THE USE OF NUTRITION AND HEALTH CLAIMS AND SYMBOLS ON PREPACKED FOODS:
FROM CONSUMERS EXPOSURE TO PUBLIC HEALTH IMPLICATIONS

Igor Pravst, Ph.D. & Anita Kušar, Ph.D.
Nutrition Institute, Ljubljana, Slovenia

E-mail: igor.pravst@nutris.org

FP7: CLYMBOL

- **CLYMBOL: Role of health-related claims and symbols in consumer behavior**

- **www.clymbol.eu**

- Duration: 4 years (2012-2016)

- Project leader: EUFIC, Brussels

- CLYMBOL builds on insights on nutrition labelling gained in the FLABEL project, to strengthen knowledge on consumer understanding in the field of health claims and health-related symbols

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration. (Contract n°311963)

FP7: REDICLAIM

- **REDICLAIM: Understanding the impact of legislation on "REduction of DIsease risk" CLAIMs on food and drinks**

- **www.rediclaim.eu**

- Duration: 3 years (2013-2016);

- Project leader: University of Surrey, UK

- **REDICLAIM** seeks to understand the way in which the European Regulation (EC) No. 1924/2006 on nutrition and health claims made on foods is impacting substantiation and use of "reduction of disease risk" claims on food and drinks.

NATIONAL RESEARCH PROGRAMME (SLOVENIA): NUTRITION AND PUBLIC HEALTH

- **Research programme: NUTRITION AND PUBLIC HEALTH**

- **www.nutris.org**

- Project leader: Nutrition Institute, Slovenia

- The objectives of this long term research programme is (a) developing a nutritional methodology; (b) investigating the lifestyle habits/health status of the population; (c) assessing ways to efficiently promote healthy foods and diets; and (d) support developing functional foods.

NUTRITION AND HEALTH CLAIMS

EU regulations:

- 'nutrition claim' means any claim which states, suggests or implies that <u>a food has particular beneficial nutritional properties</u> due to the energy, the nutrients or other constituents

- 'health claim' means any claim that states, suggests or implies that a <u>relationship exists between a food category, a food or one of its constituents and health</u>

COUNTRY TO COUNTRY DIFFERENCES

- Typical description of the strength of scientific evidence needed for approval of health claims

  - EU: "generally accepted scientific evidence of beneficial physiological effect in humans"

  - US and Canada: "significant scientific agreement"

  - Australia & New Zealand: "established food-health relationship based on the totality and weight of evidence"

- Lists of approved reduction of disease risk claims are comparable between different jurisdictions, however, notable differences can be observed:

  - EU: claims can only communicate the reduction of disease risk factor

  - US, Canada, and Australia & New Zealand: reduction of disease can be directly communicated

Raats, MM et al. 2015. Nutrition Bulletin 40(4), 340-348.

COUNTRY TO COUNTRY DIFFERENCES

WHO/Codex	EU	USA	Canada	Australia and New Zealand
Nutrient function claims	Function claims and children's claims Calcium is needed for the maintenance of normal bones Vitamin D contributes to the maintenance of normal bones Calcium is needed for normal growth and development of bone in children. Calcium and vitamin D are needed for normal growth and development of bone in children	Structure/function claims Flexible wording; no pre-approval needed. Example by FDA Calcium builds strong bones	Nutrient function claims flexible wording, no pre-approval needed. Examples of CFIA Calcium aids in the formation and maintenance of bones and teeth. Vitamin D builds and maintains strong bones and teeth	General level health claims Flexible wording. Self-substantiated claims also possible, but need to be notified. Calcium is necessary for normal teeth and bone structure Contributes to normal growth and development of children.
Reduction of disease risk claims	Reduction of disease risk claims (Art 14.1.a) Calcium (and vitamin D) help to reduce the loss of bone mineral in post-menopausal women. Low bone mineral density is a risk factor for osteoporotic bone fractures.	Significant Scientific Agreement (SSA) health claims Adequate calcium (and vitamin D) throughout life, as part of a well-balanced diet, may reduce the risk of osteoporosis. [model health claims]	Disease risk reduction claims A healthy diet with adequate calcium and vitamin D, and regular physical activity, help to achieve strong bones and may reduce the risk of osteoporosis. (Naming the food) is a good source of calcium / (very) high in calcium (and vitamin D).	High level health claims Calcium enhances bone mineral density. (+ statement on diet high in calcium) Calcium (and vitamin D) reduces risk of osteoporosis in persons 65 years and over. (+ statement on diet high in calcium, and adequate vitamin D status) [exact wordings not defined]

PREVALENCE OF NUTRITION AND HEALTH-RELATED CLAIMS ON PRE-PACKAGED FOODS:
A FIVE-COUNTRY STUDY IN EUROPE

- Data have been selected in 5 countries (UK, NL, DE, ES and SI) in three different stores (large supermarket/national retailer, discounter and neighborhood store)

- Based on a randomization protocol, 400 products have been selected in the three store types and purchased for data extraction

	UK	Netherlands	Germany	Slovenia	Spain
Large Supermarket / national retailer	Tesco	Albert Heijn	GLOBUS	Mercator Megamarket	Mercadona
Discounter	Aldi	Aldi	Aldi	Hofer	DIA
Neighbourhood Store	The Co-operative Food	Spar	Edeka Active	Spar Market	Sabeco

PREVALENCE OF NUTRITION AND HEALTH-RELATED CLAIMS ON PRE-PACKAGED FOODS:
A FIVE-COUNTRY STUDY IN EUROPE

Claim type	No. of Claims	Claims of which are symbolic	No. of foods with a claim	% of foods with claim (95% CIs)
Nutrition claim	865	1	423	20.8% (19.0%–22.5%)
Nutrient content claim	797	1	399	19.6% (17.8%–21.3%)
Nutrient comparative claims	68	0	49	2.4% (1.7%–3.1%)
Health-related ingredient claim	105	6	72	3.5% (2.7%–4.3%)
Health claim	392	74	222	10.9% (9.6%–12.3%)
General health claim	153	64	137	6.7% (5.6%–7.8%)
Nutrient and other function claim	185	9	106	5.2% (4.2%–6.2%)
Reduction of disease risk claim	21	1	12	0.6% (0.2%–0.09%)
Children's development & health claim	33	0	15	0.7% (0.4%–1.1%)
Any type of claim (NHC)	1362	81	528	26.0% (24.0%–27.9%)

- **Considerable differences across countries, and between various food categories!**

CLYMBOL
claims · symbols · consumers

PREVALENCE OF NUTRITION AND HEALTH-RELATED CLAIMS ON PRE-PACKAGED FOODS:
A FIVE-COUNTRY STUDY IN EUROPE

Country	Claim type	No. of claims	… of which are symbolic	No. of foods with a claim	% of foods with claim (95% CIs)
All countries N= 2,034 foods	Nutrition claim	865	1	423	20.8% (19.0-22.5)
	Health claim	392	74	222	10.9% (9.6-12.3)
UK N=398 foods	Nutrition claim	247	0	118	**29.6** (25.1-34.1)
	Health claim	85	2	44	11.1% (8.0-14.1)
Netherlands N=416 foods	Nutrition claim	154	0	70	16.8% (13.2-20.4)
	Health claim	73	50	60	**14.4%** (8.9-15.2)
Germany N=399 foods	Nutrition claim	123	0	64	**16.0%** (12.4-19.7)
	Health claim	82	0	37	9.3% (6.4-12.1)
Slovenia N=416 foods	Nutrition claim	144	0	78	18.8% (15.0-22.5)
	Health claim	88	7	52	**12.5%** (0.9-15.7)
Spain N=405 foods	Nutrition claim	196	1	93	23.0% (18.8-27.1)
	Health claim	64	15	29	**7.2%** (4.6-9.7)

CLYMBOL
claims · symbols · consumers

PREVALENCE OF NUTRITION AND HEALTH-RELATED CLAIMS ON PRE-PACKAGED FOODS:
A FIVE-COUNTRY STUDY IN EUROPE

Source: Hieke et al. Nutrients 2016, 8(3), 137.
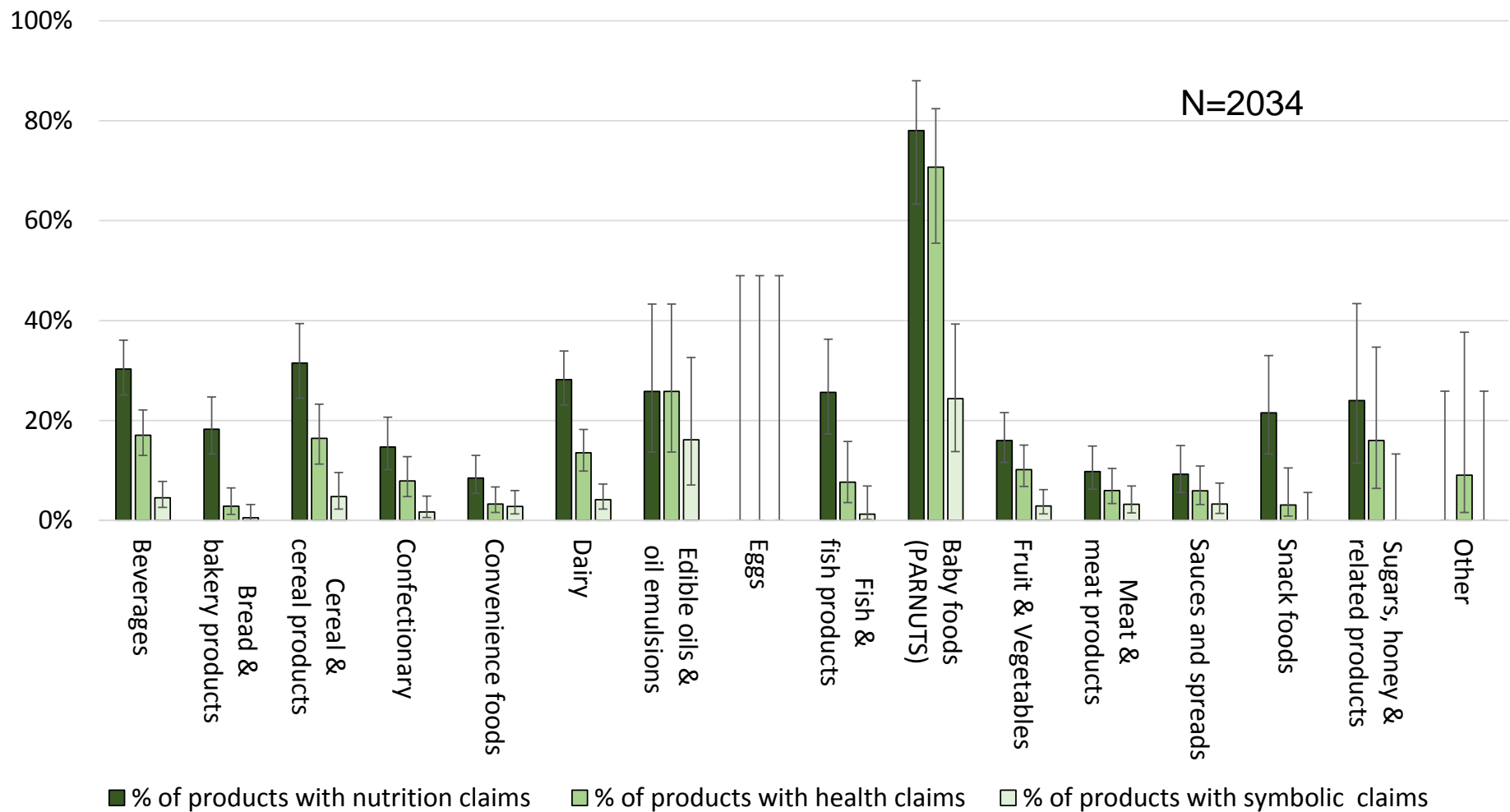
NUTRITION AND PUBLIC HEALTH RESEARCH PROGRAMME (SLOVENIA):

RESEARCH OF THE FOOD SUPPLY

FOOD MONITORING PROGRAMME

Collection of the data about the food supply in Slovenia:

- **Year 2011**: over 6.000 foods

- **Year 2015**: **over 10.000 foods**

Data collection (food stores)	CLAS database: Compositon and LAbelling Information System	Data analyses

ISO 9001
BUREAU VERITAS
Certification

NUTRITION INSTITUTE
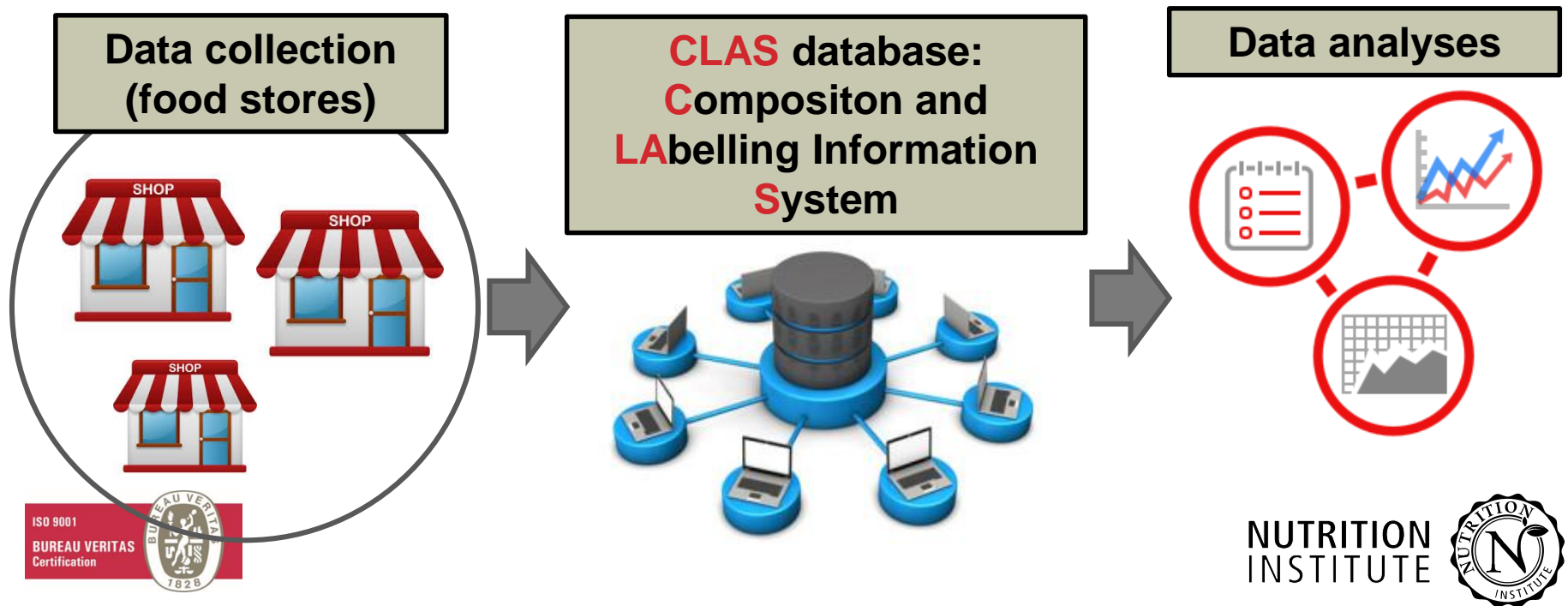
EXAMPLES OF USE

MONITORING FOOD LABELLING

Example: Consumer's exposure to nutrition declaration on pre-packed foods

Food Category	Nutrition Declaration	
	SCE	SWE
Milk	94%	97%
Yoghurt and fermented milk drinks	94%	98%
Butter and spreads	79%	71%
Cheese	45%	72%
Other dairy products	70%	63%
Whole eggs	14%	6%
Frozen fruit & vegetables	90%	90%
Frozen ready meals	89%	95%
Breakfast cereals	96%	97%
Breads and similar products	59%	26%
Fine bakery wares (biscuits)	53%	51%
Pasta & rice	86%	80%
Fruit juice & smoothies	95%	100%
Soft drinks and water	83%	62%

Food Category	Nutrition Declaration	
	SCE	SWE
Teas	13%	18%
Peas, beans & lentils	56%	60%
Processed meats	45%	62%
Processed seafood	49%	70%
Ready meals – full meal	89%	84%
Ready meals – other	59%	64%
Vegetable fats and oils	56%	22%
Milk imitates	100%	100%
Yoghurt imitates	100%	100%
Chewing gum	71%	80%
TOTAL	67%	

Source: Pravst I et al. *Nutrients* 2015, 7(11), 9353-9368.

MONITORING FOOD LABELLING

Example: Consumer's exposure to health claims

Source: Pravst I et al. *Nutrients* 2015, 7(11), 9353-9368.
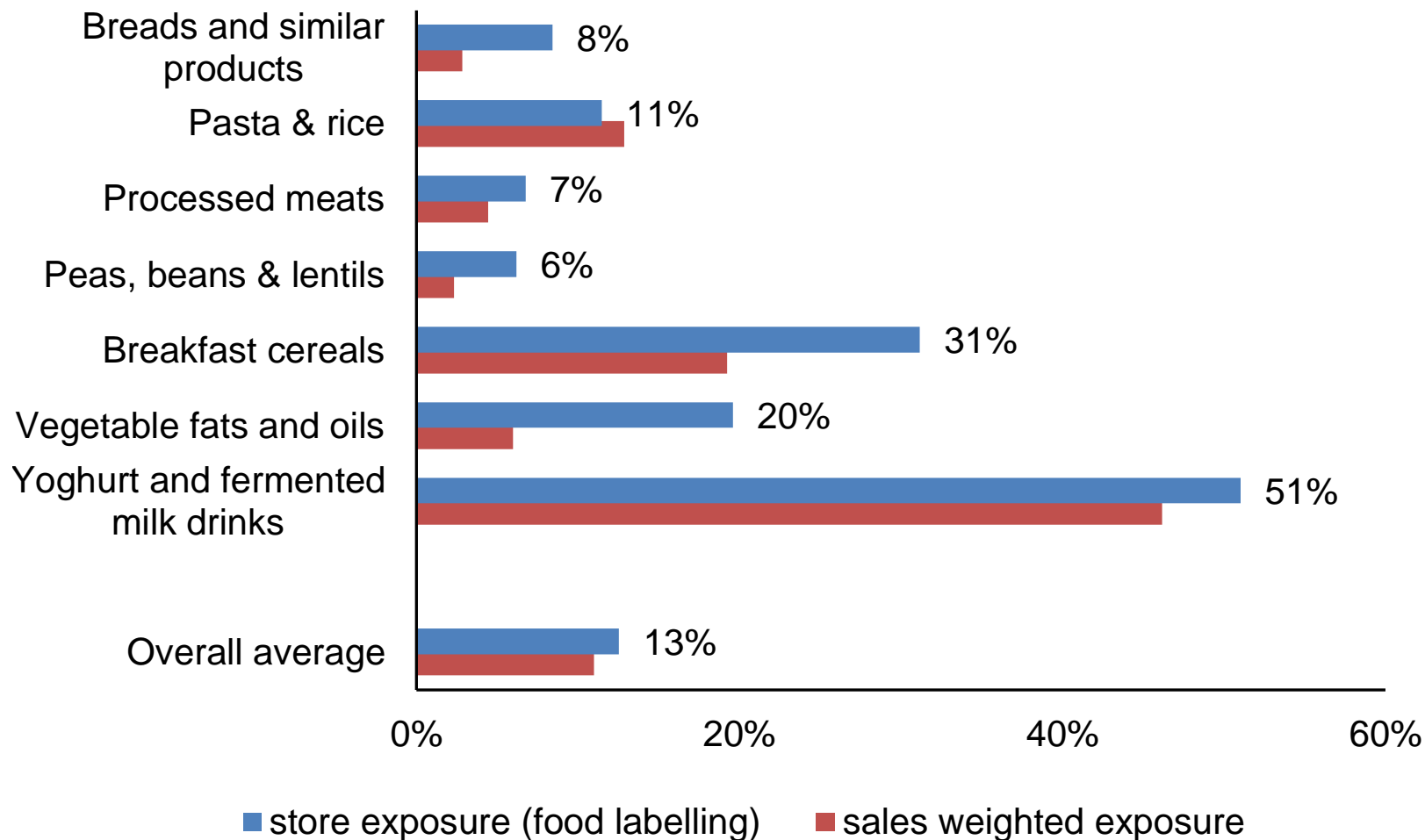
MONITORING FOOD LABELLING

Example: Consumer's exposure to nutrition and health claims by store type

Legend:
- large supermarket (LAS, N=4069)
- neighbourhood store 1 (NS1, N=2074)
- neighbourhood store 2 (NS2, N=1844)
- discounter (DIS, N=666)

Categories (x-axis): Milk; Yoghurt and fermented milk drinks; Butter and spreads; Cheese; Other dairy products; Whole eggs; Frozen fruit & veg.; Frozen ready meals; Breakfast cereals; Breads and similar products; Fine bakery wares; Pasta & rice; Fruit juice & smoothies; Soft drinks and water; Teas; Peas, beans & lentils; Processed meats; Processed seafood; Ready meals (full); Ready meals (other); Vegetable fats & oils; Milk imitates

MONITORING FOOD (RE)FORMULATION

Example: Analyses of the sodium levels in foods by food category

Sodium content (in mg per 100 g/mL)

■ average sodium content in available foods (SCA)
■ average sodium content in sold foods (SCS)

Source: Korošec et al. *Nutrients* 2014, 6(9), 3501-3515.
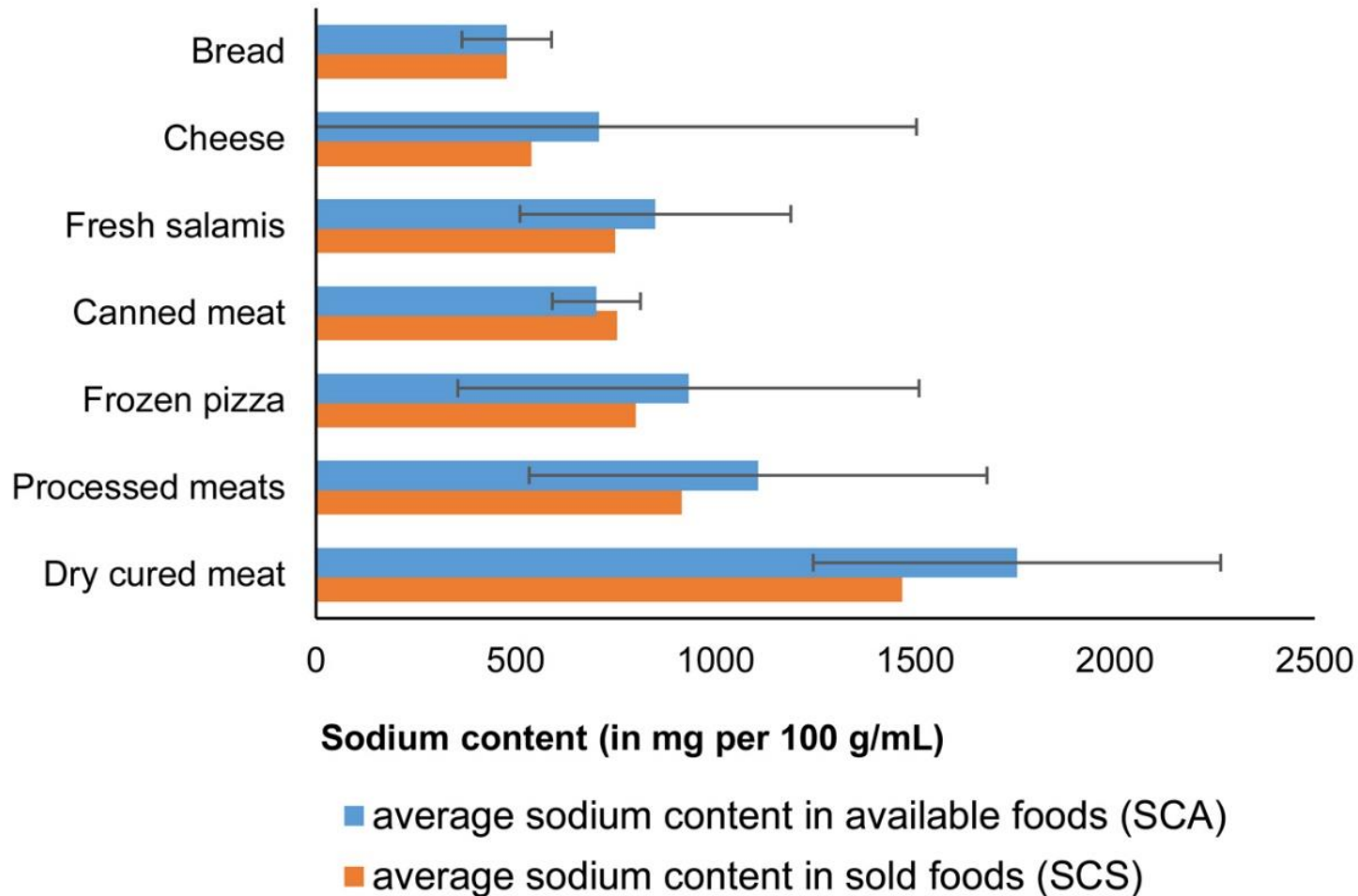
MONITORING FOOD (RE)FORMULATION

Example: Nutritional quality of breakfast cereals

LESS HEALTHY (by FSANZ)

HEALTHY (by FSANZ)

| | SI (n = 44) | NZ (n = 36) | SI (n = 52) | NZ (n = 65) | SI (n = 91) | NZ (n = 67) | SI (n = 9) | NZ (n = 14) | SI (n = 5) | NZ (n = 20) | SI (n = 20) | NZ (n = 45) | SI (n = 221) | NZ (n = 247) |

Categories: Cereal for kids, Bubbles & flakes, Muesli, Brans, Buscuits & Bites, Oats, All cereals

Slovenia (**SI**): Debeljak et al. Acta Alimentaria 2015. 44(4): 561–569
New Zealand (**NZ**): Devi et al. Appetite 2014, 81: 253–260

NUTRITION INSTITUTE
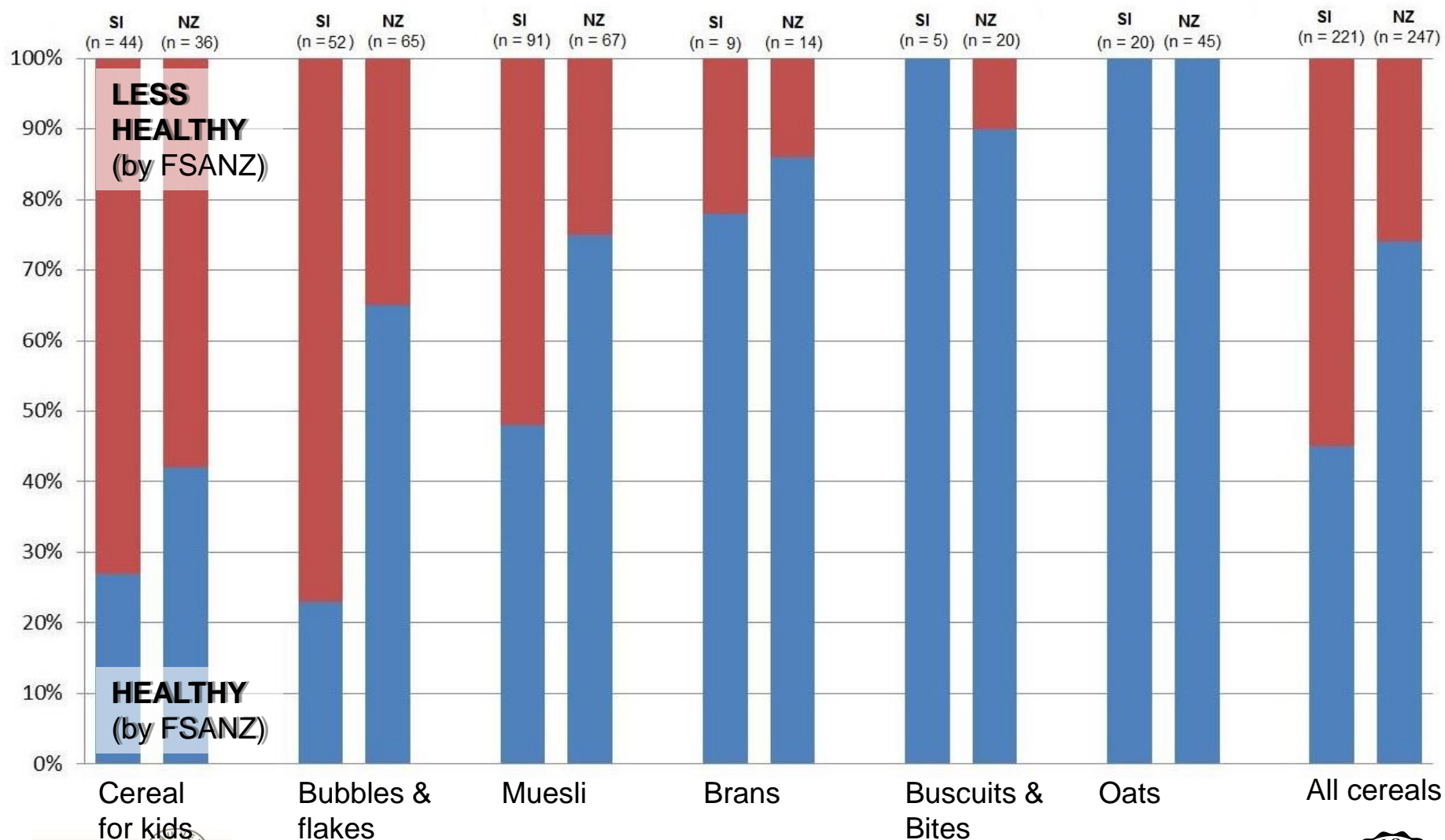
MONITORING FOOD (RE)FORMULATION

Example: Proportion of total salt sales and iodine content by type of salt, 2014

Salt type	All samples			Samples excluding salt blends				
	N	[%]	Sales [%]	N	[%]	Sales [%]	mg I/kg ± SD	mg KI/kg ± SD
Iodised salt	**42**	**48.8%**	**95.7%**	**42**	**59.2%**	**95.9%**	**18.5 ± 2.2**	**24.2 ± 2.8**
Sea salt	32	37.2%	82.7%	32	45.1%	82.9%	18.5 ± 2.3	24.2 ± 3.0
- Shaker packet	10	11.6%	0.6%	10	14.1%	0.6%		
Mineral salt	10	11.6%	13.0%	10	14.1%	13.0%	18.3 ± 1.5	23.9 ± 2.0
- Shaker packet	2	2.3%	0.0%	2	2.8%	0.0%		
Non-iodised salt	**29**	**33.7%**	**4.1%**	**29**	**40.8%**	**4.1%**	**2.7 ± 0.3**	**3.5 ± 0.4**
Sea salt	11	12.8%	3.4%	11	15.5%	3.4%	3.1 ± 0.3	4.0 ± 0.4
- Gourmet sea salt	5	5.8%	0.1%	5	7.0%	0.1%		
Mineral salt	18	20.9%	0.7%	18	25.4%	0.7%	0.8 ± 0.1	1.0 ± 0.1
- Himalayan salt	16	18.6%	0.7%	16	22.5%	0.7%		
- Shaker packet	6	7.0%	0.0%	6	8.5%	0.0%		
Salt blends	**15**	**17.4%**	**0.2%**					
TOTAL	**86**			**71**			**17.8 ± 2.1**	**23.3 ± 2.7**

Source: Pravst & Žmitek, 2016, *unpublished.*
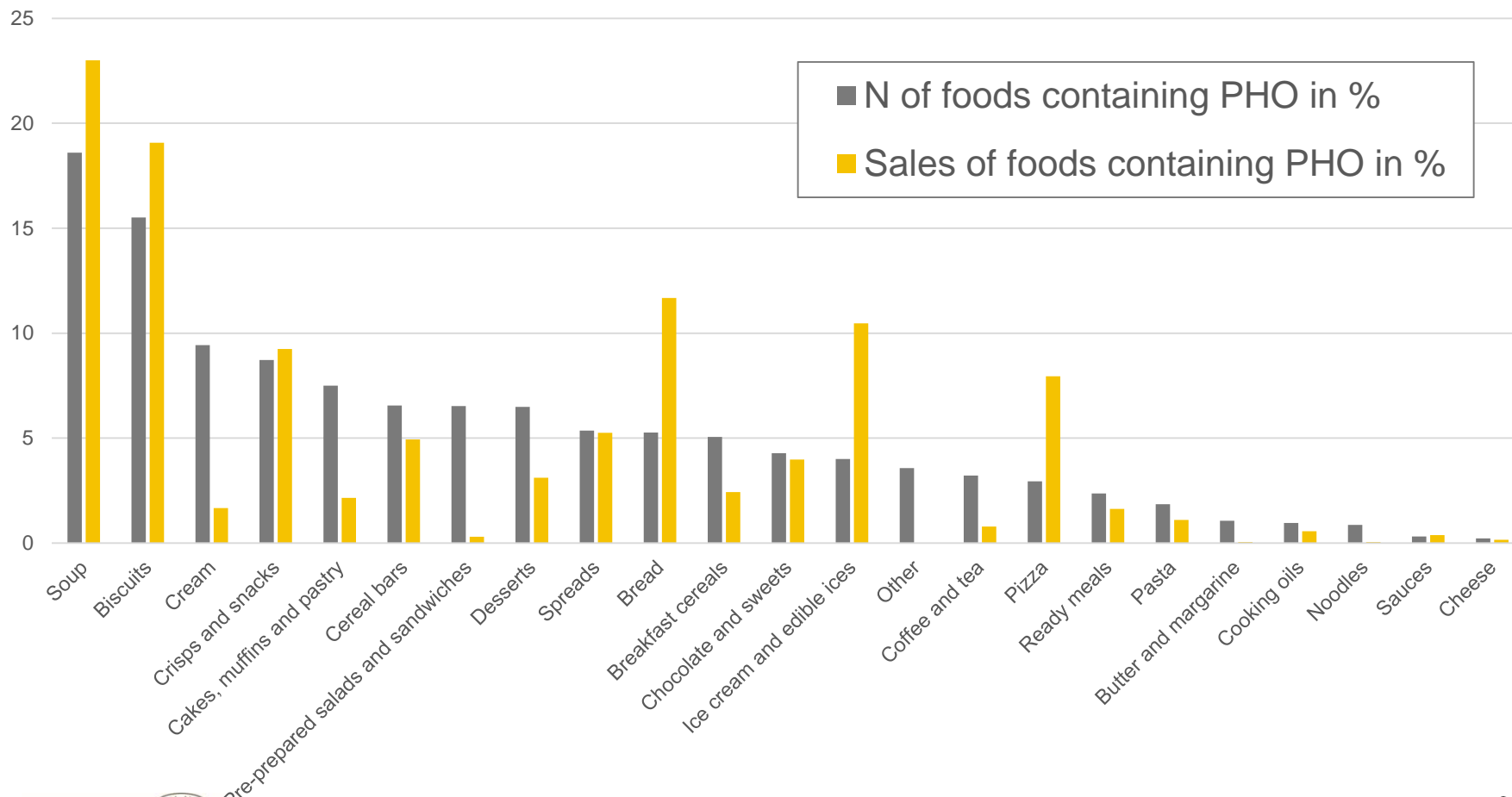
NUTRITION INSTITUTE

MONITORING FOOD (RE)FORMULATION

Example: Evaluation of the availability of trans fats in the food supply

Alerting evidence: Availability of prepackaged biscuits/cakes with I-TF (over 2% of the total fat content as I-TF) in Slovenian markets increased for over 300% since 2012! (Stender et al., 2016)


Source: Stender et al. BMJ Open 2016;6: e010673.
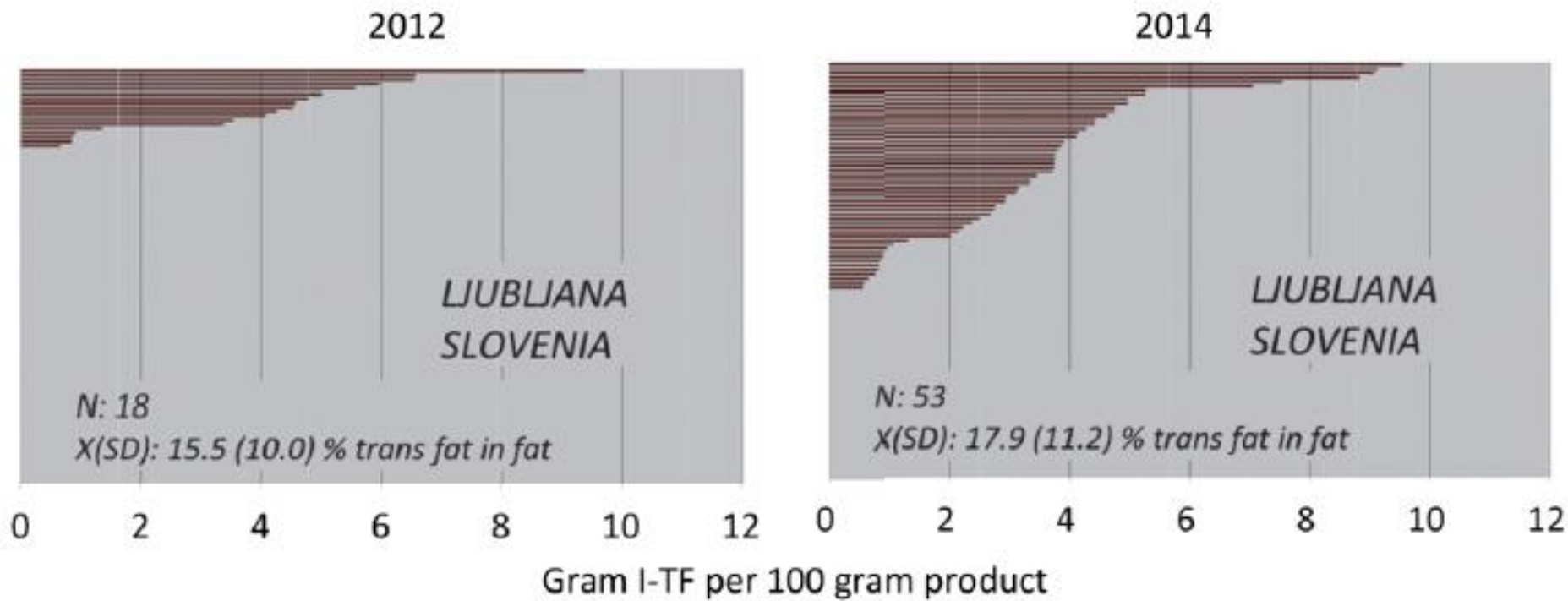
MONITORING FOOD (RE)FORMULATION

Example: Proportion of available foods containing partially hydrogenated oils & fats in the Slovenian food suppply (source of trans-fats)

Legend:
- N of foods containing PHO in %
- Sales of foods containing PHO in %

Categories (x-axis): Soup, Biscuits, Cream, Crisps and snacks, Cakes, muffins and pastry, Cereal bars, Pre-prepared salads and sandwiches, Desserts, Spreads, Bread, Breakfast cereals, Chocolate and sweets, Ice cream and edible ices, Other, Coffee and tea, Pizza, Ready meals, Pasta, Butter and margarine, Cooking oils, Noodles, Sauces, Cheese

Source: Pravst et al., 2016, *unpublished.*

NUTRITION INSTITUTE

MONITORING FOOD (RE)FORMULATION

Example: Sales of sugar-sweetened beverages and average sugar concentrations (g/L) (2013-2015)

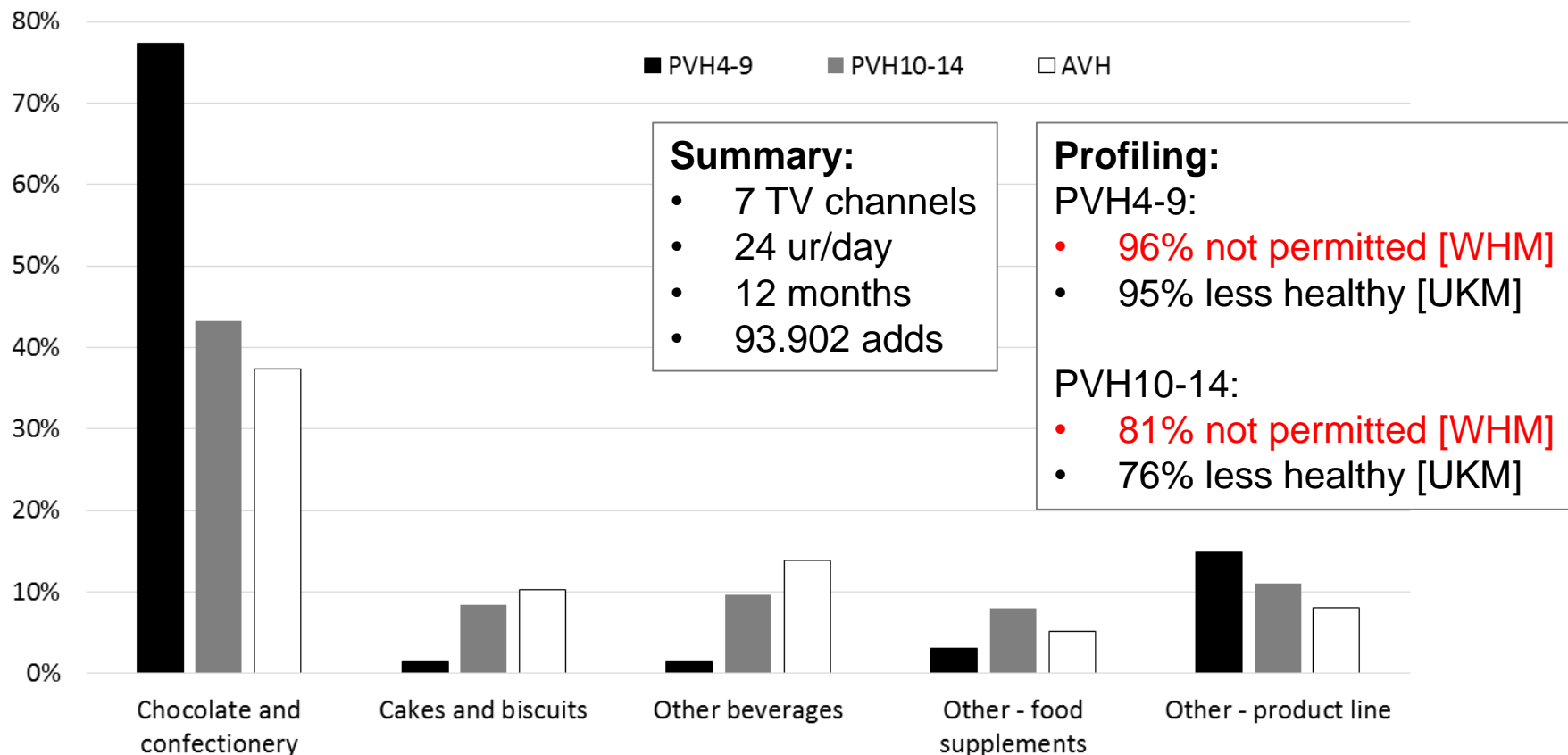Source: Pravst et al., 2016, *unpublished.*
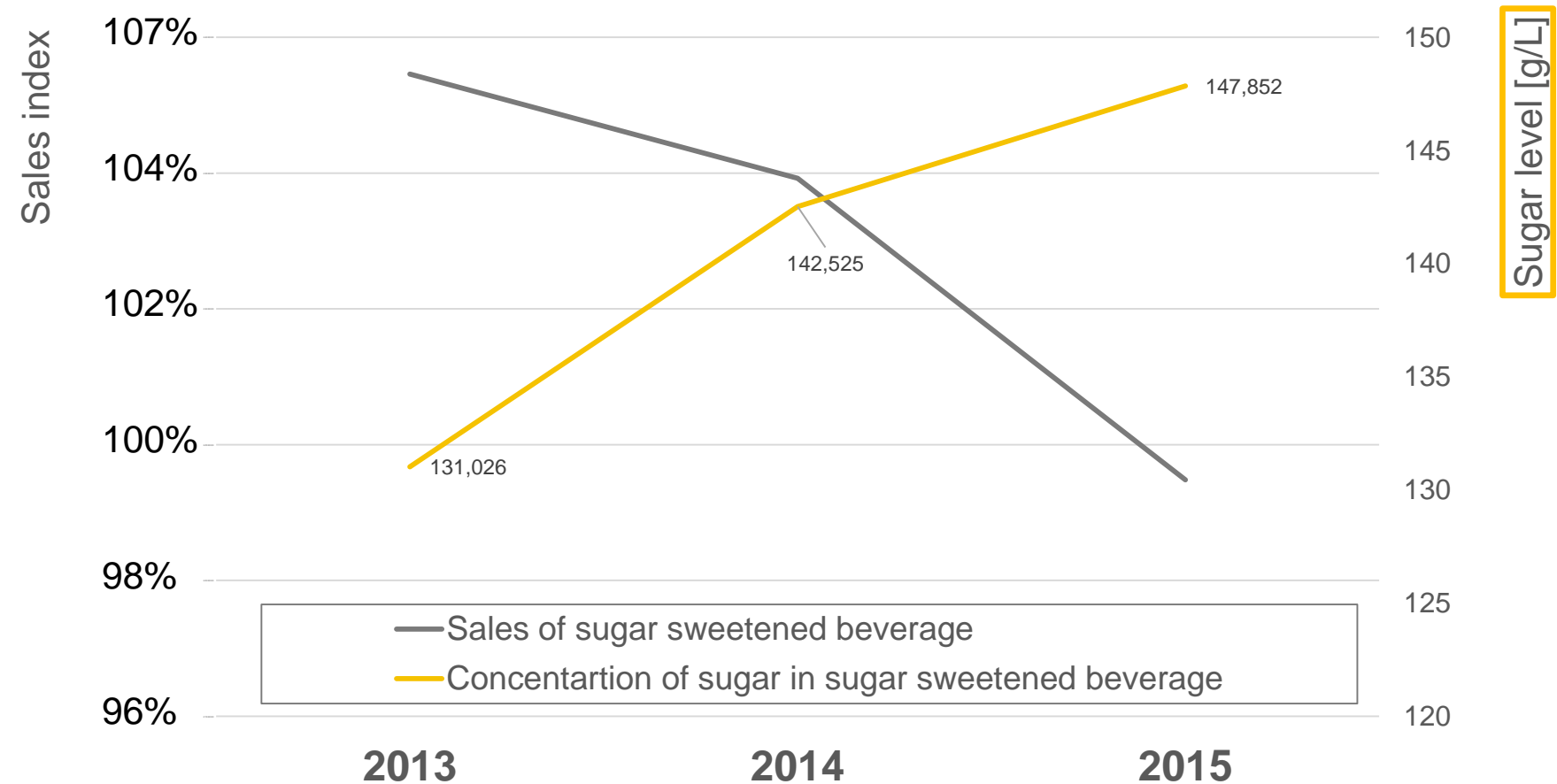
EXAMPLE OF APPLICATION OF ADDITIONAL DATA SOURCES:
ANALYSES OF TELEVISION ADVERTISING

MONITORING TELEVISION ADVERTISING

Example: Percentage of duration of advertisements in selected food categories for different viewing hours

Legend: ■ PVH4-9   ■ PVH10-14   □ AVH

Summary:
- 7 TV channels
- 24 ur/day
- 12 months
- 93.902 adds

Profiling:
PVH4-9:
- 96% not permitted [WHM]
- 95% less healthy [UKM]

PVH10-14:
- 81% not permitted [WHM]
- 76% less healthy [UKM]

Chart categories: Chocolate and confectionery, Cakes and biscuits, Other beverages, Other - food supplements, Other - product line

Source: Korošec in Pravst, 2016 (unpublished)

NUTRITION INSTITUTE

CONSLUSIONS

- **Detail data on the labelling and composition of foods is extremely useful** not only for public health research and policy makers, but also for the food industry

- **Repetition of cross-sectional surveys enable monitoring of the changes in the food supply over time**

    - an essential input for policy decisions

- Data collection can be performed either with randomised sampling or with sampling of all foods in the selected food categories

- Sampling **should include collection of images** of food labelling information

    - enabling control and efficient further analyses

- Food labelling **data can be supplemented with additional information**, enabling further analyses

        - Analytical data on the composition of foods in the database

        - Sales data

        - Advertising data

NUTRITION
INSTITUTE

THANK YOU!

NUTRITION
INSTITUTE