

The 2014

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Survey

Scotland Bulletin 2
Food safety in the home

The 2014

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Food safety in the home

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Official Statistics

The statistics presented in this meet the requirements of the UK Code of Practice for Official Statistics¹.

Further information on Official Statistics can be found on the UK Statistics Authority website².

¹ <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

² <http://www.statisticsauthority.gov.uk/national-statistician/types-of-official-statistics/index.html>

Foreword

This bulletin presents a descriptive overview of selected findings from Wave 3 of the Food and You survey for Scotland, 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 reported behaviours, attitudes and knowledge relating to these topics.

Waves 1 and 2 of the Food and You survey were carried out in 2010 and 2012 respectively. Wave 3 was conducted in 2014 and consisted of 3,453 interviews from a representative sample of adults aged 16 and over across the UK, including 475 interviews in Scotland on which this report is based. Wave 3 builds on and extends the previous findings.

The key findings for Scotland from Wave 3 have been published in six separate bulletins, one for each of the following main topics:

- Eating, cooking and shopping
- Food safety in the home
- Eating outside the home
- Experience of food poisoning and attitudes towards food safety and food production
- Advice on healthy eating
- Eating and health

In addition to the bulletins, an executive summary has been published which presents key findings for Scotland from across the entire survey.

This bulletin provides a descriptive overview of the key findings for Scotland from Wave 3 in relation to food safety in the home.

Background and objectives

Role of the FSA and FSAS

The FSA was created in 2000 as a non-ministerial, independent government department governed by a Board whose members have extensive knowledge and experience in a wide range of sectors relevant to the FSA. 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 FSA is responsible for food safety and hygiene across the UK, and is committed to ensuring the general public can have trust and confidence in the food they buy and eat. The FSA in Scotland is additionally responsible for nutrition policy and food labelling.

In providing guidance on food safety to consumers, the Agency aims to minimise the risk of food poisoning. Advice generally relates to four aspects of food hygiene: cleaning, cooking, avoiding cross-contamination and chilling (collectively known as the '4 Cs'), with advice provided 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.

The Food Standards Agency in Scotland is also tasked with the provision of diet and nutrition advice to encourage healthier eating. The FSA in Scotland will become a devolved public food body for Scotland on 1 April 2015, and will be renamed Food Standards Scotland. Its remit will remain broadly the same but with a particular focus on the needs of the Scottish nation.

The Food and You survey

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

Waves 1 and 2 of the Food and You survey were conducted by the same consortium in 2010 and 2012 respectively. Reports of the findings and methodological details are available on the FSA website³. Specific examples of use of the findings include results from Wave 1 being used to determine the theme of the 2012 FSA Food Safety Week⁴ and findings from Wave 2 informing FSA public campaigns on food safety. Secondary analysis of the Waves 1 and 2 data has explored domestic food safety practices⁵ and the relationships between nutrition and food safety⁶. Wave 3 was carried out in 2014 by TNS BMRB.

Prior to 2010, the FSA was responsible for food safety and nutrition policy across the UK. Accordingly, Wave 1 of the Food and You survey contained questions covering both healthy eating and food safety, and the findings were reported together. During Wave 1, responsibility for nutrition policy (healthy eating) was transferred in England and Wales to the Department of Health (DH) and the Welsh Government respectively. Nutrition policy in Scotland and Northern Ireland remains the responsibility of the Agency. Waves 2 and 3, therefore, included a question module on healthy eating for respondents in Scotland and Northern Ireland, but focussed solely on food safety issues for respondents in England and Wales.

The objectives for Wave 3 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
- 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 Waves 1 and 2 or from other sources) in reported attitudes and behaviour
- Broaden the evidence base and develop indicators to assess progress in fulfilling the Agency's strategic plans, aims and targets.
- Assess differences between, and areas for increased focus, across the national agencies in Scotland, Wales, Northern Ireland and England.

About this bulletin

Self-reported behaviours

Interviews as a data collection method do not necessarily capture people's actual practices. What respondents say in interviews about what they do and think is necessarily *reported* for a number of reasons, including recall not being accurate, certain behaviours being habitual and therefore possibly difficult to recall, and desirability bias – described further below. Here self-reported behaviour is used as a proxy for actual behaviour. Where the report refers to behaviour, attitudes or knowledge, the fact that the data refer to reported behaviour must always be borne in mind.

When developing the Food and You questionnaire, it was apparent that the risk of social desirability bias was 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

³ The Wave 1 report can be found at: http://www.foodbase.org.uk/admintools/reportdocuments/641-1-1079_Food_and_You_Report_Main_Report_FINAL.pdf and the Wave 2 report can be found at: http://www.foodbase.org.uk/admintools/reportdocuments/805-1-1460_Wave_2_Main_Report.pdf

⁴ <http://www.food.gov.uk/news-updates/campaigns/germwatch/>

⁵ <http://www.food.gov.uk/science/research/ssres/fs409012>

⁶ <http://www.food.gov.uk/science/research/ssres/crosscutss/fs307014>

topics in the questionnaire for which respondents might be reluctant to report behaviour which goes against a generally well known 'best practice' (for example, not washing their hands before cooking or preparing food). The Food and You questionnaire was carefully designed to limit this as far as possible by asking questions about behaviour in specific time periods (e.g. asking whether a respondent did something 'in the last seven days' rather than 'usually') and framing questions in a neutral way.

Questionnaire changes between waves

To reflect the changing responsibilities of the FSA, the focus of the survey content was changed between Wave 1 and Wave 2. To minimise any effects caused by changing the order of the questions attempts were made to keep the structure of the questionnaire as similar as possible between the waves. Despite this, the removal of the healthy eating questions in England and Wales, and further revisions of the food safety questions 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 1 and 2 may have been partly or wholly because of changes to the questions. Further changes were made to the questionnaire at Wave 3. Again, whilst efforts were made to keep the structure of the questionnaire as similar as possible to the Wave 2 questionnaire, unavoidable differences were introduced between these two waves of the survey. That observed differences could be an effect of changes to the questionnaire should be kept in mind when considering the findings.

Where questions have remained consistent across the waves of the survey, statistical analysis has been used to determine whether results have changed significantly over time. Although having three data points now means it is possible to see trends starting to emerge, doing so is inevitably still tentative, whereas further waves of data collection would allow greater confidence in identifying trends.

At Wave 1 of the survey, in order to cover additional topics without over-burdening respondents, three question modules (eating arrangements, eating out and shopping patterns) were each asked of a random third of respondents. At Waves 2 and 3, all question modules were asked of all respondents. The larger sample sizes for these modules at Waves 2 and 3 mean that smaller differences observed between Waves 2 and 3 are statistically significant compared with differences between Wave 1 and Waves 2 or 3.

The Food and You Technical Report⁷ provides a summary of questionnaire changes between Wave 2 and Wave 3.

Reporting conventions

Unless stated otherwise, where comparisons are made in the text between different population groups or variables, only those differences found to be statistically significant at the five per cent level are reported. In other words, differences as large as those reported have no more than a five per cent probability of occurring by chance.

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

Topics covered

The Food and You survey collected data on a wide range of topics. As a result it is not feasible for this series of bulletins to present detailed analysis of all of the questions. In particular, only selected socio-demographic variables have been analysed to uncover statistically significant differences. These variables were identified by the FSA as of key interest, providing the most useful information about sub-group variation at this initial stage of data analysis. The identified variables were: age, gender, and the Scottish Index of Multiple Deprivation (SIMD).⁸ Variation by age and gender has been

⁷ <http://www.food.gov.uk/sites/default/files/food-and-you-2014-uk-bulletin-technical-report.pdf>

⁸ The Scottish Index of Multiple Deprivation (SIMD) is the official measure of area deprivation in Scotland which considers deprivation across income, employment, health, education, skills and training, housing, geographic access and crime. Areas are grouped into quintiles based on their 2012 SIMD score, with quintile 1 the most deprived areas across Scotland and quintile 5 the least deprived areas.

considered across all three waves, while only Wave 3 data was examined for variation by SIMD. Full data are available in the UK Data Archive⁹ and at data.gov.uk¹⁰ for further analysis.

⁹ <http://www.data-archive.ac.uk/>

¹⁰ <http://data.gov.uk/>

Key Findings

- Around eight in ten respondents (79%) reported **cleaning** behaviours in line with recommended practices, saying they always washed their hands before starting to prepare or cook food and after handling raw meat, poultry or fish.
- Around half (56%) of those who reported storing raw meat and poultry in the fridge reported practices in line with those recommended to avoid **cross contamination**.
- Around half of respondents (51%) said they always used different chopping boards for different types of food. Fifty-two per cent of respondents reported that they never washed raw meat or poultry, excluding chicken and 38% said that they never washed raw chicken.
- In total, 12% of respondents who had a fridge reported behaviour in line with recommended practice for **chilling** (i.e. checking that their fridge temperature is between 0°C and 5°C, at least monthly, using a thermometer). Just under half of respondents who had a fridge (45%) reported never checking their fridge temperature.
- The majority of respondents reported always **cooking** food until it is steaming hot throughout (88%) in line with recommended practice.
- The majority said they would reheat food only once (84%), or not at all (nine per cent), in line with recommended **reheating** practice.
- Around four in five respondents (84%) reported that they would eat leftover food within two days of cooking it, in line with recommended practice.
- Respondents in more deprived areas (quintiles one to three) were more likely than those in less deprived areas (quintiles four and five) to report usually defrosting raw meat or fish in the fridge (36% compared with 22%).
- Respondents in more deprived areas (quintiles one and two) were more likely than those in less deprived areas to report never eating red meat pink or when it has pink or red juices (63% compared with 48% in quintiles three to five).
- Respondents in more deprived areas (quintiles one to three) were more likely than those in less deprived areas (quintiles four and five) to report that they would never eat eggs and bread after the best before date (49% compared with 33% for eggs and 29% compared with 13% for bread).
- However, respondents in the most deprived areas were more likely than those in the least deprived areas to report always washing raw chicken (42% of those in quintile one reported always doing so compared with 19% in quintile five).

1. Background

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.

Food preparation in the home is recognised as a critical step in the food chain and the FSA promotes the '4 Cs' principle (Cleanliness, Cooking, Chilling and avoiding Cross Contamination) of good food hygiene which is aimed at preventing cases of domestic foodborne illness thus reducing its incidence:

Principles of good food hygiene – the '4 Cs'

Cleanliness

- Prevent harmful bacteria from spreading by observing good personal hygiene.
- Wash hands after using the loo, after handling raw food, pets, bins, and before touching food which is ready to eat.
- Do not handle or prepare food if you have had a stomach upset, have open sores or cuts on your hands or weeping eye / ear infections.

Cooking

- Cook food thoroughly, especially meat and poultry.
- Make sure food is steaming hot throughout before serving.
- If you reheat food, make sure it is steaming hot throughout and only reheat it once.

Chilling

- Store raw meat in a covered container on the bottom shelf of the fridge, away from ready to eat foods.
- Check your fridge temperature regularly using a thermometer. Fridge temperature should be below 5 degrees Celsius.
- Once opened, food should be kept in the fridge and used within two days, unless the packaging states otherwise.

Avoid Cross Contamination

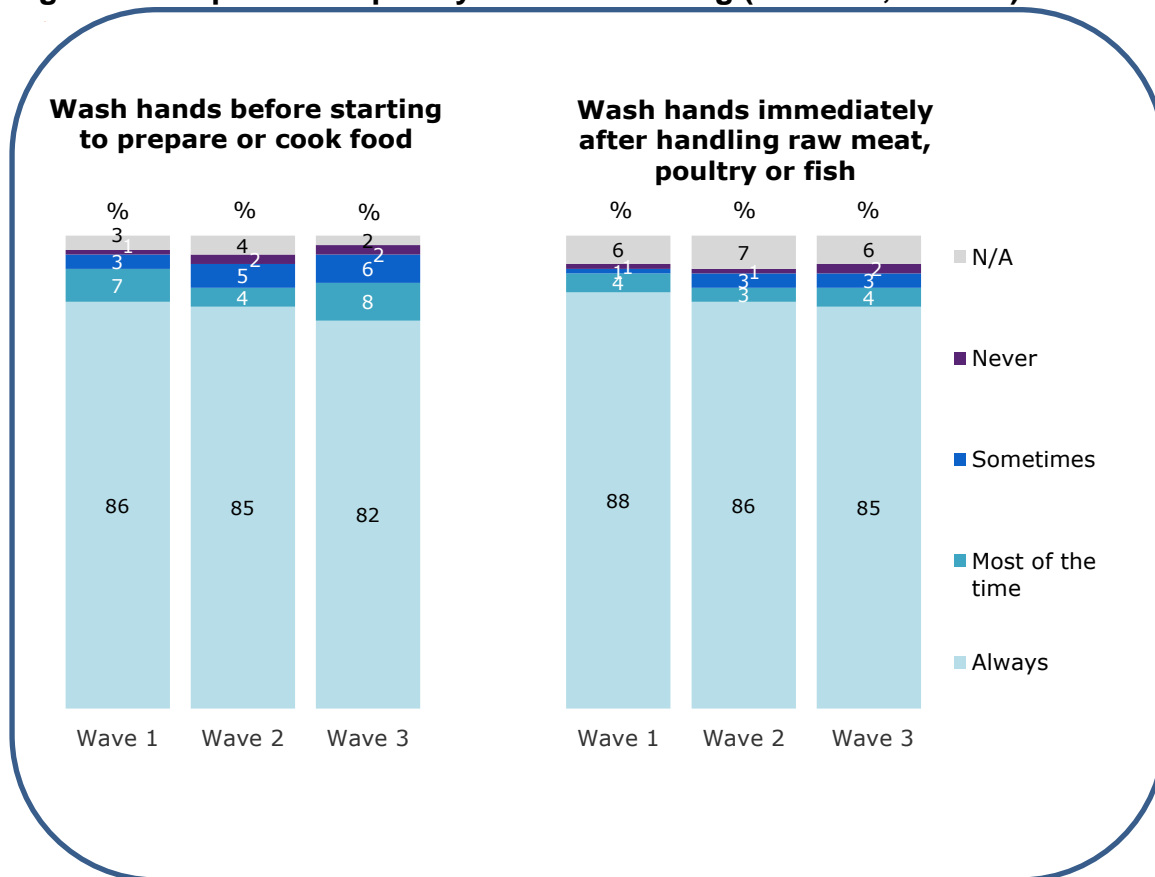
Cross contamination, or the transfer of bacteria from raw foods to ready-to-eat foods, can happen in several ways, including:

- Using the same chopping board to prepare raw and ready-to-eat foods.
- Using the same knife for raw and ready-to-eat food.
- Using the same cloth to clean up raw food spills and ready-to-eat food preparation areas.
- Storing raw and ready-to-eat foods together. Always store ready-to-eat foods above raw foods in the refrigerator.

This bulletin presents the findings relating to each aspect of domestic food safety practice, as well as practices relating to date labelling.

2. Practices relating to the '4 Cs' - Cleaning

Figure 2.1 Reported frequency of hand washing (Waves 1, 2 and 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't 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); Wave 3 (475)

The FSA recommends that hands should be washed thoroughly on a regular basis and in particular before preparing food, after touching raw food (especially meat), and after using the toilet.

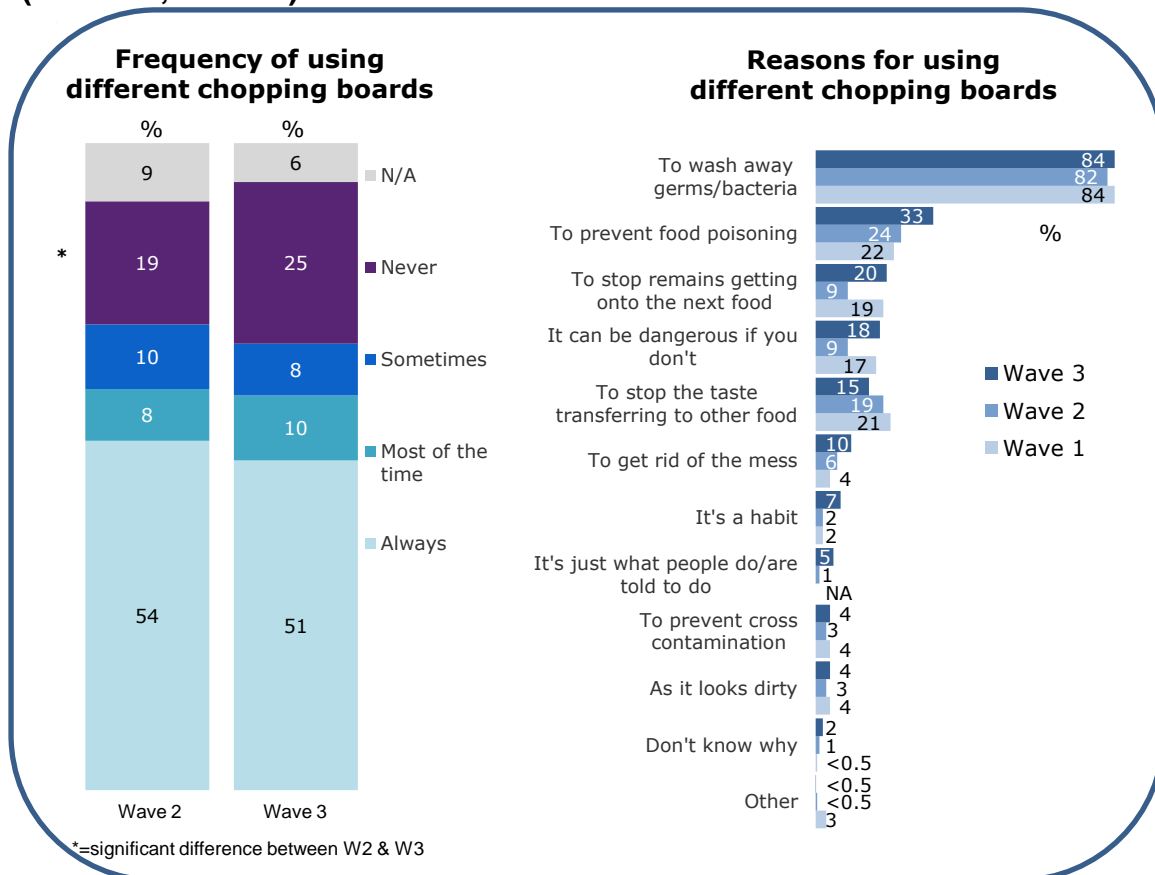
- Overall, 82% of respondents reported always washing their hands before starting to prepare or cook food, and 96% reported that they did this at least some of the time. The proportion who reported always washing their hands was similar to that at Waves 1 and 2.
- The majority of respondents (85%) reported always washing their hands immediately after handling raw meat, poultry or fish, similar to the proportion at Waves 1 and 2.
- Two per cent of respondents said they never washed their hands before preparing or cooking food and two per cent said they never washed their hands immediately after handling raw meat, poultry or fish.

- In total, 79% of respondents reported always washing their hands before starting to prepare or cook food, and always washing their hands after handling raw meat poultry or fish (if they ever did this), in line with FSA recommended practice for cleaning.

3. Practices relating to the '4 Cs' – Avoiding cross-contamination

3.1 Chopping boards

Figure 3.1 Frequency of, and reasons for, using different chopping boards (Waves 1, 2 and 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't 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?

Note: respondents were able to give multiple reasons in answer to Q4_3;

Note: responses to Q4_3 were given spontaneously, with no prompted response list shown to respondents.

Base: All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475) (Q4_1 not asked at Wave 1; N/A reason not included at Wave 1)

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.

- Around half (51%) of respondents said they always used different chopping boards for different foods, whilst 25% said that they never did, compared with 19% at Wave 2.
- At Wave 3, 61% of respondents reported using different chopping boards always or most of the time, similar to Wave 2.

- At Wave 3, 84% 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, in line with the reasoning which underpins recommended practice. This was similar to the proportions reporting this at Waves 1 and 2.
- A third of respondents (33%) said that the reason for washing a chopping board was to prevent food poisoning, compared with 24% at Wave 2 and 22% at Wave 1. Four per cent said it was to prevent cross-contamination, similar to the proportions reporting this at Waves 1 and 2. Both of these reasons are in line with the reasoning underpinning recommended practice.
- The proportion of respondents giving the more general reason that it can be dangerous if you do not use a different board was 18%, similar to the proportion giving this reason at Wave 1 (17%) and compared with nine per cent at Wave 2.
- Other reasons commonly cited were to stop remains from getting onto the next food (20% compared with nine per cent at Wave 2) and to stop the taste transferring to other food (15%) similar to the proportions reporting this at Waves 1 and 2. These are not reasons which underpin recommended practice.

3.2 Food storage in the fridge

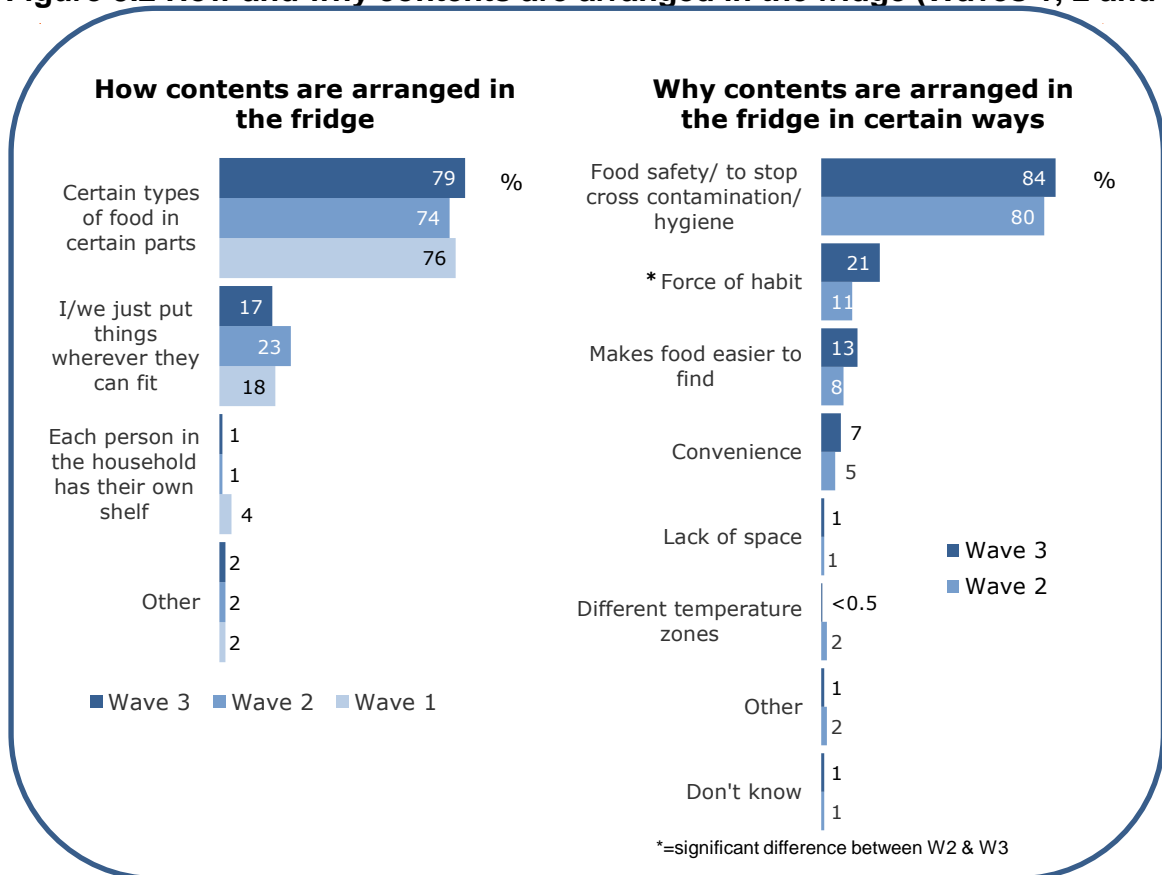
The FSA advises that raw meat should be stored separate from ready-to-eat food and that raw meat and poultry should be stored in sealed containers at the bottom of the fridge, to avoid dripping onto other food.

The image below illustrates the FSA's advice on how food can be safely stored in the fridge¹¹.



¹¹ <http://www.food.gov.uk/northern-ireland/nutritionni/niyoungpeople/survivorform/dontgetsick/chilling#.UQkirh3HGHC>

Figure 3.2 How and why contents are arranged in the fridge (Waves 1, 2 and 3)



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?

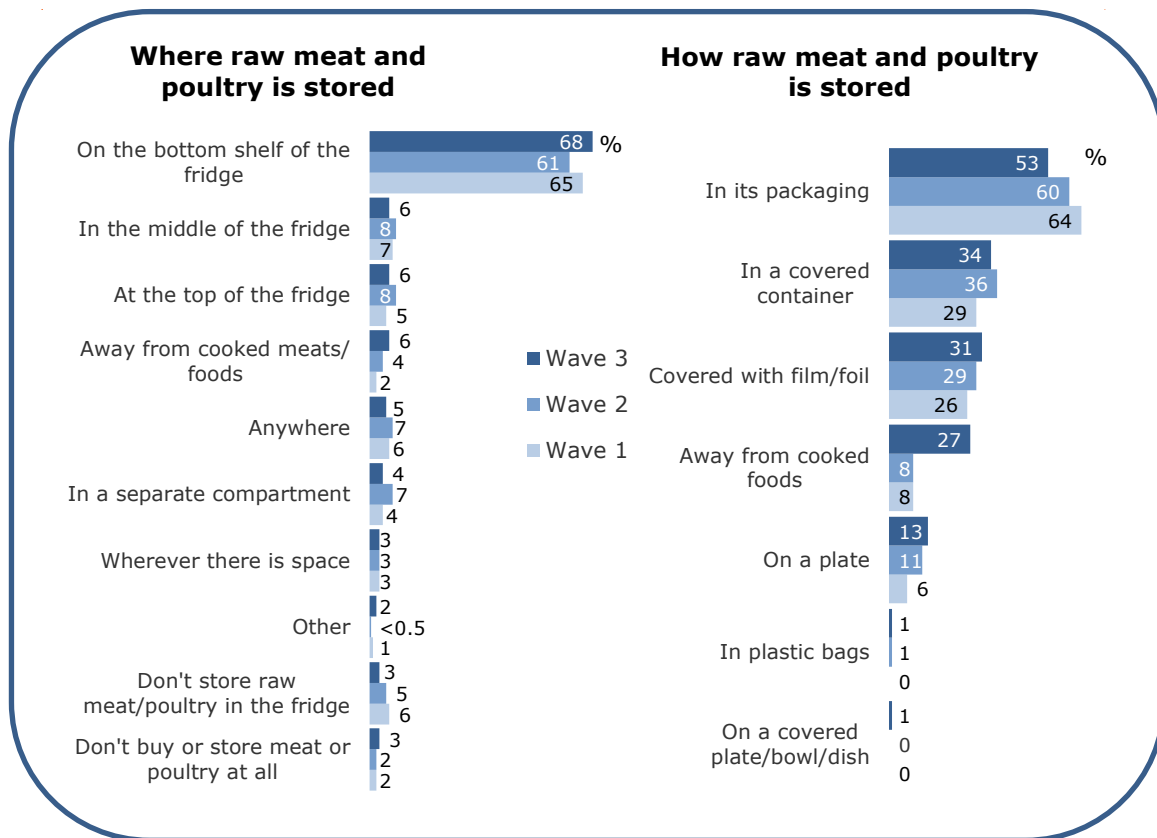
Note: respondents were able to give multiple reasons in answer to Q4_13a

Note: responses to Q4_13a were given spontaneously, with no prompted response list shown to respondents.

Base: Q4_13 All Scotland respondents - Wave 1 (511); All Scotland respondents who have a fridge in their household - Wave 2 (503); Wave 3 (469); Q4_13A All Scotland respondents who always keep certain types of food in certain parts of the fridge – Wave 2 (385); Wave 3 (372) (Q4_13A not asked at Wave 1)

- When asked how they arranged the contents of their fridge, around four-fifths (79%) of respondents said they kept certain types of food in a specific part of the fridge while 17% said they just put things wherever they fit.
- Of those who said they kept certain foods in certain parts of the fridge, 84% said they did so for reasons of food safety, hygiene or to stop cross contamination. Force of habit was reported by 21% (compared with 11% at Wave 2) and 13% said they did this because it made food easier to find.

Figure 3.3 Where and how raw meat and poultry is stored (Waves 1, 2 and 3)



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?

Note: respondents were able to give multiple answers

Note: responses to both questions were given spontaneously, with no prompted response list shown to respondents.

Base: Q4_14 All Scotland respondents - Wave 1 (511); All Scotland respondents who have a fridge in their household - Wave 2 (503); Wave 3 (469) & Q4_15 All Scotland respondents who store raw meat and poultry - Wave 1 (459); Wave 2 (466); Wave 3 (433)

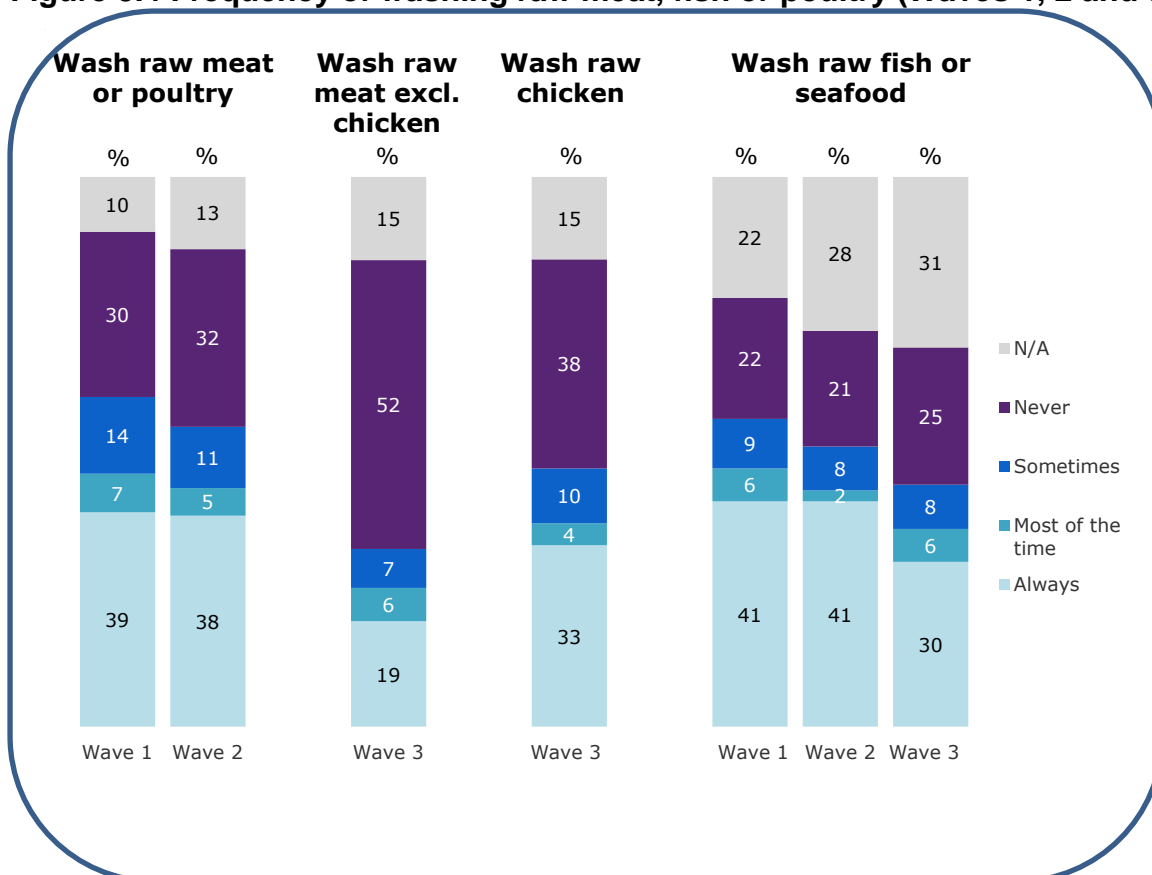
- Of respondents who said that they had a fridge in their household, 68% reported that they stored raw meat and poultry on the bottom shelf of the fridge, in line with recommended practice. Six per cent said they stored it in the middle of the fridge, and six per cent said they stored it at the top of the fridge. Four per cent reported keeping raw meat and poultry in a separate compartment, and six per cent reported keeping it away from cooked meats, in line with recommended practice.
- Of respondents who reported storing raw meat and poultry in their fridge, 53% said they stored it in its packaging. This is not in line with recommended practice and was a similar proportion to the 60% reporting this at Wave 2, but was lower than the proportion reporting doing this at Wave 1 (64%).
- Thirty-four per cent of respondents kept raw meat and poultry in a covered container, 31% reported that they covered raw meat and poultry with film / foil, and 27% reported that they stored it away from cooked food (compared with eight per cent at Wave 1 and Wave 2). These behaviours are in line with recommended practice.

- Thirteen per cent of respondents reported storing raw meat or poultry on a plate (a similar proportion to Wave 2, compared with six per cent at Wave 1), which is not in line with recommended practice.
- Looking across these reported practices, around half (56%) of those who reported storing raw meat and poultry in their fridge reported practice in line with FSA guidance on how raw meat should be stored in a fridge¹².
- Respondents were asked whether they stored food in open tins in the fridge. The majority (79%) reported that they never did so, in line with FSA recommended practice, as the tin may contaminate the food. Eighteen per cent said that they did this at least some of the time, and five per cent said that they always stored food in open tins in the fridge. These findings were similar to those at Wave 2.

¹² This was defined as 'On the bottom shelf' or 'In a separate compartment e.g. a meat drawer or salad tray' or 'Kept separate from other foods' or 'Kept in separate/another fridge' or 'Away from cooked foods' at Q4_14, and 'Away from cooked foods' or 'Covered with film / foil' or 'In a covered container' or 'in a drawer / special compartment / allocated shelf in fridge' or 'In plastic bags (any mention)' or 'On a covered plate / bowl / dish' at Q4_15.

3.3 Washing raw meat and fish

Figure 3.4 Frequency of washing raw meat, fish or poultry (Waves 1, 2 and 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't 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); Wave 3 (475)

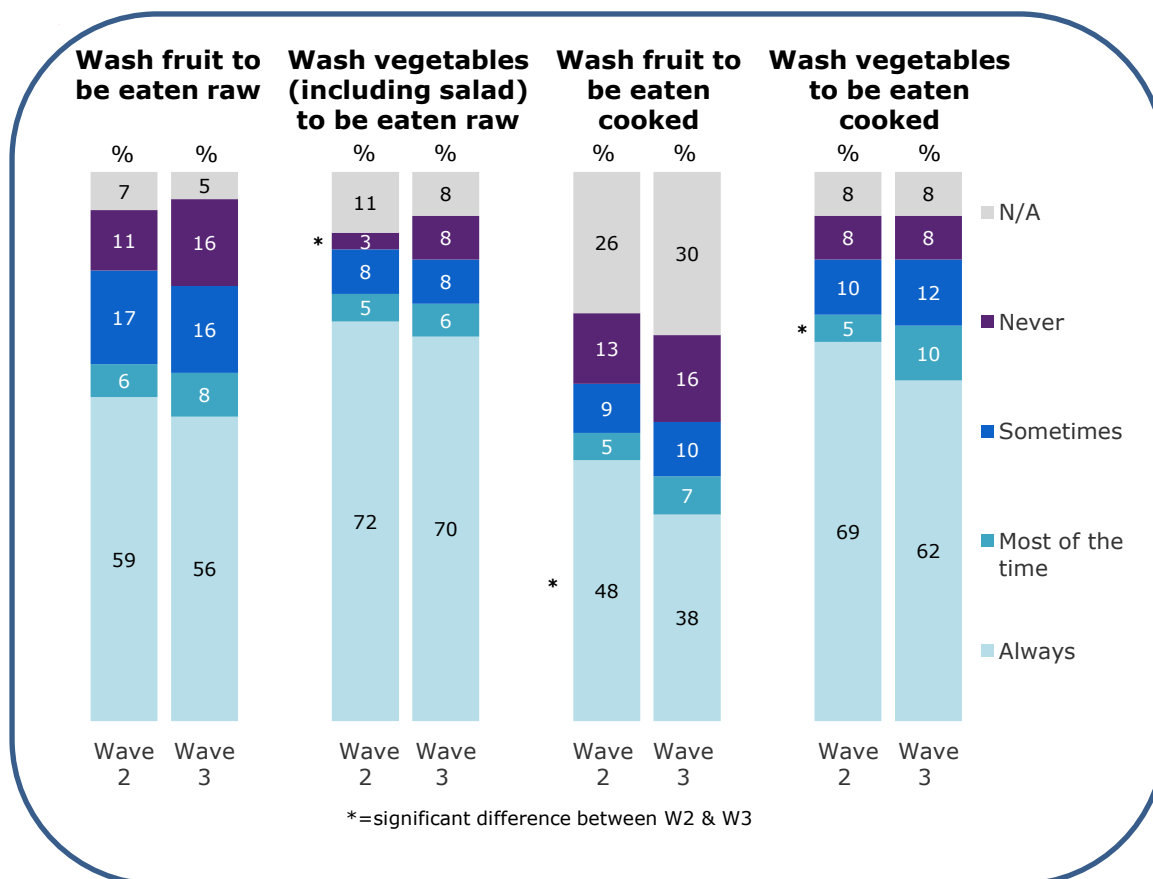
The FSA recommends that raw meat and fish are not washed prior to cooking due to the risk of cross contamination from water splashing on the sink, surrounding surfaces, and utensils, which may come into contact with ready to eat food.

- At Wave 3, 38% of respondents said that they never washed raw chicken. Almost half of respondents (47%) reported washing chicken at least sometimes, with 33% reporting that they always washed raw chicken. Respondents were less likely to report washing other raw meat compared with raw chicken, with 52% reporting that they never washed meat other than chicken and 33% reporting that they did so at least sometimes. Nineteen per cent of respondents said that they always washed raw meat other than chicken.
- Changes to the question at Wave 3 to separate raw meat and poultry other than chicken from raw chicken make comparisons with Waves 1 and 2 difficult. Nevertheless the proportion of respondents reporting that they never washed raw meat appeared to be higher at Wave 3, particularly meat other than chicken.

- In comparison to raw chicken and other meat, respondents at Wave 3 were less likely (25%) to report never washing raw fish or seafood when preparing and cooking it. This was similar to the findings at Waves 1 and 2. Forty-four per cent of respondents at Wave 3 reported doing so at least some of the time. This is lower than the proportion of people reporting doing this at least some of the time at Wave 1 (56%). Thirty per cent of Wave 3 respondents said they always washed raw fish or seafood, compared with 41% at Waves 1 and 2.
- Around three in ten respondents (31%) at Wave 3 said that storing, preparing and cooking raw fish and seafood was not applicable to them, compared with 15% of respondents who reported this for both raw chicken and other meats. A similar pattern was observed at Waves 1 and 2.

3.4 Washing fruit and vegetables

Figure 3.5 Frequency of washing fruit and vegetables which are going to be eaten raw and cooked (Waves 2 and 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently.

Base: All Scotland respondents - Wave 2 (507); Wave 3 (475) (Question not asked at Wave 1)

The FSA recommends 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).

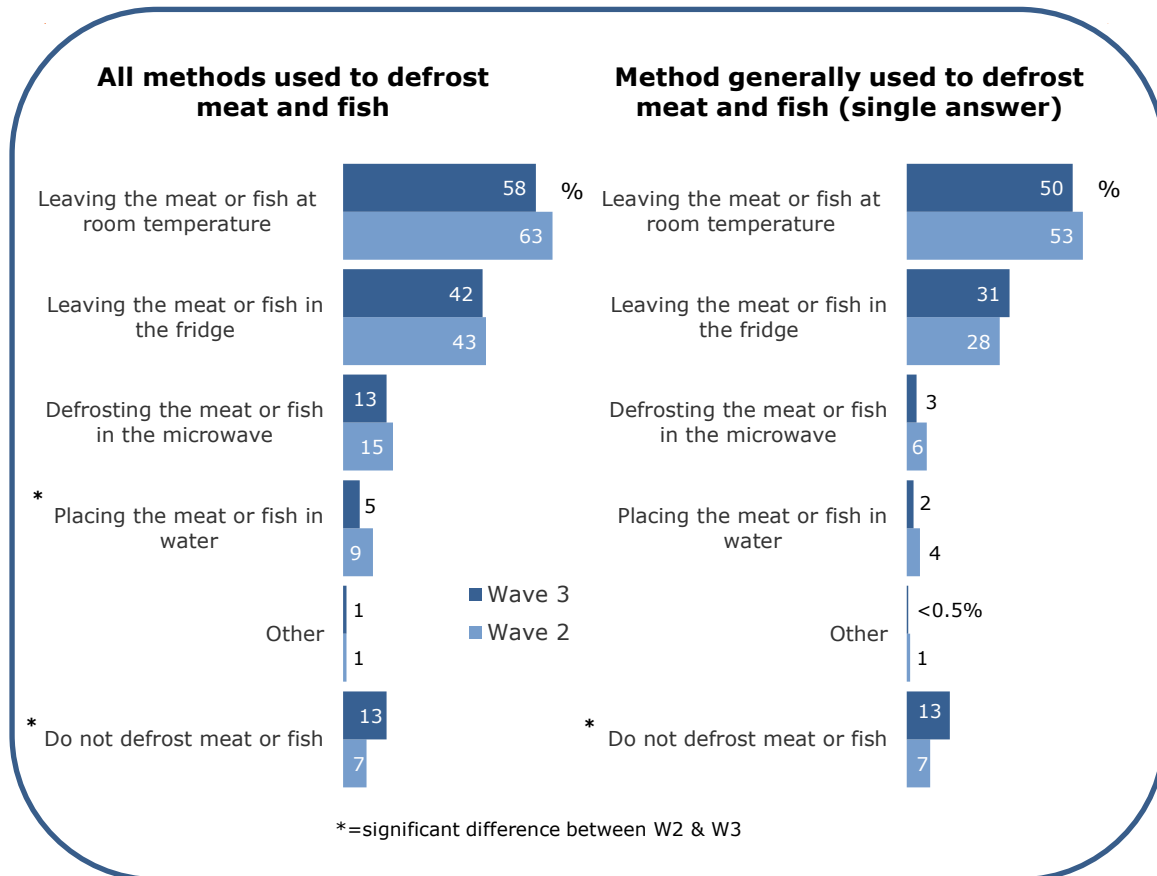
- Fifty-six per cent of respondents reported that they always washed fruit which was going to be eaten raw whilst 79% said they did this at least some of the time. Sixteen per cent of respondents reported that they never washed fruit which was going to be eaten raw.
- Respondents were more likely to report washing vegetables that were going to be eaten raw; 70% said that they always did, 84% said they did this at least some of the time and eight per cent said they never did this, compared with three per cent who said they never did at Wave 2.

- A lower proportion of respondents reported that they would always wash fruit that was going to be cooked compared with when it would be eaten raw (38% compared with 56%) and a lower proportion of respondents reported always washing fruit that was going to be cooked at Wave 3 (38%) compared with Wave 2 (48%). Fifty-five per cent reported that they washed fruit that was going to be cooked at least some of the time, while 16% said that they never did.
- Respondents were more likely to report that they washed vegetables which were going to be cooked compared with fruit; 62% said they always did (compared with 38% for fruit). Eighty-four per cent said they did this at least some of the time (compared with 55% for fruit) and eight per cent reported they never did (compared with 16% for fruit).
- Differences were observed in the proportion of respondents saying that the question was not applicable to them for the different items: 30% of respondents reported that washing fruit to be cooked was not applicable to them, compared with eight per cent reporting this for washing both raw and cooked vegetables, and five per cent for raw fruit.

4. Practices relating to the '4 Cs' – Chilling

4.1 Chilling and defrosting

Figure 4.1 Defrosting meat and fish (Waves 2 and 3)



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?

Note: respondents were able to give multiple answers to Q4_1B

Base: All Scotland respondents - Wave 2 (511); Wave 3 (475) (Question not asked at Wave 1)

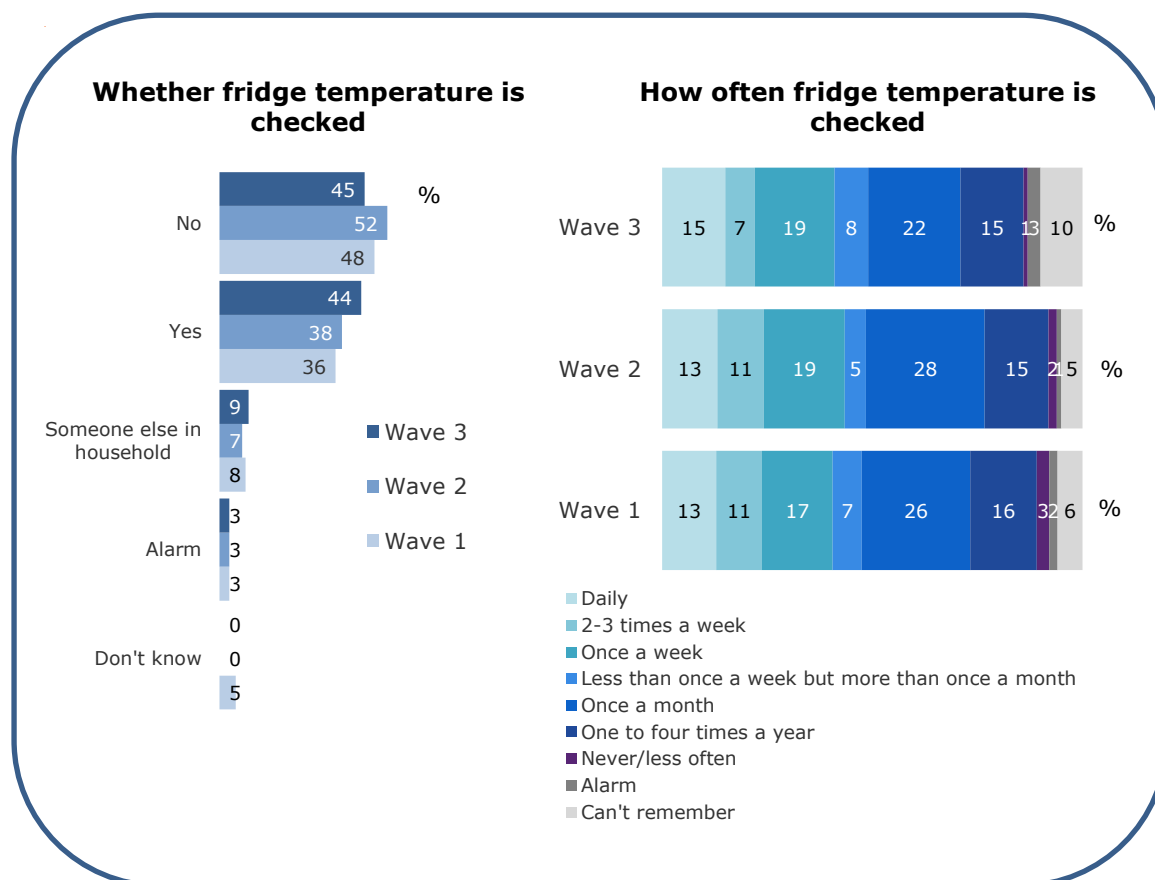
The FSA recommends defrosting food slowly and safely overnight in the refrigerator or using a microwave oven (carefully ensuring that the food is fully defrosted before cooking it straight away). The FSA does not recommend defrosting food at room temperature as this provides ideal conditions for bacteria to grow.

- Respondents were most likely to report leaving meat or fish at room temperature (58%) in order to defrost. Forty-two per cent of respondents said that they defrosted meat or fish in a refrigerator, and 13% in a microwave oven, similar to the findings at Wave 2.

- When asked for the single method they generally used, half (50%) of respondents said they generally left the meat or fish at room temperature, 31% reported that they generally defrosted it in a refrigerator and three per cent said they generally used a microwave oven.
- At Wave 3 respondents were less likely to report ever defrosting meat or fish in water (five per cent compared with nine per cent at Wave 2) and more likely to report that they did not defrost meat or fish at all (13% compared with seven per cent at Wave 2).

4.2 Checking fridge temperature

Figure 4.2 Checking fridge temperature (Waves 1, 2 and 3)



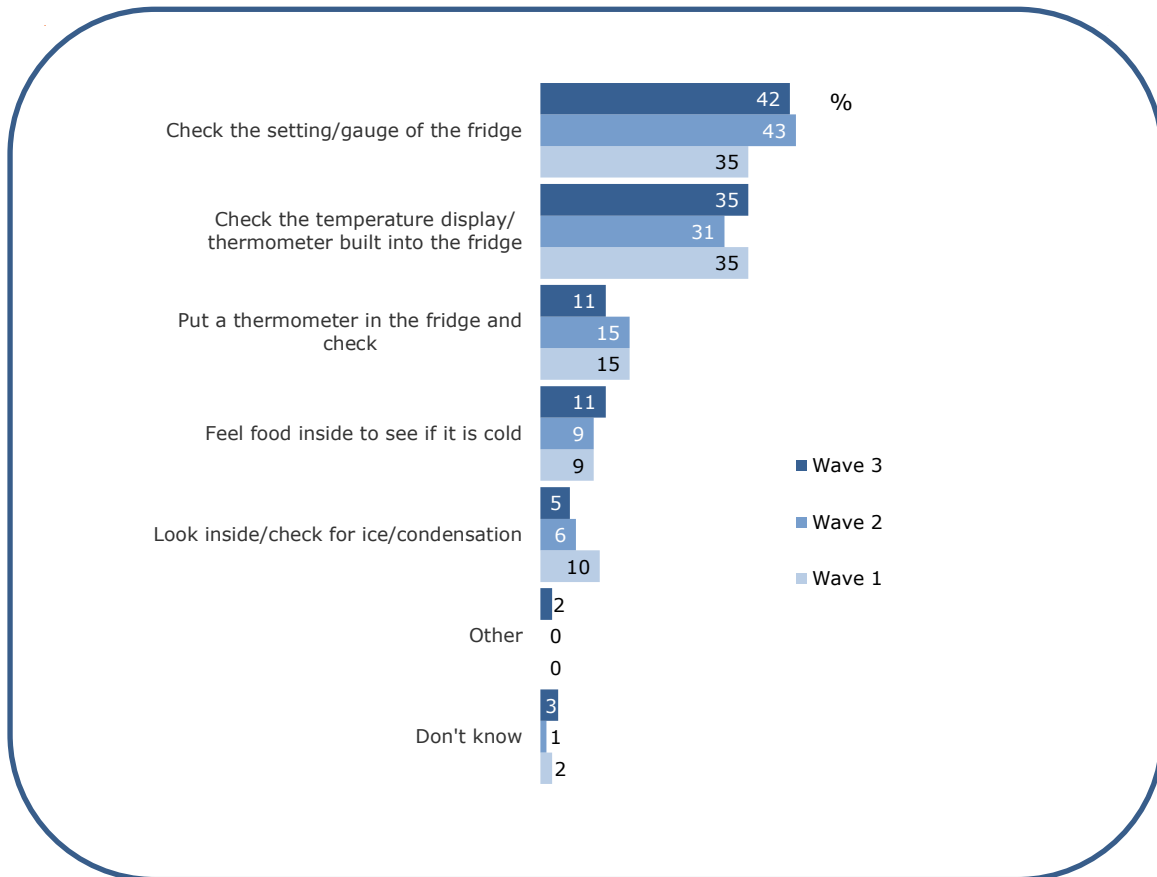
Source: Q4_9 Do you ever check your fridge temperature? & Q4_10 How often do you or another person in your household check the temperature of the fridge?

Base: Q4_9 All Scotland respondents - Wave 1 (511); All Scotland respondents who have a fridge in their household - Wave 2 (503); Wave 3 (469) & Q4_10 All Scotland respondents who check their fridge temperature – Wave 1 (224); Wave 2 (209); Wave 3 (237)

The FSA recommends that fridge temperatures are checked regularly and that the temperature is kept between 0-5°C to help stop food poisoning bacteria such as *Listeria monocytogenes* from growing in food.

- Of respondents who had a fridge, 53% reported that they or someone else checked the temperature, compared with 45% at Wave 2 and 44% at Wave 1. Forty-five per cent reported that they never checked their fridge temperature, similar to Wave 2, and around four in ten (44%) said they checked it themselves.
- A minority of respondents (three per cent) said they did not need to check their fridge temperature as their fridge had an alarm if it was too hot or cold.
- Around seven in ten respondents (72%) who checked their fridge temperature said that they did so at least once a month, in line with recommended practice, similar to proportion at Waves 1 and 2. Forty-one per cent said that they checked at least once a week and 15% said that they checked at least daily.

Figure 4.3 How fridge temperature is checked (Waves 1, 2 and 3)



Source: Q4_11 Still thinking about fridge temperatures, can you tell me how you normally check the temperature?

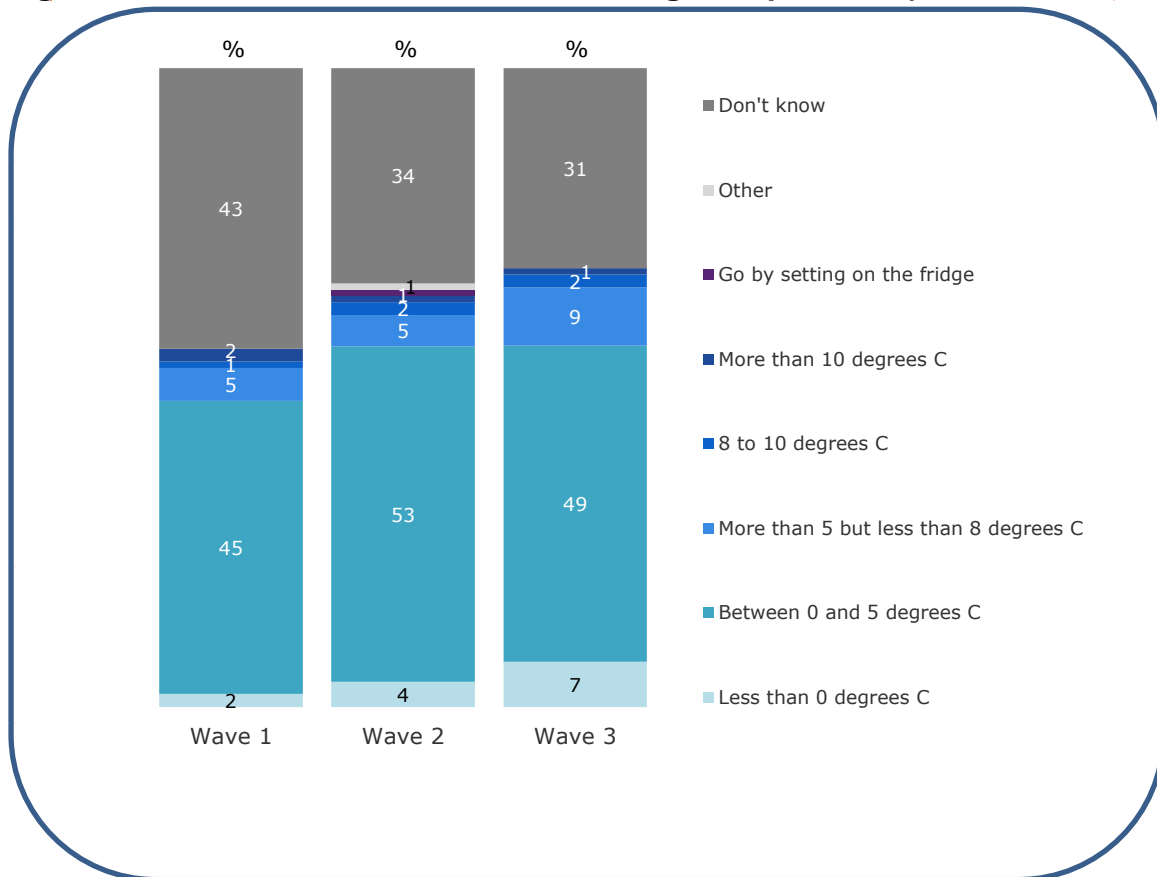
Note: respondents were able to give multiple answers

Note: responses to Q4_11 were given spontaneously, with no prompted response list shown to respondents.

Base: All Scotland respondents who do not have a fridge alarm - Wave 1 (221); Wave 2 (207); Wave 3 (234)

- Respondents who reported checking their fridge temperature, but did not have an alarm, were asked how they normally checked it. The findings were similar to those at Waves 1 and 2.
- **The use of a thermometer is the recommended method for checking fridge temperature.** Eleven per cent of respondents reported using this method and 35% reported checking the temperature display or thermometer built into the fridge.
- The most common method reported was to check the setting or gauge of the fridge (42%). This is not a recommended method of checking the fridge temperature as these are not usually an indication of temperature.

Figure 4.4 Awareness of recommended fridge temperature (Waves 1, 2 and 3)



Source: Q4_12 What do you think the temperature inside your fridge should be?

Note: responses to Q4_12 were given spontaneously, with no prompted response list shown to respondents.

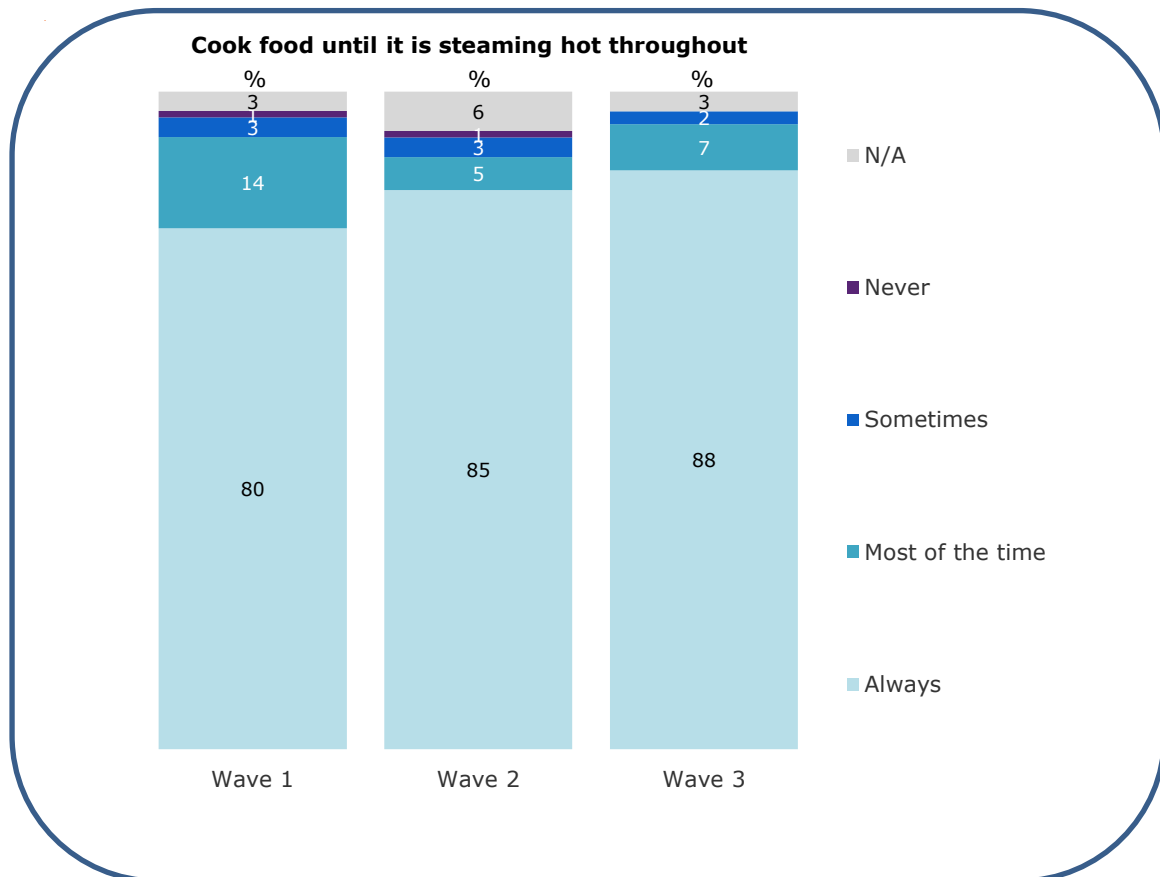
Base: All Scotland respondents - Wave 1 (511); All Scotland respondents with a fridge in their household - Wave 2 (503); Wave 3 (469)

- When asked what respondents thought the temperature inside the fridge should be, 49% said the fridge temperature should be between 0°C and 5°C (the recommended temperature). This was similar to the proportions reporting this at Waves 1 and 2.
- Thirty-one per cent of respondents at Wave 3 reported that they did not know what the fridge temperature should be, similar to the proportion at Wave 2 and compared with 43% at Wave 1. Other respondents gave a range of answers, with more providing a response above the recommended temperature range than below the recommended range.
- In total 12% of respondents who had a fridge reported behaviours in line with FSA recommended practice for checking that their fridge temperature remains between 0°C and 5°C at least monthly using a thermometer.

5. Practices relating to the '4 Cs' – Cooking

5.1 Cooking food until steaming hot

Figure 5.1 Frequency of cooking food until it is steaming hot throughout (Waves 1, 2 and 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently?

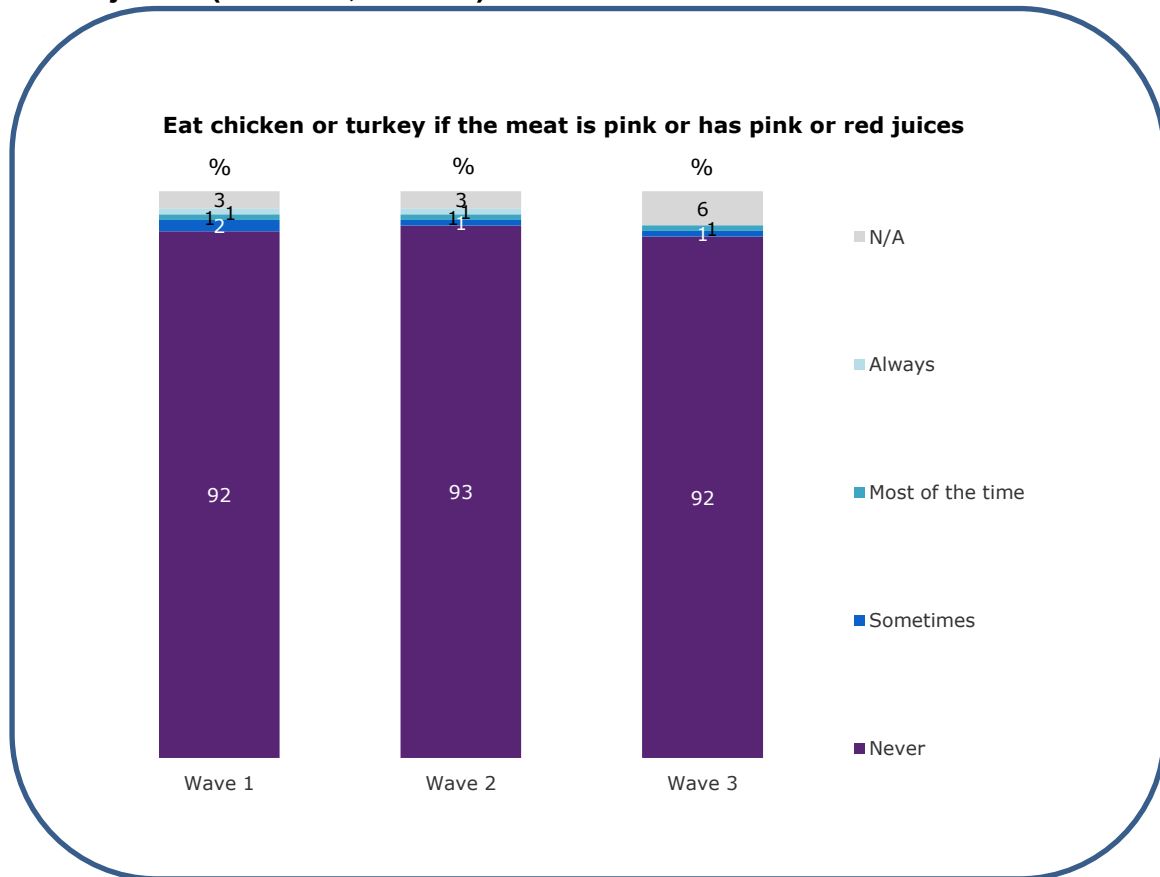
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475)

The FSA recommends that all food is cooked until it is steaming hot throughout.

- At Wave 3, 88% of respondents reported that they always cooked food until it was steaming hot throughout, similar to the proportion at Wave 2 and compared with 80% at Wave 1.

5.2 Cooking and eating meat, poultry, sausages or burgers

Figure 5.2 Frequency of eating chicken or turkey if the meat is pink or has pink or red juices (Waves 1, 2 and 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently?

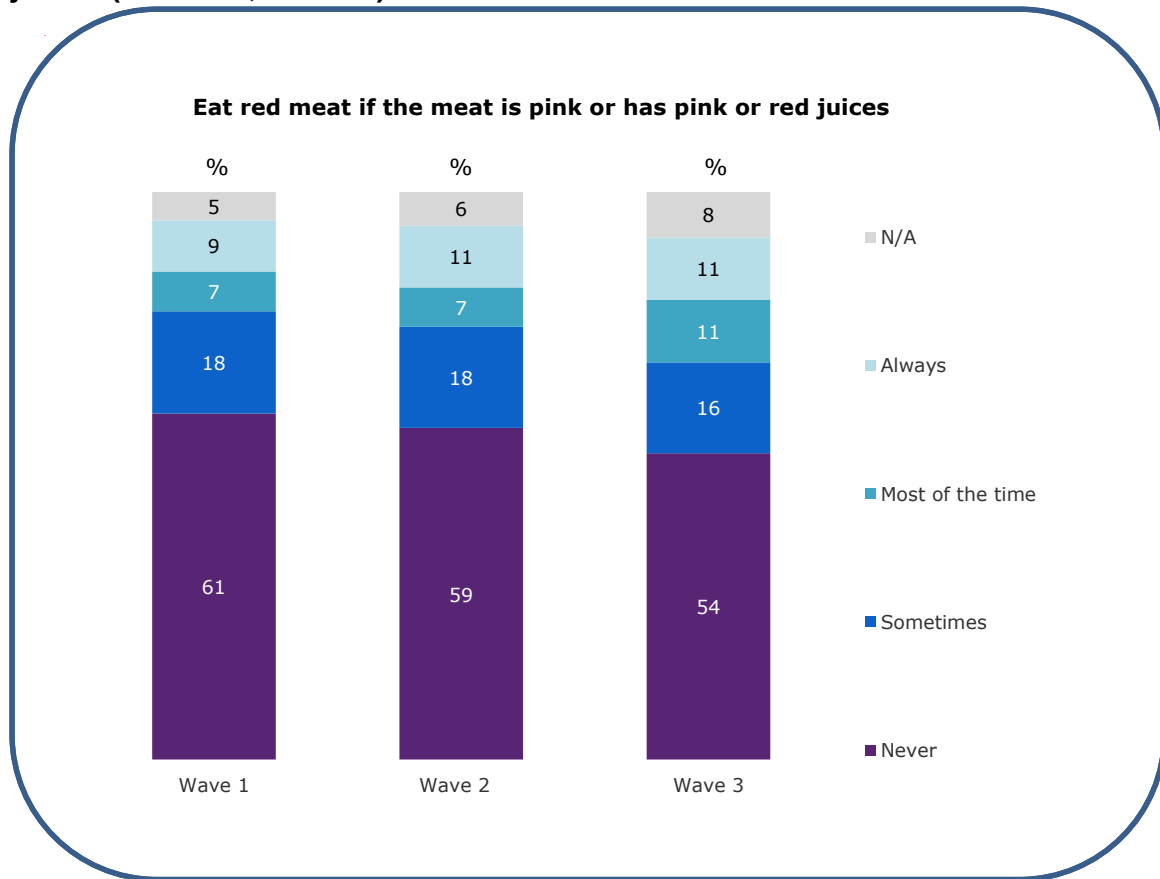
Base: All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475)

The FSA advises that poultry and game such as chicken, turkey, duck and goose, and other meats including pork, burgers, sausages and kebabs should be properly cooked all the way through, that is, they are not pink and have no pink or 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 outside¹³.

- Two per cent of respondents reported eating chicken or turkey if the meat was pink or had pink or red juices.
- Ninety-two per cent of respondents reported that they never ate chicken or turkey if the meat was pink or had pink or red juices, similar to the proportions reported at Waves 1 and 2.

¹³ 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.

Figure 5.3 Frequency of eating red meat, if the meat is pink or has pink or red juices (Waves 1, 2 and 3)

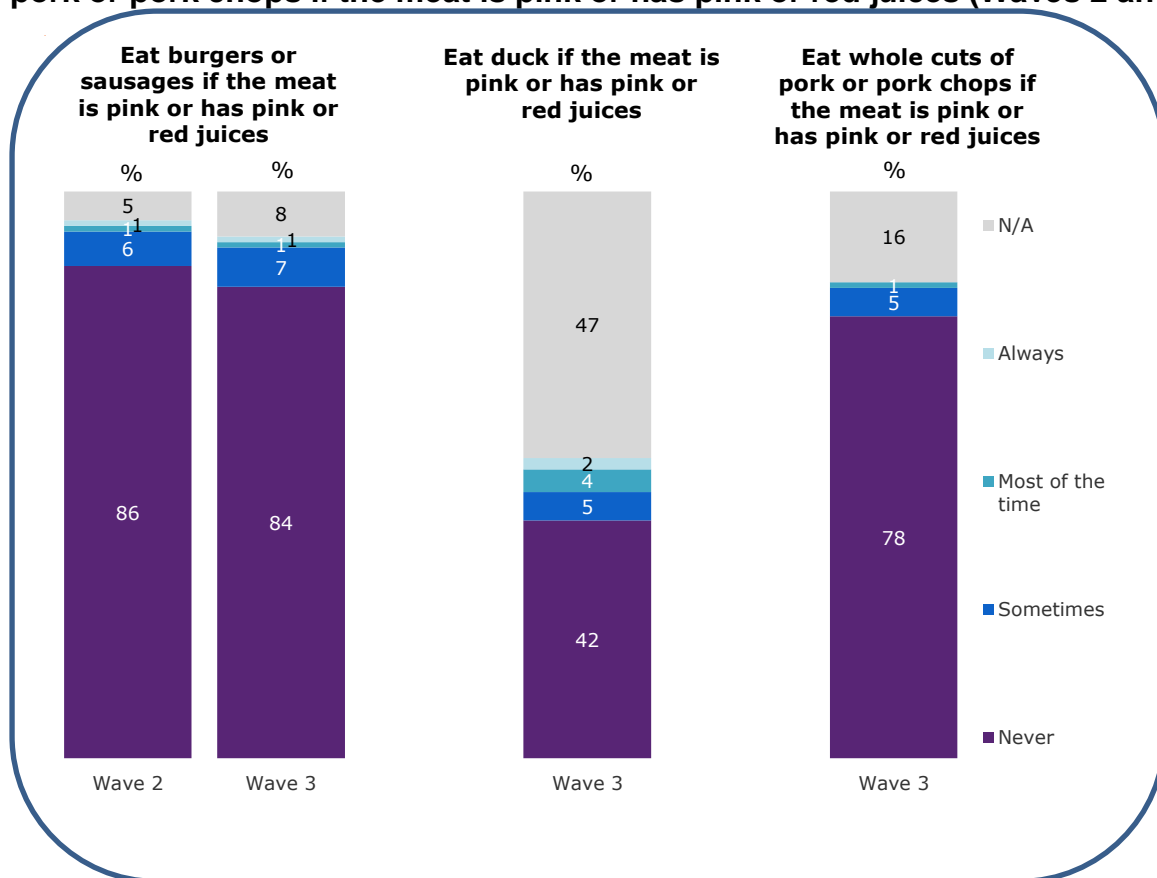


Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently?

Base: All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475)

- For red meat, 11% of respondents said they always ate red meat if it was pink or had pink or red juices, and 54% reported that they never did, similar to Waves 1 and 2.

Figure 5.4 Frequency of eating burgers or sausages, duck, or whole cuts of pork or pork chops if the meat is pink or has pink or red juices (Waves 2 and 3)



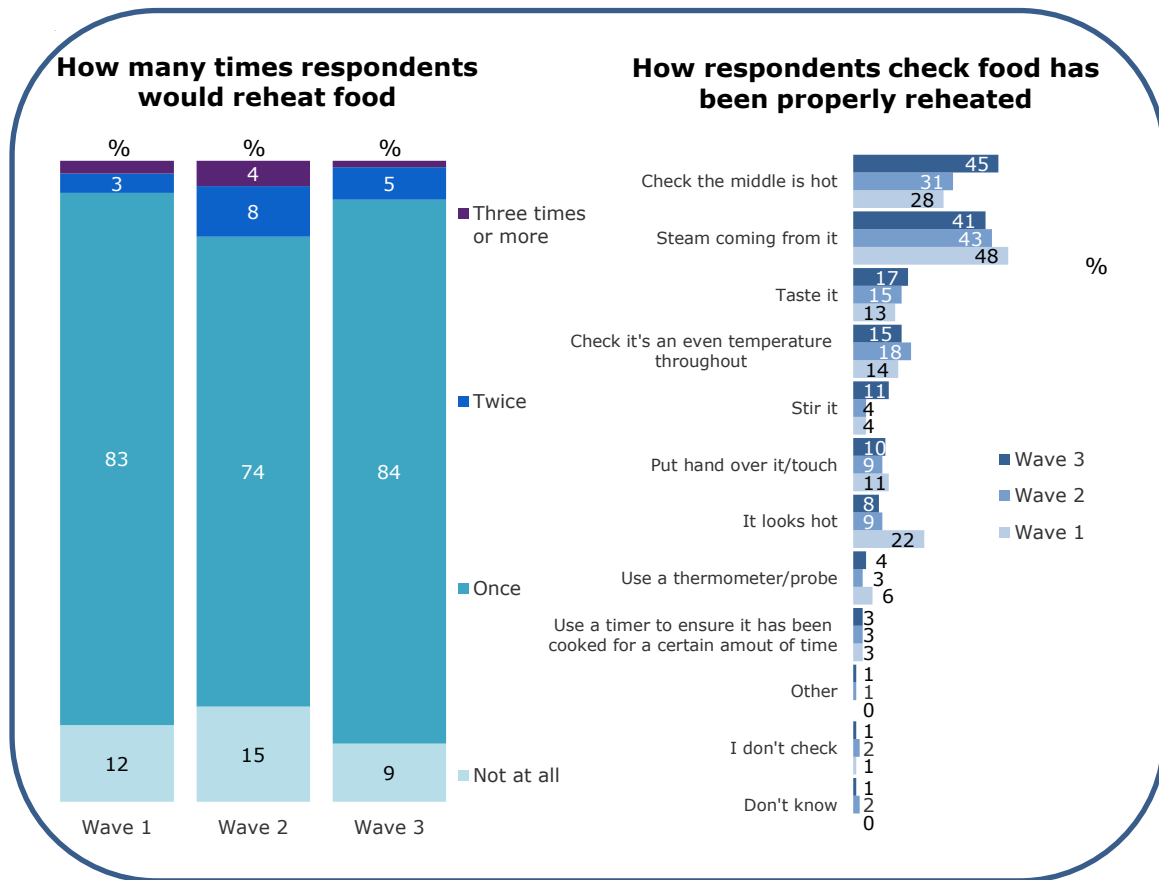
Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently?

Base: All Scotland respondents - Wave 2 (507); Wave 3 (475) (Questions only asked at Waves shown in Figure 5.4)

- Eighty-four per cent of respondents reported that they never ate burgers or sausages if the meat was pink or had pink or red juices. Eight per cent of respondents reported that they ate burgers or sausages at least sometimes if the meat was pink or had pink or red juices. These findings were similar to those at Wave 2.
- Forty-two per cent of respondents reported never eating duck if the meat was pink or had pink or red juices, and 47% said that this question was not applicable to them. In total, 12% said they did eat duck with pink meat or pink or red juices at least some of the time.
- Around four in five respondents said they never ate pork if it was pink or had pink or red juices (78%) and six per cent said they did this at least some of the time.

5.3 Reheating

Figure 5.5 Reheating food (Waves 1, 2 and 3)



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? (answers given by more than one per cent of respondents shown)

Note: respondents were able to give multiple answers to Q4_26

Note: responses to both questions were given spontaneously, with no prompted response list shown to respondents

Base: Q4_25 All Scotland respondents who have leftovers - Wave 1 (460); Wave 2 (455); Wave 3 (430) & Q2_46 All Scotland respondents who have leftovers and would consider re-heating - Wave 1 (404); Wave 2 (391); Wave 3 (385)

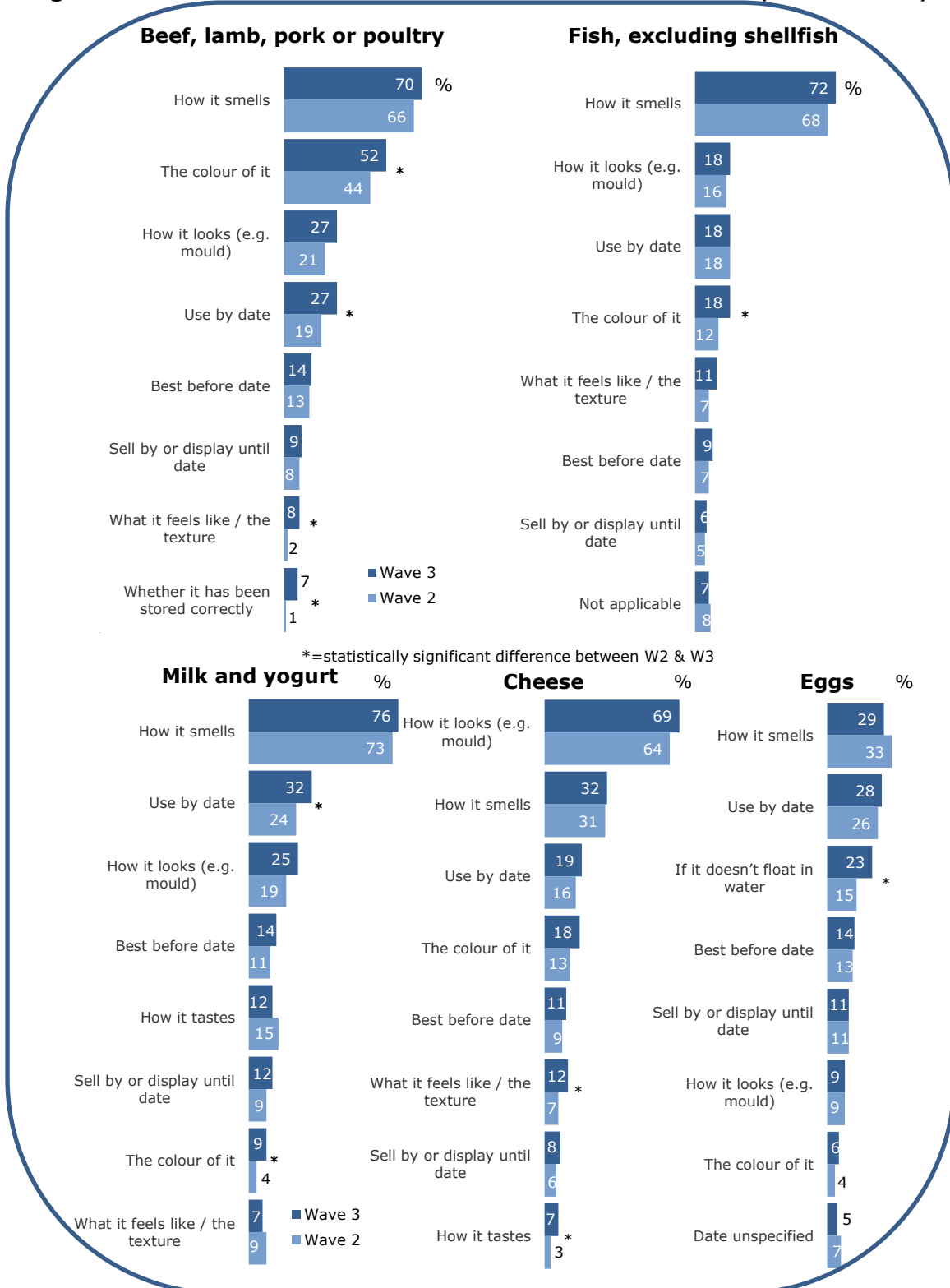
The FSA recommends that leftovers should not be reheated more than once and should be steaming hot throughout before serving.

- Eighty-four per cent of respondents reported that they would only re-heat food once, and nine per cent said they would not re-heat food at all.
- Six per cent of respondents reported that they would re-heat food twice or more, compared with 11% at Wave 2.

- Forty-five per cent of respondents reported testing if food had been properly reheated by checking if the middle is hot, which was the most commonly reported method. This was higher than the proportion reporting doing this at Wave 1 (28%) and Wave 2 (31%). At Waves 1 and 2 the most commonly reported method was checking if there was steam coming out of the food. Forty-one per cent reported this method at Wave 3, which was similar to the proportions at Waves 1 and 2.
- A minority of respondents (one per cent) reported that they did not check to see if food had been re-heated properly.

6. Methods used to tell whether food is safe to eat

Figure 6.1 Methods used to tell whether food is safe to eat (Waves 2 & 3)



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? Note: respondents were able to give multiple answers / only responses of five per cent or more are shown; Responses were given spontaneously, with no prompted response list shown to respondents. Base: All Scotland respondents - Wave 2 (507); Wave 3 (475) (Questions not asked at Wave 1)

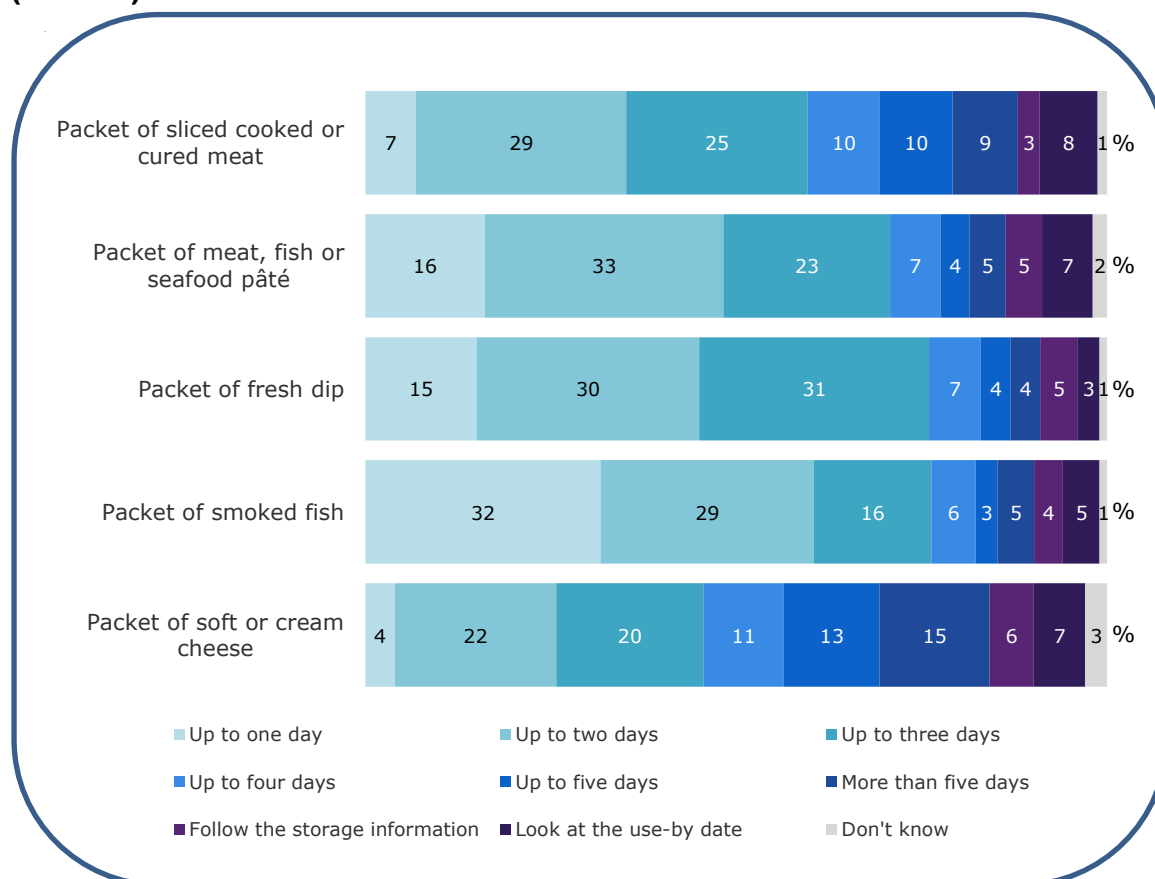
The FSA recommends that even if food looks and smells fine, the use by date is the best indicator of whether food is safe to eat¹⁴.

- How food smelled was one of the most common ways respondents said they used to tell whether a food was safe to eat, and was the most commonly reported method for meat, fish, milk or yoghurt, and eggs.
- For example, around three-quarters (76%) of respondents reported that they used this method when checking whether milk or yoghurt was safe to eat, 72% used smell as an indicator for fish and 70% for meat.
- How food looks (for example the appearance of mould) was the most common practice (reported by 69% of respondents) for telling whether cheese was safe to eat. For meat, colour was the second most frequently reported method (reported by 52% of respondents).
- Use by dates were also mentioned as an indicator of whether food was safe; 32% of respondents reported that they used them for checking milk or yoghurt, 28% said they used them for checking eggs and 27% for checking meat. The use by date was reported less often for checking cheese (19%) and fish (18%).
- Use by dates were mentioned more frequently for checking meat at Wave 3 than at Wave 2 (27% compared with 19% at Wave 2), and for checking milk and yoghurt (32% compared with 24%).
- Colour was also more frequently mentioned at Wave 3 than at Wave 2 as a method of telling whether meat was safe (52% compared with 44%), checking whether fish was safe (18% compared with 12%) and checking whether milk and yoghurt were safe (nine per cent compared with four per cent).
- Twenty-three per cent of respondents said that they checked whether eggs floated in water to tell whether they were safe to eat, compared with 15% at Wave 2.
- For each food asked about, one per cent of respondents or less reported that they used food on the day it was bought or bought it fresh so that they knew it was safe to eat.

¹⁴ It is worth noting that eggs and some dairy products have a best before date instead of a use by date.

6.1 Storage information

Figure 6.2 Maximum time respondents would eat / use food after opening it (Wave 3)



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 it?

Note: responses to Q4_23A were given spontaneously, with no prompted response list shown to respondents

Base: All Scotland respondents, excluding those who do not eat / use each food item¹⁵ – Packet of sliced cooked or cured meat (442); Packet of meat, fish or seafood pâté (352); Packet of fresh dip (351); Packet of smoked fish (288); Packet of soft or cream cheese (365)

The FSA recommends storing opened foods in the fridge and using within two days, unless the manufacturer's instructions state otherwise.

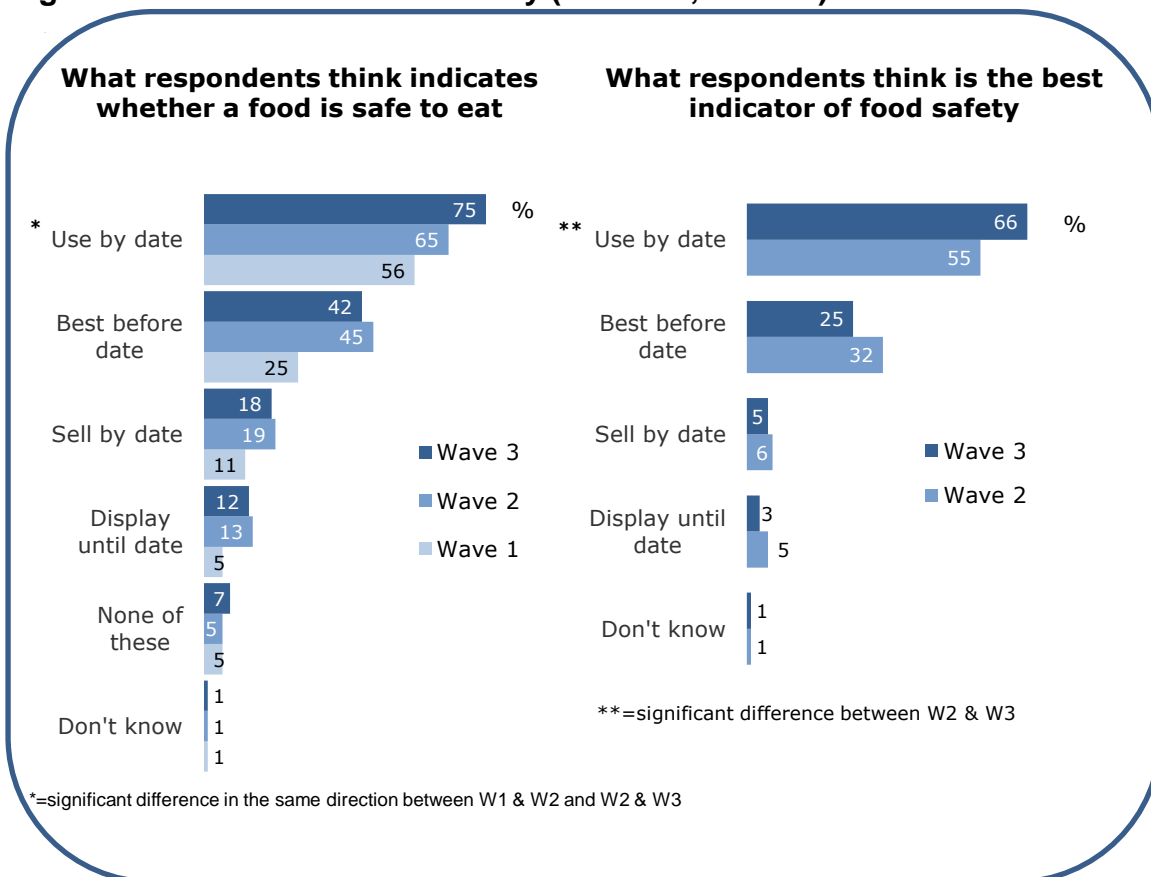
- Among those who reported eating specific foods, respondents were most likely to report that they consumed smoked fish (60%) within two days of opening.
- Respondents who reported eating these foods were least likely to report consuming soft cheese and sliced meat within two days of opening (reported by 27% and 35% respectively) and most likely to say they would eat them after more than two days (54% and 59% respectively).

¹⁵ All respondents were asked about all food items, but were given the option to state that they did not eat / use each. These respondents have been removed from the data reported here, so that it reflects only those reporting they actually use each item, making it easier to make comparisons across the different food types. Out of all respondents, seven per cent said they did not eat / use packets of sliced cooked or cured meat, 35% did not eat / use packets of meat, fish or seafood pâté, 26% did not eat / use packets of fresh dip, 39% did not use packets of smoked fish and 23% did not eat / use packets of soft or cream cheese.

- A minority of respondents reported that they would look at the use by date or follow the storage information on the product. Between three and eight per cent of respondents who said they ate each product stated they would look at the use by date and between three and six per cent stated that they would follow storage information.
- The findings were largely similar to those at Wave 2, although some variation was observed. Respondents were more likely to say they would follow the storage information on smoked fish than at Wave 2 (four per cent compared with one per cent). Respondents at Wave 3 were more likely to say they would keep soft or cream cheese for up to four or five days than at Wave 2 (24% compared with 15%) and less likely to say they would only keep it up to one day (four per cent compared with 12% at Wave 2).

6.2 Use by and best before dates

Figure 6.3 Indicators of food safety (Waves 1, 2 and 3)



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?

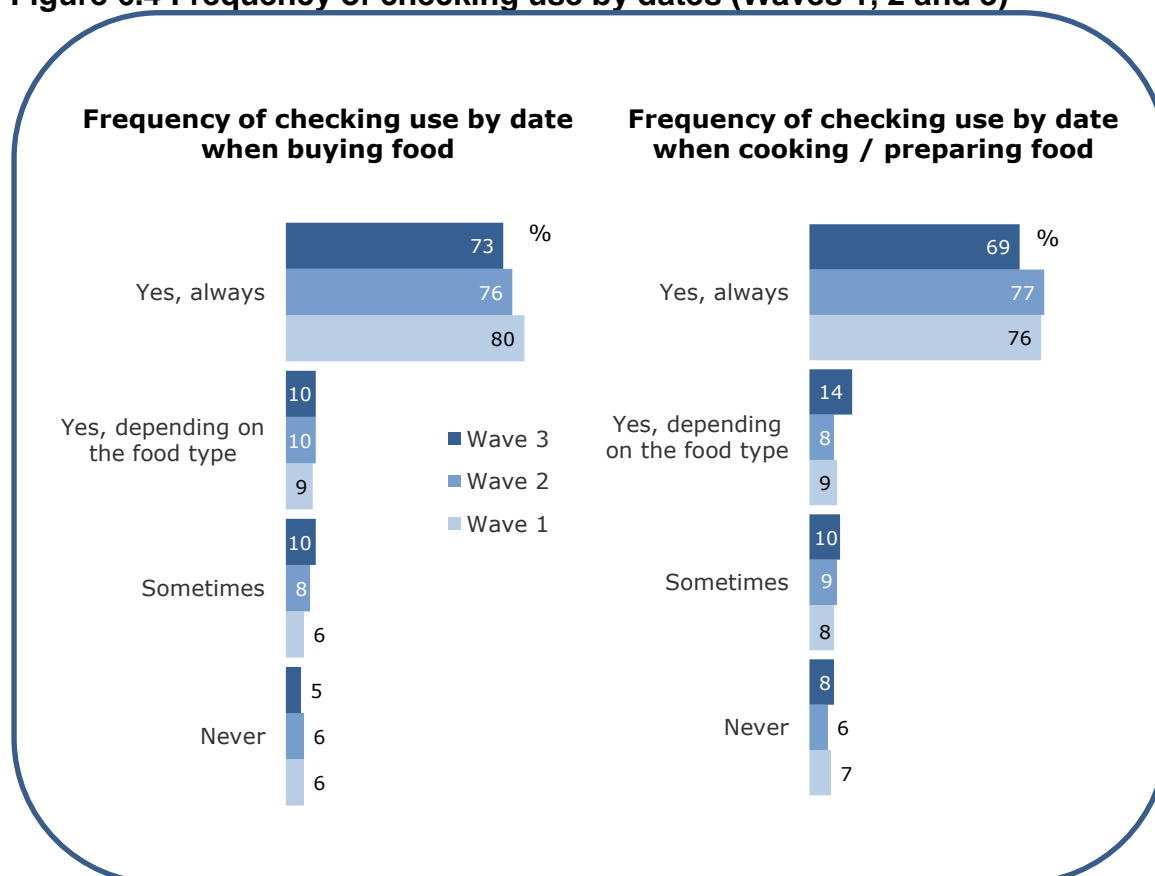
Note: respondents were able to give multiple answers at Q4_19

Base: Q4_19 All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475) & Q4_19b All Scotland respondents - Wave 2 (507); Wave 3 (475) (Q4_19b not asked at Wave 1)

The FSA recommends 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.

- Three-quarters of respondents (75%) cited use by dates as an indicator of whether food was safe to eat, compared with 65% at Wave 2 and 56% at Wave 1.
- However, the proportion of respondents who *only* mentioned the use by date (46%) was similar to that at Waves 1 (38%) and 2 (39%).
- Ten per cent of respondents mentioned all four options (use by, best before, sell by, display until dates) as indicators of whether food is safe to eat.
- Respondents were then asked which one of the four dates was the best indicator of food safety; 66% selected the use by date (compared with 55% at Wave 2) while 25% selected the best before date.

Figure 6.4 Frequency of checking use by dates (Waves 1, 2 and 3)

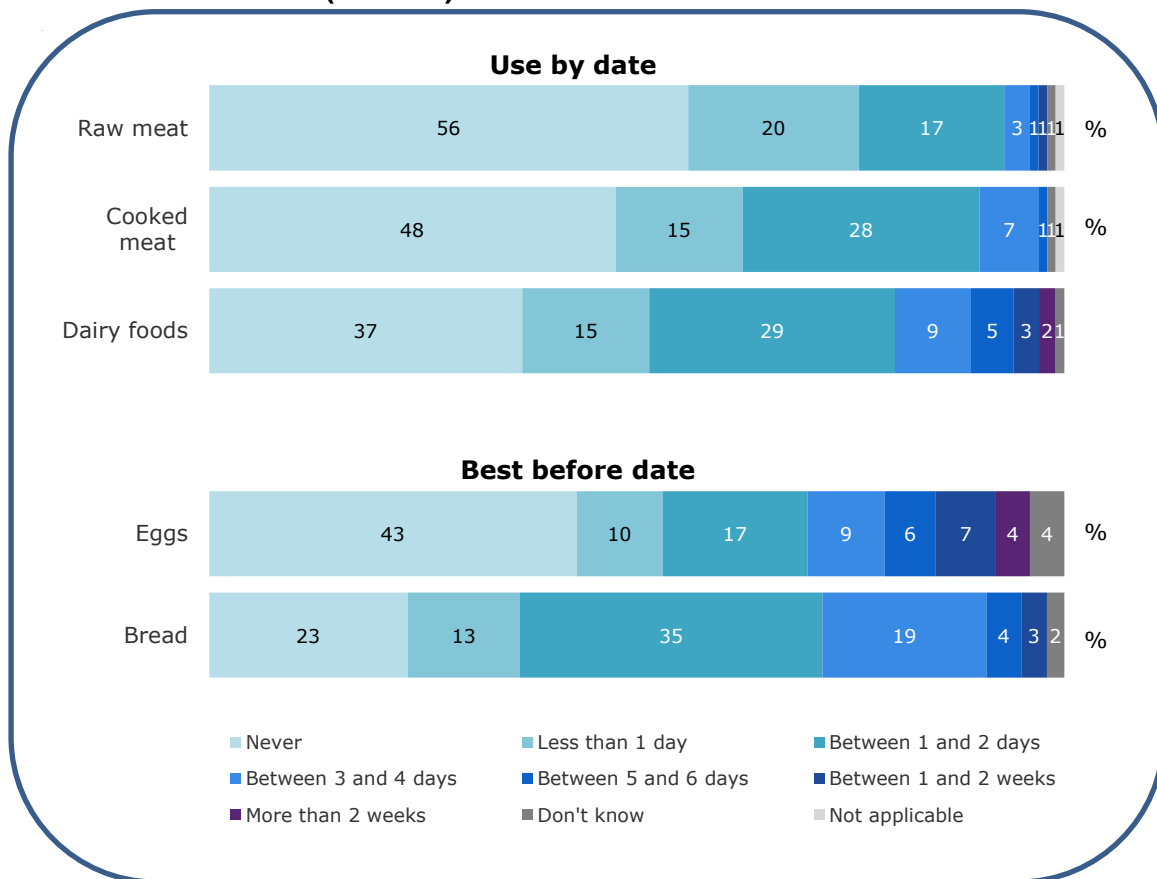


Source: Q4_21 Do you check use by dates when you are buying food? & Q4_22 Do you check use by dates when you are about to cook or prepare food?

Base: All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475)

- When asked if they checked use by dates when buying food, 73% of respondents reported that they always did this regardless of food type and 10% reported that they checked use by dates when buying food depending on food type, similar to the proportions at Waves 1 and 2.
- Five per cent of respondents at Wave 3 reported that they never checked use by dates when buying food, similar to the proportions at Waves 1 and 2.
- The proportion of respondents who reported checking use by dates when cooking or preparing food was similar to that for buying food, with 69% saying they always checked the date, compared with 77% at Wave 2. Fourteen per cent said it depended on food type, compared with eight per cent at Wave 2.
- Eight per cent of respondents reported that they never checked the use by date when cooking or preparing food.
- Overall around six in ten respondents (64%) reported behaviours in line with FSA recommended practice for use by dates, stating that the use by date is an indicator of whether food is safe to eat, and that they checked the date when they were about to cook or prepare food.

Figure 6.5 Maximum time after use by date / best before date that respondents would eat / use food (Wave 3)



Source: Q11_6 What is the maximum time after the use by date / best before date that you would use / eat...?
 Note: responses to Q11_6 were given spontaneously, with no prompted response list shown to respondents
 Base: All Scotland respondents (475)

The FSA recommends that foods should be consumed before the specified use by date as it could be dangerous to eat food after this, even though it might look and smell fine.¹⁶

Best before dates appear on food with a longer shelf life. They show how long the food will be at its best quality. Using food after the best before date does not mean it will be unsafe, with the exception of eggs (raw egg must be consumed by the best before date although cooked egg, provided it is cooked thoroughly by the best before date, can be consumed a day or two after the best before date).

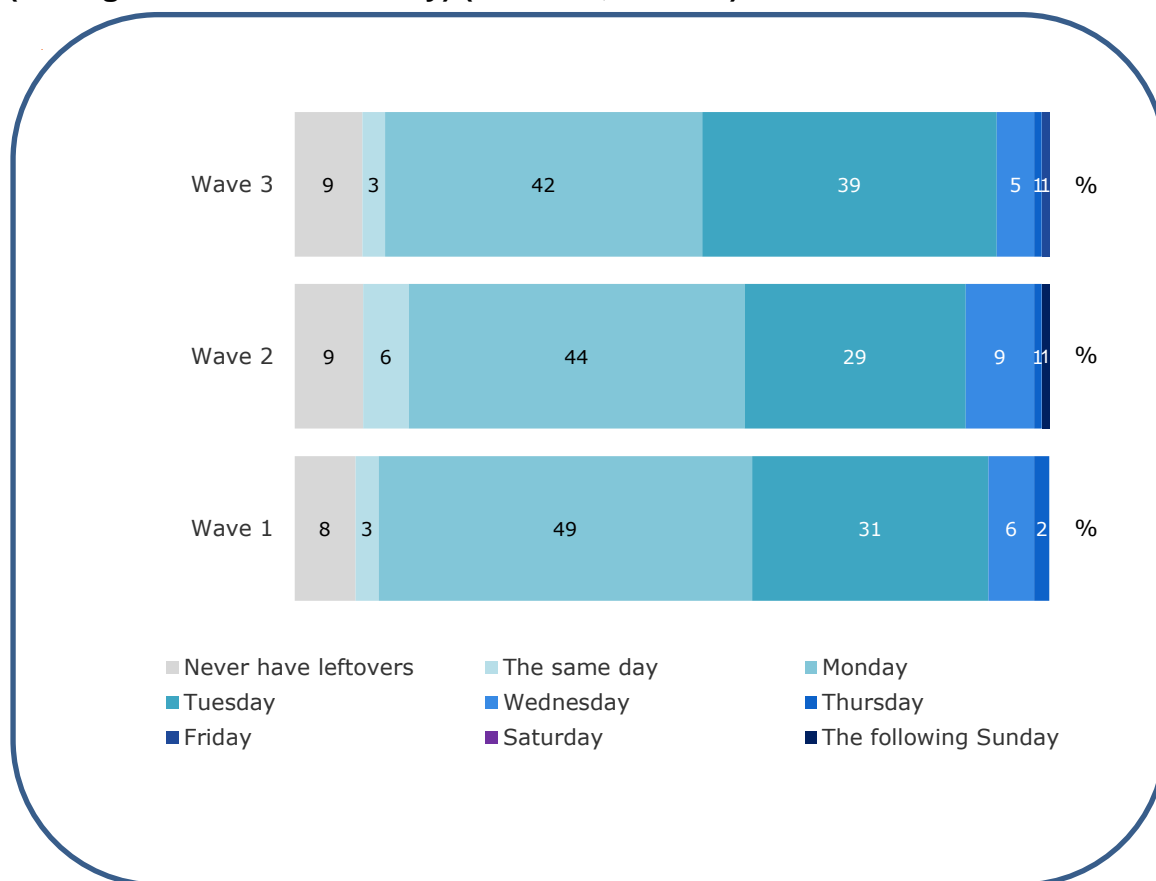
- When asked about bread and eggs, respondents were more likely to report that they would eat them for longer after the recommended date, compared with any other food asked about. For example 26% of respondents said they would eat bread or eggs three days or more after the best before date.

¹⁶ Although dairy foods were asked about with respect to 'use by' dates, current guidelines state that each dairy product should have a date mark which is appropriate for the specific product. Foods which are microbiologically highly perishable or likely to become an immediate danger to human health after a short period of time will have a use by date. Other products may have a best before date. Further detail of these guidelines can be found at the following link: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69316/pb132629-food-date-labelling-110915.pdf

- Eighteen per cent of respondents said they would eat dairy products three days or more after the use by date.
- Respondents were less likely to report that they would eat meat for longer after the recommended date, compared with the other foods asked about. For example, eight per cent of respondents reported that they would eat cooked meat three days or more after the use by date, and five per cent said they would use raw meat three days or more after the use by date.
- Some differences were observed compared with findings at Wave 2. Respondents were less likely to report never eating dairy products and eggs after the use by date and best before date (37% compared with 50% at Wave 2, and 43% compared with 51% at Wave 2 respectively).

6.3 Maximum time for keeping leftovers

Figure 6.6 Last day respondents would consider eating leftovers from a meal (having cooked it on Sunday) (Waves 1, 2 and 3)



Source: Q4_24 If you made a meal on Sunday, what is the last day that you would consider eating the leftovers?

Note: responses to Q4_24 were given spontaneously, with no prompted response list shown to respondents

Base: All Scotland respondents - Wave 1 (511); Wave 2 (507); Wave 3 (475)

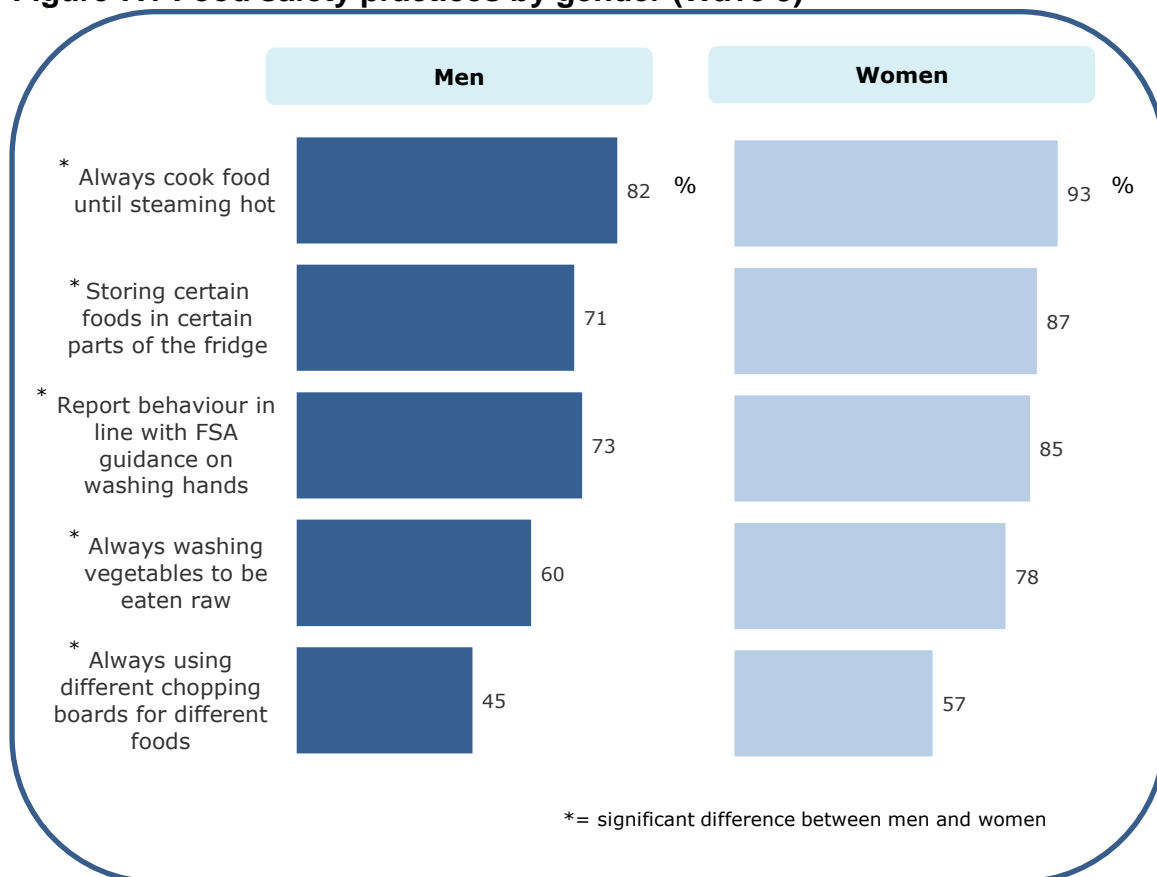
The FSA recommends that leftovers should be used within two days (that is, up to Tuesday if cooked on Sunday).

- Eighty-four per cent of respondents reported that, if they cooked a meal on Sunday, Tuesday would be the last day they would consider eating the leftovers, in line with recommended practice.
- Respondents most commonly reported that they would eat the leftovers by the next day (42%) and 39% reported that they would consider eating them up to two days after cooking the meal, compared with 31% at Wave 1 and 29% at Wave 2.
- Seven per cent reported that they would consider eating the leftovers three days or more after cooking (i.e. Wednesday or after).

7. Variation in food safety practices ('4 Cs' and methods used to tell whether food is safe to eat) by different groups in the population¹⁷

Variation by gender and age, including differences between the survey waves

Figure 7.1 Food safety practices by gender (Wave 3)



Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently; Q4_22 Do you check use by dates when you are about to cook or prepare food?; 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? Q4_1C And which method do you generally use to defrost frozen meat or fish?

Note: Responses to Q4_14 and Q4_15 were given spontaneously, with no prompted response list shown to respondents.

Base: Scotland Men - Wave 3 (205); Scotland Women – Wave 3 (270)

- As at Waves 1 and 2, some reported food safety practices were found to vary by **gender** with women being generally more likely than men to report food safety practices in line with practices recommended by the Agency for:
 - Always washing hands before preparing food (87% of women compared with 77% of men) and after handling raw meat (91% compared with 79%);

¹⁷ The following variables were analysed to identify statistically significant differences: age, gender, and SIMD.

- Always using different chopping boards for different foods (57% compared with 45%);
 - Storing certain foods in certain parts of the fridge (87% compared with 71%);
 - Washing fruit and vegetables (e.g. 78% of women reported always washing vegetables to be eaten raw compared with 60% of men);
 - Storing raw meat and poultry in a covered container in the fridge (40% compared with 28%)¹⁸; and
 - Always cooking food until it is steaming hot throughout (93% compared with 82%).
- Findings at Wave 2 were similar for most practices, however there were some practices related to use by dates where differences by gender were observed at Wave 2 but not at Wave 3 when fewer women reported them. The proportion of women who reported always checking use by dates before cooking was lower at Wave 3 than at Waves 1 and 2 (71% compared with 85% and 82% respectively). Similar findings were observed in relation to the proportion of women reporting they would never eat raw meat, cooked meat and eggs past the use by date or best before date (58% compared with 70% at Wave 2 for raw meat, 48% compared with 60% for cooked meat and 40% compared with 57% for eggs).
- At Wave 3 women were more likely than men to report sometimes washing raw chicken (14% compared with five per cent), which is not in line with recommended practice. There was however no statistically significant difference in the proportion of men and women who reported ever washing raw chicken.
- Variation by **age** was also observed. Younger respondents were less likely than those in other age groups to report some practices in line with recommended practice for food safety. For example:
- Fewer younger respondents reported always washing fruit and vegetables. Twenty-one per cent of respondents aged 16-34 reported always washing fruit that was going to be cooked, compared with 44% of those aged 35 and over. Similarly, just over half (54%) of 16-44 year olds reported always washing vegetables that were going to be cooked compared with around two-thirds (69%) of those aged 45 and over.
 - Fewer younger respondents reported checking their fridge temperature (e.g. 28% of 16-24 year olds ever checked their fridge temperature, compared with 47% of those aged 25 and over)

¹⁸ This difference was not observed at Wave 2.

- For some practices older respondents were less likely than those in other age groups to report practices in line with recommended practice, for example:
 - Less likely to say their fridge temperature should be between 0°C and 5°C (32% of respondents aged 65 and over compared with 55% of 16-64 year olds);
 - Fewer reporting that use by dates are the best indicator of whether food is safe to eat (52% of respondents aged 65 and over compared with 70% of those aged 16-64). This finding was not observed at Wave 2.
 - More reporting never checking the use by date when preparing or cooking food (21% of respondents aged 75 and over compared with six per cent of those aged 16-74); and
 - More reporting that they always washed raw meat or poultry other than chicken (24% of those aged 45 and over compared with 14% of those aged 16-44), always washed raw chicken (40% compared with 23%) or always washed raw fish or seafood (42% compared with 13%).
- For some practices the middle age groups were the most likely to report practices in line with recommended practice. For example:
 - Respondents aged 25-34 were more likely than those in all other age groups to report usually leaving meat and fish in the fridge to defrost (55% compared with 14% of those aged 16-24 and 29% of those aged 35 and over); and
 - Respondents aged 35-74 were most likely to report storing meat on the bottom shelf of the fridge (75% compared with 51% of those aged 75 and over and 58% of 16-34 year olds).
- Other than the differences from Waves 1 and 2 highlighted above, results were similar at Wave 3 to those at Waves 1 and 2 for both age and gender.

Other variation at Wave 3

- Variation was observed by **Scottish Index of Multiple Deprivation** at Wave 3. Respondents living in the most deprived areas were more likely to report some practices in line with recommended practice for food safety, compared with those in less deprived areas, for example:
 - Respondents in more deprived areas (quintiles one to three) were more likely than those in less deprived areas (quintiles four and five) to report usually defrosting raw meat or fish in the fridge (36% compared with 22%).

- Respondents in more deprived areas (quintiles one to three) were more likely than those in less deprived areas (quintiles four and five) to report that they would never eat eggs and bread after the best before date (49% compared with 33% for eggs and 29% compared with 13% for bread).
- However, respondents in the most deprived areas were more likely than those in the least deprived areas to report always washing raw chicken (42% of those in quintile one reported always doing so compared with 19% in quintile five).
- Respondents in more deprived areas (quintiles one and two) were more likely than those in less deprived areas to report never eating red meat pink or when it has pink or red juices (63% compared with 48% in quintiles three to five).

8. Comparisons between Scotland and the rest of the UK

Table 8.1 Food preparation behaviour - % who reported carrying out a food safety practice, by country (Wave 3)

% reporting that they always ...	Scotland	England	Wales	Northern Ireland
Wash hands immediately after handling raw meat, poultry or fish	85%	86%	89% ^{NI}	83%
Wash hands before starting to prepare or cook food	82%	84%	86%	81%
Cook food until it is steaming hot throughout	88% ^{E NI}	82%	86% ^{NI}	78%
Wash vegetables (including salad) which are going to be eaten raw	70%	67%	66%	66%
Wash vegetables which are going to be cooked	62%	61%	60%	64%
Wash fruit which is going to be eaten raw	56% ^W	54% ^W	47%	50%
Use different chopping boards for different foods	51%	49%	49%	46%
Wash fruit which is going to be cooked	38%	42%	36%	39%
<i>Base</i>	<i>(475)</i>	<i>(1,951)</i>	<i>(503)</i>	<i>(524)</i>

Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently.

Note: Respondents were able to give multiple answers

Base: All respondents

NB. E / W / S / NI indicates that the result is statistically significantly higher than the result for the country indicated by the initial

- Respondents living in Scotland were more likely to report that they always cook food until it is steaming hot throughout (88%) compared with those living in England (82%) and Northern Ireland (78%).
- They were more likely to report always washing fruit which is going to be eaten raw (56%) compared with respondents living in Wales (47%).

Table 8.2 Food preparation behaviour - % who reported carrying out a food safety practice, by country (Wave 3)

% reporting that they never ...	Scotland	England	Wales	Northern Ireland
Eat chicken or turkey if the meat is pink or has pink or red juices	92% ^W	92% ^W	87%	93% ^W
Eat burgers or sausages if the meat is pink or has pink or red juices	84%	80%	80%	90% ^{EWS}
Eat whole cuts of pork or pork chops if the meat is pink or has pink or red juices	78%	77%	77%	86% ^{EWS}
Eat red meat (e.g. beef or lamb, steak or roast meat, but not mince) if it is pink or has pink or red juices	54% ^E	46%	48%	60% ^{EW}
Eat duck if the meat is pink or has pink or red juices	42%	43%	43%	57% ^{EW S}
Store open tins in the fridge	79% ^{EW}	70%	71%	78% ^E
Wash raw meat or poultry other than chicken	52% ^{EW}	40%	44%	50% ^E
Wash raw chicken	38%	35%	37%	45% ^E
Wash raw fish or seafood	25%	21%	24%	30% ^E
<i>Base</i>	<i>(475)</i>	<i>(1,951)</i>	<i>(503)</i>	<i>(524)</i>

Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently.

Note: Respondents were able to give multiple answers

Base: All respondents

NB. E / W / S / NI indicates that the result is statistically significantly higher than the result for the country indicated by the initial

- Respondents living in Scotland were more likely to report that they never ate chicken or turkey that is pink or has pink or red juices (92%) compared with those living in Wales (87%). They were also more likely to report never eating red meat that is pink or has pink or red juices (54%) than respondents in England (46%).
- Those in Scotland were less likely to report never eating burgers or sausages (84%), pork (78%), or duck (42%) that is pink or has pink or red juices, compared with respondents in Northern Ireland (90%, 86%, and 57% respectively).
- Respondents living in Scotland were more likely than those in England and Wales to report that they never store open tins in the fridge (79% compared with 70% and 71% respectively) and that they never wash raw meat or poultry other than chicken (52% compared with 40% and 44%)

Table 8.3 Checking fridge temperature, by country (Wave 3)

	Scotland	England	Wales	Northern Ireland
No	45%	47%	52%	53%
Yes	44%	41%	41%	39%
Someone else in the household does	9%	9% ^{W NI}	5%	5%
Net - Yes	53% ^{NI}	50%	46%	44%
I don't need to – it has an alarm if it is too hot or cold	3%	3%	2%	3%
<i>Base</i>	<i>(469)</i>	<i>(1,937)</i>	<i>(496)</i>	<i>(518)</i>

Source: Q4_9 Do you ever check your fridge temperature?

Base: All respondents with a fridge in the household

NB. E / W / S / NI indicates that the result is statistically significantly higher than the result for the country indicated by the initial

- Respondents living in Scotland were more likely to report that they or someone else in their household checks the fridge temperature (53%) compared with respondents living in Northern Ireland (44%).
- When asked what the fridge temperature should be, respondents with a fridge living in Scotland were less likely to say that the fridge temperature should be between 0°C and 5° C (49%) compared with those living in Northern Ireland (62%).
- Respondents in Scotland were more likely to say they stored raw meat and poultry on the bottom shelf of the fridge (68%) compared with respondents in England (59%) and more likely to say they would keep raw meat and poultry in a covered container in the fridge (34%) than respondents in Wales (23%).
- There were no statistically significant differences between Scotland and other countries in whether respondents stored certain types of food in different parts of the fridge.

Table 8.4 Other food safety practices reported, by country (Wave 3)

% reporting ...	Scotland	England	Wales	Northern Ireland
Behaviour in line with recommended practice for use by dates [§]	64%	60%	63%	72% ^{E W S}
Reheat food no more than once	93%	90% ^W	94%	93%
Generally defrost meat and fish in the fridge	31% ^{NI}	31% ^{W NI}	25%	22%
<i>Base</i>	<i>(475)</i>	<i>(1,951)</i>	<i>(503)</i>	<i>(524)</i>

Source: Q4_19/Q4_22 Whether recommended practice (RP) followed for use by dates; Q4_25 How many times would you consider re-heating food after it was cooked for the first time?; Q4_1C Which method do you generally use to defrost frozen meat or fish?

Note: [§]Aware that use by date is an indicator of whether food is safe to eat, and always check use by date before cook and prepare food

Base: All respondents

NB. E / W / S / NI indicates that the result is statistically significantly higher than the result for the country indicated by the initial

- Respondents living in Scotland were less likely to report behaviours in line with recommended practice for use by dates (being aware that the use by date is an indicator of whether food is safe to eat, and always checking the use by date before cooking and preparing food) compared with those living in Northern Ireland (64% compared with 72%).
- Respondents living in Scotland were more likely to report that they generally defrosted meat and fish in the fridge (31%) compared with those living Northern Ireland (22%).