



Delta Partnership

Food Standards Agency Science and Evidence Strategy

Workshop with internal stakeholders

13 July 2009

Enabling better public services

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Summary

0.1 Overview of this report

This report summarises the proceedings of an internal FSA science and evidence planning workshop held on 13 July 2009. The overall objective of the day was to produce a skeleton evidence strategy for each of the 7 strategic outcomes of the FSA.

The workshop participants split into 7 groups, one for each of the outcomes. Each group worked on the following tasks:

- Detailed gap analysis
 - Consider all types of evidence needed to inform progress towards the outcome; more or better data, primary or secondary research, rapid reviews and syntheses, or evidence from stakeholder engagement
- Rewrite the headline evidence brief for each outcome
 - Draw on all prior analysis to redraft the 'straw man' evidence brief that emerged from the Birmingham workshop (rewrite completely if necessary)
- Develop a skeleton programme plan
 - Work through the outputs and activities for each outcome
- Comment on other outcomes
 - An opportunity to work on your second choice
 - And to identify cross-cutting evidence needs
- Final plenary and wrap-up

This report is structured in line with the 7 strategic outcomes.

0.2 Notes from the final plenary session

- Prioritisation will be a future challenge, but we have taken a step in the right direction
- The need to focus on evidence that has a bearing on policy (as distinct from the policy actions that may result) is sometime hard
- There is a lot of commonality between outcomes and many cross-cutting issues
- This was a good opportunity to explore risk assessment together
- We need consistency of terminology
- Need to know more about 'what works' including predictive markers
- Need to focus on exposure to chemicals; need more knowledge of thresholds – another cross-cutting issue
- It would be good to 'test' the outputs of this workshop with those external stakeholders who were at the Birmingham event
- There will be wider consultation internally before the GACS meeting on 8th September and externally afterwards
- The science and evidence strategy will be agreed around February 2010
- Today's workshop will help in the commissioning of evidence; the FSA prioritisation tool will also be used
- The commissioning planning will start in September so that there will be a good idea of commissioning for 2010/11 to 2011/12 by December 2009
- The workshop report will be circulated; Patrick will also keep people informed about other developments

Outcome 1: Safe imported food

Imported food entering the UK is safe to eat

1.1 Indicative evidence needs and gaps

Definitions	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Understanding of others' definitions • Do we know what is meant by 'risk based enforcement' in all the situations we want to use it • Information gap on personal imports and internet sales; and regulatory gap to control this • Define 'forensic knowledge' • Definition of 'imported' and accurate stats of % of food from EU / 3rd country etc. • How many incidents involving imported (and UK produced / sold) food do we miss? 	<ul style="list-style-type: none"> • What is an 'import'? • What is 'forensic knowledge'? • What is 'risk based enforcement'? • Do we include 'ingredients'? • Who 'owns' existing definitions?

Food chains' analyses	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Establish variety of 'chains' • Capture existing data sources and who 'owns' them • Better identification of outbreaks linked to imported food • How will we know when we have attained sufficient knowledge and understanding? • How will monitoring of imports at retailers and food services actually be carried out? • Evidence needed as to what extent food importers / UK producers are involved in third country food production • Undertake risk analysis on imported food so that surveillance and enforcement can be targeted • How can we test short shelf life at import? – rapid analysis techniques required • Better handle on data trends for imported foods and be able to access this quickly to assist investigations • Can we trust data ex-UK, e.g. melamine levels • How important are imported food ingredients for manufacture in the UK? • Do we know what is being imported and from where; do we understand patterns and factors that influence them; would knowing more let us act more effectively 	<ul style="list-style-type: none"> • Types of data collected • Risk analysis • Targeted enforcement • Identify key data sources • Do we know what's being imported from where – patterns and factors that influence them • Relative risks of imported / exported (UK) food • Personal imports • Internet sales • Do we know (evidence) whether imported food (from outside UK) is any less safe than UK produced; should we publicise this? • Appropriate resource to analyse data and evidence • Better knowledge and understanding of food supply / industry practice – globally • How much imported food goes into catering and retail? • Integrated sampling plan with LAs across England and UK for all food on sale in the UK • Target imported food – sampling based on risk

Horizon scanning / emerging risks (is this really horizon scanning or emerging risks?)	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Good scanning / surveillance • 'New' technologies, e.g. nanotechnology • Horizon scanning and enforcement of regulation of Member States and third countries • Research into likely new risks from imports • Horizon scanning seems to be dislocated from the core science – would be good to have more influence from those doing routine work who are in a position to foresee areas of work 	<ul style="list-style-type: none"> • Inefficient systems of international communication • Better use of resources; better communications • Involving the 'appropriate' people in horizon scanning – how, who and what • Research into food risks by country of origin, possibly using sample database • Increase horizon scanning – from what level to what level • What is meant by forensic knowledge

Influence and impact	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Understanding of what's happening now • Understanding of the levers that already exist • Understanding of 'perverse incentives' • Imported food – encourage participation (national experts) in FVO missions in third countries • Influence and have an impact with closer relationships with LGAs • Interactions with EC and MS – what scope is there to vary what we do? 	<ul style="list-style-type: none"> • Understanding of what's happening now • Understanding of why it's happening • Understanding of the levers that already exist • Consistent use of appropriate levers • Understanding of 'perverse incentives' for import of unsafe foodstuffs • Incentives for businesses and enforcers to keep food safe, test thoroughly etc, and conversely incentives not to do so • Hold LAs to account

1.2 Headline evidence brief

Identify and capture all current data sources (from upstream, e.g. import testing, to downstream, e.g. results of outbreak investigations) to identify gaps, evaluate the quality of the data and their value as a basis to develop proposals for improvements.

Key areas:

- Definitions of key terms including 'import', 'safe', 'forensic'
- Analyses of food chains, including traceability
- National and international collaboration to deliver improvements in information gathering, analysis and communication

1.3 Indicative activities and outputs

Outputs	Activities
Definitions	<ul style="list-style-type: none"> Review existing definitions Draft definitions document Consult stakeholders Review Final document produced Workshops to highlight and promote document
Inventory of key data sources	<ul style="list-style-type: none"> Identify data sources Review utility Filter data Identify gaps
Map food chains (including internet and personal imports)	<ul style="list-style-type: none"> Find out what mapping is already going on by others Identify key areas for further work Nodal analysis
Targeted enforcement	<ul style="list-style-type: none"> Ensure LAs carry out their responsibilities Proportionate and appropriate inspection regime
Mechanism of horizon scanning / emerging risks	<ul style="list-style-type: none"> Improve current communication systems (Infoscan)
Responsible sourcing	<ul style="list-style-type: none"> Disseminate timely info to industry?
Consistent enforcement	<ul style="list-style-type: none"> Identifying communication channels, promote and update to ensure relevant Understanding existing levers by discussions and alternative incentives Identifying other regulatory regimes and their effectiveness

Outcome 2: Safe UK food

Food produced or sold in the UK is safe to eat

2.1 Indicative evidence needs and gaps

What works	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Is tackling campylobacter and salmonella in poultry the right priority – is it where we can have the most impact for any given cost; where should this be focused – producer / .consumer • Understanding of reasons for increases in campylobacter rates in over 60s • Identify risk based interventions to tackle campylobacter • Continued education from what to what – how specifically will campylobacter and salmonella be tackled – what approaches • Further understanding of the epidemiology and control interventions for campylobacter will be essential to effectively address this common food hygiene problem • Attitude of the public to the cost of controls – who should bear the burden of paying, e.g. for meat hygiene inspection regime • Meat controls – take assurance schemes into consideration • What info do we require to design a meat inspection regime that is fit for purpose and addresses common food risks; can we influence EU debate in this area • Post Pennington – need to understand the epidemiology of E coli and develop a real time mechanism to track high risk animals • Tackling contamination – what do we mean by tracking; how will we know when objective has been achieved 	<ul style="list-style-type: none"> • Info and intelligence from industry • Info and intelligence from EU and international industry • More consistent info from EU M/S and competent authority • International comparison of risks and controls – Codex, EFSA • How to influence industry – disseminating good practice • Evaluate / trial interventions

Knowledge scanning	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Improve scanning – what do we mean by scanning - from what to what; does this (new technologies) overlap with horizon scanning • What is required under legislation • What knowledge do we already have about interventions that work – what do we mean by ‘work’ • How can we best set up interventions to generate information and evaluation on how well they work • Better understanding of if / how / when guidance and food safety messages and best practices are used by food business and how this could be improved • What are the key skills needed to avoid food poisoning and how can we promote these • What works when it comes to changing behaviour on farms, e.g. bio-security to keep out diseases • Do targets work; what are the alternatives • Impact of changing economic conditions on food safety • Better info on source attribution • Better knowledge / understanding of processing techniques and how industry manages risks in order to spread good practice • Knowledge of what is happening in new technology – what’s about to be implemented versus further down research pipeline • Research into relative effectiveness of incident prevention versus incident handling • Evidence that all food safety issues are being considered by the Agency • How much food, what and where, is produced for consumption, but not sold • Horizon scan - e.g. animal feed (TSE) • We need to understand better what causes food borne illness contracted in the home • It would be helpful to have more detailed info from FBD outbreaks – limited by surveillance system capacity and practicalities of investigation • Do we understand main organisms and sources of infection? • Research into whether increases in norovirus are food based • We need evidence about: <ul style="list-style-type: none"> ○ How dose affects response ○ What risk factors affect severity of reaction and threshold of reaction ○ How do we model the dose – distribution data from the above to derive robust, population based thresholds? ○ We need info from industry about manufacturing practices ○ We need information from experts about method capability ○ We need information from stakeholders to agree on what is an acceptable level of risk ○ We need to develop and validate allergen detection methods so we can enforce the levels and check them using surveys in the future 	<ul style="list-style-type: none"> • Look for what we know about versus what we don’t know – question of priority • Info and intelligence from industry – across FSA • Understand food chain – detailed forensic understanding • Info and intelligence from EU and international industry • More consistent info from EU M/S and competent authority • Drivers for change / changing levels of risk

Risk assessment	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Risk based approaches based on scientific evidence • Clear separation of risk assessment and risk management • Following up SAC recommendations for research to underpin and refine risk assessment • Risk assessment modelling – what would work • Urgent survey work in response to incidents • Improving current approaches to risk assessment (is this on-going?) 	<ul style="list-style-type: none"> • Cocktail effects • Applications of nanotechnology in food • Methods to detect nano materials in food • Early biomarkers of effect • Exposure assessment (chemicals, micro and allergens and nutrients) and food consumption • How can we get NDN to inform food safety work • Evidence for refining vulnerable groups • What makes someone vulnerable to infection and chemicals? • Understand what makes people vulnerable to infection (this would include food allergy); what an infection dose is; thresholds of sensitisation and allergy and how adjuvants affect these • Need evidence (research evidence from industry, stakeholder / expert groups) to enable us to generate and set allergen management thresholds / action levels for allergens in foods above which cross-contamination needs to be labelled / controlled – this would enable us to: <ul style="list-style-type: none"> ○ Deal with allergy incidents in a more proportionate and robust and consistent way (benefit to us) ○ Help industry make more informed and consistent (and more risk based) decisions about using ‘may contain’ labelling and help inform industry allergen control practices (benefit to industry) ○ Give good allergic consumers more confidence to make safe food choices because of more accurate and informative labelling and greater trust in food manufacture (benefit to consumers)

2.2 Headline evidence brief

Food that is ‘safe to eat’ should be considered not injurious to health, taking into account the amounts consumed as part of the overall diet, specific vulnerable groups and uncertainty in the available evidence.

Undertake a review of the current status of food produced or sold in the UK with respect to illness in UK consumers, risk assessment of micro-biological and chemical contaminants and constituents and emerging threats.

Following this, identify data gaps and priorities and how these can be addressed. Concurrently, review UK capability to respond to current and emerging food safety threats.

Following analysis, generate evidence to identify optimal intervention strategies and their effectiveness

2.3 Indicative activities and outputs

Outputs	Activities
Report on drivers and trends of food borne illness and food contamination	Undertake analysis of drivers of food borne illness Review of evidence by expert committee Literature review, workshop (?), commission research Assemble and analyse data on food borne illness
Estimate of levels of trends of UK food borne illness	Undertake intestinal infections disease (IID) survey Review on a regular basis
Measurement of chemicals in food and food consumption	Prioritisation of issues for study
Mechanism / agreement for sharing intelligence with industry	Map the work so far Gap analysis Draw up and implement engagement strategy
Map food supply chain – risks and volumes	Explore with industry what already exists (data and expertise) Prioritise – identify high risk products and processes Gather evidence and populate models
Horizon scanning	Evaluate currently available data on emerging threats / risks Monitor and evaluate adverse reports, RASFFs etc Commission reports on trends and innovation in food production from technical experts
Expert opinions	Identification or generation of relevant expert opinions
Refined risk assessments	Overlap to knowledge
Improved risk assessment approaches	Horizon scanning and capability building

Outcome 3: Safe consumer eating

Consumers make informed choices about food safety when eating outside the home, prepare and cook food safely at home

3.1 Indicative evidence needs and gaps

Understand consumer behaviour in the home	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • What makes a difference to consumers' behaviour – e.g. does FHC really work? • Behaviours of the elderly in the kitchen – this might help give an insight into the next increase in listeria cases among the elderly • FHCs appear to work in the short-term – how do we sustain impact? • Understanding people's kitchen practices – generally and specific sub-groups, e.g. older people (knowledge, attitudes and behaviours) – key evidence gap • Do we understand the impact of socio-economic factors on safety in the home, e.g. using food beyond shelf-life • Can we influence the long-term attitudes of consumers (food safety and healthy eating)?; should we concentrate on the young – looking for a long-term change in habits as with drink-driving / smoking / seat belts • Primary research needed to understand domestic food sourcing, storage, handling, preparation and clearing up / waste disposal practices – requires multi-disciplinary collaborative bio-scientific and social-scientific effort – high priority • How can we make food safer – e.g. avoiding cross contamination; second nature – what works in the home? • Can we identify well informed choices from un / ill informed choices – not all illness or non-compliance is due to ignorance; some calculated risk taking exists • Do we understand how choices are made (price, value, product) and are these choices different by e.g. age etc? • Understanding peoples' food habits and changes over time, e.g. how eating at home and eating out fits together to make up peoples' diets as a whole 	<ul style="list-style-type: none"> • Comprehensive info on kitchen practices for population as whole and (vulnerable?) sub-groups – observed and stated behaviours • Knowledge of safe food practices and risks of not following them • Understanding why / nor people follow the practices that they do • Enablers and barriers – how to influence people to follow 'safer' food practices – drawing on behavioural literature • Piloting and evaluating initiatives – measure clear objectives and realistic outcomes • Understanding how much food-borne disease (FBD) is attributable to the home / setting

Understanding consumer behaviour out of the home	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • What encourages people to have good feedback about outlets – promote these factors • How does food safety factor into public decisions when eating out; how will / does SOTD help?; what else? • Do we understand how choices are made – price / value, product; and are these difference in choice dependant on age? • What influences where a person eats? • Understanding peoples' food habits and changes over time, e.g. how eating out fits into the make-up of people's diets as a whole 	<ul style="list-style-type: none"> • How do people decide where to eat (why go back / not go back to chain / outlet) – by sub-group (SEG); where does food safety fit in; consumer awareness and use of SOTD • Patterns of eating out and understanding shifts in eating out / types of eating out outlets • What do people decide to eat when out and why?

Facet of consumer behaviour in home (relationship between technologies and domestic practices)	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Temperature control in domestic fridges – what % are between 0 to 5 degrees – WRAP? • Attitudes to technological advances and potential fixes / ways to reduce risks in the home 	<ul style="list-style-type: none"> • Purchasing of products – e.g. innovative packaging appliances • Pull together existing information • Influence other funders to collect

Understanding the behaviours of food handlers / business operators	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Primary research needed to understand caterer and food business practices and routines – high priority and must be multi-disciplinary • How can we make food safety (e.g. avoiding cross-contamination) second-nature; what works in catering? • Not all illness or non-compliance is due to ignorance – some calculated risk taking exists by food business operators 	<ul style="list-style-type: none"> • How far have we improved understanding and compliance with food hygiene standards? – who has and why; who hasn't and why – culture and maintaining 'good' ones and changing 'bad' ones • What are impacts of particular cultures on FBD – monitoring and analysis

Context of evidence needs and frequency required

- Outcome 3 cannot be delivered in isolation from other outcomes, especially 1,2,4,7, but all!
- How much of the food borne disease burden stems from food service compared to food prepared at home?
- Insufficient data / patchy evidence
- Need for reviews to confirm current knowledge / evidence base
- Consider and assess how future factors could influence food supply chain and change to food safety critical points
- Timely monitoring of changes in food security issues that would affect FBD
- Understand how external factors could affect food safety in the food chain (food security)
- Collaborative working with BBSRC – contributing to BBSRC led food security challenge
- Is it more beneficial (cost effective) to target biggest / most receptive audience or the hardest to reach / change – where is greatest potential for impact
- Continued reduction in FBD – reduction from what to what and how will we measure the reduction
- Collaborators – BBSRC, ESRC, DEFRA, DH, WRAP, industry, JRF, Nuffield, Wellcome, Which?, Consumer Focus, devolved country government offices, enforcers, media organisations, 3rd sector groups e.g. Age Concern – these are the ‘usual suspects’ but we need to refresh how we collaborate with them all

3.2 Headline evidence brief

- Understand what people do at home in food sourcing and preparation and why, and understand the impact of this on food safety
- Understand what influences peoples’ choices in eating out (including take-aways) and why, and understand the impact on food safety
- Building on the results of the above, understand how to influence changes in behaviours to improve food safety

3.3 Indicative activities and outputs

Outputs	Activities
Strategy for policy	Draw together different policy strands, e.g. E coli and pennington, capylobacter, listeria, food hygiene delivery board Check alignment with strategic plan Maintain alignment with policy and delivery teams
Report on current knowledge	Scoping of requirements Commission a review of existing evidence, e.g. find out who target groups and behaviours are, what works / doesn't work, new ideas for policies - develop and test out; how to influence behaviours Find out what other research, data collection etc. is on-going and analyse Identify and prioritise gaps in existing knowledge Identify key partners and how to engage with them and do so Food safety week (and other campaigns)
Strategy for research, analysis and evaluation	Commission new research, analysis and evaluation, e.g. attitudes and behaviour survey
Raise awareness of FSA colleagues in understanding and how to influence behaviours (skills, training)	Lunch time seminars Training courses Guidance

Outcome 4: Regulatory regime

A proportionate, risk-based regulatory regime relating to food, which is clear about the responsibilities of food business operator and others & which generate public confidence in food

4.1 Indicative evidence needs and gaps

An effective risk profiling methodology		
What the relative risks to public health are		
Evidence needs	Already available	Evidence gaps
<ul style="list-style-type: none"> • Refine better RA models / methodology • Excellent knowledge of comparative risks from different sources – chemical, micro, nano etc.- during consumption of food • Risk profiling – evidence of effectiveness of scorecard approach in targeting inspections at highest risk premises • What does risk-based mean – food source attribution needed on which to base risk based regulations (and enforcement); links to 'HACCP in the food chain', 'food based disease strategy' and other hazards • How to change EU regulations; need to work with other member states; links to future meat controls programme • Need to know how other MSs approach this – finding good examples • The extent to which chemicals in feed are harmful to consumers of animal products 	<ul style="list-style-type: none"> • Existing methodology? • EFSA standard on risk assessment? • Analytical methods for determining levels of food additives (and flavourines?) in food • HACCP in Food Chain Project • Incident and surveillance data • IID study • Residual risk 	<ul style="list-style-type: none"> • Model for determining what is relative risk; e.g. hygiene v chemical, meat v milk; animal feed • Absolute risk (without intervention) • Data to quantify risk in new areas, e.g. nanotechnology
	<ul style="list-style-type: none"> • Monitoring information on the consumption and use of food additives / flavourings • Future adulterants and detection methods • Levels of contaminants in animal feed food 	

<p>Evaluation of effectiveness</p> <p>FBOs 'HACCP based procedures and FSA advice / guidance</p> <p>Have we got the science / evidence right?</p>		
Evidence needs	Already available	Evidence gaps
<ul style="list-style-type: none"> Effectiveness of alternative risk mitigation measures Costs and benefits of different approaches to risk mitigation Is there a link between compliance / non-compliance and food poisoning? Advice and guidance – assess effectiveness – clarity, consistency, reliability, accessibility Information / data collection – hygiene, other bits, labels? 	<ul style="list-style-type: none"> Slaughterhouse measures (Mary Howell) SFBB evaluation? 	<ul style="list-style-type: none"> What works to mitigate risk? Public acceptability of interventions

<p>Evaluation of the effectiveness of 'regulatory' interventions to reduce risk</p>		
Evidence needs	Already available	Evidence gaps
<ul style="list-style-type: none"> Scope for joint research and sharing of information with enforcement partners Evaluation of existing regimes' costs and effects / benefit Need to identify clearly where it works and why – sector specific Comparison / evaluation of accreditation schemes Earned recognition – need an evidence base for assessing the extent to which we could rely on industry schemes Quality assurance schemes – do they have a role in enforcing regimes? Sharing enforcement information – how to learn from this? What enforcement 	<ul style="list-style-type: none"> Info on enforcement activity Increasing knowledge on compliance levels / LEAMS / scores on the doors Euro review; food sampling database; HPA data; surveillance on chemicals Review / improve / standardise data collection (inspection and audit) Lessons learned from SFBIB incidents Intelligence and how to share it (criminal and fraudulent activity) FLEP information on sampling Compliance info from LAEMS and SOTDs 	<ul style="list-style-type: none"> No link between compliance levels and outcomes; don't know about effectiveness or otherwise of self-assurance schemes; for their potential role How effective are controls based on HACCP Effectiveness of enforcement in comparison with providing advice an guidance Other MS knowledge of fraud in other countries Other MS approach Links between compliance and food safety outcomes

<p>regimes work? – how do enforcements officers decide when ‘enough is enough’?</p> <ul style="list-style-type: none">• Understand costs and benefits of various options; risks of food chain; rationale for intervention (why and will it work?)• How to measure effectiveness of regulatory system by outcomes rather than inputs• What interventions work best – enforcement and also regulatory regime• Understanding what works in enforcement – piloting / trialling; what do other countries / regulators do?• Other MS approach• Evidence of impact of legal requirements for food hygiene		
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Food safety culture – drivers for compliance / non-compliance		
Evidence needs	Already available	Evidence gaps
<ul style="list-style-type: none"> • FBO food safety culture – reasons for compliance and non-compliance – links to food hygiene delivery programme • Confidence in management – source / behavioural; perceived risks, assessment • Why do / do not food hygiene operators follow FSA guidance, e.g HACCP, SFBB – understanding risk taking behaviour in relation to compliance • Segmentation analysis for enforcements – what types of business don't comply and what actions have been taken against them – understanding drivers of non-compliance • Competencies – consistency of – qualification framework • Understand drivers for compliance in business and how enforcement activity can cover / influence each of these, e.g. education for those who don't know how to comply; tough penalties for wilful non-compliance • 'Regulatory regime' – understand drivers for improved performance; less regulation; outcomes that are acceptable • Enforcement officers food safety culture – 'behaviours to achieve compliance'; links to Food Hygiene Delivery Programme 	<ul style="list-style-type: none"> • E-coli inquiry – social science unit to review current literature; HSE evaluation, SFBB evaluation • Investigations into food fraud 	<ul style="list-style-type: none"> • Why do incidents happen • Competency of our enforcers – what enforcers need to know to make them better

Organisation of enforcement regimes		
Evidence needs	Already available	Evidence gaps
<ul style="list-style-type: none"> • How might enforcement regimes be better understood? (Operations Directorate) - relationship with 400+ local authorities – how can it be improved? • Roles / responsibilities of agents – FSA, FBOs, Las, public, others – who is responsible? • How consistent is our approach within the UK (geography and different sectors) 	<ul style="list-style-type: none"> • National control plans; FVO reports 	<ul style="list-style-type: none"> • Alternatives – what could be done; what is done elsewhere; what works elsewhere • Alternatives?

Public / consumer perceptions to inform risk communication		
Evidence needs	Already available	Evidence gaps
<ul style="list-style-type: none"> • Evidence about public perceptions about food risks to inform risk communication • Role of public – responsibility, concerns, trust; role of media • Do we understand what factors give consumers confidence in food safety (and what factors reduce confidence / generate / perpetuate doubt or bad opinions / judgement • What generates public confidence?; is this the same as what works? • How to deal with uncertainty (and its impact on public confidence) 	<ul style="list-style-type: none"> • Consumer attitudes survey • Scores on the doors 	<ul style="list-style-type: none"> • Between perceived and actual risk • We (FSA) don't know how to communicate effectively to consumers

4.2 Headline evidence brief

To obtain, share and analyse data to develop a consistent view of proportionate, effective regulation* policy and practice across the food chain.

To identify and review the outcomes and evaluate their impacts on public health and confidence. This will involve:

- Getting consistent quality data on the absolute and relative risks
- The benefits and costs of current regulatory regimes and practices, and alternatives
- Engaging on how to define proportionate and effective approaches (including public perception and international dimension)
- Analysis of data with robust methodology, to propose and evaluate effective interventions
- Identifying gaps and uncertainties to be addressed
- Communications?

* regulation in its widest sense – so including enforcement plus self regulation / guidance

4.3 Indicative activities and outputs

Outputs	Activities
An effective risk profiling (or analysis?) methodology	Commission an evidence review on risk profiling / prioritisation
Food safety culture	How we achieve change What are barriers to change Finding current competency level Defining critical competency level for enforcers / FBOs / all
Public / consumer perceptions	What drives public concerns Is there something about small business / big business and whether different approaches are merited?
Evaluation of effectiveness FBOs' HACCP based procedures and FSA advice / guidance	Review existing evidence FBOs / enforcers (LA / MMS) What works / has worked Define criteria What have we out there – any effect / cost? Scientific validation of hygiene requirements (what works scientifically?) Piloting?
Evaluation of effectiveness of interventions to reduce risk	Gain knowledge of compliance across the food chain Link compliance with impact on public health and confidence Review intervention approaches which achieve compliance – identify areas of highest return Consider nationally, but also international approaches Establish a system of 'continuous' data monitoring

Outcome 5: Healthier products and meals

Retail products and catering meals are healthier

5.1 Indicative evidence needs and gaps

Horizon scanning and intelligence	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Keeping abreast of emerging evidence on diet & health worldwide – systematically • Understanding industry drivers: current & future trends • Understanding industry structure (esp small businesses) • New technologies for measuring nutritional intake & status 	<ul style="list-style-type: none"> • LFI? • Industry think-tanks • Business sector analysis (esp small business) Developing new technologies for use in surveys & applicability for FOIA(?)
Consumer acceptability & response & composition & intake data	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • Attitudes & behaviour – reported & actual • Purchase data • Composition & intake data • Consumer drivers eg why consumers purchase the portion size they do / purchase extra-large products • (portion sizes: IGD as possible partner) • Impact of promotions <p>General post-its:</p> <ul style="list-style-type: none"> • NDNS: evidence for food/nutrient intake in UK population • Collect data on nutrition composition & portion size to establish current position, and allow measurement of impact & track changes • How can we encourage consumers to accept smaller portion sizes for some foods & reformulated foods? How can we ensure consumers don't compensate by adding salt back? • Evidence on how changes in portion, pack & serving size affect food choices & dietary intakes (eg adding additional salt to reformulated product, buy-in / acceptability of healthier eating) • Non-NDNS: understanding data sources on nutritional intake & consumption, etc (inc purchasing) and methodologies • Biomarkers 	<ul style="list-style-type: none"> • Composition data for retail & catering (especially) • Impact of changing portion size on dietary balance • Partners: industry, LACORS (local regional partners inc PCTs), commercial data providers (TNS etc)

What works and barriers	
Evidence needs	Evidence gaps
<ul style="list-style-type: none"> • How past initiatives have worked.....> • Pilot & test new initiatives.....> • Understand how regulation can support / prevent initiatives from industry.....> • Technical barriers to regulation.....> • Assessment of options for regulation & reducing portion size, taking account of <ol style="list-style-type: none"> 1. Public health & impact 2. Likelihood of uptake (consumer & industry) 3. Risks of unintended consequences 4. Wider sustainability considerations 	<p>.....></p> <p>.....></p> <p>.....></p> <p>.....></p> <p>Modelling 'what ifs?'</p> <p>Analysis for catering sector for options for targets</p>

5.2 Headline evidence brief

1. Ensure criteria being used to establish 'healthier' are robust and consistent across Government
2. Analyse options for reformulation and portion size and optimise (for whom?)
3. Establish success criteria and evaluate past initiatives to inform future policies
4. Prioritise monitoring and evaluation needs. Establish baselines. Ensure plans for future monitoring are in place
5. Analyse how regulation can support or hinder initiatives
6. Explore solutions to technical barriers to reformulation
7. Horizon scan for future drivers and challenges
8. Research consumer acceptability and response
9. Identify collaborations and funding partners
10. Identify optimum delivery channels for promoting healthier options

5.3 Indicative activities and outputs

Outputs	Activities
1. Clear criteria for healthier products/meals to inform policy decisions	a. Horizon scanning and evidence review b. Stakeholder consultation/workshop (<i>Why? Don't we know this? Yes, but need to keep up to date</i>) c. Discuss with OGD and Devolved Admins d. New technologies for measuring link between nutritional intake, status & health <i>not sure how this links to 1?</i>
2. Report covering different policy options, their impact & costs, feasibility etc	a. Generate options <ul style="list-style-type: none"> • International comparisons • Case study (eg saturated fat) • Analysis of where nutrient risks are in terms of foods/industries • Talk to industry b. Identify criteria for comparison of options c. Cost/benefit analysis of options d. Assess broader and/or unintended impacts, eg on other health parameters, nutrients, costs, sustainability, environment etc
3. Agreed targets for products/sectors	a. Analysis of what is possible and what businesses are likely to do / agree to do b. Systematic review of what experience shows works in delivering targets of this sort c. Post-hoc evaluation of FSA initiatives to date, eg salt targets?
4. Monitoring & evaluation programme in place	a. Identify priority data needs b. Establish baseline (including practicality of collecting data, proxy indicators etc) c. Collect / procure compn. data
5. Review of impact of current regulation on initiatives to produce healthier products	a. Talk to stakeholders about impact / effect of current regulation <ul style="list-style-type: none"> • Mapping exercise of regulation • If appropriate feed back results from review into earlier activities and outputs, eg option generation and targets b. Analysis of potential for changes in regulation to drive production of healthier food <ul style="list-style-type: none"> • International comparisons and review of literature • Identify what's possible under current regulations • Objective assessment of what is possible (eg any change of EU changing chocolate regulations)
6. Best practice recommendations	a. Food technology research to identify where and what are technical barriers b. Stakeholder consultation eg Campden BRI, LFI, Food Technology in academia
7. Horizon scanning programme embedded	a. Horizon scanning workshop with stakeholders b. Mapping / understanding structure & trends within the

Outputs	Activities
in business as usual, with annual reports	industry
8. Overview of consumer acceptability and response issues	<ul style="list-style-type: none"> a. Collect / procure data on purchasing & intake (NDNS, TNS, etc) for retail & catering b. Qualitative data on attitudes eg NDNS etc (<i>why? We know attitudes don't match behaviour. But this is one aspect of ascertaining consumer response: needs to be used with other methods</i>)
9. Database of key collaborators and funders	<ul style="list-style-type: none"> a. Mapping exercise by activity, by LA, local & regional (& NGOs) b. Mapping exercise by research councils, other funders (BBSRC, ESRC, MRC) c. European Commission, WHO, USA/others, international d. Workshops / bilaterals to identify shared interests and agree joint programs of research e. Co-funded projects / research in place
10. Review of delivery mechanisms and dissemination channels	<ul style="list-style-type: none"> a. Learning from past experience & evaluations b. Understanding how to influence & encourage uptake with industry c. Make sure messages are in context (eg know how many calories you should eat)

Outcome 6: Nutrition information to consumers

Retailers, manufacturers and caterers provide the nutrition information consumers need to make healthy choices

Outcome 6 (re-interpreted) – nutrition information to consumers is accurate & effective, including on food labels (bop & fop, nutrition & claims); and in other information (catering, web, media, promotion)

6.1 Indicative evidence needs and gaps

Industry

- Monitoring how and what information caterers provide to the public
- Assess impact of such info on public dietary decisions, habits & consumption
- Monitoring take-up of single FOP scheme by retailers
- Monitoring impact of FOP on purchasing decisions & consumption
- Manufacturers-eye view of labelling issues, e.g. space constraints on labels for health/nutrition messages
- What types of catering establishments are there? Do they have different needs or can advice be more generalised? What is evidence base?
- Consideration of cost of labelling to producers
- Snapshot of products in the market that have FOP and over time: link to outcome 5 and labelling eg TNS data
- Improved ways of measuring/monitoring how consumers react to nutrition information: can we move beyond consumer surveys and focus groups?
- How do caterers know the nutrition information?
- Evidence on how consumers react to changes in a) portion size, b) new, healthier products, c) reformulated products (maybe with a health claim)?
- What do consumers want when it comes to food labelling?
- How do consumers react to labels throughout the day, eg if they have a FOP sandwich for lunch, how do they behave later: how would they behave if the evening meal also had label? (lifestyle & nutrition labelling)
- Difference in attitudes & behaviours between home and outside
- Evidence needed to find out how best to communicate for allergy on/for non-prepacked loose foods:
 - What works / is acceptable for consumers
 - What is practical / feasible for businesses
 - How would/could it be enforced? This will partly depend on how current negotiations on the Food Information Proposal progress

Info we need now:

- What nutrition information is out there now (and continued monitoring of this)
- Evidence on how well it works – understanding, behaviour change
- Review (of reviews) in terms of nutrition: what nutrition information works / behavioural change / health parameters
- Pilot testing
- Integration of interventions
- (note long time line)
- (thinking outside the box – be creative – leaps of faith on information provision)

6.2 Headline evidence brief

This group felt that the original brief from the May workshop was fine but offered the following alternative:

What is the nutrition information consumers need to make healthy choices?

How should it be provided (what's effective)?

Who does it?

6.3 Indicative activities and outputs

Outputs	Activities
1. Understand evidence base: what nutrition information works	<ul style="list-style-type: none"> • Narrative review (gives gaps) • Scoping novel ways to communicate information • Other funders work on mechanics & social factors on choice (BBSRC, MRC, ESRC, Wellcome), eg <i>EU, US, Australia</i>. • Workshops, industry engagement?, networking, other ideas generation? • Ideas workshop / factory / sandpits • <i>Quantitative impact of information on choices made</i> • <i>Impact / effect on industry reformulation activity / portion size</i>
2. Knowing what is out there	<ul style="list-style-type: none"> • Mapping exercise: stakeholder engagement, consultation • Existing information on what is available, eg TNS etc with what is on the label (FOP, / claims etc) • Efficacy testing (what is there now / where do we want to be / sub-group considerations) • Lessons learned – other countries, other subjects
3. Consumers expts	<ul style="list-style-type: none"> • Acceptability / usefulness (qualitative research) • How information is used in reality • Impact / effect on healthy behaviour choice • <i>Benchmarks used by consumers / role of reference behaviour</i>
4. Pilot testing and cost-benefit analysis	<ul style="list-style-type: none"> • From 1, 2 and 3: design small-scale interventions to test method eg mobile phone pics & text messaging • Testing 'in the real world' things that work in eg supermarket setting • Assessment of unintended consequences of interventions eg people ignoring labels or diversion to other characteristics of products • And then... impact on dietary health outcomes • <i>This is going to be an enormously costly analysis, surely?</i>

Outcome 7: Consumer food health understanding

Consumers understand about food and a healthy diet, have the skills needed to choose, prepare and cook healthy meals and are motivated to do so

7.1 Indicative evidence needs and gaps

Theme A - What is a healthy diet? Defining the diet we need to promote	
Evidence needs	Evidence gaps
Food composition data	Work programme exists in FSA: NDNS/Nutrient analysis / food composition. Partner with DH
Should we be working at micronutrient level? <ul style="list-style-type: none"> • Micro or macro (i.e. 'oily fish' or 'n3/n6 ratio)? • What will best drive consumer choice / behaviour change in the long term and how to capitalise on this. • How do you use it – evidence of effects? 	
<ul style="list-style-type: none"> • Biomarker research to better understand how nutrient status & biological function map together (trusted advice) • Inform dietary messaging: research to develop and refine dietary reference values – particularly for micronutrients (trusted source of this) • Identify & prioritise research needs eg surrogate markers of dietary exposure & disease risk factors 	Science moves on – work has been done, but needs review and updating regularly
How to improve nutritional literacy of public in a way that leads to improved dietary habits both in and out of the home	
Are all foodstuffs of same quality, ie nutrient value?	<ul style="list-style-type: none"> • Where are they grown / produced? • How are they grown / produced? • Impact of different storage methods?
<ul style="list-style-type: none"> • Future diets: 'best' -> 'enough' – sustainable for the world • Sustainable food: how does this drive food production and food choice (if at all)? • What impact does it have on dietary health (if any?) – how should we change 'healthy diet'? 	

Theme B - Consumer motives: what motivates people to eat well?	
Evidence needs	Evidence gaps
<p>Overarching: people with healthy diets, what do they do?</p> <ul style="list-style-type: none"> • Do they cook at home? • Do they use FOP? • Do they use catering labels? • Do they choose healthier meals when eating out? • How does their behaviour relate to their socio-demographic characteristics? • Do we need 'skills'? • Do skills make a difference? 	<p>Everything!</p> <p>(Also, motives change over time and so do individuals)</p>
<p>Better understanding of why people ending up eating the food they do. How do other aspects of people's lives affect what they eat, where they eat (<i>including life stages</i>)?</p>	
<p>Establish when, how, why people do <u>and</u> do not prepare <u>& cook</u> healthy meals at home</p> <ul style="list-style-type: none"> • Review existing research • New research likely to be needed thereafter 	

Theme C – Consumer perceptions	
Evidence needs	Evidence gaps
<p>Do people understand what constitutes a good diet?</p>	<p>Why do many people think dietary messages keep changing?</p>
<p>Consumers' perception vs evidence – needs redefining</p>	<p>Breaking down strongly held beliefs / half heard messages</p>
<p>Different behaviour / perceptions at home and outside</p>	<p>Do people value different meals differently? i.e. do they make different decisions when eating out? <i>Clear this is the case: can / should we do anything about it?</i></p>
<ul style="list-style-type: none"> • Reviewing evidence, understanding strength of social science, using qualitative and quantitative science to reinforce each other • GAP: understanding 'why' and how to change views 	

Theme D – Who are we trying to reach?	
Evidence needs	Evidence gaps
Defining target groups for messaging/action <ul style="list-style-type: none"> • Where is the effort needed? • Where will it be most effective? <ul style="list-style-type: none"> • Age groups • Life stages / events • Cultural groups • Economic groups / conditions 	<ul style="list-style-type: none"> • Dietary surveys can show where message is not acted on • Possibly exists elsewhere?
<ul style="list-style-type: none"> • Dietary patterns (some evidence in diet surveys) • Definition of healthy diet changes? • Method of implementation changes? 	Gaps here in FSA – do they exist elsewhere?

Theme E - How?	
Evidence needs	Evidence gaps
What approaches are effective? Short term? Long term?	Evaluation of current policies / projects in Agency. Surveys show outcome but not necessarily direct link to policy
Interaction of a range of drivers	Limited info in FSA – more elsewhere?
Moving from understanding/knowing to doing <ul style="list-style-type: none"> • What motivates / incentivises? • Who can we influence most cost-effectively? • What are barriers to change in behaviour? Same for all? 	General social science research has a lot here: how much is relevant/specific to food?

Theme F – Finding out about what has / hasn't worked in changing consumer behaviour	
Evidence needs	Evidence gaps
Method & success of anti-smoking & drinking campaign	Evidence exists elsewhere
What risks will people take with their health and why?	Evidence exists elsewhere
Why is the Agency's healthy eating message not universally taken up?	Not known – gap
What can we learn from other countries?	Evidence collection exercise
Balance about new(?) food in general and healthy eating in particular	

7.2 Headline evidence brief

- A. Define our objective: what is the diet we want to promote?
- B. Gather & analyse data from all relevant sources to establish baseline knowledge, perceptions, motives & behaviours of consumers and drivers that impact on this, eg culture, life stages, preparation skills, food prices, life style, recession, social conditions, food acceptability, attractiveness etc, *and* identifying the most effective points for action.
- C. Identify gaps in current data and ensure that targeted R&D is carried out
- D. Identify best practice initiatives from different countries & disciplines (eg smoking, drinking) to inform future policies & strategies
- E. To deliver an overall measureable improvement, through cross-Govt collaborative working, in awareness & behaviour change towards healthier eating across the population as a whole

7.3 Indicative activities and outputs

Outputs	Activities
A. Define our objective: what is the diet we want to promote?	<ol style="list-style-type: none"> a. Systematic review of available evidence supporting current dietary recommendations <i>involving advisory committees such as SACN</i> b. <i>Generate primary data for key diet-related diseases to establish diet/health relationships and inform dietary guidelines</i> c. Review of issues relevant to diet not covered by (a) above d. Decide level of action for definition – eg should we work at micronutrient level? e. Define values to be incorporated in our definition, eg DRVs? Sustainability? Biomarkers of nutritional status? f. Establish current baseline of food consumption, composition, awareness and anything else g. Design ‘portion-sized’ plate, similar to the eatwell plate h. Review definition at intervals to take into account emerging science, political developments, etc <i>this assumes we are 100% clear what a healthy diet is. No, the point actually assumes we don’t know but we can’t proceed until we do – hence we need to define</i>
B. Report on what motivates people to eat well	<ol style="list-style-type: none"> a. Systematic review of existing evidence to identify gaps in knowledge b. Identify points of effective influence (cross-reference to 7E)
C. Best strategy for challenging long-held beliefs	<ol style="list-style-type: none"> a. Research to find out what people understand as a ‘healthy diet’ b. Find out what sort of information prompts people to change their views
D. Identify groups of consumers who are most responsive to changing their diets <i>we know this already – sadly they are not those who most need to</i>	<ol style="list-style-type: none"> a. Review data on consumer attitudes & behaviour in relation to life stages & other characteristics b. Cost-effectiveness of targeting receptive consumers vs the ‘worst’ diet consumers who may be the least receptive

Outputs	Activities
<i>change</i>	
E. Set of recommendations on drivers for dietary change	a. Identify society drivers (eg cost, work patterns, social pressure) that leads to dietary change <i>know lots about this already – most are minor in drivers of food choice</i> b. Find out what motivates or incentivises people to change diet
F. Finding out what has / hasn't worked historically. Report on un/successful consumer campaigns in the past. Identify best methods to use	a. Analyse anti-smoking & anti-drinking programmes – methods used to influence consumer behaviour & results. Also consider any other programmes to change consumer behaviour b. Survey of literature as to what risks people will take with their health & why c. Consumer/stakeholder survey to determine why the Agency's healthy eating message has not been universally taken up d. Collect evidence (literature & direct questionnaire) on similar campaigns in other countries & where successful (or not) <i>the international literature base is very small on this</i>
A-F lead into Output G: A plan which segments consumers & recommends which consumers to target & how best to target them	

General issues

During the course of the day, various issues were raised that either didn't fit a particular outcome, or had bearings on more than one outcome. These are listed below as 'general' issues.

8.1 Evaluation

- Increase compliance – from what to what? How will we know when it has been achieved?
- Evaluate campaigns – are they working?
- Evidence of impact of FSA work with industry on reformulation and dietary intakes
- Food safety: involves various disciplines, but there is little opportunity for internal interaction between different areas; toxicology, microbiology, nutrition etc
- Evidence of what works
- Why are we not affecting change? What drives what?
- What worked? Why has it worked?
- What do we mean by evaluation of policies? Are we willing to put in the effort, time and substantial money to do the scale of work required to identify the impacts – and when would this be proportionate?
- Cost / benefit / impact assessment
- Evaluate strategic plan overall
- How can we be clear when we have enough evidence?
- Clarity about when and how we work with others to develop the evidence base
- Cross-cutting: consumer insights re: food behaviour
- Evaluate impact of current interventions, eg salt reduction
- How to measure the outcomes
- 'Deliver an effective... etc' – how will we know when it has been achieved?
- Consistency with other data: EU, WHO, Defra, etc – reinventing the wheel?
- Consider how R&D spend enables goodwill from science community, eg willingness to provide advice
- Consider how R&D aids staff development (& skills) and good quality risk assessment (eg training value of R&D)

8.2 Risks / benefits (harm)

- Underpinning evidence to support campaigns eg salt, saturated fat
- Toxicology: does not fit in any particular box, but is relevant to most
- Need for shared definition and terminologies: for risk analysis & policy development
- Is there a role for behavioural economics in the Agency's work? Already being used in DG SANCO on consumer related issues
- 'proportionate'... compared to?
- Is outcome 4 a crosscutting issue or an underpinning one?
- Do we know what is meant by risk-based regulation in all the situations in which we want to use it?
- Distinguish between scientific risk and organisational risk
- What is being done in other countries re research monitoring – ie sharing intelligence?
- What is 'safe'?
- Proportionality: need a better understanding of what we mean by this and how to apply it consistently across the board *harm-benefit-harm analysis*
- Imported feed: specific to some of 1-4, but also cross-cutting. Including under consequences for public health & handling of animal feeds
- Differentiate/clarify public/animal health links & differences

- Understand drivers of FBD diseases better (demographics, climate, geographical spread), modelling drivers, data mining spread across population and country

8.3 Attitudes, behaviours and understanding these

- Understanding not only what works (to change behaviour / reduce contamination) but also why
- How do we demonstrate, communicate to consumers that things 'work', 'are necessary' etc?
- Differentiating between consumer opinions (what they say they do/will do) and what they actually do – often taken as the same, but are very different. Latter = evidence.
- Behaviour change – how to achieve it?
 - Industry – manufacturers, retailers, caterers, restaurants
 - Consumers – push-pull mechanism, create drivers for change, sell the change, modify behaviour
- Consumer response to new technologies?
- Trade-offs people make between safety and other factors such as avoiding waste, time saving, energy saving, taste, preferences
- How to change concerns that people currently act on (eg organic baby food) with no evidential basis to things that could have a beneficial health impact?
- Survey to describe diet of population (NDNS) – targeting, monitoring
- Why some people who understand (and deliver) healthy eating messages do not comply?
- Need more evidence from consumers about their 'perceptions'
- What makes people change behaviour to preferred practice (nutritional changes)? What stops people from adopting these behaviours?

8.4 Food composition and consumption

- Regular monitoring trends in food consumption in parts of the UK, population groups
- Food composition & consumption data – regular review and update to refine exposure assessment, monitor progress on dietary change & reformulation. Level of detail determined by policy need
- 'Normal' diets for different cultural groups
- Better sampling of food – so we get more information on where risks come from (UK and imported food)
- Evidence to inform food labelling on non-food safety issues, eg origin/quality of food

8.5 Horizon scanning

- Understand what could destabilise outcome – for all outcomes
- Horizon scanning future direction of food developments & future trends
- Scope out futures, ensure that outcomes take account of most delivery features (??? most likely futures?)
- Have built-in flexibility to change in response to changing needs

8.6 Collaboration

- Collaboration with other MSs – in collecting evidence and ‘third’ countries
- More collaboration with other Govt departments eg Defra, HPA – collecting evidence
- Collaborative working with OGD, working together to collect evidence & deliver change
- Cohesive – collaborative cross-Departmental Agency & Research Council & funding agencies’ approach to funding of research relevant to food standards
- Joining up with research councils on collaborative research
- Cross Govt work- evidence generated by others
- Align with DH re what is ‘healthier’, esp re fat vs saturated fat
- International collaboration & reference
- Can we learn/glean information from others, eg Europe/industry etc?
- Finding out and sharing business research and FSA research finding