# Appendix 5. Red and red processed meat consumption behaviours methodology

**Meal occasion**

Respondents assigned a meal name to each meal they reported in their recalls, allowing us to analyse consumption by breakfast, lunch, dinner, and snacks. We estimated mean intakes (both in grams, and percent contribution to total intake) per meal occasion by summing each respondents’ intakes across all recalls and dividing by the number of completed recalls.

Respondents could select from one of the following nine multiple-choice options:

1. Early snack or drink
2. Breakfast
3. Morning snack or drink
4. Lunch
5. Afternoon snack or drink
6. Dinner
7. Evening meal
8. Late snack or drink
9. Other (asked to specify)

The timings of all meal occasions varied between respondents (see below). With this, we grouped all snack items together, and combined ‘evening meal’ and ‘dinner’ together. We manually reviewed the free-text meal names provided when a responded selected ‘other’, and re-coded to existing categories where appropriate.

|  |  |
| --- | --- |
| **Meal Name** | **Range of times reported** |
| Early snack or drink | 02:00-22:00 |
| Breakfast | 01:00-22:30 |
| Morning snack or drink | 01:30-16:30 |
| Lunch | 02:30-20:00 |
| Afternoon snack or drink | 03:30-22:00 |
| Dinner | 16:30-22:30 |
| Evening meal | 00:00-23:45 |
| Late snack or drink | 00:00-23:45 |

**Purchase location**

Respondents also reported where they purchased each meal (or the ingredients), and with this, we estimated consumption by purchase location (e.g., supermarkets, cafés, restaurants and takeaways) (Supplementary Methods). We estimated mean intakes (both in grams, and percent contribution to total intake) per purchase location, by summing each respondents’ intakes across all recalls and dividing by the number of completed recalls.

Respondents could select from one of the following eleven multiple-choice options:

1. Supermarket / local shop / petrol station - household shopping

2. Supermarket / local shop / petrol station - food on the go

3. Burger, chip or kebab van / 'street food'

4. Cafe / coffee shop / sandwich bar / deli

5. Canteen at work or school / university / college

6. Fast food / take-away outlet

7. Food bank (charity/community) or government food delivery scheme (food boxes/parcels)

8. Leisure centre / recreation or entertainment venue

9. Restaurant or pub

10. Don't know

11. Other (asked to specify)

A total of 108 meals (2%) were purchased from ‘other’ locations. We manually reviewed these responses and re-categorised 15 into existing multiple-choice options:

* ‘hotel’ (n=12) into ‘Restaurant or pub’
* ‘McDonald’s’ and ‘Greggs’ (total n=3) into ‘Fast food / take-away outlet’.

All remaining ‘other’ locations, such as butchers, homemade/homegrown, and recipe subscription boxes, were analysed together.

For analyses, we further collapsed the above eleven multiple-choice options into: 1) Supermarkets; 2) Café’s, restaurants & takeaways; and 3) other:

*Supermarkets*

1. Supermarket / local shop / petrol station - household shopping

2. Supermarket / local shop / petrol station - food on the go

*Café’s, restaurants & takeaways*

1. Burger, chip or kebab van / 'street food'
2. Cafe / coffee shop / sandwich bar / deli
3. Fast food / take-away outlet
4. Restaurant or pub

*Other*

1. Canteen at work or school / university / college
2. Food bank (charity/community) or government food delivery scheme (food boxes/parcels)
3. Leisure centre / recreation or entertainment venue
4. Don't know
5. Other (asked to specify)

**Day of the week**

We also estimated intakes by day of the week. Here, majority of estimates were based on single recalls (i.e., those completing only one recall, or for those who completed two recalls on different days of the week). However, 3% of consumers (n=82) completed two recalls on the same day of the week (across different weeks), and an average was calculated across their two recalls. As such, only absolute intakes (in grams) for each day of the week were calculated, not the percent contribution to intake.

**Statistical analyses**

All results were survey-weighted and all dietary recalls were included in the analyses. We used a multivariable logistic regression model to determine whether being a consumer differed by demographic subgroup, and a multivariable ordinal logistic regression to test for differences in consumer tertile by subgroups. Both models adjusted for mean daily energy intake. Analyses were carried out using Stata IC Version 17, and figures were created in R Version 4.1.2. Statistical significance was set at P<0.05.