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Sustainable Diets

Specialist Group

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Plant-Based Nutrition in The Clinical Setting

Insights - knowledge, attitudes, awareness, barriers

JHND
Journal of Human Nutrition and Dietetics

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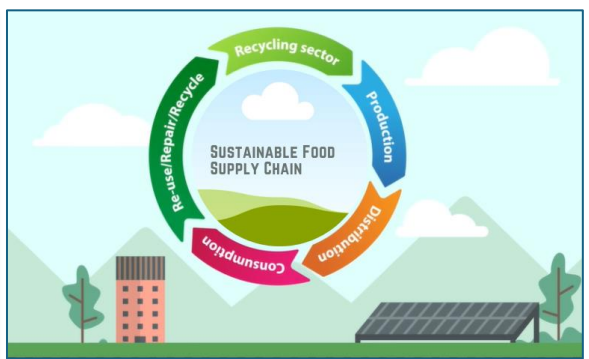
ORIGINAL ARTICLE | Open Access

A cross-sectional survey exploring knowledge, beliefs and barriers to whole food plant-based diets amongst registered dietitians in the United Kingdom and Ireland

Michael Metoudi, Alexander Bauer, Tanya Haffner, Shireen Kassam



PLANT-BASED Health Professionals UK
Promoting Sustainable Health and Nutrition

MyNutriWeb
Expert nutrition and health learning

Background - Research Rationale

What is known – the current evidence:

Leading dietetic institutions now endorse predominantly plant-based diets for optimal **human** and **planetary health**

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eat right. Academy of Nutrition and Dietetics Foundation

Dietitians of Canada / Les diététistes du Canada

Dietitians Australia

INDI Irish Nutrition + Dietetic Institute

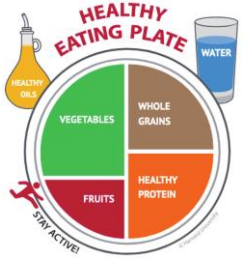
Seminal Documents released:

Eat Lancet 2019 Report

BDA One Blue Dot

>75% Plant-based

Canada's dietary guidelines 2023



Harvard's dietary Plate 2023

Germany's dietary guidelines 2024

Norway and Sweden's dietary guidelines 2023

What is unknown – Research Questions:

1. What are RD's **Perspectives** amid these updated guidelines?
2. To what extent are RDs **implementing** plant-based diets in clinical practice?
3. What are the **barriers** (if any) they might face implementing such dietary advice within the clinic or other institutions?

Research Aims

To evaluate the **Perspectives** of RDs within the UK and ROI on a whole food plant-based diets in clinical practice:

Perspectives

3 Core elements

Knowledge

Identify potential **knowledge gaps** or deficits related to WFPB diets

Beliefs

RDs' professional **experience** and **opinions** of prescribing a plant-based diet in clinical practice.

Barriers

Identify any **barriers** that may exist with RDs implementing a plant-based diet within their specialties and health care settings.

Eat Lancet Plate

87% Plant-Based → **Used as the definition of a WFPBD**

	Macronutrient intake grams per day (possible range)	Caloric intake kcal per day
Whole grains		
Rice, wheat, corn and other	232	811
Tubers or starchy vegetables		
Potatoes and cassava	50 (0–100)	39
Vegetables		
All vegetables	300 (200–600)	78
Fruits		
All fruits	200 (100–300)	126
Dairy foods		
Whole milk or equivalents	250 (0–500)	153
Protein sources		
Beef, lamb and pork	14 (0–28)	30
Chicken and other poultry	29 (0–58)	62
Eggs	13 (0–25)	19
Fish	28 (0–100)	40
Legumes	75 (0–100)	284
Nuts	50 (0–75)	291
Added fats		
Unsaturated oils	40 (20–80)	354
Saturated oils	11.8 (0-11.8)	96
Added sugars		
All sugars	31 (0–31)	120

Eat Lancet Planetary Diet

Research Methods – Questionnaire

INDI Irish Nutrition + Dietetic Institute

MyNutriWeb Expert nutrition and health learning

35-Item Cross-Sectional Questionnaire – Distributed to RDs From The UK & ROI

Knowledge

Devised Knowledge Score

Domain 1

Suitability of well-planned WFPBDs in the Lifecycle:


Pregnancy


Infancy and toddlers


Teenagers


Elderly

Domain 2

Nutrients of concern following a WFPBD:

A. Critical nutrients:
Vitamin B12, Calcium
Vitamin D, Zinc,
Long chain Omega-3 (EPA/DHA)
Iodine, Selenium

B. Nutrients of less concern
Iron, Folic Acid (vitamin B9) Choline, Thiamine (vitamin B1) Potassium, Short chain Omega-3 (ALA)

Domain 3

Evidence of WFPBDs in chronic-disease management (e.g.):


CVD


T2DM


CKD


Dementia


NAFLD


Obesity

Beliefs

Thematic Analysis From Open Text-Box Responses

Barriers

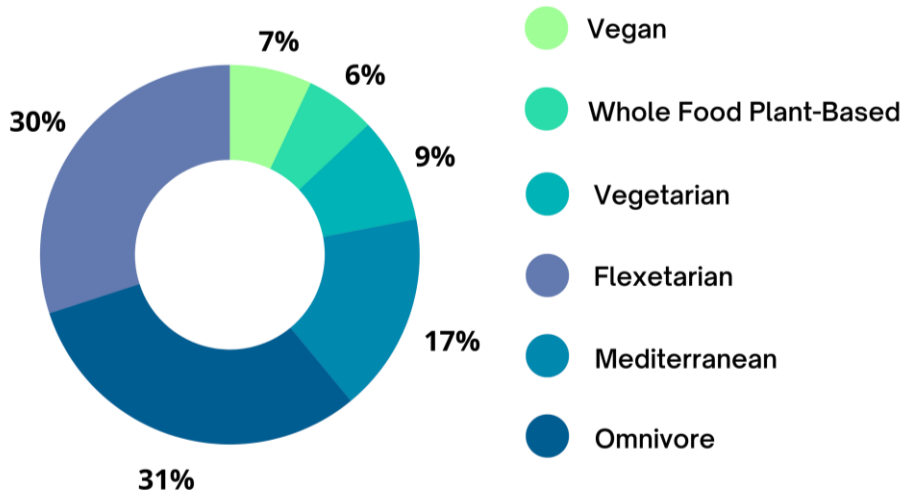
Potential barriers implementing WFPBDs:

1. Confidence
2. Quality of education received during university
3. Sufficient education resources available to RDs
4. Support in the workplace

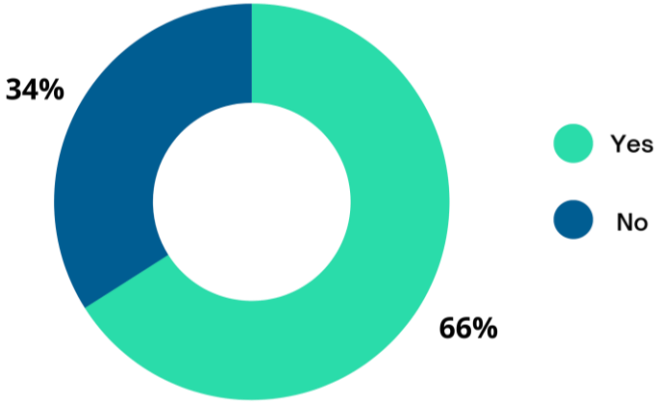
Results – Participant Demographics

Participant Demographics	Number (%)
Total respondents	335
United Kingdom	256 (76%)
Ireland	79 (24%)
Median Age (years)	38 years
Gender:	
Female	324 (97%)
Male	10 (3%)
Prefer not to say	1 (<1%)
Age range (years)	
20-29	73 (22%)
30-39	108 (32%)
40-49	87 (26%)
≥50	66 (20%)
Median years of practice	9 (0.5-40 years)
Level of education	
Bachelor's degree	142 (42%)
Post-graduate qualification	172 (51%)
PhD	20 (6%)
Area of work	
Hospital	148 (44%)
Primary care/Community	136 (40%)
Private practice	43 (12%)
Academia/Research	34 (10%)
Area of specialty	
Weight management	83(24%)
Diabetes	57(17%)
Gastroenterology	57(17%)
Paediatrics	54(16%)
Care for the elderly	51(15%)
Oncology	36(11%)
Eating Disorders	35(9%)
Years working as an RD	
≤3	75(22%)
4-6	63(19%)
7-9	34(52%)
10-14	52(34%)
15-19	34(10%)
20-24	29(9%)
≥25	48(14%)

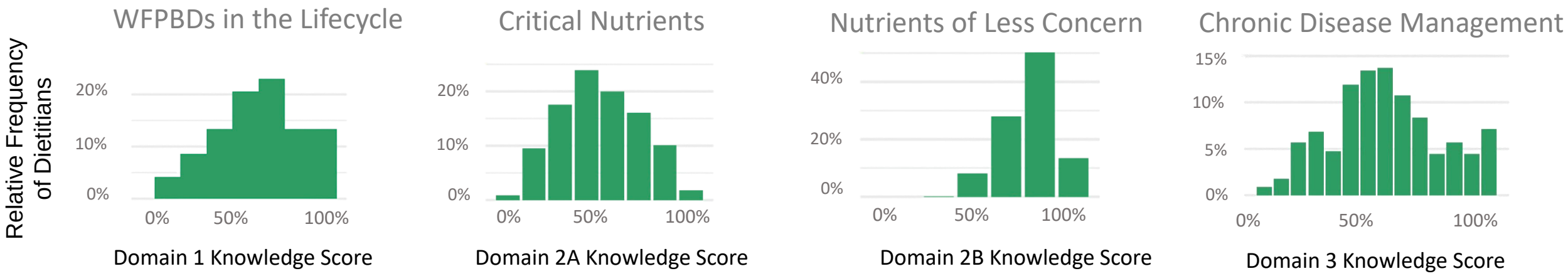
RDs' Personal Dietary Habits



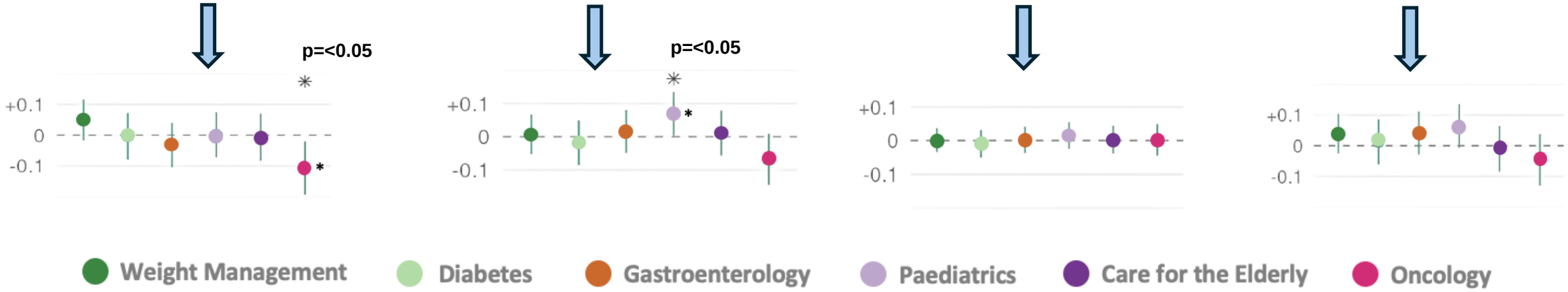
RDs Transitioned To A WFPB Dietary Pattern



Results – Knowledge of WFPB diets



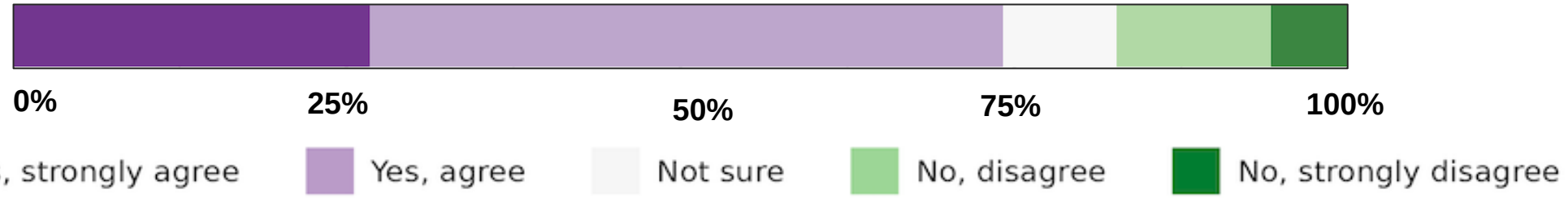
Average Score → **61%** **50%** **78%** **54%**

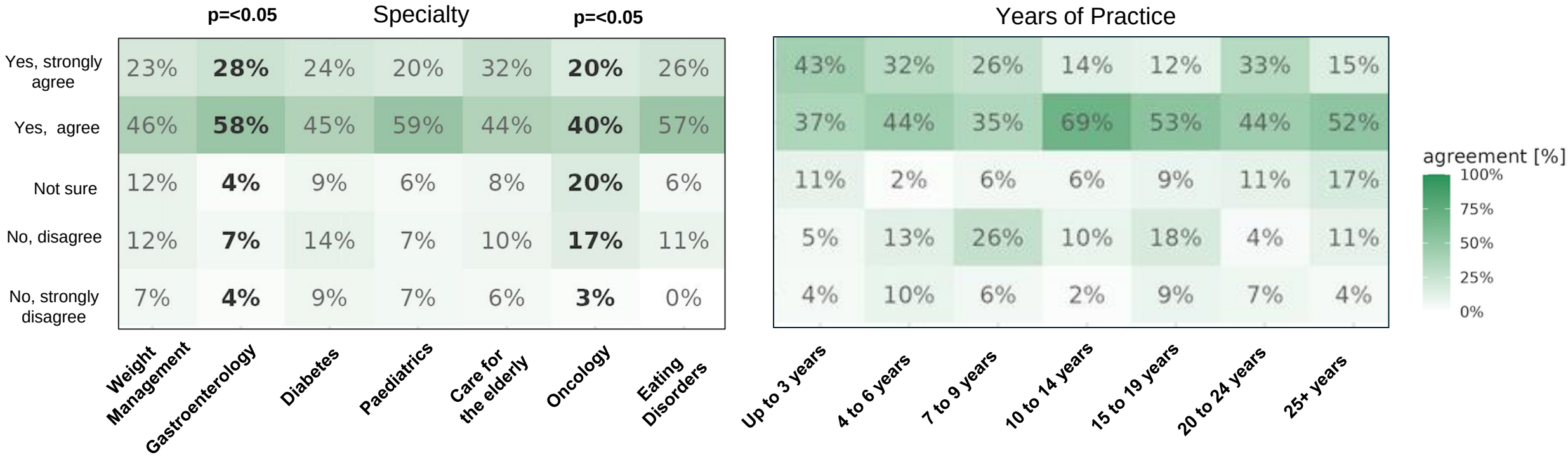


Results – Plant Protein Pairing

Question

Plant proteins are considered to be an incomplete source of protein:
(i.e. they do not contain all the essential amino acids) and as such should be carefully paired with other sources of plant proteins?





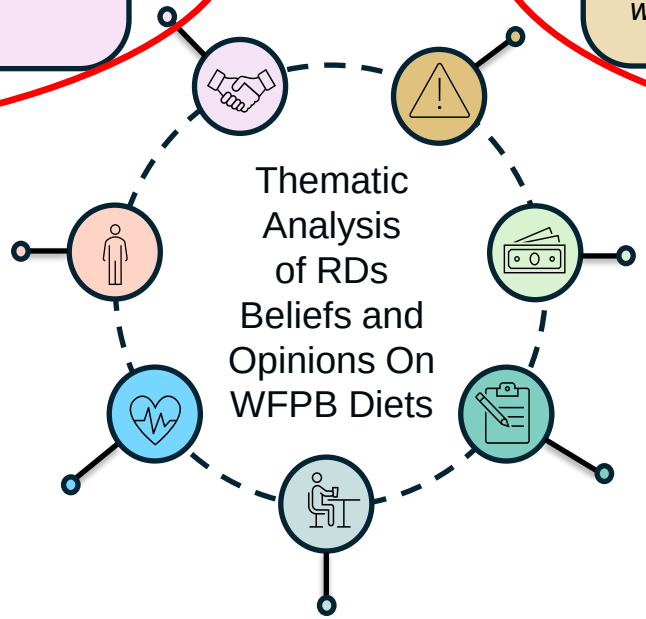
Results – Beliefs of WPBDs in Practice

Support, Education and Resources

"We need more resources to promote and implement sustainable diet in the acute hospital settings. Also I feel we should include conversation on more sustainable food packaging when talking about sustainable diets"

Barriers and Challenges

"Most patients I meet with long term health conditions usually have diets very far from the national guidelines and just getting them to have their 5aday and wholegrains would be a huge dietary shift."



Patient-Centred Approach

"Person centred clinical care with an evidence base is always required. A lot of my patients are tube fed or struggling with the burden of chronic dietary restrictions so this must be factored into advice given."

Socioeconomic and Food Accessibility

"I feel that within older generations and lower socioeconomic groups the idea of whole foods plant-based diet seems unachievable as it has been championed by millennials and Gen Z"

Health and Nutrition Concerns

"I think the key phrase here is "well planned diet" and that many people will find it harder to meet nutritional needs when following plant-based diets due to poor education and poor planning."

Plant-Based Diets and Eating Disorders

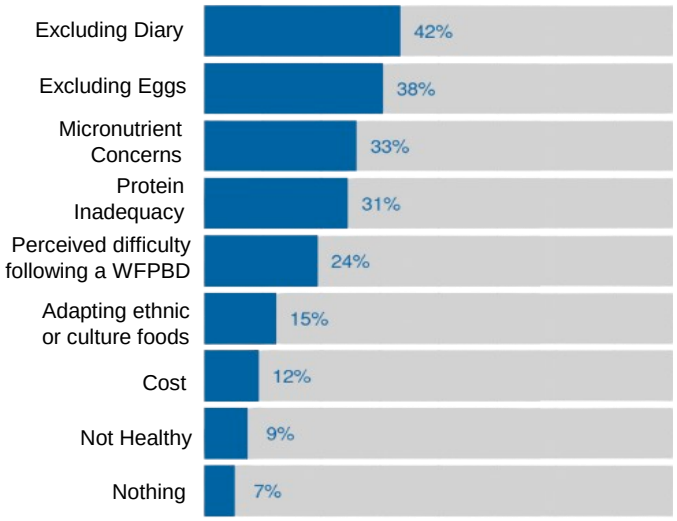
"Many patients present to me in Eating Disorder clinic who have been following a plant-based diet in order to mask their ED".

Public Health and Policy

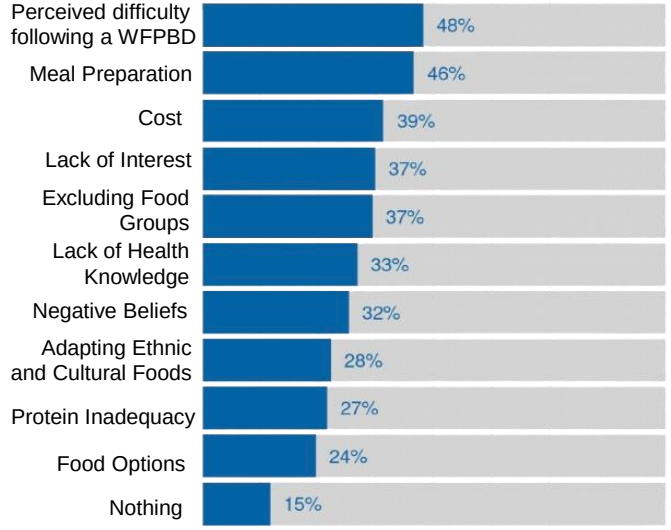
"Transitional dietary changes would likely work better. If there was support by central government to incentivise food industry to reduce/stop cheap non whole food / plant-based options then a national campaign would likely be more successful"

Results – Barriers Implementing WFPBDs

RDs' Personal Barriers

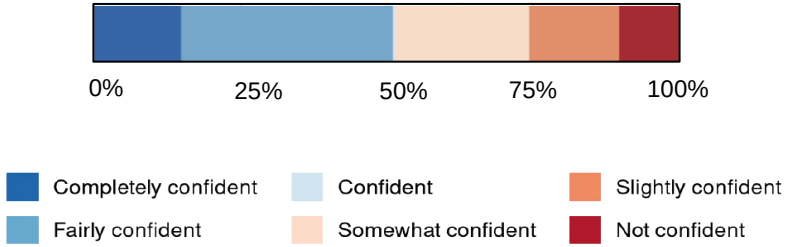


RDs' Perceived Patients Barriers



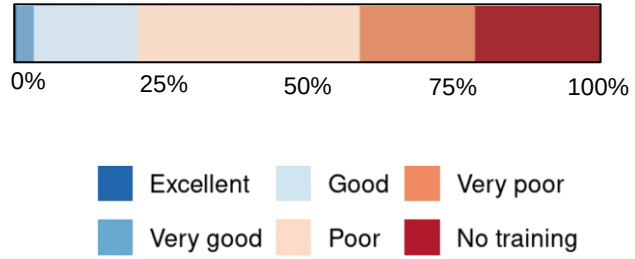
Confidence Prescribing PBDs

Question: How **confident** do you feel in counselling a client or patient to transition to a whole food plant-based diet if and when appropriate?



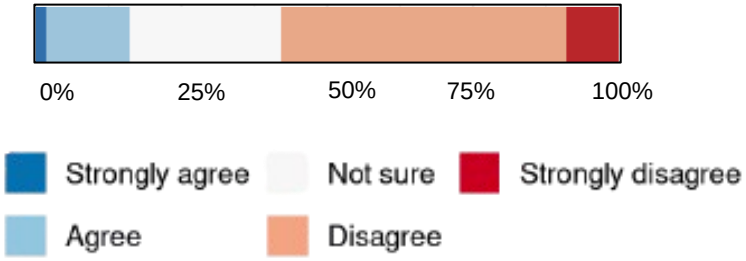
Quality of Education in University

Question: During your dietetic degree, how would you describe the **quality** of the **training** and **education** you received on plant-based nutrition as a therapeutic diet?



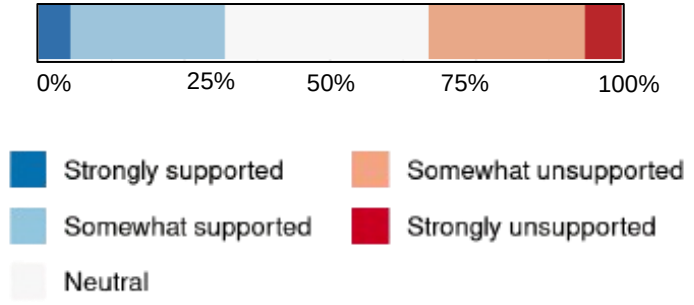
Sufficient Educational Resources

Question: As a dietitian, do you feel that there are enough **evidence-based educational** resources for you and your patients/clients to implement a plant-based diet?



Support in the Workplace

Question: Would you feel supported if you were to advocate for a whole food plant-based diet in your **workplace**?



Conclusion – A Call to Action!

Key Points:

- Most RDs (76%) in the UK and ROI hold a positive view of **WFPB diets** and are willing to recommend to patients

- Significant **knowledge gaps** exists amongst RDs – with **75%** considering plant proteins are still incomplete and should be paired.

- RDs concerns: **Malnutrition risk, micronutrient deficiencies** and risk of **Eating Disorders**

- Core barriers: **Limited education**, a **lack of a supportive** work environment **and excluding certain food groups**.

Recommendations – future perspectives:

- The need to **enhance access** to **further education** and **training** for RDs on plant-based nutrition

- The development of more **evidence-based resources** from public health agencies and organisations

- increasing **institutional support** for RDs and their patients, through key stakeholders in healthcare

Acknowledgements

PLANT-BASED Health Professionals UK
Promoting Sustainable Health and Nutrition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Thank You!

Full publication

MSc Background

Choice Architecture

- *Influencing choice by "organizing the context in which people make decisions"* [a]
- Reduces barriers to healthier options
- Avoids choice overload, makes healthier choices more intuitive

Plant-based Diets

- *Dietary patterns that emphasise foods derived from plants but do not need to exclude animal foods.* [b]
- Reduces risk of many NCDs
- Compatible with planetary boundaries, lower carbon footprint

Hospital settings

- Healthcare burden
  - Healthier workforce
  - Improve access to healthy food during hospital admissions
- Motivational Window
- Anchor institutions

[a] *Thaler & Sunstein Nudge 2021*

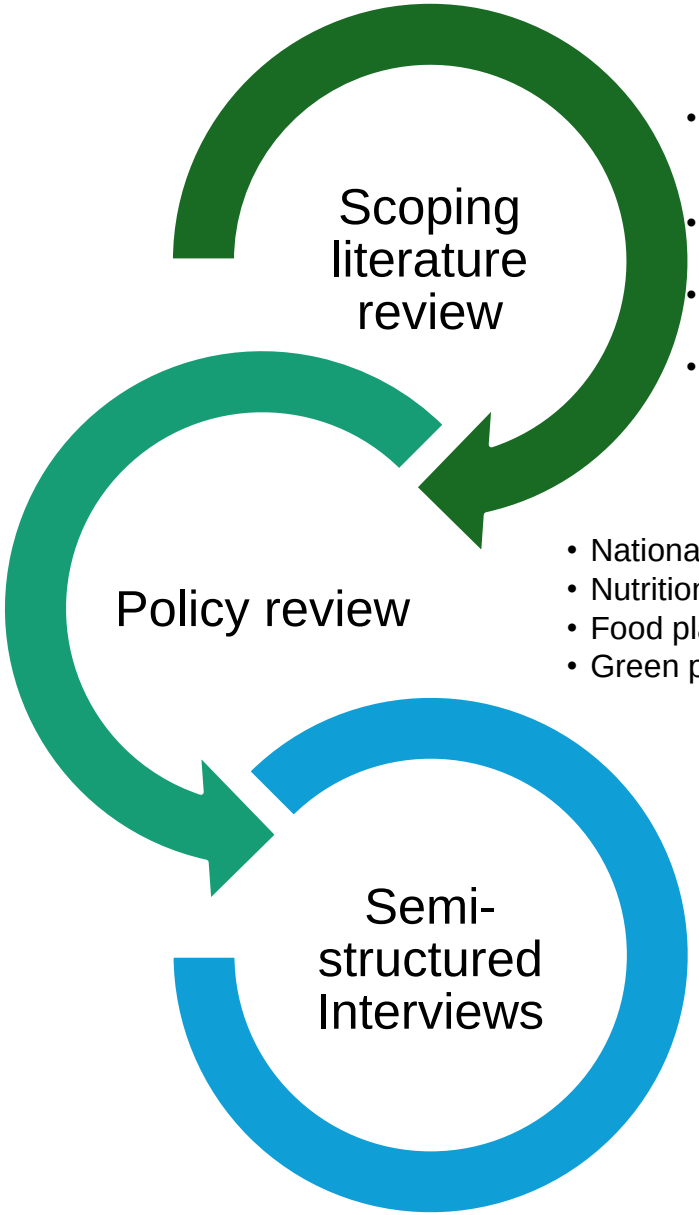
[b] *BDA Nutrition and Hydration Digest 2023; WHO Plant-based diets and their impact on healthy, sustainability and the environment 2021*

MSc Aims & Methods

Does choice architecture influence healthy food choices in hospitals?

What are the benefits and barriers to this approach with plant-based diets?

Aims: To identify the benefits and barriers to implementing food choice architecture to promote healthy sustainable plant-based diets in hospitals

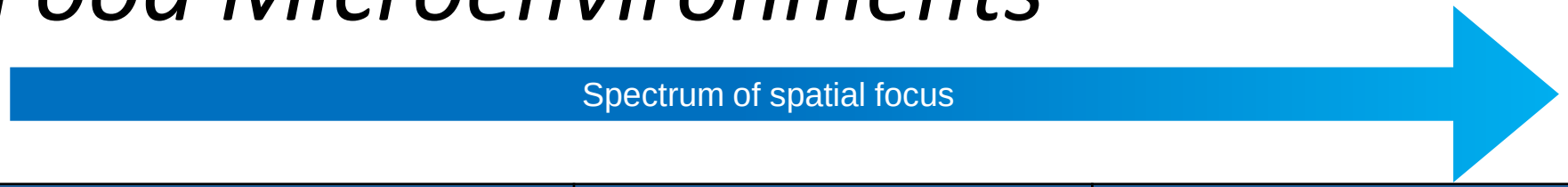


- Experimental, interrupted time series, and before and after studies
- Hospital staff and patients in high income countries
- Choice architecture interventions
- Outcome: Nutritional or healthy purchasing measures

- National & local level
- Nutrition strategies
- Food plans
- Green plans

- 15 Stakeholders: Catering, Food Service Dieticians, Sustainability, Public Health, Medical, Nursing, behavioural scientists
- National and Local roles
- Thematic Analysis

Designing Food Microenvironments



Intervention Type	Product	Related Objects	Wider Environment
Availability	Healthier options	Added vending machines	Removing access routes
Position	Shelf position	On request menu	Under counter, checkout line
Functionality	Product opening or tableware	Demarcate healthier food area	Seating
Presentation	Visual, tactile, or olfactory products	Menu appearance / design	Lighting, colours
Size	Portion size	Size of tray	Size of fixed furniture
Information	Terminology, symbols, nutritional labelling	Promotional displays, menus	Posters, leaflets, computer screens
(Pricing and defaults..)	Discounted / default healthy options	Discounted / default add-ons	Shop membership

Hollands et al. The TIPPME intervention typology for changing environments to change behaviour. Nature Human Behaviour 2017

Study	Typology: Availability	Functionality	Information	Positioning	Presentation	Pricing	Sizing	Reported effect
Hospital Cafeteria								
Whitt [35]	■		■					
Ryan [77]	■							
Thorndike [3, 6, 37, 40, 43, 44]			■			■		
Thorndike [3, 9]			■			■		
Levy [38, 41, 42, 60]			■	■				
Block [45]			■	■				
Lowe [46]			■	■				
Warsaw [47]			■	■				
Sato [48]			■			■		
Mah [86]	■		■			■		
Meeusen [76]						■		
Mazza [49]			■					
Webb [50]			■	■		■		
Patsch [51]	■		■	■				
Vanderlee [8, 5]	■		■	■		■		
van Kleef [75]			■	■				
Geaney [89]	■		■			■		
Dorresteijn [74]	■		■					
Lassen [87]	■			■				
MacDonald [78]	■		■	■		■		
Hospital Vending								
Gorton [91]	■							
Grivois-Shah [53]	■							
Campbell [62]	■		■	■				
Pechey [63]	■							
Boelsen-Robinson [79]	■							
Griffiths 2024 [65]			■					
Griffiths 2020 [64]	■							
Public Health	■			■				

Study	Typology: Availability	Functionality	Information	Positioning	Presentation	Pricing	Sizing	Reported effect
Hospital Retail								
Racette [58]	■							
Kawabata [90]	■		■	■		■		
Allan [67]	■		■	■				
Elbel [59]			■			■		
Blake [83]						■		
Simpson [58]	■		■	■		■	■	
In-patients								
Barrington [8, 0]	■		■		■			
Holst [88]			■		■			
Doordujin [71]	■							
Basak [84]			■	■	■			
van der Zanden [70]			■					
Nursing Homes								
Crogan [56]	■				■			
Hansen [92]					■			
Remsburg [5, 7]					■			
Others (Meeting rooms, mixed setting, multiple worksites)								
Immink [69]	■		■		■		■	
Epel [54]	■							
LaCaille [55]	■		■	■			■	
Tinney [81]	■							
Walker [82]	■							
Kwak [73]	■		■					
Vermeer [72]						■	■	
Holdsworth [61]	■		■					
Beresford [52]	■							

*Classification from Hollands et al.[33] with the additional element of pricing. None of the studies implemented a default. Typologies employed by studies are highlighted in blue. Reported effect: **Green** = positive result reported for primary outcome; **Amber** = mixed effects: null result reported for primary outcome, some positive secondary outcome findings; **Red** = negative: null result or undesirable change reported.*

Evidence supports choice architecture as an effective approach to modifying food behaviours in healthcare settings

RESULTS: Key themes

Knowledge

- Evidence base
- Policy gaps
- Definitions and terminology

Perceived attitudes

- Public reaction
- Staff and patient preferences

Challenges

- Nutritional concerns
- System complexity
- Cost considerations

Knowledge – evidence base

Evidence supports:

- Choice architecture as an effective approach to modifying food behaviours in healthcare settings

Lack of research for:

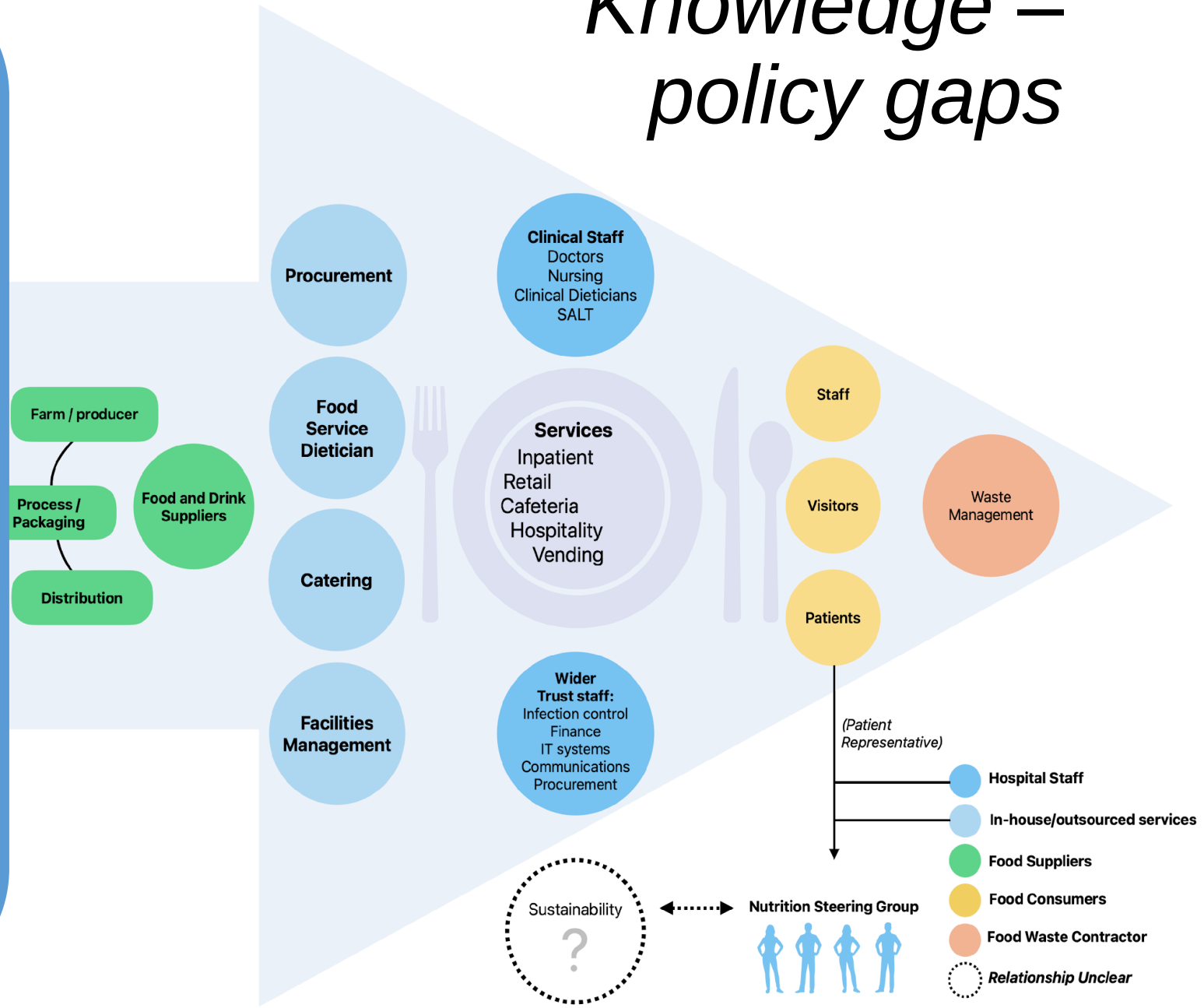
- UK-based inpatient studies
- In-patient specific case studies
  - *With nutritional outcomes*

> *Interventions are developed… ad hoc, and based on what… people think seemed like a good idea at the time… I don't mind which framework people use but using an approach helps to at least structure decision making and… use relevant data to make your decision.*

> *With a lot of the Nudge-related studies… you are throwing six or seven different components within an intervention at it… but you don't know that it is working optimally. And so your intervention might be orders of magnitude more effective if you were doing five of the six things rather than six of the six things*

Knowledge – policy gaps

- Guidelines on standardised carbon reporting for food
- Lack of alignment between Green plan and Nutrition strategies
- Lack of integration in strategy development
- Failure to use SMART goals for plant-based diets
- Inadequate evaluation of actions
- Choice architecture underutilised in an in-patient setting



Knowledge – definitions & terminology

Definitions for choice architecture & plant-based diets

> *So, plant-based to me is equivalent to a Vegan diet, so it would be food, that has come from plant-based sources. So, no animal products, no dairy products. I would exclude honey, milk, eggs, fish, poultry, and red meat.*

> *With plant-based, you've got a bit of a challenge on because vegetarian… vegan… and now we've got plant-based. "What's plant-based?" "Well, it's vegan." "No, it's not." - It's confusing. People that become confused normally steer away from it because they don't want to feel embarrassed [or] risk changing the norm.*

KNOWLEDGE DEFICITS:

•Culinary experience preparing plant-based dishes

•Lack of training for food service staff to confidently support healthy choices

Nutritional evidence

- adequacy of plant-based diets
- benefits of plant-based diets

Misplaced perception that sustainability and health goals with food are at odds with one another

"Where maybe one challenge comes in is in terms of the preparation skill level of the culinary staff… there's not really available free or low-cost trainings for culinary staff on how do you prepare plant-based proteins?"

TERMINOLOGY

•On menus:

- Varying implementation of "appealing terminology"
- Lack of awareness on what descriptive language to use on menus

•Weak wording in policy:

- Inconsistent terms e.g. plant-forward, plant-rich, Eatwell
- Avoidance of discussing reducing meat

"I went to a BDA Food Service Workshop, and they were saying that actually, is plant-based, a better word? - because people also find it negative. So there's no consensus about what wording would improve people's desire to eat these foods."

Perceived public reaction

… I've been a caterer all my life literally from the age of 15, and the landscape is changing for the the better, more responsible. You know it's it's no longer, your meat and 2 veg, and it has to be red meat, and it has to be a roast on a Sunday. These things don't exist anymore. The palate has changed.

A couple of years back, we completely changed our menu.. it was a massive change, and we did lots of surveys with patients and they were the ones also asking for more vegan options and more plant-based options.

Challenges – *Nutritional Concerns*

- Higher energy and protein requirements for malnourished
- Specific patient groups with different nutritional requirements
- Concern that patients will eat less if they are served plant-based foods and be higher risk of malnutrition and longer hospital stays
- Concerns that it would require upfront costs or increase meat-alternative products

“ *Over 40% of our patients are at risk of malnutrition… So the healthy eating messages that we should be promoting in the retail outlet wouldn't apply to hospital inpatients as much… we have to have nutritionally dense foods, high in calories [and] protein to help with the recovery.*

***It's a lot harder to put energy and protein in a small portion of a Vegan dish**, for example, than it is if we if we include meat or animal products.* ”

Challenges – *Complex food systems*

- Hospital infrastructure & equipment
- Food service model and outsourcing
- Accurate data collection e.g. food waste

So, he's looking at maybe pre-prepared salad boxes because we haven't got much surface area at all. So, we're really limited on space.

I think the barrier there was also data related in that. They didn't really have much baseline data.

Recording food waste is not an easy job. Taking time to understand what is being wasted, not just overall food waste could inform us in making our menu even more fit for purpose.

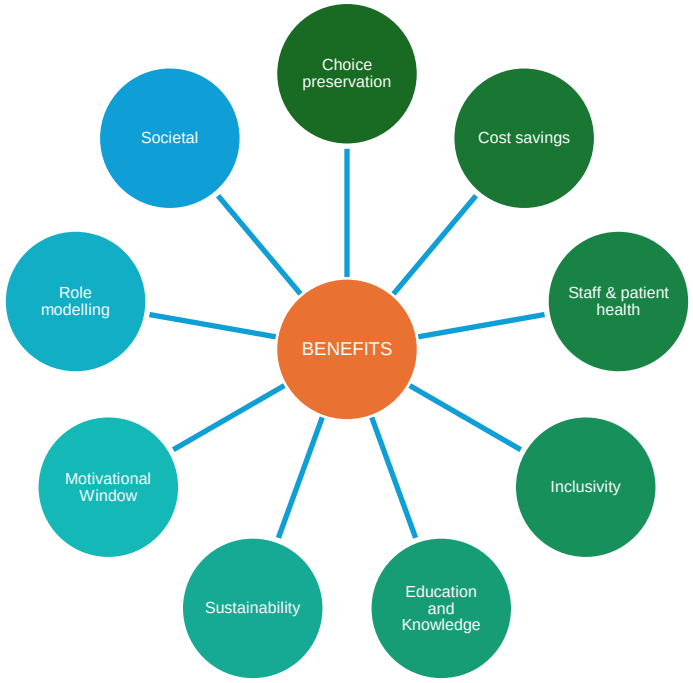
Challenges – *Cost considerations*

- Contractual restrictions & supplier monopoly prevent change/ require upfront costs
- Tight budgets and health service strain -> low prioritisation of hospital food
- Lack of modelling and evidence to demonstrate costs and benefits

> *The focus is on trying to run a hospital and keep it within budget, waiting lists, all the other things that we're well-rehearsed with, food drops down the bottom.*

Benefits

- Inclusive
- Choice Preserving
- Effective & Timely
- Health promoting
- Anchoring communities
- Long-term viability
- Cost saving



Report Recommendations

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Build behavioural insights into policy

Monitor and evaluate changes to food service to provide evidence

Pilot and monitor costs for feasibility in the UK

Collaborate cross-department and cross-sector

Consensus on appealing language

Increase consistent use of plant-based term

Tailor intervention to local food system and population using frameworks

Implement alongside educational campaigns, incentivise good practice

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Sustainable Diets

Specialist Group

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

How much resource and effort do we want to spend towards prevention and health and wellbeing? How much for sickness response? Because sustainable healthcare is a prevention, health and wellbeing led system. At the core, that is it front and centre, isn't it? That's the biggest way we take out carbon. It's the biggest way that we have impacts on population health.

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