

Evaluation of Vending Guidance in Health and Social Care Settings Across Northern Ireland

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FSA Research and Evidence

The evaluation of vending guidance in Health and Social Care (HSC) settings across Northern Ireland (NI) project evaluates implementation and compliance of nutritional guidance in vending machines across HSC settings in NI and investigates staff and visitor acceptance, attitudes, and behaviours regarding the vending guidance.

Results indicate that the vending guidance may have positively impacted nutritional purchasing with no negative impact on vending sales.

Full details can be found in our infographic available here: [Vending Evaluation Infographic](#)



1. Executive Summary

- The overall aim of the [Nutritional Standards](#) is to improve the health and wellbeing of Health and Social Care (HSC) staff and visitors. The standards apply to all facilities that serve food and/or beverages to staff and visitors operating within HSC settings.
- This project evaluates the nutritional guidance for vending machines across the five Health and Social Care trusts (HSCTs) in Northern Ireland (NI).

- 121 vending machines were audited across 18 hospitals and included in the analysis.
- 788 surveys were completed by HSC staff (666) and visitors (122) across 19 hospitals.
- Only 23 of the 121 vending machines were fully compliant with the vending guidance.
- 97% of slots containing drinks and 95% of slots containing savoury snacks had products below the recommended calorie caps respectively.
- 55% of slots containing chocolate and biscuits and 33% of slots containing confectionery and packet sweets had products below the recommended calorie caps respectively.
- Between 2019 and 2023 there was an 11% increase in unit sales in NI's HSCT vending machines.
- Between 2019 to 2023 the unit sales of drinks with added sugar decreased by 90%, and the average calorie content of products sold in vending machines decreased across all categories.
- Only 26% of survey respondents were aware of the nutritional standards for HSC.
- Despite low compliance, a large percentage of slots had products below the recommended calorie caps. Results indicate that the vending guidance may have positively impacted nutritional purchasing with no negative impact on vending sales.
- The next review of the vending guidance should consider further engagement with procurement and contract suppliers to determine barriers to implementation and identify any additional support required, regular monitoring of the implementation of the vending guidance at Trust level, and additional communications to raise awareness of the vending guidance and support further implementation.

2. Introduction

[Revised Nutritional Standards](#) in HSC settings for staff and visitor catering were launched in 2022 by the Food Standards Agency (FSA), the Public Health Agency (PHA), safefood and the Department of Health in partnership with HSC colleagues.

The overall aim of the Nutritional Standards is to improve the health and wellbeing of HSC staff and visitors. These are food-based standards, modelled on the [Eatwell Guide](#).

The standards apply to all facilities that serve food and/or beverages to staff and visitors operating within HSC settings including catering facilities, vending machines and private retail outlets.

One of the new additions within the 2022 revised standards was to include vending guidance, which sets out nutritional guidelines in relation to vending machines selling confectionery, savoury snacks, and cold drinks.

In 2024, the FSA commissioned Ipsos to conduct an evaluation to review the implementation of the vending guidance across different hospitals in NI to inform the next revision of the nutritional standards in 2025.

2.1. Vending Guidance

The new guidance for vending machines stipulates:

- All savoury snacks must not exceed 200 kcals per packet.
- Confectionery, packet sweets and biscuit snacks must be offered in the smallest, single serve portion size commercially available. This must not exceed:
 - 125 kcals per packet for confectionery and packet sweets.
 - 200 kcals per packet for chocolate and biscuit snacks.
- All cold beverages available must be low calorie i.e. not containing more than 20kcals (80 kilojoules, or kJ) per 100 ml. Therefore, no beverages with added sugar are to be offered.
- Cold beverage vending machines will have a split of 30% still or sparkling unfavoured water; and 70% low calorie carbonated or still beverages.
- Fruit juice, vegetable juice and smoothies must be in single-serve packs (pack size 150 to 200 ml).

- Branding/information on vending machines will support health promoting messages.

2.2. Aim of the Evaluation

The four key research questions of the evaluation:

- Are vending machines in HSC compliant with vending nutritional guidance by adhering to the guidelines for product selection, water to low-calorie drink ratio, calorie caps and branding?
- Has there been a change in vending sales of each category listed in the vending guidance (e.g. savoury snacks, drinks etc.) pre- and post- implementation?
- Has there been a change in the nutritional content of vending machine products post-implementation of the vending guidance?
- What are the current attitudes, knowledge and behaviours of staff and visitors with regards to the vending guidance and the products available in vending machines post implementation of the guidance?

3. Methodology

To meet the objectives of the evaluation, a three-stage programme of research was implemented:

- A phase of secondary data analysis exploring sales data from Coca Cola Hellenic for vending machines placed across HSC hospitals in Northern Ireland.
- Audits of vending machines across HSC hospitals in Northern Ireland to determine compliance to the 2022 vending guidance; and,
- A survey of both HSC staff and visitors to hospitals was carried out in Northern Ireland.
- Ethics approval was sought from Ipsos Ethics Committee and permission to conduct research on hospital premises was obtained from Northern Ireland's Chief Medical Officer.
- All stages of the project followed Ipsos' internal Quality Assurance (QA) processes, FSA review and QA stages and peer reviewed by ACSS and FSA steering group.

Secondary analysis

- Databases were provided to enable Ipsos to conduct an analysis of sales pre- and post-guidance implementation. The two databases provided to Ipsos included wholesale sales data for products stocked in vending machines in HSCTs in 2019 and 2023.
- To conduct the necessary nutrition analysis, Ipsos compiled the nutritional information of the products listed in the sales database and those recorded in the vending machine audits into one dataset.

Details on vending machine audits

- In total, 133 vending machines were audited in 19 hospitals across Northern Ireland. In total, 18 hospitals were included in the audits as Towerhill hospital (SHSCT) did not have any vending machines.
- Vending machines in inaccessible locations, such as A&E Departments, Intensive Care Units, and Coroner Departments, were excluded from the audits.
- In-depth data collection was conducted on the vending machines to determine the contents of each machine. However, as Ipsos fieldworkers did not have access to the machines, contents were only assessed by recording the first product in a slot.
- To record vending machine contents, interviewers completed checklist questions and captured several photos for researchers to examine. Details from audit pictures were used to categorise items to develop a database of vending machine contents.
- Vending machine audits took place between 6th and 11th March 2024.
- At the analysis stage, 12 vending machines were excluded from the audit. To ensure an accurate degree of compliance, it was agreed to exclude vending machines with less than 80% stocked at the time of audit. Overall, 121 vending machines were included in the final analysis from the audit.

Table 1. Breakdown of vending machines audited in each hospital.

Trust	Hospital	Completed audits
Northern Health and Social Care Trust	Antrim Area Hospital	11
	Causeway Hospital	6
	Mid Ulster Hospital	1
	Whiteabbey Hospital	4
Belfast Health and Social Care Trust	Royal Victoria Hospital	24
	Mater Hospital	5
	Belfast City Hospital	8
	Musgrave Park Hospital	10
South Eastern Health and Social Care Trust	Downe Hospital	4
	Lagan Valley Hospital	5
	Ulster Hospital	12
Southern Health and Social Care Trust	Daisy Hill Hospital	3
	Craigavon Area Hospital	7
	Lurgan Hospital	1
	South Tyrone	1
Western Health and Social Care Trust	Altnagelvin Hospital	9
	Omagh Hospital	2
	South West Acute Hospital	8

Details on staff and visitor survey

- A survey of HSC staff and visitors to hospitals in Northern Ireland was conducted across March and early April 2024.
- Two data collection modes were offered to ensure maximum accessibility and to enable surveys to be undertaken at any time of the day. The two data collection methods were as follows:
 1. QR codes on posters, placed on or close to vending machines; and,
 2. Intercept interviews conducted by Ipsos interviewers during various shifts at designated hospitals.
- A total of 788 completed surveys were achieved across 19 hospitals selected for the research and this breaks down as follows:
 - 666 surveys completed by hospital staff; and,
 - 122 surveys completed by visitors.

- Convenience sampling, a type of non-probability sampling approach was adopted where the sample was drawn from a section of the population that was close at hand, readily available, or convenient. This included capturing views of people visiting a hospital setting and hospital staff. No boost samples were used to boost survey sample.
- Questionnaires were developed in conjunction with the FSA and were programmed by Ipsos in-house programmers for both the QR codes and interviewer-administered survey.
- The survey was designed to take no longer than 5 minutes to complete. Survey questions were agreed between Ipsos and the FSA.
- Survey questions related to vending machine usage were asked to both staff and visitors. Demographic characteristics (age, gender, whether a member of staff or a visitor) were captured at the start of the survey.
- Posters containing QR codes for the survey were displayed from 6th March to 8th April and the survey was live during this time.
- No weighting was applied to any data.

4. Results

- This project evaluates the nutritional guidance for vending machines across the five Health and Social Care trusts (HSCTs) in Northern Ireland (NI).
 - 121 vending machines were audited across 18 hospitals and included in the analysis.
 - 788 surveys were completed by HSC staff (666) and visitors (122) across 19 hospitals.
- Only 23 of the 121 vending machines were fully compliant with the vending guidance.
 - 97% of slots containing drinks had products below the recommended calorie caps.
 - 95% of slots containing savoury snacks had products below the recommended calorie caps.

Table 2. Breakdown of surveys completed in each hospital.

Trust	Hospital	Completed surveys	Percentage
Northern Health and Social Care Trust	Antrim Area Hospital	48	6%
	Causeway Hospital	33	4%
	Mid Ulster Hospital	14	2%
	Whiteabbey Hospital	18	2%
Belfast Health and Social Care Trust	Royal Victoria Hospital	91	12%
	Mater Hospital	1	0%
	Belfast City Hospital	43	5%
	Musgrave Park Hospital	20	3%
South Eastern Health and Social Care Trust	Downe Hospital	58	7%
	Lagan Valley Hospital	33	4%
	Ulster Hospital	78	10%
Southern Health and Social Care Trust	Towerhill Hospital	10	1%
	Daisy Hill Hospital	26	3%
	Craigavon Area Hospital	135	17%
	Lurgan Hospital	31	4%
	South Tyrone	13	2%
Western Health and Social Care Trust	Altnagelvin Hospital	78	10%
	Omagh Hospital	19	2%
	South West Acute Hospital	39	5%

- 55% of slots containing chocolate and biscuits had products below the recommended calorie caps.
- 33% of slots containing confectionery and packet sweets had products below the recommended calorie caps.
- Between 2019 and 2023 there was an 11% increase in unit sales in NI's HSCT vending machines.
- Between 2019 to 2023 the unit sales of drinks with added sugar decreased by 90%, the unit sales of all water products increased by 26%, and the average calorie content of products sold in vending machines decreased across all categories.
- Only 26% of survey respondents were aware of the nutritional standards for HSC.
- Staff were significantly more aware (28%) than visitors (14%) of the nutritional standards. Significantly more visitors (73%) than staff (53%) say they have not noticed a change in the vending machine items since 2022.

- Of those who had visited or worked in a HSC setting prior to the introduction of the guidance, the majority (64%) were supportive of the changes made to vending machines.
- Two in five (42%) use vending machines in HSCTs once a week. However, two in five (42%) also said what is offered in the vending machines is not satisfactory

5. Discussion

Of the 121 vending machines that were audited, only 23 machines were fully compliant with the vending guidance, these 23 machines were all drinks-only machines with no machines containing food being fully compliant.

The greatest progress is seen with changes to the stock of water and low calorie drinks within vending machines, as 38% of vending machines only selling drinks audited were compliant with the guidelines. Three quarters (74%) of vending machines in HSCT hospitals ensure at least 30% of the drinks available for purchase are water.

Both of these audit findings are reflected in the analysis of sales data. Across the four years between 2019 and 2023 sales of all types of water (still, sparkling and flavoured) increased by 26% while unit sales of drinks with added sugar decreased by 90%.

Overall, there was a small 1% reduction in unit sales of cold drinks. However, the modified drink offering within the new guidance may have contributed to large changes in nutritional content of drinks bought. After the implementation of the new guidance, the average calorie content of drinks sales has decreased from 59 calories (in 2019) to 23 calories per product (in 2023). Likewise, following implementation average sugar content has also dropped from 14g in 2019 to 5g in 2023.

Shifts in sales are also evident within the snack product categories. While the unit sales of savoury snacks and chocolate or biscuits increased considerably (+27% and +31% respectively), the sales of confectionery and packet sweets has decreased (-70%) following implementation of the new vending guidance.

Following implementation of the new vending guidance, average calorie, saturated fat and salt content of savoury food products sold has decreased (-45kcal, -0.45g and -0.25g respectively).

Despite low numbers of fully compliant vending machines, the majority of slots within vending machines contained products below each category's calorie caps. Data suggests that implementation of the vending guidance has improved nutritional purchasing without negatively impacting sales, as unit sales increased by 11% between 2019 and 2023.

Two fifths (42%) of survey participants say they use vending machines in HSCTs once a week. The frequent use of vending machines highlights the importance of this evaluation to help inform implementation of the vending guidance to further improve food and drink offerings in health and social care settings.

6. Recommendations

Based on the findings of this evaluation, any further review of the vending guidance should consider:

1. Further engagement with procurement and contract suppliers to determine barriers to implementation and identify any additional support required.
 - Engagement with procurement and supplier teams will be crucial to understand their barriers and to put steps in place to mitigate against these.
2. Regular monitoring of the implementation of the vending guidance at Trust level to highlight areas of non-compliance.
 - Despite awareness of the new standards and accompanying signage having little apparent impact on staff behaviours, there is a strong sense of support for the new guidance overall. Almost two thirds of staff (64%) support the changes, with only 13% opposed.
 - Given the positive support for implementation, improved nutritional purchasing and increased unit sales, there is opportunity to promote for greater adherence to the vending guidelines.
3. Additional communications that are designed and implemented to raise awareness and support further implementation of the guidance. Other ways to strengthen the message should be explored, particularly amongst HSCT staff who frequently use vending machines for both drinks and snacks.

- One in five (21%) survey respondents said they would be more likely to purchase something from a vending machine if they saw the branding in the hospital. However, this does not allow us to estimate changes in unit sales by increasing awareness.
4. Enhanced communications to ensure alignment between the brand messaging, the vending guidance and products stocked within the machines to provide a cohesive narrative to vending machine users.

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Supplementary Materials

Vending evaluation audit checklist

Download: <https://science.food.gov.uk/article/122777-evaluation-of-vending-guidance-in-health-and-social-care-settings-across-northern-ireland/attachment/244312.pdf>

Evaluation of vending guidance survey questions

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Evaluation of vending guidance infographic report

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Vending Evaluation Infographic

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