



# The school food environment – are we making the healthy choice the easy choice?

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**A designated WHO Collaborating Centre  
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# Determinants of obesity

- Up to 25% of primary school children overweight and 19% teenagers (IUNA, 2005, 2008, 2012; Layte & McCrory, 2009; Heinen et al., 2014)
- Children's weight related to social class – even at age 3yrs (Williams et al., 2013)
- A large proportion of children consume energy-dense, nutrient-poor foods & drinks and not enough fruit & vegetables (HBSC 2007, 2012; IUNA 2005; 2008)
- Obesity is strongly determined by individual, social, cultural and economic factors and the *physical/built environment*
  - *Availability, proximity, choice*

(Morland et al 2002; Layte et al., 2011; Day et al 2011; Timperio et al 2008)



# Health Promotion

- To enable people to increase control over and improve their health
- Address determinants of health and health inequalities
  - Create an environment so that the default option is the easy choice
  - Schools are one setting through which action can be taken to enable healthy choices





# Evidence base

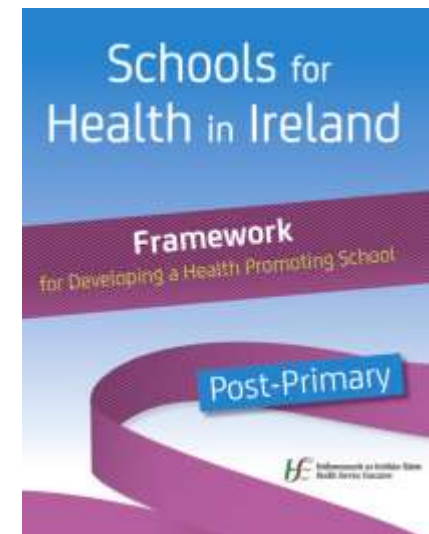
- Surge in literature since 2011 on school retail food environments
- Mostly cross-sectional studies & most focused in N. America
- Area level indicators are most common
- GIS preferred method to assess exposure
- Outcomes: Body weight, diet, purchases
- Evidence is equivocal with some evidence for effect on body weight (Williams et al 2014).



# School food environment



- *External school food environment*
  - The built environment on food choice/obesity
  - Planning regulations (Nov 2011, April 2014....)
  
- *Internal school food environment*
  - Health Promoting Schools
  - Vending machines (April 2015)



# Aim

- To characterise the food environment in post-primary schools
  - Focus on schools involved in the 2010 HBSC survey in Ireland (n=63)



# Mapping Food Environment



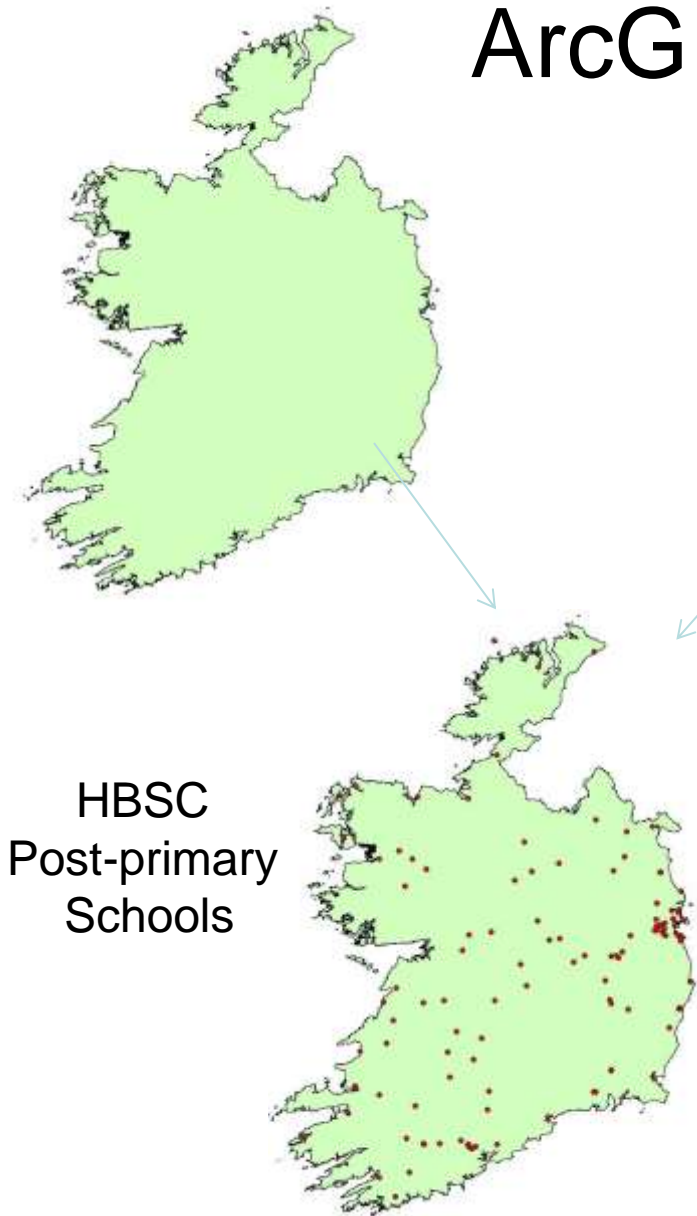
- Geographic information system (GIS)
- Geo-coded HBSC post-primary schools
  - *GeoDirectory*
- 1km circular buffers
- Food businesses were mapped – *Fast food outlets, local shops, restaurants...*
- Data validation: Google Street View & reliability checks





# ArcGIS 10

ID	NAME	County
6901	Adm's Best Urban	Kildare
10005	Arklow No. 1 Urban	Wicklow
15801	Arklow No. 1 Urban	Wicklow
11808	Donaghmore	Meath
20607	Balla	Wex
20604	Ballinacorney	Wex
4812	Baronclough-Glenageary	Frank
10182	Ballinacorney	Cork County
10603	Trillick Urban	Kerr
10142	Carletonville	Kerr
10202	Mallow Rural	Cork County
10204	Mallow Urban	Cork County
12004	Mountrahilly	Cherry
3627	Glenties Urban	Louth
10114	Maguireville	Cork County
25801	Danganville No. 1 Urban	Waterford County
21813	Clonahilly	Limerick County
18006	Clonsilla-Cumshingaun	Dublin City
4008	Downy-Forest	Frank
10603	Fairley Urban	Cork County
33006	Dalystown Urban	Donegal
20602	Mary's Hill	Wex
11811	Ruane's Cross A	Cork City
2671	Waterside C	Dublin City
3602	Delinacorney	Dublin City
10218	Annagh-Robbin	Cork County
12818	Portlough North	Cherry
30821	Clonsilla A	Limerick City
19807	Carah	Kerry
33626	Mil'man's Lodge	Donegal
21807	Clonsilla	Limerick County
31805	Ballinacorney Urban	Wicklow County
10604	Ballinacorney	Kerr
6907	Delinacorney	Kildare
15807	Wicklow Urban	Wicklow
10605	Macroom Urban	Cork County
30808	Clonsilla-Cumshingaun	Dublin City
3617	Blackrock-Millmountdown	Dun Laoghaire-Rathdown
15807	Wicklow Urban	Wicklow
11819	Trillick C	Cork City
16801	Ennis No. 1 Urban	Cherry
11801	Carletonville Mill (Ballinacorney)	Wicklow
6911	Kildare	Kildare
11826	Fairley Urban C	Cork City



HBSC  
Post-primary  
Schools

## School characteristics

- ▶ Urban 61.9%      Rural 38.1%
- ▶ DEIS 20.6%      Non DEIS 79.4%
- ▶ Girls 17.5%      Boys 22.2%      Mixed 60.3%





# External food environment – 1km

**Mean values of food retail businesses within 1km of Irish schools (n=63)**

	Mean	Urban/rural status		P value
		Rural	Urban	
Coffee shops and sandwich bars	3.89	1.21	5.54	0.000
Restaurants	3.65	1.33	5.08	0.004
Asian and other 'ethnic' Restaurants	2.60	0.79	3.72	0.000
Fast Food outlets	4.03	1.08	5.85	0.000
Supermarkets	1.95	0.83	2.64	0.000
Local Shops	6.71	3.92	8.44	0.001
Fruit and Vegetable shops	0.73	0.13	1.10	0.000



# External food environment by gender – 1km

**Mean values of food retail businesses within 1km of Irish schools (n=63)**

	School gender			
	Girls	Boys	Mixed	P value
Coffee shops and sandwich bars	4.82	6.07	2.82	0.028
Restaurants	3.73	7.86	2.08	0.001
Asian and other 'ethnic' Restaurants	4.00	3.86	1.74	0.025
Fast Food outlets	4.91	6.57	2.84	0.088
Supermarkets	3.09	2.43	1.45	0.000
Local Shops	8.09	10.21	5.03	0.003
Fruit and Vegetable shops	1.09	1.36	0.39	0.007



# Young People's perceived school food environments

- Qualitative study to explore young people's perception of their school food environment
- 6 post-primary schools recruited
  - 2 classes per school (1 younger/1 older, aged 12 -18)
- 95 students involved (37% Boys, 63% Girls)
- One class period ~40 mins
  - Mapping exercise
  - Group discussion with topic guide





# Perceived food environment

- The number/quantity of food outlets close to their school
- What food environments they use
- Quality of food outlets within walking distance
- Barriers to accessing food outlets of their choice
- Food purchases
- A need for change or maintain status quo?
  
- Topics discussed: Price, time, taste, no brand loyalty, social aspect, access at various times, use of various outlets – petrol stations, pubs, discount stores, Chinese restaurants etc.



# Summary

- No published study has explored objective and perceived exposure to food outlets
- Food retailers cluster around schools
  - 75% of post-primary schools had 1+ fast food restaurants within 1 km
  - 29.7% had 5+ fast food outlets within 1km of schools
- Boys schools & urban schools – greater proportion of food businesses
- These food outlets provide ample food purchasing opportunities
- Qualitative work to provide greater understanding of youth & school food environments



# Open discussion...

- Variety of food retail outlets surrounding schools
  - Are these supportive environments for young people?
  - Are planning regulations the way forward?
  - Are school lunch policies required?
  - Are interventions necessary? e.g. partner with store owners/local shops – price promotions, availability of healthy snacks, beverages, single-servings, product placement.....
- Enabling healthy choices is challenging
  - Community involvement
  - Internal school food environment
  - Engage youth



# Future work

- Children's journeys through food environment before, during and after school
  - Purchasing behaviour
  - When/where food eaten (outcome measure)
- Audit local stores & other food retailers
  - Categorising food retailers..
- Combining qualitative and quantitative measures of food access
- Home/School environments





# Questions?





# Acknowledgements....

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- Professor Oddrun Samdal, Data Bank Manager, University of Bergen
- All members of the international HBSC network
  
- HBSC Ireland team in particular Mary Callaghan



# Contacts

HBSC Ireland Website: [www.nuigalway.ie/hbsc](http://www.nuigalway.ie/hbsc)

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- EXTRA SLIDES FOR DISCUSSION

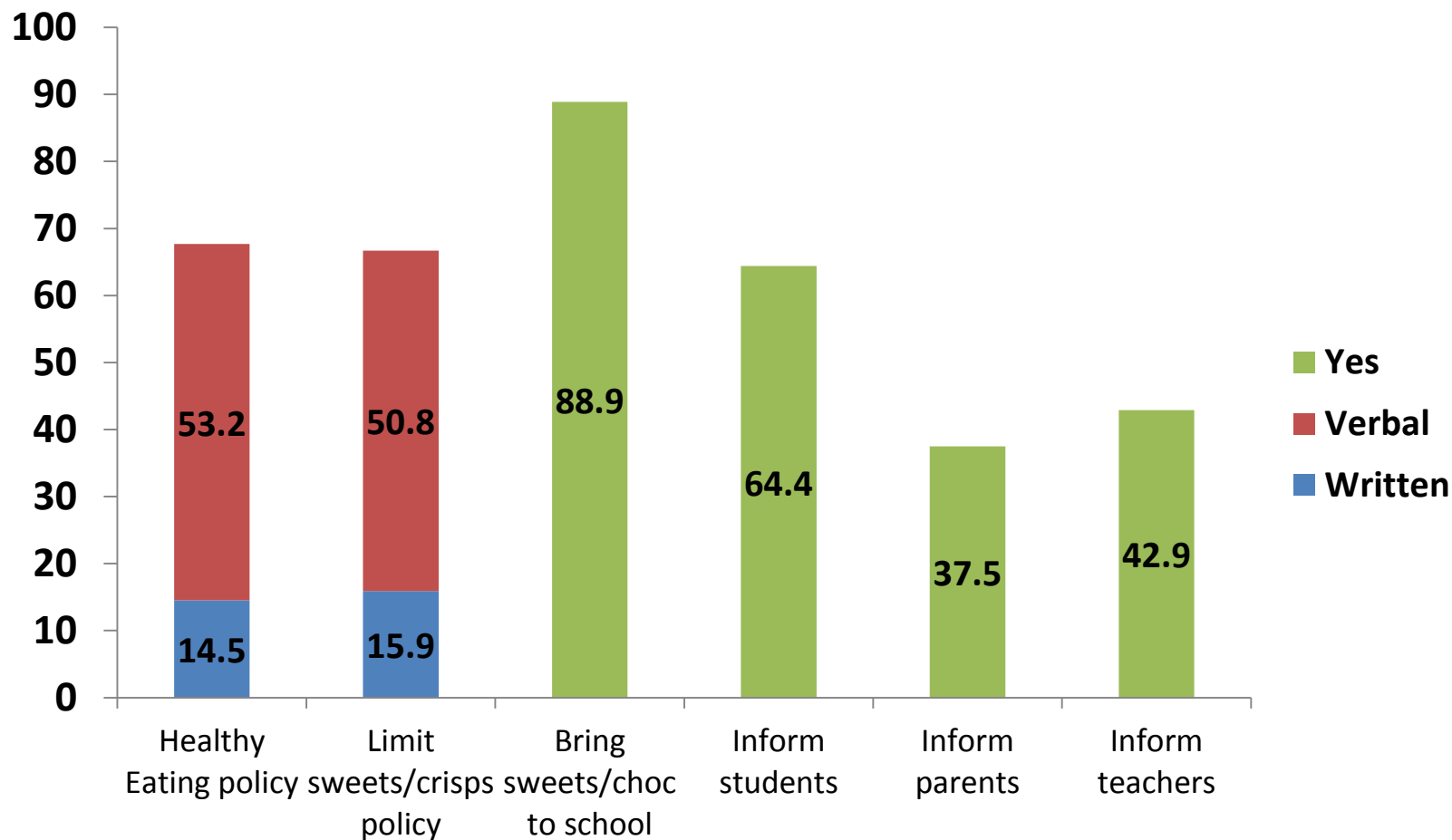


# Internal food environment

- 64 out of 119 schools completed questionnaire based on HBSC school level questionnaire
- 5 themes, 25 questions
  - School characteristics, **Nutrition**, Physical Activity, Violence/bullying and Neighbourhood
- Canteen: 69.5% schools (n= 41)
- Tuck Shop: 53.4% schools (n= 31)
- Vending machines: 37.7% schools (n=23)

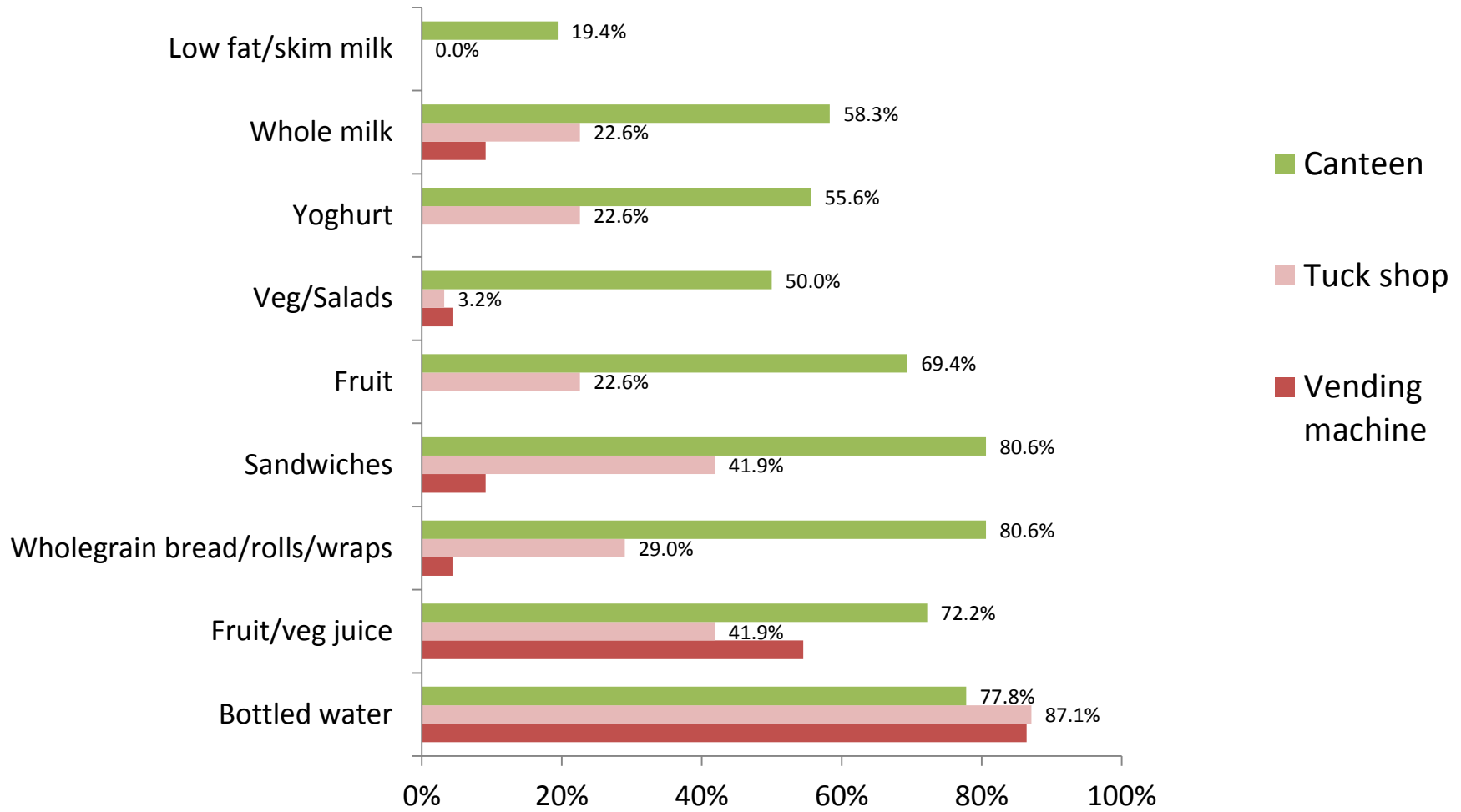


# Food policies & communication to stakeholders (%)





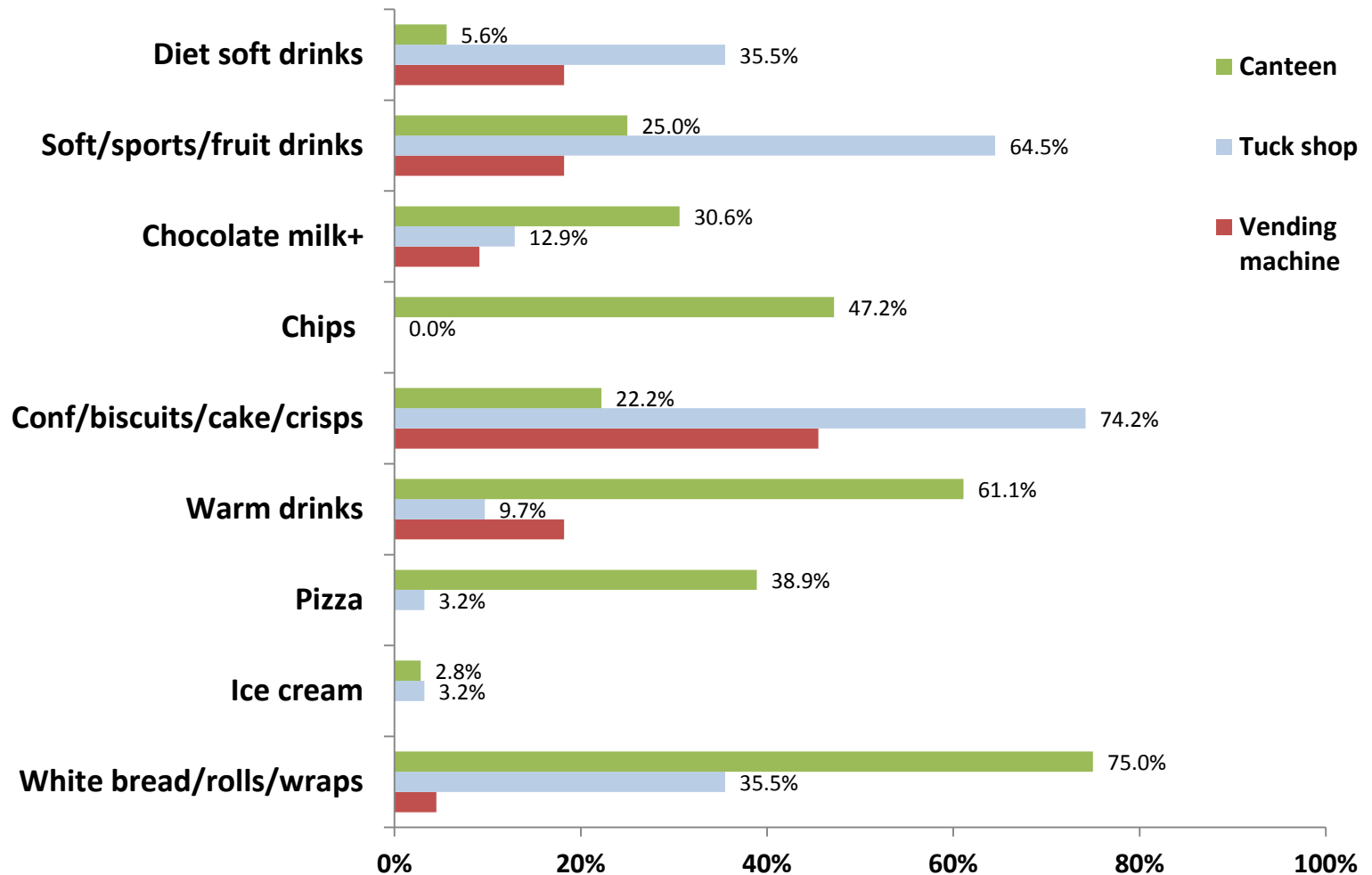
# School food provision - healthy







# School food provision – unhealthy





# Results: Daily consumption

	Soft drinks	Vegetables	Fruit
Policy to increase healthy eating (f&v)	-0.305*	0.207	0.139
Leave at lunch – 1 <sup>st</sup> Year	0.379**	-0.231	-0.306*
Leave at lunch – 2 <sup>nd</sup> Year	0.508**	-0.281*	-0.405**
Leave at lunch – 3 <sup>rd</sup> Year	0.469**	-0.369**	-0.39**
Leave at lunch – Transition Year	0.474**	-0.197	-0.422**
Leave at lunch – Pre leaving Cert Year	0.459**	-0.233	-0.377**
Leave at lunch – Leaving Cert Year	0.358**	-0.149	-0.199

\*p<0.05; \*\*p<0.01; Daily consumption of food products



# Thank you

