



THE IRISH NATIONAL FOOD CONSUMPTION SURVEYS: APPLICATION AND USES

Dr Breige McNulty
Lecturer in Human Nutrition
UCD Institute of Food and Health
University College Dublin,
Ireland

Irish University Nutrition Alliance

University College Cork

University of Ulster, Coleraine

Trinity College Dublin

University College Dublin

Established in 1993 via a memorandum of understanding by the heads of participating universities

www.iuna.net



UCD Institute of Food & Health



Irish National Food Consumption Surveys



**NTFS - 13-17yrs
2007**

**NCFS - 5-12yrs
2005**

**NPNS - 1-4yrs
2012**



Adults – 18+yrs

- INNS – Irish National Nutrition Survey 1990
- NSIFCS – North South Irish Food Consumption Survey 2001
- ***NANS – National Adult Nutrition Survey - 2011***



Recent Surveys – NANS & NPNS



- Conducted by University College Dublin and University College Cork with input from University of Ulster and Teagasc.
- Funded by the Irish Department of Agriculture, Food and Marine as part of a €5 million project
- Users of data: FSAI, Safefood, HSE, DOH, industry



Recent Surveys – NANS & NPNS



- Population
 - NANS ; n = 1500 (740 men, 760 women) aged 18-90y
 - NPNS; n = 500 (249 girls, 251 boys) aged 1-4y
- Response rate ~ 60%
- Demographically representative of the Irish population - age, gender, social class, urban/rural.
- Fieldwork (Seasonally Balanced):
 - NANS Oct 2008 - Apr 2010
 - NPNS Oct 2010 – Sept 2011
- Completed by trained fieldworkers from University College Dublin and University College Cork.





**National
Databases**



Dietary assessment



4/7 day
food record



Intake
collected
at brand



Intake
recorded per
meal per day



Eating
location



Recipe
database

Food Record

- 4 consecutive days
 - Include 1 weekend day
- Fieldworker will make 3 visits to respondent
 - Training visit
 - 24/36 hours into recording period
 - Final visits 1-2 days post completion



Food Record

- 4 consecutive days
 - Include 1 weekend day
- Fieldworker will make 3 visits to respondent
 - Training visit
 - 24/36 hours into recording period
 - Final visits 1-2 days post completion
- **Quantification methods**
 - Weighing (all respondents provided with scales)
 - Food photographs
 - Manufacturer information
 - Household measures
 - Food portion sizes



Analysis of dietary data

- Software:
 - WISP: Weighed intake software programme (*Tinuviel*)
 - Each single food consumed by each respondent entered into WISP
 - UK Food composition data (*McCance & Widdowson FSA UK*)
 - Irish food composition data
 - Questionnaires: Q-Builder (*Tinuviel*)



Analysis of dietary data

- Software:
 - WISP: Weighed intake software programme (*Tinuviel*)
 - Each single food consumed by each respondent entered into WISP
 - UK Food composition data (*McCance & Widdowson FSA UK*)
 - Irish food composition data
 - Questionnaires: Q-Builder (*Tinuviel*)
- Data analysis:
 - Output from WISP – SPSS
 - Data at food-code level
i.e. single eating events per meal per day per subject
 - Food-codes grouped into 68 & 19 food categories



ID	SURVDAY	DOW	MEALNO	MTYPE	TIME	LOC	BRAND	Brand_Description	FCODE	Description	FWT	QFM	iunafg	iuna19FG	STATU
1	101	Day 1	Wednesday	1	Breakfast 08:15	Home	10907	Bewley's Tea (Generic)	17165	Tea, black, infusion, average	248.0	Weighed	Teas	Beverages	Food co
2	101	Day 1	Wednesday	1	Breakfast 08:15	Home	7607	Jan's Old Fashioned Orange Marmalade	17078	Marmalade	15.0	Food Porti...	Sugars, syrups, pr...	Sugars, confectionary...	Food co
3	101	Day 1	Wednesday	1	Breakfast 08:15	Home	8119	Premier Dairies Full Fat Milk	12316	Whole milk, pasteurised, average	40.0	Food Atlas	Whole milk	Milk & yoghurt	Food co
4	101	Day 1	Wednesday	1	Breakfast 08:15	Home	2000	Superquinn Brown Sliced Bread	5233	Brown bread sliced pan (Irish) av	33.0	Food Atlas	Wholemeal & brow...	Bread & rolls	Food co
5	101	Day 1	Wednesday	1	Breakfast 08:15	Home	11404	Tropicana Orange Juice (Generic)	14301	Orange juice, unsweetened	107.0	Weighed	Fruit juices & smo...	Fruit & fruit dishes	Food co
6	101	Day 1	Wednesday	2	Morning S... 09:50	Home	10907	Bewley's Tea (Generic)	17165	Tea, black, infusion, average	248.0	Weighed	Teas	Beverages	Food co
7	101	Day 1	Wednesday	2	Morning S... 09:50	Home	9820	Homemade Dish or Recipe	11532	Sponge cake, with dairy cream and	90.0	Weighed	Cakes, pastries & ...	Biscuits, cakes & pas...	Food co
8	101	Day 1	Wednesday	2	Morning S... 09:50	Home	9561	Non Branded Foods	17377	Water, distilled	600.0	Food Atlas	Other beverages	Beverages	Food co
9	101	Day 1	Wednesday	2	Morning S... 09:50	Home	8119	Premier Dairies Full Fat Milk	12316	Whole milk, pasteurised, average	40.0	Food Atlas	Whole milk	Milk & yoghurt	Food co
10	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	10907	Bewley's Tea (Generic)	17165	Tea, black, infusion, average	248.0	Food Atlas	Teas	Beverages	Food co
11	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	10907	Bewley's Tea (Generic)	17165	Tea, black, infusion, average	248.0	Food Atlas	Teas	Beverages	Food co
12	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	5344	Hunky Dorys Thick & Chunky Potato Chips - ...	17139	Potato crisps, thick, crinkle-cut	25.0	Manufactur...	Savoury snacks	Sugars, confectionary...	Food co
13	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	198	Jacob's Cream Crackers	11510	Cream crackers	36.0	Manufactur...	Biscuits including ...	Biscuits, cakes & pas...	Food co
14	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	9338	John West Tinned Tuna (Generic)	16339	Tuna, canned in brine, drained	70.0	Weighed	Fish & fish products	Fish & fish dishes	Food co
15	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	9561	Non Branded Foods	17377	Water, distilled	300.0	Food Atlas	Other beverages	Beverages	Food co
16	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	9591	Unknown Brand	12316	Whole milk, pasteurised, average	40.0	Food Atlas	Whole milk	Milk & yoghurt	Food co
17	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	9591	Unknown Brand	12316	Whole milk, pasteurised, average	40.0	Food Atlas	Whole milk	Milk & yoghurt	Food co
18	101	Day 1	Wednesday	3	Lunch Ligh... 13:00	Relative/Fa...	9591	Unknown Brand	17510	Mayonnaise, retail	30.0	Household ...	Soups, sauces & ...	Soups, sauces & mis...	Food co
19	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9820	Homemade Dish or Recipe	7310	Gravy With Roast Juices (Meat/Chic	60.0	Food Atlas	Soups, sauces & ...	Soups, sauces & mis...	Food co
20	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9820	Homemade Dish or Recipe	17373	Stuffing, sage and onion, homemade	120.0	Food Atlas	Savouries	Grains, rice, pasta & ...	Food co
21	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9562	Loose Fruit & Vegetables	6183	Potatoes Roasted/Fried in Sunflowe	90.0	Food Atlas	Chinned, fried & r...	Potatoes & potato dis...	Food co
22	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9562	Loose Fruit & Vegetables	8511	Carrots Roasted				dishes	Food co
23	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9562	Loose Fruit & Vegetables	13172	Broccoli, green,				dishes	Food co
24	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9561	Non Branded Foods	17377	Water, distilled				verages	Food co
25	101	Day 1	Wednesday	4	Evening M... 18:15	Home	9591	Unknown Brand	18331	Chicken, meat,				roducts	Food co
26	101	Day 1	Wednesday	5	Night Snack 22:00	Home	10907	Bewley's Tea (Generic)	17165	Tea, black, infus				verages	Food co
27	101	Day 1	Wednesday	5	Night Snack 22:00	Home	16853	Marks & Spencer Dutch Shortcake	11523	Shortbread				& pas...	Food co
28	101	Day 1	Wednesday	5	Night Snack 22:00	Home	8119	Premier Dairies Full Fat Milk	12316	Whole milk, pasteurised, average	40.0	Food Atlas	Whole milk	Milk & yoghurt	Food co
29	101	Day 2	Thursday	1	Breakfast 08:15	Home	4333	Brennans Wholegrain Brown Bread	11461	Granary bread	60.0	Weighed	Wholemeal & brow...	Bread & rolls	Food co
30	101	Day 2	Thursday	1	Breakfast 08:15	Home	2590	Flora Sunflower Spread	6310	Flora	20.0	Food Atlas	Other fat spreads (...)	Butter, spreading fats ...	Food co
31	101	Day 2	Thursday	1	Breakfast 08:15	Home	9561	Non Branded Foods	17377	Water, distilled	600.0	Food Atlas	Other beverages	Beverages	Food co
32	101	Day 2	Thursday	1	Breakfast 08:15	Home	11404	Tropicana Orange Juice (Generic)	14301	Orange juice, ur				dishes	Food co
33	101	Day 2	Thursday	2	Lunch Ligh... 12:00	Home	10907	Bewley's Tea (Generic)	17165	Tea, black, infus				verages	Food co
34	101	Day 2	Thursday	2	Lunch Ligh... 12:00	Home	4333	Brennans Wholegrain Brown Bread	11461	Granary bread				& rolls	Food co
35	101	Day 2	Thursday	2	Lunch Ligh... 12:00	Home	4663	Hellmans Light Reduced Caloire Mayonnaise	17511	Mayonnaise, ret				& mis...	Food co
36	101	Day 2	Thursday	2	Lunch Ligh... 12:00	Home	9820	Homemade Dish or Recipe	17373	Stuffing, sage an				ta & ...	Food co
37	101	Day 2	Thursday	2	Lunch Ligh... 12:00	Home	5344	Hunky Dorys Thick & Chunky Potato Chips - ...	17139	Potato crisps, th				onary...	Food co

Yellow box indicates intake at a single meal for one participant

Red box indicates intake for a single day for one participant

INFID – IRISH NATIONAL FOOD & INGREDIENT DATABASE



UCD Institute of Food & Health

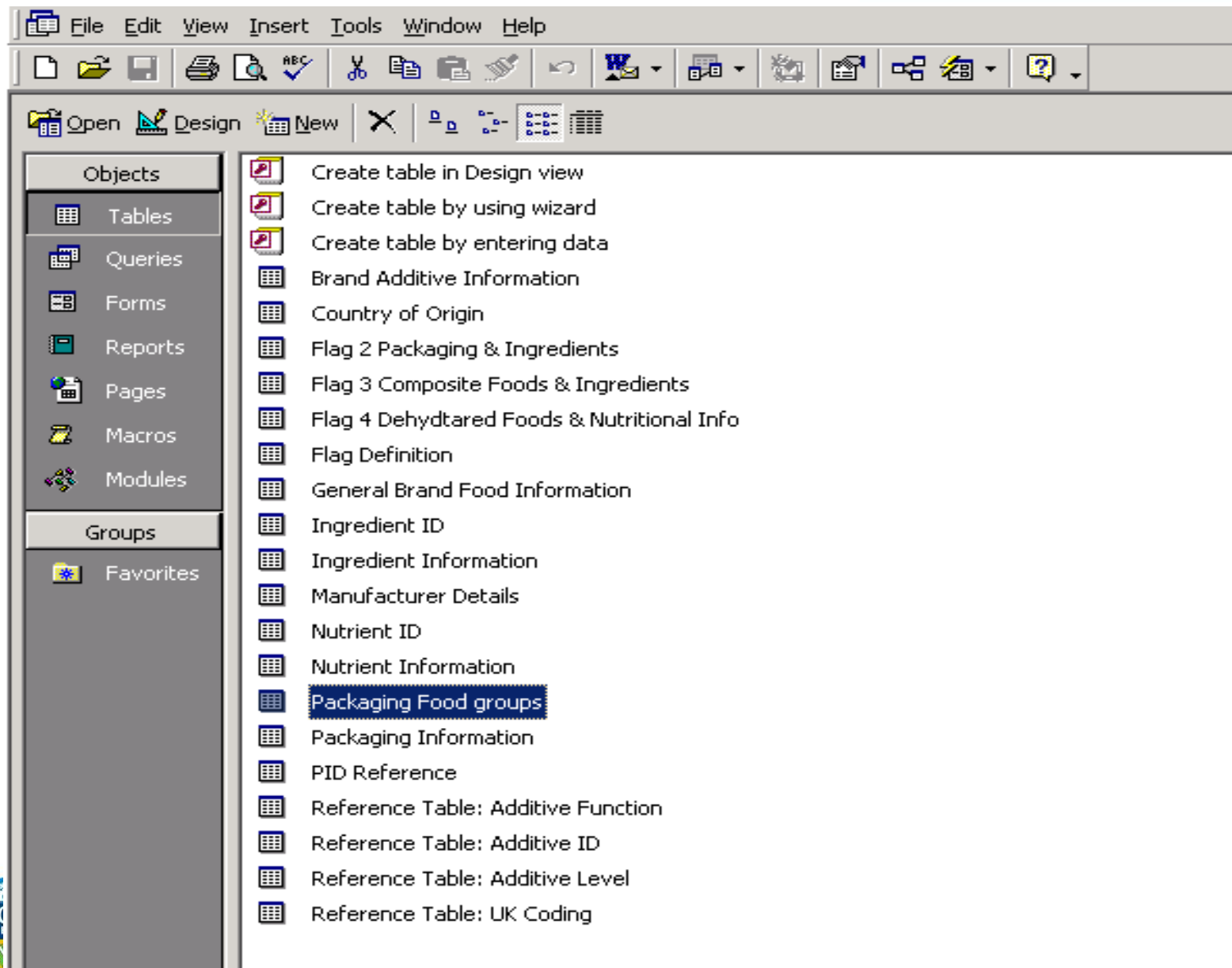
www.ucd.ie/foodandhealth

INFID

- Microsoft Access:
 - General Information
 - Ingredient Table (combines Additive data)
 - Nutrient Table
 - Packaging Table
 - Manufacturer Details
- Samples for future reference.
- Up to Date Information



Microsoft Access Database



Reference Digital Library



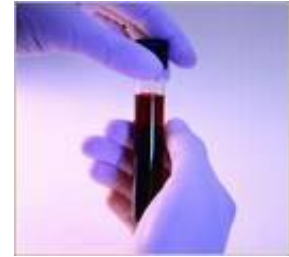
INFID: Major uses

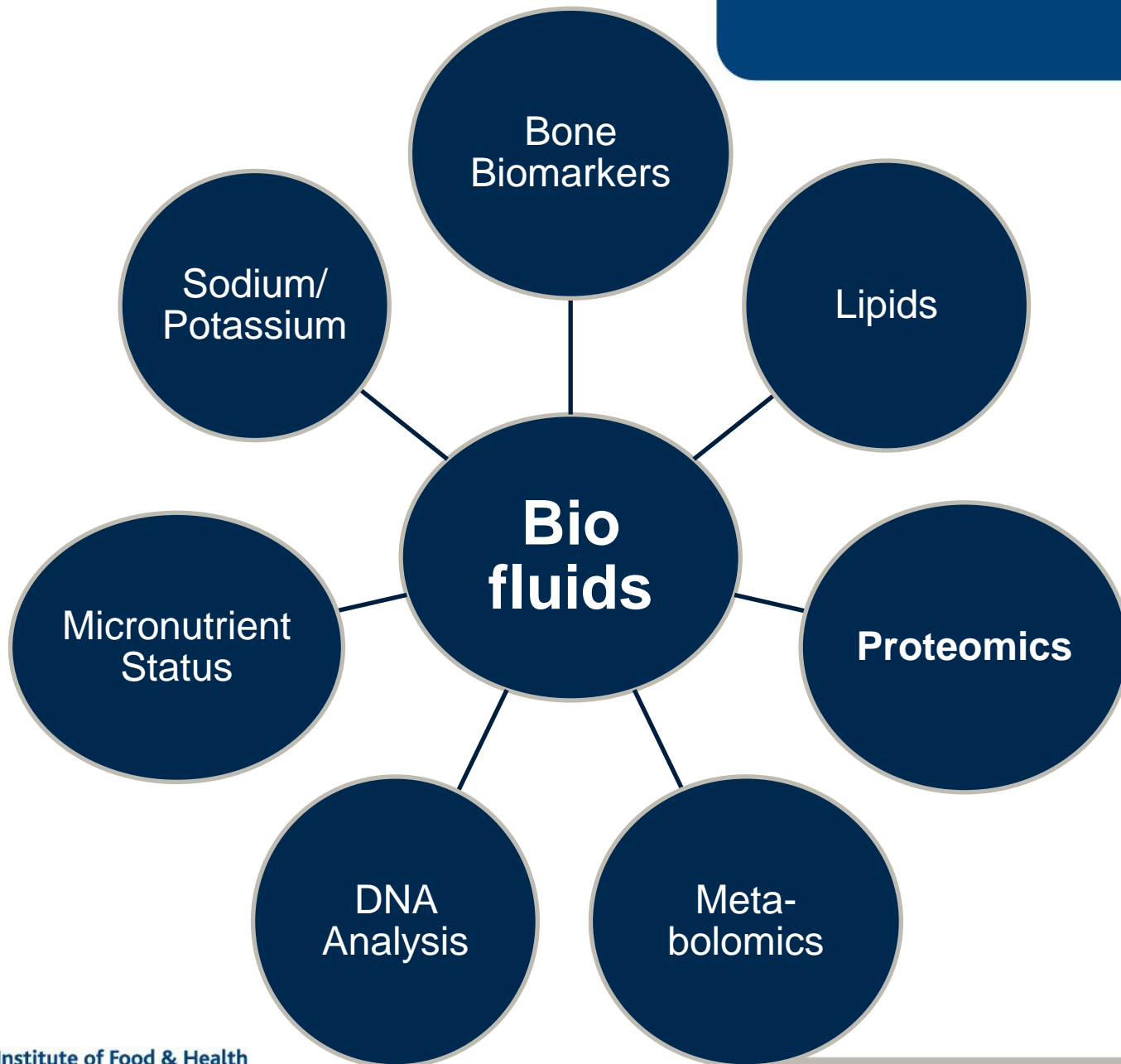
- INFID unique as it links
 - Detailed food ingredient data
 - Brand data
 - Food intake data
- Examples of applications:
 1. FSAI: Dioxin crisis
 - INFID used to find sources of dietary pork in risk assessment process
 2. Food additive exposure assessment



Biofluid collection

- Blood sample
 - 39ml
 - Fasting
 - Qualified phlebotomist
 - Clinical setting
 - Analysed central lab
- Urine sample
 - 50ml
 - First void
 - Chilled (ice bag)





NANS Databases

- NANS Food File
- NANS Questionnaire Database
- NANS Core Analytes Database
- NANS Protein Database
- NANS Fatty Acid Database
- NANS Metabolomics Data

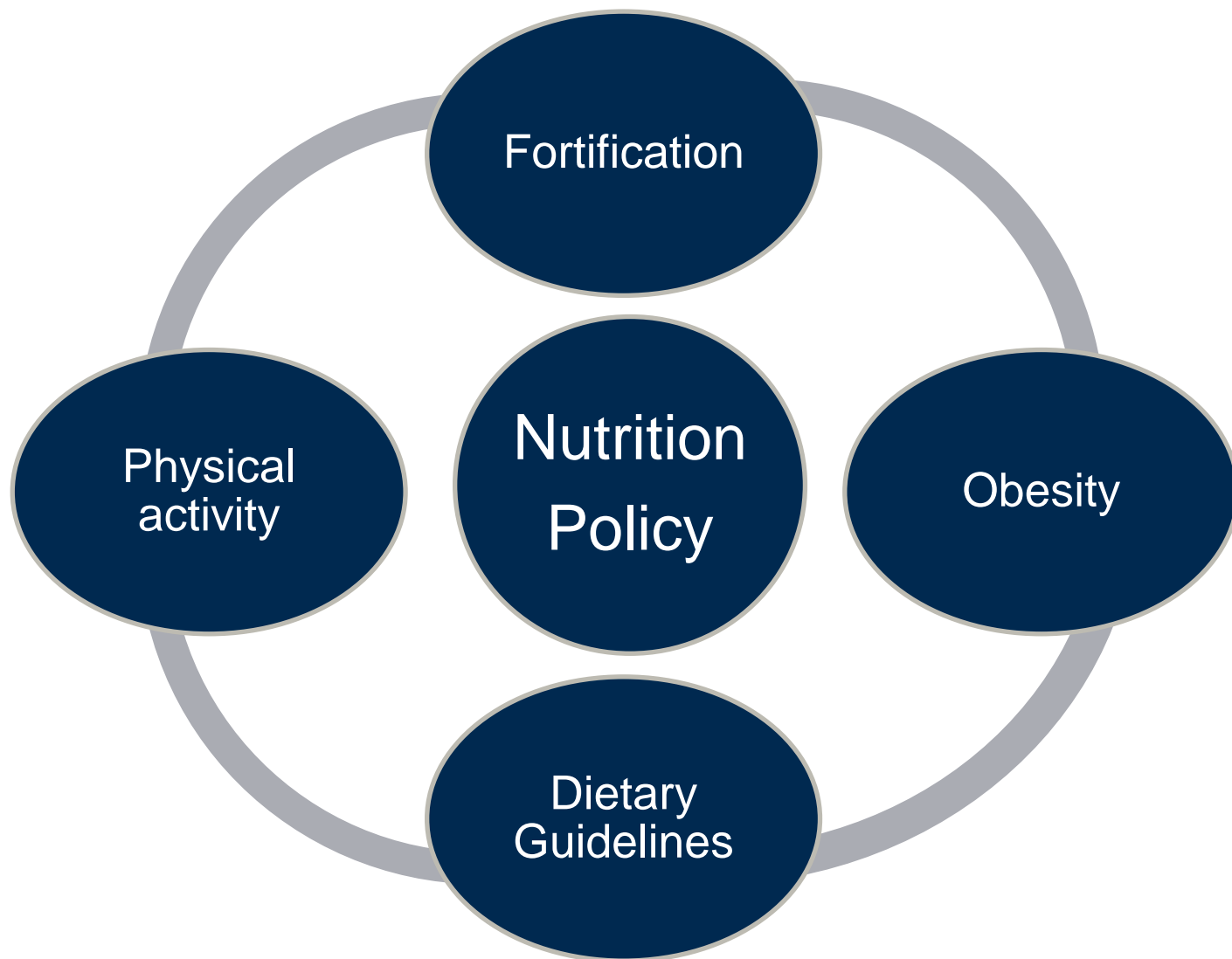
All databases are connected using a unique participant ID i.e. NA0101



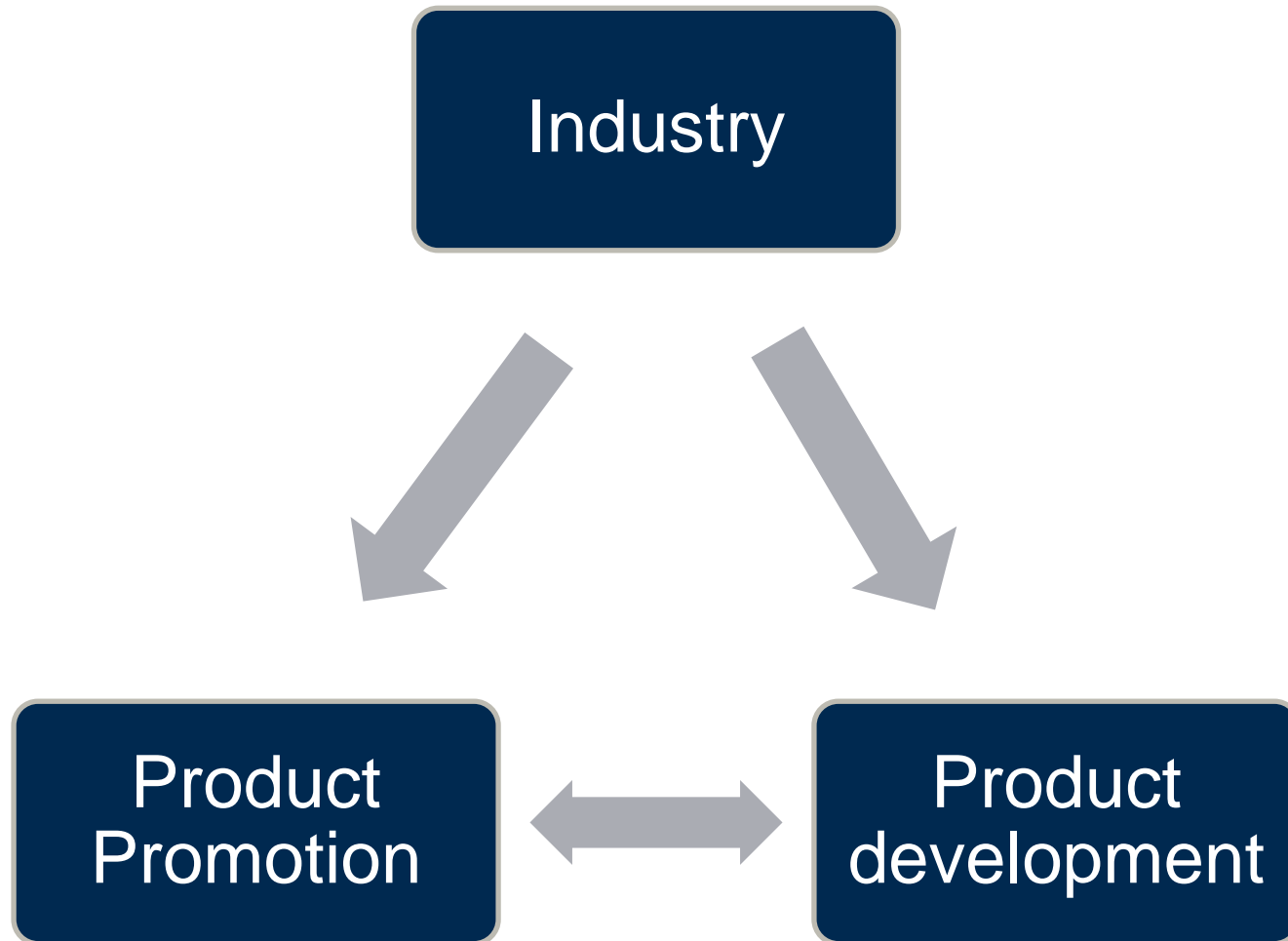
National Surveys Applications



National Surveys Applications



National Surveys Applications



Example – Folic acid Fortification

Stage 1

- Dietary intakes of folic acid intakes
- Distinguishing between natural & synthetic sources

Stage 2

- Biochemical status of B vitamins and homocysteine
- Assessing adequacy & the impact of fortification

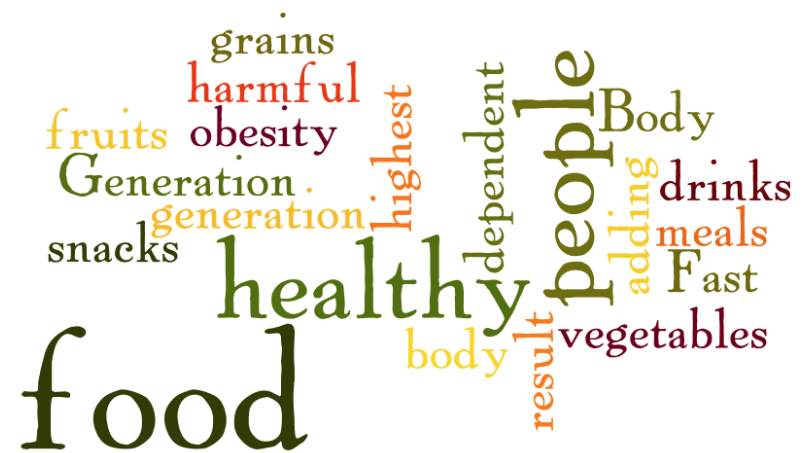
Stage 3

- Modelling the potential impact of various mandatory folic acid



Current Research Areas

- University College Dublin
 - Dietary intakes & pattern – cluster analysis
 - Nutrient intake & status - iodine/iron/folate/vitamin E/fatty acids
 - Wholegrain intakes & relationship with health
 - CVD risk pattern analysis
 - Under-reporting
 - Food chemical intake (e.g. additives, pesticides)
 - Genetics, diet and obesity
 - Epigenetics and diet
 - Physical activity patterns
- University College Cork
 - Energy density
 - Food portion sizes
 - Food fortification
 - Micronutrient adequacy/inadequacy
 - Vitamin D / vitamin K / sodium / potassium analysis
 - Blood pressure determinants

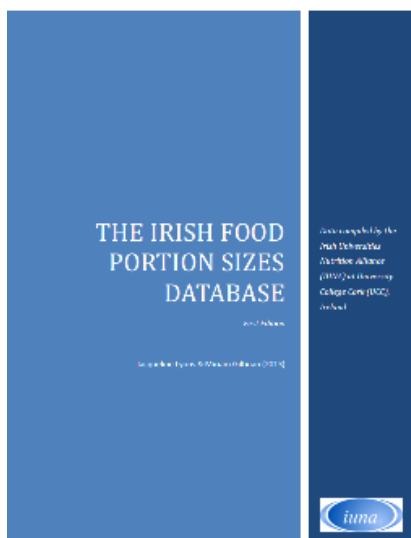




UCD Institute of Food & Health

IUNA Teams involved at University College Dublin & University College Cork (www.iuna.net)

Funding: Department of Agriculture and Food and the Health Research Board under FHRI



National Pre-School Nutrition Survey

Summary Report on:

Food and Nutrient Intakes, Physical Measurements and Barriers to Healthy Eating

Summary Report edited by Dr Janette Walton

*Proceedings of the Nutrition Society, Page 1 of 11
© The Author 2014*

doi:10.1017/S002966514000056

The Nutrition Society Irish Section Meeting was held at the Dublin Institute of Technology, Ireland on 19-21 June 2013

Conference on 'Childhood nutrition and obesity: current status and future challenges'
Symposium 1: Current status

Diet, lifestyle and body weight in Irish children: findings from Irish Universities Nutrition Alliance national surveys

Janette Walton^{1*}, Breige A. McNulty², Anne P. Nugent², Michael J. Gibney² and Albert Flynn¹
¹*School of Food and Nutritional Sciences, University College Cork, Cork, Ireland*
²*UCD Institute of Food and Health, University College Dublin, Belfield, Dublin 4, Ireland*

Childhood obesity is an issue of public health concern globally. This review reports on levels of overweight and obesity in Irish children and examines some aspects of their diet and lifestyle proposed to promote or protect against increasing body fatness in children. While there is a long debate with regard to the most appropriate cut-off points to use when assessing body fatness in children, approximately one in five Irish children (aged 2-17 years) have been classified as overweight (including obese) according to two generally accepted