

**QMU / ELC**

**MSc Public Health Nutrition Study  
exploring obesity and eating habits  
within secondary school age children**

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Council**

**Environmental Health**

Protects Public Health Promotes Wellbeing  
Empowers Communities Enables Business

# Aims and Objectives

- Main aim:
  - Explore the nutrition of the food environment generally attended by pupils of secondary schools within the area, and compare with the food available within the schools.
- Objectives:
  - Explore the nutritional intake including total energy intake, macronutrients and micronutrients of children in each lunch group (school meals, packed lunches, street meals).
  - Compare the total energy intake and nutritional components of meals between each lunch meal groups.
  - Explore the association of pupil BMI percentile with the type of food outlets around the school.
  - Explore the reasons why pupils chose to purchase school meals or food and drink outside of the school at lunch times.

# Participants

- Preston Lodge High School:
  - 15 pupils aged 12/13 years old
    - 6 male
    - 9 female
- North Berwick High School:
  - 12 pupils aged 13/14 years
    - 6 male
    - 6 female

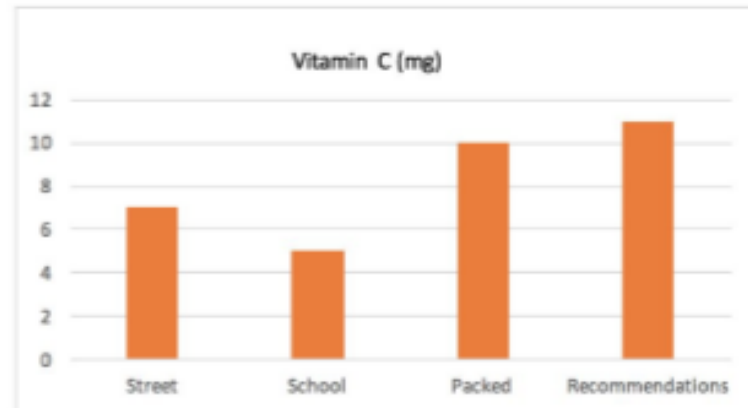
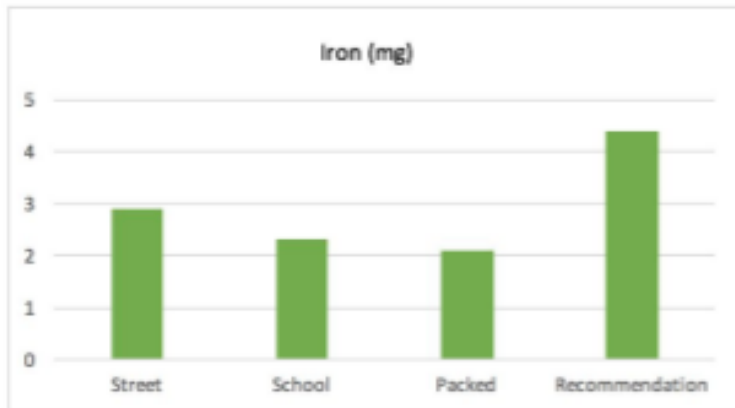
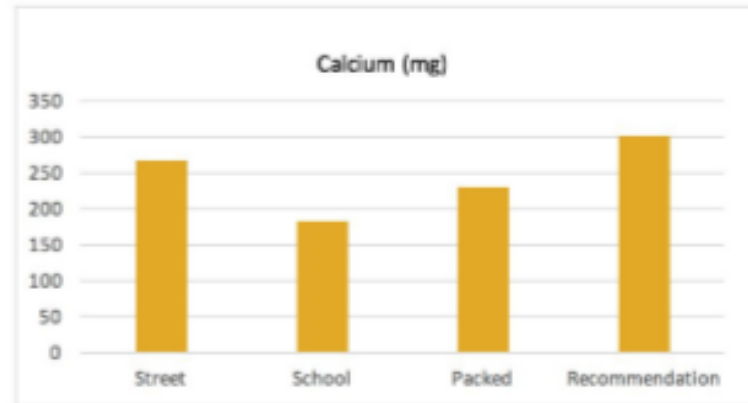
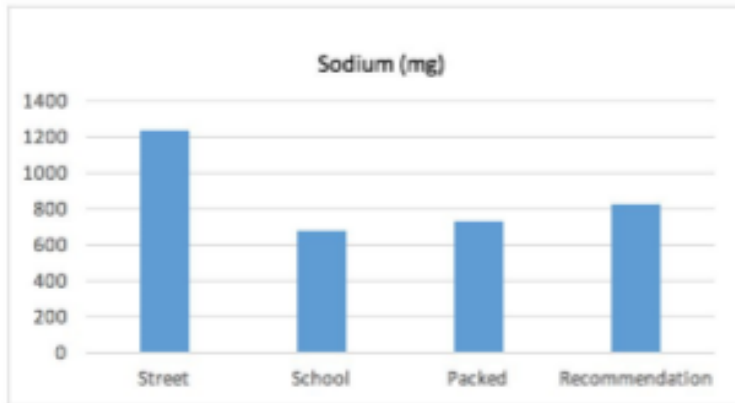
# Food Diary Data Collection

- Data collected from one typical week
  - 4 lunches (Monday- Thursday)
  - Recorded using either a paper food diary or the My East Lothian App
- Participants were asked to provide:
  - Detailed description of their food and drink including portion sizes
  - Where their lunch had come from (school meal/packed lunch/specific shop if street meal)
  - How much of their food and drink was actually consumed (to determine actual intake)
  - How much their lunch cost (if known)

# Total Energy and Macronutrients

	<b>Street Meal Median</b>	<b>School Meal Median</b>	<b>Packed Meal Median</b>	<b>Scottish Nutrient-based Standards</b>
<b>Energy (kcal)</b>	861.5	486	523	664
<b>Protein (g)</b>	23.3	16	18.2	≥13.6
<b>Carbohydrate (g)</b>	61.3	64.6	70.2	≥88.5
<b>Sugars (g)</b>	21.6	17.6	24.1	≤19.5
<b>Fat (g)</b>	40.7	17.5	17.8	≤25.8
<b>Saturates (g)</b>	13.7	7.7	8.2	≤8.1

# Micronutrients



Median micronutrient content of each food source group in comparison to the recommendation

# BMI and Food Outlet Density

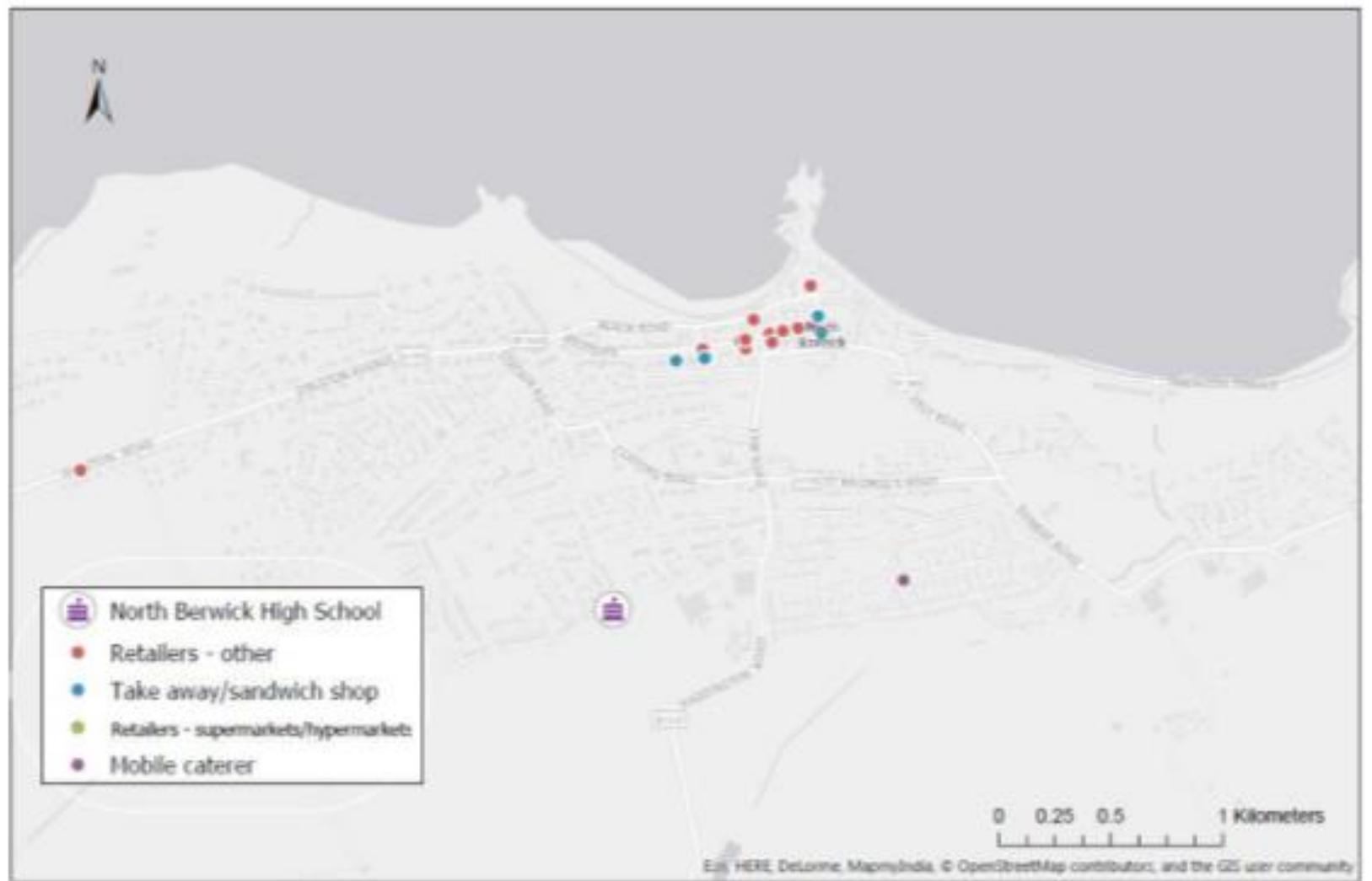
- Food outlet density:
  - List of food outlets by category from the Food Hygiene Information Scheme
  - The schools postcodes were used to create a list of retailers within 1 km
  - Using Esri's ArcGIS pro Geographical Information System the food outlets were mapped around the schools

# BMI and Food Outlet Density

- Previous studies have shown an unclear association between food outlet abundance and proximity to secondary schools and the weight status of pupils
- No significant association between the prevalence of overweight and obesity in pupils and the abundance and type of food outlets within 0.4 and 0.8km of both schools



# Food Outlet Density: NBHS



*Figure 7: A map of the food outlets surrounding NBHS. Different colours represent the categories of food outlets.*

# Food Outlet Density: PLHS



Figure 8: The food outlets around PLHS. Different colours represent the different categories of food outlets.

# School Lunch Questionnaire

Question 1: How often do you have a school lunch?

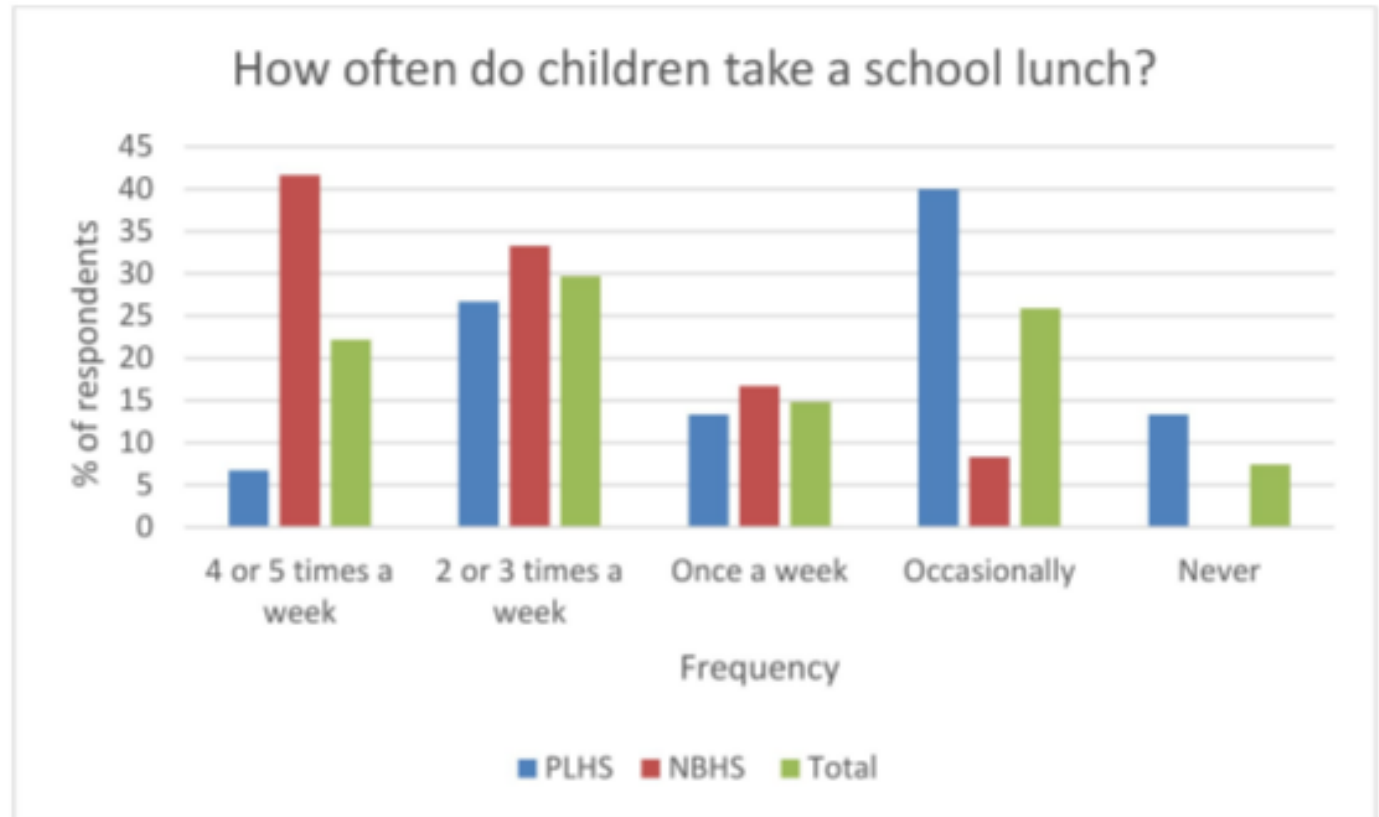


Figure 9: Frequency of school lunch uptake by school and total.

# School Lunch Questionnaire

Question 2: If you only take a school lunch occasionally or never, why is this?

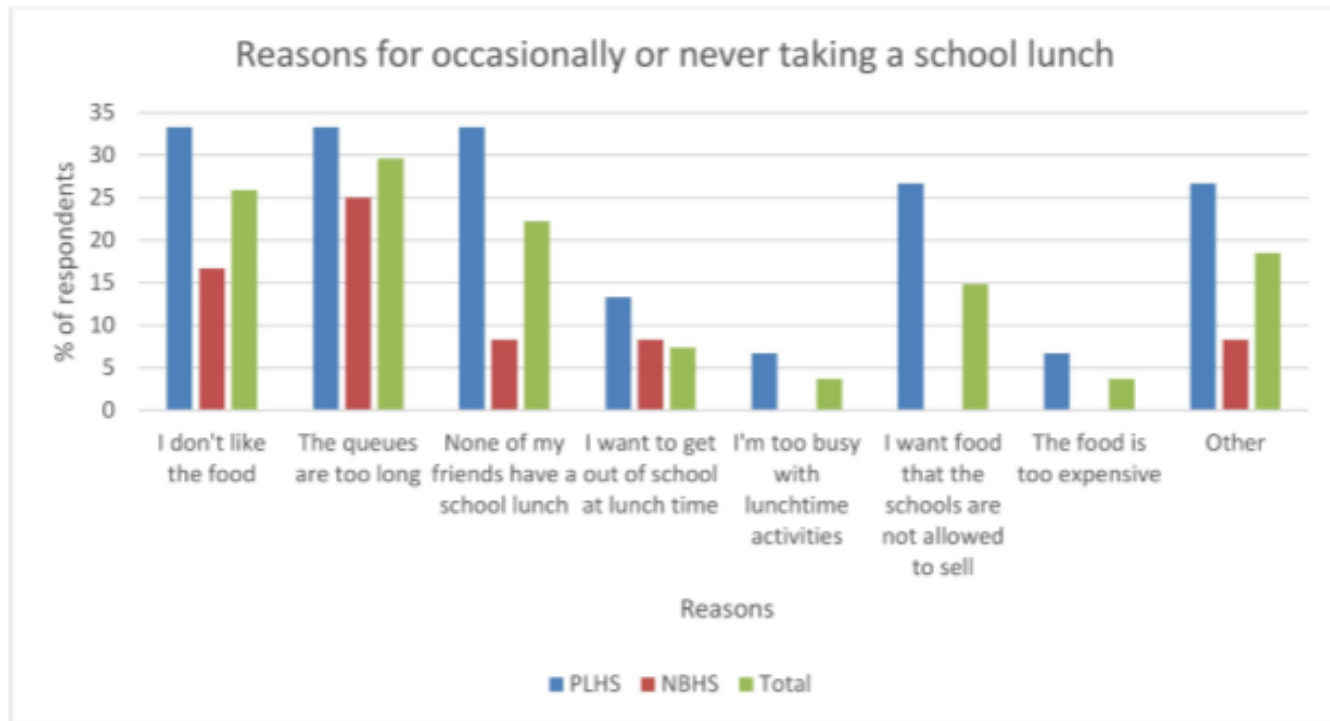


Figure 10: Reasons pupils only occasionally or never take a school lunch.

# School Lunch Questionnaire

Question 3: If you do have a school lunch frequently, why is this?

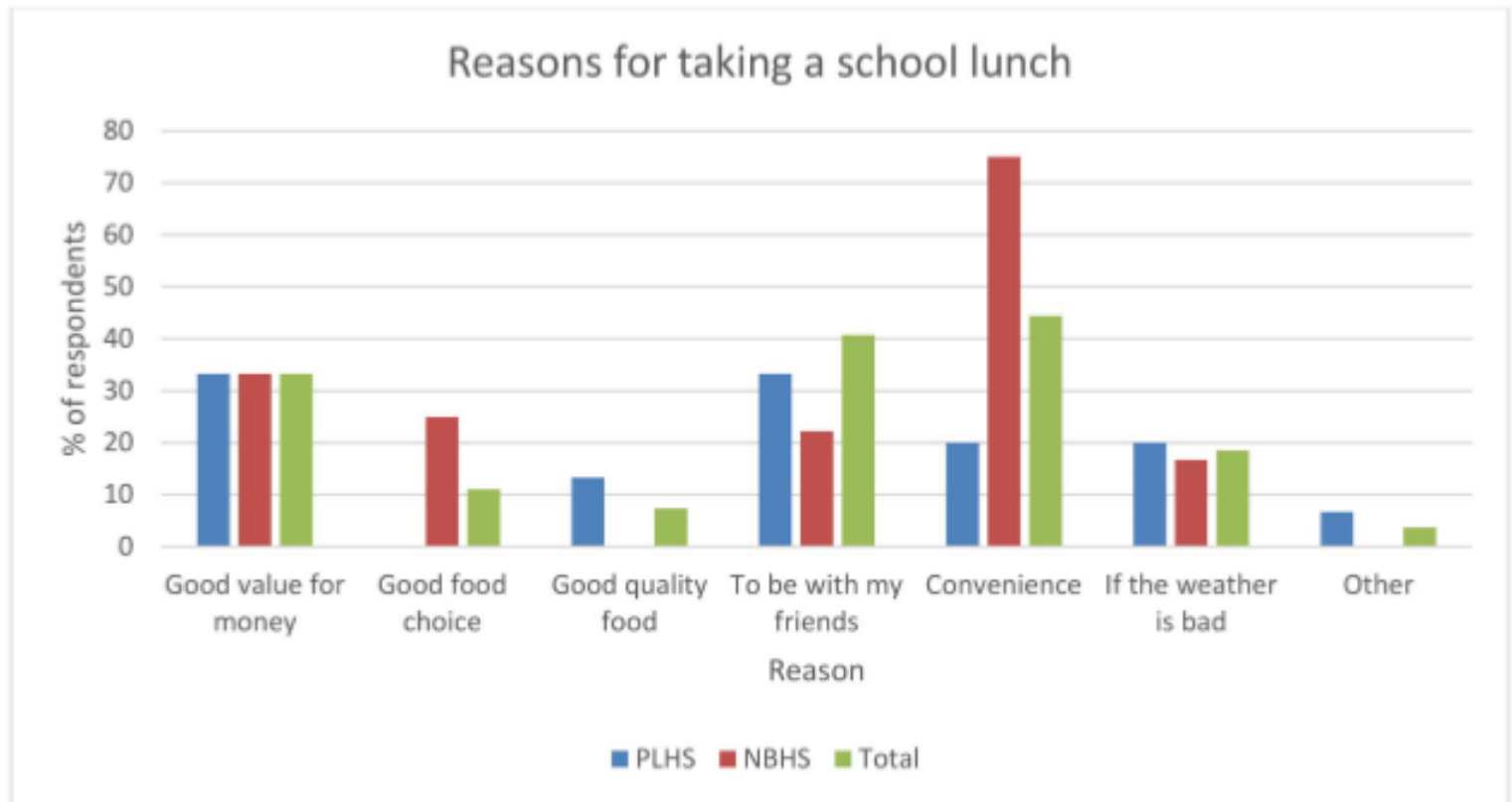


Figure 11: Reasons pupils take a school lunch.

# School Lunch Questionnaire

Question 4: What would encourage you to use the school lunch service more often?

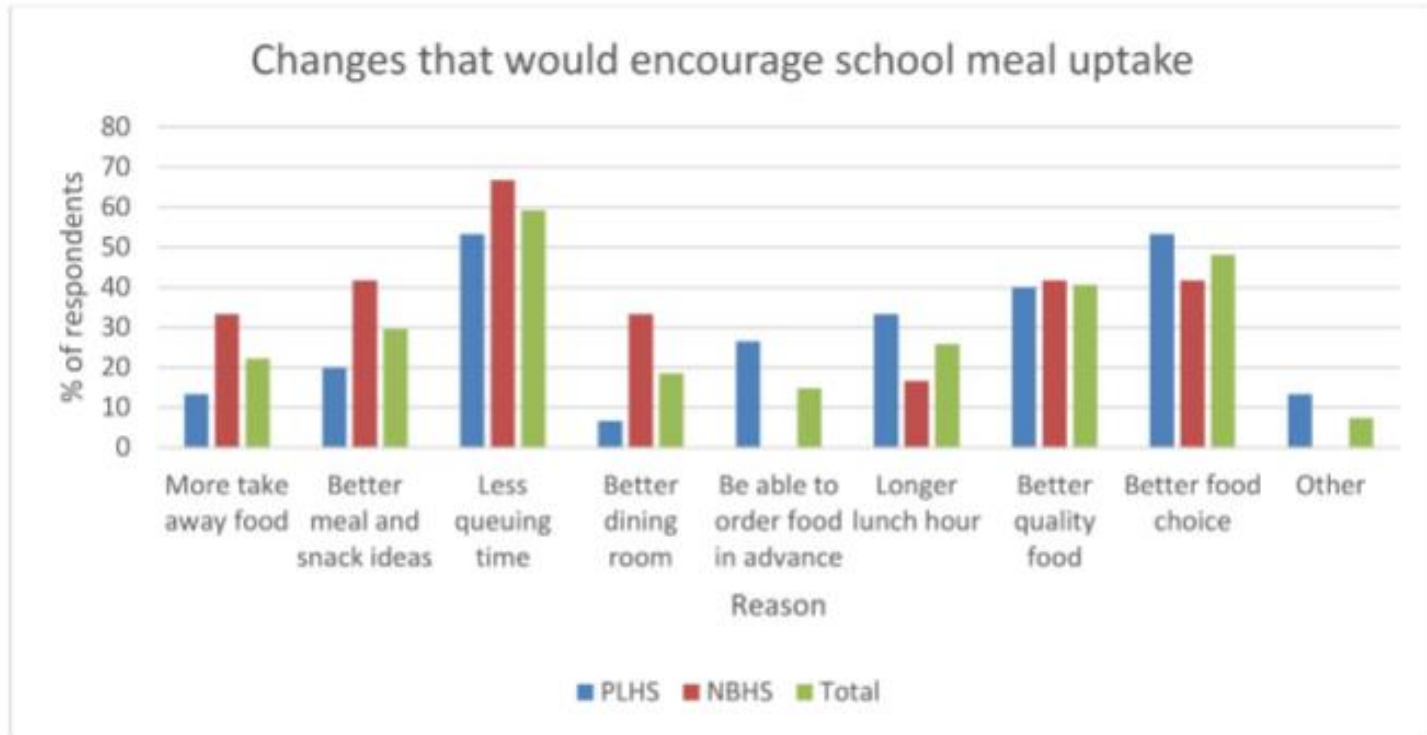


Figure 12: Changes that would encourage pupils to use the school lunch service more often.

# Public Health Implications

- Secondary schools present valuable environments within which to instil good food behaviours and healthy choices
- School canteens permit picking and choosing of nutritionally poor foods
- During adolescence young people use food choice behaviour as a way of conforming to peer groups and social norms
- Young people's values in food choices should be considered in healthy eating initiatives
- Comprehensive school food and drink policies - negative outcomes of bans and restrictions on certain foods
- Stay-on-site school policies - alternatives to school canteens
- Initiatives to control what's on offer in food outlets in the vicinity of schools

# Next Steps

- Work with Education and Facilities to address MSc Study outcomes
- Develop internal processes
- Primary 1 cohort Study - 2018
- Develop and extend all Studies (QMU)