much a variable increases or decreases the likelihood of being in the upper band of the index compared with the reference category. If the odds ratio was **less than 1**, it means that the odds of being in the upper band of the index were lower for this category than they were for the reference category. If the odds ratio was **greater than 1**, then the odds of being in the upper band were higher for this category than for the reference category.

The final model only included variables which were found to be significant and the odds ratio statistics are only shown for significant subgroups in the summary table. Where data is not shown, findings were not significant (full statistics are detailed in Technical Appendix 10.3).

Further information on the methodology used for the regression analysis can be found in the UK report.

[21] Logistic regression is based on the prediction of a binary outcome. For this purpose, a summary binary variable was created based on the composite 0-10 scale index discussed in Section 4.1 above. Thus, for the purposes of the regression analysis, a respondent was classified as reporting a high number of practices which were not in line with RP if their score was in the upper band of 5 or more.

[22] The full results from each model can be found in the Technical Appendix 10.3.2.

Table 4.2 Results of regression analysis

Variable	Categories (reference category[23] in italics)	Significant (p<0.05)*	Odds ratio
Gender	*Women*		
	Men	*	1.9
Age	*35-44*		
	16-24		
	25-34		
	45-54		
	55-64	*	3.1
	65-74		
	75+	*	3.6
Working status	*In work*		
	Retired		
	Unemployed	*	2.6
	Other		

The key findings from the model were as follows:

- **Gender** was found to be a significant predictor of whether or not a respondent reported food safety practices that were not in line with RP, with men having odds of being in the upper band of the index that were 90% higher than the odds for women.

- **Age** was also found to be a significant factor, with those aged 55-64 and 75+ more likely to be in the upper band compared with respondents aged 35-44. In particular, respondents aged 75 or older had odds of being in the upper band of the index that were 260% higher than the odds for respondents aged 35-44. Respondents aged 55-64 had odds of being in the upper band of the index that were between 210% higher than the odds for respondents aged 35-44. No significant difference was found between respondents aged 35-44 and younger respondents (16-35) or respondents aged 45-54 and 65-74.

- The likelihood of a respondent being in the upper band was also found to differ depending on **working status**. Those who were unemployed had a 160% higher chance of being in the upper band than those in work.

[23] In calculating odds ratios, a **reference category** was selected for each variable as the category against which the odds for all other categories of that variable were compared.

In order to provide further context, these results were also examined alongside regression models for the UK, England and Wales, and Northern Ireland (see Section 10.3.2 in the Technical Appendix for full regression findings).

A country variable was included in the UK regression model to test whether there were significant differences between countries in the extent to which respondents reported food safety practices that when not in line with Agency guidance. Compared to respondents in Northern Ireland, respondents in Scotland and in England were more likely to report practices that were not in line with Agency guidance (the odds of being in the upper band of the index were 90% higher for respondents in England, and 50% higher for respondents in Scotland compared with respondents in Northern Ireland).

Using separate regression models for Scotland, Northern Ireland and England and Wales samples it was possible to consider whether the size of sub-group differences varied between countries.

Compared to respondents in England and Wales, the gender difference in Scotland was more pronounced (men have odds of being in the upper band of the index that are 40% higher than the odds for women in England and Wales compared with 90% higher odds for men in Scotland). However, the gender difference in Scotland was less pronounced than the difference in Northern Ireland (men have odds of being in the upper bank of the index that are 200% higher than the odds for women in Northern Ireland).

Looking at the results by age, the difference in likelihood of older respondents being in the upper band of the index compared to younger respondents was greater in Scotland compared to England and Wales, but was similar to the difference in Northern Ireland. The odds of a respondent aged 75 or older being in the upper band of the index compared to a respondent aged 35-44 was 260% in Scotland compared with 140% higher in England and Wales and 280% in Northern Ireland.

There were a number of other variables which were found to be significant in the other countries. For instance in Northern Ireland having continuous use of a motor vehicle was found to be significant, but this was not the case in Scotland.

A number of other variables were found to be significant in England and Wales (such as diet, having a separate kitchen, ethnicity), which were not significant in Scotland. It is likely that some of these were not found to be significant in Scotland due to the smaller sample size.

5. Eating outside the home

This chapter explores reported practices and attitudes towards eating outside of the home, how hygiene was ranked in terms of other considerations when eating out, and awareness and use of hygiene standards rating schemes.

Summary

Frequency of eating out

- Over two-thirds (69%) reported that they had eaten out in the last seven days. This is at a similar level to Wave 1. Respondents were most likely to have eaten out in restaurants (32%).

Awareness of hygiene standards when eating out

- 42% of respondents felt food was less safe when eating out compared with eating at home with only 5% reporting the reverse was true. Half (49%) considered there to be no difference.
- Two-thirds (65%) said that cleanliness and hygiene was an important consideration when deciding where to eat out. This has increased compared to Wave 1 (52%). Other important factors were service (54%) and price (45%). A fifth (19%) of respondents said that a good hygiene rating/score was important when deciding where to eat out.
- Over three-quarters (77%) of respondents said that they were aware of standards of hygiene when eating out.
- Asked how they know about the hygiene standards of places they eat out at or buy food from, respondents were most likely to say they used the general appearance of the premises (73%) and the appearance of staff (57%). Just under a quarter (23%) of respondents said they know about hygiene standards from a hygiene certificate and 9% said a hygiene sticker.

Awareness of Food Hygiene Rating Scheme (FHRS)/Food Hygiene Information Scheme (FHIS)

- 44% of respondents reported having seen a FHIS certificate and/or sticker before.
- Respondents who said they had seen a FHIS sticker were most likely to report having seen it on the window or door of a food establishment (88%).
- 6% said they had used a scheme when deciding whether to eat at a food establishment.

Comparisons with the rest of the UK

- Respondents in Scotland (19%) were less likely than those in England (26%) to say that a good hygiene score is an important factor in deciding where to eat out, but were more likely to say they were aware of hygiene standards when eating out (77% compared with 71%).

- Respondents in Scotland (9%) were less likely than those in England (16%) and Northern Ireland (38%) to say they used hygiene stickers to inform hygiene standards when eating out, and were also less likely (6%) than those in England (10%) and Northern Ireland (27%) to have used a food hygiene rating scheme in the last 12 months.

5.1 Background

Eating out encompasses a broad range of practices and relates to a variety of locations, motivations and implications. Eating out may be for convenience, for entertainment or as a means to display 'cultural capital[24] (Bourdieu, 1984; Warde and Martens, 2000). It may involve snacking, the eating of street food or consumption of a full meal – all from a wide variety of potential venues. The definition of eating out in the Food and You survey encompasses a wide range of establishments: restaurants, pubs, cafés or coffee shops, sandwich bars, fast food, work canteens, leisure facilities such as cinemas, bowling alleys or theme parks, and takeaway food (e.g. Indian/Chinese/Pizza/Fish and chips).

5.1.1 Trends

While there has been much discussion on the growth of eating out and the expansion of the catering industry, eating out is not a modern phenomenon, dating back to the Middle Ages. The origins of modern, global, fast-food consumption date back to the 1950s with the emergence of fast-food outlets. Oddy (2003) identifies the 1970s in Britain as a critical turning point in eating out practices, characterized by reductions in eating in institutional settings such as work canteens and schools but accompanied by increases in the incidence of eating in commercial venues (restaurants, pubs, fast-food outlets etc). Between 1975 and 1984, take-away meals rose from 14% to 27% of all meals eaten.

Nowadays, on average one in every six meals in the UK is consumed outside the home, making these meals an important part of our diet. Food consumed outside of the home can represent up to 20-25% of calories eaten (Bates et al, 2010; Department for Environment Food and Rural Affairs, 2007). A wide range of determinants have driven these trends including: increasing affluence, greater spatial mobility, increased labour market participation of women and food technology developments, including the ability to separate the location of food production and consumption[25].

Cheng et al's (2007) time use study observes an increase in the amount of time allocated to eating and drinking away from home. With the growth in the range and number of 'fast

[24] Cultural capital is defined as a form of knowledge that has value in a given society in relation to status and power.
[25] This separation is possible by means of food preservation techniques such as canning, pre-cooking, freezing and dehydration of food which can then be re-assembled and re-heating as a meal in a variety of locations (Hartog, 2003)

food' outlets and of eating out, food hygiene and safety among food business operators have become increasingly important.

5.1.2 Food hygiene rating schemes

The FSA's strategic objective is safer food for the nation and a key element in achieving this is the Food Hygiene Rating Scheme (FHRS) for England, Wales and Northern Ireland and the Food Hygiene Information Scheme (FHIS) for Scotland.

The schemes, which are being introduced in partnership with local authorities, are designed to help consumers choose where to eat out or shop for food by giving them information about the hygiene standards of food premises at the time they were inspected to check compliance with legal requirements. They are also intended to encourage food businesses to improve their standards. FHIS inspection results / FHRS ratings are published at www.food.gov.uk/ratings and businesses are given stickers / certificates and encouraged –though not currently required - to display these where their customers can easily see them[26]. The FHIS was launched in 2010 in Scotland and is running in 25 Scottish local authorities and currently 30,000 establishments are taking part in the scheme.

Studies of a number of schemes adopted in the USA, Canada, and Denmark and New Zealand have found that providing the public with hygiene ratings is welcomed by consumers and can lead to improved standards of food safety and better sales[27]. Denmark is the only European Union country where the display of ratings at the entrance to food business premises and on business homepages is a legal requirement. Studies of the Danish scheme have found that consumer awareness is very high and that consumers are making informed choices based on publicised food business hygiene standards. Studies of mandatory schemes such as the Dine Safe in Toronto, Canada and the Los Angeles County (USA) grade card initiative indicate an increase in food business compliance as well as raised consumer awareness of food hygiene standards. An impact study of the Los Angeles County scheme attributed a decrease in food-borne illness to the grade card scheme.

[26] Display of stickers at food business premises in Wales will be mandatory once the provisions of the Food Hygiene Rating (Wales) Act 2013 come into force – this is expected to be late in 2013.

[27] Basrur, S. (2003) Evaluation of the Food Premises Inspection and Disclosure System available at http://www.toronto.ca/legdocs/2003/agendas/committees/hl/hl030127/it004.pdf; http://www.legco.gov.hk/yr07-08/english/sec/library/0708in19-e.pdf; http://www.findsmiley.dk/en-US/Forside.htm; Morris, J. (2005) Publication of hygiene inspection information, CIEH; Farley, T (2011) Restaurant Letter Grading: the first 6 months, NYC Department of Health and Mental Hygiene; Zhe Jin, G. and Leslie, P. (2003) The effect of information on product quality: evidence from restaurant hygiene grade cards. *The Quarterly Journal of Economics*, 409-451.

A full evaluation of the FHRS / FHIS has been commissioned by the Agency and is currently underway[28].

5.2 Frequency of eating out

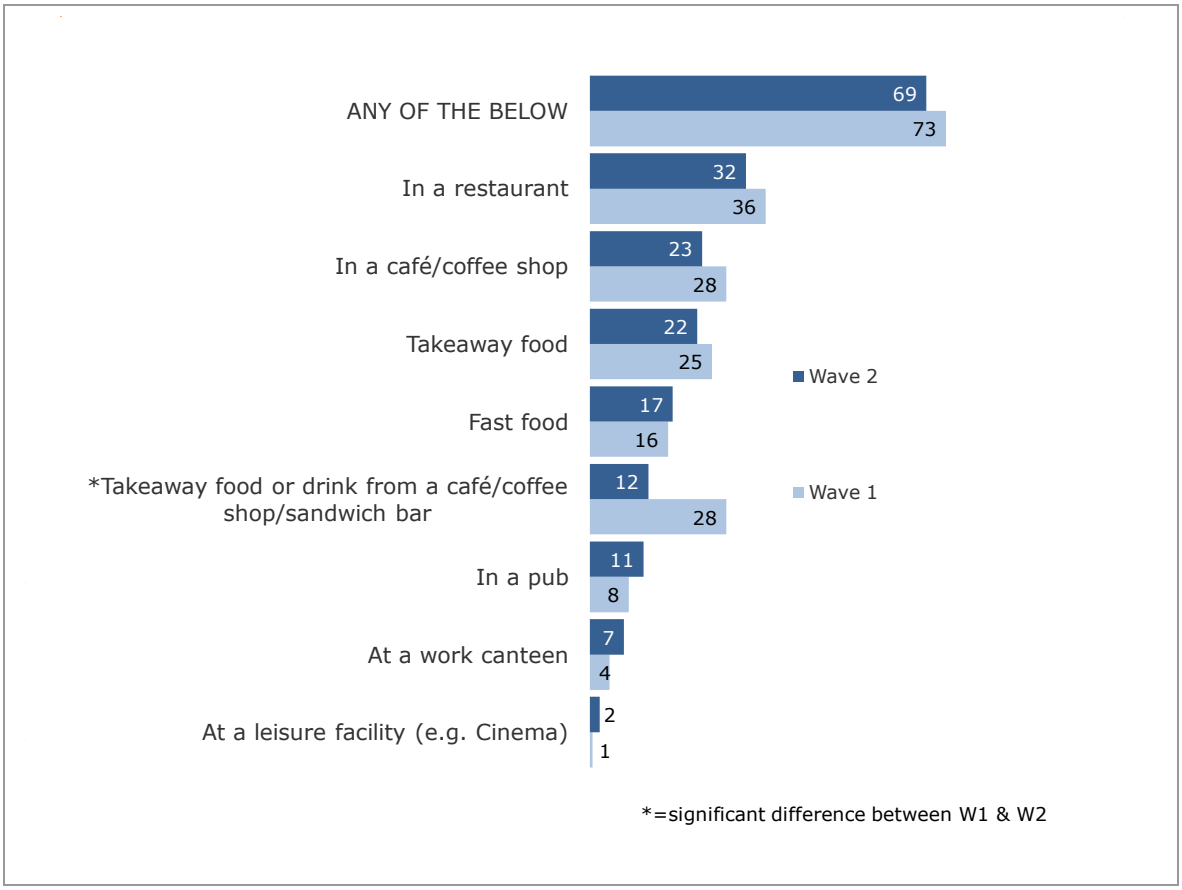
Around two-thirds (69%) of respondents reported that they had eaten out in the previous seven days; this was not significantly different from Wave 1 (73%).

The type of establishments respondents most frequently reported eating out at over the previous seven days were restaurants (32%), cafés/coffee shops (23%) and take-away food outlets (22%). These findings were in line with Wave 1 (Figure 5.1).

Compared with Wave 1, respondents were less likely to have said that they had eaten takeaway food or drink from a café/coffee shop/sandwich bar (12% at Wave 2 compared with 28% at Wave 1).

[28] The full evaluation of the FHRS focuses on various impact and process strands, including: uptake of the FHRS and FHIS by Local Authorities; businesses' understanding of, and response to, the FHRS and FHIS; and the impact of the FHRS and FHIS on consumer practice.

Figure 5.1 Eating out behaviour in the last 7 days: prevalence of eating at different establishments (Wave 1 and Wave 2)



Source: Q2_33 Have you done any of the following things in the last 7 days, that is since last ...
Base: One third of total Scotland sample – Wave 1(165); All Scotland respondents - Wave 2 (507)

5.2.1 Variation in eating out behaviour by different groups in the population

Looking at **gender,** men were less likely (62%) than women (75%) to report having eaten out in the previous 7 days. This difference was particularly pronounced for eating in a cafe or coffee shop; 28% of women reported having done this in the previous seven days compared with 17% of men.

Age was also a significant factor. Respondents aged under 45 were considerably more likely to have eaten out in the last 7 days (96% of 16-24s, 78% of 25-34s and 79% of 35-44s) compared to respondents aged 60 and over (45%). Younger age groups were also more likely than older age groups to report eating fast food (32% of 16-24s, 23% of 25-34s and 24% of 35-44s, compared with 4% of those aged 60 and over) and takeaway food (30% of 16-24s, 24% of 25-34s and 37% of 35-44s, compared with 9% of those aged 60 and over).

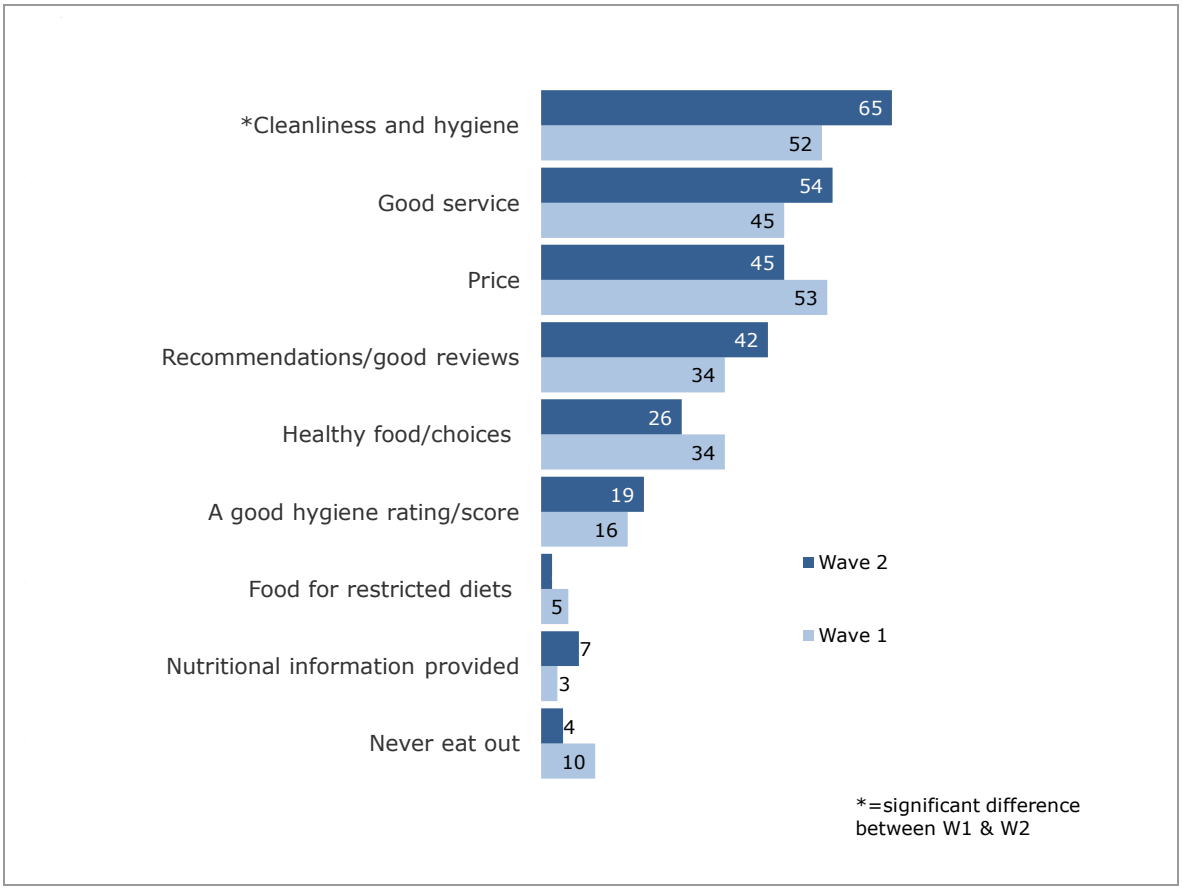
5.3 Perception of food safety and hygiene when eating out

Respondents (aside from those who said that they never eat out) were asked how safe they considered food to be when eating out compared with eating at home. Half of respondents (49%) reported that they felt there was no difference, whilst 42% reported they felt food was less safe when eating out compared with eating at home. Only 5% considered food to be safer when eating out.

Respondents were shown a list of factors that might affect their choice of where to eat out or to purchase take-away food from and were asked to select those they considered important. Two-thirds (65%) said that cleanliness and hygiene was an important factor when deciding where to eat out, with good service (54%) and price (45%) also being prevalent deciding factors. The consideration of a good hygiene rating score was cited by 19% of respondents (Figure 5.2).

Between Wave 1 and Wave 2, there has been a substantial increase in the proportion mentioning cleanliness and hygiene as an important factor when deciding where to eat out (65% in Wave 2 compared with 52% in Wave 1).

Figure 5.2 Importance of factors in deciding where to eat out (Wave 1 and Wave 2)

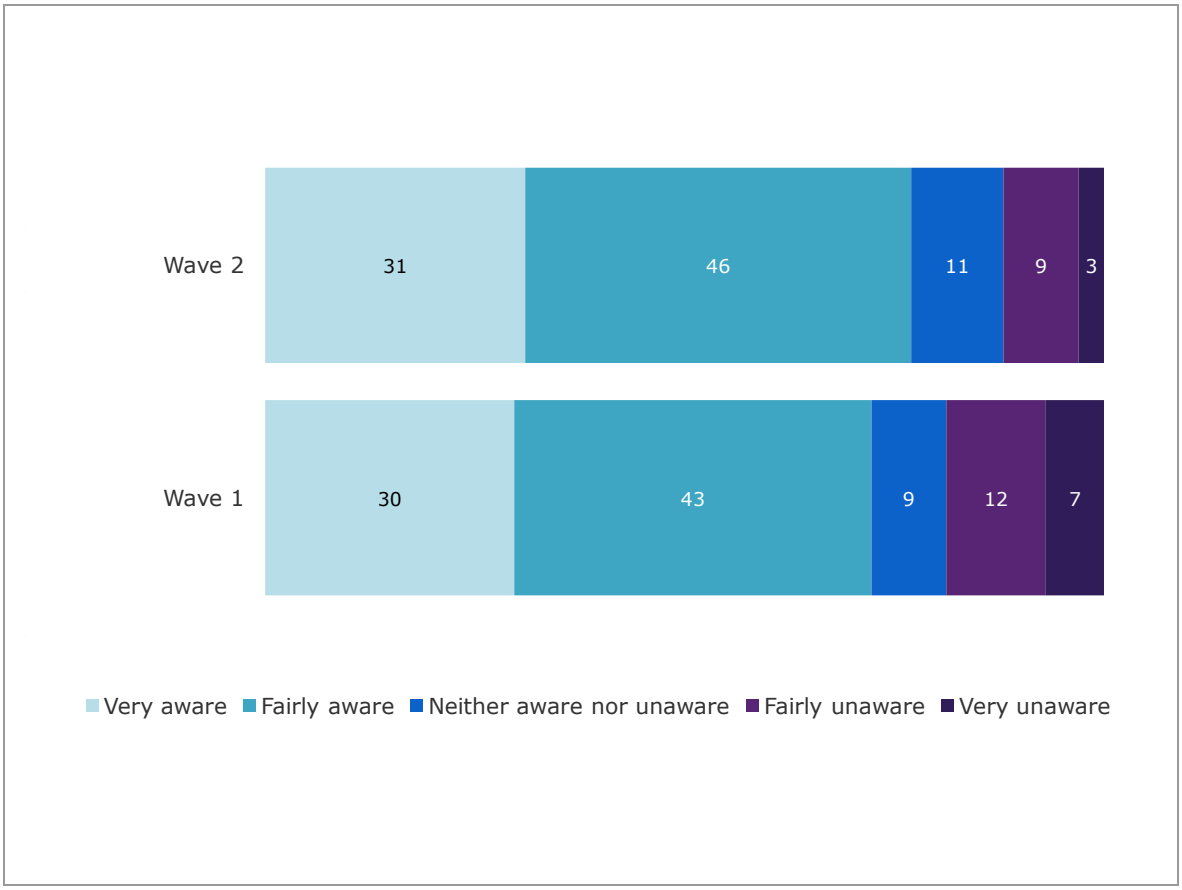


Source: Q2_35 Generally, when you're deciding where to eat out, which of the following are important to you?

Base: One third of total Scotland sample – Wave 1 (165); All Scotland respondents – Wave 2 (507)

Respondents were then asked how aware they are of hygiene standards when eating out or purchasing takeaway food. A third (31%) of respondents stated that they were very aware and a further 46% said that they were fairly aware. These figures were not significantly different from those reported in Wave 1 (Figure 5.3).

Figure 5.3 Awareness of hygiene standards when eating out (Wave 1 and Wave 2)



Source: Q2_37 When you eat out, how aware would you say you generally are about standards of hygiene?
Base: All Scotland respondents who eat out – Wave 1 (146); All Scotland respondents who eat out – Wave 2 (485)

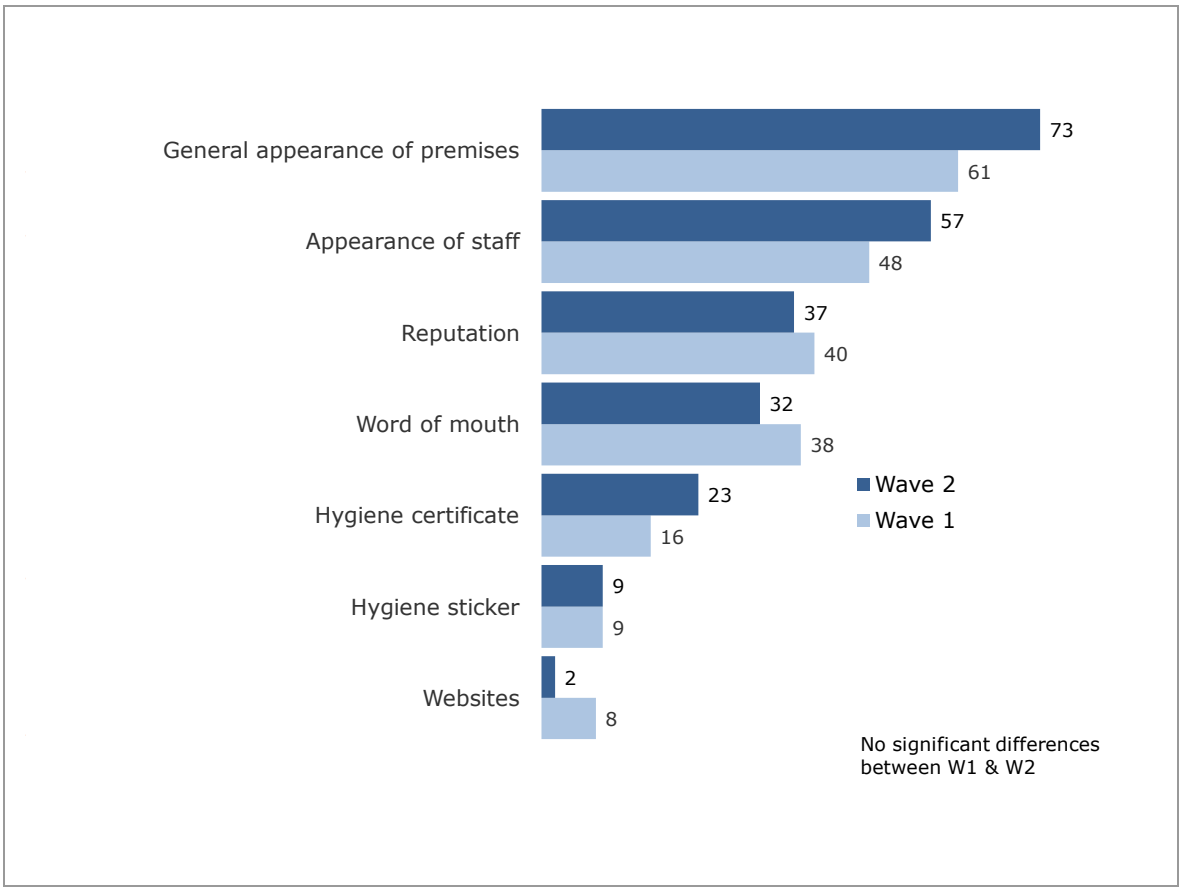
5.4 Awareness and use of hygiene standards indicators

5.4.1 Indicators of food hygiene standards

Those who said that they were aware of food hygiene standards at eating establishments were asked how they determined this, selecting responses from a prompted list[29]. The results from this question are presented in Figure 5.4.

At Wave 2, as at Wave 1, respondents most commonly reported using appearance to judge the food hygiene standards of eating out establishments; the most commonly cited indicators being general appearance of premises (73%) and appearance of staff (57%). Around a quarter (23%) mentioned that they use hygiene certificates. There were no statistically significant differences in the results between Wave 1 and Wave 2.

Figure 5.4 Indicators used to inform hygiene standards – based on all respondents (Wave 2)



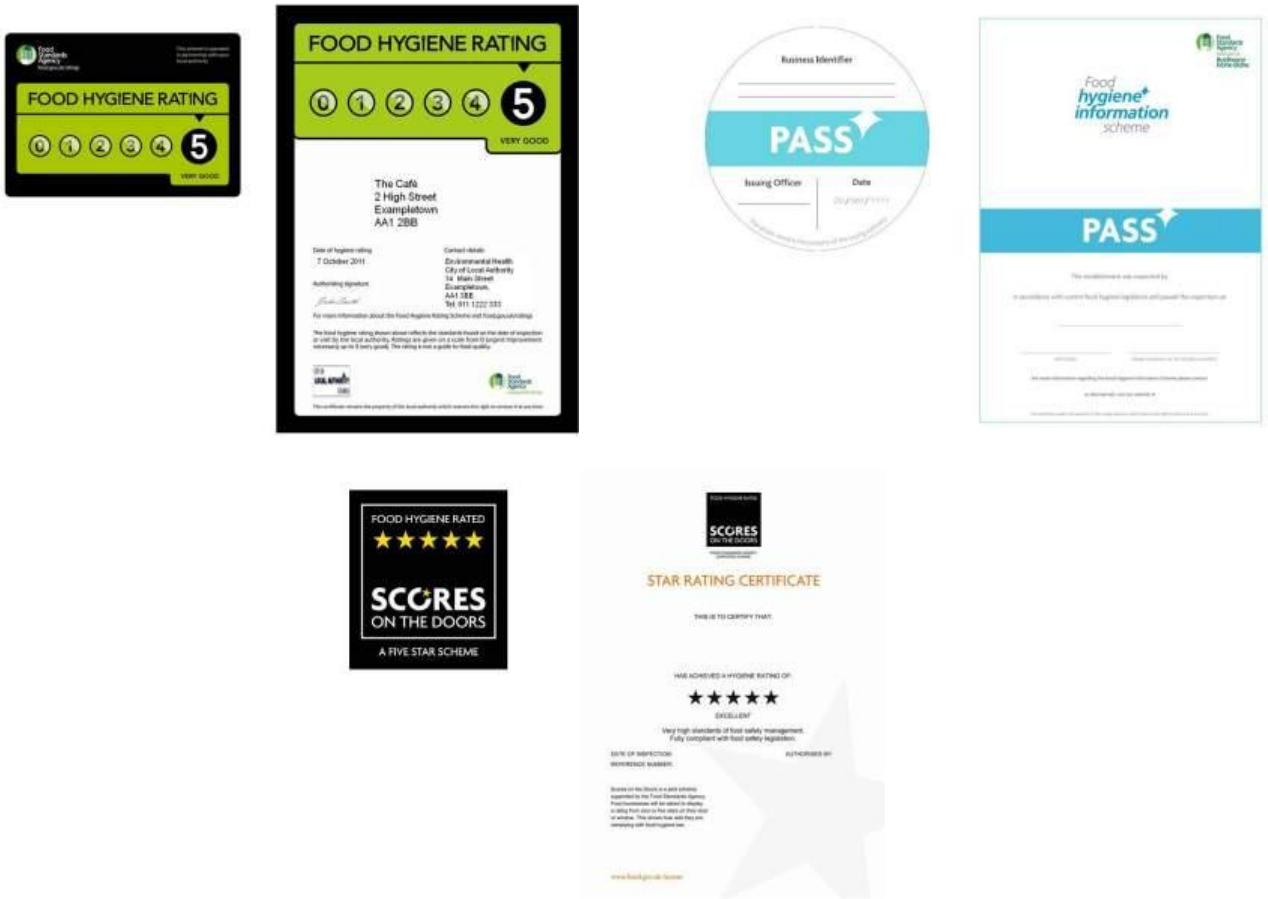
Source: Q2_38 How do you know about the hygiene standards of the places you eat out at or buy food from?
Base: All Scotland respondents who eat out and are aware of hygiene standards– Wave 1 – a third of Scotland sample (118); Wave 2 (423)

[29] These figures have been re-based on all respondents who ever eat out in order to display the total level of awareness of different sources

5.4.2 Recognition and use of the food hygiene rating schemes

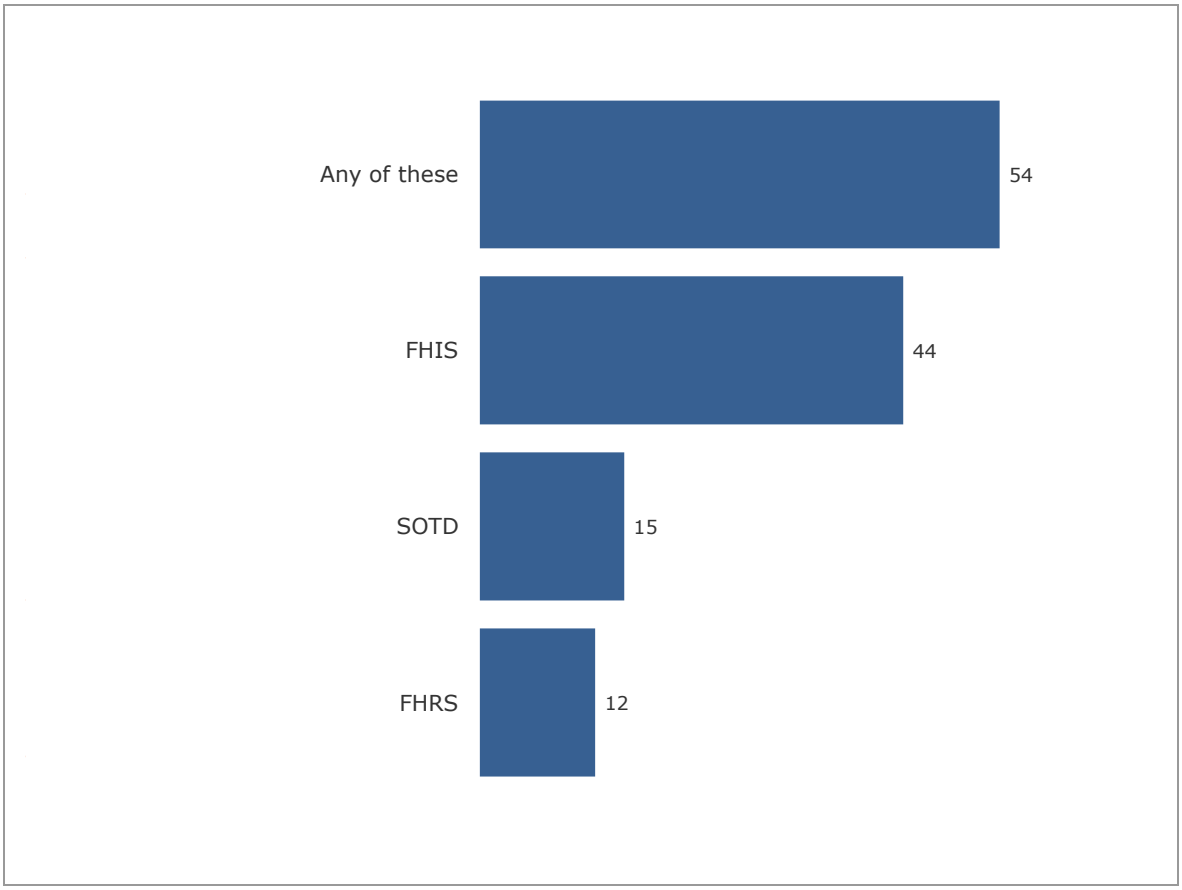
Respondents were shown images of certificates and stickers for the Food Hygiene Rating Scheme (FHRS), the Food Hygiene Information Scheme (FHIS) and Scores on the Doors (SoTD)[30] and were asked whether they had ever seen them before.

Overall, more than 44% of respondents in Scotland reported having seen the sticker for the Food Hygiene Information Scheme (which is the scheme used in Scotland), 15% reported having seen the Scores on the Doors scheme before and 12% reported having seen the Food Hygiene Rating Scheme sticker before. Fifty-four per cent of respondents reported that they had seen *any* of these stickers/certificates before (See Figure 5.5).



[30] This last scheme is a set of locally delivered schemes which local authorities have replaced with the national FHRS/FHIS scheme. It was decided to include it in the question as it was the most widespread initiative outside of the FHRS/FHIS.

Figure 5.5 Recognition of stickers and/or certificates belonging to different food hygiene rating schemes



Source: Q12_1 Have you ever seen this before?
Base: All Scotland respondents (507)

5.4.3 Where the certificate / sticker had been seen

Respondents who reported having seen any of the three types of certificates / stickers before were asked, unprompted, *where* they had seen it. Overwhelmingly, the most common place respondents reported seeing any of the three certificates and / or stickers was on the window or door of a food establishment. This was the answer given by 88% of respondents for both the Food Hygiene Information Scheme and for Scores on the Doors (the base size for the Food Hygiene Rating Scheme in Scotland is too small to report).

Table 5.1 Where respondents had seen the three scheme images (Wave 2)

	FHIS	SOTD
Window/door of establishment	*88%*	*88%*
Website/Internet	*1%*	*2%*
Newspaper/magazine	*1%*	*2%*
Other	*5%*	*1%*
Base	*214*	*73*

Source: Q12_2 Where have you seen this image?
Base: All Scotland respondents who have seen the image before

5.4.4 Use of food hygiene rating schemes

After being shown certificates and stickers from the three hygiene standards schemes, respondents were asked if they had used a hygiene scheme like this in the past 12 months. Overall, 6% said that they had. The base size for this question is too small to allow further examination of this group.

5.4.5 Variation in awareness of hygiene standards and hygiene certificates and/or stickers by different groups in the population

Looking at **gender**, women were more likely than men to mention hygiene / cleanliness as a factor when deciding where to eat out (73% compared with 57%). Women were also more likely than men to say they were aware of hygiene when deciding where to eat out – 82% of women said they were very or fairly aware, compared with 70% of men. There was little difference by gender in terms of awareness of the three hygiene rating scheme stickers / certificates.

Younger respondents (aged 16-24) were more likely to report they had seen the FHIS and the SoTD certificates and / or stickers before (78% and 27% respectively) than those aged 60 and over (22% and 9%).

5.5 Comparisons between Scotland and the rest of the UK

Seven out of ten (69%) respondents in Scotland had eaten out in the previous week; this was similar to the proportion who said they had done so in England (76%), Northern Ireland (73%) and Wales (69%). In terms of where people ate out, respondents in Scotland were less likely than those in England to report having eaten in a pub (11% in Scotland compared with 20% in England), and to have bought food or drink from a cafe, coffee shop or sandwich bar to take away (12% in Scotland compared with 20% in England).

As shown in Table 5.2, respondents in Scotland were more likely than those in England or Wales to report that the safety of food when eating out is 'about the same' as eating at home.

Table 5.2 Perception of food safety when eating out compared with eating at home, by country (Wave 2)

	Scotland	England	Northern Ireland
About the same	*49%*[EW]	*41%*	*53%*
Base	*(485)*	*(2032)*	*(482)*

Source: Q2_39 When you eat out, how safe would you say the food that you eat is, compared to when you eat at home?
Base: All respondents who eat out
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

As shown in Table 5.3, respondents in Scotland were less likely than those in England to say that a good hygiene rating/score is important when deciding where to eat out (19% compared with 26%).

Table 5.3 Importance of hygiene factors in deciding where to eat out, by country (Wave 2)

	Scotland	England	Northern Ireland
A good hygiene rating/score	*19%*	*26%*[S]	*29%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q2_35 Generally, when you're deciding where to eat out, which of the following are important to you?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Table 5.4 shows the breakdown by country of how aware respondents said they were of standards of hygiene when eating out. Those in Scotland were more likely to report that they were aware (either fairly or very aware) of hygiene standards when eating out compared to respondents in England (77% compared with 71%).

Table 5.4 Awareness of hygiene standards when eating out, by country (Wave 2)

	Scotland	England	Northern Ireland
Very/fairly aware	*77%*[E]	*71%*	*78%*
Very/fairly unaware	*12%*	*19%*[S]	*13%*
Base	*(485)*	*(2032)*	*(482)*

Source: Q2_37 When you eat out, how aware would you say you generally are about standards of hygiene?
Base: All respondents who eat out
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Respondents who said they were aware of food hygiene standards when eating out were asked how they determined this, selecting responses from a prompted list. Looking at differences by country (shown in Table 5.5), respondents in Scotland were less likely than those in England and much less likely than those in Northern Ireland to mention that they used hygiene stickers (9% compared with 16% and 38% respectively). The proportion of respondents who mentioned hygiene certificates did not vary significantly by country. Respondents in Scotland were also less likely than those in England or Northern Ireland to

mention that they knew about hygiene standards through websites (2% compared with 6% in both countries).

Respondents in Scotland were more likely than those in Northern Ireland to report that they used the appearance of premises (73% compared with 66%) and staff (57% compared with 46%) to gauge standards of hygiene.

Table 5.5 Indicators used to inform hygiene standards, by country (Wave 2)

	Scotland	England	Northern Ireland
Appearance of premises	*73%[NI]*	*78%*	*66%*
Appearance of staff	*57%[NI]*	*58%*	*46%*
Hygiene sticker	*9%*	*16%[S]*	*38%[S]*
Websites	*2%*	*6%[S]*	*6%[S]*
Base	*(423)*	*(1687)*	*(420)*

Source: Q2_38 How do you know about the hygiene standards of the places you eat out at or buy food from?
Base: All respondents who eat out and are aware of standards of hygiene
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

A number of differences were also observed when looking at the proportion of respondents who reported having seen and used specific food hygiene initiatives before. This variation was expected, particularly as the FHRS is run in England, Wales and Northern Ireland and the FHIS is limited to Scotland, but also because the extent of publicity accompanying the launch of FHRS/FHIS varied between countries and local authorities. Wales and Northern Ireland conducted a public information campaign while local authorities in England and Scotland were mostly reliant on publicity through the local media. Publicity for the FHRS has been particularly widespread in Northern Ireland.

In Scotland, all 32 local authorities are committed to the adoption of the FHIS, with 25 already running it. In England, Wales and Northern Ireland, local authority participation in the FHRS is voluntary but since its launch in October 2010 the scheme has been adopted by 96% of local authorities across England, Wales and Northern Ireland. It is anticipated that 99% of local authorities across the three countries will be operating the FHRS by early summer 2013. It is also important to note that it is not mandatory for food establishments to display their hygiene rating sticker or certificate.

As expected, respondents in Scotland were more likely than those in each of the other three countries to report that they had seen the FHIS certificate sticker before (44% compared with 20-22% in England, Wales and Northern Ireland). Respondents in Scotland were less likely than those in each of the other three countries to report having seen the FHRS stickers and certificates (12% compared with 33% in England, 43% in Wales and 66% in Northern Ireland), and less likely than those in England or Northern Ireland to report having seen the SOTD stickers and certificates before (15% compared with 20-41% in England, Wales and Northern Ireland). See Table 5.6.

Respondents in Scotland were less likely than those in England and much less likely than those in Northern Ireland to have used a Food Hygiene Rating Scheme in the last 12 months (Table 5.6).

Table 5.6 Awareness of Food Hygiene Rating Schemes, by country (Wave 2)

	Scotland	England	Wales	Northern Ireland
Seen sticker/certificate before:				
Food Hygiene Rating Scheme	*12%*	*33%^{S}*	*43%^{S}*	*66%^{S}*
Food Hygiene Information Scheme	*44%^{NIEW}*	*22%*	*22%*	*20%*
Scores on the Doors	*15%*	*26%^{S}*	*20%*	*41%^{S}*
Used a Food Hygiene rating scheme in the last 12 months	*6%*	*10%^{S}*	*13%*	*27%^{S}*
Base	*(507)*	*(2116)*	*(104)*	*(504)*

Source: Q12_1 Have you ever seen this before? & Q12_3 In the last 12 months, have you used a food hygiene rating scheme to check an establishment's hygiene standards before deciding to visit?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

6. Experience of food poisoning and attitudes towards food safety and food production

This chapter covers experience of food poisoning, attitudes towards food safety and food hygiene, and examines whether levels of concern are associated with differences in behaviours and opinions. The latter part of this chapter focuses on new food technologies, how knowledgeable respondents felt they were about them and whether respondents felt uneasy about their use.

Summary

Food poisoning

- A third (33%) of respondents reported that they had experienced food poisoning in the past, and 32% of these respondents reported that, as a result of this, they had stopped eating at certain restaurants.

Attitudes towards food safety

- A quarter of respondents (26%) said they often worry about whether the food they had was safe to eat.
- 82% of respondents agreed with the statement that restaurants should pay more attention to food safety and hygiene.

Concern about food related issues

- Respondents were more concerned about food safety in imported products than food produced in the UK, and in particular imported meat; the proportion who said they were concerned about this was 58% compared with 26% for meat produced in the UK.
- 69% of respondents reported being concerned about food poisoning such as Salmonella or E.coli and 64% reported being concerned about the use of pesticides.

Concern about new technologies

- There was substantial variation in reported awareness of new technologies involved in food production. Respondents reported being most aware about genetic modification (70%) and the least aware about nanotechnology (15%). Only a minority of respondents considered themselves to be knowledgeable about these technologies.
- Among those aware of each new technology, two-thirds (66%) of respondents reported being uneasy about animal cloning, whilst levels of unease were lower for nanotechnology (34%), irradiation (44%) and genetic modification (50%).

Comparisons with the rest of the UK

- Respondents in Scotland were less concerned than those in England and in Wales about the overall safety of food imported from outside the UK (53% compared to 61% and 68%), the safety of fruit and vegetables imported from outside the UK (37% compared to 44% and 53%), and the safety of meat produced in the UK (27% compared with 34% in England) and meat imported from outside the UK (58% compared with 76% in Wales).

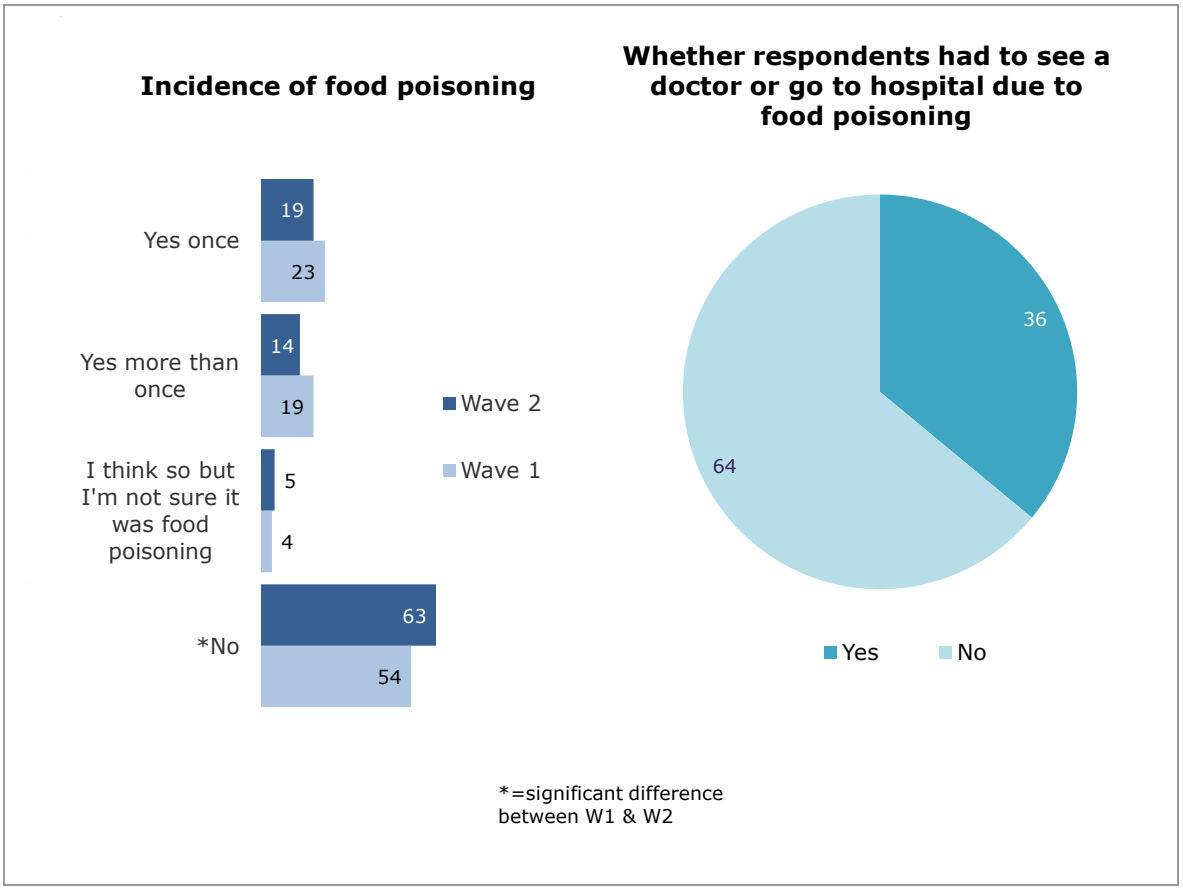
- Respondents in Scotland were less likely to than those in England to have heard of Genetic Modification (70% compared with 81%), irradiation (27% compared with 35%) and nanotechnology (15% compared with 21%). Respondents in Scotland (55%) were less likely than those in England (64%), Wales (70%) or Northern Ireland (64%) to have heard of animal cloning.

6.1 Experience of food poisoning

Overall, a third (33%) of respondents reported that they had had food poisoning in the past (19% once and 14% more than once). Sixty-three per cent of respondents reported they had never had food poisoning and 5% said that they weren't sure. Of those who had experienced food poisoning, 36% reported having seen a doctor or gone to hospital as a result of their most recent episode. Results are shown in Figure 6.1.

The proportion of respondents who said that they had never experienced food poisoning increased at Wave 2 (from 54% at Wave 1 to 63%).

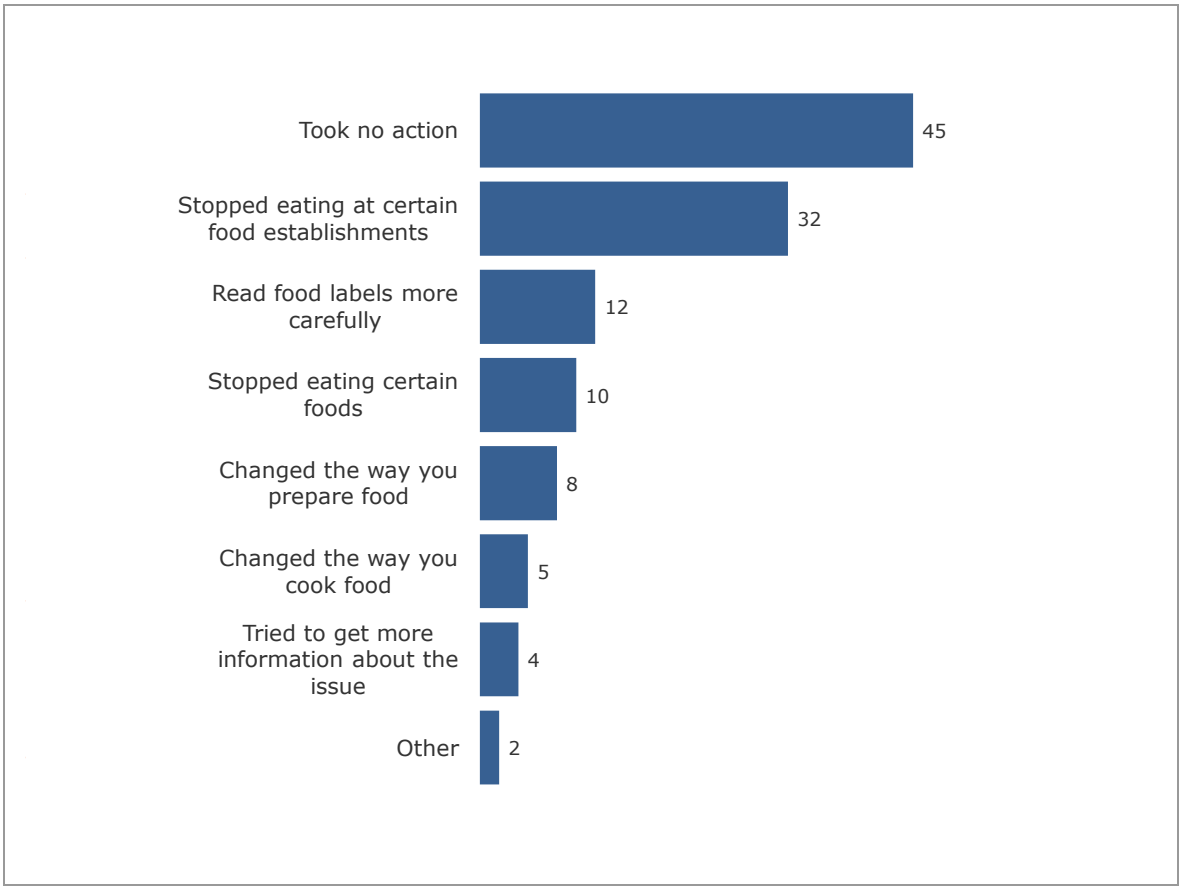
Figure 6.1 Experience of food poisoning (Wave 1 and Wave 2)



Source: Q4_28 Have you personally ever had food poisoning? & Q4_28A Thinking about the most recent occasion you had food poisoning, did you see a doctor or go to hospital because of it?
Base: Q4_28 All Scotland respondents - Wave 1(511); Wave 2(507) & Q4_28A All Scotland respondents who have had food poisoning Wave 2 (180)

As a consequence of their food poisoning, 32% of respondents reported that they had stopped eating at certain food establishments, 12% read food labels more carefully and 10% stopped eating certain foods. Forty-five per cent of respondents reported that they had taken no action (Figure 6.2).

Figure 6.2 Actions taken as a result of food poisoning (Wave 2)



Source: Q4_28B In response to when you had food poisoning (most recently) have you done any of the following?
Base: All Scotland respondents who have had food poisoning - (180)

6.1.1 Variation in experience of food poisoning by different groups of the population

Men were more likely than women to report having experienced food poisoning more than once - 21% compared with 8%. There were no significant differences by gender in regards to whether respondents had gone to the doctor or hospital as result of their food poisoning.

Experience of food poisoning was highest amongst respondents aged 25-34 (46%) and lowest amongst respondents ages 16-24 (22%) and those aged 60 or older (21%). There were no significant differences by age for whether respondents had gone to see a doctor or visited the hospital as a result of the food poisoning.

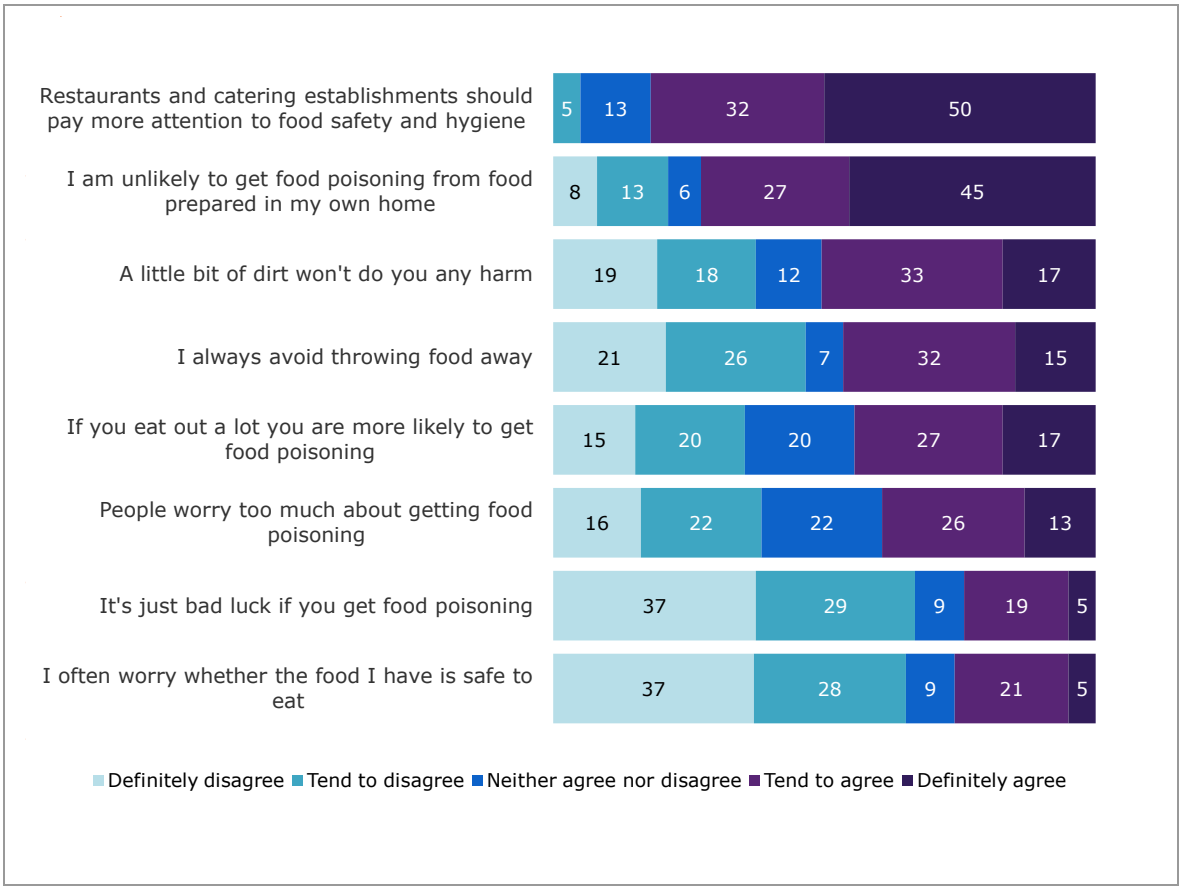
6.2 Attitudes towards food safety

Respondents were asked about the extent to which they agreed or disagreed with a range of statements relating to food safety.

Overall, 82% of respondents said they agreed that restaurants and catering establishments should pay more attention to food safety and hygiene. Seventy-two per cent agreed that they were unlikely to get food poisoning from food prepared at home, and half (50%) agreed that a little bit of dirt would not do any harm. Sixty-four per cent disagreed that they often worried about whether the food they had was safe to eat. The full results are shown in Figure 6.3.

Compared to Wave 1 there were no significant differences in attitudes towards food safety.

Figure 6.3 Attitudes towards food safety (Wave 2)



Source: Q4_27 And now I will read out a few statements people have made and would like you to tell me whether or not you agree with them.
Base: All Scotland respondents - (507)

6.2.1 Variation in attitudes towards food safety by different groups in the population

Attitudes towards food safety were found to vary by age, with older respondents being more likely to agree that they are unlikely to get food poisoning from food prepared at home (83% for those aged 60 and over, decreasing to 53% for those aged 16-24). Younger respondents aged 16-24 were less likely to agree that a little bit of dirt won't do any harm, than respondents aged 60 and over (42% compared with 60%).

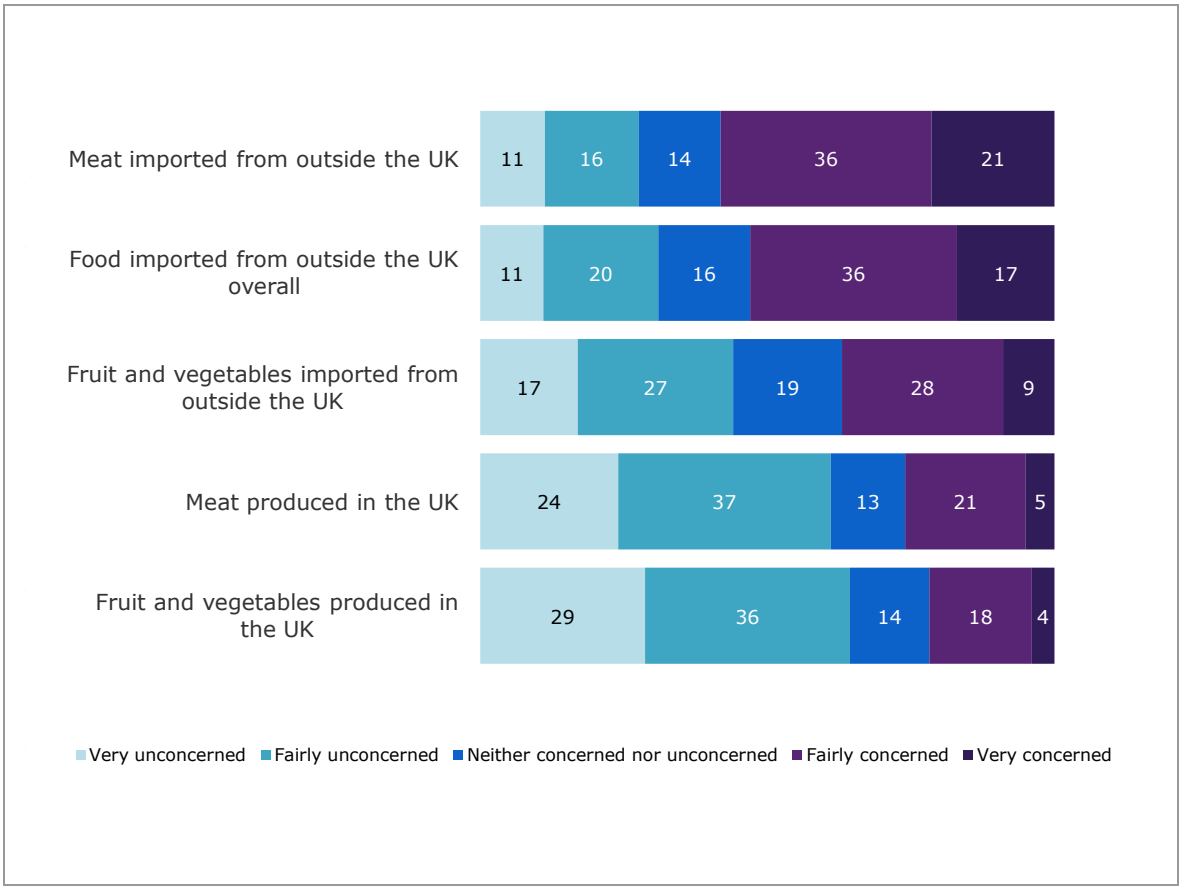
6.3 Concern about where food is produced and other food safety issues

6.3.1 Concern about where food is produced

Respondents were asked how concerned they were about food produced in the UK and food imported from outside the UK. More than half (55%) of respondents said that they were unconcerned about the safety of food produced in the UK, although a quarter (25%) said they were fairly concerned (Figure 6.4).

There tended to be more concern about food imported from outside the UK, and in particular meat rather than fruit and vegetables. Fifty-eight per cent of respondents expressed concern about the safety of meat imported from outside the UK and a fifth (21%) said that they were very concerned about it. Only 5% of respondents said they were very concerned about meat produced in the UK.

Figure 6.4 Concern about where food is produced (Wave 2)

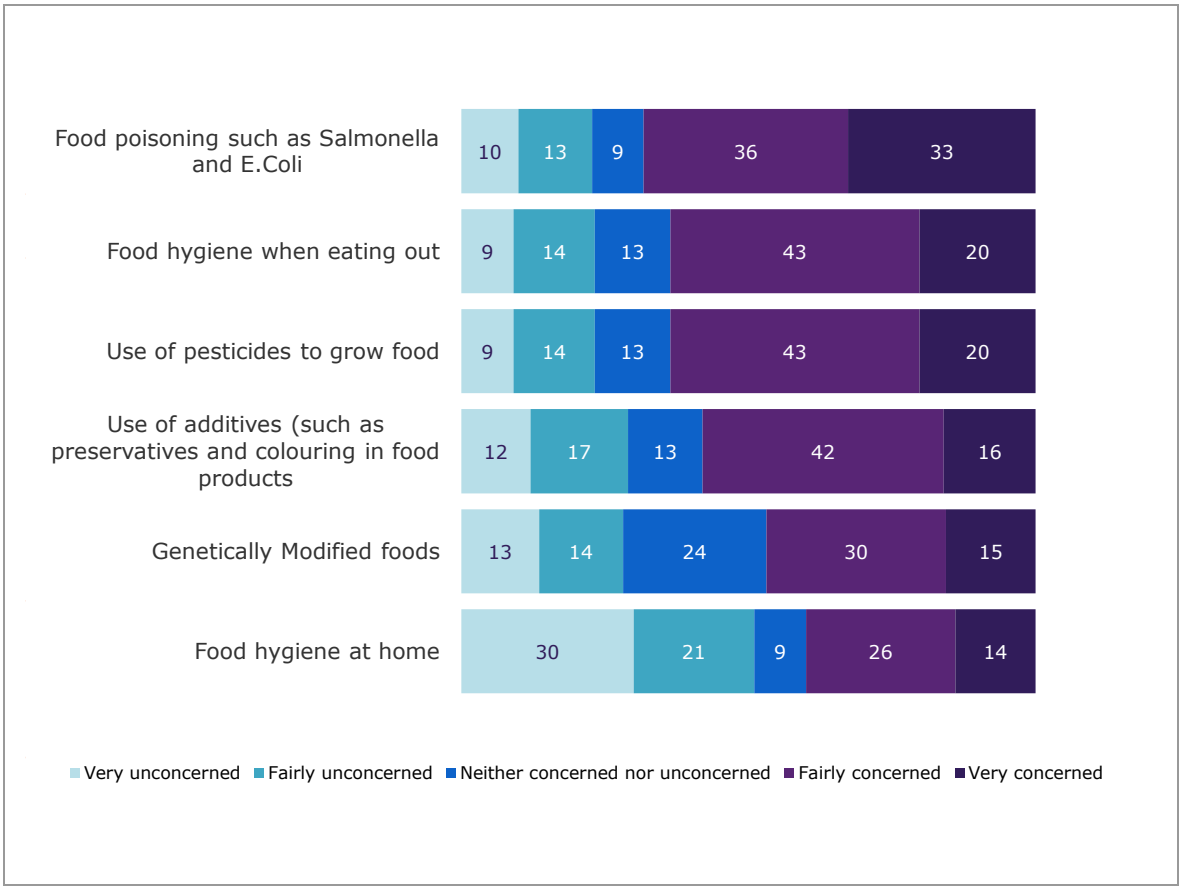


Source: Q9_2 Please tell me the extent to which you are concerned or unconcerned by each of the following issues…
Base: All Scotland respondents - (507)

6.3.2 Other food safety related issues

Respondents were also asked how concerned they were about a range of specific issues including food poisoning, the use of pesticides and Genetically Modified (GM) foods. For all issues, a higher proportion of respondents reported being concerned than unconcerned. The highest levels of concern were expressed in relation to food poisoning such as Salmonella and E.coli (69%), the use of pesticides (64%) and food hygiene when eating out (63%). Respondents were least concerned about genetically modified foods (45%) and food hygiene at home (40%). Figure 6.5 shows the full results.

Figure 6.5 Other food safety related issues (Wave 2)



Source: Q11_3 Please tell me the extent to which you are concerned or unconcerned by each of the following issues?
Base: All Scotland respondents (507)

6.3.3 Actions taken as a result of food concerns

Respondents who said they were concerned about a food issue were then asked what they did, if anything, as a result of their concern. The most common answer for all issues was to take no action.

Generally, if people did take action as a result of their food concern, the most frequently reported action was reading food labels more carefully (Table 6.1).

Those concerned about food hygiene when eating out paid more attention to the cleanliness of establishments (36%) or stopped eating at certain establishments (21%).

Table 6.1 Actions taken as a result of food concerns (Wave 2)

	Top answer	Second	Third
Food poisoning (e.g. salmonella and E.Coli)	Took no action (54%)	Read food labels more carefully (25%)	Changed way food is prepared (11%); Changed the way food is cooked (11%); Read about the issue but did not seek out information (11%)
GM foods	Took no action (54%)	Read food labels more carefully (25%)	Read about the issue but did not seek out information (14%)
Use of pesticides	Took no action (58%)	Read food labels more carefully (20%)	Read about the issue but did not seek out information (11%)
Use of additives	Took no action (42%)	Read food labels more carefully (41%)	Stopped eating certain foods (15%)
Food hygiene at home	Took no action (57%)	Changed the way food is prepared (23%)	Read food labels more carefully (18%)
Food hygiene when eating out	Took no action (43%)	Paid more attention to the cleanliness of food establishments (36%)	Stopped eating at certain establishments (21%)

Source: Q11_4 You have indicated that you are concerned about.... In response, have you done any of the following over the past year?
Base: All Scotland respondents who are concerned about the issue – food poisoning (338), GM foods (231), pesticides (328), additives (295), food hygiene at home (210), food hygiene when eating out (328)

6.3.4 Variation in concern about food safety and production issues by different groups in the population

When analysing by **gender,** women (75%) were more likely than men (62%) to say they were concerned about food poisoning such as Salmonella and E.coli.

Age was a significant factor with older respondents expressing greater levels of concern on issues such as food imported from outside of the UK. For example, among those aged 60 and over, 63% said that they were concerned about food imported from outside the UK compared with 36% of 16-24 year olds and 34% of those aged 25-34. Those aged 60 and over were also more concerned than younger age groups about a range of issues including the use of pesticides to grow food (65% compared with 44%) and the use of additives in food products (55% compared with 34%).

6.4 New food technologies

Despite there being EU regulations in place which ensure that food produced using new technologies, including genetic modification (GM), undergo a safety assessment and approval before being placed on the market, there remains considerable debate and concern over the impact of such technologies on the long term health of both individuals and the environment. It is important, therefore, for the FSA to collect data on awareness, reported knowledge of and levels of unease about GM, and other new food technologies.

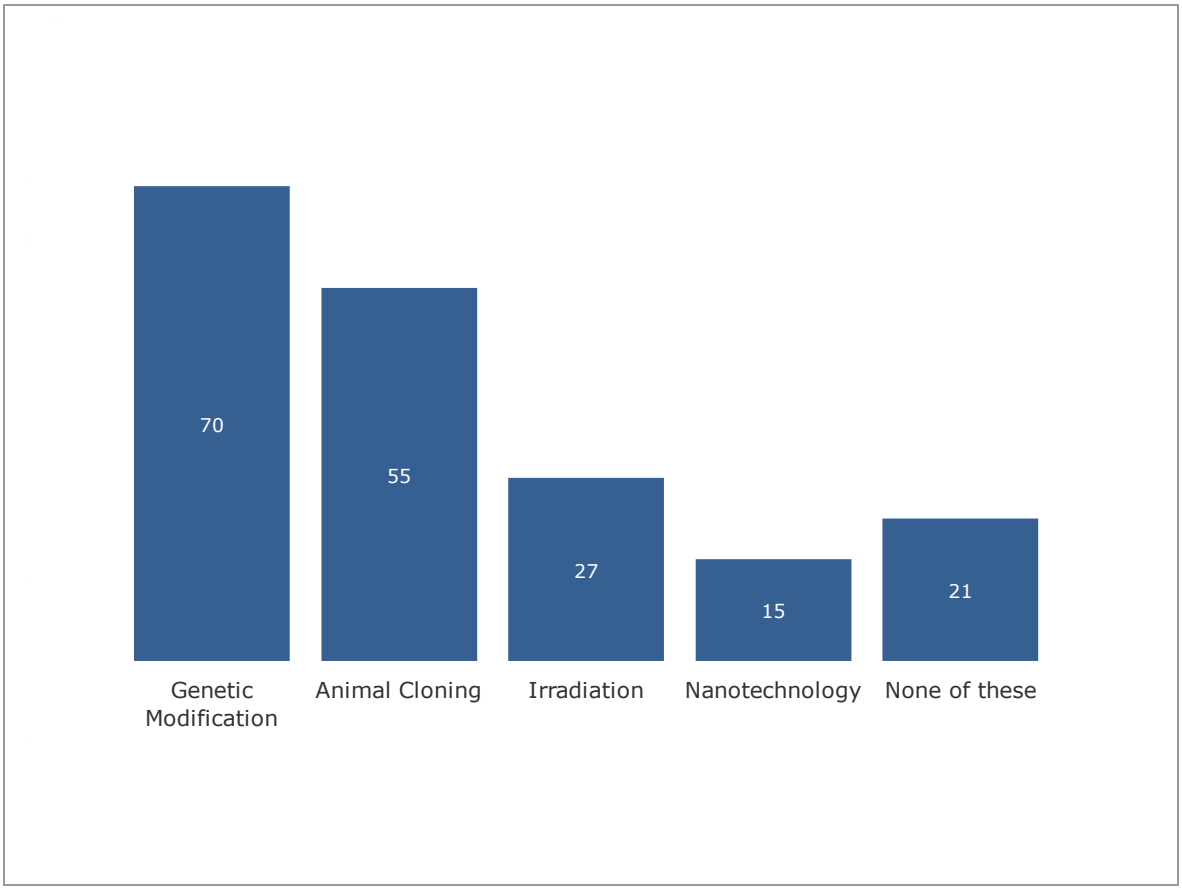
6.4.1 Awareness of new food technologies

Respondents were asked whether they were aware of four new food production techniques[31]. The most widely recognised was Genetic Modification (70%), followed by animal cloning (55%), irradiation (27%) and lastly nanotechnology (15%)[32]. Overall, 21% of respondents reported that they had not heard of any of these technologies.

[31] These questions were asked before the questions reported in section 6.3.1 which asked about levels of concern for GM food. Therefore there is no risk that awareness levels of GM could have been raised by previous questioning.

[32] Genetic modification is the process of changing the DNA of any living thing (plants, animals or micro-organisms) in a way that does not occur in nature. Animal cloning is the creation of an animal (the clone) that is an exact genetic copy of an existing animal. Food irradiation is a processing technique that exposes food to electron beams, X-rays or gamma rays. The process produces a similar effect to pasteurisation, cooking or other forms of heat treatment, but with less effect on look and texture. Irradiated food has been exposed to radioactivity but does not become radioactive itself. Nanotechnology is the ability to understand and manipulate materials at the nanoscale, which is usually taken to mean between one and a hundred millionths of a millimetre.

Figure 6.6 Awareness of different methods of food production (Wave 2)

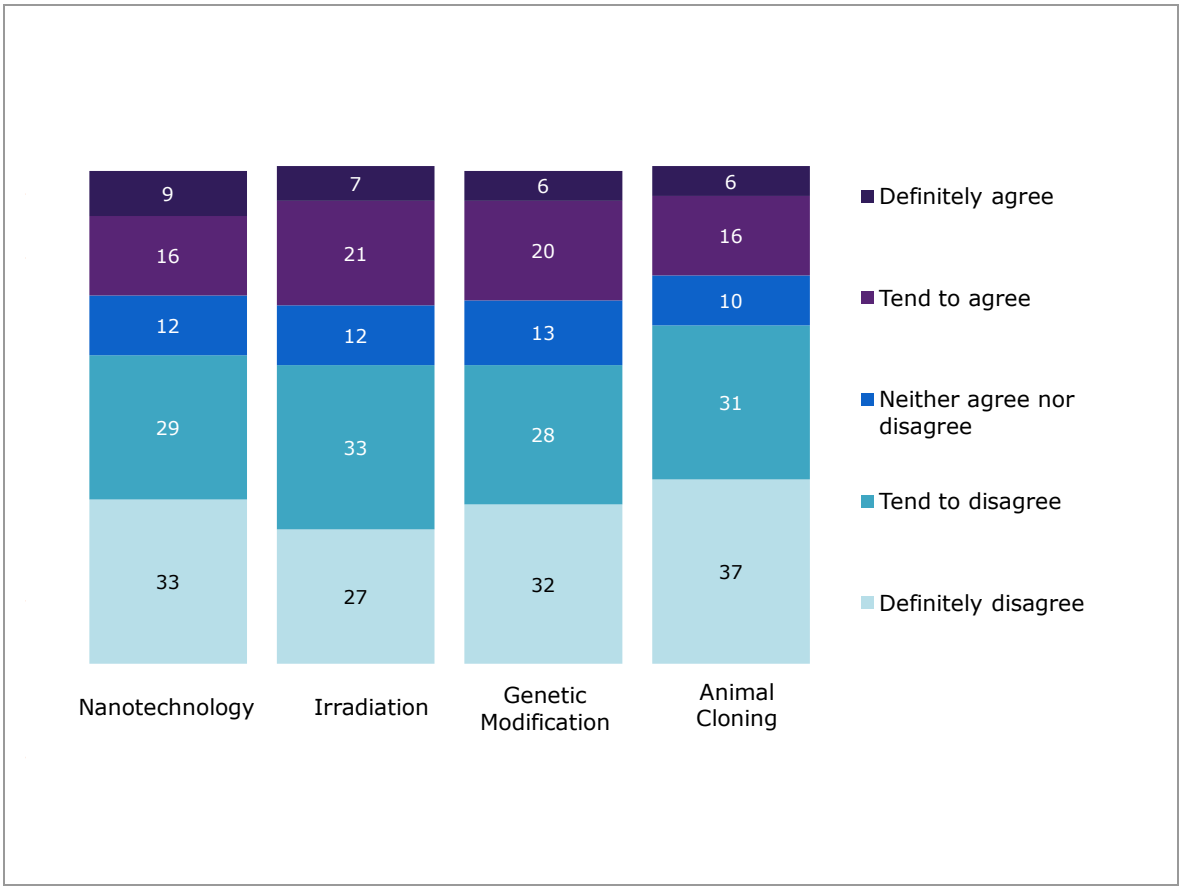


Source: Q8_3 Which of the following have you heard of in relation to food production?
Base: All Scotland respondents (507)

6.4.2 Knowledge of new food technologies

Respondents who said they had heard of each technology were asked about the extent to which they agreed or disagreed that they felt knowledgeable about the use of the technology in food production. Agreement with this statement was highest for irradiation (28%) and lowest for animal cloning (22%) (Figure 6.7)

Figure 6.7 Knowledge of different methods of food production (Wave 2)



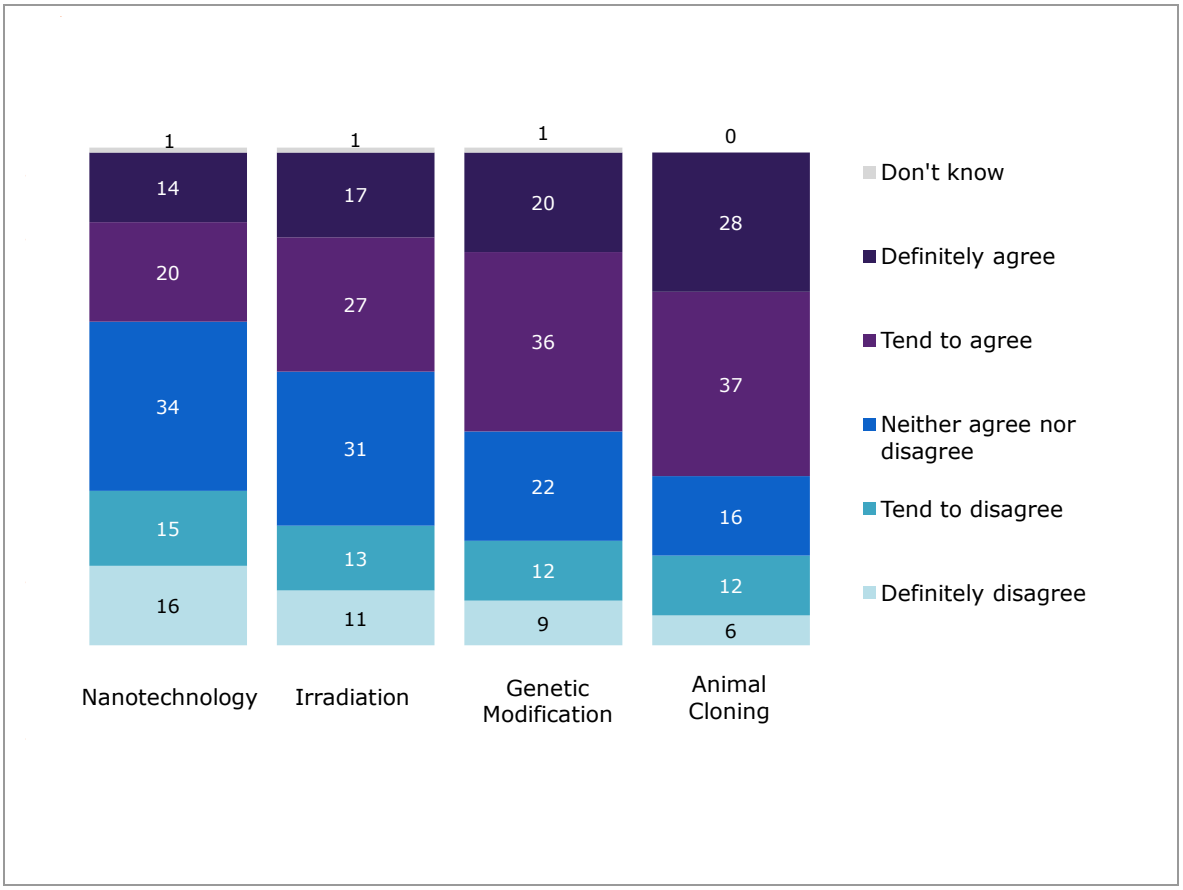
Source: Q8_4 How much do you agree or disagree with the following statement? I feel knowledgeable about the use of ... in food production
Base: Scotland respondents who had heard of each - Nanotechnology (76), Irradiation (146), Genetic Modification (353), Animal cloning (278)

6.4.3 Unease about new food technologies

Respondents who had heard of each food technology were also asked whether they agreed or disagreed that the use of it in food production made them feel uneasy.

Respondents were most likely to agree that animal cloning in food production made them feel uneasy (66%), followed by Genetic Modification (56%) and irradiation (44%). They were least likely to have agreed that the technique of nanotechnology in food production made them feel uneasy (34%). Full results are shown in Figure 6.8.

Figure 6.8 Unease about different methods of food production (Wave 2)



Source: Q8_5 How much do you agree or disagree with the following statement? ...in food production makes me feel uneasy

Base: Scotland respondents who had heard of each - Nanotechnology (76), Irradiation (146), Genetic Modification (353), Animal cloning (278)

6.4.4 Variation in awareness, knowledge and reported uneasiness about new food production technologies by different groups in the population

There was little variation by gender in the proportions who had heard of new food production technologies or the proportions who felt knowledgeable or uneasy about them.

There was some variation by **age,** with younger respondents less likely to say they had heard of these technologies. For example, respondents aged 16-24 were less likely than older groups to have heard of genetic modification (53% compared with 82% of those aged 35-44) and irradiation (10% compared with 36% of those aged 45-54). There were no significant differences by age on whether respondents felt knowledgeable or uneasy about the new food technologies.

6.5 Comparisons between Scotland and the rest of the UK

Responses to questions about food poisoning were analysed by country. There were no significant differences in the reported incidence of food poisoning or in the proportion of those with food poisoning who sought medical attention.

There were some differences in attitudes to food safety and hygiene by country. Respondents in Scotland were more likely than respondents in England to agree that restaurants and catering establishments should pay more attention to food safety and hygiene (82% compared with 76%). They were less likely than those in England to agree that a little bit of dirt won't do you any harm (50% compared with 58%) and less likely than respondents in Northern Ireland to agree that they always avoid throwing food away (47% compared with 58%). Full results are shown in Table 6.2.

Table 6.2 Attitudes to food safety, by country (Wave 2)

% agreeing	Scotland	England	Northern Ireland
I always avoid throwing food away	*47%*	*52%*	*58%*^{S}
Restaurants and catering establishments should pay more attention to food safety and hygiene	*82%*^{E}	*76%*	*87%*
A little bit of dirt won't do you any harm	*50%*	*58%*^{S}	*54%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q4_27 And now I will read out a few statements people have made and would like you to tell me whether or not you agree with them.
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Some variation by country was also apparent in levels of concern about where food is produced. Respondents living in Scotland were less likely to report concern than respondents living in England or Wales about the overall safety of food imported from outside the UK and the safety of fruit and vegetables imported from outside the UK. Respondents in Scotland were less likely than those in England to report concern about the safety of meat produced in the UK, and less likely than those living in Wales to report concern about the safety of meat imported from outside the UK (See Table 6.3 for full details).

Table 6.3 Concern about where food is produced, by country (Wave 2)

% concerned	Scotland	England	Wales	Northern Ireland
The overall safety of food imported from outside the UK	*53%*	*61%^{S}*	*68%^{S}*	*54%*
The safety of fruit and vegetables imported from outside the UK	*37%*	*44%^{S}*	*53%^{S}*	*35%*
The safety of meat produced in the UK	*27%*	*34%^{S}*	*34%*	*28%*
The safety of meat imported from outside the UK	*58%*	*62%*	*76%^{S}*	*59%*
Base	*(507)*	*(2116)*	*(104)*	*(504)*

Source: Q9_2 To what extent are you concerned or unconcerned by...
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

When asked about their concerns towards a range of other food issues, respondents in Scotland were less likely, compared to respondents in England, to report being concerned about the use of additives in food products (58% compared with 65% in England) and food hygiene when eating out (63% compared with 70% in England). Respondents in Scotland were less likely than respondents in both England and Northern Ireland to express concern about food hygiene at home (40% compared with 49% in England and 48% in Northern Ireland) (See Table 6.4 for full details).

Table 6.4 Concern about other food safety related issues, by country (Wave 2)

% concerned	Scotland	England	Northern Ireland
The use of additives (such as preservatives and colouring) in food products	*58%*	*65%[S]*	*58%*
Food hygiene when eating out	*63%*	*70%[S]*	*65%*
Food hygiene at home	*40%*	*49%[S]*	*48%*
Base	*(507)*	*(2116)*	*(504)*

Source: Q11_3 To what extent are you concerned or unconcerned by...
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

As shown in Table 6.5, respondents in Scotland were less likely than respondents in the other three countries to have heard of animal cloning (55% compared with 64-70%). Respondents in Scotland were more likely than respondents in England or Wales to report that they had not heard of any of the four new technologies (21% compared to 12% in England and 11% in Wales.)

Table 6.5 Awareness of new technologies, by country (Wave 2)

% aware	Scotland	England	Wales	Northern Ireland
Genetic Modification (GM)	*70%*	*81%[S]*	*80%*	*72%*
Animal Cloning	*55%*	*64%[S]*	*70%[S]*	*64%[S]*
Irradiation	*27%*	*35%[S]*	*32%*	*26%*
Nanotechnology	*15%*	*21%[S]*	*15%*	*17%*
None of these	*21%[E]*	*12%*	*11%*	*19%*
Base	*(507)*	*(2116)*	*(104)*	*(504)*

Source: Q8_3 Which of the following have you heard of in relation to food production?
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

7. Advice on healthy eating

This chapter presents information on awareness of messages included in Agency advice about healthy eating. The final section presents comparisons between respondents in Scotland and Northern Ireland[33].

Summary

The eatwell plate

- A fifth (21%) of respondents in Scotland placed all the food groups in the recommended sections on the eatwell plate. Only 3% of respondents were not able to place any food groups in the recommended sections.
- Respondents were most likely to place high sugar/fat foods (81%), followed by milk and dairy products (78%) and fruit and vegetables (75%) in the recommended sections of the eatwell plate.

Importance of a healthy lifestyle

- 65% of respondents reported that keeping to a healthy weight and 73% said that eating breakfast every day was very important for a healthy lifestyle

Recommended daily amounts

- Around three in ten respondents reported that the recommended intake for an average woman is 2,000 calories a day (28%) and for an average man 2,500 calories a day (28%).
- 86% of respondents reported that health experts recommend people should eat five portions of fruit and vegetables every day (in line with recommendations), unchanged from Wave 1 (86%).
- Most respondents reported that pure fruit juice (93%), frozen vegetables (90%), tinned fruit or vegetables (85%), dried fruit (85%) and fruit smoothies (78%) could count towards '5 a day' (in line with recommendations).
- The recommended maximum daily intake of salt adults should eat each day is 6g, 9% of respondents reported this. Levels of awareness for the recommended maximum daily intake for saturated fat were the same with 8% of men and 9% of women giving an answer in line with Agency recommendations for their gender.

[33] There are no results for England or Wales in this section as the healthy eating questions were not asked to respondents in these countries.

7.1 Background

The Scottish Government provides advice on nutrition and healthy eating via the Take Life On website[34]. The Food Standards Agency in Scotland provides healthy eating advice through the eatwell Scotland and eatwell every day website[35]. The advice centres on the eatwell plate and '8 tips for eating well', including advice on eating at least five portions of fruit and vegetables a day and the recommended maximum daily intake of salt for adults. There are also guidelines on recommended maximum intakes for fat and calories.

7.2 The eatwell plate

The eatwell plate illustrates the types and proportions of foods needed for a healthy balanced diet. It shows how much of a recommended diet should come from each food group. This includes: plenty of fruit and vegetables; plenty of bread, rice, potatoes, pasta and other starchy foods; some milk and dairy foods; some meat, fish, eggs, beans and other non-dairy sources of protein and a small amount of foods and drinks high in fat and/or sugar. The eatwell plate is shown below.

Respondents were shown a blank plate with the eatwell plate sections marked but not labelled, and were asked to place cards showing each of the food groups in the recommended sections on the plate to represent what they thought was the recommended balanced diet.

Overall, 21% of respondents in Scotland placed all five food groups in the recommended sections of the eatwell plate. Sixty-one per cent placed three of the five food groups, and

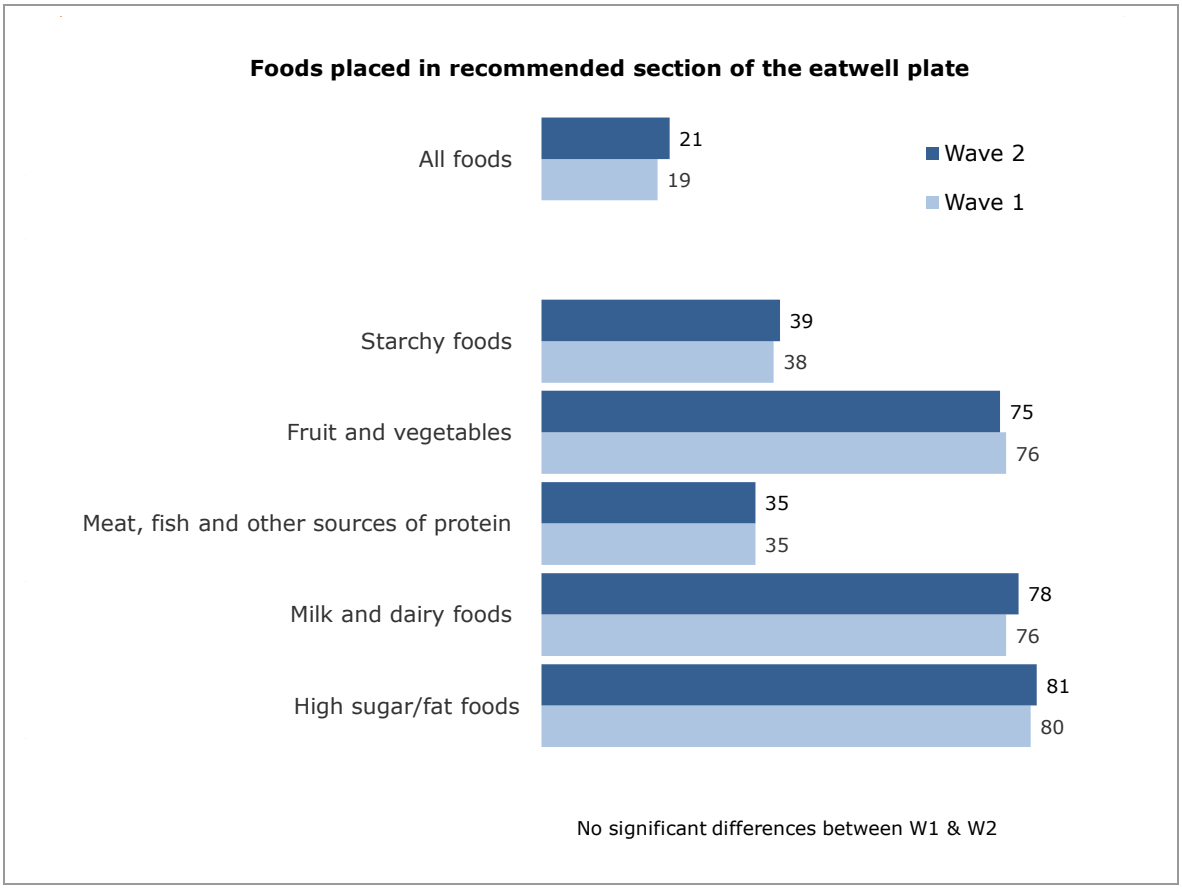
[34] www.takelifeon.co.uk
[35] www.eatwellscotland.org

5% placed two of the five food groups in the recommended sections of the eatwell plate. No respondents placed four of the five food groups in the recommended sections of the eatwell plate. Ten per cent placed only one of the five food groups, and 3% did not place any food groups in the recommended sections.

Respondents were most likely to place high sugar/ fat foods in the recommended section of the Eatwell plate (81%). Just over three quarters (78%) of respondents placed milk and dairy foods, and 75% of respondents placed fruit and vegetables in the recommended sections. The foods most commonly positioned outside the recommended sections were starchy foods (61% did not place this in the recommended section) and meat, fish and other sources of protein (65% did not place this in the recommended section).

Results did not change significantly between Wave 1 and Wave 2.

Figure 7.1 Eatwell plate exercise (Wave 1 and Wave 2)



Source: H2_17 Eat well plate exercise
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

7.3 Foods for a healthy lifestyle

7.3.1 The 8 tips for eating well

The Government's '8 tips for eating well' are shown in Table 7.1.

Table 7.1 The '8 tips for eating well'

The tip	Detail of advice
1. Base your meals on starchy foods	Most of us should eat more starchy foods - try to include at least one starchy food with each of your main meals
2. Eat lots of fruit and veg	Try to eat at least 5 portions of a variety of fruit and veg every day. It might be easier than you think
3. Eat more fish	Aim for at least two portions of fish a week, including a portion of oily fish.
4. Cut down on saturated fat and sugar	Try to choose more foods that are low in fat and cut down on foods that are high in fat. We should all be trying to eat fewer foods with added sugars, e.g. sweets, cakes & biscuits, and drinking fewer sugary soft & fizzy drinks
5. Try to eat less salt	No more than 6g a day for adults
6. Get active and try to be a healthy weight	Only eat as much food as you need. Make healthy choices - it's a good idea to choose low-fat & low-sugar varieties, eat plenty of fruit & veg & whole grains. Get more active
7. Drink plenty of water	Should be drinking about 6 to 8 glasses (1.2 litres) of water per day
8. Don't skip breakfast	

A number of measures were included in the survey to explore whether respondents were aware of, and followed, the '8 tips' advice. The headline survey findings relating to the '8 tips' are as follows:

Base your meals on starchy foods

- 71% of respondents reported eating starchy foods at least once a day. Six per cent reported eating them once or twice a week or less often
- 22% thought that eating foods such as bread, rice, pasta and potatoes was very important for a healthy lifestyle, and a further 60% that it was fairly important

Eat lots of fruit and veg

- 67% of respondents reported that they ate fruit and vegetables at least once a day. Twelve per cent said once or twice a week or less often
- 83% said that eating fruit and vegetables was very important for a healthy lifestyle
- 43% reported eating five or more portions of fruit and vegetables on the day before the interview

Eat more fish

- 49% reported eating oily fish, 13% shellfish, and 60% other fish (excluding shellfish), at least once a week
- 47% thought that eating fish was very important for a healthy lifestyle, and a further 42% thought it was fairly important

Cut down on saturated fat and sugar

- 71% said limiting food and drinks high in sugar was very important for a healthy lifestyle
- 69% said limiting foods high in saturated fat was very important, and 65% said this for total fat
- 29% reported eating biscuits, pastries and cakes at least once a day, and 16% reported eating fried chips or roast potatoes at least three or four times a week
- 6% of women and less than one per cent of men stated a maximum recommended daily allowance (RDA) for total fats that was in line with Agency guidance (95g for men and 70g for women)

Try to eat less salt

- 65% said eating less salt was very important for a healthy lifestyle
- 9% stated a maximum daily intake of salt for adults that was in line with Agency guidance (6g)

Get active and try to be a healthy weight

- 65% said keeping to a healthy weight was very important for a healthy lifestyle

- 28% stated the recommended maximum daily intake of calories for women was 2000 calories a day, and 28% said this was 2500 calories a day for men

Drink plenty of water

- 77% of respondents said that this was very important for a healthy lifestyle

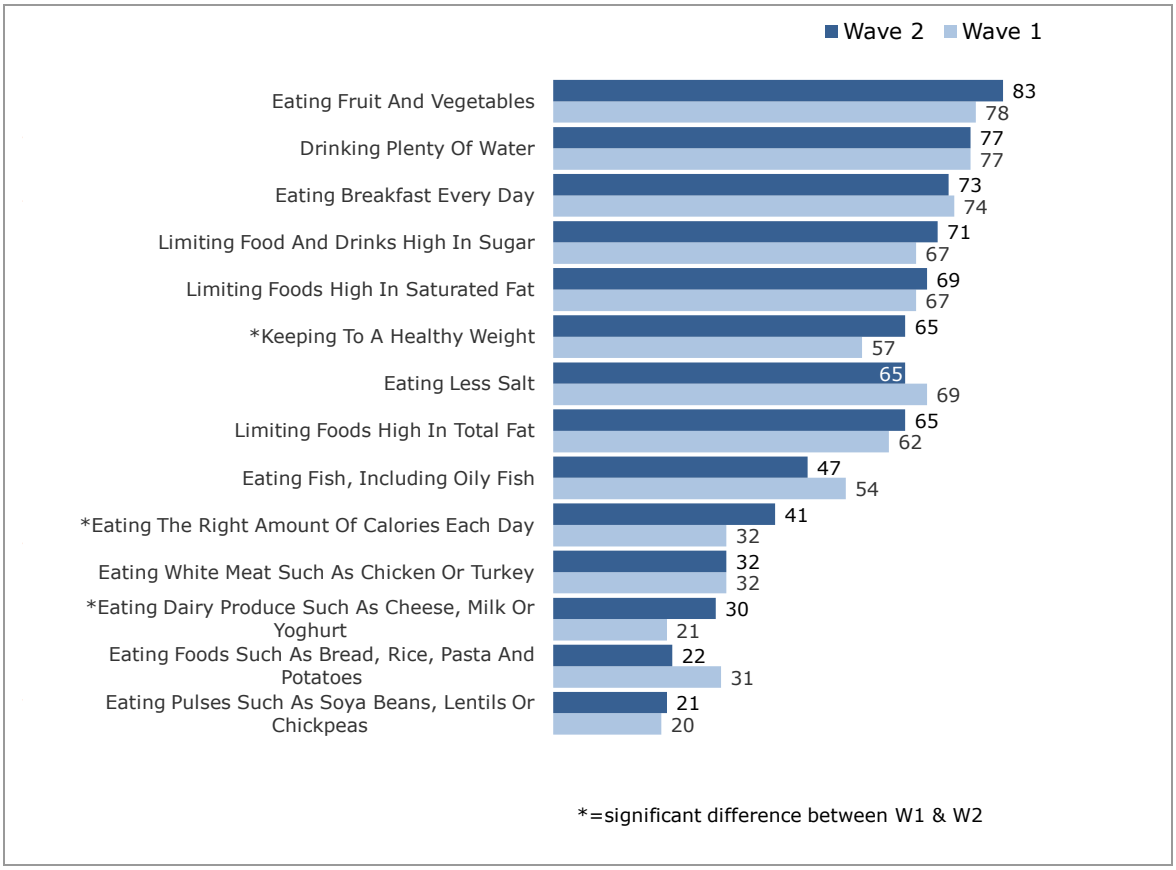
Don’t skip breakfast

- 73% of respondents said that it was very important for a healthy lifestyle to eat breakfast every day.

7.3.2 Importance of different factors for a healthy lifestyle

All respondents were asked to say how important they thought a variety of factors were for a healthy lifestyle. These covered eating different foods such as fruit and vegetables, as well as other lifestyle factors such as keeping to a healthy weight. The proportion of respondents rating each of the food and eating habits factors as ‘very important’ is shown in Figure 7.2.

Figure 7.2 % answering very important for a healthy lifestyle (Wave 1 and Wave 2)



Source: H2_18 Thinking about adults, how important do you think the following are for a healthy lifestyle...
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

Compared with Wave 1, respondents at Wave 2 were more likely to agree that keeping to a healthy weight (65% at Wave 2 compared with 57% at Wave 1), eating dairy produce (30% at Wave 2 compared with 21% at Wave 1), and eating the right amount of calories each day (41% at Wave 2 compared with 32% at Wave 1) were very important.

7.4 Awareness and understanding of recommended daily amounts

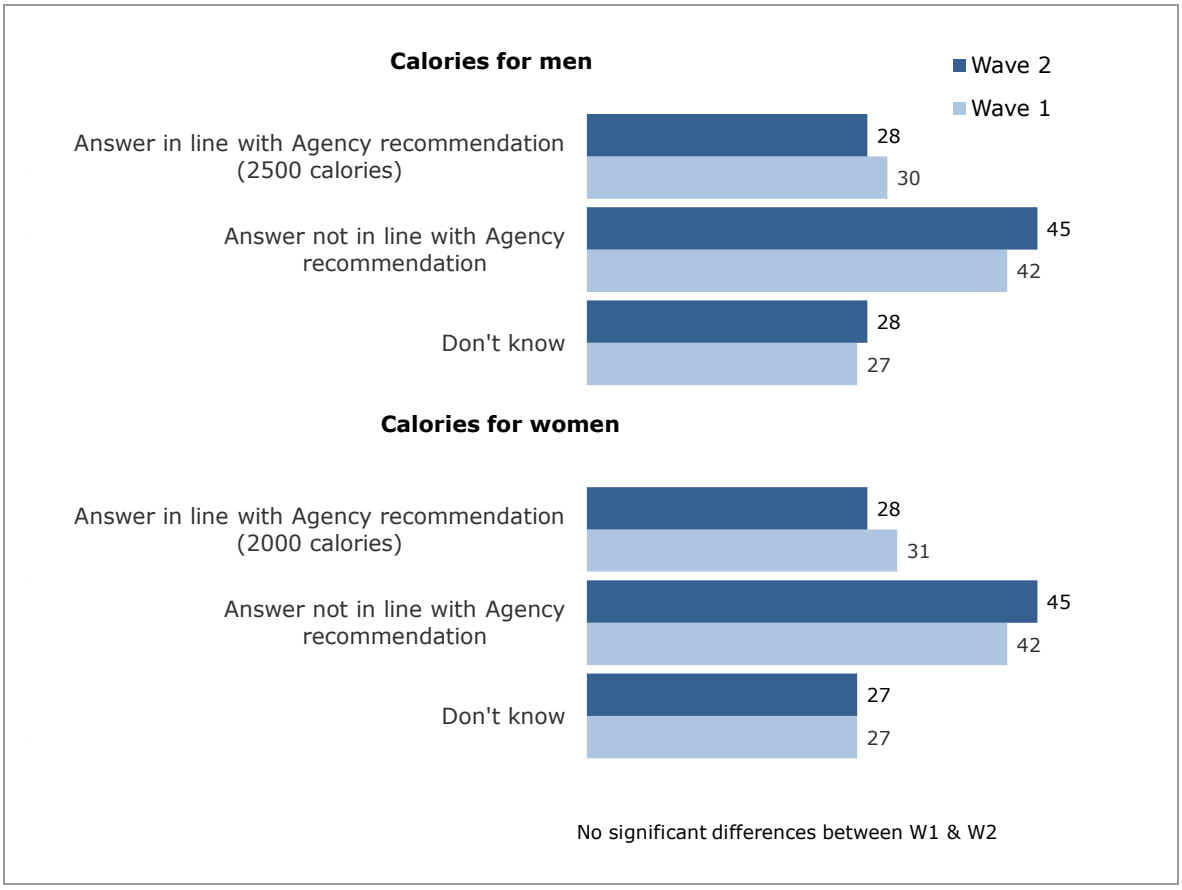
7.4.1 Calories

Respondents were asked what they thought was the recommended number of daily calories for women and men. **FSA guidance is that the average man should consume around 2,500 calories a day and the average woman around 2,000 calories a day.** Just under three in ten respondents reported the recommended number of daily calories - 28% for women and 28% for men. Twenty-five per cent stated that the recommended

number of daily calories for women was between 1,000 and 1,500 and 20% said 2,000 calories was the maximum recommended number of daily calories for men.

There were no significant differences in the results across the two waves.

Figure 7.3 Recommended number of daily calories for men and women (Wave 1 and Wave 2)



Source: H2_25 Can you tell me what you think is the recommended number of calories average women should eat a day? & H2_26 Can you tell me what you think is the recommended number of calories average men should eat a day?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

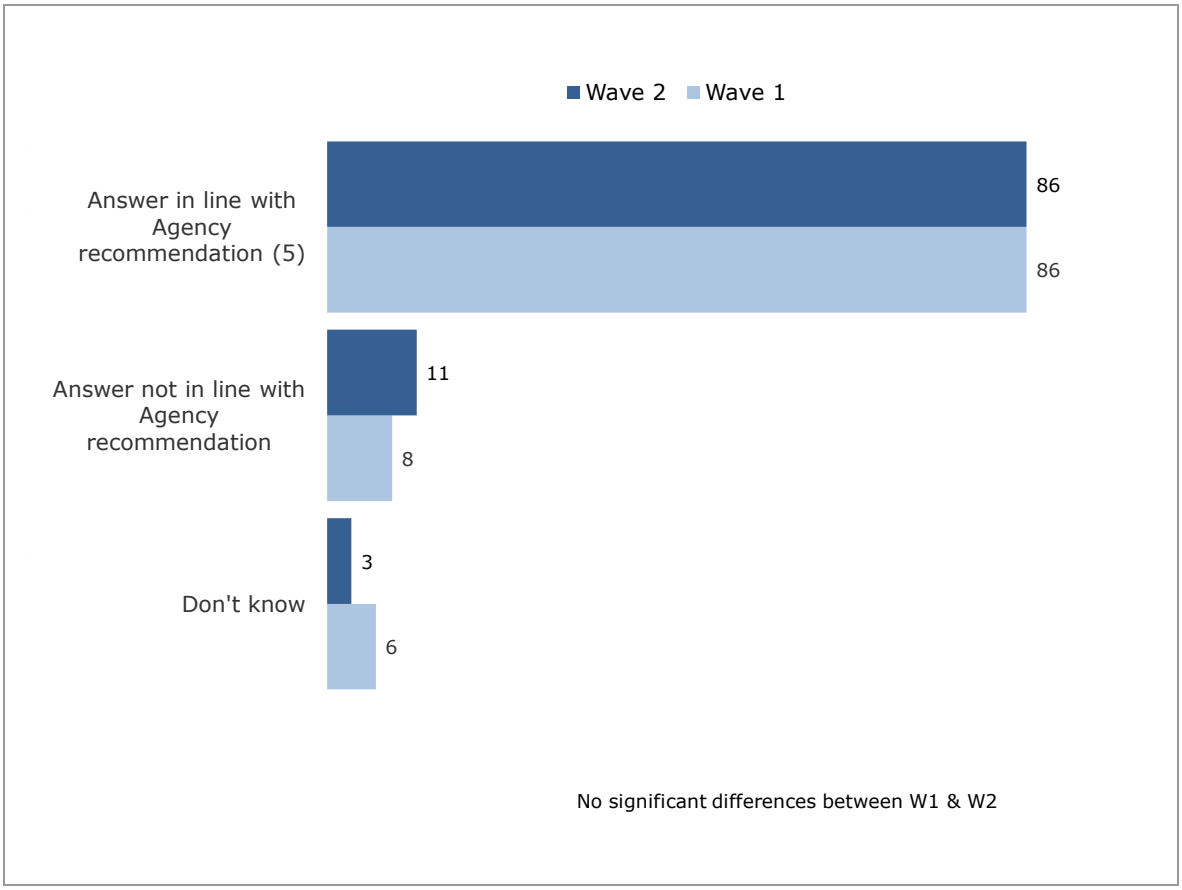
7.4.2 Fruit and vegetables

Respondents were asked how many portions of fruit and vegetables they thought health experts recommend people should eat every day[36]. **FSA guidance is that people should aim to eat at least five portions of fruit and vegetables every day.**

[36] In the questionnaire these questions were asked after the questions about knowledge and consumption, in order to avoid influencing respondents' answers.

Overall, 86% of respondents stated that the recommended number of portions was five; this is the same as Wave 1 (86%). Most of those who gave an answer that was not in line with Agency guidance said that the recommended number of portions was under five (8%), with a very small minority (3%) saying it was more than five.

Figure 7.4 Recommended fruit and vegetable consumption (Wave 1 and Wave 2)



Source: H2_9 How many portions of fruit and vegetables do you think that health experts recommend people should eat every day?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

Respondents were shown a list of different food items and asked whether they thought they could be counted towards the daily recommended fruit and vegetable intake. The items asked about, whether they do in fact count towards the '5 a day' recommendation, and the proportion of respondents who reported that each would count towards the fruit and vegetable recommendation, are shown in Table 7.2.

The majority of respondents said, in line with FSA guidance, that pure fruit juice (93%), frozen vegetables (90%), tinned fruit or vegetables (85%), dried fruit (85%) fruit smoothies (78%), baked beans (70%) and pulses (64%) could count towards '5 a day'.

There was more confusion over the other items; contrary to Agency guidance, 68% of respondents said that a jacket potato would count towards the '5 a day'. Twenty-eight per cent of respondents thought rice and 21% thought that jam would count towards the recommended daily intake.

Since Wave 1, the proportion of respondents who stated, in line with Agency recommendations, that baked beans, pulses, tinned fruit or vegetables, frozen vegetables and dried fruit can count towards the five a day target, has increased.

Table 7.2 Foods that can count towards '5 a day' (Wave 1 and Wave 2)

	% who said food counted towards '5 a day'	
	W1	W2
Foods that count as a portion of fruit and vegetables		
Tinned fruit or vegetables	75	85[S]
Frozen vegetables	82	90[S]
Dried fruit	77	85[S]
Baked beans	53	70[S]
Pulses	54	64[S]

Source: H2_10 Do you think these foods can be counted towards the daily fruit and vegetable intake?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

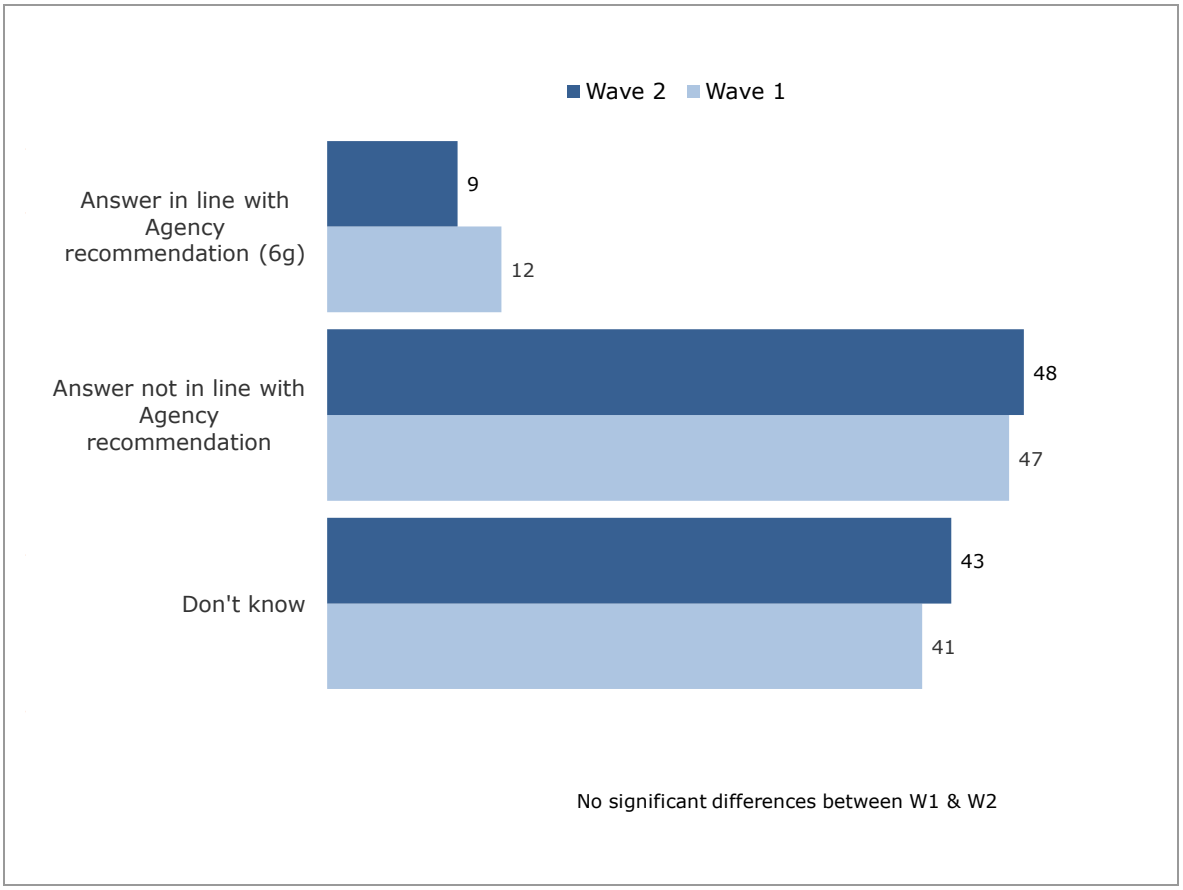
[S] Denotes where the result is significantly higher compared with the other Wave

7.4.3 Salt

Respondents were asked what they thought was the recommended maximum daily intake of salt adults should eat each day. **FSA guidance is that adults should consume no more than 6g of salt a day.**

There was limited knowledge of the adult's maximum daily intake, with one in eleven respondents (9%) stating the recommended amount of 6g. Just under half (48%) of respondents gave an answer that was not in line with Agency guidelines and 43% said they did not know. These figures are unchanged compared to Wave 1.

Figure 7.5 Recommended maximum daily intake of salt (Wave 1 and Wave 2)



Source: H2_30 It is recommended that we should eat no more than a certain amount of salt each day. How much do you think this is for adults?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

Respondents were asked (unprompted) what effects they thought eating too much salt could have on their health.

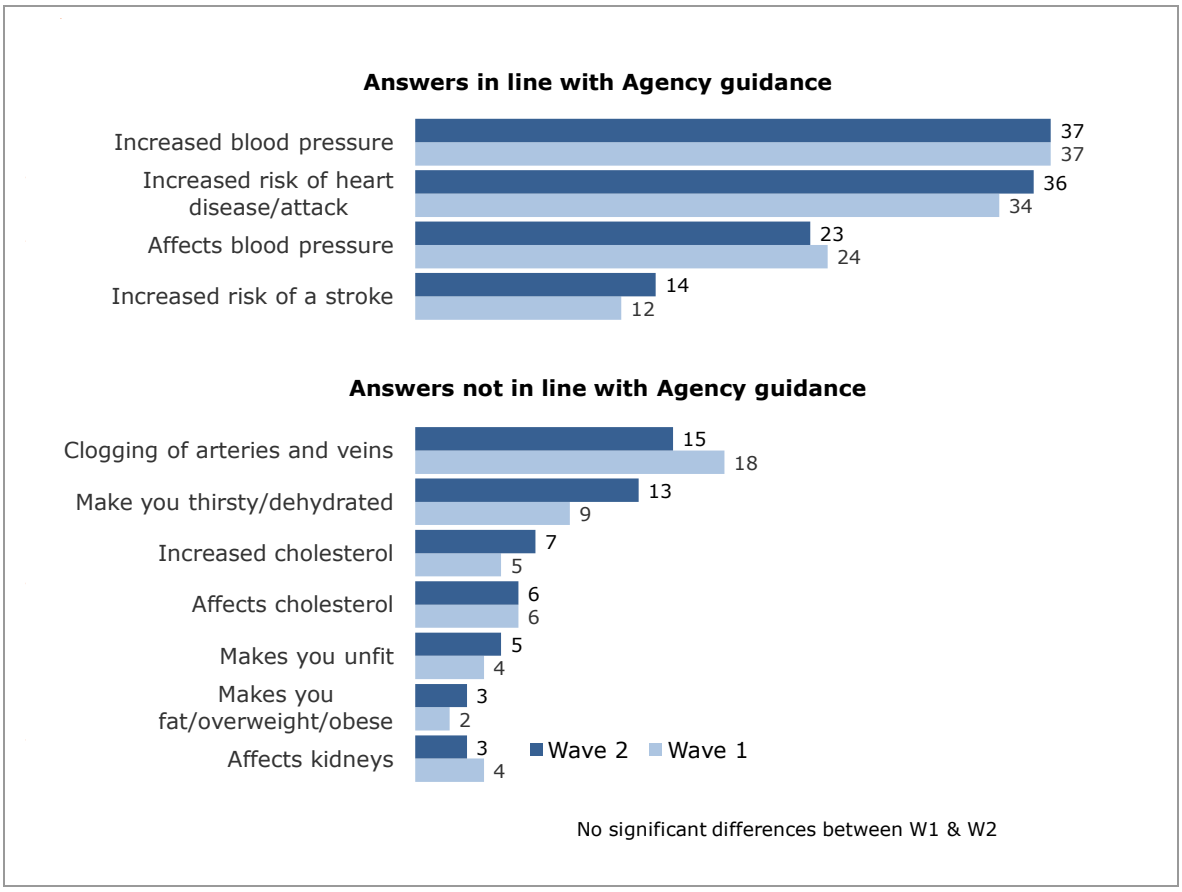
The main risk related to excessive salt consumption is that it increases blood pressure, and hence the risk of heart disease, heart attacks and strokes.

Thirty-seven per cent of respondents said, in accordance with FSA advice, that eating too much salt could increase blood pressure and a similar proportion (36%) said that it could increase the risk of heart disease. Almost a quarter (23%) said it would affect blood pressure (without specifying that blood pressure would increase).

Some respondents gave answers that were not in line with Agency advice such as ‘affects cholesterol’ (6%) or ‘increases cholesterol’ (7%). Fifteen per cent said it would cause clogging of arteries and veins.

There were no significant differences in response to this question between the two waves (Figure 7.6).

Figure 7.6 Impact eating too much salt can have on health (Wave 1 and Wave 2)



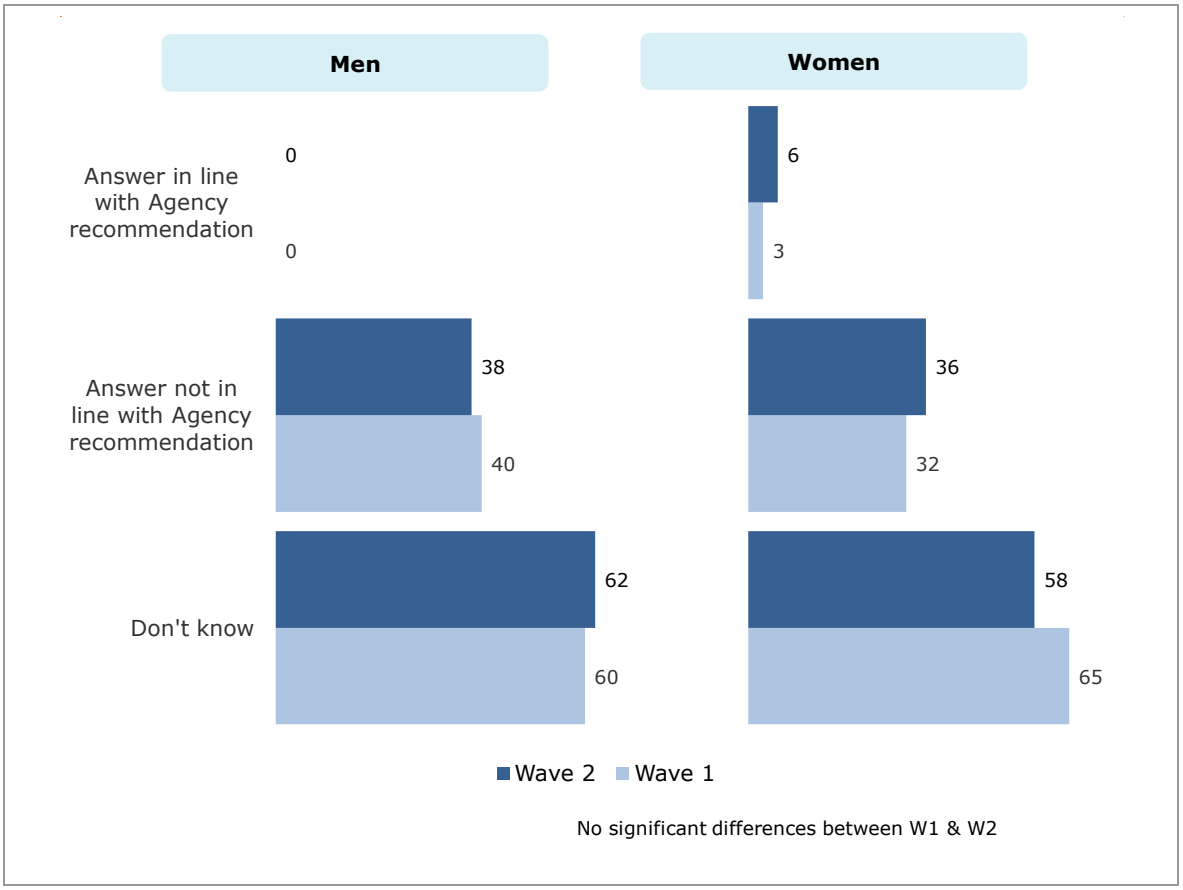
Source: H2_32 What effects do you think eating too much salt can have on your health?
Base: All Scotland respondents - Wave 1(511); Wave 2(507)

7.4.4 Fat

Men were asked what they thought the recommended maximum daily intake of total fat that men should eat each day was, and women were asked about the maximum daily intake of total fat for women. **FSA guidance is that men should not exceed 95g total fat each day and women should not exceed 70g a day.** Respondents were then told of the recommended maximum amount for total fat and were asked how much of this amount (in grams) they thought was made up of the recommended maximum daily intake of saturated fat. **FSA guidance is that a man's maximum daily intake of saturated fat should not be more than 30g and for women no more than 20g.**

There was limited knowledge of the recommended maximum daily intakes for both total and saturated fat, with many respondents giving answers that were not in line with Agency recommendations or saying they did not know, as shown in Figures 7.7 and 7.8.

Figure 7.7 Recommended daily allowance for total fat (Wave 1 and Wave 2)

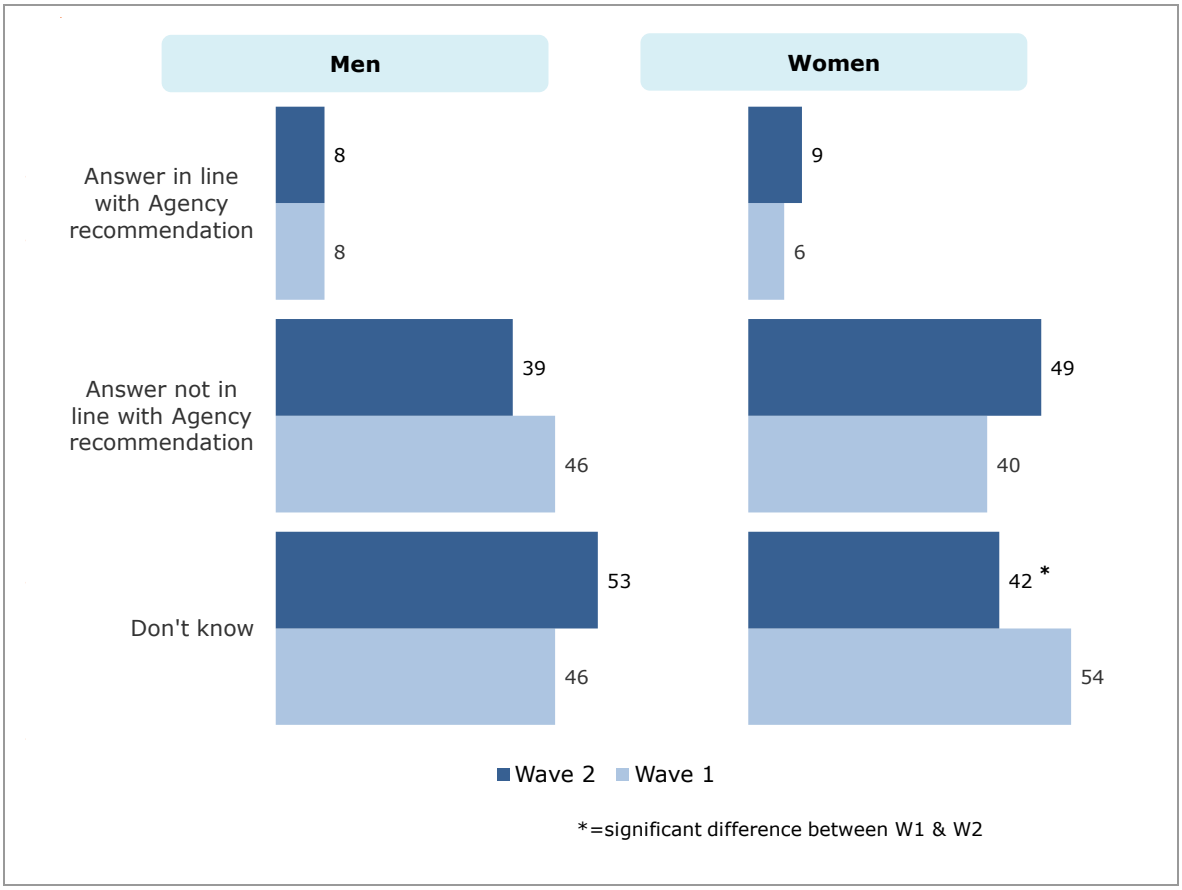


Source: H2_27 How much fat, in grams, do you think an average woman/man should eat each day?
Base: Scotland. Men – Wave 1 (206), Wave 2 (201); Women – Wave 1 (305), Wave 2 (306)

For total fat, less than 1% of men and 6% of women cited the recommended daily allowance. These results were similar to those reported at Wave 1.

Once prompted with the recommended daily allowance for total fat, 8% of men and 9% of women then gave an answer for saturated fat that corresponded with Agency recommendations. This was also unchanged from Wave 1.

Figure 7.8 Recommended daily allowance for saturated fat (Wave 1 and Wave 2)



Source: H2_28 It is recommended that the average man should eat no more than 95g of fat a day. How much of this, in grams, do you think is the maximum recommended amount of saturated fats?
Base: Scotland. Men – Wave 1 (206), Wave 2 (201); Women – Wave 1 (305), Wave 2 (306)

Respondents were asked (unprompted) what effects they thought eating too much saturated fat could have on health.

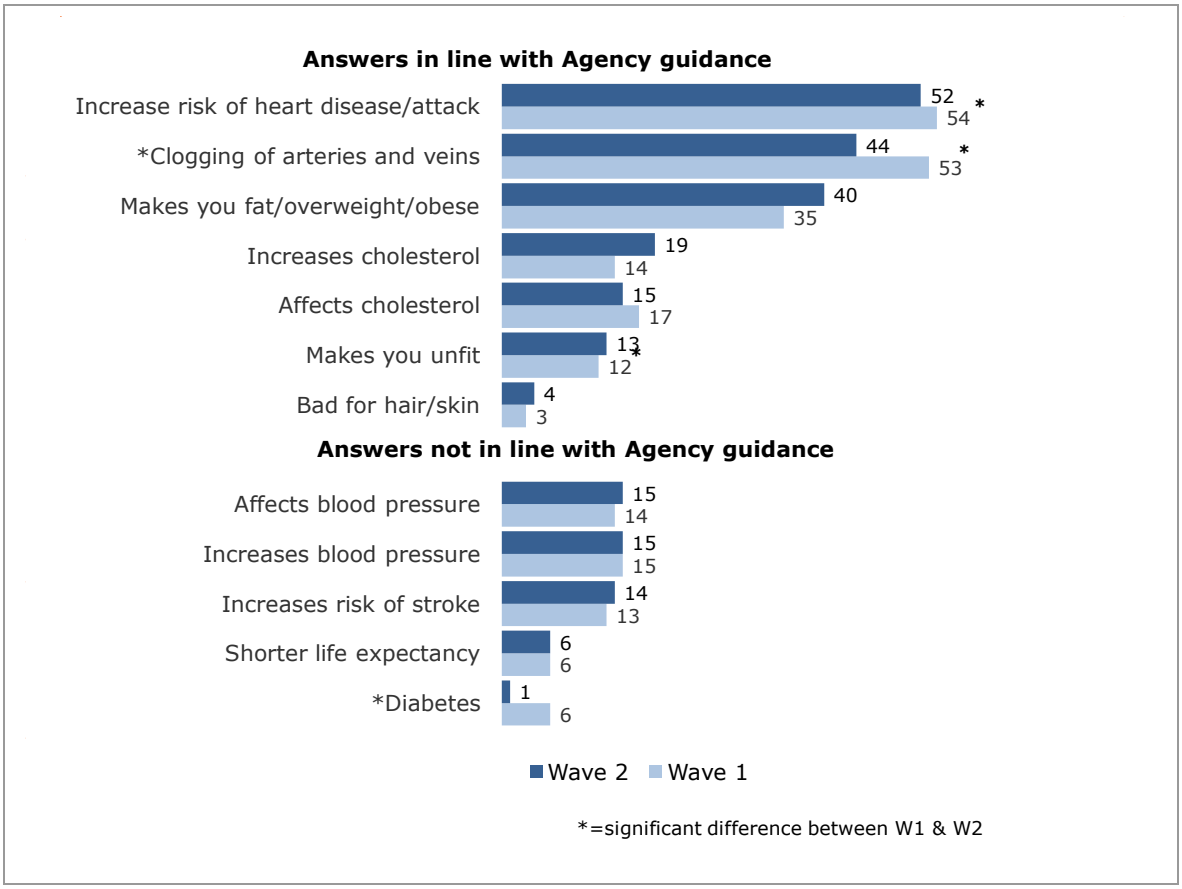
Eating too much saturated fat is one of the major risk factors for heart disease, as it causes a build-up of cholesterol in the arteries. Too much fat also increases the risk of overweight and obesity which again is a risk factor for heart disease, as well as for some types of cancer. High saturated fat consumption has also been linked with an increased risk of diabetes.

Although (as described above) awareness of the recommended level of saturated fat was low, there was higher awareness of the possible adverse impacts of eating too much. Just over half of respondents reported it would increase the risk of heart disease (52%), around two fifths that it would cause clogging of arteries and veins (44%), and a similar proportion mentioned it would cause overweight/obesity (40%). The most frequent responses that were not in line with FSA guidance was that too much saturated fat affects blood pressure (15%), increases blood pressure (15%) and increase the risk of a stroke (14%).

Since Wave 1, there has been a decrease in the proportion of respondents who stated that eating too much saturated fat can cause clogging of arteries and veins (from 53% in Wave

1 to 44% in Wave 2). Of responses that were not in line with Agency guidance, there was a decrease in the proportion reporting that an effect of eating too much saturated fat is diabetes (6% in Wave 1 compared to 1% in Wave 2).

Figure 7.9 Effects of eating too much saturated fat



Source: H2_29 What effects do you think eating too much saturated fat can have on your health?
Base: Scotland. Men – All respondents - Wave 1 (511); Wave 2 (507)

7.4.5 Variation in knowledge of recommended daily amounts by different groups in the population

When considering **gender** differences, women and men were just as likely to say that an average woman's recommended daily amount of calories is 2000 and likewise for an average man's recommended daily amount of 2500. There were no significant differences between men and women in the responses given when asked about the recommended daily maximum intakes of fat and salt, or what the effects are of eating too much salt or eating too much saturated fat.

There was some variation in responses by **age.** For example, younger respondents were more likely to say that the recommended daily amount of calories for women is 2000 (41% of 16-24s and 45% of 25-34s gave this answer, falling to 16% of respondents aged 60 and over) and that for men it is 2500 (43% of 16-24s and 41% of 25-34s, compared with 11% of those aged 60 and over). There were no other significant differences.

7.5 Comparisons between Scotland and Northern Ireland

As healthy eating questions were not included in the England and Wales surveys comparisons in this section can only be made between Scotland and Northern Ireland.

The results from the two countries were largely similar. Respondents in Scotland were less likely than those in Northern Ireland to place foods high in fat or sugar in the recommended section of the eatwell plate.

Table 7.3 Eatwell plate exercise, by country (Wave 2)

	Scotland	Northern Ireland
High sugar/ fat foods	*81%*	*88%*[S]
Base	*(507)*	*(504)*

Source: H2_17 Eatwell plate exercise
Base: All respondents
NB. S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Respondents in Scotland and Northern Ireland were equally as likely to state that the recommended daily number of portions of fruit and vegetables people should eat is five (86% and 90% respectively). However, respondents in Scotland were more likely than those in Northern Ireland to say that jam, which does not come under Agency recommendations, counts as a portion of fruit (21% compared with 14%).

When looking at awareness of the recommended daily allowances the proportion of respondents giving responses that are consistent with Agency recommendations did not vary significantly by country.

8. Eating and health

This chapter supports information presented in Chapter 7 by covering attitudes towards healthy eating, the consumption of different types of food, changes to diet made in the last six months and comparisons between respondents in Scotland and Northern Ireland.

Summary

Attitudes towards healthy eating

- Nearly all respondents agreed that what you eat makes a big difference to how healthy you are (93%) and that even if you don't have a really healthy diet it is worth making small changes (93%).

Perception of diet

- The majority (86%) of respondents stated that the food they usually ate was very or fairly healthy. Three fifths (60%) agreed that they did not need to make any changes to the food they eat, as it was already healthy enough.

Dietary changes and barriers and motivations to change

- Around three in ten respondents (28%) said that over the last six months they had been eating more fruit and vegetables and just under a quarter (23%) said that they were eating smaller portions. A fifth said they were eating less food that is high in saturated fat (19%), high in fat in general (20%), and eating fewer calories (19%).
- Respondents at Wave 2 were less likely to report that they had been eating less salt in the last six months (15% at Wave 2 compared with 25% at Wave 1) and that they had been eating more starchy foods (3% at Wave 2 compared with 7% at Wave 1).
- Those who reported that they had made changes to their diet in the last six months were most likely to say that they had done so to be more healthy/have a healthier lifestyle (50%), to lose weight/maintain/stop gaining weight (42%) and for health reasons (28%).
- When asked what difficulties, if any, they would have in trying to eat more healthily 37% of respondents said that they would not have any. A sixth (16%) said that money/cost of food would make it difficult and one in eight (12%) thought time constraints would be a barrier.

Eating out

- The majority of respondents (56%) said that the food they ate outside of the home was less healthy than the food they ate when at home.

- Respondents were most likely to say that they would like to see more information about the healthiness of food in restaurants (52%), fast food outlets (51%) and takeaway outlets (50%).

- At Wave 2 respondents were less likely to want to see more information about healthy options displayed in restaurants (62% at Wave 1 compared with 52% at Wave 2), takeaway outlets (59% at Wave 1 compared with 50% at Wave 2) and in cafés, coffee and sandwich shops (52% at Wave 1 compared with 38% at Wave 2).

Comparisons with the rest of the UK

- Respondents in Scotland were more likely than respondents in England to report eating pre-cooked meats (73% compared with 65%) and beef, lamb and pork (81% compared with 75%) at least once a week.

- 28% of respondents in Scotland agreed that as long as you take enough exercise you can eat what you want compared with 20% of respondents in Northern Ireland.

- Fewer respondents in Scotland wanted to see information displayed about healthy food than respondents in Northern Ireland (74% compared with 83%).

8.1 Attitudes towards healthy eating

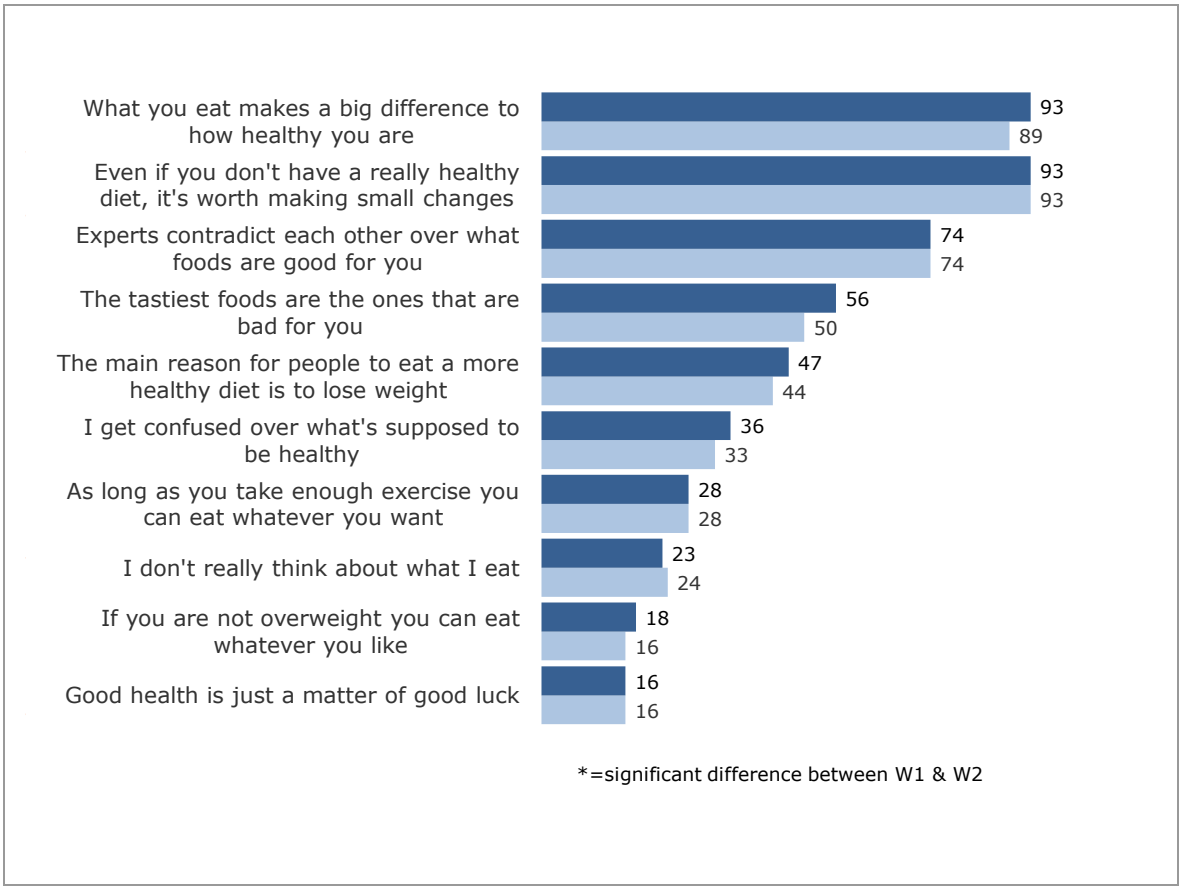
Respondents were asked to say, on a five-point scale from 'definitely agree' to 'definitely disagree', how much they agreed or disagreed with a range of statements about healthy eating. Results are shown in Figure 8.1 below.

Almost all respondents agreed that what you eat makes a big difference to how healthy you are (93%) and that even if you don't have a really healthy diet it is worth making small changes (93%). Sixteen per cent agreed with the statement that good health is just a matter of good luck and 18% said they agreed that if you are not overweight you can eat whatever you like.

Three quarters (74%) of respondents agreed that the experts contradict each other over what foods are good for you and more than a third agreed that they get confused over what is supposed to be healthy (36%).

There were no significant changes in the results between Wave 1 and Wave 2.

Figure 8.1 Attitudes towards healthy eating (Wave 1 and Wave 2)



Source: Q2_16 & H2_16 Please tell me how much you agree or disagree
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

8.2 Consumption of different types of food

Respondents were asked how often they eat a range of foods[37]:

- Milk and dairy
- Starchy foods
- Fruit and vegetables
- Biscuits, pastries and cakes
- Eggs
- Pre-cooked meats
- Poultry
- Beef, lamb or pork
- Oily fish
- Fish, excluding shellfish
- Pre-packed sandwiches
- Fried chips or roast potatoes
- Shellfish

As Table 8.1 shows, the types of food respondents reported eating most often (at least once a day) were starchy foods (71%), fruit and vegetables (67%), and milk and dairy foods (79%).

Twenty-nine per cent of respondents said they ate biscuits, pastries and cakes at least once a day and 54% of respondents said they eat these foods three or four times a week or more often and around two thirds (65%) reported eating chips or roast potatoes at least once a week.

Three quarters (73%) of respondents said they ate eggs at least once a week, with 43% saying that they ate them once or twice a week.

Half of all respondents (49%) reported eating oily fish at least once a week. A similar proportion (49%) said that they never ate shellfish, with 13% stating they ate it at least once a week and 38% less often than this.

[37] Measures of the consumption of different types of food were included in the survey to provide additional explanatory power to the findings rather than to produce national estimates. It is recommended that the National Diet and Nutrition Survey (NDNS) be used for national estimates of consumption.

Compared with Wave 1, there has been an increase in the proportion of respondents reporting they eat beef, lamb or pork once or twice a week (up from 48% to 57% at Wave 2). There was also a decrease in the proportion of respondents who said that they ate oily fish 3-4 times a week (down from 10% to 5%) and a corresponding increase in the proportion who said they never ate oily fish (up from 24% to 32%).

Table 8.1 Frequency of eating different types of food (Wave 2)

	At least once a day	5-6 times a week	3-4 times a week	Once or twice a week	Less than once a week	Never
Milk and dairy	*79%*	*5%*	*8%*	*6%*	*2%*	*
Starchy foods	*71%*	*12%*	*12%*	*5%*	*	*1%*
Fruit and vegetables	*67%*	*7%*	*14%*	*8%*	*2%*	*1%*
Biscuits, pastries and cakes	*29%*	*6%*	*19%*	*28%*	*11%*	*7%*
Eggs	*7%*	*5%*	*19%*	*43%*	*20%*	*7%*
Pre-cooked meats	*11%*	*6%*	*20%*	*37%*	*16%*	*11%*
Poultry	*5%*	*6%*	*33%*	*46%*	*8%*	*2%*
Beef, lamb or pork	*2%*	*2%*	*20%*	*57%*	*15%*	*4%*
Oily fish	*1%*	*2%*	*5%*	*42%*	*19%*	*32%*
Fish, excluding shellfish	*2%*	*1%*	*8%*	*49%*	*28%*	*12%*
Pre-packed sandwiches	*	*1%*	*3%*	*10%*	*34%*	*51%*
Fried chips or roast potatoes	*3%*	*2%*	*11%*	*49%*	*27%*	*9%*
Shellfish	*1%*	-	*1%*	*11%*	*38%*	*49%*

Source: Q2_14 & H2_14 At the moment, how often do you eat...
Base: All Scotland respondents - Wave 2(507)

Respondents were asked three separate questions about their consumption of fruit and vegetables in the previous day – one on vegetables, one on fruit, and one on fruit juice[38].

Combining the answers to these three questions, two fifths (43%) of respondents said they had eaten at least five portions of fruit and vegetables in the previous day. This was not significantly different from the proportion at Wave 1 (43%).

8.2.1 Variation in attitudes towards healthy eating and consumption of different foods by different groups in the population

There was little variation by **gender** in attitudes towards healthy eating or consumption of different foods.

There was more variation by **age.** Younger people were more likely to agree that they don't really think about what they eat – 52% of 16-24s compared with between 14% and 26% of the older groups. Time was an issue for younger people, as 30% of 16-24 year olds agreed that they don't have time to spend on preparing and cooking food compared with 9% of those aged 60 and over.

Younger respondents were less likely than older groups to say they eat oily fish at least once a week – 31% of 16-24s did this, compared with 56% of those aged 60 and over. Similarly for other fish, 35% of 16-24s ate this at least once a week, compared with 79% of those aged 60 and over. 16-24s were least likely to say they ate fruit and vegetables at least once a day – 37% did so, compared with between 67% and 85% of the older groups. Older respondents were more likely to say they eat cooked vegetables at least weekly than younger respondents (between 92% and 97% of respondents aged 25 and over did so, compared with 78% of 16-24s).

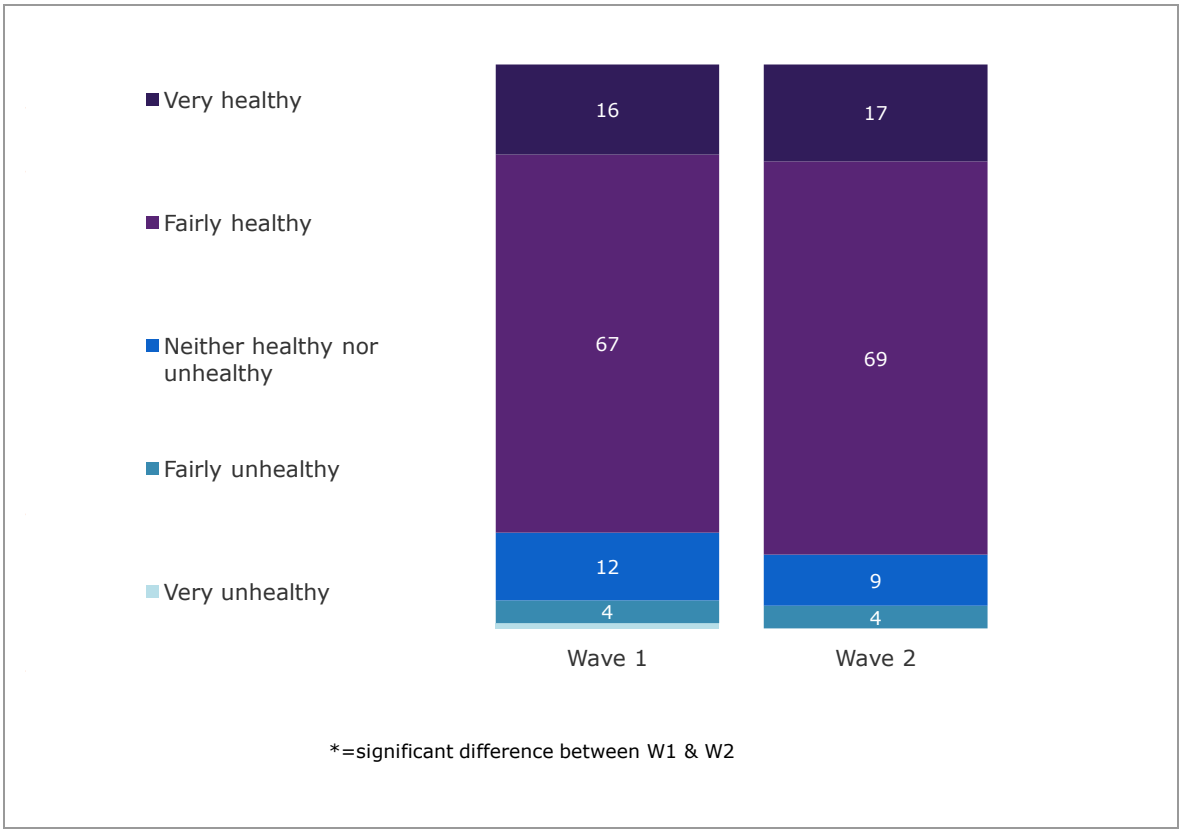
8.3 Perceptions of diet

Respondents were asked to say, in their opinion, whether what they usually ate was healthy or unhealthy (on a five point scale from 'very healthy' to 'very unhealthy'). Results are shown in Figure 8.2.

The majority (86%) of respondents thought that the food they usually ate was very or fairly healthy. This was in line with the results from Wave 1 (83% agreed).

[38] Separate questions were asked about fruit and vegetables in order to aid respondents' recall. Fruit juice was asked about separately as only one portion of this can count per day.

Figure 8.2 Perceived healthiness of food eaten (Wave 1 and Wave 2)



Source: H2_1 Overall, in your opinion, would you say that what you usually eat is...
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

8.4 Dietary change

8.4.1 Changes to food eaten

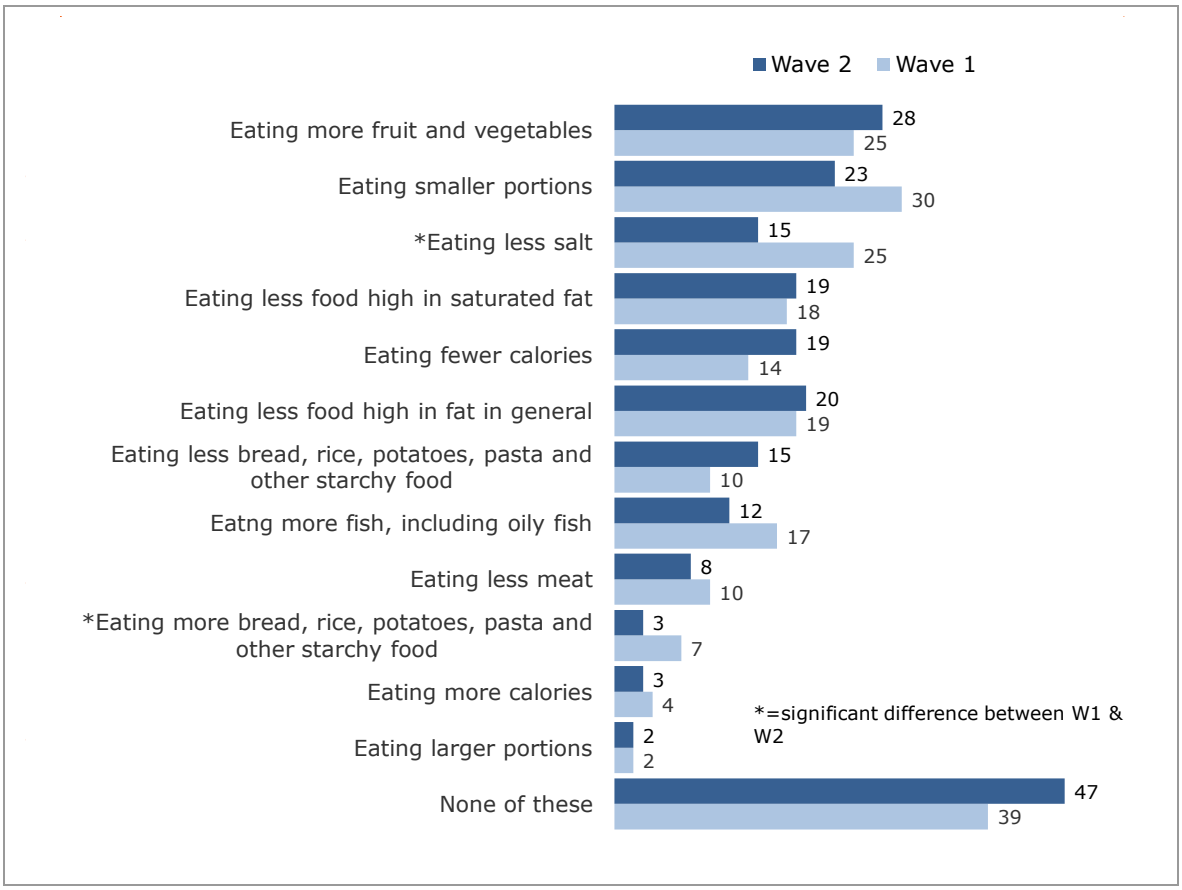
Respondents were asked how much they agreed or disagreed with the following statement 'I do not need to make any changes to the food I eat, as it is already healthy enough'. Three fifths (60%) of respondents agreed and a third (33%) disagreed; this was unchanged from Wave 1.

Respondents were also asked whether they had made any changes to the food they ate over the past six months. Twenty-eight per cent of respondents said that they were eating more fruit and vegetables and just under a quarter said that they were eating smaller portions (23%). A fifth said they were eating less food that is high in saturated fat (19%), high in fat in general (20%) and eating fewer calories (19%). Fifteen per cent of respondents said they were eating less salt and less starchy food. Just under half of all respondents (47%) said that they had not made any of these changes to their diet (Figure 8.3).

In terms of reported changes in behaviour, respondents at Wave 2 were less likely than those at Wave 1 to say they had eaten less salt in the last six months (25% at Wave 1

compared with 15% at Wave 2) and less likely to say that they were eating more starchy foods (7% at Wave 1 compared with 3% at Wave 2).

Figure 8.3 Changes made to food eaten in the last six months (Wave 1 and Wave 2)



Source: H2_19 Thinking about the last 6 months, what changes, if any, have you personally made to the food you eat?
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507)

8.4.2 Barriers and motivations to change

Respondents who reported that they had made a change to their diet in the past six months were asked to say (unprompted[39]) what the reasons for this change were.

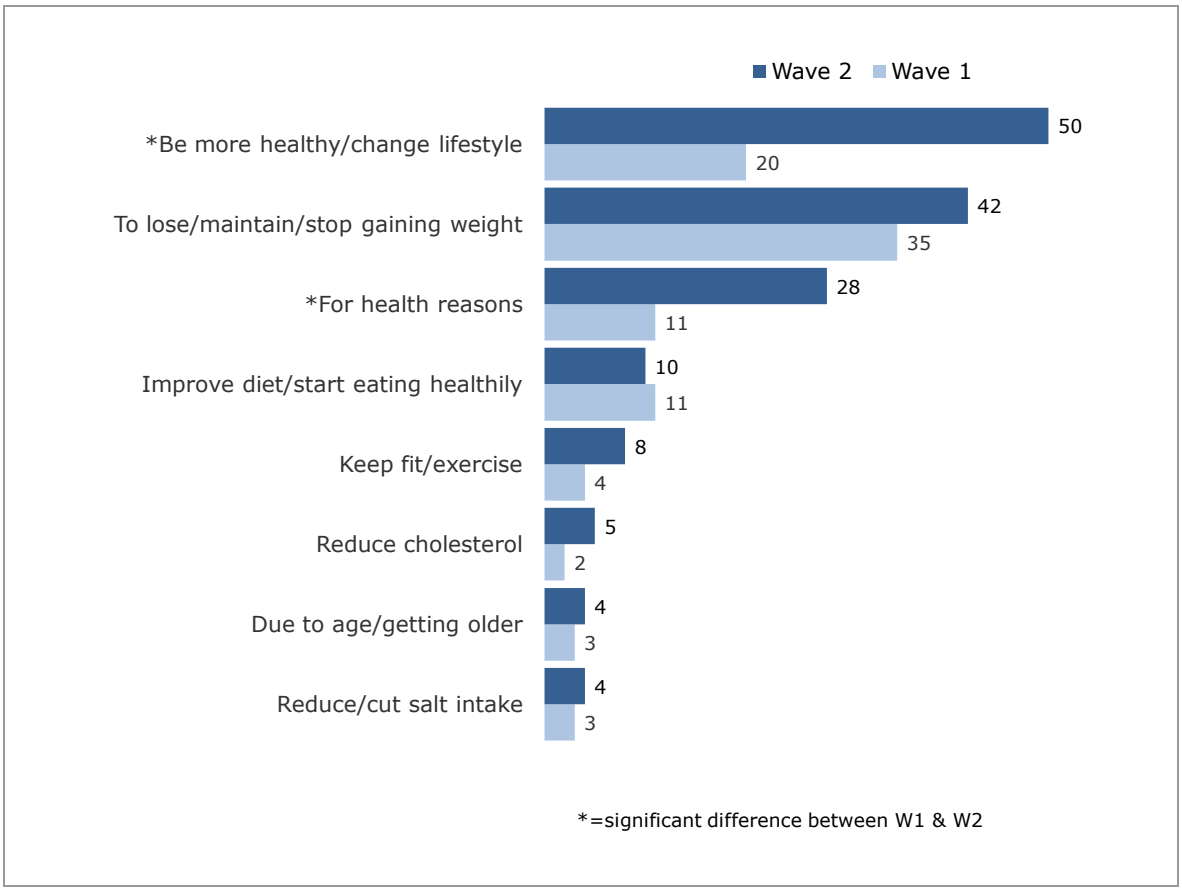
When asked why they had made these changes, half (50%) of respondents said it was to be more healthy/have a healthier lifestyle; two fifths (42%) mentioned making changes to

[39] In Wave 1 this question was asked as a fully open question and the most popular answers were used as the basis for the code list in Wave 2, which may explain the large differences seen in some results between Wave 1 and 2.

lose weight/maintain/ stop gaining weight and 28% said they had done so for health reasons.

There was an increase at Wave 2 in the proportion of respondents who said they had made changes to be more healthy/change lifestyle (50% compared with 20% in Wave 1) and for health reasons (28% compared with 11%).

Figure 8.4 Changes made to food eaten in the last six months (Wave 1 and Wave 2)



Source: H2_21 Why have you made these changes to the food you eat in the last 6 months?
Base: All Scotland respondents who have made changes to the way they eat in the last 6 months - Wave 1 (292); Wave 2 (275)

All respondents were then asked (unprompted[40]) what difficulties they would have, if any, if they tried to eat more healthily. Answers are shown in Figure 8.5.

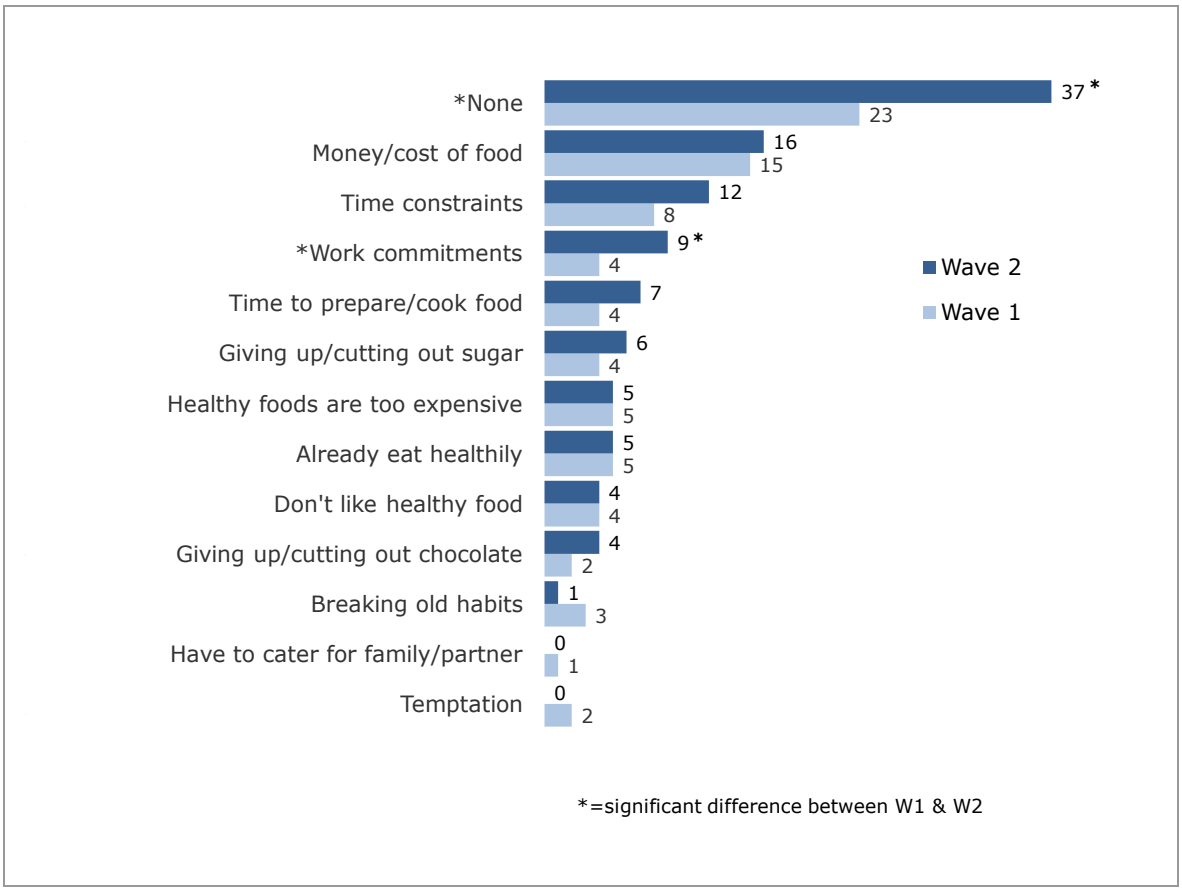
Over a third (37%) of respondents thought they would not have any difficulties. Difficulties that were cited were the cost of food (16%), time constraints (12%), work commitments (9%) and time to prepare/cook food (7%).

[40] Again, this was administered as an open question in Wave 1 and a spontaneous closed question in Wave 2.

A small minority said that healthy foods are too expensive (5%) and that they don't like healthy foods (4%).

Compared with the results at Wave 1, there was an increase in the proportion of respondents who mentioned that they would not have any difficulties in trying to eat more healthily (37% compared with 23% at Wave 1) and that work commitments would make it difficult for them to make such a change (9% compared with 4% at Wave 1).

Figure 8.5 Difficulties in trying to eat more healthily (Wave 1 and Wave 2)



Source: H2_22 Some people may find it difficult to eat more healthily. Can you tell me please, what do you think would be the difficulties, if any, for you in trying to eat more healthily?
Base: All Scotland respondents - Wave 1(511); Wave 2(507)

8.4.3 Variation in perception of diet and dietary changes made by different groups in the population

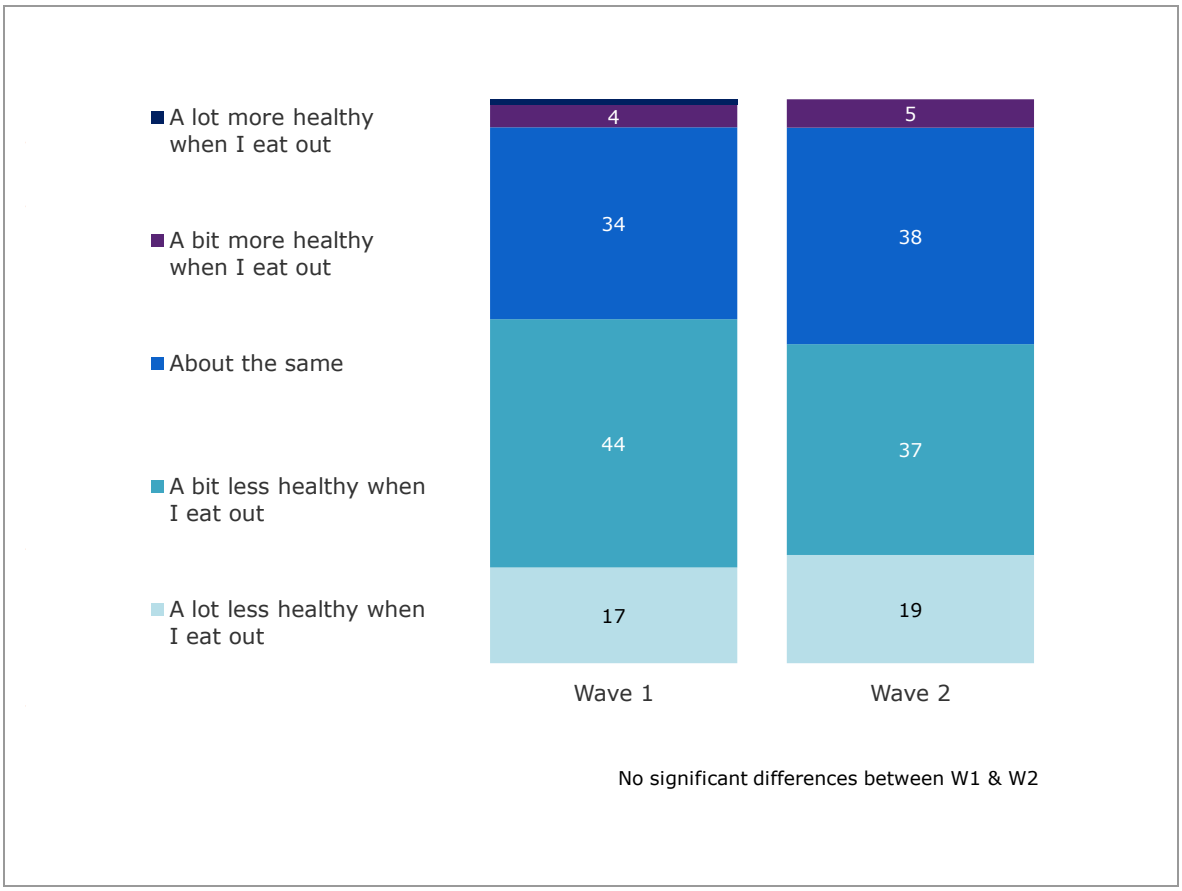
Older respondents were more likely to say that they thought that their diet was healthy compared to younger respondents; 92% of those aged 60 and over said their diet was either very healthy or fairly healthy, compared with 74% among those aged 16-24. Respondents aged 35-44 were most likely to have made changes to their diet – 68% had done so, compared with 45% of respondents aged 16-24, and aged 60 and over.

When asked what the difficulties were in trying to eat healthily, respondents aged 60 and over tended to say they already ate healthily (52% compared with 26% of those aged 16-24 and 25% of those aged 25-34.

8.5 Eating out and eating healthily

Respondents were also asked how healthy they would say that the food they eat outside of the home is, compared with what they eat at home. As Figure 8.6 shows, the majority of respondents (56%) said that the food they ate outside of the home was less healthy than the food they ate when at home. Nearly two fifths of respondents (38%) said the food they ate outside the home was about the same, and only a small minority (6%) said that they ate more healthily when they eat out. Results were not found to have significantly changed from Wave 1.

Figure 8.6 Healthiness of food when eating outside of the home, compared with eating at home (Wave 1 and Wave 2)

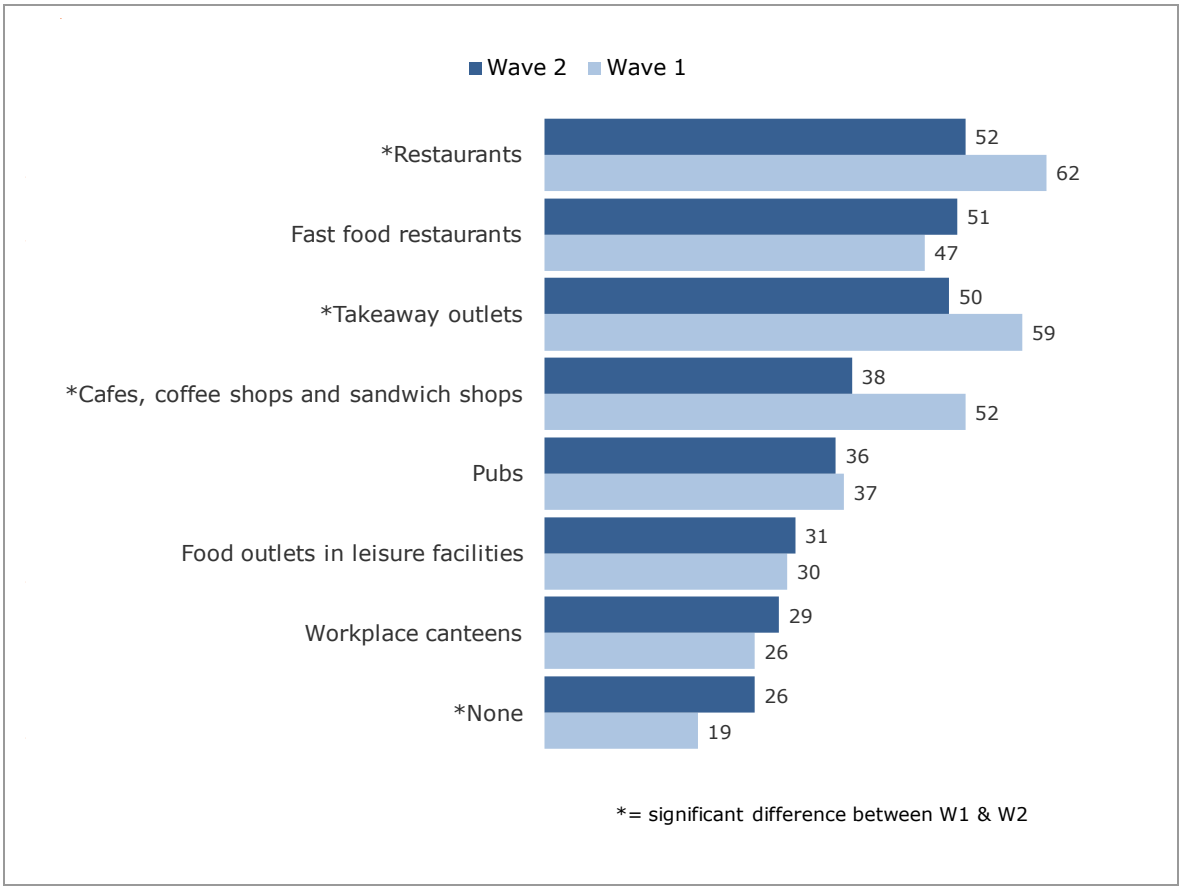


Source: H2_39 In your opinion, when you eat out, how healthy would you say the food that you eat is, compared to when you eat at home?
Base: All Scotland respondents – Wave 1 (a third of the sample) (146), Wave 2 (507)

When specifically asked where, if at all, they would like to see more information displayed about how healthy different food options are, three quarters (74%) of respondents stated that further nutritional information should be shown in at least one of the food establishments asked about while 26% said that they would not like to see this information in any of the places mentioned. Looking at the specific places where people said they would want to see more information, respondents were most likely to mention restaurants (52%), fast food outlets (51%) and takeaway outlets (50%).

In Wave 2 respondents in Scotland were less likely than those at Wave 1 to say they wanted to see more information about healthy options displayed in cafés, coffee and sandwich shops (38% compared with 52% at Wave 1), restaurants (52% compared with 62% at Wave 1) and takeaway outlets (50% compared with 59% at Wave 1).

Figure 8.7 Places where respondents would like to see more information displayed about healthy options (Wave 1 and Wave 2)



Source: H2_40 In which, if any, of these places would you like to see more information displayed about how healthy different options are?
Base: All Scotland respondents – Wave 1 (a third of the sample) (146), Wave 2 (507)

8.5.1 Variation in healthiness of food when eating out and where respondents want to see more information about healthy options, by different groups in the population

Men and women did not differ in their responses when asked how healthy they considered the food they eat out to be compared with food eaten at home. And similarly, **gender** did not make a difference when asked about where respondents would want to see more information displayed about the healthy options, except that women were more likely to say that they wanted to see this information in cafe's, coffee shops and sandwich shops (44% compared with 32% of men.)

Respondents aged 60 and over were least likely to say that food eaten outside the home is less healthy than food eaten at home – 40% did so, compared with between 54% and 70% of younger age groups.

8.6 Comparisons between Scotland and Northern Ireland

The proportion of respondents who believed that what they usually ate was healthy did not vary by country: 86% said this in Scotland and 85% in Northern Ireland.

Table 8.2 shows how frequently respondents reported eating different foods. As some of the food types were asked about in the main UK wide questionnaire some comparisons with respondents in England and Wales can be made.

Respondents in Scotland were more likely than respondents in England to say they ate milk and dairy products on a daily basis (79% compared with 72% respectively); beef, lamb or pork at least once a week (81% compared with 75%), and pre-cooked meats at least once a week (73% compared with 65%). Respondents in Scotland were less likely than respondents in Northern Ireland to say they ate biscuits, pastries or cakes on a daily basis (29% compared with 39% respectively) and fried chips or roast potatoes at least once a week (65% compared with 75%).

Table 8.2 How frequently different foods were eaten, by country (Wave 2)

	Scotland	England	Wales	Northern Ireland
% Eating at least once a day				
Milk and dairy	*79%*[E]	*72%*	*72%*	*77%*
Biscuits, pastries and cakes*	*29%*	-	-	*39%*[S]

% Eating at least once a week				
Beef, lamb or pork	*81%[E]*	*75%*	*79%*	*85%*
Pre-cooked meats	*73%[E]*	*65%*	*68%*	*75%*
Fried chips or roast potatoes	*65%*	-	-	*75%[S]*
Base	*(507)*	*(2116)*	*(104)*	*(504)*

*These questions were only asked in Scotland and Northern Ireland
Source: Q2_14 & H2_14 How often do you eat...
Base: All respondents
NB. E/W/S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

No significant difference between respondents in Scotland and Northern Ireland was found in the proportion of respondents who reported eating five or more fruit and vegetable portions the day before the interview.

Looking at attitudes to healthy eating (Table 8.3), respondents in Scotland were more likely than respondents in Northern Ireland to agree that as long as you take enough exercise you can eat whatever you want (28% and 20% respectively) and less likely than those in Northern Ireland to agree that the tastiest foods are the ones that are bad for you (56% versus 64%), and that even if you don't have a really healthy diet it's worth making small changes (93% versus 97%).

Table 8.3 Statements regarding healthy eating - % who agreed, by country (Wave 2)

	Scotland	Northern Ireland
Even if you don't have a really healthy diet, it's worth making small changes	93%	97%[S]
The tastiest foods are the ones that are bad for you	56%	64%[S]
As long as you take enough exercise you can eat whatever you want	28%[NI]	20%
Base	*(507)*	*(504)*

Source: Q2_16 & H2_16 Please tell me how much you agree or disagree
Base: All respondents
NB. S/NI indicates that the result is significantly higher than the result for the country indicated by the initial

Perception of how healthy food was when eating out compared to eating at home also did not vary significantly between respondents in Scotland and Northern Ireland.

When looking at where, if anywhere, respondents would like to see more information about healthy food displayed, respondents in Scotland were more likely than respondents in Northern Ireland to say that there was nowhere they would like to see more information about healthy food displayed (26% compared with 17%). They were less likely than respondents in Northern Ireland to say they would like to see more information in takeaway outlets (50% compared with 61%) and cafés (38% compared with 50%).

9. Looking ahead

Food and You is the FSA's flagship social science survey, collecting essential evidence on food safety and healthy eating issues which, in turn, provide a mechanism for measuring the extent to which attitudes and reported knowledge and behaviour are in line with FSA recommendations and guidance. In doing so, the survey underpins the FSA's strategic objective of ensuring consumers have the information and understanding they need to make informed choices about where and what they eat. The survey also provides key evidence for FSA activity in preventing foodborne disease from food eaten both in and out of the home. Further, information on awareness of, and attitudes towards, current and future food production, such as imported foods, genetic modification and irradiation, support the Agency in making policy decisions in related areas. In this chapter, the value of Food and You Wave 2, the contribution of the survey to the wider evidence on food safety practices, and considerations for the future are discussed from the perspective of FSA Scotland with input from the FSA's Social Science Research Unit.

The value of Wave 2

As the only large-scale public survey of reported food safety behaviours and attitudes that uses a random probability sample, Food and You provides a rich source of data for other government departments, academics and researchers with an interest in food and related subjects. Within the FSA, Food and You provides robust evidence that complements a number of other surveys. For example, the Public Attitudes Tracker also collects data on concern about a number of food issues (such as food poisoning and food hygiene when eating out) and awareness and use of the Food Hygiene Information Scheme.

Wave 2 of the survey has built on Wave 1 by collecting further baseline information. Combining data from both Waves provides larger samples allowing exploration of differences between smaller demographic groups defined in greater detail.

A second wave of data has also enabled wave-on-wave analysis and this report has highlighted where there have been significant changes between Wave 1 and Wave 2. Although a further wave of data is required before trends can begin to be identified, Wave 2 is an important stepping stone towards building-up a high quality time series. It is important that questions in any future waves maintain consistency with both Wave 1 and Wave 2 so that the Agency can begin to monitor trends and assess how it is performing against its Strategic Plan.

The development of an index of recommended practice for food safety in this wave (see Chapter 4) has also introduced a more detailed analysis of socio-demographic differences in reported food safety practices. By identifying which groups in the population are most likely to report food safety practices not in line with recommended practice, the FSA is

better placed to develop policies and communication strategies that target those who are likely to be most at risk from contracting a foodborne disease. There is also scope to develop the analysis on the index of recommended practice. Whilst this report has explored the likelihood of particular socio-demographic groups reporting behaviour that is not in line with recommended practice, more detailed analysis could explore which individual practices (such as frequency of checking fridge temperature, or washing raw meat) are more, or less likely to be reported by specific groups. This analysis would help the FSA to target practices where they can make the biggest impact in reducing risk of contracting a foodborne disease.

Drawing together the evidence

A key interest for the FSA in Scotland is to explore the links between attitudes, behaviours and knowledge of food safety and of nutrition. The FSA is therefore commissioning further analysis on Food and You which will draw together findings from both the food safety and healthy eating chapters.

Although Food and You provides data that is representative of the Scottish population, it is limited to *self-reported* attitudes, knowledge and behaviour which, as Greenstreet Berman (2011) note, may not accurately reflect actual behaviour. Surveys are susceptible to bias, including response and optimism bias[41]; they are also less adept at capturing behaviours such as food related practices that tend to be reflexive, routine and generally of low salience and thus susceptible to slipping from people's minds (recall errors).

Food and You is also limited in that it does not illuminate *why* respondents undertake certain practices or *why* these practices may differ across population groups. A number of other methodological and theoretical frameworks have been used to explore food safety practices and risk, including from a psychometric and sociological perspective (Lupton, 2000; Knox 2000). Summarized crudely, psychometric approaches explore how perceptions and responses to risks, including food safety risks, vary in relation to various psychological attributes[42] and help to explain why there is often a 'gap' between public perceptions and 'objective' or technical assessments. In contrast, sociological approaches proceed from the assumption that the ways in which risks are framed and acted upon are embedded in particular social contexts[43]. Combining the insights from different disciplines and methods can help to unravel the complexities of food practices in the home as illustrated by Food and You (SSRC, 2009).

Given the differing perspectives and value of these projects, the FSA's Social Science Research Unit is planning to draw together its knowledge base on UK domestic food

[41] Response bias is where respondents give the answers they believe the interviewer wants them to give, or which them deem to be socially desirable, even if in practice they do not do this. Optimism bias is where a person is less likely to believe they are at risk of experiencing a negative event compared to others.

[42] Including control (broadly self imposed risks are seen as more acceptable), optimistic bias, dread (see Slovic's work showing risks that evoke feelings of dread and fear are more negatively perceived, prior values and attitudes (our wider values influence our perceptions of and responses to particular risks – see Sjoberg, 2000 and Frewer et al, 1996).

[43] Horlick-Jones and Prades (2009: 414) illustrate how risk perceptions and resulting practices are "embedded within a matrix of everyday associations, preferred ways of life, trust relations, economic constraints and emotional commitments".

safety. This will highlight areas of consistency and variation, and will identify gaps in the evidence base, informing the FSA's understanding of how to improve public knowledge and awareness of food hygiene, foodborne illness.

Food and You and the future

There are a number of areas of interest to the FSA which future waves of Food and You are well placed to capture. As consumer awareness, attitudes and behaviour are liable to shift over time, for example in response to emergent food production technologies or the recent identification of horse in beef products, it is important for the Agency to be able to monitor these changes. Another area that warrants further investigation is the impact that the current recession has on food issues in general and in particular the implications for food safety and healthy eating. Findings from Wave 2 present a mixed picture (see Chapter 2 and Chapter 5) and future waves could provide a better understanding of how changes in reported patterns of shopping, preparation, storage and consumption of food may be related to the wider societal and economic context. This will significantly add to the general store of evidence and may help the Agency to respond to future challenges.

In accordance with the original recommendations from the Social Science Research Committee, Food and You is currently being reviewed. Although the recommendations were for an annual time series a commitment was made to review effectiveness after 5 years. As Food and You has been carried out in alternate years the review is timely in that, should the recommendations include the need to build on the current time series, the FSA will be in a position to do this without an interruption to the timing.

10. Technical Appendix

10.1 Methodology

10.1.1 Introduction

The Food and You 2012 survey comprised a total of 3231 interviews with adults (aged 16+, with no upper age limit) across the UK. The samples were boosted in Scotland and Northern Ireland, to enable more detailed analysis at a country level.

The total number of complete interviews achieved was:

- 2,116 in England,
- 104 in Wales,
- 507 in Scotland and
- 504 in Northern Ireland.

For UK analysis, weighting was applied so that the weighted sample was representative of each country and the UK as a whole.

10.1.2 The sample

In order to maximise consistency and comparability, the methodology adopted for sampling at Wave 2 was the same as for Wave 1. However, a fresh set of Primary Sampling Units (PSUs) was selected for Wave 2. A stratified random probability sample of private households in the UK was selected using the Postcode Address File (PAF) as a sampling frame. The PAF lists all known UK postcodes and addresses and is commonly used as a sampling frame for general population surveys. The Primary Sample Units (PSUs) were postcode sectors. Sectors with fewer than 500 addresses were grouped with neighbouring sectors prior to stratification.

The sample was stratified by region (formerly Government Office Region), the Census 2001 percentage of heads of households in a non-manual occupation (NS-SEC groups 1-3, banded into three equal-sized groups), the Census 2001 percentage of households with no car (banded into two equal-sized groups), and the Census 2001 population density (persons per hectare).

The list of postcode sectors was first sorted into the 12 regions– 9 in England, with Wales, Scotland and Northern Ireland listed separately. Within each region band, the list was then sorted into three groups based on the proportion of heads of household in a non-manual occupation. Each region/occupation band was then banded into two groups based on the percentage of households with no car. Within each band, postcodes were sorted by population density (persons per hectare). Any strata that contained fewer than 3 PSUs were grouped with adjacent strata prior to sample selection.

In each eligible household, one adult aged 16+ (with no upper age limit) was selected for interview, using a random selection procedure in households where there was more than one eligible adult.

An initial sample was drawn of 177 PSUs in England and Wales, 40 in Scotland and 40 in Northern Ireland. 25 addresses were sampled per PSU. A reserve sample of 17 additional points in England and Wales, and 10 each in Scotland and Northern Ireland was also selected[44]; of these, 10 were subsequently issued to interviewers, 4 reserve PSUs in England and Wales, and 6 in Scotland. The final number of PSUs was therefore 181 in England and Wales, 46 in Scotland and 40 in Northern Ireland (267 in total).

A total of 6675 addresses were issued to interviewers (4525 in England and Wales, 1150 in Scotland and 1000 in Northern Ireland). Of these, 6094 were eligible for interview (see Table 9.1)

10.1.3 Response rate

The response rate obtained was 54% of eligible households in the UK. Response rates varied by country:

- England and Wales – 53%
- Scotland – 52%
- Northern Ireland – 56%

The response rate was higher than that achieved at Wave 1 which was 52% overall and 51% for England and Wales, 50% for Scotland and 57% for Northern Ireland.

Tables 9.1 and 9.2 show the full breakdown of responses obtained; 8% of eligible households were not contacted, 32% refused to take part and 6% could not be interviewed for other reasons.

[44] The reserve PSUs were a precaution, in case responses rates were lower than expected and the required sample size might not be achieved. In the event, monitored response rates were running a little lower than hoped so some reserve PSUs were issued.

Table 9.1 Breakdown of survey responses – UK total

	UK total	
	n	**% of in scope**
Addresses sampled	**6675**	
Ineligible addresses		
Not yet built/under construction/derelict/demolished	23	
Vacant/empty housing unit	342	
Non-residential address	81	
Communal establishment/institution	8	
Not main residence	74	
Other ineligible	18	
Unable to locate address	35	
Total ineligible	**581**	
In scope addresses	**6094**	**100%**
No contact		
No contact with anyone at the address	431	
No contact with selected respondent	41	
Needed parental permission but no contact with parent	2	
Total no contact	**474**	**8%**
Refusal		
Parental permission refused	2	
Office refusal (by letter, phone or email)	63	
Info about dwellings or occupants refused	768	
Refusal before interview	979	
Proxy refusal	155	
Total refusal	**1967**	**32%**
Other unproductive		
Broken appointment	134	
Person ill at home during survey period	36	
Selected person away or in hospital	54	
Physically or mentally unable	80	
Inadequate English	41	
Lost interview	15	
Other unproductive	32	
Total other unproductive	**392**	**6%**
Interview completed	**3261***	**54%**

* This does not include 30 interviews in Scotland which were excluded from analysis because they were missing the healthy eating section due to a questionnaire error. As it was early in the fieldwork and not all of these 30 respondents had agreed to be recontacted it was decided that it would be best to replace these interviews. The 30 replacement interviews are included in the table and in the analysis. Additional sample points were issued to ensure that the number of complete interviews in Scotland exceeded the target of 500.

Table 9.2 Breakdown of survey responses – country level

	England and Wales		Scotland		Northern Ireland	
	n	% of in scope	n	% of in scope	n	% of in scope
Addresses sampled	**4525**		**1150**		**1000**	
Ineligible addresses						
Not yet built/under construction/derelict/demolished	6		7		10	
Vacant/empty housing unit	223		58		61	
Non-residential address	52		16		13	
Communal establishment/institution	6		2		0	
Not main residence	52		14		8	
Other ineligible	14		2		2	
Unable to locate address	20		12		3	
Total ineligible	**373**		**111**		**97**	
In scope addresses	**4152**	**100**	**1039**	**100**	**903**	**100**
No contact						
No contact with anyone at the address	241		79		111	
No contact with selected respondent	23		5		13	
Needed parental permission but no contact with parent	2		0		0	
Total no contact	**266**	**6%**	**84**	**8%**	**124**	**14%**
Refusal						
Parental permission refused	1		0		1	
Office refusal (by letter, phone or email)	43		14		6	
Info about dwellings or occupants refused	571		104		93	
Refusal before interview	660		215		104	
Proxy refusal	128		12		15	
Total refusal	**1403**	**34%**	**345**	**33%**	**219**	**24%**
Other unproductive						
Broken appointment	85		24		25	
Person ill at home during survey period	24		4		8	
Selected person away or in hospital	35		14		5	
Physically or mentally unable	54		17		9	
Inadequate English	28		5		8	
Lost interview	12		3		0	
Other unproductive	25		6		1	
Total other unproductive	**263**	**6%**	**73**	**7%**	**56**	**6%**
Interview completed	**2220**	**53%**	**507***	**52%**	**504**	**56%**

10.1.4 Questionnaire development

An extensive development phase was undertaken before finalising the questionnaire and survey procedures, to ensure that the second wave of the survey captured relevant information for the FSA and that the highest possible quality of data were produced[45].

After the second wave was commissioned, a review of the Wave 1 questionnaire was undertaken by the TNS BMRB/PSI research consortium, FSA research team and Food and You Advisory Group. This review looked at each question used in Wave 1 and considered its appropriateness for inclusion in Wave 2. The remit of the Food Standards Agency has changed since the first wave of the research, with responsibility for nutrition policy for England and Wales passing to the Department of Health[46]. Questions on healthy eating were thus no longer relevant in these countries, and were only retained in Scotland and Northern Ireland. The review also suggested the following areas for inclusion in Wave 2: new food technologies, meat controls, the Food Hygiene Rating Scheme and handling of raw fruit and vegetables.

Following the review, a questionnaire was developed by the TNS BMRB / PSI / UoW research consortium based on the above recommendations. The new draft survey questions were cognitively tested among 62 respondents in two locations, to ascertain whether they worked as intended, and to ensure respondents were able to answer them accurately. The cognitive testing also highlighted any ambiguous question wording, which was subsequently amended.

Following the cognitive testing, a small number of draft questions were included on TNS's face-to-face Omnibus survey. In total, 1,017 interviews were conducted with adults aged 16+ on the Omnibus survey. The aims of this additional testing were to:

- Assess the distribution of responses
- Ensure that questions elicited distinct responses from people with different characteristics
- Provide an indication of whether sample sizes were adequate for sub-group analysis
- Check if the questions were providing realistic estimates (where other statistics or evidence exist which can be used to verify results)
- See whether the findings confirmed results from the cognitive testing

Finally, a pilot was conducted among 63 respondents in January 2012 to test the questionnaire and survey procedures fully.

[45] A report commissioned by the FSA in 2010 and written by the Policy Studies Institute (PSI) looked at the feasibility of Wave 2 including questions about influences on food choice and perceptions of risk associated with food safety and diet. The report is available at: http://www.foodbase.org.uk//admintools/reportdocuments/641-1-1116_WAVE_2_DEV_FINAL_REPORT_FINAL.pdf

[46] On 1 October 2010, responsibility for nutrition policy (including labelling) was transferred to the Department of Health in England and to the Welsh Assembly Government in Wales. Nutrition policy in Scotland and Northern Ireland remains the responsibility of the FSA.

A revised questionnaire was produced based on the pilot findings, interviewer feedback and discussions between the TNS BMRB / PSI / UoW and FSA project teams. The final questionnaire was reviewed by the FSA and the Advisory Group.

10.1.5 Questionnaire content

The topics included in the questionnaire were as follows:

- Information about household members
- Eating habits (including eating out)
- Shopping habits
- Food safety attitudes and behaviour
- Attitudes towards food production
- Self-reported health
- Healthy eating (Scotland and Northern Ireland only)
- Demographics

Full details of the survey methodology, and a copy of the questionnaire and other survey materials, are included in the Technical Report[47].

10.1.6 Fieldwork

Interviews were carried out face-to-face, using computer-assisted personal interviewing (CAPI).

A video briefing for interviewers was produced by TNS BMRB with input from the FSA, to convey the key survey details and procedures to interviewers. The video briefing included background information on why the data was being collected by the FSA, and how the results would be used.

All sampled addresses were sent a letter in advance of the interviewer's visit. The letter gave a brief introduction to the survey and stressed the importance of taking part. The letter also stressed that all information would be kept confidential.

For addresses in Wales, the advance letter was provided in English and Welsh.

Respondents were offered a £10 incentive to encourage participation.

On average, interviews in England and Wales took 45 minutes to complete. In Scotland and Northern Ireland the average interview length was 60 minutes, owing to the additional healthy eating questions in these regions.

Interviews were carried out between late March and early September 2012.

[47] http://www.foodbase.org.uk//admintools/reportdocuments/805-1-1459_Wave_2_Technical_Report.pdf

10.1.7 Survey helpline

A freephone survey helpline was set up at TNS BMRB; the advance letter included the freephone number, which respondents could ring if they had any queries about the research. The helpline was answered during office hours by a member of the TNS BMRB research team, with an answer phone operating out of hours.

An email address was also set up, allowing respondents to get in touch with the survey team with any queries.

10.1.8 Data preparation and outputs

As main interviews were conducted via computer assisted personal interviewing (CAPI), this removed the need for data entry and routine data editing.

Where questions allowed interviewers to enter an "other" answer, these were examined to determine whether they could be back-coded into one of the pre-codes. If these answers did not fit into any of the existing codes and similar themes emerged, new codes were inserted; otherwise the answers were kept as "others".

Respondents were asked about the industry in which they were employed and their occupation. If a respondent was not currently in employment the question was asked about their most recent job. For those with more than one job, details were collected about their main job. Where the respondent was not the Household Reference Person (HRP)[48], occupation details for the HRP were also collected.

The occupations of respondents and HRPs were coded to sub-major groups using the Standard Occupational Classification (SOC 2010).

Occupation coding was carried out using the automated coding program CASCOT[49], developed by the Institute for Employment Research at the University of Warwick.

The National Statistics Socio-Economic Classification (NS-SEC) was derived and added to the dataset.

Further details of the coding system and codes can be obtained from the Office for National Statistics[50].

An SPSS data file has been provided to the FSA and the dataset will be deposited at the UK Data Archive[51].

10.1.9 Weighting

[48] The Household Reference Person is the sole householder or, if there is more than one, as the householder with the highest personal income from all sources. If two or more householders have the same income, the eldest is the Household Reference Person.
[49] For more information on CASCOT see http://www2.warwick.ac.uk/fac/soc/ier/publications/software/cascot/
[50] http://www.statistics.gov.uk/default.asp
[51] http://www.data-archive.ac.uk/

Weighting was necessary to adjust for unequal probabilities of selection and also to compensate for differential non-response across survey sub-groups.

Weights were calculated separately for Scotland, Northern Ireland and England and Wales.

Design weights were applied to correct for the unequal probabilities of selection introduced by selecting one adult for interview from all adults in the household.

For the UK weight, the design weight corrected the over-representation of Scotland and Northern Ireland relative to England and Wales (as boost samples were drawn in those countries).

The achieved sample profile was compared within country with Annual Population Survey (APS) data for working status by gender and age group. In England and Wales, region was also compared.

Rim weighting was applied in Northern Ireland and Scotland with targets for working status by sex, age group and sex; in England and Wales, rim weighting used the same targets and an additional one for region.

Finally the countries were scaled to their correct proportion to calculate a combined UK weight.

Tables 9.3-9.6 show the profile of the unweighted and weighted survey samples by country and in total compared with the APS, for a range of variables.

Table 9.3 APS targets, unweighted and weighted samples – England and Wales

England and Wales	APS data		Food and You unweighted sample		Food and You sample, weighted
	%	n	%	n	%
England and Wales	100.0	2220	100.0	2866	100.0
Working status by gender					
Men in full time work	26.9	456	20.5	772	26.9
Men not in full time work	22.0	477	21.5	631	22.0
Women in work	26.6	587	26.4	763	26.6
Women not in work	24.2	700	31.5	700	24.4
Age by gender					
Men aged 16-24	7.4	79	3.6	212	7.4
Men aged 25-34	8.4	132	5.9	242	8.4
Men aged 35-49	13.0	239	10.8	372	13.0
Men aged 50-64	11.0	244	11.0	316	11.0
Men aged 65+	9.1	238	10.7	260	9.1
Women aged 16-24	7.1	109	4.9	204	7.1
Women aged 25-34	8.2	207	9.3	236	8.2
Women aged 35-49	13.2	333	15.0	378	13.2
Women aged 50-64	11.4	301	13.6	327	11.4
Women aged 65+	11.0	336	15.1	316	11.0
Region					
North East	4.7	150	6.8	136	4.7
North West	12.5	284	12.8	357	12.5
Yorkshire & Humberside	9.6	221	10.0	275	9.6
East Midlands	8.1	172	7.7	233	8.1
West Midlands	9.8	236	10.6	280	9.8
East of England	10.5	259	11.7	301	10.5
London	14.4	249	11.2	413	14.4
South East	15.3	340	15.3	439	15.3
South West	9.6	205	9.2	275	9.6
Wales	5.5	104	4.7	157	5.5

Table 9.4 APS targets, unweighted and weighted samples – Scotland

Scotland	APS data		Food and You unweighted sample		Food and You sample, weighted
	%	n	%	n	%
Scotland	100.0	507	100.0	275	100.0
Working status by gender					
Men in full time work	26.2	104	20.5	72	26.2
Men not in full time work	21.8	97	19.1	60	21.8
Women in work	27.4	127	25.0	75	27.3
Women not in work	24.6	179	35.3	68	24.7
Age group					
16-24	14.2	49	9.7	39	14.2
25-34	15.7	67	13.2	43	15.6
35-49	25.8	127	25.0	71	25.8
50-64	24.1	140	27.6	66	24.0
65+	20.3	124	24.5	56	20.4

Table 9.5 APS targets, unweighted and weighted samples – Northern Ireland

Northern Ireland	APS data		Food and You unweighted sample		Food and You sample, weighted
	%	n	%	n	%
Northern Ireland	100.0	504	100.0	90	100.0
Working status by gender					
Men in full time work	26.7	81	16.1	24	26.7
Men not in full time work	22.0	100	19.8	20	22.2
Women in work	26.8	145	28.8	24	26.7
Women not in work	24.6	178	35.3	22	24.4
Age group					
16-24	15.9	61	12.1	14	15.7
25-34	17.7	82	16.3	16	18.0
35-49	26.5	127	25.2	24	27.0
50-64	21.9	132	26.2	19	21.3
65+	18.0	101	20.0	16	18.0

Table 9.6 APS targets, unweighted and weighted samples – UK

UK	APS data		Food and You unweighted sample		Food and You sample, weighted
	%	n	%	n	%
UK	100.0		100.0	3231	100.0
Working status by gender					
Men in full time work	26.9	641	19.8	868	26.9
Men not in full time work	22.0	674	20.9	711	22.0
Women in work	26.7	859	26.6	862	26.7
Women not in work	24.5	1057	32.7	790	24.5
Age					
16-24	14.5	298	9.2	469	14.5
25-34	16.6	488	15.1	537	16.6
35-49	26.2	826	25.6	845	26.2
50-64	22.6	817	25.3	728	22.5
65+	20.1	799	24.7	648	20.1
Gender					
Men	48.9	1315	40.7	1578	48.9
Women	51.1	1916	59.3	1653	51.1
Region					
England	83.8	2116	65.5	2709	83.8
Wales	4.9	104	3.2	157	4.9
Scotland	8.5	507	15.7	274	8.5
Northern Ireland	2.8	504	15.6	90	2.8

10.2 Derivation of the index of recommended practice (RP) for food safety

Analyses in Chapter 4 of the report use a composite index of food safety practices in the home which was developed to provide a summary of people's behaviour across a range of different practices including food preparation, storage, cross-contamination, cleanliness and use-by dates. The food safety practices included in the index were selected by the FSA from all the RPs asked about in Wave 2, on the basis that if they were not followed they were most likely to increase the chance of contracting a foodborne illness. The index is a scale from 0-10, with higher numbers indicating a lower likelihood to report behaviour that was in line with Agency food safety guidance. The specific food safety questions, responses considered to be not in line with RP, and weightings used in the index are detailed in Table 9.7.

Table 9.7 Derivation of the RP index (part 1)

Food safety practice	Non-RP response	Weighting
Chilling		
Q4.10 How often do you or another person in your household check the temperature of the fridge?	Four times a year or less, Can't remember	
Q4.11 Thinking about fridge temperature, can you tell me how you normally check the temperature?	Any response that **does not** include 'check the temperature display /thermometer built into fridge', 'put a thermometer into the fridge and check'	**+1 if any chilling practice was not in line with RP. Maximum +1**
Q12 What do you think the temperature inside your fridge should be?	Anything higher than 8^0C, Other, Don't know	
Cooking and reheating		
Q4.1 Thinking about when you are preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently; a) Cook food to steaming hot b) Eat chicken or turkey if the meat is pink or has pink or red juices c) Eat burgers or sausages if the meat is pink or has pink or red juices	a) Never, Sometimes, Don't know b)-c) Always, Most of the time, Don't know	**+1 if any cooking practice was not in line with RP, +1 if any reheating practice was not in line with RP. Maximum +2**
Q4.45 How many times would you consider re-heating food after it was cooked for the first time?	Twice or more, Don't know	
Q4.26 And how do you usually tell that food has been re-heated properly?	Any response that **does not** include 'Steam is coming from it', 'Check middle is hot' or 'Use a thermometer'	

Table 9.7 Derivation of the RP index (part 2)

Food safety practice	Non-RP response	Weighting
Cross-contamination		
Q4.1 Thinking about when you are preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently; a) Use different chopping boards are used for different foods b) Wash raw meat	a) Never, Sometimes, Don't know b) Always, most of the time, Don't know	**+1 for each cross-contamination practice that was not in line with RP. Maximum +2**
Cleaning		
Q4.1 Thinking about when you are preparing and cooking food, I would like you to tell me whether you do the following things at all when you are in the kitchen and if so how frequently; a) Wash hands after handling raw meat/fish	a) Never, Sometimes, Don't know	**+1 if any cleaning practice was not in line with RP. Maximum +1**
Use-by dates		
Q4.19b Which of these is the best indicator of whether food is safe to eat?	Best-before date, Sell by date, Display until date, Don't know	**+1 for each use-by practice that was not line with RP. Maximum +4**
Q22 Do you check use-by dates when you are about to cook or prepare food?	Never, Don't know	
Q11.6 What is the maximum time after the use-by/nest before date that you would a) Eat cooked meat	a) Any response that **is not** Never	
Q23a If you open <food type> and keep it stored in the fridge, what is the maximum number of days before definitely not eating/drinking it? a) Sliced cooked/cured meats b) Meat/fish/seafood pate c) Fresh dip d) Smoked fish e) Soft or cream cheese	a)– e) Three or more days, Don't know	

10.3 Regression analysis

In the section of the report (Chapter 4) that examines the index of recommended practice for food safety a logistic regression model was used to analyse the significance and contribution of a number of demographic factors in the extent to which respondents engaged in behaviours that were not in line with recommended practice. Logistic regression allows statistical associations between a response variable and a range of predictors to be explored. Logistic regression is a type of predictive model that can be used when the response variable is a categorical variable with two categories. In this study, the two were whether or not a respondent reported engaging in behaviours that were not in line with recommended practice.

Its advantage, compared to bivariate analysis, is that it allows for multiple variables to be included in the model at the same time, and therefore can model the change in overall likelihood if only one variable is changed and all others are held constant[52].

The logistic regression model was estimated using maximum likelihood methods. A forward stepwise approach was adopted, whereby the model starts with the variables used in the weighting and then tests the addition of each new predictive variable in turn. The model only adds variables which were found to improve the predictive power. In the case of the Northern Ireland regression, although working status was initially included in the model as it was used in the weighting it was not found to be significant. As a result of this the final model was run again excluding working status.

The variables included as predictors were drawn from basic socio-demographic data collected during interviews. Predictors for inclusion in the models were selected based on our analyses and/or supporting literature (Greenstreet Berman, 2011) suggesting they might be associated with a respondent being in the upper band of the index of recommended food safety practices. Only predictors that were highly collinear have been dropped from the models. Predictors included in the model are set out in the following table (9.8).

[52] Although multivariate analysis is generally viewed as more robust than bivariate analysis, it is important to note that there are a number of possible limitations with this approach. First, the variables included in the modelling generally do not explain most of the variance observed, suggesting that there were a number of other factors correlated with the dependent variable which have not been collected in the survey. Second, regression analysis runs the risk of over fitting the data. This occurs when a statistical model describes random error or noise instead of the underlying relationship.

Table 9.8 Independent variables included in the logistic regression

Independent variables	Categories
Gender	Men, *Women*
Age	16-24, 25-34, *35-44*, 45-54, 55-64, 65-74, 75+
Country	England, Wales, Scotland, *Northern Ireland*
Working status	*In work*, Retired, Unemployed, Other
Ethnicity	*White*, Black and Minority Ethnic (BME
Household size	One, Two, Three, *Four*, Five or more
Housing tenure	*Owner occupier*, Private tenant, Social tenant, Rent-free
Kitchen facilities	*Having a separate kitchen*, Not having a separate kitchen
Dietary restrictions	*Vegetarian/vegan*, Not vegetarian/vegan *Religious/cultural reasons*, Not *Allergy*, No allergy *Being on a diet*, Not being on a diet
NS-SEC	*Lower supervisory/technical*, Higher managerial/professional, Intermediate, Small employers/own account workers, Semi-routine and routine, Never worked/unemployed
Presence of children in the household	*Aged under 6*, Aged under 16 (but none under 6), No children
Level of education	*Degree or higher*, A level/ Diploma/ Apprenticeship, GCSE, Other/ None
Household income	Up to £10,399, £10,400 to £25,999, £26,000 to £51,999, *£52k+*
Health	*Very good*, Good, Fair, Bad/Very bad
Car ownership	*Own a car*, Do not own a car
Having a long-term disability or illness	Have a disability/long-term illness, *Do not have a disability/long-term illness*
Living arrangements (relationship status);	*Living as a couple*, Not living as a couple

Note: the category in *italics* is the reference category for each variable

10.3.1 Explanation of terms

The principal output from logistic regression is an **odds ratio**. An odds ratio compares the probability of an outcome occurring if a respondent falls into one category of a predictor

variable (e.g. women being classified into the upper RP band) with the probability of the same outcome occurring for respondents who fall into another category of the same variable (e.g. men being classified into the upper band), after other variables in the model were controlled for.

In calculating odds ratios, a **reference category** was selected for each variable as the category of that variable against which the odds for all other categories of that variable were compared. For example, continuing the above example, Women was chosen as the reference category for gender, and the results of the regression modelling for this variable indicate the likelihood of men being in the upper band of the index compared to women.

The odds ratio indicates the size of the effect, that is, by how much a variable increases or decreases the likelihood of being in the upper band of the index compared to the reference category. If the odds ratio was **less than 1**, it means that the odds of being in the upper band of the index were lower for this category than they were for the reference category. If the odds ratio was **greater than 1**, then the odds of being in the upper band were higher for this category than for the reference category. So, for example Table 9.9 indicates that men have an odds ratio of 1.5 which indicates that, once all factors were controlled for, they have 50% higher odds of being in the upper band than women (the reference category).

The column headed '**p-value**' reports p-values from a statistical test of the true value of the predictor being zero. Values lower than 0.05 are statistically significant at the 95 per cent level. In the case of this example, the odds for men reported in Table 9.9 have a p-value of 0.000. This shows that the estimate is statistically significant at the highest level.

The **Nagelkerke R^2** is used to show the proportion of variability in the data that is explained by the regression model. Broadly speaking, an R^2 of 1 indicates that the regression line perfectly fits the data, whereas a 0 indicates that the regression model does not explain the data at all.

10.3.2 Full results of Regression Analysis

In the main report, the tables showing the results from the regression have been simplified. The full tables of results are presented below.

The results are shown for the regression model carried out on the entire UK sample and there are also separate tables for the regression models carried out on sub-samples of the population for Scotland, Northern Ireland and, England and Wales.

Table 9.9 Regression analysis – United Kingdom

	Significance level	Odds ratio	Lower 95% C.I. for odds ratio	Upper 95% C.I. for odds ratio
Gender				
Women		(1)		
Men	.000	1.538	1.298	1.822
Age				
35-44		(1)		
16-24	.064 *	1.436	.979	2.106
25-34	.169 (ns)	1.255	.908	1.736
45-54	.001	1.718	1.264	2.333
55-64	.001	1.798	1.284	2.517
65-74	.014	1.732	1.117	2.685
75+	.000	2.490	1.556	3.984
Country				
Northern Ireland		(1)		
England	.000	1.870	1.437	2.433
Wales	.671 (ns)	1.130	.644	1.984
Scotland	.010	1.525	1.107	2.099
Working status				
In work		(1)		
Retired	.994 (ns)	.999	.716	1.392
Unemployed	.014	1.552	1.093	2.202
Other	.116 (ns)	1.232	.950	1.597
Tenure				
Owner Occupier		(1)		
Private tenant	.579	.928	.713	1.208
Social tenant	.449	1.096	.865	1.388
Rent-free	.008	.390	.194	.786
Ethnicity				
White		(1)		
BME	.004	1.603	1.166	2.205

	Significance level	Odds ratio	Lower 95% C.I. for odds ratio	Upper 95% C.I. for odds ratio
Dietary restrictions				
Partly/completely vegetarian/ vegan		(1)		
Not vegetarian	.001	2.238	1.400	3.579
Size of household				
Four		(1)		
One	.031	1.518	1.038	2.220
Two	.649 (ns)	1.087	.760	1.554
Three	.778 (ns)	1.053	.737	1.504
Five or more	.046	1.528	1.008	2.316
Separate kitchen				
Yes		(1)		
No	.046	1.376	1.006	1.883
NS-SEC				
Lower supervisory /technical		(1)		
Higher managerial /professional	.112 (ns)	1.266	.947	1.694
Intermediate	.582 (ns)	1.111	.765	1.613
Small employers /own account workers	.013	1.553	1.097	2.2
Semi-routine & routine	.089*	1.292	.961	1.737
Never worked & unemployed	.666 (ns)	1.128	.652	1.953
Presence of children in household				
Aged under 6		(1)		
Aged under 16, but none under 6	.752 (ns)	1.064	.725	1.560
No children	.621 (ns)	1.099	.757	1.596
Nagelkerke R^2		**0.079**		

The reference category is labelled with a (1) in the odds ratio column. For each variable the odds ratio for each category was calculated by taking the ratio of the odds of someone in one category being in the upper band of the index compared to the odds of someone in the reference category being in the upper band of the index. (ns) Denotes 'not significant' at the 95% level (where the P-value was greater than 0.05). * denotes not significant at the 95% level but was significant at the 90% level (P-value between 0.05 and 0.1). Red shading indicates higher odds of being in the upper band of the index when it comes to food safety. Blue shading indicates lower odds of being in the upper band of the index.

Table 9.10 Regression analysis - Scotland

	Significance level	Odds ratio	Lower 95% C.I. for odds ratio	Upper 95% C.I. for odds ratio
Gender				
Women		(1)		
Men	.004	1.871	1.221	2.866
Age				
35-44		(1)		
16-24	.724(ns)	1.193	.447	3.184
25-34	.156(ns)	1.817	.796	4.150
45-54	.225(ns)	1.640	.737	3.649
55-64	.004	3.075	1.434	6.592
65-74	.109(ns)	2.437	.821	7.239
75+	.034	3.595	1.102	11.727
Working status				
In work		(1)		
Retired	.585(ns)	.792	.343	1.830
Unemployed	.026	2.604	1.120	6.055
Other	.744(ns)	1.112	.590	2.096
Nagelkerke R^2		**0.077**		

Table 9.11 Regression analysis – Northern Ireland

	Significance level	Odds ratio	Lower 95% C.I. for odds ratio	Upper 95% C.I. for odds ratio
Gender				
Women		(1)		
Men	.000	3.033	1.845	4.986
Age				
35-44		(1)		
16-24	.319(ns)	1.651	.616	4.424
25-34	.335(ns)	1.593	.618	4.105
45-54	.174(ns)	1.874	.758	4.628
55-64	.034	2.664	1.075	6.602
65-74	.206(ns)	1.896	.704	5.107
75+	.010	3.804	1.383	10.462
Continuous use of a motor vehicle?				
Yes		(1)		
No	.020	1.885	1.104	3.220
Nagelkerke R^2		**0.098**		

Table 9.12 Regression analysis – England and Wales

	Significance level	Odds ratio	Lower 95% C.I. for odds ratio	Upper 95% C.I. for odds ratio
Gender				
Women		(1)		
Men	.000	1.425	1.173	1.733
Age				
35-44		(1)		
16-24	.780	1.064	.687	1.648
25-34	.656	1.087	.753	1.568
45-54	.000	1.847	1.316	2.592
55-64	.008	1.660	1.144	2.408
65-74	.028	1.740	1.063	2.847
75+	.001	2.370	1.397	4.019
Working status				
In work		(1)		
Retired	.547	1.128	.762	1.670
Unemployed	.103	1.402	.934	2.104
Other	.039	1.363	1.015	1.831
Ethnicity				
White		(1)		
BME	.004	1.609	1.165	2.223
Dietary restrictions				
Partly/completely vegetarian/ vegan		(1)		
Not vegetarian	.001	2.257	1.378	3.694
Separate kitchen				
Yes		(1)		
No	.015	1.559	1.091	2.227
Living as a couple				
Yes		(1)		
No	.003	1.351	1.107	1.650
Nagelkerke R^2		**0.056**		

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