

Obesity TODAY



Resolving the diabetes and weight dilemma

NOF chair Prof David Haslam sets out the challenge for the year ahead



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Founder **Dr Harry Rutter** charts the success of the national obesity 'data mine'



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National Obesity Week 2011 - January 17-23

2011 will be a critical year for the obesity field with government policy yet to be set out clearly, but a raft of radical changes already occurring throughout the health service with important consequences for the private health sector too.

NOF members throughout the land are being invited to help mark National Obesity Week by taking their own initiatives to raise local awareness and encourage individuals to be more closely concerned with their weight-related health.

There are now opportunities in many pharmacies for individuals to check their height, weight (and waist circumference) measurements and in some cases to benefit from the facility for a rapid assessment of cardiovascular disease and type 2 diabetes risks, with referral to a GP or appropriate clinic where necessary.

Under the present Health Checks programme in England, everyone from the age of 40-74 should be screened every five years for CVD risks. In its latest position paper, NOF suggests more frequent screening is needed to follow up overweight and obese people at high risk of developing type 2 diabetes.

The frequent focus on obesity alone should not lull anyone into a false sense of security. Weight gain can increase individual risks for CVD and diabetes even for those who fall within the 'healthy range' of BMI, particularly for those of Asian origin, and having an 'overweight' BMI between 25 and 30 may indicate progression along the pathway to obesity providing an early warning signal of the need to bring weight under control.

The NOF wants members' input to help form official policy

The Board of Trustees would like your help in formulating NOF Policy. We are inviting you to send us your thoughts on what you feel should be NOF policy. This can relate to any aspect of obesity, including public health and prevention strategy, clinical management and co-morbidities, current affairs & topical news stories etc. Suggested policies should be sent in the form: "The NOF believes that....." And be sent to matt@nof.uk.com. These will be considered by the board and could be introduced as official policy that you may one day hear being quoted in the media, and form part of a Policy document.

NOF forms Obstructive Sleep Apnoea (OSA) Group for Primary care

Anyone who attended the 2009 NOF National Conference will have been fortunate to hear the excellent presentation, given by Bertrand De Silva from the US, on OSA. Obstructive Sleep Apnoea is a currently under-diagnosed, and potentially fatal condition, closely associated with obesity and type 2 diabetes. It contributes to hypertension, stroke and can cause road traffic accidents. NOF has formed a Sleep Apnoea Group to raise awareness of this condition and the need for screening, diagnosis, and treatment options in primary care. Operating within NOF, the group hopes to be able to holding a special one day conference to launch this group in the spring. Further updates will be posted on the NOF website - www.nof.uk.com.

WINNER of the Best Practice Award

Dr Carly Hughes and her team were presented with a set of Tanita Scales and a cheque for their creative and sustainable Fakenham Obesity Pilot project. This demonstrated a clinically significant weight loss in those completing the project, with a low drop out rate. Dr Hughes will be updating this year's conference on how she has continued to develop her project within the local community.

NOF AGM

The NOF Annual General Meeting will held at the British Medical Association in Tavistock Square, London WC1H 9JP at 2pm on February 15th.

welcome



National
Obesity
Forum

Targeting obesity and
the metabolic syndrome

OBESITY TODAY is published on behalf of the National Obesity Forum as its official journal. It aims to provide an opportunity to publish papers, articles and opinions that will not only interest and inform NOF members, but will become required reading throughout the obesity community. Views expressed are those of the contributors.

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Welcome to this New Year issue.

The launch of Obesity Today in October was hailed as such a resounding success by NOF members and other health care professional readers keen to learn more about what is happening in the field, that this second issue is a bumper 24-page edition.

To spark post-festivity enthusiasm, Obesity Today proudly reveals its new star columnist - TV personality Anne Diamond who is a patron of NOF. Read her personal view on the need for greater sensitivity and an end to jibes aimed at 'fatties' - no matter what government ministers may say!

This edition is packed with essential reading for everyone in the obesity community and beyond. For those who missed the annual conference read Debbie Cook's conference notebook. NOF clinical director Dr Matt Capehorn invites us to RIO - in Rotherham that is, while Dr Harry Rutter explores the vital statistics of obesity sifted by the National Obesity Observatory to reveal hidden trends.

Dr Zoe Williams - better known to some as Amazon of the Gladiators - outlines her personal goal to persuade more teenage girls to stay with sport and physical activity, while Prof Terence Wilkin explains why the Early Bird Study is challenging some of our popular assumptions about childhood obesity and activity.

Keeping active and sticking to a healthy diet is not only the key to maintaining a health weight, but is the most effective approach to preventing type 2 diabetes. Many working in primary care also want to know how to cope with weight and diabetes? The second in a series of NOF position papers reflects an important discussion among an eminent group of experts on Managing type 2 diabetes and weight together. - The Editor

** Some readers on NOF's mailing list may have been mystified to find their surnames had changed in distributing the first issue. Apologies for an unfortunate software glitch. Anyone wishing to correct their details should email: info@nof.uk.com*

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NOW and the challenge ahead

GIVEN THE CHILL WINDS WHISTLING DOWN THE LOFTY CORRIDORS OF POWER TURNING INTO ICY BLASTS BY THE TIME THEY REACH THE LOWER ECHELONS OF THE HEALTH SERVICE FRONT LINE, WOULD IT BE UNCHARITABLE TO SUGGEST THAT THERE IS LITTLE TO LOOK FORWARD TO IN 2011?

With a government statement on obesity due imminently, following the publication late last year of the public health white paper, there is some concern that some of the important messages about addressing chronic disease have not got through. Obesity is a reality, not something that can be wished away, to be shrugged off as someone else's problem. All the strategic efforts of government to date (irrespective of political leanings) have tended to recognise that the spaghetti soup of the Foresight Report's map highlights all the links in the weight gain chain - and we are all involved, not just the growing proportion of individuals at the receiving end.

We mark National Obesity Week in January with a wake up call to each and every one of us to honour those easily made personal resolutions to do better this year. Individuals do have a duty to themselves to make the effort to improve their health with better diet and exercise. But it is also painfully clear that there is something flawed in putting the onus entirely on individual responsibility to achieve - overnight - a personal transformation while doing little to address the kind of changes needed to halt a mass epidemic of obesity that has been building up steam over three decades.

During National Obesity Week we would like to see the challenge to be thrown back at those who have now been given the responsibility to keep the Change4Life campaign afloat. The very companies once branded as 'part of the problem' must show themselves to be sincere in their desire to be 'part of the solution.' The Change4Life must also involve a change to ensure the delivery of a better quality of food and beverages. Some companies can reasonably claim to be doing their bit, while others have a long way to go before they can claim what they offer the consumer is 'healthy' rather than merely 'healthier'.

One of the challenges during National Obesity Week is to get people thinking about their personal situation. Knowing height and weight (and so being able to work out body mass index) and better still knowing how to use a tape measure to get an accurate picture of waist circumference is a starting point to self-awareness. It is also a boon to the GP if someone has already grasped this particular nettle. What patients can also do is challenge their GPs if they fail to consider these vital statistics that offer a relatively quick and easy way of alerting us to when more thorough checks for weight-related diseases are needed.

The Health Survey of England, released just before Christmas, left no room for complacency even though it showed the rise in the average prevalence of obesity had stalled over the past year. There is little that can be concluded from this unless the levelling out is maintained over several years. In fact overall 34% of men and 41% of women of all ages were identified in the 'high or very high risk' categories - demonstrating that a combination of BMI and waist circumference is a more effective way to assess the present situation.

More worryingly if we drill down into some of the survey findings, there is evidence that morbid obesity at critical ages in women has risen to a prevalence of almost 4%. This is by no means such a small percentage when it comes to patients passing through the GP's surgery door or ending up admitted to hospital. More than 100,000 hospital admissions were recorded in a single year due to obesity but not necessarily to deal with obesity. Most of these admissions relate to co-morbidities - even simple fractures that mean hospitals must be fully equipped with all the trappings needed to manage bariatric patients and ward staff have to double up to cope with patients who may weigh two or three times the weight of a nurse on her own.

If 2011 offers any glimmer of hope, it is that we may see a more positive approach from the incumbents in Westminster towards one of the most obvious consequences of rising obesity prevalence - type 2 diabetes. The percentage affected is rising remorselessly - standing now at 6.5% of men and 4.2% of women or approaching 3 million people. More worrying is the unknown extent to which many people are unaware and undiagnosed - living with the timebomb of diabetes and only being diagnosed at a later stage when other complications arise.

The NOF is pleased to have been able to follow its first position statement on Very Low Energy Diets with a second position statement on Managing Type 2 Diabetes and Weight Together. Again we were most grateful to have the support of eminent experts in preparing this. The statement presents a challenge to ensure effective early treatment to prevent and arrest type 2 diabetes, including the use of better drug treatments and seizing the advantages that bariatric surgery can offer.

In February NOF will hold its annual general meeting where we will review our recent struggles and achievements, and plan for the future. We hope all members will share our commitment to make 2011 a year when we can look forward to forging a stronger obesity community to rise to the inevitable challenges that lie ahead.



Prof David Haslam, chair NOF



"I worry our politicians concentrate only on prevention - we mustn't write off the obese themselves"

by **Anne Diamond**, broadcaster, columnist, mother of four, patron of the National Obesity Forum, and founder of www.FatHappens.com for people trying to lose weight.

A FEW YEARS AGO, IT WAS A SIN TO BE FAT, ESPECIALLY IF YOU WERE IN THE PUBLIC EYE. THE MEDIA THOUGHT FATTIES WERE FAIR GAME, AND THE TABLOIDS BRISTLED WITH UGLY HEADLINES ALONGSIDE EVEN NASTIER PICTURES. FAT WAS FREAKISH, FAT WAS FUNNY AND WHAT'S MORE IT WAS A FAULT AND A MORAL FAILING. I KNOW, I TOOK SOME OF THAT FLAK, AND IT HURT.

Now, I'm happy to say that attitudes have changed. The newspapers still like their "Fatties Cause Global Warming" stories, but at least there's an acceptance that obesity is a crisis facing us all - and that, whatever the cause, it is a serious issue. There's even a hint of sympathy nowadays for celebrities with yo-yo weight problems.

But now I've heard the 'ologists worry that a new compassionate attitude could be a bad thing - and could actually make fat acceptable and turn us into a nation of happy fatties. I really don't think so.

For a start, compassion is the first step to true understanding. It is not the start of complacency. I have yet to meet the man or woman who is happy about being fat. They often do manage to be happy DESPITE it - but if I invented a pill that would magically turn us all slim and svelte overnight, I reckon every single fatty in the country would take it.

Most fat people hate being fat, and they're hard enough on themselves without society throwing brickbats at them.

For my weight loss support website, Fat Happens, I interviewed Australian obesity specialist, John Dixon. He told me that by the time patients get to his clinic, they are already so badly damaged by society's attitude that it makes their problem even harder to beat. Fatties are so used to being abused and name-called, that they deprecate themselves.

You can even see it in the "user names" of my Fat Happens members. Although it's done in fun, some members give themselves horrible nicknames (like "FatAssGirl", "Lardy Lin" or "Porky"). Many have admitted to me in private emails that it masks an underlying despair.

I asked them what was the worst thing about being fat. Try and read these without feeling for their humiliation:

- Getting wedged in between your chair and the lecture table and not being able to move until everyone had left the room!
- Splitting a pair of jeans I was trying on in a shop
- Getting stuck in a swing in the park!
- Needing an extension belt for aeroplanes
- Being asked to pay for two airline seats
- Having a friend's dining chair collapse underneath me
- Going to the doctor with a rash/infection underneath my folds of fat
- I broke the lateral trainer at the gym and wanted to die
- Having blood pressure taken - and the arm strap is too small
- I can't shave my legs properly
- When on a camel ride on holiday with my boyfriend (that poor camel) they had to put sand bags at my boyfriend's side to balance the weight out
- Being told (after collecting sponsor money) that I wouldn't be able to make a tandem parachute jump because I was too heavy
- Being told by a "friend", it's a shame you're so fat, because you have a really pretty face
- Envyng every other woman you ever meet
- Promising every morning you'll be "good" at dieting and weeping every night that you weren't

No, we cannot have too much compassion. We just have to ensure it is channelled into constructive programmes that will really make a difference. I worry our politicians will concentrate their spending only on prevention, trying to halt the obesity epidemic amongst kids, when a whole generation of adults need help, too. They must not be written off as beyond hope, even though help for them is bound to be long and costly.

I am all for personal responsibility, but in a world where junk food and a sedentary lifestyle is market led, we all need help to swim against the tide and opt for a healthy alternative. Our society expects and thrives on overconsumption, yet it is killing our human bodies and it is also harming our planet.



To find that the two are so closely linked is in one way, obvious and simplistic. In another way, it's almost spiritual. The clear way to look after ourselves - to slow down, remember that the important things in life are health, loved ones, and altruism, get out into the fresh air and enjoy the world - well, isn't that the same way to look after our planet?

Fatties may not be causing global warming, but the health of both us and our planet are inextricably entwined. We need to be kinder to both!

NOF Clinical Director **Matt Capehorn** is spearheading an acclaimed obesity initiative. Here he takes us on a guided tour of **RIO**.



The Rotherham Institute for Obesity Dr Matthew S Capehorn

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Introduction

Obesity is a modifiable risk factor for coronary heart disease and death by myocardial infarction¹. Obesity is also a risk factor for other co-morbidities such as hypertension, raised lipids, diabetes, and impaired glucose tolerance².

The National Picture

The 2009 Health Survey for England shows³:

22.1% of men and 23.9% of women (almost 1 in 4) are obese
65.1% of men and 56.7% of women (nearly 2 in 3) are overweight or obese
You are more likely to meet someone with a weight problem than a healthy weight.

32% of men and 44% of women had central obesity (characterised by a waist circumference > 102cm in men and > 88cm in women)

Evidence suggests that obese children have a high risk of becoming obese adults⁴.

In 2008/9 the National Child Measurement Programme (NCMP) data shows⁵:

In Reception Year (ages 4-5 years) there are 22.8% (1 in 4) overweight or obese

In Year 6 (ages 10-11 years) there are 32.6% (1 in 3) overweight or obese (overweight characterised by a BMI > 85th centile and obese as a BMI > 95th centile)

Projections made in the Foresight Report suggest that by 2050⁶:

- 1 in 2 adults will be obese
- 9 in 10 adults will be overweight or obese
- 2 in 3 children will be overweight or obese

The Rotherham Picture

In 2008, based on local QUEST and QOF data⁷:

Despite popular belief, Rotherham is in line with the National average for adult overweight and obesity rates, with a prevalence of approximately 60% (although 22% of the population did not have a BMI recorded).

Although, Rotherham NCMP data suggested that the prevalence of overweight and obese children, in both Reception Year and Year 6, were slightly higher than the National average⁵.

Nevertheless, the argument for investing in weight management services in order to save more expenditure on the consequences of obesity was successfully made and it was agreed that NHS Rotherham would make £3.5m available to fund the NHS obesity strategy for a three year period.

NHS Rotherham's Healthy Weight Commissioning Framework won the 2009 NHS Health and Social Care Award.

The NHS Rotherham Obesity Strategy

The NHS Rotherham Obesity Strategy for the management of healthy weight in adults and children involves four tiers of intervention.

The initial level is the primary activity most often done in the primary care setting, which identifies those patients who have weight problems and are motivated to change, especially those with medical conditions, such as diabetes, which is likely to worsen with increased weight. It is important to clarify that this primary activity, and any associated health promotion advice, can be delivered by any healthcare professional from primary or secondary care, or in the pharmacy, council, leisure services, or private sector.

The second tier of intervention is a community based, time limited, weight management programme of diet, nutrition, lifestyle and exercise advice delivered by trained staff. For adults this is the **Reshape Rotherham** programme delivered by the Rotherham dietetics department, and for children this is the **Carnegie Clubs** programme delivered by **DC Leisure**. Patients can self-refer to these services, or be referred by an appropriate healthcare professional after an assessment of motivation.

Those patients who do not meet their healthy weight targets in this level of intervention, or for those who are considered to be more at risk of the cardiometabolic consequences associated with obesity (such as diabetes and cardiovascular disease) and require more specialist intervention, are referred into the tier 3 intervention, with is a specialist centre for weight management. This service is delivered by the **Rotherham Institute for Obesity (RIO)**.

The Rotherham Institute for Obesity (RIO)

The **Rotherham Institute for Obesity (RIO)** is a unique and specialist centre for the management of weight problems with a multidisciplinary approach to reducing and maintaining weight loss. It was formally opened on the 6 November 2009, by Professor David Haslam, Chairman of the National Obesity Forum (NOF)⁸, during the 2009 National Obesity Week (NOW!) Campaign.

RIO does not claim to have invented the cure for weight problems, and cannot guarantee weight loss for patients, but it brings together all the NHS approved and evidence-based methods for weight loss into one Primary care based Centre in the hope that we can maximise the chances for weight loss.

RIO is the specialist tier of intervention for adults and children with weight management problems, as part of the overall NHS Rotherham Obesity Strategy. It has a **multidisciplinary team approach** to managing weight problems by providing specialists that can deliver different approaches. This includes dedicated **Obesity Specialist Nurses (OSNs)**, **Healthcare Assistants (HCAs)**, **Dietetics** input for complex dietary needs, **"Rotherham Cook & Eat"** skills education, **Talking Therapies** including psychological input, an **Exercise Therapist**, and a **General Practitioner with a Specialist Interest in Obesity (GPwSI)** for any medication issues.

There are also facilities to allow for group work for exercise, talking therapies and nutritional advice.

RIO also provides the triage and assessment for all patients being considered to move on to tier 4 interventions. This includes bariatric surgery in adults or the attendance at the residential weight management camps delivered by **Carnegie International Weight Management**.

When patient referrals are initially received they are triaged to assess which, if not all, of the services offered by RIO are required, and appointments made as appropriate. All patients are initially assessed in a dedicated weighing and measuring room and all parameters including blood pressure, weight, height, body mass index (BMI), and fat composition using bio-impedance scales, are taken. Regularly calibrated weigh-bridge scales are available to provide consistency of measurements for weights of morbidly obese levels, and for patients with limited mobility or wheelchair users. If no recent blood tests have been performed these are taken in order to exclude previously undiagnosed metabolic conditions, such as diabetes and pre-diabetic states, underactive thyroid, or other associated risk factors.

All patients receive further basic dietary and nutritional advice as well as lifestyle and exercise education throughout the length of time they are in the service. This may include further explanation of the specific roles of calories, portion sizes and nights off the diet, or education on basic cooking skills in order to complement nutritional advice given (provided in on-site kitchen facilities). There are opportunities to discuss other aspects of their lives with Health Trainers, Talking Therapists proficient in techniques such as Cognitive Behavioural Therapy (CBT), Neuro Linguistic Programming (NLP), Emotional Freedom Techniques (EFT), and Hypnotherapy, or access to a Psychologist. Appointments can be made with an Exercise Therapist, who can help to tailor a specific exercise programme suitable for the individual (provided in on-site gym facilities), and patients are then encouraged to engage with free and subsidised local leisure facilities that have been arranged through partnerships with RIO. Patients who are to be considered for pharmacotherapy are assessed by the GPwSI for a review of their co-existing medical conditions and medications that may be associated with weight gain. Recommendations may be made to change them to newer, more weight-friendly, alternatives.

Consultations are performed on a one-to-one basis in dedicated consulting rooms, although group work is available. Further facilities within the Institute include a dedicated meeting room which may be developed to allow educational meetings for patients or healthcare professionals. This room provides a resource library with computer terminals, books and journals and other educational tools. It is hoped that in the future the service will work with other centres to form part of further research into the management of obesity, diabetes and other related conditions.

Patients going through the RIO service are considered a success if they meet certain criteria depending on the individual. For example, for most patients this may be considered to be 3-5% weight loss at 3 months, maintained at 6 months, or 5% weight loss at 6 months. For other patients it may be more, however, in the case of certain children, weight maintenance alone may be considered a successful goal.

RIO also serves an important role in the pre-op and post-op care for patients requiring referral for bariatric surgery. All NHS Rotherham patients meeting local specialist commissioning group criteria for NHS funding (BMI > 50 or BMI > 45 with co-morbidity) must come through RIO services and in order to assess the appropriateness of the referral. Over the last year, a RIO audit has shown that this has seen a reduction in inappropriate referrals to bariatric surgical centres, and an overall cessation of the year on year increase in referrals for surgery, due to the success that the MDT approach has had on weight loss in the morbidly obese that would have otherwise required surgery.

RIO also serves an important role in the identification of morbidly obese children who may request the attendance at the residential weight management camps. Suitable patients can have an assessment for underlying medical conditions, psychological issues, or any outstanding social or learning problems. As in the case of adult surgical triage, this process can increase the likelihood of more appropriate referrals to this more intensive and expensive resource. Furthermore, whilst any children are attending the residential camps, RIO will provide support and educational advice to the families of these children, to reinforce knowledge of healthy dietary practices to reduce the likelihood that the child returns to an obesogenic environment.

A fully integrated care pathway exists in both directions through the tiers of the overall obesity strategy. Results from the service are regularly audited

and the overall Rotherham obesity strategy is subject to a regular monitoring process by service providers and members of NHS Rotherham.

A recent audit, performed by RIO, showed that in those patients still in the service at 6 months, 57% of adults and 71% of children had met, or done better than, NHS Rotherham weight loss targets.

Given recent funding cuts, the overall NHS Rotherham model costs approximately £1m per year, but provides comprehensive and effective weight management services to anyone within the 250,000 population of Rotherham. If these costs were extrapolated and the model was reproduced in every area of equal size, then the UK population of 60m people could be managed for the approximate cost of £240m.

Summary of facilities offered at RIO:

| Job Description | Role |
|--------------------------|-------------------------------------------------------------|
| Health Trainer | Motivational interviewing |
| Healthcare Assistant | Weighing & Measuring. Follow-up care |
| Obesity Specialist Nurse | Initial triage. Basic nutritional and advice |
| Dietitian | Complex dietary needs. Pre-/post-op surgery |
| "Cook & Eat" | Cooking skills and nutrition |
| Exercise Therapist | Personal exercise programme (on-site gym) |
| Talking Therapists | Life-coaching, CBT, NLP, EFT, hypnotherapy |
| GPwSI | Pharmacotherapy. Pre-surgery/pre-Camp assessments. |
| Admin Supervisor | Liaise with patients, referrers and other service providers |
| Clinical Manager | Managing service. Clinical Governance. |
| Education Room/library | Resource room. Group work. |
| Other specialists | Eg, pre-conception care |

I would consider this to be highly cost-effective given the Foresight projections that that show the direct and indirect costs of obesity will reach £49.9 billion by 2050⁵.

We are currently developing RIO in order to provide more services for patients. Provided that funding is recurrent, we will soon be looking to start the screening and diagnosis of obstructive sleep apnoea (OSA) for RIO patients (in order to develop the case for the management of this under-diagnosed, yet potentially fatal, condition to be done in primary care) and to develop facilities to offer the endoscopic surgical procedures, such as the bariatric intra-gastric balloons and endobarriers, in the primary care setting.

In the meantime, Rotherham patients can at least have the opportunity to be prescribed a trip to RIO!

We would like to take this opportunity to acknowledge the following individuals and organisations for their kind help and/or donations in helping to make RIO a success:

NHS Rotherham; Rotherham Cook & Eat; The National Obesity Forum, and their Chairman, Prof David Haslam Mr David Mahon, Bariatric Surgeon; Sci-Fit; Johnny Minkley, BBC Radio 1 gaming expert; EA Sports; New Concept Gaming; Abbott Pharmaceuticals; Roche Pharmaceuticals; K D Davis & Sons, Rotherham

¹ Salim Yusef et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study). *Lancet* 364: 937-952. 11 Sep 2004.

² World Health Organisation (2000). *Obesity – preventing and managing the global epidemic. Report of a WHO consultation on Obesity.* WHO: Geneva.

³ Joint Health Surveys Unit (2009). *Health Survey for England 2008 to 2009.* NHS Health and Social Care Information Centre (published Dec 16, 2010).

⁴ Serdula M et al. Do obese children become obese adults? A review of the literature. *Prev Med.* 22: 167-177

⁵ National Child Measurement Programme. 2008/9 data. NHS Health and Social Care Information Centre.

⁶ The Foresight Report. *Tackling Obesity: Future Choices Project.* DH. October 2007

⁷ Weir C. *Report to Board.* Mar 2008. NHS Rotherham

⁸ National Obesity Forum. www.nof.uk.com

Onglyza: Make a Difference

Onglyza shows comparable efficacy to a sulphonylurea without the increased risk of weight gain or hypoglycaemia, as demonstrated in an add on to metformin non-inferiority study¹



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ONGLYZA™ ▼ 5 MG FILM-COATED TABLETS (saxagliptin)

PRESCRIBING INFORMATION. Consult Summary of Product Characteristics before prescribing. **Presentation:** 5 mg saxagliptin (as hydrochloride) film-coated tablets. **Indications: Adults aged 18 years and older:** For Type 2 diabetes mellitus patients to improve glycaemic control in combination with metformin, when metformin alone, with diet and exercise, does not provide adequate glycaemic control; sulphonylurea, when sulphonylurea alone, with diet and exercise, does not provide adequate glycaemic control in patients for whom use of metformin is considered inappropriate; and thiazolidinedione, when thiazolidinedione alone with diet and exercise, does not provide adequate glycaemic control in patients for whom use of a thiazolidinedione is considered appropriate. **Dosage: Adults:** 5 mg once daily as add-on therapy with or without food at any time of the day. When used in combination with a sulphonylurea, consider a lower dose of sulphonylurea to reduce the risk of hypoglycaemia. **Children and Adolescents:** Safety and efficacy in children aged birth to <18 years has not yet been established. **Moderate Hepatic Impairment:** Use with caution. **Severe Hepatic Impairment:** Not recommended. **Moderate & Severe renal impairment:** Not recommended. **Elderly: >75 years:** Use with caution. **Contraindications:** Hypersensitivity to saxagliptin or to any of the excipients. **Warnings and precautions:** Should not be used for the treatment of Type 1 diabetes mellitus or diabetic ketoacidosis. Not recommended in patients with rare hereditary galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption. No

experience in cardiac failure (NYHA class III-IV) or immunocompromised patients. Recommend monitoring if there is evidence of skin disorders. **Drug interactions:** Clinical data suggest low risk for clinically meaningful interactions with co-administered medicinal products. Caution with CYP3A4/5 inducers as glycaemic effect may be lowered. **Pregnancy and lactation:** Avoid use during pregnancy and lactation unless clearly necessary. **Fertility:** The effect of saxagliptin on fertility in humans has not been studied. Effects on fertility were observed in male and female rats at high doses producing overt signs of toxicity. **Undesirable events:** In a pooled analysis, overall incidence of adverse events in patients treated with Onglyza 5 mg was similar to placebo. Discontinuation of therapy due to adverse events was higher compared to placebo (3.3% vs 1.8%). **Common adverse reactions reported (regardless of causal relationship) in add-on trials:** Upper respiratory infection; urinary tract infection; gastroenteritis; sinusitis; headache; and vomiting. Nasopharyngitis was common in the add-on to metformin trial, hypoglycaemia was very common in the add-on to sulphonylurea trial and peripheral oedema (mild to moderate only) was commonly reported in the add-on to thiazolidinedione trial. Hypersensitivity and rash were more frequently reported in patients on Onglyza compared to placebo. **Adverse reactions considered to be at least possibly related to Onglyza: Add-on to metformin:** Common: Dyspepsia and myalgia. **Add-on to sulphonylurea:** Uncommon: Fatigue, dyslipidaemia and hypertriglyceridaemia. **Laboratory tests:** Small decreases in absolute lymphocyte count were observed but were not associated with clinically

relevant adverse reactions. Key: Very common = (≥1/10), common (≥1/100 to <1/10), uncommon (≥1/1,000 to <1/100) and rare (≥1/10,000 to <1/1,000). **Consult SmPC for a full list of adverse events.** **Legal Category:** POM. **Marketing authorisation number:** EU/1/09/545/006. **Presentation & basic NHS price:** Onglyza 5 mg film-coated tablets 28: £31.60. **Further information is available from the Marketing Authorisation holder:** Bristol-Myers Squibb / AstraZeneca EEIG, Bristol-Myers Squibb House, Uxbridge Business Park, Sanderson Road, Uxbridge, Middlesex, UB8 1DH, UK. [ONGLYZA] is a trademark of the Bristol-Myers Squibb / AstraZeneca group of companies. **Date of PI preparation:** 07 2010 (Approval code): 422EMEA10PM022. CV 10 0066

Adverse events should be reported. Reporting forms and information can be found at www.yellowcard.gov.uk. Adverse events should also be reported to Bristol-Myers Squibb Pharmaceuticals Ltd. Medical Information on 0800 731 1736 or medical.information@bms.com

Reference:

1. Göke *et al.* Int J Clin Pract. 2010 Nov;64(12):1619-31.

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Resolving the diabetes and weight dilemma - managing weight and type 2 diabetes together



INTRODUCTION

INCREASINGLY THE PRIMARY CARE SECTOR HAS TO MANAGE THE CONSEQUENCES OF RISING LEVELS OF OVERWEIGHT AND OBESITY AND THE CONCOMITANT INCREASE IN DIABETES WITH ITS WELL IDENTIFIED RANGE OF POTENTIALLY LIFE THREATENING MACROVASCULAR AND MICROVASCULAR COMPLICATIONS.

Recent estimates put the number of people with type 2 diabetes in the UK at 3.6 million and the Association of Public Health Observatories (APHO) forecast this figure to rise to 5.3 million within 20 years. (see Table 1) APHO's 2010 total is 25% higher than the GP register-based record of 2.8 million diagnosed adults on which the present national health provision and planning is based.

The scale of the problem puts into perspective the cumulative task for individual practitioners to accomplish successful clinical management of all patients with diabetes. Seeking weight reduction or stability with type 2 diabetes presents particular challenges. It often requires a combined team effort involving the broad spectrum of health care professionals from general practitioners, practice nurses and dietitians to fitness advisers and secondary care health professionals. Ultimately the bariatric surgeon may become involved when other avenues to manage morbid obesity have been exhausted.

This position statement is not intended to be a comprehensive reference document nor to replace guidance from NICE or the recent SIGN document on the management of diabetes. It aims to assist primary care teams and others involved in caring for people with diabetes to gain a better general understanding of current challenges and clinical options for the management of type 2 diabetes and weight.

| | 2010 | 2030 | 2010 | 2030 |
|--------------|------|-------|------------------|------------------|
| England | 7.4% | 9.5% | 3,099,853 | 4,603,363 |
| Scotland | 6.7% | 8.6% | 286,312 | 396,931 |
| Wales | 9.0% | 11.5% | 218,956 | 311,334 |
| Total | | | 3,605,121 | 5,311,628 |

Table 1: Type 2 Diabetes by percentage and estimated numbers

Adapted from the APHO Diabetes Prevalence Models for England, Wales and Scotland, June 2010

THE TYPE 2 DIABETES SETTING - WHERE THE DRIVING FORCE IS OBESITY

The prevalence of obesity has reached unprecedented levels in the United Kingdom - four times the level of 30 years ago. One in four individuals aged 16 and above has a Body Mass Index greater than 30 kg/m². Closer analysis of the available national survey data reveals an even more intensive obesity-related workload impacting upon primary care. One in three men and women over the age of 45 are classified as obese using BMI. Measured by increased waist circumference, this increases to almost 1 in 2 of those in the age groups most likely to present at the GP's surgery. Using a combination of BMI and waist circumference, overall 34% of men and 41% of women of all ages are classified as high or very high risk. Furthermore severe obesity (BMI >40) is approaching a prevalence of almost 4% among women. (Health Survey for England 2009)

Patients being diagnosed with type 2 diabetes at an increasingly early age have rendered the term 'maturity onset diabetes' superfluous. The risk for type 2 diabetes increases progressively with weight gain, and as the obesity epidemic has gathered momentum, the prevalence of diabetes almost doubled between 1994 and 2003. The greatest increases were in men and women aged 45 and over, with a further rise since 2003 from 4.3% to 5.6% in men and from 3.4% to 4.2% in

women. The figure of 2.8 million people recorded on GP's QOF registers in the UK - one in 20 adults - conceals a daunting reality that many people with diabetes - more than half a million - probably remain undetected, undiagnosed and untreated, with inevitable consequences of life threatening complications that require more costly treatments and result in earlier deaths.

It is clear that the obesogenic environment in which energy-dense foods and beverages are prevalent and in which the need and opportunity for physical activity is also diminished continues to promote the weight gain that underpins much of the rise in diabetes. Strategies to address the fundamental drivers of obesity must be an essential element of any approach intending to alleviate the burden of diabetes that is already costing £9 billion per annum and accounts for 10% of the NHS budget. The Association of Public Health Observatories Diabetes Prevalence Model, which takes into account the aging population and ethnic demographic changes, attributes half the forecast increase to obesity alone. This highlights the significant opportunity that exists for primary care to intervene and reduce the preventable burden of obesity and type 2 diabetes not only in terms of the health of individuals but also in wider social and economic terms for their families and the nation.

MANAGING WEIGHT WITH TYPE 2 DIABETES

The precocious development of diabetes challenges traditional treatment paradigms, given the limited experience in the long term use of some of the available range of therapeutic drugs. In the past beginning to treat patients with late

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onset diabetes required a different view of the long term implications of differing treatment regimens. However identifying effective management strategies for a newly diagnosed 30-year-old patient, and more so for some diagnosed while still schoolchildren, requires a sophisticated understanding of how increasingly complex treatments are likely to be maintained over a lifetime, presenting a quite different challenge to coping with patients diagnosed in their 60s or 70s.

This position statement reflects the discussions and further considerations of the group, focusing on today's challenges facing clinicians in determining how best to cope with patients presenting the weight-related comorbidity diabetes, where weight control or weight reduction options may be limited, and where some diabetes treatments themselves may engender further weight gain. The point of diagnosis may also signal an appropriate moment for a holistic assessment of other possible weight-related comorbidities.

Pre-emptive management

Early identification and intervention in the pre-diabetic phase, where impaired glucose regulation (IGR – comprising either impaired glucose tolerance or impaired fasting glucose) is identified, can delay the progression of diabetes, and there is evidence that more than half those patients able to adhere strictly to an improved diet and physical activity regimen can arrest or postpone the development of diabetes. The early results of the US Diabetes Prevention Program (DPP) found that an intensive lifestyle change programme resulted in an average 5.6 kg weight loss over three years, and decreased the likelihood of developing diabetes in high risk adults with impaired glucose tolerance by 58%. A 10-year follow up showed that diabetes incidence was reduced by 34% in the lifestyle group and 18% in those treated with metformin compared with placebo. (Diabetes Prevention Program Research Group 2002 and 2009). Benefits from a less comprehensive lifestyle programme were shown in patients with IGR in the orlistat placebo arm of the XENDOS trial, with further benefit in those receiving orlistat (Togerson et al.)

Where it has been implemented, the present NHS Health Check programme in England offers a five yearly risk assessment covering diabetes, heart disease, stroke and kidney disease to those between 40-74 years. However the general practitioner often lacks the time, opportunity and facilities to undertake closer monitoring of a patient's physical and dietary health, which is more likely to be undertaken by a practice nurse specialising in diabetes.

RECOMMENDATION 1 - Ideally overweight or obese people who are most at risk of developing diabetes should be screened regularly and annually with a fasting blood glucose or HbA1c test. Greater access to individualized interventions, with team-based counselling and with more sophisticated monitoring to improve fitness, is considered desirable both in prevention and management of diabetes and weight.

Management approaches

The factors which influence the choice of therapeutic approaches depend on variables such as the extent and duration of present overweight or obesity, the stage of development of diabetes, the willingness and capacity of the patient to commit to a robust transformation in diet and activity, the suitability of a range of pharmacological options, and in respect of the morbidly obese, whether bariatric surgery might prove an effective and lasting approach to dealing with both weight and diabetes.

Interventions involving diet and activity are both prerequisites for any treatment to manage weight, and also provide an important strategy that may delay the onset of diabetes. Whilst there is general agreement that this is the most important first step in preventing diabetes in high risk patients, there is concern that the framework for successful implementation is missing, and a more sophisticated understanding and definition of lifestyle interventions is required. It was considered that while the risk for type 2 diabetes clearly increases in a curvilinear fashion with weight gain, more detailed research outcomes are needed to illustrate the level of risk reduction for diabetes with weight loss.

Where adherence to lifestyle intervention has proven unsuccessful either in producing weight loss or metabolic improvement, the use of metformin is recognized as an appropriate first line therapeutic option given the evidence that prevention or delay of diabetes with lifestyle intervention or metformin can persist for at least 10 years.

A 10-year follow up of the UK Prospective Diabetes Study has emphasized the 'Legacy effect' with the benefit of significantly decreased risk of myocardial infarction and death from any cause if intensive glucose control is maintained from diagnosis, as well as a reduction in the risk of microvascular disease. (Holman R et al 2008)

A newly published review has considered the therapeutic choices with type 2 diabetes when glucose levels initially controlled with lifestyle management and metformin begin to rise. (Petrie et al QJM 2010)

This concluded:

- Sulphonylureas - cheaper but disadvantage of hypoglycaemia risk and weight gain
- Dipeptidyl peptidase 4 (DPP-4 inhibitors aka 'gliptins') - an attractive profile, but cardiovascular effects are uncertain.
- Thiazolidinediones ('glitazones') - effective glucose-lowering agents, but result in weight gain and increase the risk of fracture. Cardiovascular benefits not as expected.¹
- Glucagon-like peptide-1 (GLP-1) agonists - considered unacceptable as initial second-line agents because they are injectable rather than oral.

However the consensus group commends the recently compiled table, reproduced below, which categorizes the benefits and weight-control implications of the various available pharmacotherapies.

RECOMMENDATION 2 - Because some current additional oral glucose lowering agents cause weight gain, physicians initiating add-on therapy in patients who can no longer achieve glycaemic control with metformin face the problem of improving glycaemic control while causing weight gain. Early clinical experience with DPP-4 inhibitors suggests these agents may offer an important oral treatment option for weight-neutral glycaemic control when combined with metformin. (Barnett 2010).

See *Table 2*

Concern was noted that financial constraints often override clinical preference to utilise these agents, which have been described fully in the NICE Short Clinical Guideline 87 (NICE 2009) and more recently in a new comprehensive review. (Cheng and Kashyap 2011)

The case for effective weight management with type 2 diabetes, and awareness of the weight effects of alternative therapies is that weight reduction or control may modify the disease itself, but will also modify co-morbid disease (such as obstructive sleep apnoea) and furthermore will bring psychological benefits to the patient.

Intensive lifestyle intervention was found to deliver sustained weight loss and improvements in treadmill fitness, glycemic control, and CVD risk factors in individuals with type 2 diabetes in the four year results of the Look AHEAD trial which is continuing to monitor long term CVD risk (Wing et al 2010).

RECOMMENDATION 3 - The group considers dietary and lifestyle interventions in general to be most effective when structured and delivered by enthusiastic teams who are involved in patient motivation and management, where the important benefits of regular exercise and a healthy diet need to be re-emphasized. The role of practice nurses is crucial with their closer contact with these patients. Their potential contribution in motivating and supporting patients with weight and glycaemic issues needs to be recognized. Improved training in motivational interviewing and cognitive behavioural therapy (CBT) techniques, not covered in any depth in the standard nurse training at present, is required.

The use of Low or Very Low Energy Diets (usually administered as partial or complete meal replacements – often as a liquid) for rapid weight loss can be enhanced in terms of long-term efficacy by concurrent cognitive-behavioral therapy or by the use of orlistat when transition to a conventional diet occurs. This approach is also effective in reducing cardiovascular risk factors. (Hammer et al 2008)

The use of orlistat, the only currently available pharmacotherapy for weight loss, may bring benefits in glycaemic control through weight reduction, possibly reducing dependence on hypoglycaemic pharmacotherapy. However more long term data and outcome studies are required. (Jacob et al 2009)

THE IMPACT OF BARIATRIC SURGERY

Bariatric surgery can be an effective treatment for producing durable weight loss, and in some instances for inducing diabetes control and improvement, although the evidence of long-term efficacy is still poorly described. As with other

treatments for diabetes there are pros and cons, and a careful individual assessment is required. A review and meta-analysis of the impact of bariatric surgery on type 2 diabetes found weight loss overall was 38.5 kg or 55.9% excess body weight; 78% of people with diabetes achieved normal blood glucose levels in the short term, and diabetes was improved or resolved in 87% of patients. The greatest benefit was seen in patients undergoing biliopancreatic diversion/duodenal switch, followed by gastric bypass, and least for banding procedures (Buchwald et al 2009).

The main problems with these data are that the patient populations studied were mainly being treated for weight loss, and in terms of gender, age, body mass index and comorbidity were not typical of the wider population with type 2 diabetes. Most of the studies were from a surgical rather than a medical perspective, very few were controlled or used a recognized biochemical definition of glycaemic remission. The impact of bariatric surgery on hypertension and dyslipidaemia in populations with type 2 diabetes has received little attention. Currently, therefore, it is more appropriate to view bariatric surgery as an adjunct to the medical management of type 2 diabetes and cardiovascular risk rather a replacement.

With type 2 diabetes, it is important to recognize that bariatric surgery is a very demanding treatment in terms of dietary behavioural change, requiring careful preoperative evaluation to determine suitability. A one year post-operative mortality rate of 1.3% has been reported in the UK (Burns et al 2010), and there may be a relatively increased operative mortality in elderly patients with diabetes and vascular disease. There are few long term metabolic data on young adults or children who have undergone bariatric surgery. The incidence and prevalence of long term surgical complications and problems from micronutrient deficiency are poorly described, but long term expert follow-up is essential on both counts. A careful individual medical assessment of likely metabolic benefits and risks is required so

that the patient can be fully informed of all these issues.

Different bariatric procedures may work through different mechanisms, which are likely to relate partly to the weight loss itself and partly to some of the endocrine changes that follow certain types of surgery. The endocrine changes involve hormones such as GLP-1, PYY and ghrelin and there may be other mechanisms that are involved. There are no randomised control trials comparing optimal medical management of diabetes in the severely obese versus surgery, and the long term implications for medical monitoring over a lifetime following surgery. The NOF intends to develop a separate consensus statement on bariatric surgery addressing detailed concerns in its position paper series.

RECOMMENDATION 4 - With a limited capacity both within the NHS and the private sector to undertake bariatric procedures, carefully selected patients with type 2 diabetes and a BMI of 35 or more, as recommended in NICE guidelines, should receive priority for consideration for this treatment option where other approaches have been ineffective. If surgery is considered as a treatment option, there is also a need to ensure the existence of an appropriate framework for long term medical and nutritional monitoring.

OTHER FACTORS

There are important factors bearing on patient weight management with diabetes that are beyond the control of the physician, but should to be taken into consideration. In addition to genetic predisposition, the influences of deprivation (or lower socio-economic status) and ethnic origin play an evident role in type 2 diabetes and may result in greater complications requiring hospital admission. (Wild 2010)

A four-to-fivefold variation in risk of type 2 diabetes has been found to exist between different ethnic groups. Risks rise progressively among Asian men and women. Indian men whose risk is almost double that of a white reference group, and Pakistani and Bangladeshi men having significantly higher hazard ratios than Indians. Risks are also elevated for Chinese and for black African men, but not black Caribbean men and women. (Hippisley-Cox 2009) A useful tool for identifying high risk patients has been developed - the QD Score - which relates postcode, BMI and ethnicity to 10 year risk of diabetes. This is available on <http://www.qdscore.org/>

Table 2

| The pros and cons of alternative type 2 diabetes treatments | | | | | | |
|-------------------------------------------------------------|-----------------|-------------------------------|---------------------------------------|------------------------|-------------------------------|-----------------------------|
| Indicator | Metformin | Sulphonylureas | Glitazones | GLP-1 agonist | Insulin | Gliptins (DPP-4 Inhibitors) |
| Efficacy | ++ | ++ | ++ | ++(+) | +++ | ++ |
| Influence on disease progression | No | No | Unknown | Unknown | No | Unknown |
| Outcome studies | Yes | Yes | Yes | No | Yes | No |
| Tolerability | GI side-effects | Hypoglycaemia and weight gain | Weight gain, oedema, distal fractures | Nausea (self limiting) | Weight gain and hypoglycaemia | Good |
| Weight gain | No | Yes | Yes | Weight loss | Yes | No |
| Hypoglycaemia | No | Yes | No | No * | Yes | No * |

* Except when used in combination with sulphonylureas and/or insulin (GLP-1 agonists are not licensed for use with insulin)

Table adapted with kind permission from A.H. Barnett, New treatments for type 2 diabetes in the UK - An evolving landscape, Prim. Care Diab. (2010) doi:10.1016/j.pcd.2010.09.001

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AREAS OF CONCERN

There remains an inhibition against using the most beneficial treatments for diabetes in regard to weight control because of cost, and within the present transition in health service delivery arrangements, it is important not to neglect the advantages of the best available treatments.

A more holistic approach is required to identify the gamut of weight-related co-morbidities, including obstructive sleep apnoea, polycystic ovarian syndrome and non-alcoholic fatty liver disease, amongst others that a patient may be affected by when risk for diabetes has been diagnosed.

There is also concern that the benefits of weight loss surgery in relation to type 2 diabetes need to be more fully assessed to take into consideration sustainable outcomes, follow up medical monitoring and the additional costs associated with additional surgery required for surplus skin-fold removal in many cases.

There is a need for improved education and training of all health care professionals to address the increasing need to manage both diabetes, weight, and other weight-related comorbidities.

CONCLUSION

Type 2 diabetes cannot be managed optimally without a primary focus on weight control.

Although there would seem to be a hierarchy of therapeutic strategies that physicians should follow, there is a need to tailor an approach focused on each individual's route to weight gain and type 2 diabetes. Robust intensive lifestyle interventions to improve diet and physical activity require a multidisciplinary team approach and significant numbers of patients will not be managed by 'lifestyle' intervention alone.

Pharmacotherapy is therefore an important tool for physicians, where metformin is the initial treatment of choice. As Table 2 illustrates, some treatments may lead to weight gain and these should be avoided if weight control or weight reduction is considered an important goal of therapy. It is hoped that glucose-lowering therapies that are weight neutral or weight-loss inducing will prove more acceptable as combined therapies.

While surgery is now becoming considered to be a safer option than in the past, its claims to be an effective therapy for the management of type 2 diabetes need to be carefully evaluated. Bariatric surgery remains a limited option, accessible to only a small proportion of those who are the morbidly obese with type 2 diabetes.

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Sarah H Wild, John A McKnight, Alex McConnachie, Robert S Lindsay, on behalf of the Glasgow and Lothian Diabetes Register Data Group *Socioeconomic status and diabetes-related hospital admissions: a cross-sectional study of people with diagnosed diabetes* J Epidemiol Community Health 2010;64:1022-1024 Published Online First: 30 July 2010 doi:10.1136/jech.2009.094664

¹ Of the thiazolidenediones, currently only pioglitazone available as an effective glucose-lowering agent, but results in weight gain, although fat redistribution away from the liver may be of benefit in patients with fatty liver disease. Some cardiovascular benefit of pioglitazone, partly offset by fluid retention. Increased risk of fracture.

The National Obesity Observatory keeps track of the deluge of data on overweight and obesity. Here founder director **Dr Harry Rutter** outlines the broad scope of the NOO's work and the depth of analysis available via the NOO website.

THE HIGH PREVALENCE OF OBESITY AMONGST ADULTS AND CHILDREN IN BRITAIN IS A MAJOR PUBLIC HEALTH CHALLENGE, AND A HIGH POLICY PRIORITY, AS UNDERLINED BY THE SECRETARY OF STATE IN THE RECENT PUBLIC HEALTH WHITE PAPER.

Overweight or obesity increase the risk of developing a range of health problems including coronary heart disease, stroke, type 2 diabetes, and some cancers. The consequences of obesity go far beyond its direct impacts on the physical health of individuals, with adverse social consequences through discrimination, social exclusion and low earnings, and economic impacts on the wider economy through sickness absence and increased benefit payments.

The National Obesity Observatory

The National Obesity Observatory (NOO) was established in 2007 to support policymakers and practitioners working to tackle obesity. It provides an authoritative and independent source of information on data, evaluation and evidence about obesity, overweight, and their underlying causes.

Our aim is to help our users navigate a path through the complex and often confusing flood of information about the topic. We produce a wide variety of outputs, ranging from tools to help improve the evaluation of obesity interventions to in-depth analyses of complex data and summaries of published evidence. We have recently put particular effort into developing simple to use tools for data visualisation, making it easier and clearer to identify and demonstrate key elements of local and national data.

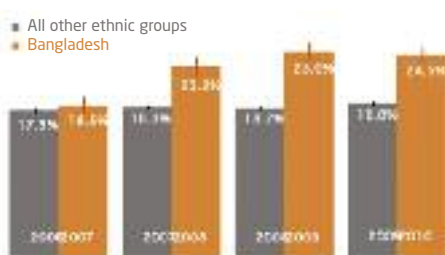
National Child Measurement Programme

A significant part of our work is based around the National Child Measurement Programme (NCMP), which was established by members of the Observatory, building on the National Child Obesity Database that preceded it. The NCMP now measures over a million primary school children every year – from Reception (aged 4-5) and Year 6 (aged 10-11) – with a response rate above 90%. It is the largest such surveillance programme in the world, and as it collects more data each year (the fourth year of data has just been published) it increasingly allows us to identify detailed aspects of the development of child obesity in England that cannot be detected with smaller datasets.

Analysis of the National Child Measurement Programme

The prevalence of obesity varies among children by both ethnic group and socioeconomic status. While the rising trend of obesity prevalence appears to be flattening off in most groups of children, we have found a significant increase in obesity prevalence in those of Bangladeshi ethnicity. The chart below illustrates this finding. Having identified this issue, in a way that would have been difficult if not impossible with a smaller study, we can now work with others to address it.

Change in the prevalence of obesity among children in Year 6, comparison between children of Bangladeshi ethnicity and of all other ethnic groups. NCMP 2007/08 to 2009/10



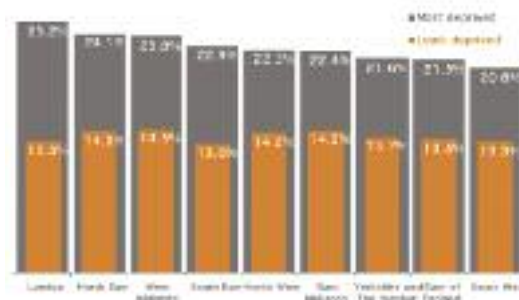
Obesity prevalence in children is also related to eligibility for free school meals, with children living in areas with higher rates of eligibility for free school meals having significantly higher rates of obesity than those living in areas with low eligibility rates. A similar relationship exists for variation by parental occupation: children in households where the main income earner works in a professional occupation have lower rates of obesity than those where the main income earner is in a manual occupation.

It is worth noting that there are also important socioeconomic relationships in adults. Obesity in women rises steadily with falling household income, and there is a significant difference in prevalence between the highest and lowest income groups; the differences are smaller for men, with no clear trend. Adult obesity is also associated with educational attainment, with prevalence higher in both men and women who have fewer qualifications. Women living in more deprived areas have higher levels of obesity than those in less deprived areas, but there is no clear pattern for men.

There are important regional variations in some of these relationships. The chart below shows that the differences in the prevalence of obesity in

children across regions vary more within the most deprived quintiles within the least deprived quintiles. The gap between the least and the most deprived children varies between regions as a result, with the largest variation in London (see chart below).

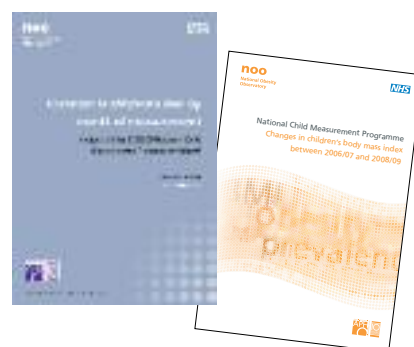
Prevalence of obesity among children in Year 6 in the most and least deprived quintiles, by region. NCMP 2009/10



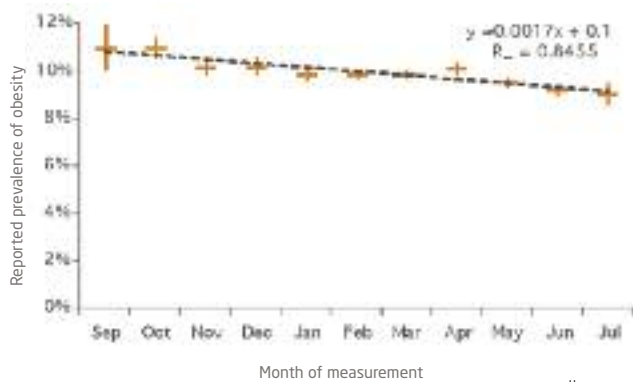
As well as studying socioeconomic status, NOO has conducted a wide range of analyses of the NCMP data to assess the importance of factors such as data quality, ethnicity, and date of measurement. NCMP measurements are conducted throughout the school year; the chart below is based on an analysis of the impact of the dates on which children were measured. It shows that for each additional month of the academic year that passes there is an associated decrease in the reported prevalence of obesity for children of Reception age. It is impossible to draw any causal relationship from these data, but this relationship may suggest that for this age group of children the shift from a predominantly home-based life to one in which large amounts of time are spent in the rather different school environment leads to a change in energy balance that reduces the prevalence of obesity. It is worth noting that this relationship is not seen in the older age group measured, the 10-11 year old children in Year 6.

A full paper investigating this issue is available from the NOO website:

<http://www.noo.org.uk/NCMP> >>>>



>>> **Prevalence of obesity by month of measurement for children in Reception year. NCMF 2009/10** (showing the linear trend and 95% confidence limits)



Standard evaluation framework for evaluating weight management interventions

There is a lack of consistent, high-quality evidence on the effectiveness of weight management interventions. In order to support the development of a much-needed evidence base NOO has developed a Standard Evaluation Framework (SEF) to provide a straightforward and standardised approach to the collection of evaluation data, for use by practitioners who commission, run or evaluate weight management interventions.

The overall objectives of the SEF are to improve the number quality of evaluations of weight management interventions. This is intended to lead to better evidence about which aspects of which interventions are most and least effective, which should in turn support the refinement of more effective approaches to tackling overweight and obesity.

The SEF identifies the minimum – or ‘essential’ - data that are needed for an evaluation, as well as an optional list of ‘desirable’ data that will provide more detailed information. The supporting material explains the reasons behind these classifications, and provides guidance on how to

collect and use data. The SEF also provides basic guidance on how to conduct an evaluation for people who may have little or no experience in this area.

This tool can be used in both clinical and community settings, although as currently constructed it is not intended for use with surgical or pharmacological approaches to weight management, or for wider interventions at population level.

The SEF is just the first product in what will be a significant set of resources to support evaluation of obesity-related interventions: we have a collection of relevant resources on our website,

and will be developing this work further next year. For more information, or to provide feedback, please visit <http://www.noo.org.uk/SEF>

Current and future work

This article describes just a small selection of NOO’s work. Recent publications cover topics as diverse as bariatric surgery, obesity and life expectancy, the economic burden of obesity, sources of data on healthy eating and physical activity, and guidance on commissioning lifestyle interventions. All of these and our other publications are freely available on our website.

We are currently in the process of drawing up our workplan for next year. As well as continuing to build on the range of reports, briefings and analyses that we have published to date, we also intend to broaden our work on evaluation, and produce simple guidance on assessing the cost-effectiveness of obesity interventions. However, as the structures and mechanisms primary care and public health shift from the existing models to the new ones it is essential that NOO adapts to these changes to continue to provide a useful service, so we welcome suggestions on these and other potential themes for our work.

We are always keen to receive feedback from users (and potential users) of our services, so please take a look at our website and feel free to contact us at info@noo.org.uk with comments, suggestions, or ideas.

Setting Out On The Research Road

For the last four years the National Obesity Forum has partnered with Weight Watchers to provide a research award to encourage people working in the obesity management front line to undertake research. Aimed at those who are new to research, a unique feature is access to an experienced research mentor, so the winner can call on practical help to get them over the hurdles which are natural to any research process.

The 2010 winner Tony Hirving received his award during the NOF conference from trustee Paul Sacher (see picture). Tony divides his time as a dietician between Guy’s and St Thomas’ NHS Foundation Trust, South London and Maudsley NHS Foundation Trust and his own consultancy. His proposed qualitative research will explore views on weight management amongst black males in Lambeth. The study grew from discussions with a colleague, who expressed a strong sense of dissatisfaction with the level of engagement during consultations with black male clients referred for weight loss by GPs. His colleague felt that something was ‘missing’ and wondered what that might be.

This prompted him to start thinking about what needs to happen to maximise the potential impact of interventions to help these men lose weight. A quick search of the literature revealed little. In reality very little research seems to have centred on this specific target group of overweight and obese patients. On top of this, the Department of Health’s own commissioned research entitled **Maximising the Appeal of Weight Management Services** reinforced the notion that ‘one size does not fit all’. In other words, when it comes to weight management services, specific approaches are needed for specific groups; it is unlikely that an intervention which works with white middle aged women in Surrey will be equally effective with black males in Lambeth. For Tony, this starting-point report suggested that it’s not just about tailoring the content or delivery of the

intervention – it’s also about tailoring methods of recruitment and channels of communication.

He will conduct a two-phase study. Initially the task is to find out more about the attitudes and belief systems around weight, health and body image amongst obese black males. Tony will target an inner city PCT (Lambeth) and use innovative channels (such as barbers, job centres, places of worship and bus depots) to connect with these men. He anticipates that recruitment and fieldwork will bring their own challenges. By his own admission he is new to qualitative research methods and has used some of the grant money to fund a couple of one:one training sessions oriented around his own research study. When the findings are known, the second stage is to apply these insights to design better weight loss services tailored to black males. He has just completed the application for ethics approval and is planning to get stuck into fieldwork early in 2011. Findings will start to emerge in July, ready for Tony to present at next year’s NOF conference.

The deadline for applications of the 2011 NOF/Weight Watchers Research Award is June 17 2011. You can download more information and an ‘easy to complete’ application form from NOF’s website. Or contact Anna Sperring on anna@nof.uk.com



Rugby-playing Dr Zoe Williams – familiar to millions in the guise of **Amazon** on the TV show *Gladiators* – wants to encourage girls to stick with sport. Here she takes issue over threats to sports funding and outlines her own programme – *SportsGirls* – aimed at spurring girls into greater activity.

“If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health.” *Hippocrates*

Views regarding both diet and exercise remain unchanged today, but there is now a multitude of evidence and research to support them, not to mention astonishing data revealing the enormous costs that poor diet and lack of physical activity impose.

Although there is increasing awareness that physical activity contributes to well being, and is essential for good health, according to the 2008 Health Survey for England, 94% of men and 96% of women do not even achieve the minimum recommendation of 30 minutes moderate exercise, five days a week.

For children and young people, a total of at least 60 minutes of moderate intensity physical activity each day is recommended. Unfortunately, the majority of children are not reaching the recommended targets set by the Department of Health either. >>>>



>>> Societal changes have influenced the likelihood of children achieving the recommended levels of activity. When I was a child we had the choice of the top field, the middle field and the bottom field, as we called them. Rain or shine we would be outside kicking a ball, or building assault courses and dens. Of those three fields, due to building of houses, now only one exists and is only a quarter of the size that it was, now that a nursing home had been built on it. Lack of outdoor space is just one of the barriers preventing physical activity. Nowadays it seems that many children lead comparatively solitary lives, with computers games and DVD's taking the place of real life adventures and networking applications such as 'Facebook' and 'Twitter' replacing actual contact with friends.

Schools and families have a joint responsibility to encourage children to obtain enough exercise, and more effort is required on both parts than ever before. And ensuring that children have a positive experience of sport and exercise whilst young is crucial in order to encourage them to stay active throughout childhood and later in life.

"Physical activity needs to be seen as an opportunity - for enjoyment, for improved vitality, for a sense of achievement, for fitness, for optimal weight, and - not least - for health. It needs to be seen as enjoyable, and as fun - not as unnecessary effort."

Professor Sir Liam Donaldson, Chief Medical Officer, Department of Health, 2004

Government targets state that schools are required to provide a minimum of two hours PE per week, for all children aged between 5-16. Since setting the target, there has been a dramatic increase in sports participation, thanks to increased government spending in the promotion of sport and exercise. In 2002 an estimated 25% of 5 to 16 year olds were doing 2 hours of PE per week. By 2008 it was estimated that over 90% were achieving the target and this figure continues to rise. Future targets outlined by the previous government were to improve further by aiming to offer all children aged 5 to 16 a minimum of 5 hours a week (two hours of compulsory PE in school hours and at least 3 hours extra-curricular).

Those who are active in sport throughout their childhood - the 'sports literate' (1) - are more likely to continue to participate throughout their lives. This has been supported by two comparative studies of (European) cross-country participation (2) and a USA based study, which found increased physical activity amongst women who had five PE sessions per week in the six years of elementary school. (1) *Rodgers B Rationalising Sports Policies; Sport in its Social Context: International Comparisons (1977)*. (2) *Ibid and Compass Sports Participation in Europe (1999)*.

I believe that it is important to ensure that ALL children, of differing shapes, sizes and abilities are able to gain a positive experience

of PE at school. Fundamental to making PE popular, attractive and varied have been the development of Specialist Sports Colleges and the role of School Sports Co-ordinators.

There was recent uproar when the new coalition government's impending cuts in PE spending, threatening the future of School Sports Co-ordinator programmes, which would undoubtedly pose a further challenge to the drive to get children active.

The Prime Minister voiced concern that despite the an increase in PE participation, the uptake of traditional competitive sports, such as hockey and rugby, have not shown the same trends. Mr. Cameron told MPs that only two out of five children were currently playing any competitive sport. The Youth Sports Trust's response was that the fall in the number of pupils taking part in sports such as netball and hockey was a result of schools offering a greater range of activities and the increasing popularity of sports such as golf, canoeing, cycling and tennis.

The Coalition appears to have backtracked on cutting the £162million school sports programme after facing a furious outcry from sports stars, celebrities and MPs, including 70 sporting figures, (including Olympic champions Denise Lewis and Tessa Sanderson and world champion diver Tom Daley) who accused the Coalition of wrecking grassroots sports in the UK and undermining the Olympic legacy. A final decision was awaited as Obesity Today went to press.

SUMMARY

- Sport, exercise and physical activity are crucial for well being and good health.
- A multitude of environmental and social factors limit the amount of exercise that young people get compared with past generations.
- Government, schools and parents are required to take an increasing responsibility to ensure that children are active.
- Government funding over the past 10 years has led to a more than significant increase in school sports and exercise participation, vastly through provisions for Community Sports Colleges and School Sports Co-ordinators.
- Government threats to make spending cuts in school sport have received a backlash of opposition.

Specialist Sports Colleges. These are secondary schools with a special focus on physical education and sport, which are funded to provide the lead in innovative practice and to work with partner secondary and primary schools to share good practice and raise standards. Evidence suggests that they are making progress in raising academic standards, and that they are improving whole school standards as well as contributing to the development of sport in their neighbouring schools and local community.

The School Sport Co-ordinators programme, linked with the roll-out of specialist sports colleges, is creating a national infrastructure for the delivery of PE and school sport in England, focusing initially on urban and rural areas of disadvantage. The programme has enhanced strategic planning, primary liaison, school to club links, the quality and quantity of opportunities for out of school hours activities, coaching and leadership, and whole-school improvement.

ONE PARTICULAR GROUP IN WHICH THE DEVELOPMENTS IN SCHOOL SPORT PARTICIPATION HAVE HAD A LESSER IMPACT IS TEENAGE GIRLS.



With increasing pressure from the media to look a certain way, girls' self-esteem is at an all time low. It may be expected that this would increase their motivation to be active, however, figures show that these individuals are often reluctant to change into sportswear and participate in PE or extracurricular sporting activities. A Sports England publication quoted that an average of 40% of girls drop out of sport by the time they are 18.

Sportsgirls is an initiative that is designed to tackle this issue. It comprises classroom based workshops and exercise sessions, which are delivered directly to the pupils, in school, by a sporting celebrity. Workshops are designed to educate, motivate and inspire teenage girls. I have piloted the scheme successfully in the North-East of England and hope to expand on a national scale to enable further research, education and to instigate change in the attitudes of teenage girls towards sport and physical activity. Data collated from workshops will be used for guiding schools in making changes to sports choices offered and suggestions for improvements to facilities in order to increase their participation rates. Links with local clubs, leisure facilities and sports teams will enable pupils to continue sport as school leavers.

Where they are not already, environments need to be structured to encourage skill development, fun, affiliation, excitement, success and fitness if long-term participation is to be achieved. There also needs to be a range of activities on offer including individual pursuits alongside more traditional team games. *Game Plan: A strategy for delivering government's sport and physical activity objectives (2002)*

"If girls are to get and stay involved in sport throughout their lives it is essential that they have a positive experience at school."

Liz McColgan MBE, Olympic and Commonwealth medalist

NOF celebrated its 10th Anniversary at its October conference in London. Here NOF trustee **Debbie Cook** opens her personal notebook to share some of the highlights.

AN AMAZING INNOVATIVE CONFERENCE BOUGHT TOGETHER PEOPLE PASSIONATE ABOUT IMPROVING OBESITY FROM A RICH VARIETY OF DISCIPLINES. NURSES, GPs, OBESITY SPECIALISTS, DIETICIANS AND PSYCHOLOGISTS ALL CONTRIBUTED TO MAKE THIS ONE OF OUR MOST SUCCESSFUL CONFERENCES.



Dr. Ian Campbell

Dr Ian Campbell MBE - *The founder and original NOF chair* reminded us that obesity is a legitimate chronic disease with serious health consequences and major risk factors for common causes of death. Obesity is no longer solely a medical problem, but has become a societal problem where blaming the patient is inappropriate and produces no positive outcome. The emphasis should be towards the delivery of constructive evidenced-based national weight loss programmes. The clarion call is for government, educationalists, food industry, the media and the NHS and health care professionals to really work effectively alongside each other, coupled with a more mature attitude from people learning to take more personal responsibility for their health.

Damien Edwards - *A refreshing and dynamic speaker* who burst onto the stage with his quick fire snapshot of how to deliver cognitive behavioural therapy (CBT) in a heartbeat. He illustrated how to unravel some of the problems faced by desperately challenged patients, where CBT helps by encouraging them to turn to view the 'quagmire' from a different perspective. The tougher their environment gets, the more some patients will reward themselves with food, and their personal belief system has to change. This lecture generated a buzz of excitement amongst the delegates.

John Laverty - *A Diabetes Specialist Nurse* who explained how we treat patients with a variety of medicines for a condition which they don't seem to have any symptoms from by giving them tablets which make them put on weight - no wonder compliance with diabetes medication is so poor! New insulin analogues can minimise the weight gain effect and exciting possibilities emerging. DPP4 inhibitors such as the new gliptins and the injectable incretin mimetics, Byetta (twice daily) and Victoza (daily) are the most promising drugs we have had for weight loss in diabetes for many years. Newer forms of these drugs are undergoing testing now.

Jane DeVile-Almond - The vice chair of NOF spoke of ways to reduce cardiovascular disease, switching the focus from seeing the sick to the 'not sick yet'. Preventing obesity and cardiovascular disease needs to be done by formalising the often chaotic current obesity services and by advocating the services of the best six doctors in the land - Sunshine, Water, Rest, Air, Exercise and Diet. And perhaps some bespoke services designed and run by the most important part of those services - the patients themselves.

Real solutions require true understanding of where people come from genetically, culturally and emotionally. Changing their mindset is vital as encouraging people to live longer when their lives are so desperate that they don't want to is nonsensical. Focusing on long term, achievable outcomes is the only way forward.

Dr Jen Logue - *A lecturer in Clinical Medicine in Glasgow* explained the similarities and differences between the SIGN and NICE guidelines, arguing we should integrate weight management with normal lifestyle management where effective programmes could produce enormous benefits. She urged the audience to highlight any very innovative services they are involved in, as a good evidence base is key to the development of new services.

Lesley Gray - *From the University of Otago, New Zealand* spoke on overweight and obesity in practice, reminding the conference that we do well with treating other addictive behaviours like smoking, drugs and alcohol, but why are we so bad at treating obesity? Public Health Specialists acknowledge that good communication between health care professionals and their patients can improve health outcomes, but either a lack of training or a general reluctance to get involved in this tricky, taboo subject, means that many

clinicians are very poor at tackling the problem. Videos of consultations demonstrated the gulf between some GPs and their patients. These extraordinary recordings start to lay the groundwork for improving doctor-patient contact.

2 Session 2- Pregnancy and Childhood Obesity

Dr Penny Law - *An obstetrician and NOF patron*, she acknowledged that obesity is a huge problem with one in five pregnancies involving obese women. With gestational diabetes - around 250 women a week come to the ante-natal clinic and 50 of these will have diabetes that will continue long after delivery. Obesity in pregnancy creates an abnormal metabolic environment leading an infant's susceptibility to obesity. Midwives should help in the battle against obesity, but key messages on reducing obesity in pregnancy need to be reinforced outside the medical arena if there is to be any impact.

Dr Carina Venter - The Infant and Toddler Forum offers a practical guide addressing the cycle of poor nutrition from parents to children. The key outcome for health and social care professionals is making children more healthy with a 10-step programme including:

- Eat together, make food attractive
- Eat the foods you want your toddler to eat
- Praise the toddler
- Never make the toddler eat everything on the plate
- Give right mix of foods
- Offer 2 courses at each meal

The fact that many toddlers are fed by someone other than their parent means these messages must be reinforced with carers to address the complex issues of infant nutrition

Professor Terry Wilkin - *see an article in this issue on The Earlybird Study (p20).*

Robert Pretlow MD - *The Director of Weigh2Rock* addressed the question: why are children overweight? He introduced the concept of an online weight loss system for teens and pre-teens which is used worldwide by clinics, schools and hospitals worldwide. Analyzing online postings from thousands of overweight kids showed that children do not need any more information - they are awash with it. Acknowledging the cravings and food addictive behaviour embedded in the lives of young people in today's instant gratification world goes some >>>

>>> way to understanding how to unravel this combination of displacement activity and comfort eating. As kids continue to utilise food to ease emotional distress, their overeating causes more pain. He advocated that weight loss programmes should incorporate substance abuse strategies and we should start to limit the exposure of kids to junk foods.

3 Session 3 -The Role Of Exercise

James Pate – *From the Center for Human Health and Performance at 76 Harley Street*, he spoke about Why Exercise Matters, outlining techniques of cardiopulmonary exercise testing applied to three main groups: the very sick, going for surgery, athletes and unfit adults. A large part of the work is applying the science of exercise to patients with metabolic syndrome and obesity in order to better manage their condition. Exercise matters because with individuals with a low level of activity, it can improve their risk of weight related disease.

Read about Dr Zoe Williams on SportsGirls and another on Villa Vitality in this issue.

4 Session 4 - The Role of the Food Industry

Dr Terry Maguire - He argued that pharmacists are very powerful community motivators. Empowering individuals with their own data remains a powerful tool in the fight against obesity while the principle of self efficacy and motivational interviewing skills employed by the pharmacists works to good effect. Other methods are:

- Diet and the use of the eat well plate
- Weight reduction and healthy diet principles
- Use the food guide pyramid
- Advocating a simple programme of 30 minutes exercise five times per week

Rob Rees – He spoke of the Schools Food Trust actions and the Let's Get Cooking programme, which trains volunteers over two days. There are 5000 volunteers who can pass on the skills to families, and working with young people in poor circumstances. With a 'can-do' attitude it is individuals who produce practical relevant meaningful changes.

Julian Hunt – *Speaking on behalf of the Food and Drink Federation on 'Stepping up to the Plate'*, he noted the strong UK debate about front of pack labelling to include clearer nutrition information. Only about 25% of consumers use labels when they are shopping. Working with industry to deliver tangible results - less salt, sugar and trans fats in food. - can only be achieved through collaborative working and funding and will not be an easy ride.

Nigel Jenny – *The chief executive of the Fresh Produce Consortium* noted 1.9 million families eat less than 1 portion of fruit and vegetables daily. The schools fruit and vegetable scheme only

costs less than 10p a day for each child yet with the governments major spending review this is under threat. As this is part of an overall strategy to change the eating and obesity habits of a nation, schemes such as this and Eat in Colour must be allowed to continue.

Professor Jack Winkler – He described as 'The Takeaway Snowball' the present efforts to restrict the proliferation of fast food vendors, which represent a dynamic social change movement encouraging not only consumers but also producers to do something about poor nutritional content. Once GP commissioning is fully operational, strategies to reduce childhood obesity must surely include not only institutes of obesity and weight loss clinics but also local takeaway foods reform.

5 Session 5 Bariatric Surgery

Fin McCaul - He outlined a programme for the morbidly obese delivered via local pharmacies based on Lipotrim, which helped reach patients who would not traditionally engage with these services. Other benefits include not only weight loss but diabetes remission, reduced hypertension and greater motivation. With no cost to the NHS, it was far cheaper than some other VLCD options. Most people seemed to manage the transition back to normal food fairly easily, but it is important to understand the emotional changes that are undergone.

Dr Martin Dresner – As a consultant anaesthetist at Leeds General Infirmary, he described the challenges of anaesthetics in the bariatric patient. An obese patient can experience rapid onset of hypoxia due to smaller lungs, a thick neck and large amounts of adipose tissue. With bariatric surgery the patient is now in a proper state of mind, a proper risk assessment has been done, and with better equipment and better trained staff. Operating tables have been reinforced and surgical cushions can be positioned so stomach contents do not drain into the lungs. It was a financial imperative to provide good drugs, anaesthetic tables, equipment and staff.

Mr David Kerrigan - Offering the bariatric surgeon's view of the economic case for surgery, he noted there was little to offer the obese patient in terms of medical management, and very little evidence base for their use at all in those with a BMI >50. Bariatric surgery will actually save money in the long term due to the sustainable benefits for patients, who reverse their diabetes and reduce their cardiovascular risk profile. There is no effective guideline for addressing the post-bariatric surgery needs and after weight loss, many patients are distressed by their surplus skin folds, which requires extensive body contouring.

Dr Carel le Roux - Discussing the question, Is surgery the answer to T2DM? he argued we must move away from being too 'glucocentric' in thinking about diabetes. With diet or drug induced weight loss, there does not appear to be a

sustainable mortality benefit. Surgery immediately reduces post-prandial hyperglycaemia and fasting GLP-1, with an immediate reduction in insulin resistance. Only surgery can take people from insulin at 80 units a day to no insulin within 3 days. But surgery has not been shown to reverse all the complications of diabetes. Bariatric surgery could remove the shackle of multiple daily injections and polypharmacy, making patients more functional.

Richard Welbourne - The bariatric surgeon and the patient must consider the alternatives - lap band, gastric bypass and other procedures. Most patients choose a bypass operation, but face medical and surgical care for a lifetime, although the real risk of malnourishment with a gastric bypass is very low. This surgery is not about making people thin, but making them well, and people who have bariatric surgery should also have open access to body contouring surgery.

Harry Rutter - See full article on the National Obesity Observatory in this issue (p12-13).

Rachel Casey - Pet Obesity is becoming more common, but it is to acknowledge the role that pets play in our lives. Encouraging healthy diets and exercise in our pets can often help with human weight loss.

Dr John Searle OBE - Addressing the Importance of physical activity, he noted there is an astonishing amount of ignorance, and anxiety and fear are powerful motivators. We need to widen the focus solely from weight loss towards the health and fitness. With a comprehensive assessment of a person's health of activity levels, exercise can be planned and gradually built up. Monitoring is important keeping in touch with patients via email or fax. This is personalised, individual and sadly expensive, but very appealing to many members of the public.



Dr Carel le Roux



Jane DeVille-Almond and James Pate

Childhood Obesity

Terence Wilkin MD and Linda Voss PhD
Peninsula Medical School, UK

THE EARLYBIRD STUDY IS MONITORING THE METABOLIC HEALTH OF CONTEMPORARY CHILDREN, AND ASKS THE QUESTION WHICH CHILDREN BECOME INSULIN RESISTANT, AND WHY?

Objective measures of body composition (DEXA), physical activity (accelerometers) energy expenditure (GEM) are combined annually with fasting blood samples to understand the trends and interactions that lead towards insulin resistance and diabetes risk. Until recently, much of 'wisdom' in the field of obesity was based on belief and assumption, rather than rigorous evidence. The EarlyBird study is trying to establish evidence, and some of what has emerged is challenging established belief.

There seem to be three questions of key importance – who, when and why? Which children are at risk of obesity, when is the trajectory set, and what are the mechanisms responsible?

The energy equation is incontrovertible, but its application to the prevention of obesity may not be straightforward. It is difficult to influence or even know what school children consume, because they are out of sight for most of the day, and self-report in children is unreliable.

Any attempt to modify physical activity must first ask what controls it? The 'environmental' answer would point to availability of open spaces, access to sports clubs, allocation of time to physical education (PE) at school, etc. The response is intuitive, and satisfies the widely-held, though little tested, assumption that opportunity and activity are linked. Given the same question, the biologist might take a different view. Throughout evolution, maintenance of body mass has been a survival pressure, and the 'biological' answer would likely regard central control of energy expenditure as fundamental to the preservation of body mass. Would nature leave the one modifiable component of energy expenditure to chance?

EarlyBird is a prospective cohort study of healthy children from the age of five years, which set out 10 years ago to address the three questions¹. It finds, counter-intuitively, that the average pre-pubertal child is no heavier now than he or she was 20-25 years ago when the children who contributed to the 1990 UK growth standards were measured. The mean BMI of children has risen substantially, but the median very little, suggesting that a sub-group of children has skewed the distribution but not altered its position².

Who are these children? New data suggest that the rise in childhood obesity over the past 25 years largely involves the daughters of obese mothers and the sons of obese fathers – but not the reverse². The daughters of obese mothers have a 10-fold greater risk of obesity, and the sons of obese fathers six-fold, but parental

Pointers from the EarlyBird Study

obesity does not influence the BMI of the opposite-sex child. Being non-Mendelian, this gender-assortative pattern of transmission is more likely to be behavioural than genetic. It is well established by the age of 5 years, but unaffected by birth weight.

The observation is important, because it may turn the causality of childhood obesity on its head. A large amount of money and effort has been directed at children in the belief that the prevention of childhood obesity would reduce adult obesity. Up to 80% of obese adults, however, were not obese as children, whereas a high proportion of obese children are the offspring of overweight/obese adults. Childhood obesity seems to be a feed-backward effect of obese parents, rather than a feed-forward effect of an obesogenic environment. Obese parents seem to be 're-cycling' their obesity, perhaps because of fundamental errors in feeding behaviours. Maybe the focus of childhood obesity prevention should be on parents-to-be.

When does childhood obesity begin? Trajectories are crucial, because they appear to be set early in life. Thus more than 90% of the excess weight gained by girls before puberty (and more than 70% for boys) is gained before the age of five³. This observation is consistent with the gender-assortative data, suggesting that body weight trajectories are set early in life, before school age. Importantly, the factors popularly associated with childhood obesity – poor school meals, lack of playing fields, insufficient PE at school, too much screen watching – appear to have little impact, at least at primary school age.

How many obesity epidemics are there? The mother-daughter and father-son associations noted earlier, which are strong among young children, appear to break up with puberty. The prevalence of childhood obesity continues to rise with age, but the population of children who contribute to it changes, implying that new factors may be at work as children gain independence from their parents.

Is inactivity the cause of overweight, or does obesity lead to inactivity? An inverse relationship between BMI and physical activity is widely reported, almost always on the basis of cross-sectional data, and interpreted to mean that inactivity leads to obesity. However, cross-sectional association cannot be used to conclude direction of causality, so EarlyBird used the law of temporality to infer direction of causality from longitudinal analysis⁴. We found no evidence that physical inactivity precedes obesity, but good evidence that obesity precedes inactivity. The

implications seem clear – strategies aimed at increasing physical activity, even if they achieved the increase, are unlikely to reduce BMI. On the other hand, if children were induced to lose weight, they might tolerate more physical activity. As a footnote, EarlyBird shows a relationship between physical activity and fatness cross-sectionally (as do others), but not longitudinally. Children who consistently meet the Government guidelines for physical activity over time are no slimmer than those who do not. BMI is widely used as an outcome measure in physical activity interventions, but the two are unrelated longitudinally.

Can the activity of children be changed? Intervention studies unable to increase the activity of children sufficiently to reduce their BMI have tended to conclude that the intervention was simply not enough⁵. EarlyBird wondered whether, instead, the physical activity of children might not be responsive to intervention, and examined the impact of a five-fold (highly measurable) difference in PE on the activity that children recorded in and out of school. Concerned to get it right, and to control for variation in rainfall, daylight hours etc, it repeated measurements on the same cohort of over 200 children four times throughout the school year⁶. While the PE-intense children recorded a whopping 40% more activity during school hours, they recorded correspondingly less out of school, such that the totals over the course of the whole day were the same in all groups, irrespective of opportunity. This compensatory response suggests to us that the physical activity of children may be controlled by the brain, rather than the environment, and that children compensate accordingly. The range of activity in children seems to represent a range of set-points rather than a range of environments.

While the body mass of children who meet the Government guidelines for physical activity may be no different from the BMI of those who do not, our conclusions would predict that their metabolic health should be better. And this has proved to be the case. The BMI of children who exercise more than 60 minutes per day is no different, but their metabolic risk is substantially less⁷.

Calorie intake is notoriously difficult to measure in free-living children of school age. We have used detailed food choice questionnaires and principal components analysis to demonstrate clear, if modest, differences in food choices which associate with metabolic risk. Large differences are not needed if the effect is cumulative over time. >>>

>>> A picture is emerging from the EarlyBird Study to suggest that weight gain trajectories are set early in life, perhaps very early, by some behavioural sympathy between obese parents and their same-sex offspring. The trajectory appears to be established by 5 years and retained – at least until puberty. The most likely cause of such weight gain seems to be over-nutrition, insofar as physical activity is unstructured before 5 years, and attempts to structure it thereafter may be unsuccessful because an ‘activitystat’ operates to defend the child’s activity set-point. The most important concern is that early behaviours – and weight trajectories – may become ‘hard-wired’ into to the child’s pattern of development. Early excess programmes future expectation which may be hard to alter. Physical inactivity does not lead to obesity, but rather obesity to inactivity, suggesting again that the primary cause of childhood obesity is overnutrition, and implying that weight loss might of itself lead to more activity and better metabolic health.

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MANAGEMENT PROGRAMME IS
UNDER TRIAL.



Patients with a BMI of 45 or more are referred by their GPs to Live Well to aim to attain adequate, clinically beneficial, weight loss prior to considering bariatric surgery as a treatment option.

Live Well is a 26 week personalised programme taking into account a patient’s BMI, health status, lifestyle and personal preferences. It provides support to reduce calorie intake, develop sustainable physical activity, reduce sedentary behaviour and address psychological relationships with food. It does this by providing education and advice around nutrition, diet, exercise, fitness and body image, and raising the status of the social and psychological triggers of unhealthy eating and lifestyle by viewing obesity as a behavioural problem.

NICE guidelines emphasise how difficult it is to make lifestyle changes, particularly when attempting to lose or manage weight. Live Well uses a stages of change model to examine a patient’s readiness and motivation to change. The programme addresses the various stages and the likelihood of a patient considering, initiating, and maintaining those changes. At Live Well patients have a personal fitness instructor trained in motivational interviewing, physical activity, and nutrition and weight management. Live Well combines skills, techniques and a ‘way of being’ that inspires rapport, builds trusting relationships, offers emotional support to the patient, and

reassures the patient that they can make the changes.

Patients attend an hour-long weekly one-to-one session to discuss their calorie intake for the previous week with the aid of a food diary. In addition to this the fitness instructor will assess how they are coping with raising their levels of physical activity and offer new ways to increase their exercise. These sessions are offered to patients at a location of their choice, which could be a leisure centre, community centre, village hall or their own home. The fitness instructor maintains contact with the patient throughout the programme; this is agreed with the patient on their first session and can take any format including email, text, telephone or social networking. This constant contact ensures they are able to provide support and encouragement to the patient, which can and does make all the difference when a patient is struggling with any aspect of the programme.


As well as these sessions, patients receive a free Sure Card providing access to any leisure facility, ensuring they can increase their level of fitness and physical activity at a time to suit their lifestyle. In addition, a buddy scheme entitles them to receive a second card for a friend, relative or carer who can then attend the sessions with them; attending a leisure facility when a person is obese can be daunting, having a buddy to go with can make all the difference between attending and not attending.

Throughout the programme, the patient’s GP receives regular feedback on their progress and if, at any time, there is any indication that the patient’s health is suffering they are referred to their GP. At the end of the 26 weeks, patients are sign-posted to further programmes, such as Walking 4 Health. They also receive follow-up calls from their fitness instructor on a three-monthly basis to maintain the support and encouragement to keep going on their weight management journey. Since August 2010, when Live Well started, 72 patients have enrolled onto the programme. Each of these patients is at a different stage – some have been attending for four months whilst others are in their first week. Early results show an average weight loss of between 1 - 2kg per week in line with NICE Guidelines. Whilst initial results are encouraging, we are aware that Live Well is still in its infancy and robust evaluation is underway to identify both successes and challenges of the programme. Preliminary results will be available in the spring.

Dawn Branton, Public Health Obesity Lead, NHS East Riding of Yorkshire

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Seriously overweight patients end up in hospital for many reasons and there were more than 103,000 hospital episodes involving obesity last year. Here Dr Kathryn Harrison contemplates the house doctor's dilemma – what is the correct dose for an obese patient?

SINCE STARTING WORK ON THE WARDS, I HAVE FOUND THAT SAFE AND APPROPRIATE PRESCRIBING IS ONE OF THE FUNDAMENTAL ROLES OF THE HOUSE OFFICER. IN MANY CASES THIS IS USUALLY STRAIGHT FORWARD, BUT AN AREA THAT IS MORE CHALLENGING IS ADJUSTING DOSES APPROPRIATELY FOR DIFFERENT PATIENT GROUPS, PARTICULARLY THE OBESE.

From my experience so far as a foundation doctor, this has most often been the case when prescribing prophylactic enoxaparin for hospital inpatients where a whole host of factors come into play to determine whether a patient should receive 20mg or 40mg. For the overweight and obese patient group, the prescribing challenges I have encountered often relate to antibiotics. Let's take the aminoglycoside, gentamicin, for example.

Gentamicin has a broad spectrum of activity and is used in the management of a host of intra-abdominal, respiratory and urinary tract infections, particularly those caused by Gram-negative organisms¹. These affect most patient groups on a near-daily basis. Despite its advantages, the associated risks of damage to hearing (ototoxicity) and kidney function (nephrotoxicity) are well-known drawbacks of its use and patients need to be monitored during treatment. Gentamicin is normally dosed based on the patient's weight (see below) and given its risk of serious side effects (which are dose-related) its use in obese and overweight patients has been widely researched².

Gentamicin is poorly absorbed from the gut and must be given intravenously¹. Providing there are no contraindications, once-daily administration of gentamicin is recommended to minimise the risk of nephrotoxicity and allow serum levels to be monitored before subsequent doses are given¹. The appropriate once-daily dose is calculated according to the patient's body weight; usually 5mg/kg up to a maximum of 500mg, given as an intravenous infusion. In the elderly or those with poor renal function, this is reduced to a dose of 3mg/kg to minimise the risk of toxicity¹. Serum levels should then be monitored in accordance with local hospital guidelines before subsequent doses are given¹. Gentamicin has a narrow therapeutic range; that is to say that the level

required to ensure therapeutic benefit is only slightly lower than that which can cause toxicity and as such appropriate dosing is crucial. To prevent adverse effects, a course should not exceed seven days¹.

Using the patient's weight to determine the appropriate dose also applies for overweight and obese patients, but important adjustments need to be made to the usual dosing regimen for patients who weigh >20% more than their 'ideal body weight' (IBW)³. IBW is perhaps something of a misnomer as there is a range of weight that would be healthy for that person based on their height. However it is useful for the purposes of calculating the appropriate dose of gentamicin.

Adjusting doses for overweight patients is necessary to account for the physiological changes associated with obesity such as organ hypertrophy and increased blood volume⁴ – all factors which can alter the pharmacokinetics of the aminoglycosides including the variable volume of distribution at a steady state (V_{ss}), which estimates drug distribution within the body. V_{ss} is useful in predicting serum drug concentrations following multiple doses, but these particular antibiotics have a poor and often variable distribution into fat or adipose tissue, making the V_{ss} of the drug difficult to estimate in this patient group from total body weight alone.

It may surprise some working in the obesity field to know that the rather imperfect concept of ideal body weight is still in use. An accepted method of estimating the V_{ss} involves calculating the patient's ideal body weight (IBW) and combining this with a fraction of his or her excess weight (40% is widely accepted) to find the dose determining weight (DDW) – see Table 1³. The figure of 40% accounts for the proportion of adipose tissue that consists of water and therefore contributes to the volume of distribution of the aminoglycosides and is known as the 'dosing weight correction factor'⁵. This in turn will affect the serum concentration and therefore the therapeutic effect/toxicity.

The dosing interval does not need to be altered in overweight and obese patients because gentamicin is excreted by the kidneys via glomerular filtration and clearance tends to increase in this group⁵. This is counterbalanced by the increase in the volume of distribution⁵ so the elimination rate of aminoglycosides is similar to that in patients of a healthy weight. In short, to

dose gentamicin on total body weight alone (not accounting for the proportion of adipose tissue) would overshoot the appropriate dose and risk toxicity in overweight and obese patients whilst prolonging the dosing interval would cause the opposite, resulting in subtherapeutic levels.

Gentamicin is a widely used and valuable aid in the management of serious infection but it does have its disadvantages, particularly at incorrect dosages. Doctors should be aware of the need for careful titration to ensure efficacious and safe use of some drugs among obese patients.

Table 1:

Calculating the dose-determining weight (DDW)³

1. Calculate ideal body weight (IBW) (kg)
 - IBW for males = 50 + (2.3 x (height in inches - 60))
 - IBW for females = 45 + (2.3 x (height in inches - 60))
2. Calculate dose determining weight (DDW) (kg):
 - DDW = IBW + 0.4 (actual body weight (kg) - IBW)

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Food Addiction: Could we learn from 12-step programmes and help patients maintain weight loss in the long-term?

Dr Alice Neal



SEVERELY OBESE PEOPLE, ENDURING SOME HORRIFIC PHYSICAL, MENTAL AND EMOTIONAL CONSEQUENCES OF THEIR OBESITY, SURELY MUST BE ADDICTED TO FOOD.

Drug addicts and food addicts continue to use greater amounts despite strong evidence that this is increasingly harmful to them and their loved ones. Addiction is historically a very difficult condition to treat medically and change on the part of the patient can require gargantuan efforts. This kind of effort requires specific, frequent and long-term support, and this principle applies to some post surgical bariatric patients in whom the disease of addiction remains.

The concept of food addiction has been well studied and published research is prolific. Recently researchers at Yale have been developing a Food Addiction Scale to facilitate research. Could there be enough evidence already to proceed with education about the symptoms and management of food addiction? Symptoms such as tolerance, withdrawal, craving, and negative life consequences are present in food addiction as well as drug abuse. The same neural pathways in the brain are involved.

At the 2010 NOF Conference, Dr Robert Pretlow, director of Weigh2Rock, reported that nearly all of the 30,000 overweight children who posted on his website, fulfilled the DSM-IV addiction criteria, but in relation to food not drugs. He argued that acknowledging food addiction in children may improve treatment. Dr Penelope Law in her moving lecture on obesity in pregnancy asked that more work is done to understand food addiction.

Terms such as 'substance abuse', addiction', 'binge eating disorder', or 'compulsive overeating' are used interchangeably and inconsistently in the scientific literature, and even on websites such as NHS Choices. Of these 'compulsive overeating' is the best understood. In the ICD-10 or the DSM-IV, the terminology can seem to have little practical relationship to the presenting morbidly obese patient. He may be as bewildered as his physician about why he cannot stop overeating despite the terrible physical, social and emotional consequences of his 'food abuse'.

In his article Obesity: a Medical History, Professor David Haslam ominously states: "The history of obesity is a history of failure", concluding: "Instead of spending precious resources inventing novel scientific gadgets, the works of our forefathers should be revisited, and the simple lessons learned from history used once again to prioritize the preservation of health."

Twelve-step organisations such as Alcoholics Anonymous (AA) and Overeaters Anonymous (OA) produce their own very interesting and worthwhile membership surveys (Overeaters Anonymous, 2010). The most significant and influential study was Project Match (1997). More recently a qualitative study has been published on OA (Russell-Mayhew et al), and a paper on the experiences of medical students in New Zealand (Schroder, Sellman & Elmslie, 2010).

Max's story

Max is a recovering alcoholic and drug addict with 10 years of continuous recovery through AA. He also suffered from morbid obesity and had a BMI of 52 whilst in recovery, weighing 165kg. He elected to pay privately for Roux-en-Y gastric bypass surgery. Fifteen months later, he now weighs 85 kg and has a BMI of 27

Max estimated that 75% of the 50 patients he met while he underwent bariatric surgery treatment were addicts like himself (though not in recovery and quite likely unaware of their disease). If he had tried to aggressively treat his obesity any sooner in his recovery from drug and alcohol addiction, he feels he would have relapsed on drugs (including alcohol) with fatal consequences. This illustrates that some knowledge of addiction is important to all health professionals so as not to unintentionally initiate treatment in an addict which could cause relapse in other areas.

Max observed that alcohol misuse and/or weight regain were common following bariatric surgery, and understood in by recovering addicts as addiction transfer. He understood from involvement with AA, the need for contemporary support and so he choose to "buddy up" with another bariatric patient at the surgical unit and this valuable therapeutic relationship continues today. Max also has gained significant skills and close relationships from his AA, that enable him to maintain healthy eating behaviours - hopefully for his lifetime. This case is an argument for introducing patients to 12-step community groups such as OA, so they have access to the experience, education, and self awareness used by other recovering addicts to prevent relapse and maintain recovery in the long-term. Other 12-step fellowships are available (CODA for example) and may be even better suited to the obese patient whilst still offering a level of support and encouragement rarely seen elsewhere.

Could we look to the experience of addicts who have managed to maintain long-term recovery via 12-step groups, for some complementary solutions to food addiction? The concept of treating obese food addicts with a combination of diet, exercise, counselling and introduction to 12-step programmes, is not new either and private treatment centres such as Lifeworks in Surrey provide this. Unlike their private counterparts, health professionals working for the NHS often do not have sufficient education about and experience of 12-step recovery, despite each organisation having literature, PI representatives and open meetings that are nationally available to all (Schroder et al). Surely we can learn something from the numerous real examples of remarkable and stable long-term recovery from addiction that are available to us? It is recommended to attend a few 12-step meetings before dismissing them out of hand.

Twelve step recovery from addiction does not depend on changing the outside environment or attempts to change the people in the addicts' lives. The focus is on changing the individuals' response to and perceptions of their environment, and providing positive alternative coping

strategies which includes the support of fellow addicts. (Within AA, the letters are said to also stand for 'altered attitudes'). The goal is to facilitate significant change within the psyche of the addict that leads to the removal of the desire to use harmful substances or behaviours compulsively, and this is often achieved. Cognitive behavioural therapy, self monitoring, cognitive restructuring, neurolinguistic programming, talk therapy, relaxation techniques, relapse prevention and stimulus control - will all be observed in a basic, effective form in 12-step groups.

These groups can provide a very high level of personal support and frequent, regular sessions over a lifetime and are available 24 hours a day either face to face or online, which is particularly useful for patients who are presently immobile. Time is freely given by one recovering addict to another and the giving (and receiving) of personal time and attention is a key therapeutic tool of 12 step addiction recovery. This works well by increasing self esteem and reducing tendencies to become isolated. Recovery is strongly reinforced by working with others who are struggling with overcoming a formerly irresistible compulsion to repeat harmful behaviours - "The Helper Therapy Principle". (Roman et al)

It is unlikely that patients become morbidly obese without having long standing psychological issues. They need a significant level of long-term support provided by the State, community groups or privately. We do not yet provide the frequency and duration of support needed for morbidly obese patients to maintain significant weight loss. Let's look at what 12 step treatment and community groups can offer suitable patients, and also what can be learned from them.

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Villa Vitality is a joint project originally created in 2005 by Heart of Birmingham teaching Primary Care Trust (HoBtPCT) with Aston Villa Football Club (AVFC) in response to concerns over increasing levels of overweight and obesity in children. The Villa Vitality programme is one of the biggest childhood obesity prevention initiatives in Birmingham and initially consisted of a one day programme that offered year 5 and 6 children the opportunity to visit AVFC to learn about healthy eating and take part in a physical activity session.

And a significant decrease in:

- the number of fizzy drinks consumed

Altogether 88.5% of children reported they had made lifestyle changes as a result of the 6 week programme, with 81.5% of children intending to continue with their lifestyle changes.

Some examples of the healthy lifestyle changes the children intended to continue are:

'For a lot of the boys it totally changed their perception of the kitchen'

'It is educational and we were able to carry this through to science'

It is clear from the evaluations findings that pupils took away positive, comprehensive and rational health messages around diet, nutrition and physical activity. Teachers have also provided positive feedback on the programme and resources.

Villa Vitality Programme helps 18,000 Birmingham children aim for healthy goals



In summer 2008 HoBtPCT and Birmingham East and North PCT successfully secured £500k of funding from the Premier League to continue the project for another three years. As a result, the Villa Vitality programme was re-designed and had developed into a six week programme that offers year 5 children a unique and exciting opportunity to develop their understanding of the importance of eating a healthy, balanced diet and undertaking physical activity, by taking the teaching out of a classroom environment and into the inspirational setting of a football club. The programme aims to motivate children across Birmingham to lead healthy lifestyles and ensures that educating children of the importance of adopting a healthy lifestyle is included within the National Curriculum. Since 2005, over 18,000 children have taken part in the Villa Vitality programme.

Children visit Aston Villa Football Club on two non-consecutive days over a 6 week period. Up to 180 children visit Villa Park each week. During the two visits to Villa Vitality, the children get the opportunity to train on the Aston Villa astro turf, cook in the community kitchen, use an ICE youth gym, take part in an interactive nutrition workshop and film their school project in the film studio. In addition during the 6 week programme coaching staff from the football club visit the school once. A member of the team will also visit each school prior to the programme and after the football club visits to reinforce the healthy lifestyle messages.

The Villa Vitality programme evaluation assesses changes in knowledge, attitude and behaviour between base-line, 6 weeks and 3 month follow up. Semi-structured interviews were also carried out with children and teachers. For the academic year 2009/2010 the evaluation showed:

A significant increase in:

- health knowledge
- the number of portions of fruit consumed a day
- the number of children eating 5 a day
- the number of days a week children take part in sport

'I am going to keep on doing 60 minutes of exercise by going to the park and playing sports after school and at the weekend with my friends and family'

'The last challenge (cooking a healthy meal with your family) because we spent it with our family.'

'I will drink water 8 times a day, to make my skin moisturised and healthy looking.'

Feedback from the teachers showed that they found the programme very valuable:

'Since this terms visit the children have become more conscious of what they eat'

'The teacher resource facilitates much of the national curriculum and was a lot more practical, very user friendly'

'The projects and challenges made them put into practice what they had been taught and the children also got to try news things that they have never had the opportunity to do before'

'They think that if all the famous footballers are into health that it's cool for them to be too'

'Overall the children absolutely loved it, they were talking about it for weeks'

As a result of Villa Vitality, a number of other opportunities have arisen to add value to the programme and the local community, including a children's ICE gym, a community film studio, a community kitchen, a dance studio and providing allotment space and support for local schools.

Villa Vitality fulfils it's objectives of providing an innovative way to promote health messages and inform and motivate children to make healthy choices. From the changes reported in knowledge, attitude and behaviour to the pupils and teachers feedback it is clear that the initiative has used effective methods with which to educate children, and the use of football as a vehicle to put across these messages has proven to be an effective and motivational tool.

Sarah Mills, Commissioning and Development Manager Nutrition, Tackling Obesity Team, Heart of Birmingham PCT
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