Personalised nutrition: perceptions and attitudes of the general public

Rosalind Fallaize, RD
Talk Outline

**Background**
- Chronic disease burden
- Personalised nutrition

**PN - Concept**
- Acceptance of PN
- Perceived risks
- Perceived benefits

**PN - Delivery**
- Provider
- Communication channel
- Costs
Rosalind Fallaize - Food Matters Live 2014

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Disease prevention

• Estimated that 80% of chronic disease could be avoided through improved lifestyle choices (diet & activity)

• Is the ‘one-size fits all’ approach to public health nutrition working?
Personalised Nutrition

“Personalised nutrition is the tailoring of dietary advice to suit an individual based on their genetic make-up.”

2000

Human Genome Project

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Personalised Nutrition

Tailoring weight loss diets based on genotypic parameters shown to significantly improve dietary responsiveness (Dopler Nelson et al. 2010)

![Graph showing change in body weight over months with and without correct genotype.]
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Public Acceptance of PN

- Public acceptance ➔ key barrier to the success of personalised nutrition in the health domain
- Genetic testing is becoming routine practice for the screening of high penetrance genes such as the BRCA1 gene (Antoniou et al. 2003)
- The use of genetic testing to identify polymorphisms that may predispose individuals to chronic disease is not well established (e.g. US vs. UK)
Acceptance of nutrigenomic-based PN

- Will individuals be interested in undergoing genetic testing for the purpose of preventing complex chronic diseases?

Willingness to undergo genetic testing

<table>
<thead>
<tr>
<th>Author</th>
<th>Population</th>
<th>Willingness (%)</th>
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<tr>
<td>Cherkas et al. (2008)</td>
<td>UK</td>
<td>48</td>
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<td>Henneman et al. (2006)</td>
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<td>UK</td>
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<td>Sanderson et al. (2004)</td>
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<td>Nielsen &amp; El-Sohemy (2012)</td>
<td>Canadian</td>
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<tr>
<td>Makeeva et al. (2009)</td>
<td>Russian</td>
<td>85</td>
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</tbody>
</table>
Willingness to undergo genetic testing

- Getting healthier/ reducing disease risk
- Personal/ family experience of disease
- Doctors recommendation
- Curiosity

- Time
- Cost
- Fear of results/ privacy
- Unproven efficacy
Perceived benefits of PN

- Assisting in the prevention and early diagnosis of disease
- Reducing health care costs
- Improving motivation to change

Genotype-based advice has been found to be more understandable and more useful in relation to diet compared with general dietary advice (Nielsen and El-Sohemy 2012)
Perceived risks of PN

Concerns have been raised by both researchers and consumers regarding:

• Service delivery e.g. face-to-face interaction with a HCP vs. direct-to-consumer testing

• Privacy, use of information by insurance companies and employers

• Freedom of choice

• Commercial interests
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Consumer evaluations of PN

- Sixteen focus groups were held in 8 European countries (Greece, Spain, The Netherlands, Ireland, UK, Germany, Poland and Norway).

- 164 participants asked about 9 hypothetical PN services.

- Opinions coded according to positive and negative attribute level evaluation.

“I thought that my DNA has little to do with my food. DNA has been determined at birth. So that has little to do with healthy eating.”

_The Netherlands_
Service Provider & Advice

---SERVICE PROVIDER---
Expert/Dietitian
Government
Employer
Company

---CUSTOMER LOCK-IN---
Support group meetings
Free service dependent on good results
High initial payment
Subscription

---ADVICE JUSTIFICATION---
Alternative medicine
Organic products
Scientific evidence
Success stories

Fig. 4. Evaluations of the ‘generating advice and advice adherence’ service attribute levels.
NHS needs £8 bn funding boost and 'major reforms' says health chief

Simon Stevens says the funding boost, combined with reforms and ambitious efficiency savings is needed to close a £30bn funding black hole which would otherwise open up by 2021.

- Companies asked to reward staff who lose weight with shopping vouchers and prizes, under schemes part-funded by the NHS;
NHS 'should pay people' to lose weight

Paying people up to £3,000 to lose weight is more successful than traditional diets and should be rolled out across the NHS, it has been claimed.

By Rebecca Smith, Medical Editor
7:30AM BST 07 Jun 2010

The founder of the controversial Pounds for Pounds scheme said that people who are paid according to how much weight they lose and if they keep it off are more successful than those on traditional diets.

Winton Rossiter, founder of Weight Wins, said dieters who completed the programme lost on average two stone, or around 12 per cent of their body weight, which was twice as much as those not being paid.

The scheme included 402 people who were sponsored by the NHS Eastern and Coastal Kent.

However some will question if the NHS should be spending money in this way, especially as operations are being banned and staff face redundancy in order to save the health service £20bn over the next five years.

A spokesman for NHS Eastern and Coastal Kent said the results were 'mixed' and three quarters of people dropped out before the end of the scheme despite the financial incentive on offer.
Impact of the NHS on PN delivery

Supplementary analysis of focus group data relating to PN delivery: comparative analysis of UK and Ireland

- Preference for PN to be led by the government & delivered face-to-face
- Paying for PN associated with ↑commitment & motivation
- UK discussants expected PN to be delivered free of charge by the NHS.

Fallaize et al. (2014) The perceived impact of the National Health Service on Personalised Nutrition Delivery among the UK public. *British Journal of Nutrition* [under review]
‘I wouldn’t mind doing that because I have trust in the medical profession. Whereas if this was a [...] service, not by (private health provider) and it was by (supermarket) or (pharmacy) then I’d have a problem with it’

‘I don’t think I’d be willing to pay for it [...] because I’m used to just getting everything medical free [...]’

Fallaize et al. (2014) The perceived impact of the National Health Service on personalised nutrition delivery in the UK. [Poster presentation: NuGO Conference, Naples]
PN service: provider, delivery & cost

**Figure 1.** Themes emerging from supplementary framework analysis of PN service using Food4Me focus groups (UK and IE)
Summary

• Resistance to the use of genetic information for tailoring individual nutritional advice poses a potential barrier in the uptake of PN

• Health and *heightened ‘perceived’ susceptibility* to disease have been established as key determinants of uptake of genomic-based PN (e.g. high cholesterol)

• In the UK, there is a preference for **free** services delivered by the **NHS**
Food4Me: PN & dietary change

n=1607 participants randomised (Aug ‘11-Apr ‘13)

6 month online PN dietary intervention

n=1269 participants completed (Jan ‘14)
Food4Me results…

Work in progress!
Acknowledgements

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Thank you for listening!

Any Questions?

@FallaizeRD