

The 2014

FOOD and YOU

Survey

England Bulletin 2
Food safety in the home

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Food safety in the home

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Official Statistics

The statistics presented in this bulletin meet the requirements of the UK Code of Practice for Official Statistics.¹

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 for England from Wave 3 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 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. In total 1,951 interviews were conducted in England, on which this report is based. Wave 3 builds on and extends the previous findings.

The key findings for England from Wave 3 have been published in four 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

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

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

Background and objectives

Role of the FSA

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.

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 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. Waves 2 and 3, therefore, focussed solely on food safety issues for respondents in England and Wales. This bulletin covers the UK wide food safety questions asked to respondents living in England. Separate bulletins have been published for each UK country, as well as a bulletin of the UK results as a whole⁷.

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.

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 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

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>

⁷ www.food.gov.uk/food-and-you

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 in general and to the changed context resulting from removing the 'healthy eating' questions in particular. 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 Report⁸ 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 among those living in England at this initial stage of data analysis. The identified variables were: age, gender, English region⁹ and Index of Multiple Deprivation¹⁰ (IMD). Variation by age and gender has been considered across the three waves, while only Wave 3 data was examined for variation by English region and IMD. Full data are available in the UK Data Archive¹¹ and at data.gov.uk¹² for further analysis.

⁸ <http://www.food.gov.uk/sites/default/files/food-and-you-2014-uk-bulletin-technical-report.pdf>

⁹ English region is the geographical unit formerly referred to as Government Office Region (GOR). It comprises the following nine regions, built up of complete counties/unitary authorities: North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East of England, London, South East and South West.

¹⁰ IMD is a measure of area deprivation which considers deprivation across income, employment, health and disability, education, crime, barriers to housing and services, and living environment. Areas are grouped into quintiles based on their 2010 Index of Multiple Deprivation (IMD) score, with quintile 1 the most deprived areas across England and quintile 5 the least deprived areas.

¹¹ <http://www.data-archive.ac.uk/>

¹² <http://data.gov.uk/>

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.

Avoiding Cross Contamination

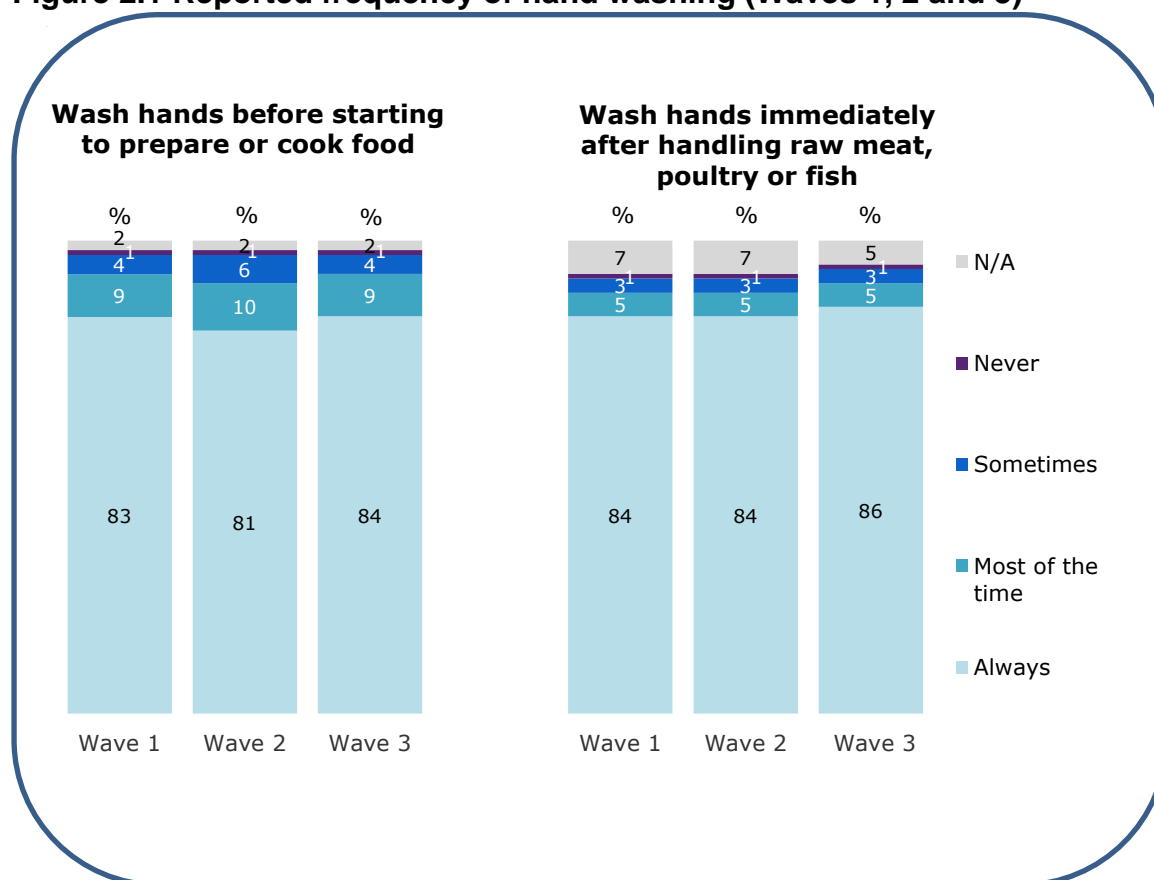
Cross contamination, or the transfer of bacteria from raw foods to ready-to-eat foods, can happen in several ways, including:

- 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 England respondents – Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

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.

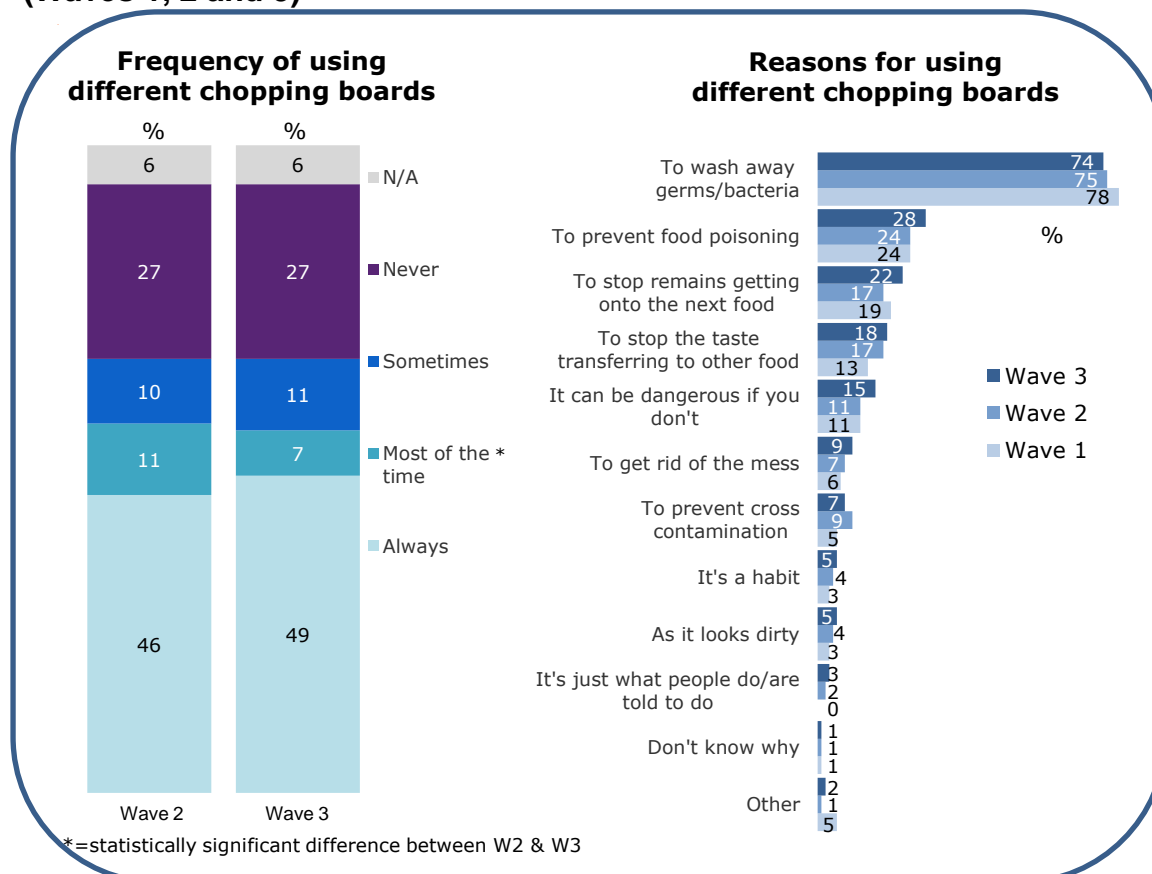
- Overall, 84% of respondents reported always washing their hands before starting to prepare or cook food, and 97% reported that they did this at least some of the time. These proportions were similar to those at Waves 1 and 2.
- The majority of respondents (86%) reported always washing their hands immediately after handling raw meat, poultry or fish, similar to the proportion at Waves 1 and 2.
- One per cent of respondents said they never washed their hands before preparing or cooking food and one per cent said they never washed their hands immediately after handling raw meat, poultry or fish.

- In total, 80% 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 England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951) (Q4_1 not asked 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 (49%) of respondents said they always used different chopping boards for different foods, whilst 27% said that they never did, similar to the proportions at Wave 2.
- At Wave 3, 56% of respondents reported using different chopping boards always or most of the time, similar to the proportion at Wave 2 (57%).

- As at Wave 2, around three-quarters of respondents (74%) 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 reason underpinning recommended practice.
- Twenty-eight per cent of respondents reported that the reason for washing a chopping board was to prevent food poisoning, compared with 24% at Waves 1 and 2. Seven per cent said it was to prevent cross-contamination, compared with five per cent at Wave 1. 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 15%, compared with 11% at Waves 1 and 2.
- Other reasons commonly cited were to stop the taste transferring to other food (18%, compared with 13% at Wave 1) and to stop remains from getting onto the next food (22%, compared with 17% at Wave 2). These are not reasons which underpin recommended practice.

3.2 Food storage in the fridge

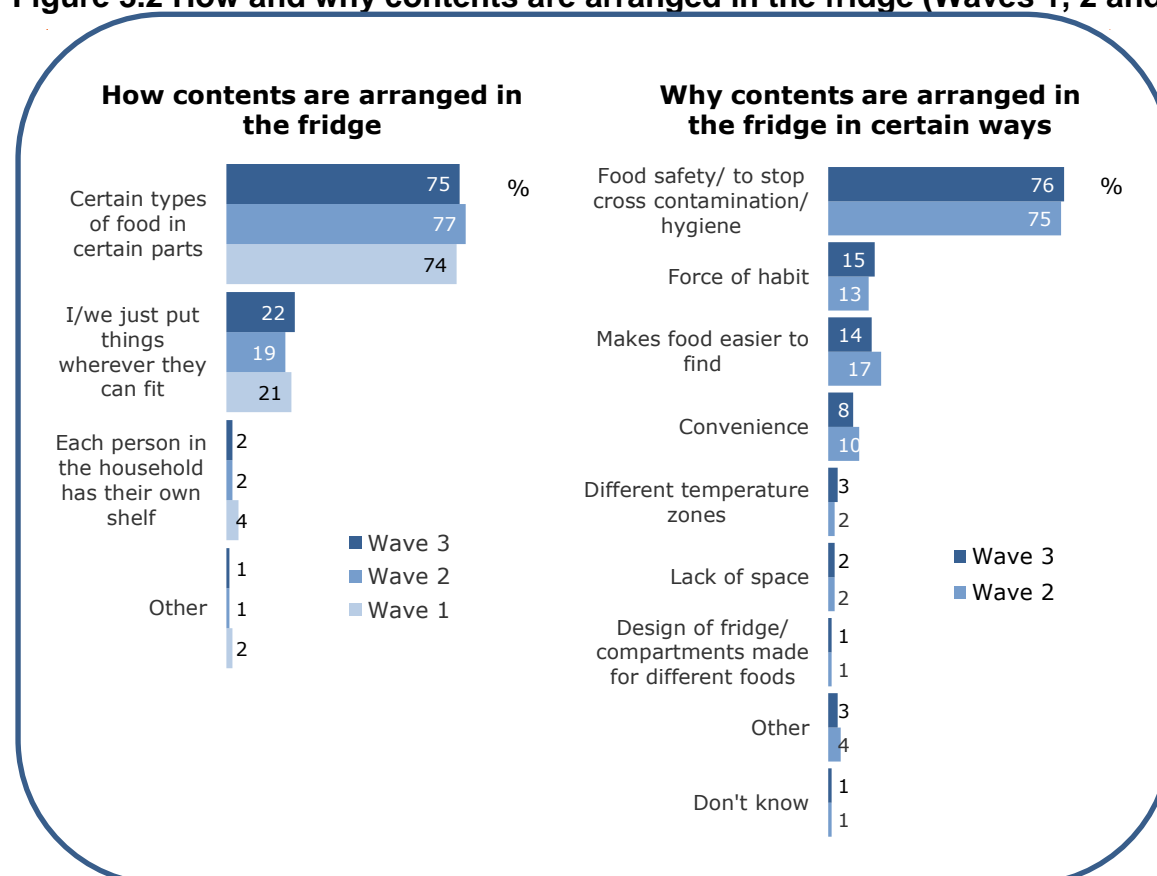
The FSA advises that raw meat should be stored separate from ready-to-eat food and that raw meat and poultry should be stored in sealed containers at the bottom of the fridge, to avoid dripping onto other food.

The image below illustrates the FSA's advice on how food can be safely stored in the fridge¹³.



¹³ <http://www.food.gov.uk/northern-ireland/nutritionni/niyoungpeople/survivorform/dontgetsick/chilling>

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?

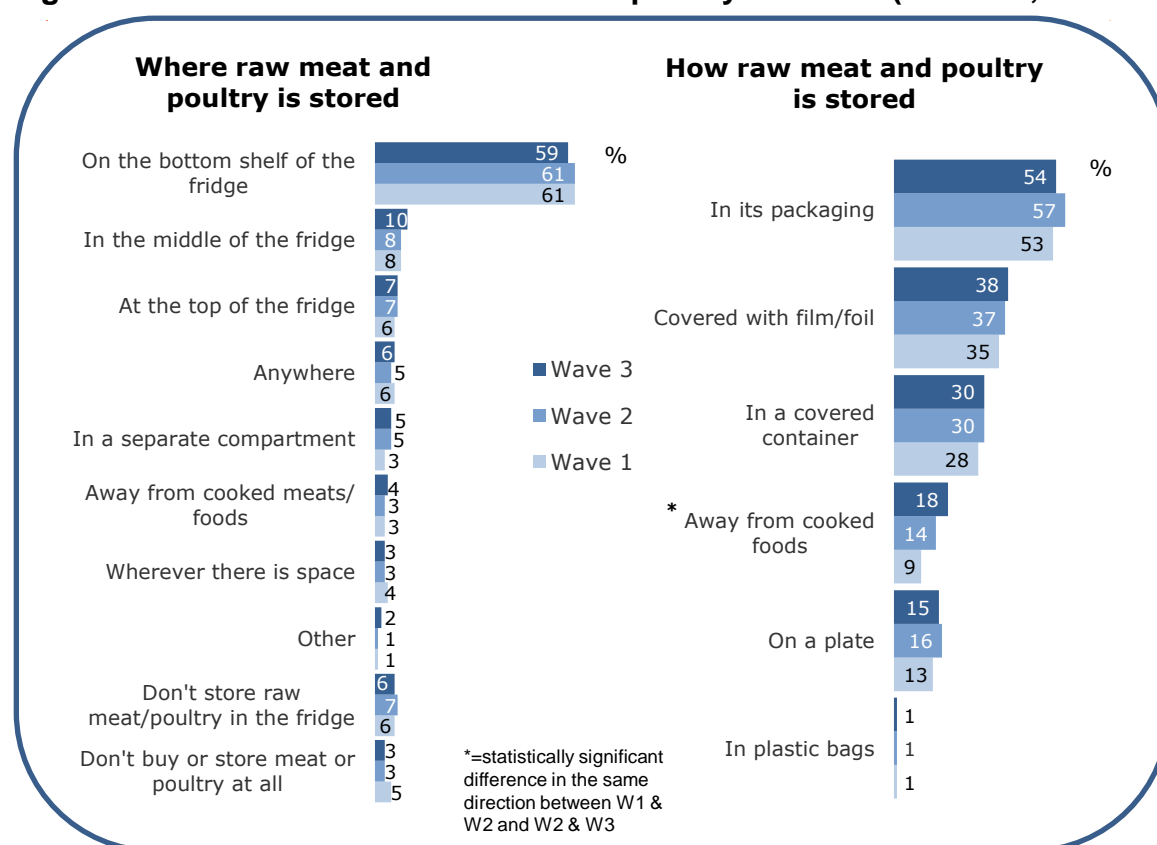
Note: respondents were able to give multiple reasons in answer to Q4_13a

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

Base: Q4_13 All England respondents – Wave 1 (2,025); All England respondents who have a fridge in their household – Wave 2 (2,105); Wave 3 (1,937); Q4_13a All England respondents who always keep certain types of food in certain parts of the fridge – Wave 2 (1,636); Wave 3 (1,482) (Q4_13a not asked at Wave 1)

- When asked how they arranged the contents of their fridge, three-quarters (75%) of respondents said they always kept certain types of food in a specific part of the fridge while 22% said they just put things wherever they fit.
- Of those who said they kept certain foods in certain parts of the fridge, 76% said they did so for reasons of food safety, hygiene or to stop cross contamination. Force of habit was chosen by 15%.

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 to both questions

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

Base: Q4_14 All England respondents - Wave 1 (2,025); All England respondents who have a fridge in their household – Wave 2 (2,105); Wave 3 (1,937) & Q4_15 All England respondents who store raw meat and poultry - Wave 1 (1,802); Wave 2 (1,889); Wave 3 (1,753)

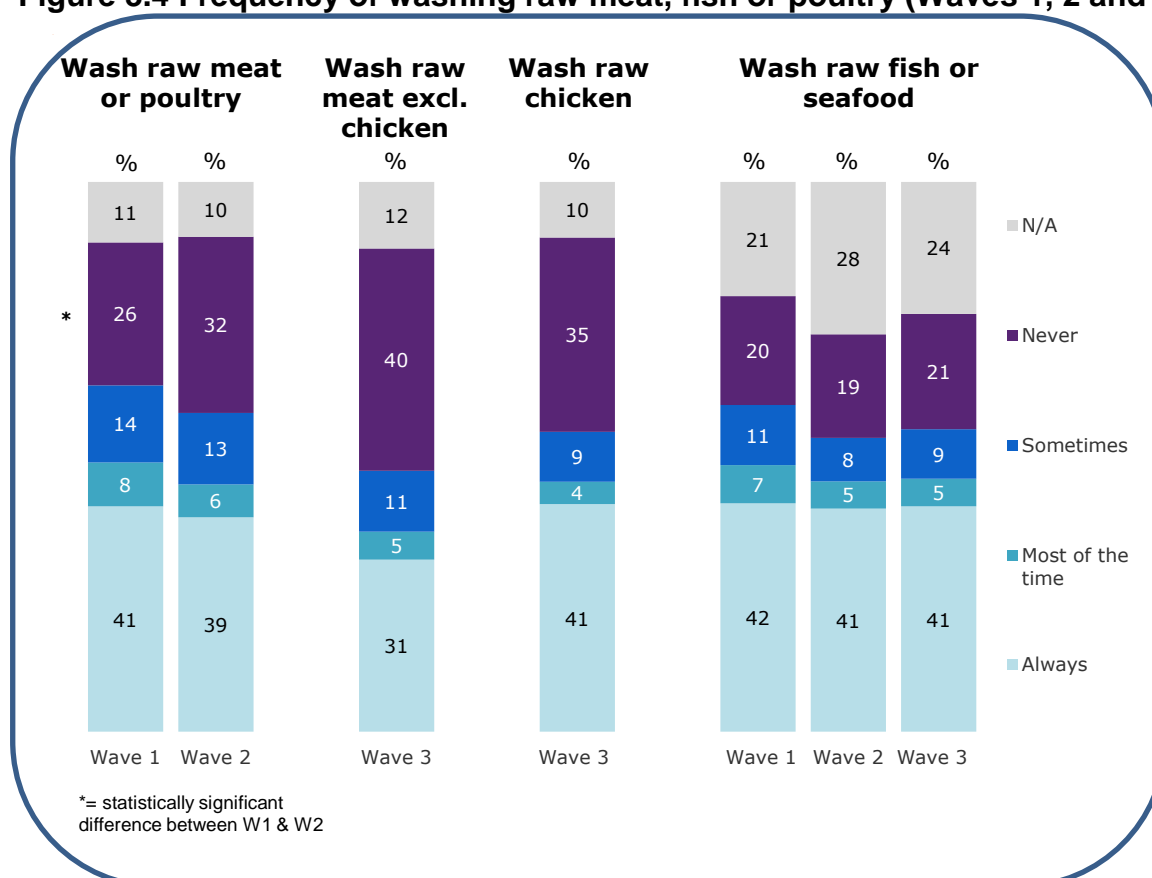
- Of respondents who said that they had a fridge in their household, 59% reported that they stored raw meat and poultry on the bottom shelf of the fridge, in line with recommended practice. Ten per cent said they stored it in the middle of the fridge, while seven per cent said they stored it at the top of the fridge.
- Five per cent reported keeping raw meat and poultry in a separate compartment, and four 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, 54% said they stored it in its packaging. This is not in line with recommended practice and was similar to the proportions reporting this at Waves 1 and 2.
- Thirty-eight per cent of respondents reported that they covered raw meat and poultry with film / foil, and 30% that they kept it in a covered container. Respondents were more likely to report that they stored it away from cooked food (18%) compared with the proportion at Wave 1 (nine per cent) and Wave 2 (14%). These behaviours are in line with recommended practice.

- Fifteen per cent of respondents reported storing raw meat or poultry on a plate, which is not in line with recommended practice.
- Looking across these reported practices, half (50%) of those who reported storing raw meat and poultry in their fridge reported overall practice in line with FSA guidance on how raw meat should be stored in a fridge¹⁴.
- Respondents were also asked whether they stored food in open tins in the fridge. The majority (70%) reported that they never did so, in line with FSA recommended practice, as the tin may contaminate the food. Twenty-eight per cent said that they did this at least some of the time, and six per cent said that they always stored food in open tins in the fridge. These findings were similar to those at Waves 1 and 2.

¹⁴ 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 England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

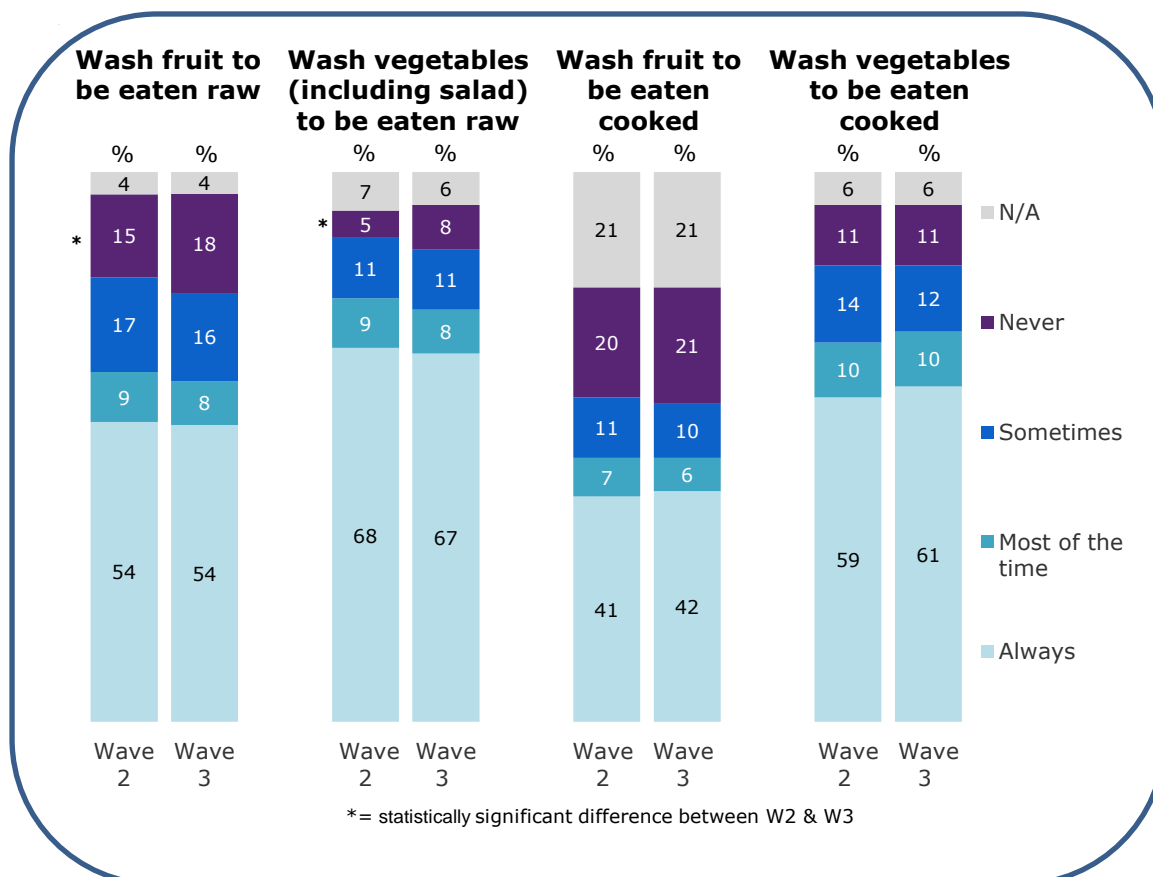
The FSA recommends that raw meat and fish are not washed prior to cooking due to the risk of cross contamination from water splashing on the sink, surrounding surfaces, and utensils, which may come into contact with ready to eat food.

- At Wave 3, just over a third (35%) of respondents reported never washing raw chicken. Over half of respondents (54%) reported washing raw chicken at least sometimes, with 41% reporting that they always washed raw chicken. Respondents were less likely to report washing other raw meat compared with raw chicken, with 40% reporting never washing raw meat excluding chicken and 47% reporting that they washed them at least sometimes. Thirty-one 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. This follows a higher proportion of respondents reporting that they never washed raw meat or poultry at Wave 2 compared with that at Wave 1 (32% compared with 26%).
- Respondents at Wave 3 were less likely (21%) to report never washing raw fish or seafood when preparing and cooking it compared with raw chicken and other meat. This was similar to findings at Waves 1 and 2, as was the proportion at Wave 3 that reported that they always washed raw fish or seafood (41%).
- A higher proportion of Wave 3 respondents (24%) said that storing, preparing and cooking raw fish and seafood was not applicable to them, compared with 10% and 12% for raw chicken and other meats respectively. Similar findings were also 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 England respondents - Wave 2 (2,116); Wave 3 (1,951) (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).

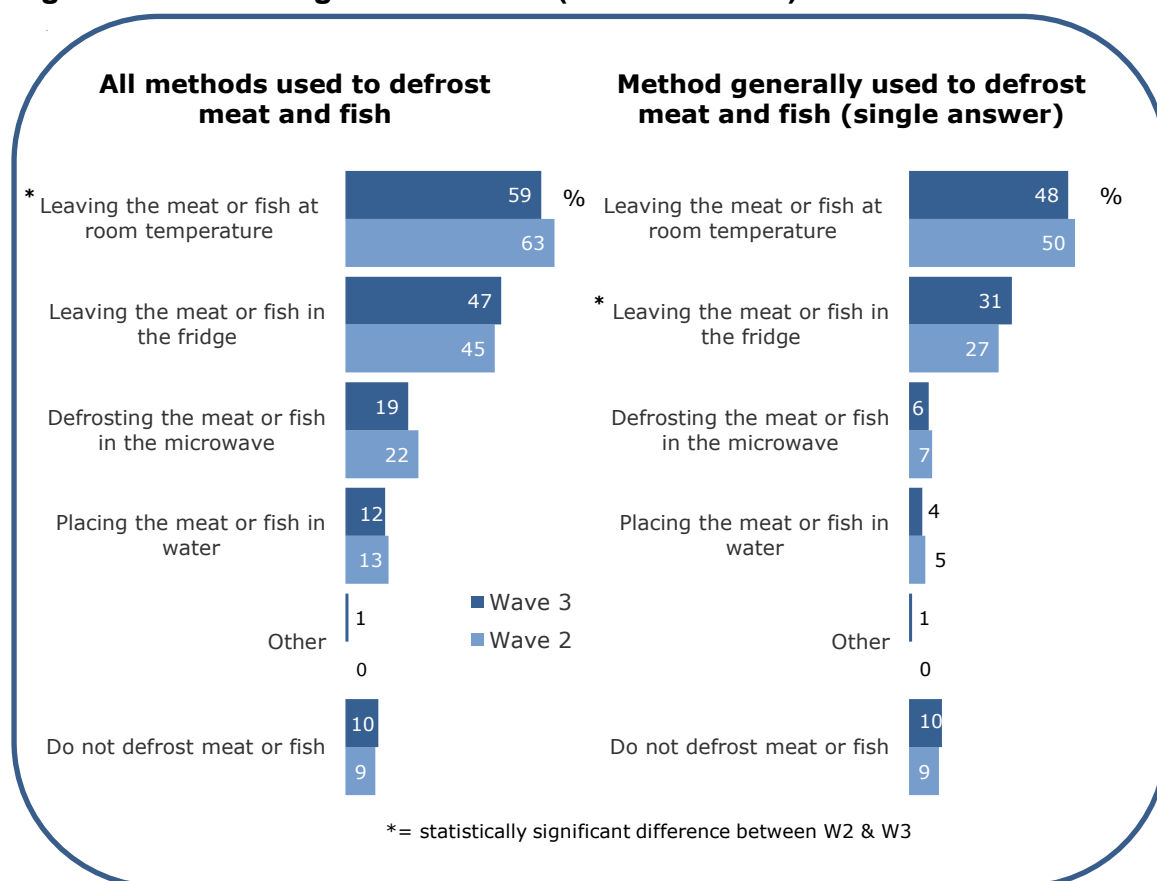
- Fifty-four per cent of respondents reported that they always washed fruit which was going to be eaten raw while 77% said they did this at least some of the time. Eighteen per cent of respondents reported that they never washed fruit which was going to be eaten raw, compared with 15% at Wave 2.
- Respondents were more likely to report washing vegetables that were going to be eaten raw compared with fruit; 67% said that they always did, and 86% said they did this at least some of the time. Eight per cent of respondents reported that they never did this compared with five per cent 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 (42% compared with 54%). Fifty-eight per cent reported that they washed fruit that was going to be cooked at least some of the time, while 21% said that they never did.
- Respondents were more likely to report that they washed vegetables which were going to be cooked compared with fruit; 61% said they always did (compared with 42% for fruit), 83% said they did this at least some of the time (compared with 58%) and 11% reported they never did (compared with 21%).
- The findings for washing fruit and vegetables that are going to be cooked were similar to those seen at Wave 2.
- Differences were observed in the proportion of respondents saying that the question was not applicable to them for the different items: 21% of respondents reported that washing fruit to be cooked was not applicable to them, compared with six per cent reporting this for washing both raw and cooked vegetables, and four 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 England respondents - Wave 2 (2,116); Wave 3 (1,951) (Questions not asked at Wave 1)

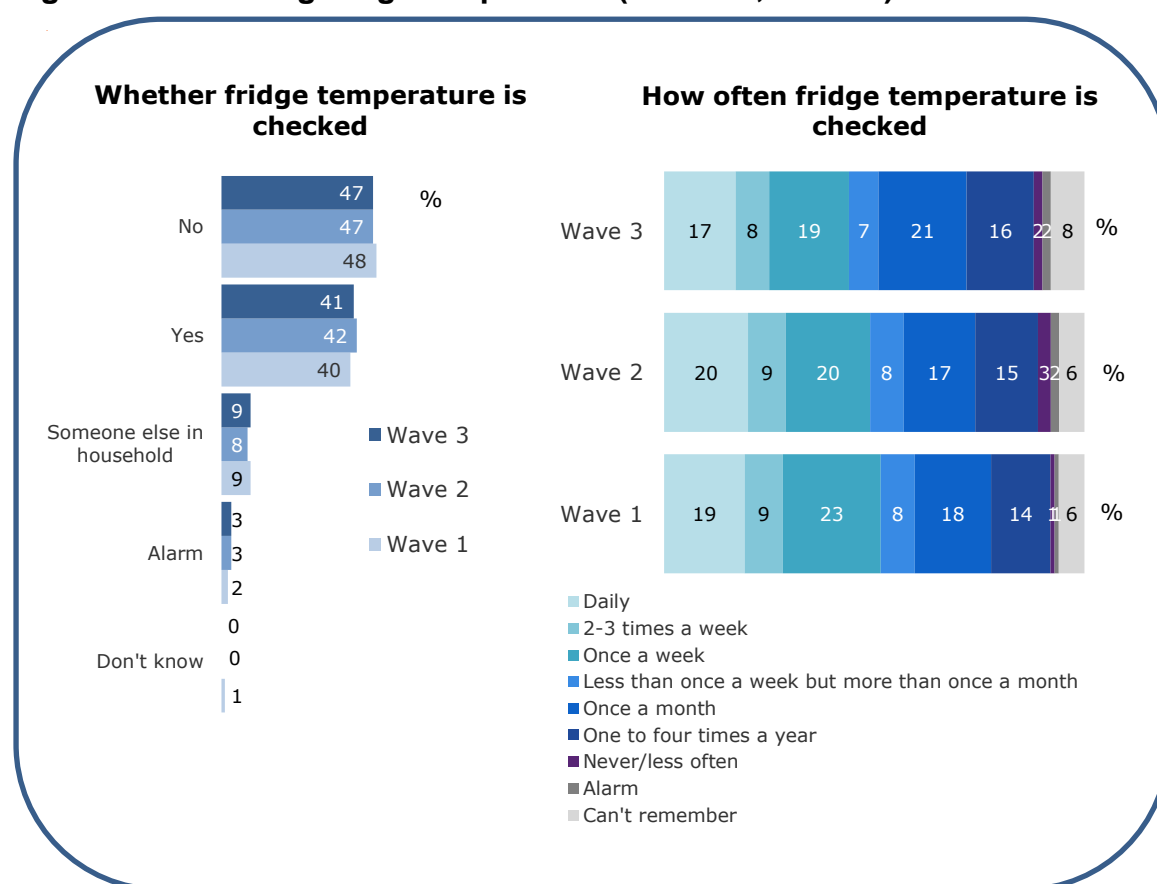
The FSA recommends defrosting food slowly and safely overnight in the refrigerator or using a microwave oven (carefully ensuring that the food is fully defrosted before cooking it straight away). The FSA does not recommend defrosting food at room temperature as this provides ideal conditions for bacteria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

- Respondents were most likely to report leaving meat or fish at room temperature in order to defrost; 59% reported this at Wave 3 compared with 63% at Wave 2.
- Forty-seven per cent of respondents said that they defrosted meat or fish in a refrigerator, and 19% in a microwave oven, similar to the findings at Wave 2.

- When asked for the single method they generally used, 48% of respondents said they generally left the meat or fish at room temperature.
- Thirty-one per cent of respondents reported that they generally defrosted meat and fish in a refrigerator compared with 27% at Wave 2. Six per cent said they generally used a microwave oven.

4.2 Checking fridge temperature

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



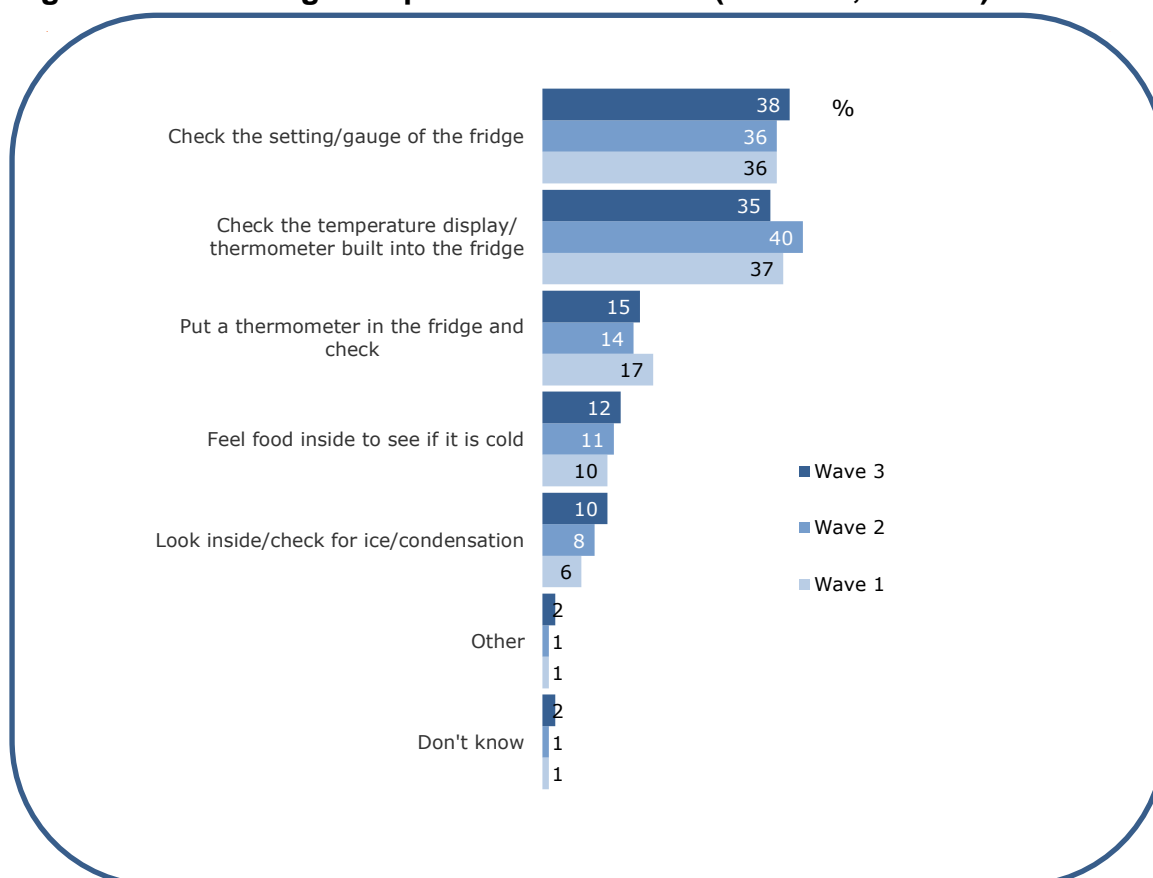
Source: Q4_9 Do you ever check your fridge temperature? & Q4_10 How often do you or another person in your household check the temperature of the fridge?

Base: Q4_9 All England respondents – Wave 1 (2,025); All England respondents who have a fridge in their household – Wave 2 (2,105); Wave 3 (1,937) & Q4_10 All England respondents who check their fridge temperature – Wave 1 (971); Wave 2 (970); Wave 3 (942)

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, 50% reported that they or someone else checked the temperature, whilst 47% reported that they never checked their fridge temperature. Around four in ten (41%) 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 (71%) who checked their fridge temperature said that they did so at least once a month, in line with recommended practice, compared with 78% at Wave 1. Forty-four per cent said that they checked at least once a week (compared with 51% at Wave 1) and 17% 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?

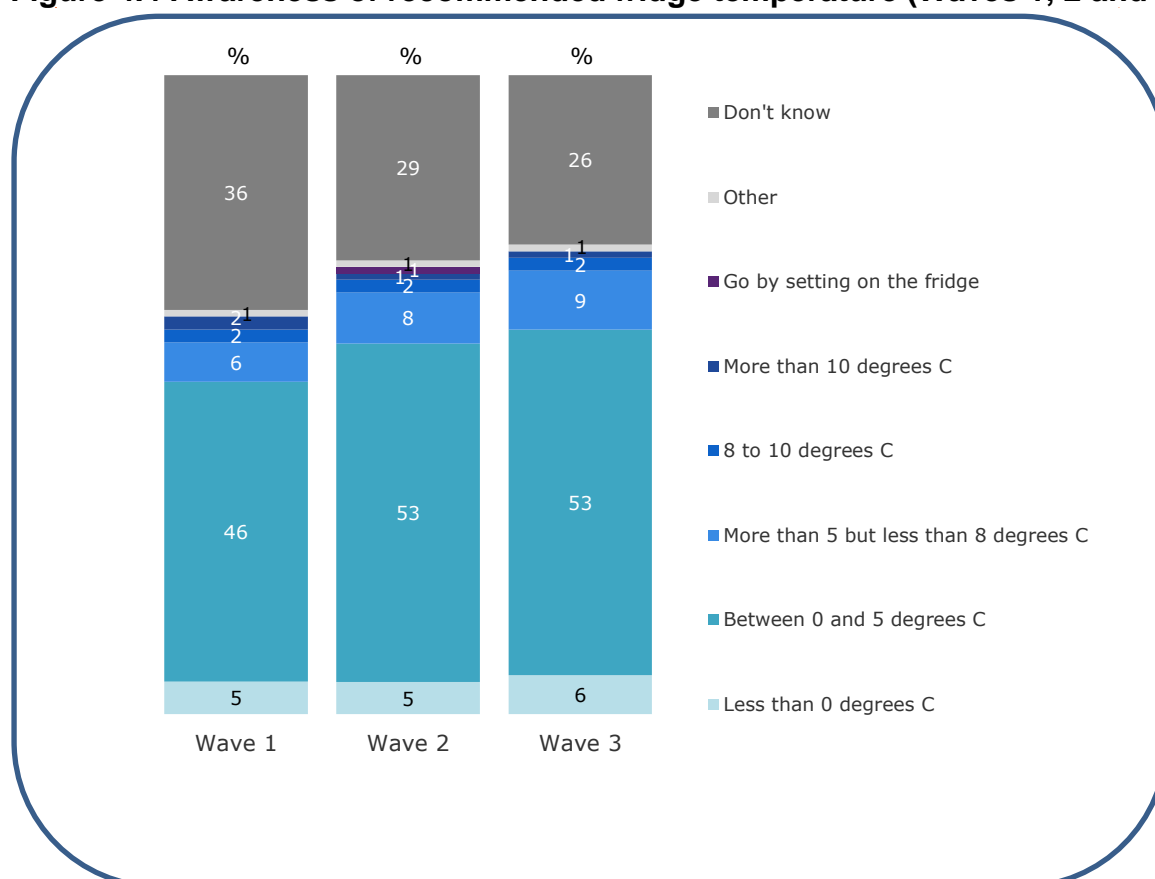
Note: respondents were able to give multiple answers

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

Base: All England respondents who check their fridge temperature and do not have a fridge alarm - Wave 1 (958); Wave 2 (954); Wave 3 (924)

- Respondents who reported checking their fridge temperature, but did not have an alarm, were asked how they normally checked it. Findings were largely similar to those at Waves 1 and 2.
- **The use of a thermometer is the recommended method for checking fridge temperature** and 15% of respondents reported using this method by putting a thermometer in the fridge and checking. Thirty-five per cent of respondents reported checking the temperature display / thermometer built into the fridge, compared with 40% Wave 2.
- The most common method reported was to check the setting / gauge of the fridge (38%). This is not a recommended method of checking the fridge temperature as these are not usually an indication of temperature.
- One in ten respondents (10%) reported checking for condensation or ice inside the fridge, compared with six per cent at Wave 1.

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.

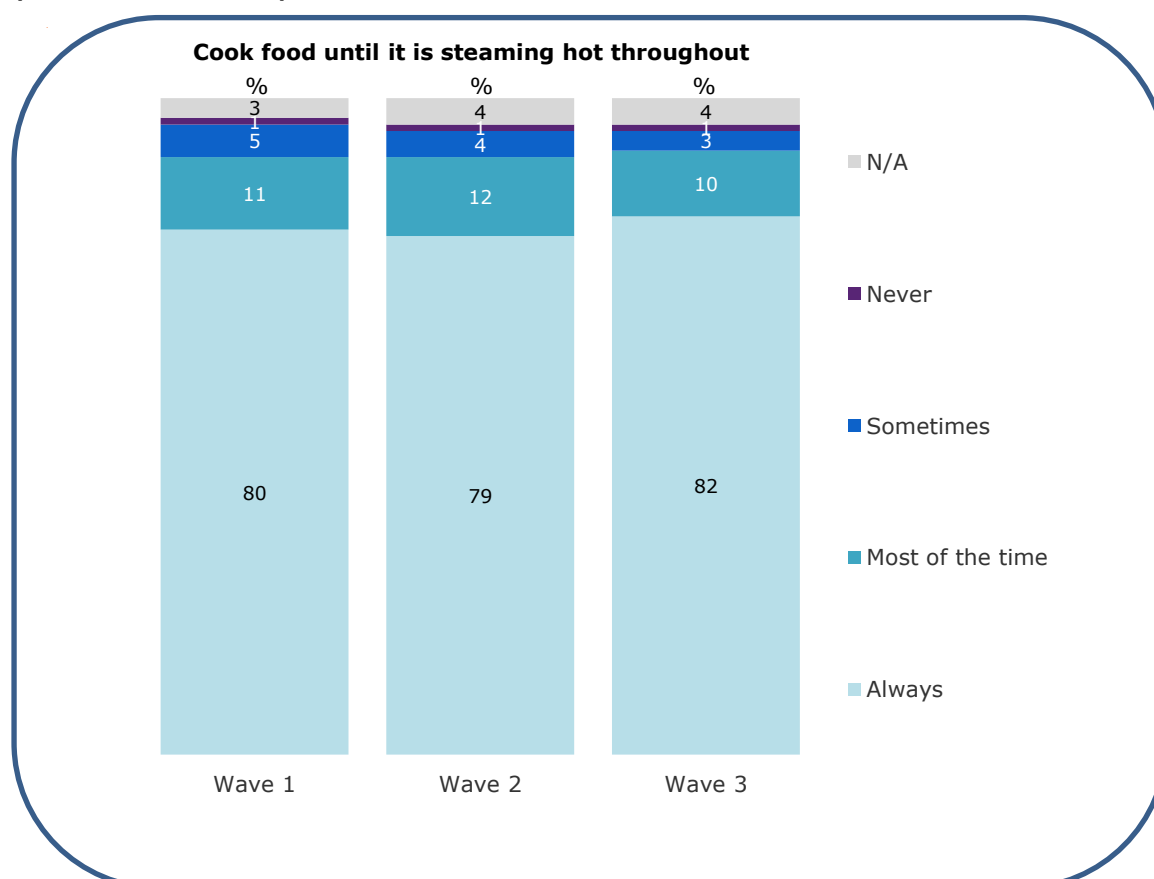
Base: All England respondents – Wave 1 (2,025); All England respondents with a fridge in their household – Wave 2 (2,105); Wave 3 (1,937)

- When asked what respondents thought the temperature inside the fridge should be, 53% said the fridge temperature should be between 0°C and 5°C (the recommended temperature). This was similar to the proportion that reported this at Wave 2, compared with 46% at Wave 1.
- Twenty-six 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 lower than that at Wave 1 (36%). 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?

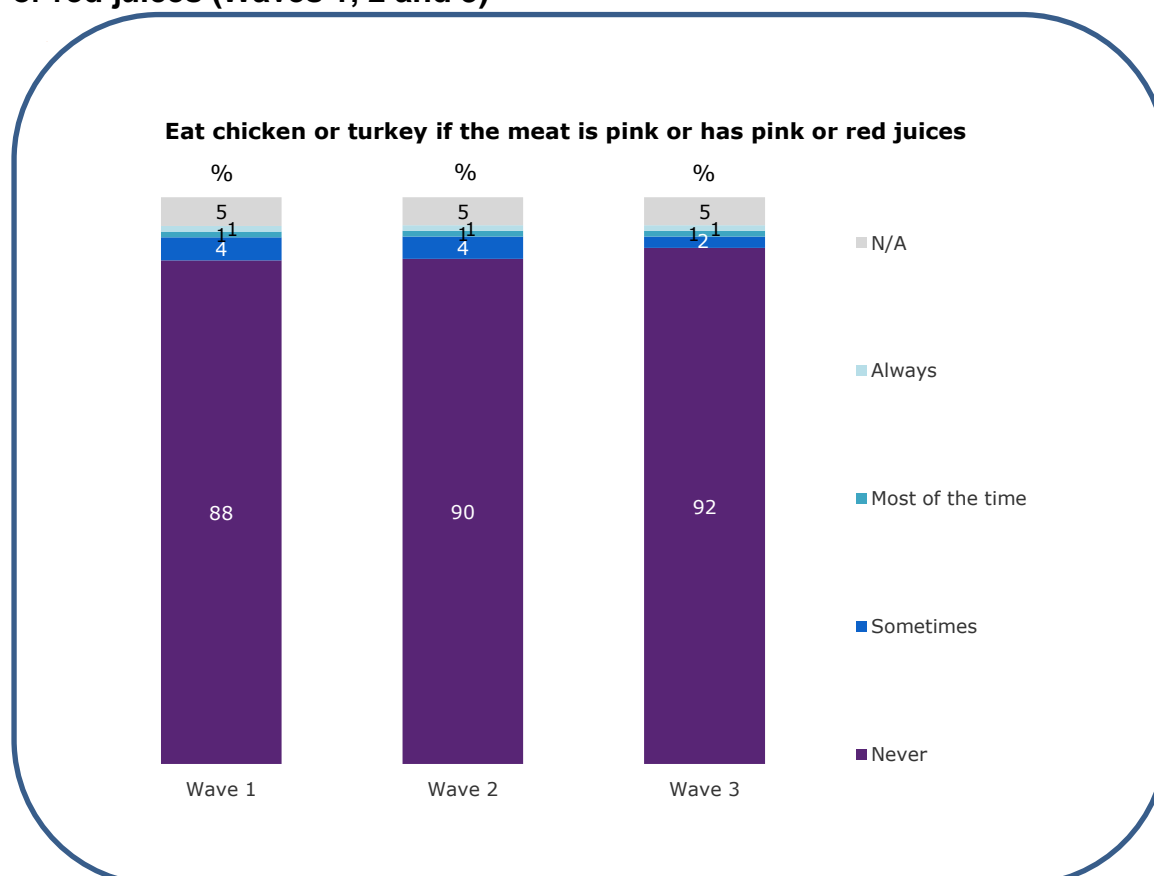
Base: All England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

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

- At Wave 3, 82% of respondents reported that they always cooked food until it was steaming hot throughout, while one per cent of respondents reported that they never did this. These were similar to the findings at Waves 1 and 2.

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?

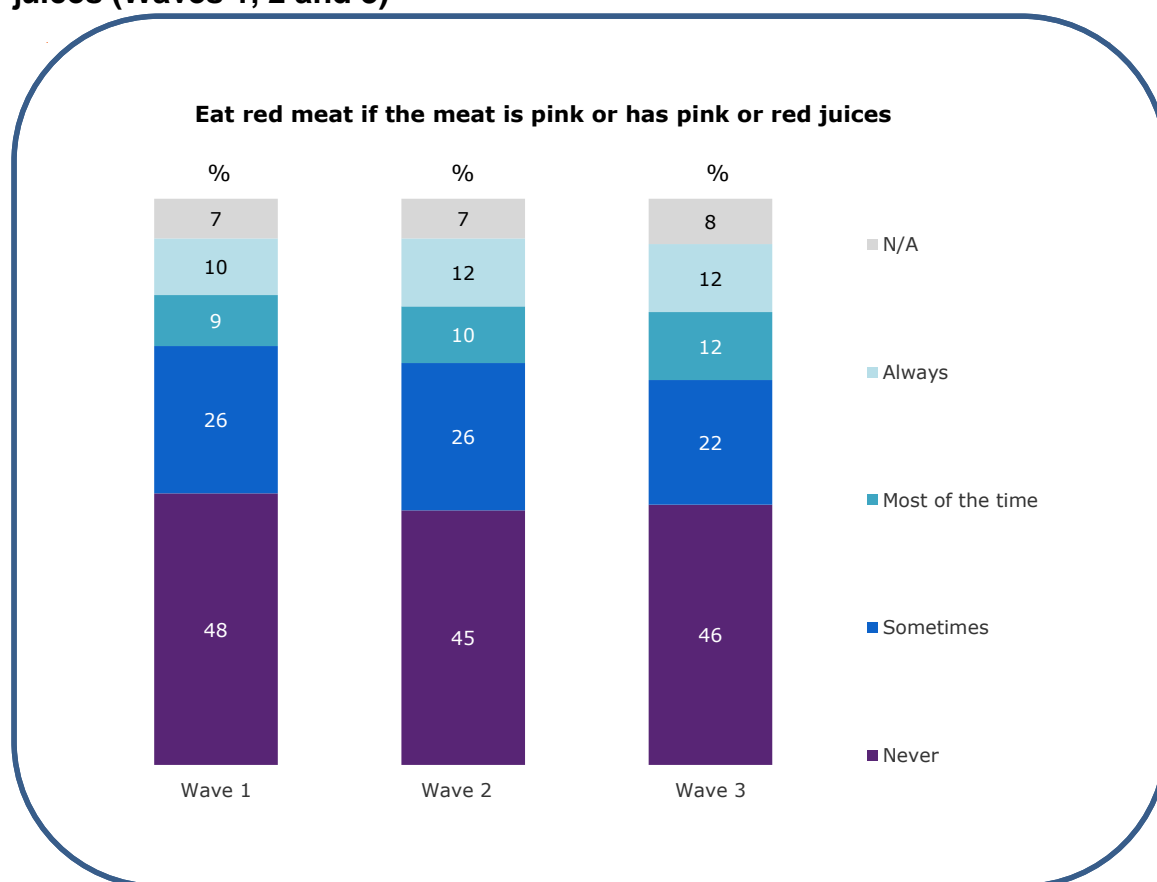
Base: All England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

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 outside¹⁵.

- Three 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, compared with 88% at Wave 1 and similar to 90% at Wave 2.

¹⁵ 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)

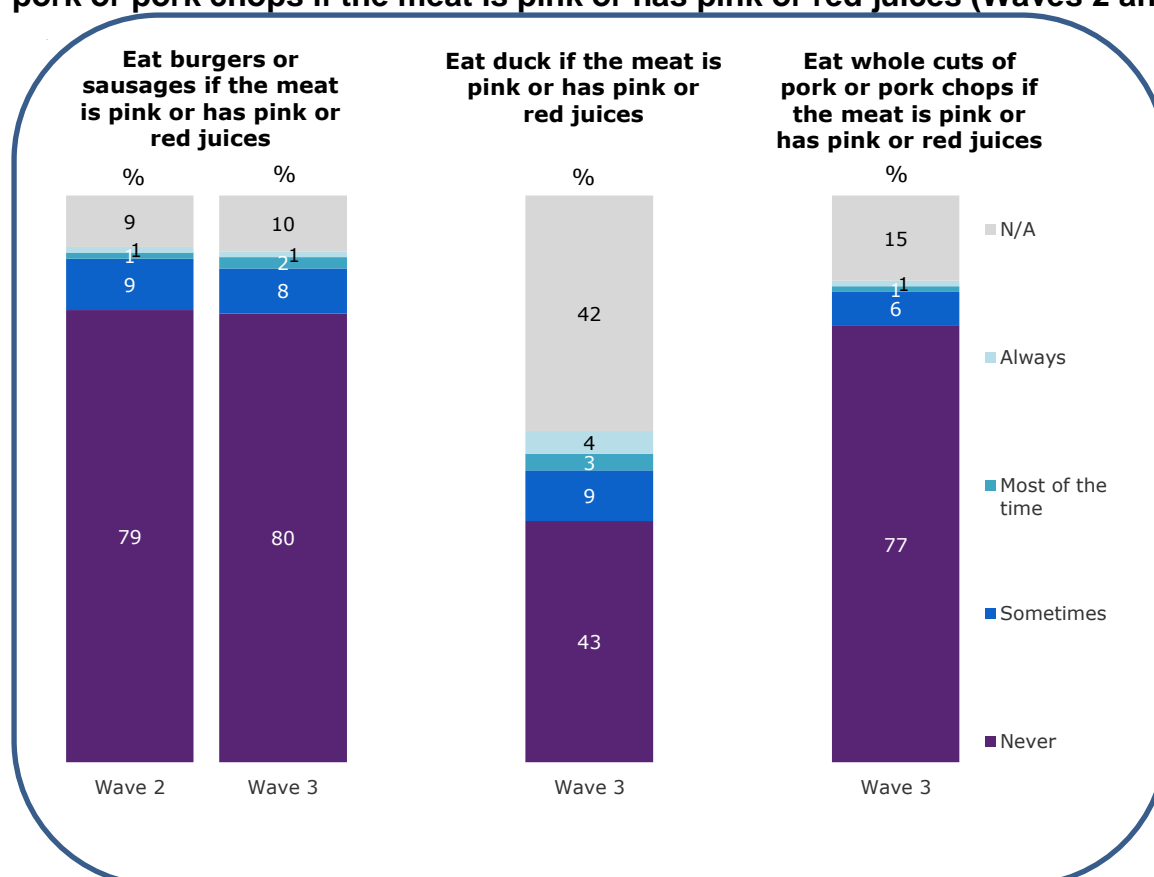


Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently?

Base: All England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

- For red meat, 12% of respondents said they always ate red meat if it was pink or had pink or red juices, and 46% reported that they never did.
- Compared with Wave 1, respondents were more likely to report eating red meat if the meat was pink or had pink or red juices always or most of the time (24% compared with 19% at Wave 1).

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)



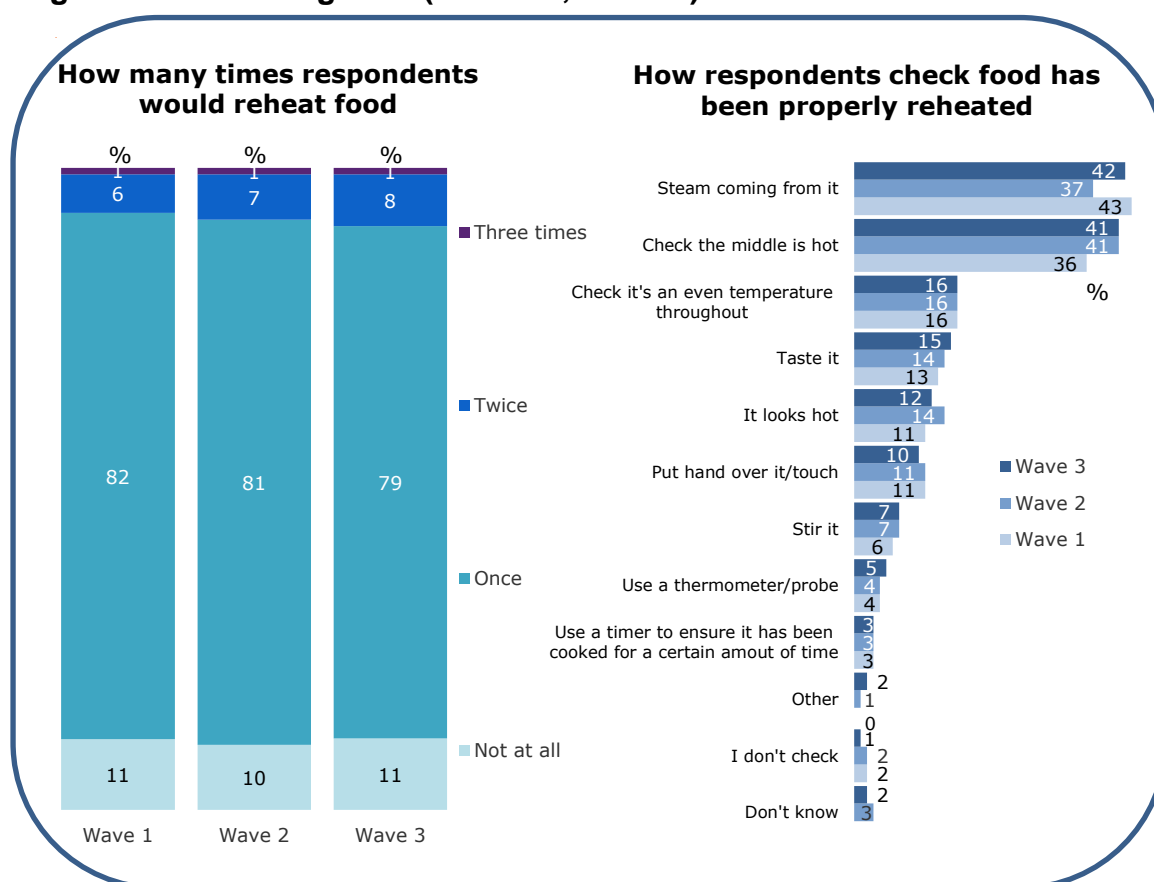
Source: Q4_1 Thinking about when you are storing, preparing and cooking food, I would like you to tell me whether you do or don't do the following things at all when you are in the kitchen and if so how frequently?

Base: All England respondents - Wave 2 (2,116); Wave 3 (1,951) (Q4_1 not asked at Wave 1 and duck and pork first asked about at Wave 3)

- Eighty per cent of respondents reported that they never ate burgers or sausages if the meat was pink or had pink or red juices. Eleven 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-three per cent of respondents reported never eating duck if it had pink meat or pink or red juices, and a further 42% said that this question was not applicable to them. In total, 15% said they did eat duck with pink meat or pink or red juices at least some of the time.
- Around three in four respondents said they never ate pork if it was pink or had pink or red juices (77%) and eight 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 England respondents who have leftovers - Wave 1 (1,884); Wave 2 (1,954); Wave 3 (1,801) & Q2_46 All England respondents who have leftovers and would consider re-heating - Wave 1 (1,654); Wave 2 (1,731); Wave 3 (1,590)

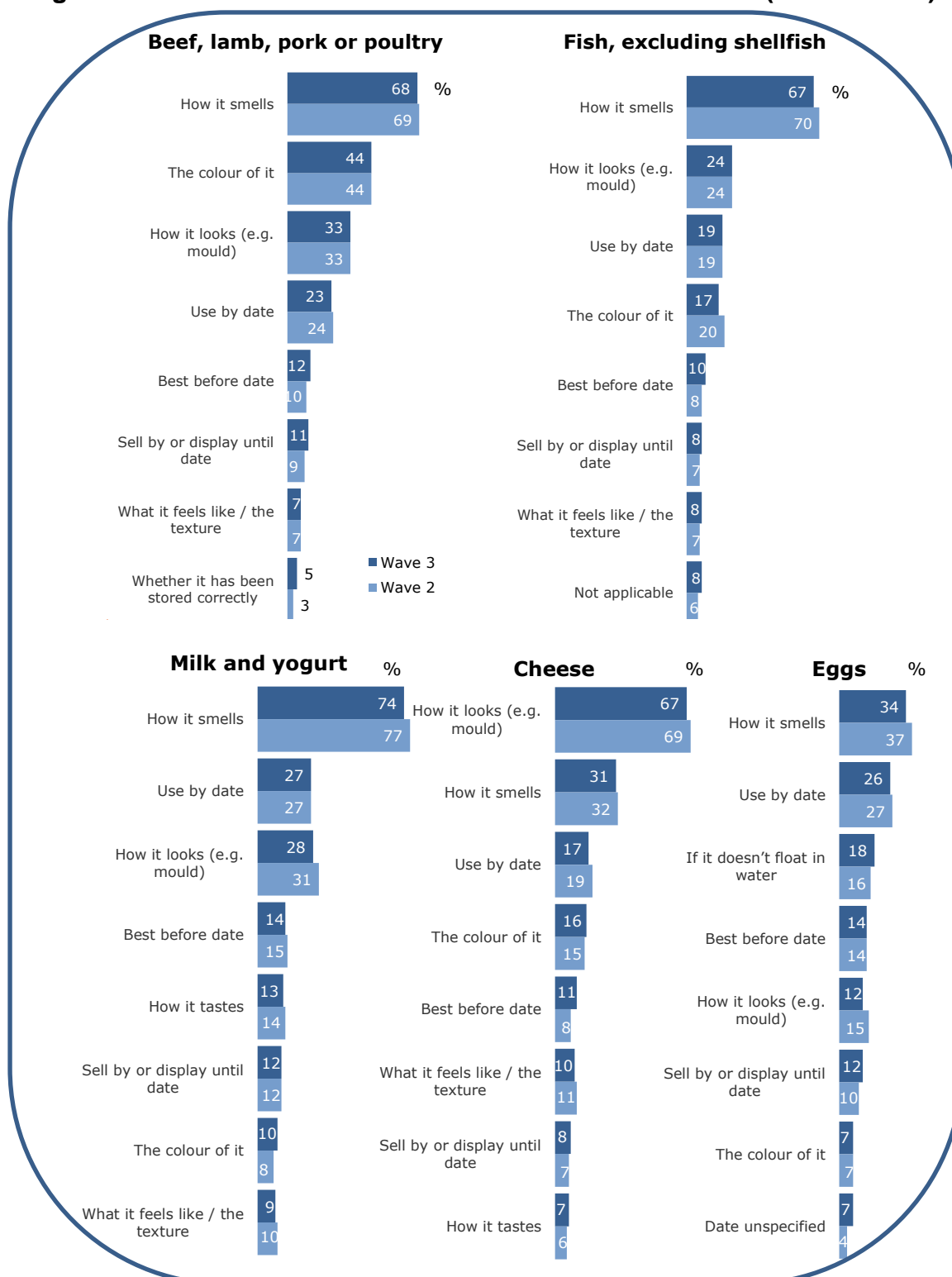
The FSA recommends that leftovers should not be reheated more than once and should be steaming hot throughout before serving.

- Seventy-nine per cent of respondents reported that they would only re-heat food once, and 11% said they would not re-heat food at all. Nine per cent of respondents reported that they would re-heat food twice or more.
- Forty-two per cent of respondents reported testing if food had been properly reheated by seeing if steam is coming out of it, which was the most commonly reported method (similar to the proportion at Wave 1). A similar proportion (41%) reported checking if the middle is hot, higher than the proportion at Wave 1 (36%).

- 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 England respondents - Wave 2 (2,116); Wave 3 (1,951) (Question not asked at Wave 1)

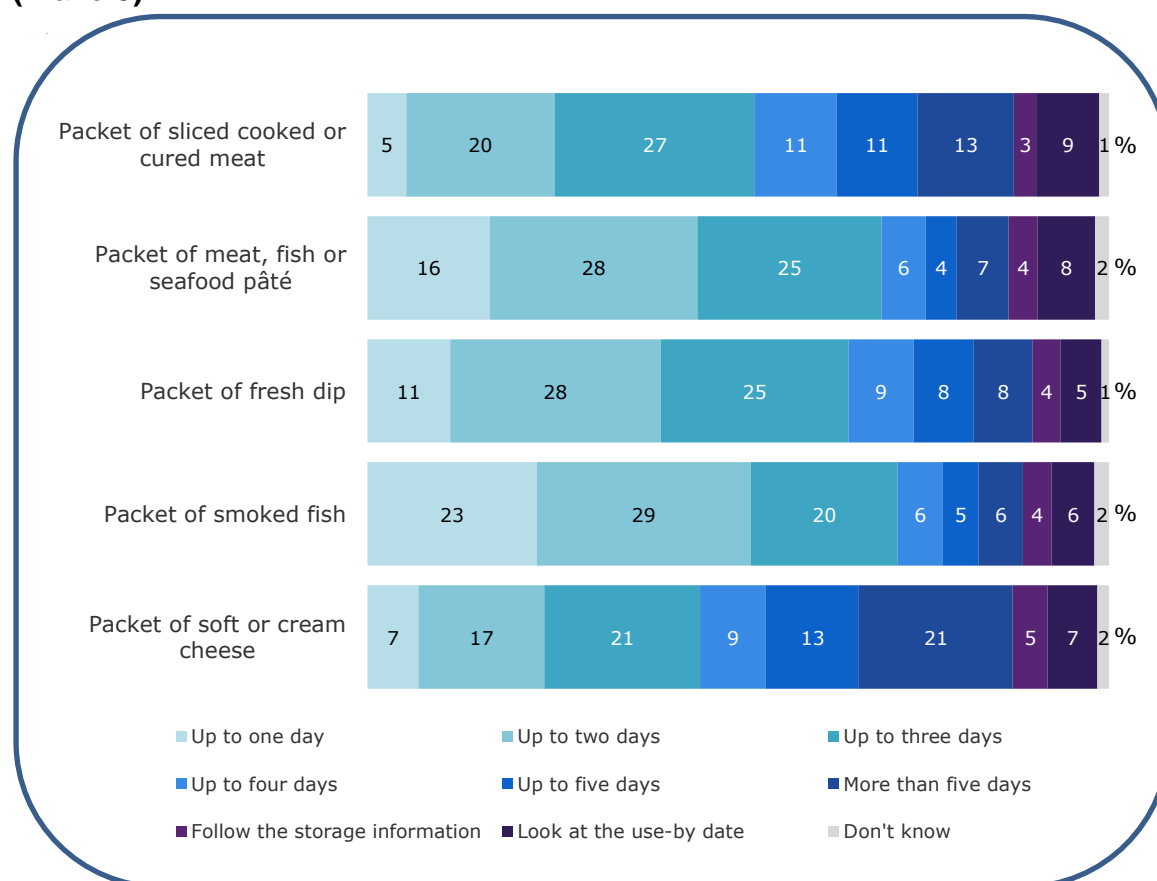
The FSA recommends that even if food looks and smells fine, the use by date is the best indicator of whether food is safe to eat¹⁶.

- 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 / yoghurt, and eggs.
- For example, around three-quarters (74%) of respondents reported that they used this method when checking whether milk or yoghurt was safe to eat, 68% used smell as an indicator for meat and 67% for fish.
- How food looks (for example the appearance of mould) was the most common practice (reported by 67% of respondents) for telling whether cheese was safe to eat. For meat, colour was the second most frequently reported method (reported by 44% of respondents).
- Use by dates were also mentioned as an indicator of whether food was safe; 27% of respondents reported that they used them for checking milk / yoghurt, around a quarter (26%) for eggs, and 23% for meat. The use by date was reported less often for checking fish (19%) and cheese (17%).
- Eighteen per cent of respondents said that they checked whether eggs floated in water to tell whether they were safe to eat.
- For each food asked about, two 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, with the highest proportion reporting this for eggs and fish (two per cent for each).
- These findings were similar to those at Wave 2.

¹⁶ 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 England respondents, excluding those who do not eat / use each food item¹⁷ – Packet of sliced cooked or cured meat (1,708); Packet of meat, fish or seafood pâté (1,466); Packet of fresh dip (1,498); Packet of smoked fish (1,361); Packet of soft or cream cheese (1,572)

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

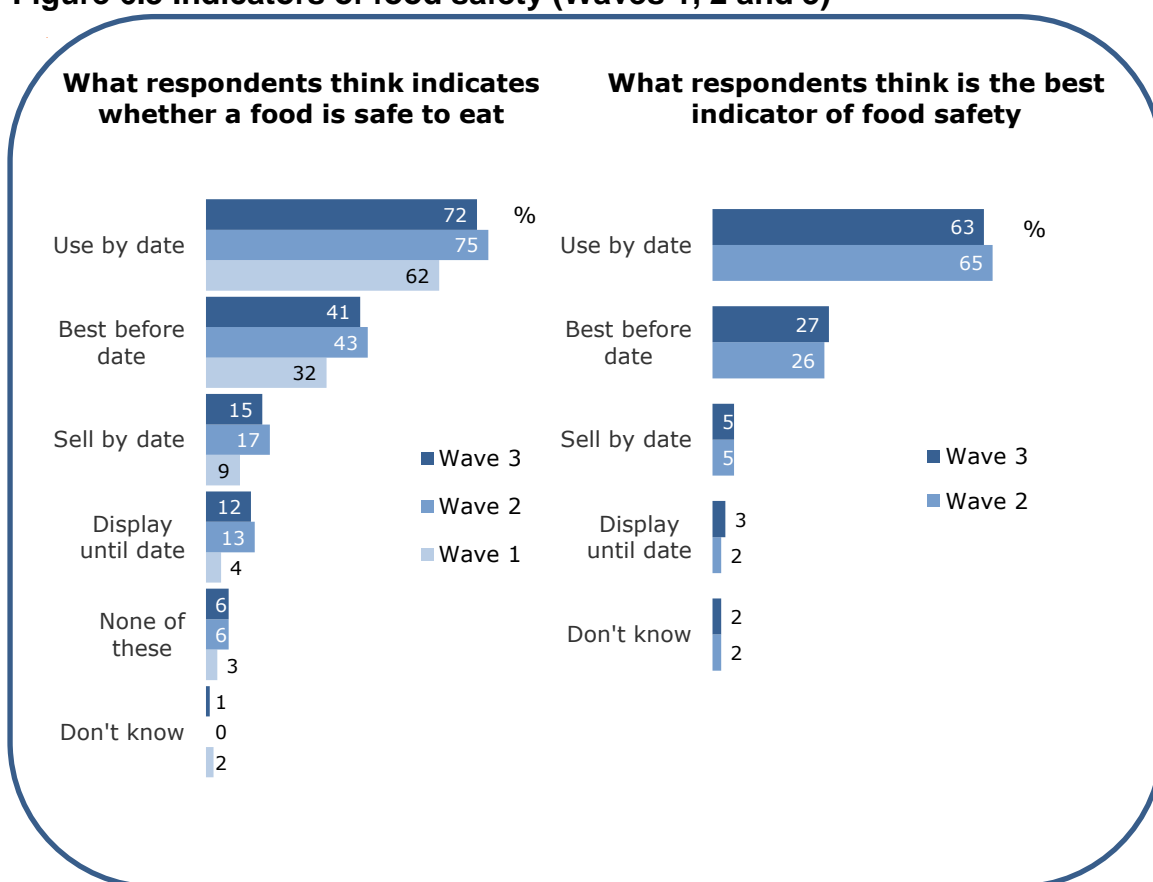
- Among those who reported eating specific foods, respondents were most likely to report that they consumed smoked fish (52%) and meat, fish or seafood pâté (45%) within two days of opening.

¹⁷ 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, 11% said they did not eat / use packets of sliced cooked or cured meat, 24% did not eat / use packets of meat, fish or seafood pâté, 20% did not eat / use packets of fresh dip, 30% did not use packets of smoked fish and 17% did not eat / use packets of soft or cream cheese.

- Respondents who reported eating these foods were least likely to report consuming soft cheese and sliced meat within two days of opening (reported by 23% and 25% respectively) and most likely to say they would eat them after more than two days (64% and 62% respectively).
- A minority of respondents reported that they would look at the use by date or follow the storage information on the product. Between five and nine per cent of respondents who said they ate each product stated they would look at the use by date and between three and five per cent stated that they would follow storage information.
- The findings were largely similar to those at Wave 2. However respondents were less likely at Wave 3 to say they would eat soft or cream cheese after more than five days (21% compared with 26% 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?

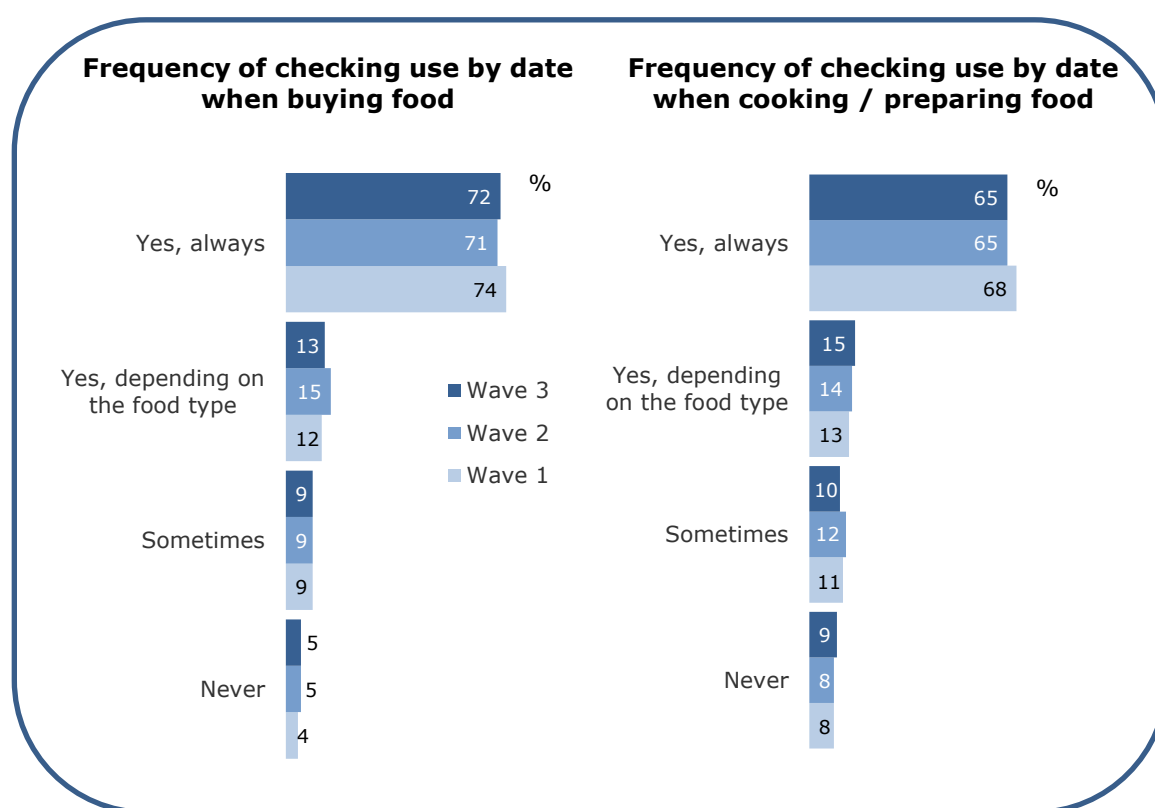
Note: respondents were able to give multiple answers at Q4_19

Base: Q4_19 All England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951) & Q4_19b All England respondents - Wave 2 (2,116); Wave 3 (1,951) (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.

- Around seven in ten respondents (72%) cited use by dates as an indicator of whether food was safe to eat, compared with 62% at Wave 1.
- However, the proportion of respondents who *only* mentioned the use by date (46%) was similar to that at Wave 1 (44%) and Wave 2 (45%).
- Nine 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; 63% selected the use by date while 27% selected the best before date.

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

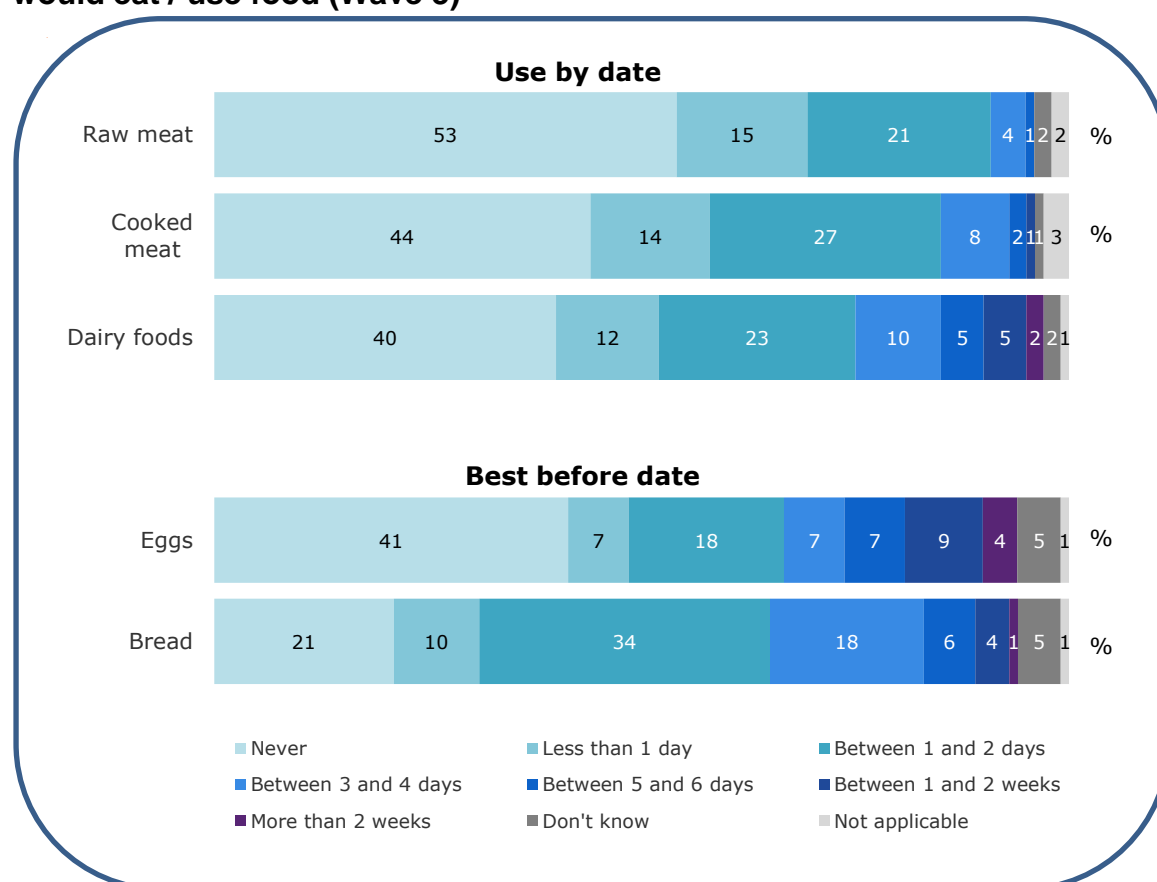


Source: Q4_21 Do you check use by dates when you are buying food? & Q4_22 Do you check use by dates when you are about to cook or prepare food?

Base: All England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

- When asked if they checked use by dates when buying food, 72% of respondents reported that they always did this regardless of food type and 13% reported that they checked use by dates when buying food depending on food type (both similar to the proportions reporting this 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 lower than that for buying food, with 65% saying they always checked the date. Fifteen per cent said it depended on food type.
- Nine per cent of respondents reported that they never checked the use by date when cooking or preparing food.
- Overall six in ten respondents (60%) reported behaviours in line with FSA recommended practice, 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 England respondents - (1,951)

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.¹⁸

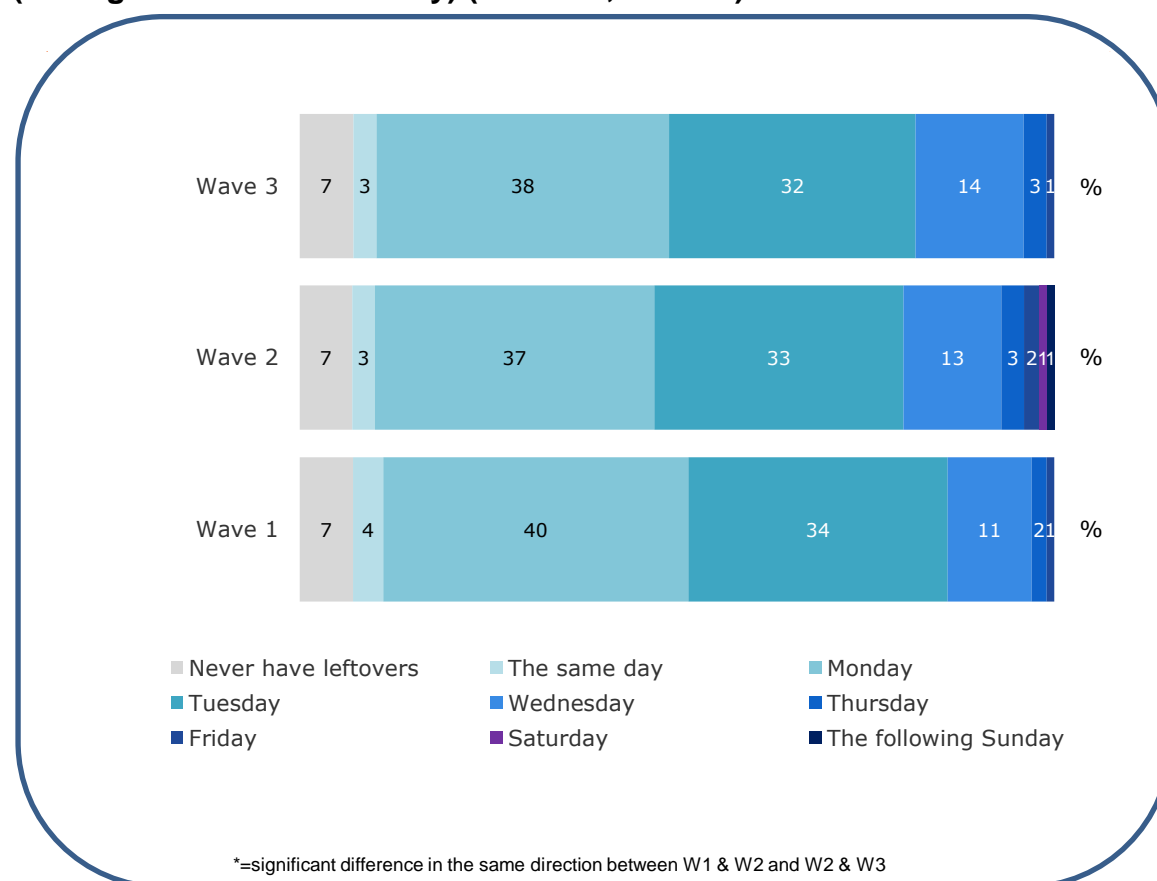
Best before dates appear on food with a longer shelf life. They show how long the food will be at its best quality. Using food after the best before date does not mean it will be unsafe, with the exception of eggs (raw egg must be consumed by the best before date although cooked egg, provided it is cooked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

¹⁸ 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

- 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 29% and 27% of respondents said they would eat bread and eggs (respectively) three days or more after the best before date.
- Twenty-three 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, 11% of respondents reported that they would eat cooked meat three days or more after the use by date, while six per cent said they would use raw meat three days or more after the use by date.
- Similar findings were observed at Wave 2.

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 England respondents - Wave 1 (2,025); Wave 2 (2,116); Wave 3 (1,951)

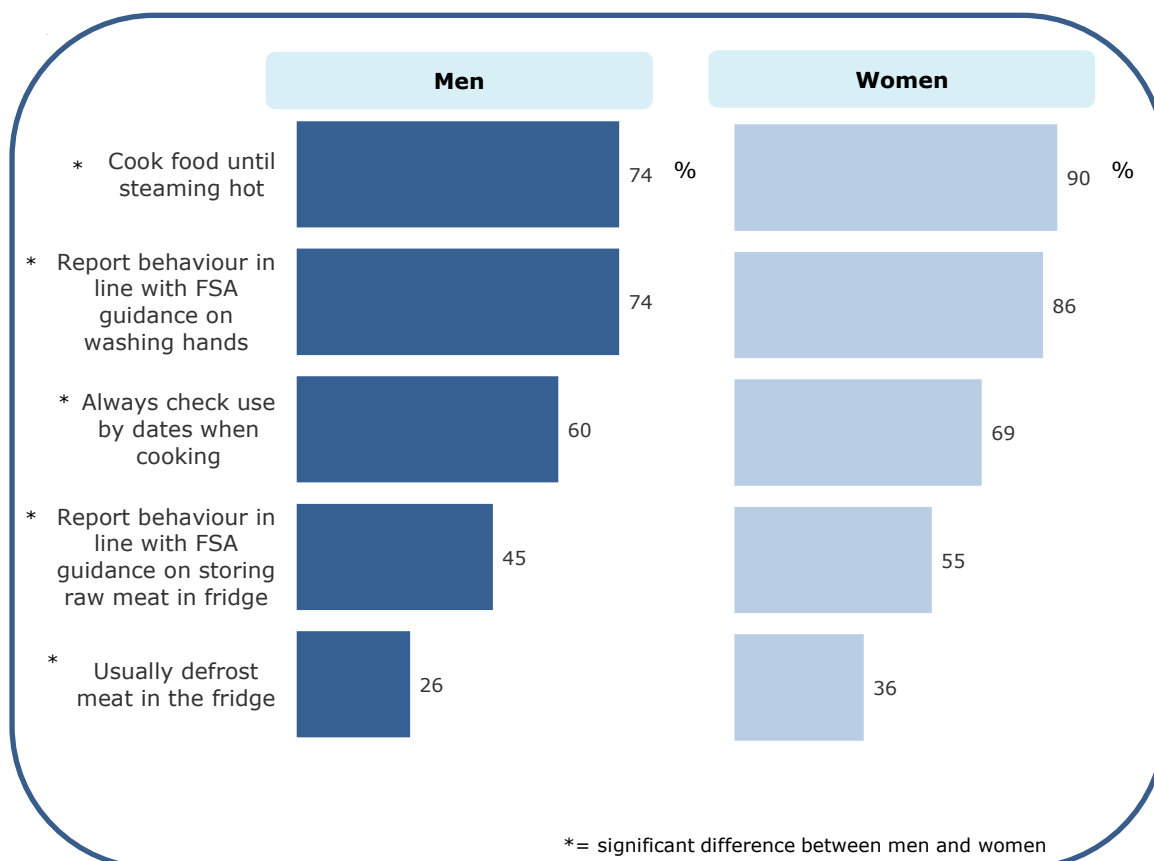
The FSA recommends that leftovers should be used within two days (that is, up to Tuesday if cooked on Sunday).

- Around three-quarters (73%) 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, compared with 78% at Wave 1.
- Respondents most commonly reported that they would eat the leftovers by the next day (38%) and 32% reported that they would consider eating them up to two days after cooking the meal.
- Around a fifth of respondents (19%) 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 population¹⁹

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: All men - England Wave 3 (862); All women – England Wave 3 (1,089)

- As at Waves 1 and 2, reported food safety practices were found to vary considerably by **gender** with women being more likely than men to report food safety practices in line with practices recommended by the Agency for:
 - Always washing hands before preparing food (89% of women compared with 79% of men) and after handling raw meat (91% compared with 81%);

¹⁹ The following variables were analysed to identify statistically significant differences: age, gender, index of multiple deprivation and region.

- Always using different chopping boards for different foods (54% compared with 44%);
 - Storing certain foods in certain parts of the fridge (81% compared with 68%);
 - Always storing raw meat on the bottom shelf of the fridge (66% compared with 52%);
 - Generally defrosting meat in the fridge (36% compared with 26%);
 - Washing fruit and vegetables (e.g. 73% of women reported always washing vegetables to be eaten raw compared with 61% of men);
 - Always cooking food until it is steaming hot throughout (90% compared with 74%);
 - Eating eggs after their best before date (58% of men compared with 48% of women, although this had not been the case at Wave 2); and
 - Always checking use by dates before cooking or preparing food (69% of women compared with 60% of men) and before buying food (76% compared with 68%).
- There were two areas where women were less likely than men to report practices that were in line with recommended practice: they were more likely than men to report (ever) washing raw meat or poultry excluding chicken (51% compared with 44%) or to report (ever) washing chicken (59% compared with 49%), and less likely to report that the fridge temperature should be between 0°C and 5°C (47% compared with 59%). These differences were similar to those at Waves 1 and 2.
- Variation by **age** was also observed. As at Waves 1 and 2, both **younger** and **older** respondents were less likely than those in the middle age groups to report some practices in line with recommended practice for food safety. For example:
- Lower levels of hand washing (73% of those aged 16-24 and 75% of those aged 75 and over reported behaviour in line with recommended practice compared with 82% of those aged 35-74);
 - Fewer reporting behaviour in line with recommended practice for use by dates (57% of those aged 16-24 and 51% of those aged 65 and over, compared with 69% of 25-44 year olds);
 - Fewer reporting use by dates as the most useful indicator of whether food is safe to eat (57% of those aged 16-24 and 53% of those aged 75 and over, compared with 66% of those aged 25-74). While this difference was observed for those aged 75 and over at Wave 2, this had not been the case for those aged 16-24. At Wave 3 respondents aged 16-24 were also more likely to select best before dates as most useful (34% compared with 26% of respondents aged 25 and over), which had not been observed at Wave 2;

- Fewer reporting storing raw meat on the bottom shelf of the fridge (47% of those aged 16-24 and of those aged 75 and over compared with 63% of those aged 25-74). Respondents aged 16-24 were also less likely to report behaviours in line with recommended practice for storing raw meat in the fridge (37%) compared with those aged 25 and over (52%);
 - Fewer reporting organising their fridge by its contents (68% of those aged 16-24 and 70% of those aged 75 and over, compared with 80% of those aged 55-74);
 - Fewer reporting ever eating duck if it is pink or has pink or red juices (eight per cent of those aged 16-24 and 10% of those aged 75 and over compared with 17% of those aged 25-74); and
 - Less likely to say their fridge temperature should be between 0°C and 5°C (45% of those aged 16-24 and 37% of those aged 75 and over, compared with 56% of 25-74 year olds).
- The proportion reporting that fridge temperature should be between 0°C and 5°C was higher at Wave 3 compared with Wave 1 among all age groups except those aged 16-24, and the differences were greater for those aged 55-74 (51% of whom said the fridge temperature should be between 0°C and 5°C compared with 37% at Wave 1) than for those aged 25-54 (59% compared with 52% at Wave 1).
- As at Waves 1 and 2, younger respondents (**particularly those aged 16-24**) were less likely than older respondents to report some practices in line with recommended practice for food safety. For example:
- Lower levels of reporting that they usually defrost meat in the fridge (21% compared with 33% of those aged 25 and over);
 - Fewer reporting washing vegetables that are going to be eaten raw (49%), compared with those aged 25 and over (70%), and washing fruit that is going to be cooked (30% compared with 46% of those aged 35 and over);
 - Fewer reporting checking their fridge temperature (e.g. 23% said they ever checked their own fridge temperature, compared with 34% of those aged 25-34 and 47% of those aged 35 and over) and fewer reporting behaviour in line with recommended practice for chilling food (five per cent of those with a fridge, compared with 13% of those aged 25 and over);
 - Fewer reporting that they always cook food until it is steaming hot throughout (70% compared with 84% of those aged 25 and over);
 - Fewer reporting that they reheat food no more than once (86% compared with 94% of those aged 55 and over);
 - A greater proportion reporting they would eat a range of foods three or more days after they had been opened: e.g., 71% for cooked meat compared with 42% of those aged 75 and over, with a similar pattern of results for fish or seafood pâté, dip, smoked fish and soft cheese; and

- A greater proportion reporting that they eat burgers and sausages that are pink or have pink or red juices (17% of those aged 16-34 compared with eight per cent of those aged 35 and over).
- In contrast respondents aged 16-24 were less likely to say they would eat some foods after their use by date. For example, 52% said they would never eat dairy foods after their use by date compared with 34% of those aged 45 and over.
- Similar to findings at Wave 2, the oldest respondents (**aged 75 and over**) were less likely to report always using different chopping boards for different foods (41%, compared with 50% of respondents aged under 75). However unlike at Wave 2, younger respondents were no less likely than those aged 35-54 to report always using different chopping boards (41% of those aged 16-34 compared with 51% of those aged 35-54 at Wave 2, 47% compared with 51% at Wave 3).
- Respondents **aged 55 and over** were:
 - Less likely to report behaviour in line with recommended practice for washing meat and fish of all types. For example, 61% reported (ever) washing chicken compared with 52% of those aged 25-54 and 47% of those aged under 25;
 - Less likely to say they ever stored open tins in the fridge (19% compared with 39% of those aged 16-24); and
 - More likely to say they always washed vegetables that were to be cooked (68% compared with 58% of those aged 16-54) and always washed fruit that was to be eaten raw (59% compared with 51% of those aged 16-54).
- 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 **Index of Multiple Deprivation**. Respondents living in the most deprived areas were less likely to report some practices in line with recommended practice for food safety, compared with those in less deprived areas. For example:
 - Respondents in the most deprived areas (quintile one) were more likely to report ever washing meat (58%) and chicken (62%) compared with those in the least deprived areas (37% and 47% in quintile five respectively);
 - Respondents in the most deprived areas (quintile one) were more likely to report usually defrosting meat in water (10%) compared with those in all other areas (quintiles two to five: three per cent);
 - Those in the most deprived areas (quintile one) were less likely to report storing meat at the bottom of the fridge (51% of those with a fridge) compared with those in all other areas (61% in quintiles two to five). They were also less likely to say they arranged their fridge according to its contents (68%), compared with those in quintiles three to five (78%);

- Respondents in the most deprived areas (quintile one) were less likely to report that they would only reheat food a maximum of once (86%) compared with those in the least deprived areas (92% in quintile five);
 - Respondents in the most deprived areas (quintile one) were less likely to say that the use by date is the best indicator of whether food is safe to eat (53%) compared with those in other areas (66% in quintiles two to five);
 - Those in more deprived areas (quintiles one and two) were less likely to report always using a different chopping board for different foods (45%) than those in less deprived areas (54% in quintiles four and five); and
 - Those in all but the least deprived areas (quintiles one to four) were more likely to report ever storing open tins in the fridge (29%) than those in the least deprived areas (22% in quintile five).
- There were behaviours for which those living in the most deprived areas (quintile one) were more likely to report actions in line with recommended practices, compared with those in less deprived areas. These include being:
- More likely to report always washing fruit and vegetables that are to be cooked (48% and 68% respectively), compared with those in quintiles three to five (39% and 57%);
 - More likely to say that they would not eat eggs and dairy foods after their best before date (51% and 45% respectively) compared with those in quintiles four to five (both 35%); and
 - Less likely to say they would keep smoked fish three days or more after opening it (25%) compared with those in quintiles three to five (40%) and less likely to say they would keep soft cheese for three days or more after opening (54%) compared with those in all other areas (66% in quintiles two to five).
- Respondents living in more deprived areas (quintiles one to two) were also less likely to say they would ever eat duck if it was pink or had pink or red juices (eight per cent) compared with those in all other areas (19% in quintiles three to five: 19%).
- Differences were also observed by **region**. Respondents living in London were less likely than those living in other regions to report some behaviours in line with recommended practice. For example, respondents living in London were:
- Less likely to report always using different chopping boards for different foods (34%) along with those in the North East (34%), compared with those in all other regions (50% to 60%);
 - More likely to report washing meat and fish. For example, 66% reported ever washing raw chicken, as did 65% in the West Midlands, compared with those in the North East, North West, East, South East and South West (44% to 50%);
 - Less likely to report behaviour in line with recommended practice for hand washing (72%) along with those in the South East (73%), compared with

those in Yorkshire and the Humber (88%), the West Midlands (88%) and the East (85%);

- Less likely to report always cooking food until it is steaming hot (73%) compared with those in the North West, West Midlands, East and South East (83% to 88%);
 - More likely to report eating meat that is pink or has pink or red juices. For example, 19% reported ever eating burgers or sausages if they were pink, compared with those in the North West, Yorkshire and the Humber, East Midlands, West Midlands and East (six to ten per cent);
 - Less likely to report behaviour in line with recommended practice for storing meat in their fridge (45%), along with those in the North East (43%), East (46%) and South East (43%), compared with those in the North West (63%) and West Midlands (60%);
 - Less likely to arrange their fridge according to its contents (63%) compared with those in almost all other regions (77% to 83%), other than the South East (72%) and Yorkshire and the Humber (71%);
 - Less likely to say they would keep Sunday leftovers until Tuesday (66%) along with those in the South East and South West (each 68%) compared with those in the North West (80%) and Yorkshire and the Humber (79%); and
 - Less likely to say they would reheat food at most once (79%) compared with those in all other areas (90% to 97%).
- In contrast, respondents living in London were:
- More likely to report always washing fruit and vegetables before eating or cooking them. For example, 68% said they always washed fruit that was to be eaten raw, compared with those in the North East, East Midlands, East, South East and the South West (40% to 52%); and
 - More likely to report behaviour in line with recommended practice for use by dates (67%) along with respondents in the East Midlands (67%), compared with those in the North West (55%) and the South East (54%).
- In addition to the behaviours described above:
- Respondents in Yorkshire and the Humber were more likely to report generally defrosting meat in water (nine per cent) than those in the North West (three per cent), the East Midlands (two per cent) and the South East (three per cent);
 - Those in the East Midlands were more likely to say that use by dates are the best indicator of whether food is safe to eat (74%), compared with those in the North West (62%), Yorkshire and the Humber (58%) and the West Midlands (54%); and
 - Respondents living in the North East were more likely to report never eating a range of foods after their use by date. For example, 56% said they never ate

eggs after this date, compared with respondents living in the North West, East Midlands, London, the South East and the South West (35% to 40%).

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

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 England were less likely to report that they always cook food until it is steaming hot throughout (82%) compared with those living in Scotland (88%).
- They were more likely to report always washing fruit which is going to be eaten raw (54%) 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 ... | England | Wales | Scotland | Northern Ireland |
|--|------------------|--------------|--------------------|----------------------|
| Eat chicken or turkey if the meat is pink or has pink or red juices | 92% ^W | 87% | 92% ^W | 93% ^W |
| Eat burgers or sausages if the meat is pink or has pink or red juices | 80% | 80% | 84% | 90% ^{E W S} |
| Eat whole cuts of pork or pork chops if the meat is pink or has pink or red juices | 77% | 77% | 78% | 86% ^{E W S} |
| 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 | 46% | 48% | 54% ^E | 60% ^{E W} |
| Eat duck if the meat is pink or has pink or red juices | 43% | 43% | 42% | 57% ^{E W S} |
| Store open tins in the fridge | 70% | 71% | 79% ^{E W} | 78% ^E |
| Wash raw meat or poultry other than chicken | 40% | 44% | 52% ^{E W} | 50% ^E |
| Wash raw chicken | 35% | 37% | 38% | 45% ^E |
| Wash raw fish or seafood | 21% | 24% | 25% | 30% ^E |
| <i>Base</i> | <i>(1,951)</i> | <i>(503)</i> | <i>(475)</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?

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 England were more likely to report that they never eat chicken or turkey that is pink or has pink or red juices (92%) compared with those living in Wales (87%).
- They were less likely to report never eating burgers or sausages (80%), pork (77%), red meat (46%) or duck (43%) that was pink or had pink or red juices, compared with respondents in Northern Ireland (90%, 86%, 60% and 57% respectively).
- Respondents living in England were less likely to report that they never stored open tins in the fridge (70%) than those in Scotland (79%) and Northern Ireland (78%).
- They were less likely to report never washing raw meat other than chicken (40%) than respondents in Scotland (52%) and Northern Ireland (50%), and less likely to report never washing raw chicken (35%) and fish and seafood (21%) than respondents in Northern Ireland (45% and 30% respectively).

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

| Whether fridge temperature is checked by respondent | England | Wales | Scotland | Northern Ireland |
|--|--------------------|--------------|-------------------|------------------|
| No | 47% | 52% | 45% | 53% |
| Yes | 41% | 41% | 44% | 39% |
| Someone else in the household does | 9% ^{W NI} | 5% | 9% | 5% |
| Combined - Yes | 50% | 46% | 53% ^{NI} | 44% |
| I don't need to – it has an alarm if it is too hot or cold | 3% | 2% | 3% | 3% |
| <i>Base</i> | <i>(1,937)</i> | <i>(496)</i> | <i>(469)</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 England were more likely to report that someone else in their household checks the fridge temperature (nine per cent) compared with respondents living in Wales (five per cent) and Northern Ireland (five per cent) but no less likely to check their fridge temperature than those living in other countries.
- When asked what the fridge temperature should be, respondents living in England were less likely to say that the fridge temperature should be between 0°C and 5° C (53%) compared with those living in Northern Ireland (62%).
- Respondents in England were less likely to report storing certain types of food in different parts of the fridge (75%) compared with those living in Northern Ireland (81%).
- No statistically significant differences were observed by country in whether respondents stored raw meat in their fridge in line with recommended practice for avoiding cross contamination.

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

| % reporting ... | England | Wales | Scotland | Northern Ireland |
|--|---------------------|--------------|-------------------|----------------------|
| Behaviour in line with recommended practice for use by dates ^{\$} | 60% | 63% | 64% | 72% ^{E W S} |
| Reheat food no more than once | 90% ^W | 94% | 93% | 93% |
| Generally defrost meat and fish in the fridge | 31% ^{W NI} | 25% | 31% ^{NI} | 22% |
| <i>Base</i> | <i>(1,951)</i> | <i>(503)</i> | <i>(475)</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 buy and cook 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 England 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 buying and cooking food) compared with those living in Northern Ireland (60% compared with 72%).
- Respondents in England were less likely to report reheating food once at most (90%) compared with those living in Wales (94%).
- Respondents living in England were more likely to report that they generally defrost meat and fish in the fridge (31%) compared with those living in Wales (25%) and Northern Ireland (22%).