In this issue:

Introduction from Professor Graham MacGregor, Chairman of CASH

Since the salt reduction programme began in 2003, average salt intakes in the UK have fallen from 9.5 to 8.1g a day, a reduction of 15%. As such, the UK is now considered a leader in the world of salt reduction, a statement we are extremely proud of. Despite this, we are still a long way from achieving the target of 6g a day. Salt puts up our blood pressure leading to strokes, heart attacks and heart failure, as well as contributing to a number of other serious health conditions such as osteoporosis, stomach cancer and kidney disease.

With the launch of new salt targets for manufacturers to achieve (2017 target) announced this year, we hope this will encourage continuous momentum in reducing salt in our diets, with cooperation from the food industry, government, policy makers and consumers alike. Be sure to 'switch the salt!'

Best wishes 

CASH News

Welcome to 2014's summer newsletter from CASH, and what an eventful year it has been! We've seen new salt reduction targets launched in the UK for both food manufacturers and caterers, legislation of salt targets in South Africa, and the prospect of new voluntary targets to be set by the Food & Drug Administration (FDA) later this year, all amongst a number of other strategies taking place around the world. To add to that, we've recently looked at the relationship between diminishing salt intakes and blood pressure here in the UK, showing that salt reduction does indeed save lives. This has been a successful year for salt reduction, and we've been working as hard as ever to ensure the importance of salt reduction is at the forefront of everyone's mind. Thank you to all those involved for your support.

We'd like to welcome new salt girl Stephanie Tucker to our team! Steph joined us in February from Euphorium Bakery.

Salt Awareness Week 2014

Our 15th National Salt Awareness Week was held on 10th – 16th March 2014.

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This year's theme was '**Switch the Salt!**' promoting the use of a consistent front of pack food labelling to increase awareness of what exactly is in the food we buy.

Comparing food labels can be an arduous and time-consuming affair, so to enable everyone to make healthier food choices **SaltSwitch** was launched to coincide with the start of the week. The free and easy to use smartphone app allows consumers to quickly and easily identify products with less salt, making it easier than ever to switch to less salt!

This follows on from the launch of the revolutionary **FoodSwitch UK** app earlier this year, which suggests healthier products and provides colour coded nutritional values for fat, saturates, sugar and salt.

Using the apps database along with data from the National Diet and Nutrition Survey (NDNS), we looked at examples of a typical shopping basket for different age groups, and compared the salt content of foods between commonly consumed ingredients and healthier alternatives, as suggested by the app. Our results showed that salt intake could be reduced by a staggering two-thirds, just by choosing less salty options of popular foods.

Check the label!

About three quarters of the salt we eat is hidden in processed foods. Checking food and drink labels means you can see how much salt you and your family are eating. This guide should help you to understand the labels.

Labels on the front of food and drink packaging show simple information about the calories, fat, saturated fat (saturates), sugars and salt content. The amounts will be given 'per portion' in grams, along with colour coding and Reference Intakes.

Each XXX serving contains

ENERGY	FAT	SAT FAT	SUGAR	SALT
1037kJ 248kcal	Med	High	Med	Low
12%	3.8g 5%	8.1g 41%	9.1g 10%	0.2g 3%

Colour coding

'Traffic light' labelling makes it easy to see at a glance if a product is high (red), medium (amber) or low (green) in certain nutrients, including salt.

GREEN
Indicates that a product contains low amounts of this nutrient. The more green circles, the healthier the choice.

AMBER
Indicates that a product contains medium amounts of this nutrient, so it's an OK choice most of the time.

RED
Indicates that a product contains high amounts of this nutrient, so enjoy this choice once in a while, or as a treat.

Get into the habit of comparing similar products and choose those with more greens and ambers and fewer reds for a healthier diet.

Portion and Serving Sizes

Where portion sizes are given, see if it is how much you are actually eating. E.g if a portion is stated as half of a product (e.g. pizza), but you eat the whole product, you will need to multiply the provided salt content by 2.

Reference Intakes

Reference Intakes (RI's) are general guidelines for the maximum amount you should eat in a day (6g of salt), given as a percentage (%). If you are buying for children, remember that the RI for a child is far lower than for adults.

When salt is only given per 100g, you will need to work out how much salt will be contained in a portion. You can do this by thinking about how much of the product you or your child will be eating in relation to both the pack size and 100g. Look at the weight of the packet as a guide.

How much salt?

Use the key below to determine whether your food contains a high, medium or low amount of salt.

Per 100g	Per 100g	Per 100g	Per portion
Less than 0.3g	Between 0.3g and 1.5g	More than 1.5g	More than 1.8g

Frequently asked questions:

The traffic light colours for salt have changed on some of my favourite products. Why is this?
It doesn't necessarily mean the recipes have changed, the criteria used for the traffic light colours has been updated.

What are the Reference Intakes of salt for children and adults?
Adults should eat less than 6 g a day, and children much less. Babies 0-6 months should not be given any salt.

Is sodium the same as salt?
No, sodium is not the same as salt, it is in fact just a part of salt (sodium chloride). When only sodium data is given you will have to convert this to salt by multiplying the figure by 2.5.

Do I need to check the label every time I go shopping?
Look for your favourite brands, compare it with another product and choose the lower salt option. Next time you go shopping, you don't need to do it again! You can even do this at home by looking in your food cupboards and on supermarkets websites.

Can I find out how much salt is in my food when I'm eating out?
Unfortunately that's not easy, you can ask your server if they know how much salt is in your food, but we think it's best to ask for 'Less Salt Please!'

How about food cooked at home?
Make sure your ingredients have lots of 'green label ingredients', like herbs, spices, garlic, chili and lemon. Don't add salt to your cooking or at the table, and you will have a low salt meal!

Is there an easy way of finding how much salt is in my food?
Yes! Try our smartphone App, FoodSwitch! FoodSwitch is available to download for free from iTunes and Google Play.

CASH
Consensus Action on Salt & Health

We also found that there was little consistency on the use of front of pack labelling on products, with 6 different types of labelling currently being used (hybrid, traffic light, GDA, wheel etc) & a third of products surveyed having no labelling at all.

CASH have long been pushing for more consistent front of pack food labelling. Our focus for this year's Salt Awareness Week was therefore to focus on the benefits of having a consistent front of pack label, making it easier than ever for consumers to know what is in their food, and compare it with others. We congratulate those that have signed up to the Department of Health's new front of pack labelling scheme, and strongly encourage others to follow suit.

Get Involved

We received a vast amount of support across the country this year, with over 400 events held by a range of organisations, including businesses, charities, councils, GP surgeries, hospitals, libraries, schools, colleges & universities.

In total 53,890 leaflets, fact sheets and shopping guides were ordered, as well as 5,897 posters. If you would like to order any additional resources to raise awareness about salt and health, please visit the 'Resources' section of our website.

A big thank you to all our supporters! This year the following UK charities gave their support:

Leading the fight against dementia Alzheimer's Society
British Heart Foundation
Blood Pressure UK
HEART UK THE CHOLESTEROL CHARITY
CANCER RESEARCH UK
Stroke association
pkd charity Polycystic Kidney Disease
BRITISH DIETETIC ASSOCIATION
DIABETES UK CARE. CONNECT. CAMPAIGN.
National Obesity Forum
MEN'S HEALTH FORUM
UK HEALTH PREVENTION FIRST FORUM
Which?
Ménière's Society
National Osteoporosis Society
Kidney Research UK

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And in addition, we thank the following food companies whose generous donations enabled us to send all our resources for free:

Parliamentary Reception

An afternoon reception at the House of Commons took place on Wednesday 12th March, hosted by MP David Amess. The event was well attended with 124 guests from a range of organisations and was a hailed a great success!

Guest speakers included shadow Public Health Minister Luciana Berger, the Chief Executive of the British Heart Foundation Simon Gillespie, Public Health Minister Jane Ellison who gave an impromptu talk, along with CASH Chairman Professor Graham MacGregor.

David Amess highlighted progress made so far on salt reduction within the UK and introduced FoodSwitch.

Simon Gillespie reiterated the importance of a low salt diet, and the detrimental effects high salt intakes have on health. He paid credit to manufacturers who have already taken steps to reduce the amount of salt in our diets, but stressed there was a lot more to do and that food companies must therefore step up to the plate and continue to take those steps to reducing salt.

Luciana Berger gave the point of view from the labour party, and insisted more needed to be done by the government if further progress in salt reduction is to occur, whilst Jane Ellison insisted that the voluntary approach is working, and is evident through worldwide recognition that the UK are now considered world leaders in salt reduction. The two new pledges on salt reduction were also highlighted, targeting both food manufacturers and the out of home sector.

The Public Health Minister touched upon the importance of empowering people to make their own choices about their health and giving people more information, which is where the new Front of Pack Labelling Scheme is about. The Department of Health has been faced with criticism from European members of state with regards to the labelling pledge, and stressed that the only reason the European Commission hadn't shut it down was the fact that it is voluntary, and is the only thing working in our favour.

Professor MacGregor ended the day by congratulating the Department of Health for setting new targets, however policing of the policy is extremely weak, and therefore called on them to force these targets on to the food industry, consequently creating a level playing field. If these targets are not met, then legislation must be considered.

We will be uploading photos and transcripts of the event onto our website soon.

Thank you to everyone who was involved!

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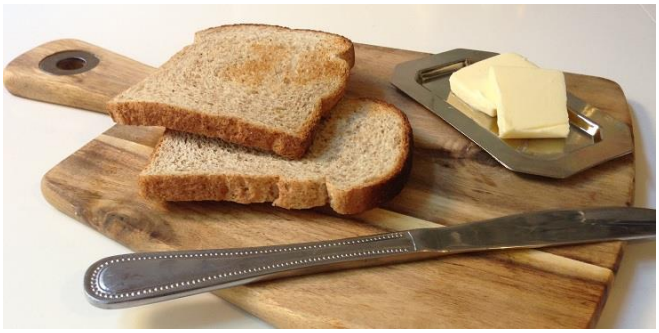
CASH Investigates…

CASH has continued campaigning to reduce salt in our foods and have continued to gain strong media support for our food surveys and publications, reaching millions of people.

Progress made in salt reduction of UK bread (18th June 2013)



As the largest contributor to salt in the UK diet, bread was analysed by CASH over a period of 10 years from 2001 to 2011, to measure the change in salt content per 100g.

Results showed that the average salt in bread has progressively reduced by 20% from 1.23±0.19g in 2001 to 0.98±0.13g in 2011. Supermarket bread was found to contain less salt on average in 2011 (0.95g/100g) than brands (1.04g/100g) with an increase in the number of products meeting the 2012 targets from 28% in 2001 to 71% in 2011.

This demonstrates that a target based approach to salt reduction can work to reduce the salt content of popular foods and therefore further progressive targets should be set so that the UK can continue to lead the world in salt reduction. To read the paper in full, click here.

New research exposes completely unnecessary levels of salt hidden in butter and margarine (6th September 2013)

British people are known to favour a bit of butter on their bread, with people consuming on average 11g of fats and spreads a day. However, whilst most people are aware of the high fat content of fats and spreads, and the risks linked to obesity, they rarely think about its contribution to their daily salt intake and their blood pressure. Our research uncovered, for the first time, the shockingly high and unnecessary levels of salt in butter, margarine, fats and spreads. Of the 300 supermarket products surveyed, nearly two thirds failed to achieve the 2012 salt targets set by the Department of Health (DH).

We also found terms on labels to be deceptive, with the salt content of some varieties claiming they are 'slightly salted' or 'lighter' often failing to differ much from 'salted' or 'full fat' products. These products are targeting the health conscious shopper, who should expect these products to be lower in salt, when in fact they aren't, e.g. Weight Watchers dairy spread 2.5g salt per 100g vs Lurpak spreadable lighter unsalted 0g salt per 100g.

Stocking up on salt this Christmas? New research exposes shocking levels of salt in stock and gravy (18th December 2013)

As discussions were being held to create a new salt target for meat extracts, we felt it ideal to carry out a survey looking at the salt content of stocks and gravies. These products are most likely found in every household's pantry, but the salt content is rarely considered. Of the 103 stocks surveyed, only 13 products would have been given a green label for salt content, with some containing 5g salt per stock cube! Stocks are used in various ways; in soups, gravies, risottos, crumbled into Bolognese sauces or used in marinades, however the amount of salt per cube is

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rarely declared on packaging, making it very difficult to calculate how much you actually consume. Gravies fared worse, with 99% receiving either an amber or red colour for salt, and could needlessly add almost a gram of salt to your meal e.g. Bisto's original gravy powder, 0.83g salt per 50ml portion. This survey served to highlight the levels of salt in stocks, and encourage consumers to use less and think twice about adding salt too.

Salt intake of children and adolescents in South London (11th March 2014)


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11 March 2014 Last updated at 00:56 Share

Children's diets 'far too salty'

COMMENTS (472)

By Michelle Roberts

Health editor, BBC News online

Since the salt reduction programme began in the UK, we have seen documented evidence of national reductions in salt intake. However, until very recently no data on salt intake in children as assessed by 24-hour urinary sodium was available to assess its effect on children. A cross-sectional study was therefore carried out by one of our PhD students, and the results published in the journal Hypertension. 24-hour urinary sodium excretion was used to measure the salt intake of 340 children, who were divided into three age groups: young children (5-6 year olds), intermediate-aged children (8-9 year olds), and adolescents (13-17 year olds) in South London. Results confirmed that salt intake in children in South London is high, with most of the salt coming from processed foods, highlighting that greater efforts are needed to reduce the salt content of manufactured foods.

Major sources of dietary salt intake were:

- Cereal and cereal-based products (36%, which included bread 15%)
- Meat products (19%)
- Milk and milk products (11%)

To access the full paper, click here.

Salt reduction in England from 2003-2011: its relationship to BP, Stroke and IHD mortality (15th April 2014)

In April 2014, CASH carried out a study looking at data from a number of readily available sources, namely the Health Survey for England, NDNS and Office of National Statistics.

The paper considered the relationship between the reduction in salt intake in England and blood pressure from 2003-2011 in addition to mortality from stroke and ischaemic heart disease. After accounting for numerous contributable factors, such as use of anti-hypertensive medication, smoking and fruit and vegetable intake, it concluded that reduction in salt intake is likely an important contributor to the fall in blood pressure.

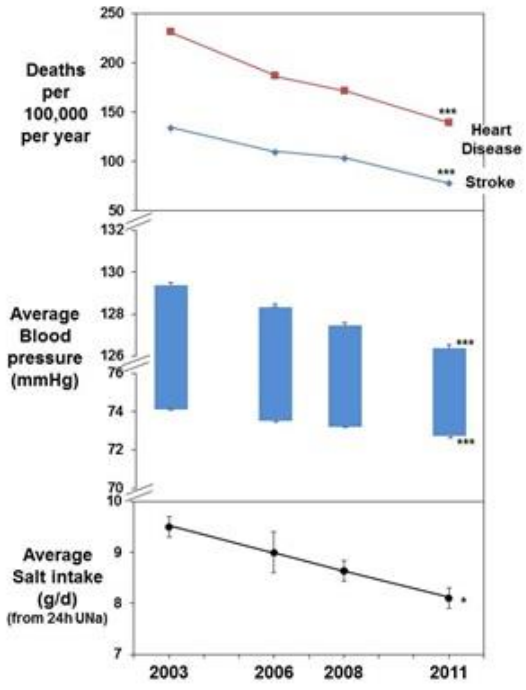


Figure 1. Changes in salt intake as measured by 24 h urinary sodium excretion (UNa), blood pressure, stroke and ischaemic heart disease (IHD) mortality in England from 2003 to 2011. *p<0.05, ***p<0.001 for trend.

The study was published in the BMJ Open, and after wide media coverage, it subsequently became one of the BMJ's most read papers in April!

Click here to read the paper in full.

Healthy salads stuffed with secret salt revealed in new survey (30th July 2014)

At this time of year many of us would consider a salad to be a healthy lunchtime option, whether chosen from a restaurant menu or a supermarket aisle. However our survey found that out of 650 ready-to-eat salads, three quarters contained more salt than a packet of crisps. Obtained from supermarkets, restaurants, cafés and fast food restaurants, 15% of salads would get a red label for salt (>1.5g/100g or >1.8g/portion).

Pizza Express' 'Grand Chicken Caesar Salad' was found to be the saltiest salad with 5.3g salt/serving, almost a whole days' worth of salt (6g). Surprisingly superfood and detox salads were also found to be high in salt. The average salt content in supermarkets salads has reduced significantly by 35% since 2005, from 1.64g/portion to 1.05g/portion in 2014. Salads are aimed at those looking to make healthy options and as such more should be done to continue salt reduction, especially in the out-of-home sector.

For full results, please click here.

Cheese is unnecessarily loaded with salt; new study in BMJ Open reveals (7th August 2014)

Cheese is one of the top 10 contributors of salt in the UK and is widely consumed. Published in the BMJ Open, our cross-sectional survey of 612 cheeses sold in UK supermarkets revealed that salt levels in cheese are high, with large variation between different types and within the same type of cheese. Halloumi and imported blue cheese contained the highest amount whilst cottage cheese contained the least.

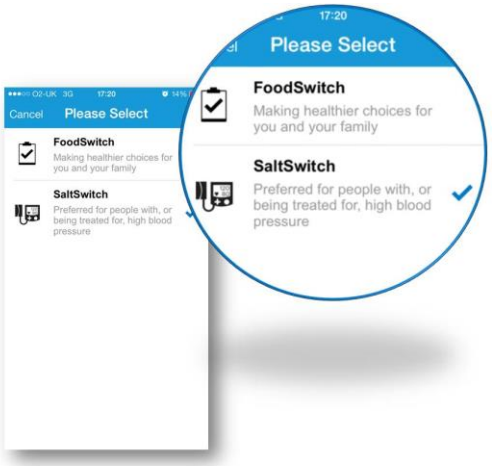
Despite many cheeses (84.5%) meeting the recommended Department of Health 2012 salt targets, the majority of branded cheese companies, unlike retailers, have not even signed up to the salt reduction programme.

To see the complete study, click here.

FOODSWITCH UK

February 2014 saw the launch of FoodSwitch UK, in collaboration with the George Institute of Global Health, the Medical Research Council Human Nutrition Research, The British Heart Foundation Health Promotion Research Group and the Nuffield Department of Population Health & Nuffield Department of Primary Care, University of Oxford.

The free, impartial app allows users to scan the barcode over 97,000 packaged food and drinks sold across the UK in major supermarkets, using their smartphone. Once scanned, colour-coded nutritional information based on the Department of Health's nutrient profiling scheme appears, along with similar healthier products.



SaltSwitch, a new feature of FoodSwitch, was launched in March 2014 and focusses specifically on salt. It has been designed to help people looking to lower their salt intake, particularly those who have been diagnosed with, or have a family history of high blood pressure, heart disease and kidney disease.

In August, we were delighted to win Public Health England's *Health X, an* initiative which aims to help individuals and families eat well and move more. The judges felt FoodSwitch UK could enable people to make real simple changes and have a real impact on their diets. At the event, Duncan Selbie, chief executive of PHE, said the project had "the potential to change every shopping basket in the country". We very much look forward to working with PHE over the next few months to further develop and promote FoodSwitch across the UK. Watch this space!

We have received fantastic feedback from our users and downloads have reached over 12,500. Our database is ever expanding, thanks to our users' crowd-sourcing information and sending in pictures of products that aren't on the database. If you haven't already, you can download FoodSwitch for free from iTunes and Google Play.

If you like the app, why not write a review on iTunes/Google Play add a comment on our Facebook page or tweet us your feedback - we'd love to hear from you!

GET IT ON Google play

Download on the App Store

Salt in the News

Department of Health Front of Pack Labelling Scheme

Department of Health

Public Health Responsibility Deal

Sign up and pledge to improve public health in England

CASH have long been in support of consistent Front of Pack Labelling. Therefore we are delighted to have signed up to the DH's recommended Front of Pack labelling scheme! With 2 parts to the pledge, we, along with 16 other food companies, have signed up to F7 (b) to promote and explain to consumers how to use and understand the new FoP labels.

Clear food labelling is vital in empowering us all to make informed choices about the food we eat, especially when there is still such wide variation between the nutritional values of food products. Too often, inconsistencies in front of pack food labelling can lead to confusion i.e values per 100g versus per serving, as sold versus as cooked, differences in presentation and colours. Research has shown that consistent labelling across many food and drink products helps consumers to improve their diet.

With the implementation of the FIR legislation underway, now is the opportune time for all food companies to ensure labelling is consistent and co-ordinated. Therefore CASH encourages those who haven't signed the pledges, to do so!

Since the launch of the DH's labelling pledge, the government has been faced with criticism from certain European food companies who feel the system is too simplistic and demonises certain food groups. These criticisms are unfounded, due to the fact that the scheme is entirely voluntary and complies with EU law.

The scheme is also backed by many members of food industry in the UK, many of whom have been using

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similar formatting for a number of years and have now signed up to the voluntary scheme (23 signatories). The scheme is not compulsory, therefore if EU countries don't like it, then they don't have to do it and contrary to some comments, they are not being forced by retailers. These critics must now stop trying to stall improvements in public health. If FoP highlights high salt/fat/sugar content of their food then this is just a reflection of the foods they sell.

As strong supporters of front of pack labelling, we want to emphasise the benefit of FoP labelling to the European Commission, and call on them to withdraw their investigation.

New NDNS Results published

In May 2014, Public Health England published the much awaited 'National Diet and Nutrition Survey: results from Years 1 to 4 (combined) of the rolling programme for 2008 and 2009 to 2011 and 2012'

The annual survey made headlines as it was announced that the 'UK population is eating too much sugar, saturated fat and salt'.

Based on urinary sodium excretion, adults aged over 65 years and children aged 4-18 years were found to exceed daily salt intakes as recommended by SACN.

The survey found that the estimated average salt intakes for 270 males and females over the age of 65 years were 7.2g day, 17% above the 6g/day target.

All age groups of children aged 4-18 years (except girls aged 7-10 years), had an average salt intake that exceeded recommendations. Mean estimated salt intake for the different age groups were:

- Aged four to six years: 3.7g/day.
- Aged seven to ten years: 5.5g/day for boys and 4.6g/day for girls
- Aged eleven to eighteen years: 7.1g/day for boys and 6.2g/day for girls

The results show that a continued effort is still required in salt reduction in order for the mean salt intake of all age groups to meet the recommended targets.

For further information on the NDNS Survey, click here.

2017 Salt Targets

New salt reduction targets for 2017 have finally been published as part of the DH's Responsibility Deal in March 2014, as well as Out of home maximum per serving salt targets.

When the salt reduction programme began back in 2003, the intention was to set targets within an achievable time frame, with further targets set every two years so as to keep the momentum going. We are very pleased that DH has set new targets for the food industry to achieve and are continuing to help consumers lower their salt intake, despite the delay.

So far, there has been slow support for the F9 Salt Reduction pledge. We congratulate the 29 food companies who have committed to the targets thus far including and urge other retailers and manufacturers who haven't yet signed up, to do the same.

After such progress has been achieved in salt reduction across pre-packaged foods in recent years, it is evident that the out of home sector is lagging behind. In an attempt to bring them up to speed with the rest of the food industry, DH set specific targets for 10 of the most popular meal dishes and a separate target for children's meals, for the out of home sector to follow. Unfortunately, to date only 5 companies: Subway International, Dine Contract Catering Ltd, Compass Group UK & Ireland, Jamie's Italian and Elior UK Ltd have publicly committed to the Out of Home pledge. In order for any real change to be seen across the sector, it is vital that many more sign up. We have been contacting companies to encourage them to follow the targets, and offer our expertise and advice.

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Food Technology

We met with experts at the Institute of Food Research (IFR) and the Department of Health in January to discuss the importance of salt in meat products, and any potential updates since the report "*Microbial risks associated with salt reduction in certain foods and alternative options for preservation*" was written in 2005.

Unfortunately, due to a lack of funding, no further research has been carried out in the area since the report, but EU funded projects were discussed, namely Pleasure and TeRiFiQ, both looking at novel ways to reduce salt in meat products, as well as cheese, baked goods and ready to eat meals. We hope to have an update from the projects shortly.

Potassium Based Salt Replacers

Currently, DH advise against the use of potassium based salt replacers as a salt reduction tool within industry, due to the potential adverse health effects for some vulnerable groups, particularly the elderly, young and people suffering from kidney disease. During their strategy for action beyond 2012 last year, they acknowledged many businesses were keen to use it, and realise that without consent, it would be an issue in achieving further targets. As such, they are currently considering the issues around the use of potassium-based salt replacers; in particular potassium based raising agents which may assist sodium reduction where this is proving particularly challenging. DH requested help from industry for information on the products that salt replacers would be used in, the levels of addition and the likely reduction in the salt levels in the products. Unfortunately little information has been received, making it difficult to assess the potential risks and benefits associated with the use of such products.

They therefore requested the help of SACN (Scientific Advisory Committee on Nutrition) and COT (Committee on Toxicity). COT concluded that young children would unlikely be more sensitive to excess potassium and that, regardless, their exposure would be limited since few sodium or potassium based additives were permitted in infant foods. Members agreed that information was ambiguous with regards to how many adults would be adversely affected by increased intakes of potassium from salt replacement. Further information on the number of people with serious health effects of hyperkalaemia is needed before a decision can be made, which may take some months. An audit of patients at a general hospital who were treated for severe hyperkalaemia will be taking place, which would establish how frequently the problem occurred in people who were not previously known to be at risk. Therefore it is unlikely that the DH will change their opinion before the end of the year.

- *Department of Health Review of 2012 targets background paper*
- *Committee on Toxicity of Chemicals in Food, Consumer Products & the Environment Meeting Minutes (December 2013)*
- *Committee on Toxicity of Chemicals in Food, Consumer Products & the Environment Meeting Minutes (March 2014)*

A Pinch of Salt News

- *Calling All Physicians: The Salt 'Debate' Must Stop (18 June 2014)*
- *Chippies switching to salt shakers with fewer holes in bid to prevent heart disease (14 June 2014)*
- *The 'healthy' dinners laced with salt (26 April 2014)*
- *Salt levels in many foods unnecessarily high (19 April 2014)*
- *Four slices of Wall's bacon puts you over the salt limit: Health campaigners urge company to cut amount in rashers (19 April 2014)*
- *Salt makes overweight people age faster (21 March 2014)*

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- *EU research project will try to reduce cured ham salt content (17 March 2014)*
- *Seasonings allow sausages with less salt (16 March 14)*
- *Salt in medicines 'poses a health risk' (27 November 2013)*
- *Women and older people most concerned about salt (30 July 2013)*
- *Food companies might not shout about it – but salt reduction is on the rise (24 July 2013)*
- *Burgers and nuggets still dominate UK restaurant children's menus – report (17 July 2013)*
- *'Consumers don't realize the difference between salt and sodium levels': The Low Sodium Sea Salt Company (9 July 2013)*
- *Supermarket bread contains 20% LESS salt than a decade ago - but further reductions are needed to cut heart attacks (18 June 2013)*
- *Industry uses technical barriers as 'an excuse' says CASH (13 June 2013)*
- *The salt that lurks in sweet biscuits (6 June 2013)*

Science News

Salt Reduction in the United Kingdom: a Successful Experiment in Public Health

This comprehensive analysis identified a number of key components essential for a successful national salt reduction strategy: 1) an action group with strong leadership and credibility, 2) determine salt intake by 24-hr urinary sodium and identify the major contributors to salt in the diet, 3) set a population salt target, 4) set targets that gradually reduce salt over time in specific categories for the food industry to achieve, 5) work alongside the food industry to support reformulation, 6) engage and recruit ministerial support, 7) clear nutritional labelling, 8) consumer awareness campaign, 9) monitor progress by frequent surveys and repeated 24-hr urinary sodium analysis.

With several countries now following the UK's lead, the challenge is now to engage other countries to implement national salt reduction strategies to further lower worldwide intake of salt.

He F.J et al. Journal of Human Hypertension 2013; (28) 345–352, doi:10.1038/jhh.2013.105

An Economic Evaluation of Salt Reduction Policies to Reduce Coronary Heart Disease in England: A Policy Modelling Study

This paper evaluated the cost-effectiveness of 4 population health policies reducing salt intake and their impact on the prevention of Cardiovascular Disease. These included 1) the Change4Life campaign, 2) Front-of-Pack Traffic Light Labelling, 3) FSA voluntary salt targets and 4) mandatory reformulation of the salt content in processed foods. All policies that reduced dietary salt intake were found to improve 'life-years gained' with the biggest effect on life-years from mandatory reformulation and offering the largest cost saving of more than £660 million.

Collins, M et al. Value in Health 2014 DOI: 10.1016/j.jval.2014.03.1722

Salt Intake and Mortality

This letter challenges the validity of Graudal et al. findings in the meta-analysis: 'Compared With Usual Sodium Intake, Low- and Excessive- Sodium Diets Are Associated With Increased Mortality: A Meta-Analysis' which claims a U-shaped association between salt intake and all-cause mortality. Studies included contained severe methodological flaws such as reverse causality; more relevant articles were not quoted and the meta-analysis by Taylor et al. was quoted despite it being withdrawn from *the Cochrane Library.*

The letter concludes that reducing population salt intake must continue despite Graudel et al. results.

He F.J. and MacGregor G.A. American Journal of Hypertension 2014. In press

Charity Registration number 1098818

Methodological Issues in Cohort Studies That Relate Sodium Intake to Cardiovascular Disease Outcomes: A Science Advisory from the American Heart Association

The study reviewed 26 cohort studies assessing the link between sodium intake and CVD. Methodological issues identified were split into 3 groups: 1) those with the greatest potential to alter the direction of association; reverse causality, systematic error in sodium assessment, 2) some potential to alter; residual confounding, inadequate follow-up and 3) the potential to yield false null results; random error in sodium assessment, insufficient power. It concluded that methodological issues may account for inconsistent findings in observational studies and suggested that until well-designed studies are available, sodium guidelines should be based on the evidence between sodium and high blood pressure and population trials of the effects of sodium reduction ion CVD.

Cobb L.K et al. Circulation 2014 doi: 10.1161/CIR.0000000000000015

Salt Intake, Sugar-Sweetened Soft Drink Consumption and Blood Pressure

In this letter the authors respond to Malik A. H et al. study 'Impact of Sugar-Sweetened Beverages on Blood Pressure', by exploring the underlying-mechanism for sugar-sweetened soft drink consumption and its association with raised blood pressure. The suggested mechanism links high salt intake with increased consumption of soft drinks and raises blood pressure by: 1) Increasing calorie intake and therefore contributing to obesity which is associated with increased blood pressure. 2) Stimulating insulin secretion which could result in sodium and water retention, possibly increasing blood pressure 3) Gut sodium absorption.

He F.J. and MacGregor G.A. The American Journal of Cardiology 2014

doi:10.1016/j.amjcard.2014.05.004

Dietary Sodium, Adiposity and Inflammation in Healthy Adolescents

A cross-sectional study published in Pediatrics, analysed the effect of sodium intake on adiposity and inflammation in 766 healthy adolescents. The study found 97% of 14-18 year olds exceeded the American Heart Association daily sodium recommendation and intakes are just as high as adults. Sodium intake was independently associated with body weight, waist circumference, percentage body fat, fat mass, abdominal adipose tissue, leptin and tumur necrosis factor-α. The positive association with adiposity was independent of total energy intake and sugar-sweetened soft drink consumption.

Zhu, H et al. Pediatrics 2013

doi:10.1542/peds.2013-1794

Salt. UK consumers' Perceptions and Consumption Patterns

10 focus groups conducted in Norwich and London found that of the 72 participants, many were unaware of the recommended daily salt intake (6g/day) as they were unsure of the amount they were consuming due to 'hidden' salt in food. Yet many were aware of the association between high salt intake and negative health effects. Therefore food choices were made through habit and lifestyle as opposed to health. Further salt awareness campaigns are needed which address 'hidden' salt in foods as well as the food industry continuing to lower salt in their manufactured products.

Kenten, C et al. Appetite 2013

doi: 10.1016/j.appet.2013.06.095

High potassium intake blunts the effect of elevated sodium intake on blood pressure levels

In this population based study, the influence of dietary potassium on the sodium effect on blood pressure was investigated in 1285 participants, aged 25-64 years, who weren't taking medication affecting blood pressure or potassium excretion. 86% consumed over 6g/day of salt and 87.7% consumed less potassium than the recommended intake of 4.7g/day. Potassium excretion and sodium:potassium ratio were significantly associated with systolic and diastolic BP in participants

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consuming >6g/day of salt. The findings indicated that if there is an increased intake of potassium in the diet, high intake of sodium is not associated with higher BP. High intakes of fruit, vegetables and wholegrain cereals rich in potassium may contribute to reducing the effects of a high salt intake on the development of hypertension and cardiovascular disease.

Rodrigues SL et al. Journal of the American Society of Hypertension. doi: 10.1016/j.jash.2014.01.001

Potential Effect of Salt Reduction in Processed Foods on Health

The health benefits of reducing salt in processed foods on the Dutch population were evaluated using 3 scenarios and evaluating their effect on health outcomes. These included 1) substituting high salt foods with low salt foods 2) reducing sodium content of processed foods 3) adhering to the maximum daily intake of 6g/day of salt. Using the Chronic Disease Model, the total burden of disease may be reduced by 56,400 DALYs. It concluded that when added salt is removed from processed foods and when consumers opt for lower salt alternatives, there will be substantial benefits to health. *Hendriksen MA et al. American Journal of Clinical Nutrition 2014 99 (3):446-53. doi: 10.3945/ajcn.113.062018*

Role of Dietary Salt and Potassium Intake in Cardiovascular Health and Disease: A Review of the Evidence

This review of evidence included 52 randomised trials published from 1990-2013 and found that high salt intake increases blood pressure, as well as playing a role in endothelial dysfunction; cardiovascular function; albuminuria and kidney disease progression; cardiovascular disease morbidity and mortality in the general population. Dietary potassium intake on the other hand diminishes these effects and is linked with reduction in stroke and cardiovascular disease risk. Sub-populations such as the overweight and obese and ageing adults show greatest sensitivity to salt reduction and therefore may benefit the most.

It concludes that the evidence supports population wide sodium reduction and increasing potassium intake so as to prevent kidney disease, stroke and cardiovascular disease.

Aaron K.J and Sanders PW. Mayo Clinic Proceedings 2013 DOI: 10.1016/j.mayocp.2013.06.005

A reduction of 3 g/day from a usual 9 g/day salt diet improves endothelial function and decreases endothelin-1 in a randomised cross-over study in normotensive overweight and obese subjects

25 overweight and obese participants took part in this 12 week single-blind randomised controlled cross-over study of 6 weeks each on reduced salt (6g/day) and a normal salt intake (US) of 9g/day. The results found that following the reduced salt diet, there was a significant improvement in flow-mediated-dilation (FMD) and decrease in serum endothelin-1. No effect was found on aldosterone and renin.

Dickinson K.M. et al. Atherosclerosis 2014 DOI: 10.1016/j.atherosclerosis.2013.11.078

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