Scoping the economic case for the 'Health Behaviour Change' Competence Framework

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centre for health and social care research

This Report is written in the following context:

This reports presents the results of a scoping exercise for the 'Health Behaviour Change' Competence Framework. The report was commissioned by the NHS Yorkshire and Humber and developed in 2010 by researchers from Sheffield Hallam University.

The researchers have worked closely with the Yorkshire and Humber SHA to ensure the external validation of the results of the exercise.

This report was prepared to scope the potential economic benefits of the 'Make Every Contact Count' programme and the ways in which conveying consistent, positive health messages by the NHS staff to people who come into contact with the NHS could contribute towards improvement in health outcomes and reductions in health care expenditures.

The report comprises a review of existing research, bringing together various sources of evidence and an innovative approach to evaluating cost-effectiveness of the 'Make Every Contact Count' intervention.

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Foreword

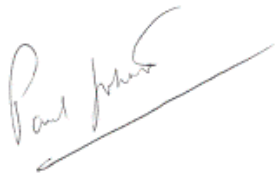
Demand for healthcare is rising steadily in the UK. The more successful we are at prolonging life, the greater the residual burden of disease in a population.

A huge raft of evidence from the "Wanless Report" to "NICE Guidance" is pointing to the importance of a focus on lifestyle behaviour change as the most effective force for reducing future demand for healthcare.

The "Making Every Contact Counts" initiative is a simple idea showing potentially, how the massive resources of the NHS can be marshalled at marginal or no cost to help in this movement. The emphasis of the programme is not about telling people how to live but rather ensuring that their choices are at least informed.

By encouraging and enabling all front line staff to 'make every contact count', optimising the thousands of service contacts every day, will enable the staying healthy messages to be transmitted.

The recommendations in the report provide a challenge to public health and all services to work across organisational and service boundaries and make a difference to reduce costs and benefit patients and their communities.



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1.0. Executive Summary

The problem with innovative initiatives at the leading edge of policy is that there is rarely an existing evidence base, particularly in relation to their cost effectiveness. The lack of evidence base on cost-effectiveness does not indicate that interventions do not bring significant economic benefits or that they do not work. Rather, it indicates that interventions have not yet been tried or evaluated, and, as a consequence, have not yet been proven cost effective.

The impact of the Health Behaviour Change - Competence Framework (presented under the banner "Make Every Contact Count") on a population health status is potentially enormous. The Framework presents the notion that the NHS is well placed to use its workforce in a more co-ordinated way in order to influence the increase of health literacy and potentially influence the lifestyle of the thousands of people who come into contact with the NHS every day. It is intended that this influence will be achieved, in the main, through the provision of information and support for individuals who choose to protect and improve their health. Further impact could be made with higher level interventions for some individuals through the application of more sophisticated motivational and behaviour change techniques in addition to knowledge and information.

Clearly it is possible to influence people's behaviour through the provision of information and consistent messages. Advertisers and marketing people do it every day. Linking a sustained change in a person's lifestyle (and subsequent health status) with a contact or series of contacts with NHS staff over a period of time, however, gives rise to a potentially infinite number of confounding variables. It is unlikely, therefore that studies demonstrating the cause and effect in this project will ever produce a statistically valid correlation. The economic case for this initiative will therefore always rely on a series of assumptions that a particular level of intervention can influence a person's behaviour in terms of diet, exercise, smoking, alcohol intake, sexual practices etc., which then leads to a reduction in the risk of developing a disease or slowing its progression or impact.

If, however, we think of behaviour change beyond the area of healthier lifestyles and include the behaviours and choices that influence the ways in which individuals and groups access and utilise NHS services, then the economic impact of the intervention could be much more immediate and measurable. This current report makes it clear that the programme could bring widespread benefits in line with the NHS QIPP agenda, if NHS staff could encourage people to change their attitudes and behaviours with regard to the access and use of NHS services in addition to lifestyle changes.

An analogy was used at a recent conference Making Every Contact Count 2010 on the 25th of February at Doncaster Race course. A comparison was made between sales made by Marks & Spencer and John Lewis stores over the Christmas period (Dec 09). The comparison revealed that John Lewis was more successful in selling their products than Marks & Spencer. It was felt that this improved performances arose because John Lewis staff were more convinced of the high quality of their products and were keen to engage customers entering their stores by providing them with any information or assistance they needed to make informed choices. In other words the staff at John Lewis were pro-active in shaping the behaviour and choices of customers.

Clearly, such a strategy can only work if staff know what the store sells and where it is located. More specialist staff who understand how products work and the advantages / disadvantages of different products can further enhance the experience.

If this concept were transferred to the NHS, then it would be essential that all staff were equipped with the service knowledge and skills necessary to ensure that patients know; what services are available; how to access and use them for maximum results and the simple steps that people can take to protect their health and improve their quality of life. In order to examine current "NHS staff" levels of competencies in providing information about their services, a simple experiment was carried out. Eight members of a local Primary Care Trust (PCT) (working in different positions), were asked how a person could access the smoking cessation service. One member of staff was able to give a phone number, two suggested looking on the PCT web site and five had no idea.

The Health Behaviour Change - Competence Framework is seeking to embed the idea of signposting, guidance on service access and use into the core training of all staff with additional training for people able to engage in more complex interventions at different levels from simple health advice to complex motivational and behaviour techniques. Will it be cost effective? The short answer is that we don't yet know.

If NHS staff engage in these activities as a part of their normal working patterns then the costs will be minimal, in the same way that the cost of a John Lewis shop assistant is likely to be similar to that of a Marks & Spencer shop assistant. (It's not what they do it's the way that they do it) In contrast, if they engage in this signposting function instead of their current working practice (which is not the intention) then costs would spiral quickly.

In terms of benefits the impact again is difficult to quantify. For some people information and signposting from health staff may fundamentally transform the course of their life, for others it may be of transient benefit and even an irritant.

Cost effectiveness - summary

Evidence relating to the impact of behaviour change is substantial, although it has not yet been applied in this context.

Cost - The cost of this programme has yet to be determined. There is likely to be an initial non-recurrent training cost, as existing staff are given the knowledge, skills, tools and techniques at level one to sign post people coming into contact with the NHS. This will enable signposting to resources which will help them adopt healthier lifestyles or improve the efficiency in which they engage with services in the NHS.

The training for staff at the lower levels of competency will probably be short and inexpensive but could be applied to a large volume of staff. Training at the higher level competencies in the use of skills and techniques to change behaviour will be more extensive and costly but will be applied to much lower number of staff.

The implementation of the programme at the lower levels of competency development will probably be cost neutral. The expectation is that staff will inform patients about health improvement resources or more efficient / effective utilisation of services as part of the normal dialogue in any contact.

Higher level competencies, aimed at shaping rather than just informing the behaviour during contacts, will have resource implications in that NHS staff will be doing this instead of the functions they would normally be carrying out. Much of this resource may be released by simply re-engineering normal working practices.

Until the parameters of the cost of different levels of training and the numbers of people to whom it will be applied are known, and the extent to which the higher level competencies when used to deliver behaviour change add to the cost of services is known, it will not possible to estimate the cost of the programme.

Benefits - Intuitively if the NHS can marshal its resources to encourage positive life style changes in areas like smoking cessation, diet change, increased, physical activity, sexual health, binge drinking etc then the impact on future demand for health care could be huge. This is the premise underpinning the "Wanless" assumptions for the future cost of the NHS and has been demonstrated in numerous policy documents. Although there is a general assumption that the impact of lifestyle changes occur gradually over a lifetime there is growing evidence that significant impact can be felt over a period of say five years.

Similarly the greatest single challenge for PCT's is the inappropriate utilisation of healthcare services by patients seeking care. Many ailments seen by GP's could be appropriately dealt with by local chemists. Many attendances at A&E could be dealt with by local chemists, GP's or minor injury units. Many hospital admissions of people with long term conditions could be avoided through better self management of conditions by the patient or carer. The progression of many diseases could be delayed or halted if people took medications appropriately etc.

If the every contact counts principle were applied to modifying the behaviour of people accessing services or indeed staff referral procedures then the impact on the efficiency and effectiveness of healthcare delivery could be both enormous and immediate.

Evaluative framework

Figure 1, overleaf sets out a simple evaluative framework that could be used to test out a pilot of the every contact counts programme.

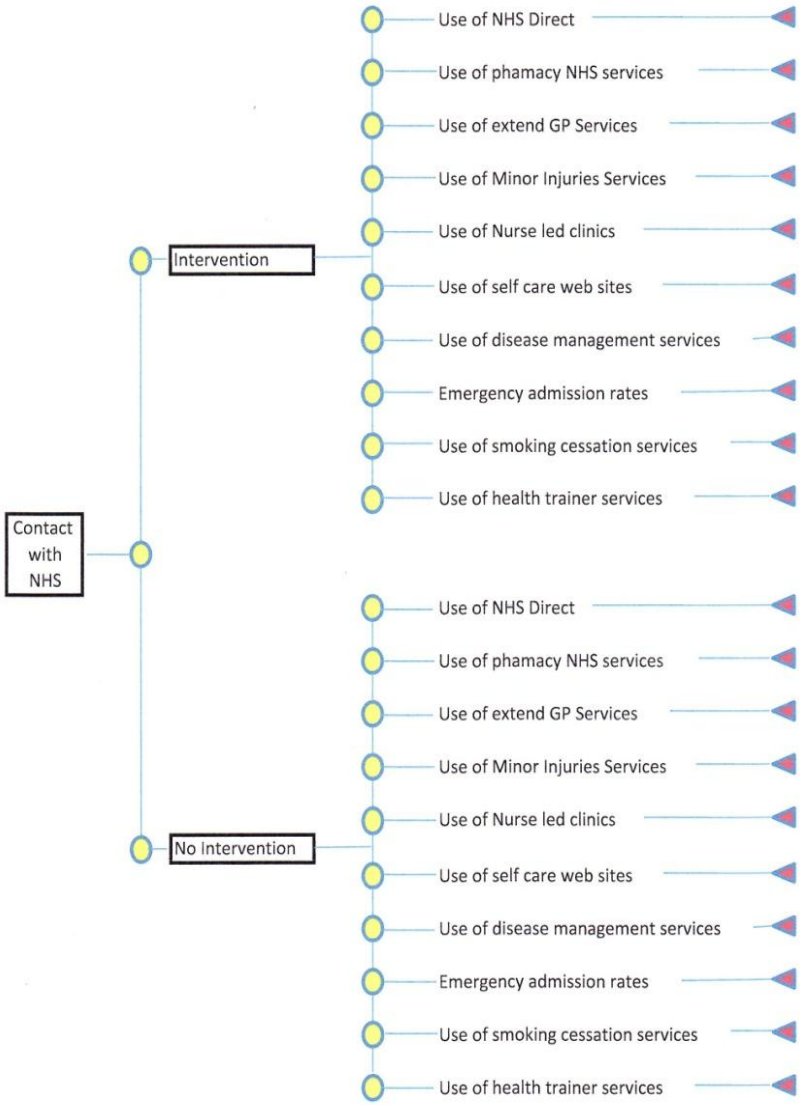
- Routine utilisation data could be used to show the current flow of patients across existing service levels in two PCT's.

- A programme could then be run to train all staff working in, or near a local A&E service in one of the A&E services and say the 10 largest GP practices.

- Routine utilisation data could then be re-assessed a year later to show any change in the flow of patients across existing service levels in two PCT's.

- A simple economic model could then be developed to show the incremental cost effectiveness ratio of the programme.

Figure 1: Evaluative framework



In conclusion it is the research teams view that the available evidence around each component of this programme can be brought together to show that it is likely that this initiative could be cost effective if:

1. The costs were minimised by incorporating the lower level competency training into existing basic training, induction programmes or essential training programmes over time.

2. The people trained in the higher competencies were drawn from areas where their input could have the maximum impact on lifestyle behaviour or service utilisation behaviour. Ideally these would be the areas of the NHS most likely to come into contact with services which could have been avoided if people had healthier lifestyles i.e. diabetes services, GP practices, GI services etc or where service utilisation is a problem i.e. GP services, A&E services, Admission units etc

3. That signposting services are supported by information resources i.e. websites, touch screens, texts or e-mail, briefings etc.

2.0. The programme

2.1. Overview of the programme

Scoping the economic case for the 'Health Behaviour Change' Competence Framework supports the implementation of the 'Make every contact count 'intervention within the NHS organisations across the United Kingdom (UK). The 'Make every contact count 'intervention is a part of 'Health Behaviour Change' Competence Framework initiated in 2009 by NHS Yorkshire and the Humber. The focus of the Competence Framework is to improve the competences, knowledge and skills of the NHS workforce needed to address the health and wellbeing needs of their population in areas such as tobacco use, excessive alcohol consumption, sexual behaviours and the management of obesity.

The idea is that commissioners will be able to specify levels of "behaviour change" intervention in different areas of the NHS to promote healthier lifestyles and enhance health literacy among people coming into contact with the NHS or its staff. It is intended that any interventions will be consummate with the context in which NHS related activities are being carried out.

In addition, the framework informs the workforce development agenda by mapping the competencies, knowledge and skills required for different levels of "behaviour change" intervention to existing health improvement / health promotion development programmes and identifying any gaps in existing educational provision.

Ultimately the framework aims to "make every contact count" in the sense that the NHS takes every available opportunity to help people coming into contact with it to make informed choices about their health-related behaviours, lifestyles, service utilisation and consequently to encourage people to take more responsibility and control over their health status.

The framework is split into "**Generic"** levels of competences and "**Intervention"** based levels of competences:

The generic levels: of competences are those required by the entire workforce to ensure that opportunities to introduce or bring about health behaviour changes are recognised and acted upon.

The intervention level: of competences are those that relate to health behaviour change approaches such as; CBT; Solutions Focused Therapy or Motivational Interviewing.

Furthermore, competencies are set at four levels to facilitate different levels of complexity:

Level 1: engaging with individuals and using basic skills of awareness, engagement, and communication to **introduce** the idea of health behaviour change and to **motivate** the individual to consider/think about making changes to their health-related behaviour.

Level 2: selecting and using brief health behaviour change techniques that help individuals **take action** about their health behaviour choices.

Level 3: selecting and using appropriate techniques and approaches to provide support to individuals as they **change** their health behaviours and facilitate the individual to **maintain these changes** over the longer term.

Level 4: using **specialist/advanced** health behaviour approaches such as CBT, Solutions focused therapy or MI where brief intervention is not sufficient.

2.2. Justification for intervention

Lifestyle-related conditions, such as cancer, cardio-vascular disease, chronic respiratory disease, diabetes or sexually transmitted diseases are the leading causes of disabilities and premature deaths in the United Kingdom (UK) and account for the majority of health related expenditure. Overall, lifestyle (e.g. diet, physical activity, smoking, alcohol consumption etc) can affect the risk of developing up to twenty chronic and disabling diseases and disorders (CMO, Department of Health, 2004). Leading a "healthier" lifestyle can decrease the demand for health care and social services, improve quality of life and reduce absenteeism, thus, reducing the economic impact of disease. These diseases and the premature deaths stemming from them can be avoided if individuals adopt healthy behaviours.

Evidence consistently shows that interventions aimed at influencing health-related behaviours such as unhealthy diets, tobacco use, excessive alcohol consumption or lack of physical activity can have a positive impact, although the sustainability of the impact is less certain at this stage in some areas. Although choices in relation to individual lifestyle are the primary focus of this initiative it is recognised that choices in relation to the way people utilise the NHS can have a huge impact on efficiency, effectiveness and ultimately cost.

NHS services comprise of General Practitioners (GPs), Dentists, Opticians and Pharmacies as well as hospitals and secondary care facilities. In 2008 the midterm census showed that the population of the UK was 61,383,000. Approximately 83% (51,220,337) of this population is registered with GP practices (The Health and Social Care Information Centre, 2010). In 2009 16,232,579 people were admitted to the NHS hospitals, 11,004,867 attended the first visit in outpatients' clinics (The NHS Information Centre, Hospital Episode Statistics for England. Outpatient statistics, 2008-2009) and 18,8 million individuals attended the A&E Departments from April 2008 to March 2009 (The NHS Information Centre, Hospital Episode Statistics: Accident and Emergency Attendances in England - experimental statistics, 2008-2009). These numbers show that NHS staff have frequent contact with the majority of the UK population - this puts them in a unique position to encourage and support health related behaviour changes and changes in peoples' behaviour in relation to the access and use of NHS resources.

2.3. Costs that can be avoided

The Health Behaviour Change Competence Framework is seeking to equip all staff in the NHS, with the competencies, knowledge and skills necessary to signpost and provide guidance on access to services which encourage and support changes in health-related behaviour, for example, smoking cessation or chronic disease management services.

This report identifies health-related behaviour areas where the programme is likely to lead to positive outcomes: (1) diet; (2) levels of engagement in physical activities; (3) tobacco use; (4) excessive alcohol consumption.

3.0. The Review

Encouraging healthy behaviours among patients and leading a healthy lifestyle have received increasing attention in the medical and public health literature although cost-effectiveness evidence remains sparse. As previously mentioned, this does not mean that the approach is not cost effective, but it indicates that it has not been proved in a rigorous scientific testing of cost-effectiveness.

Behaviour change is complex and there are many factors which influence its cost effectiveness. For example, the effectiveness of the intervention may depend on the content of the message or the context in which the message is delivered. Similarly, the time line for the effect of positive messages in influencing behaviour change is uncertain and the techniques / opportunities which could be used for re-enforcement are almost infinite. The scope of this project is therefore potentially quite broad.

There are significant limits on the amount of resource available for a scoping exercise in this area and a significant degree of urgency in terms of the timescales available within which to produce results. To accommodate these constraints this paper assumes that the training will indeed produce the competencies required and that staff will be able to utilise these competencies in their normal working environment. On that basis the study will focus on the evidence relating to the following research questions:

Question 1: Can health-related behaviour change be achieved and sustained?

Question 2: Can health-related behaviour change reduce future demands on health care and reduce its costs?

Question 3: Can the 'Make Every Contact Counts' programme facilitate health-related behaviour change?

The brief for this study outlined two key research objectives.

- To collate high quality evidence, where available, for the 'intuitive argument' that: *encouraging the National Health Service (NHS) staff to give consistent, positive health messages to encourage healthy behaviour during their routine contact with patients and visitors, will impact on health literacy and enhance a healthy lifestyle over time.*

- To explore any features in the way that the policy is implemented that could impact positively or negatively on the cost effectiveness of the intervention.

A "berry picking" review of the literature was undertaken to inform this report. The key focus of the review was to identify:

- Evidence on the impact of positive health messages on health literacy and/or behaviour change among patients and visitors.

- Evidence relating to obstacles that decrease the impact of health messages and factors that enhance their impact.

- Evidence relating to efficacy (whether or not delivering health messages leads to health-related behaviour change under 'ideal conditions'), effectiveness (whether or not delivering health messages influence health-related behaviour change under routine conditions - care delivery/health care settings) and cost effectiveness of delivering positive health messages.

- The literature searches were undertaken with accordance with the Quest for Quality and Improved Performance recommendations (http://www.health.org.uk/qquip/). To locate literature, searches were conducted on a number of databases, including CINAHL plus, Cochrane library, MEDLINE (CSA), Pub Med and Science Direct (Elsevier).The following search terms were used:

  - health message(s)
  - short advice
  - brief advice
  - impact of brief advice
  - influencing behaviour change
  - smoking cessation
  - decrease alcohol use
  - increase physical activity
  - behavioural change
  - effectiveness
  - cost-effectiveness
  - efficacy
  - impact
  - attitude$
  - NHS services
  - the Vascular Health Screening Programme
  - a vascular check
  - smoking cessation services

These search terms were combined using 'and' and 'or' alternatively in a number of searches. All databases were searched for publications between 1990 and 2010. The researcher manually reviewed the titles and abstracts of all journal articles retrieved from these sources. Furthermore, the researcher reviewed publications and reports, available on the Department of Health (DoH) website and guidance published by the National Institute for Clinical Excellence.

Empirical literature is included in this review (including opinions and evidence-based reports), relating to efficacy, effectiveness and cost-effectiveness of delivering consistent health messages on encouraging health-related behaviour change. Furthermore, to validate and extend the information provided in this current report, the opinions of a range of experts in the behaviour change and economic evaluation of preventative interventions were canvassed for their collective informed opinion on the questions stated above.

The reason for doing so was that the reliability and validity of existing evidence regarding delivering health messages to encourage health related behaviour change is relatively poor although it is improving rapidly. However, it is important to indicate that the purpose of this review is not to provide a comprehensive report on the efficacy, effectiveness and cost-effectiveness of delivering positive health messages but to form a starting point for discussion on:

- whether delivering health messages by staff members at all levels of health care organisations can improve the health status of the population of the United Kingdom (UK);
- how delivering health messages can be enhanced;
- the impact of positive health messages on health literacy and/or behaviour change among patients and visitors.

This report focuses on the premise that delivering consistent, positive, healthy messages by the NHS staff may be cost-effective, provides the means for increasing the health and wellbeing of the population and decreasing the demand for health care in the UK. Testing this premise requires the consideration of several conceptual and methodological issues. The report sets out the evidence we have found under each of the three research questions and an opinion is given in the conclusion on how best to optimise the cost impact of this initiative.

3.1. Question 1 - Can behaviour change be achieved and sustained?

The Government response to the problem - political forces behind the competence change framework

The UK Government has long recognised the importance of investing in preventative interventions, rather than exclusively funding curative care. The future priorities for Public Health Policy in the European Union (EU) set out in *the White Paper, "Together for Health: A Strategic Approach for the EU 2008-2013" (1),* marks a continuous shift in the Policy from a clinical, curative focus to the development of healthcare systems which focus more on the determinants of health, health promotion and disease prevention. At the national level, *'The NHS improvement plan'* (2004) (2) for the UK sets out the intention to give the highest priority to the prevention of lifestyle-related conditions. Similarly, there is renewed emphasis upon the health status of the population and reducing health inequalities in England and Wales, with the production of the White Paper *Choosing Health - Making Healthier Choices Easier* (3) and a raft of subsequent policy initiatives which build upon the theme across the United Kingdom (UK). The 'Make Every Contact Count' programme therefore contributes to Government objectives.

Priorities at the national and international levels - where does the 'Make Every Contact Count' programme fit?

European Public Health and Medical Organisations such as the European Society of Cardiology have made encouraging and influencing health related behaviour changes its priority (The European Society of Cardiology, 2009 (4)).

Similarly, the National Institute for Clinical Excellence (NICE) - the independent organisation in the UK responsible for providing national guidance on the promotion of good health and the prevention and treatment of diseases - states that organisations under the umbrella of the NHS should *'equip practitioners with the necessary competencies and skills to support behaviour change, using evidence-based tool' (NICE, 2007 (5)).* The 'Make Every Contact Count' programme extents this recommendation to other staff working within the NHS, increasing the likelihood of success from the recommended actions.

There is a sustained commitment among the UK public sector services to support individuals to make healthy lifestyle choices in order to improve their health status and health-related quality of life. The underlying notion of these efforts is that if people choose a healthy lifestyle, the demand for health care will decrease.

Scientific evidence emphasises the role of the socio-economic, social and political influences on health. Particular attention is given to the casual relationship between socio-economic conditions and health status. Since the publication of the —Black report in 1980 (6), it has become increasingly clear

that a low level of social status positively correlate with a lower level of health status. This means that poorer people tend to be less healthy and as a consequence require more health care. Being poor per-se does not make individuals less healthy. It is the negative impact poverty has on individuals' lifestyle and their ability to seek and engage with healthcare services. A striking feature that has emerged from the literature is the lack of information regarding the role of whether and/or how people use the existing NHS resources to alter their lifestyle and prevent the development of diseases.

"Tackling Health Inequalities: A Programme for Action" (7) was launched in July 2003 by the Secretary of State for Health in England and Wales, as part of the wider national drive for improving social justice. The Public Service Agreement (PSA) target was to reduce inequalities in health outcomes by 10 per cent by 2010, as measured by infant mortality and life expectancy at birth.

The way forward

These types of policies, combined with a huge drive across the UK to: reduce obesity in children; prevent smoking in public places; encourage low salt diets or promote healthy eating are all part of a strategy to promote health and well being and encourage individuals, groups and populations to take responsibility for their health and the health of those around them but can such healthy lifestyle initiatives work?

The —World Class Commissioning" agenda aims at encouraging the payer in the healthcare system to systematically review their investment portfolio and shift the focus of investment from healthcare to health and well-being or from curative to preventative interventions.

The 2002 —World Health Report (8) pointed out that —virtually every major advance in health, at the level of a population, has involved the reduction or the elimination of risk. Improvements in drinking-water supplies and sanitation during the 19th and 20th centuries were directly related to the control of the organisms that caused cholera and other diarrhoeal diseases.

Mass immunisation programmes eradicated the scourge of smallpox from the planet and have reduced the risk to individuals and whole populations of infectious diseases such as poliomyelitis, yellow fever, measles and diphtheria by providing protection against the causative agents. Countless millions of premature deaths have been avoided as a result.

Nowadays in Europe, at least 33% of the entire disease burden is thought to be caused by five reducible population risk factors: tobacco consumption, excessive alcohol use, a high blood pressure, high LDL cholesterol levels, high Body Mass Index (BMI - obesity) and high blood sugar levels (diabetes). The UK government has calculated the costs of the increase levels of risk factors, stemming from unhealthy lifestyle. For example, diabetes costs the UK economy £9 billion per year (NHS East of England & Technology Strategy Board. Driving Innovations (9)), the costs of physical inactivity were estimated at £8.2 billion in 2002 (SQV, 2007).

The Health and Social Care Centre (2010) shows an increasing trend in the incidence and prevalence of lifestyle-related chronic diseases. For example, in the case of obesity, the following trends are observed:

> *"In 2007, among adults aged 16 and over, overweight or obese men and women were more likely to have high blood pressure than those in the normal weight group; high blood pressure was recorded in 47% of men and 44% of women in the obese group, compared with 32% of overweight men and women and 16% of men and women in the normal weight group.*
>
> *The number of Finished Admission Episodes (FAEs) in NHS hospitals with a primary diagnosis of obesity among people of all ages was 7,988 in 2008/09. This is over eight times as high as the number in 1998/99 (954) and nearly 60% higher than in 2007/08 (5,018).*
>
> *The number of Finished Consultant Episodes (FCEs) with a primary diagnosis of obesity and a main or secondary procedure of 'bariatric surgery' among people of all ages in 2008/09 was 4,221, more than double the number in 2006/07 (1,951) and 55% higher than in 2007/08 (2,724).*
>
> *In 2008, the number of prescription items dispensed for the treatment of obesity was 1.28 million; this is ten times the number in 1999 (127 thousand)."*
>
> (The Health and Social Care Centre, 2010)(10)

Cardio-vascular risk is another public health challenge. More than 75% of cardiovascular disease (the world's leading cause of death) results from tobacco use, high blood pressure or cholesterol, or their combination. Overall, cholesterol causes more than 4 million premature deaths a year; tobacco causes almost 5 million, and high blood pressure 7 million worldwide (11). What is important to indicate is that the high levels of risk factors are attributable to individuals' lifestyles and can be changed by improving health-related behaviour patterns and the ways people use NHS services.

The fact that risk factors and consequently the burden of disease can be reduced prompted the prioritisation of prevention in Health Policies. For example, the future priorities for EU health policies, set out in the White Paper: Together for Health: A Strategic Approach for the EU 2008-2013 (12), marks a continuing shift in healthcare policy from a clinical, curative, focus to the development of healthcare systems which focus more on the determinants of health. This policy direction is mirrored in the UK and is the underlying driver for the —Wanless‖ assumptions (13) which set out the funding challenges for the NHS over the next decade and the subsequent World-Class Commissioning agenda (14).

Research evidence - Active lifestyle contributes to decline in coronary heart disease incidence

In the 1970s North Karelia, Finland, had the highest mortality rate from heart disease in the world. Research indicated that the key risk factors were environmental and lifestyle related. The Finnish focus at the time was very much on hospital treatment (15).

Primary prevention:

Despite skepticism from the cardiology community, Dr Pekka Puska, a public health doctor instigated a community education programme involving meetings with dairy farmers, lumberjacks and other groups to encourage low fat diets. Programmes were held in churches, supermarkets, schools etc to encourage individuals and groups to adapt a healthy lifestyle (e.g. quit smoking or develop healthy eating habits). The key idea behind Dr Puska's approach was that heart disease, rather than being a problem for a few high-risk individuals, related to the lifestyle of the entire community (15). Figure 2 shows the impact on mean risk factor levels over a 45 year period:

Figure 2: North Karelia: Impact on population level Risk Factors

Year	Men			Women		
	Smoking (%)	Serum cholesterol (mmol/l)	Blood pressure (mmHg)	Smoking (%)	Serum cholesterol (mmol/l)	Blood pressure (mmHg)
1972	52	6.9	149/92	10	6.8	153/92
1977	44	6.5	143/89	10	6.4	141/86
1982	36	6.3	145/87	15	6.1	141/85
1987	36	6.3	144/88	16	6.0	139/83
1992	32	5.9	142/85	17	5.6	135/80
1997	31	5.7	140/84	16	5.6	133/80
2002	33	5.7	137/83	22	5.5	132/78
2007	31	5.4	138/83	18	5.2	134/78

Main risk factors in North Karelia between 1972 and 2007 among men and women aged 30-59 years.

As well as achieving large scale and sustained reductions in population level risk factors, at the same time that risk factors were rising in most other parts of the Western World, the North Karelia program had a significant impact on premature death which would go a long way towards closing the gap in life expectancy experiences in most populations across the UK (Please see Figure 3).

Figure 3: North Karelia: Impact on pre-mature death

Deaths	Rate in 1971	Rate in 2006	Change from 1971 to 2006
All causes	1509	572	-62%
All cardiovascular	855	182	-79%
Coronary heart disease	672	103	-85%
All cancers	271	96	-65%
Lung cancers	147	30	-80%

Age-adjusted mortality rates of coronary heart disease in North Karelia and the whole of Finland among males aged 35–64 years from 1969 to 2006.

Despite the success of the North Karelia project not all population level initiatives have been successful. Two US studies examining the effectiveness of preventative interventions aimed at influencing the adoption of a healthy lifestyle showed no real improvement (16) (17) while a third had reasonably good results (18). The key to North Karelia appears to be that it was a largely bottom up initiative involving the core communities rather than being policy driven. Secondly, they started from a very low base and incrementally increased the application and scope of the intervention.

Secondary prevention:

Of course the "Make Every Contact Count" initiative is not only aimed at behaviour change to prevent illness. Significant amounts, if not the majority of the benefit in the early stages, will come from facilitating and sign posting people who are "at risk to seek early diagnosis and treatment of the disease. Early identification of individuals at high risk (e.g. with high cholesterol and high blood pressure) and giving them pharmacological treatment (e.g. statins and hypotensives) is extremely clinically and cost effective (19) (20). Early diagnosis and treatment of people with diabetes resulting from obesity can have a huge impact on cardio vascular events, kidney failure events, dialysis cost and future heart failure activity (21).

This approach places a strong emphasis on both population strategies for primary and secondary prevention through health care interventions for those with pre-symptomatic disease. Success will require the judicious application of a wide variety of primary and secondary medical/surgical interventions combined with individual advice and support on issues of health related behaviour and lifestyle.

In broad terms, a quarter of the population has a blood pressure level defined as hypertensive and a third of Cardio-vascular disease (CVD) deaths may be attributable to high blood pressure. A combination of opportunistic advice / signposting and more formal screening of general practice populations through cardiac risk checks can result in the early detection, effective treatment and follow up of patients with raised blood pressure. One of the key challenges of the cardiac risk check program is its ability to engage individuals at the highest risk. 'Every contact counts' initiative could be an ideal vehicle for encouraging people to participate in the screening programmes.

Risk of developing CVD can be reduced through the prescribing of cholesterol lowering agents to individuals who do not yet have symptomatic disease. Cholesterol is an important risk factor for CVD. Recent scientific findings shed new light on approaches to reduce LDL cholesterol levels. Results of the recently conducted Randomized Controlled Trials (RCTs - scientific investigation to examine the efficacy or effectiveness of health care services, interventions or treatments) show the cost-effectiveness of primary prevention in reducing cholesterol levels. The West of Scotland Coronary Prevention Study (WOSCOPS) (22) and the more recent AFCAPS/TexCAPS study (23) demonstrated a relative risk reduction of around 30% is seen in those across the range of starting cholesterol levels and starting overall risk.

However, absolute benefit of primary preventive interventions is greatest in those at highest risk. Consequently, pharmacological lipid lowering should be considered in the context of all the established risk factors and not only on the basis of the cholesterol (or other lipid fraction) level. The WOSCOPS study, examining the cost-effectiveness of lipid lowering therapy in middle aged men with moderately raised cholesterol levels, revealed that the cost per life saved is around £500,000. However, for the higher risk groups in the study population, this figure falls to a much lower figure (24). Therefore a mechanism for signposting people via the cardiac risk check program would allow more robust decisions on whom to treat in primary prevention, the absolute risk should be calculated, e.g. using the Sheffield risk tables (25), the New Zealand risk tables (26) or some other method.

The recent Standing Medical Advisory Committee (SMAC) report, to the United Kingdom (UK) Department of Health (27) suggests an annual level of risk of 33% of a major coronary event as a suitable starting point. Moving the threshold up or down will affect the cost of treatment in a population.

The numbers of individuals involved in any population at a particular risk level, and therefore the cost of the treatment, will depend also on the prevalence of the disease. The Scottish Intercollegiate Guidelines Network (SIGN) guidelines on Lipids and the Primary Prevention of Cardiovascular disease in Scotland are currently being developed and will give a Scottish consensus on whom to treat.

The clinical and cost-effectiveness benefits of early diagnosis and treatment of many cancers are well documented (28). Again, signposting people with common symptoms of early cancers to appropriate services could bring significant clinical and cost-effectiveness benefits.

Tertiary prevention:

As well as preventing or slowing down the onset of disease the "Make Every Contact Count" can impact on the quality of life and cost effectiveness of treating disease. Again, sign posting and advice on chronic disease management facilities or appropriate access to unscheduled care services could significantly improve access to health care services and enhance service response that reflects the profile of patients being referred.

Conclusion:

If the "Make Every Contact Count" program limits itself to health messages relating to lifestyle and primary prevention then it could influence the life style and behaviour of some people at a very low cost. The benefits for the individuals

who respond to these interventions could be significant and cost saving could well accrue to the NHS over time.

If however it broadens its remit to the analogy with John Lewis stores and encourages the workforce to pro-actively sign post people at all levels of illness to the most appropriate services and engages with the hard to reach to encourage people to engage in early diagnosis and treatment of pre-clinical disease then the clinical and economic benefits could be both significant and immediate. Encouraging people to access the appropriate level of unscheduled care alone and modifying their behaviour in relation to service access would bring significant benefits to most PCT's.

3.2. Question 2 - Can behaviour change reduce future demand and reduce health care costs?

"Many of the benefits of engaging people in living healthier lives occur in the long term but there are also immediate and short-term benefits when demand for health services can be reduced, especially in those areas such as acute services where capacity is seriously constrained" (29).

The suggestion that healthier lifestyles can lead to a reduced demand for future healthcare is established and growing. It is generally believed that if people take more responsibility for their lives not only will they be healthier, enhance their well-being and quality of life but if they do establish disease it is likely to be later in life. Furthermore, healthy lifestyles may enhance the optimal treatment outcomes. This so called "compression of morbidity" is generally accepted but not yet proved. Nevertheless it is clear that a person having a stroke in their 70s will cost the system considerably less than a person having a stroke in their 40s. Anecdotally, people working with the elderly will be familiar with the idea that you rarely see ill 90 year olds. Many of the people who have avoided the diseases associated with unhealthy life styles tend to remain active until shortly before they die.

One of the common retorts to the cost effectiveness of prevention is the idea that a "dead patient is a cheap patient". Apart from the offensive nature of such sentiments from a clinical or moral point of view it is far from clear that encouraging people to live unhealthy lifestyles and die relatively young would in fact save money. The capacity of modern health systems to save lives is such that a person could experience numerous heart attacks, strokes and other acute conditions as well as undergo significant rehabilitation in the period before they die. One of the most misleading ideas around today is the thought that because cardio-vascular mortality rates are falling that the problem is under control. The opposite is of course true. Because people are no longer dying the level of morbidity and the overall burden of disease in the population is continuing to rise.

Most lifestyle interventions are aimed at diet, exercise levels and the use of drugs such as tobacco and alcohol. These behaviours tend to affect a person's risk factors such as body mass index, cholesterol, blood pressure and blood sugar levels which lead directly to Diabetes and cardio-vascular disease and indirectly to kidney failure, heart failure, cancers and a whole host of non-fatal disease like arthritis, Rheumatism etc.

Because the link between risk factors and cardio-vascular disease is so well researched with algorithms linking risk and events it is possible to use changes in risk factors as a proxy measure for lifestyle interventions. Therefore a change in lifestyle leads to reductions in risk factors which lead to less acute events. The establishment of the national cardiac risk check program means that PCTs will soon have detailed local risk level data which can be used to measure the impact of lifestyle interventions and the future impact on acute hospital costs.

Valuing Health Business case literature review

The population level risk reduction programmes recommended by NICE will be complemented with a cost off set model to be published in the summer which will help a PCT quantify how much they could save on acute hospital costs if they can influence the behaviour and hence the risk factor levels in their population.

The total cost of cardiovascular disease (CVD) alone (leaving aside cancer and other diseases impacted by these risk factors) to UK economy is estimated at £30 billion annually (Luengo - Fernandez et al 2006) (30). The cost to the NHS alone is estimated at 14.4 billion in 2006 (Allender S et al 2008) (31).

The NICE model estimates the potential cost off set if population level behaviour change initiatives are implemented. The methodology takes a top down approach by taking prevalence and costs from national data sources and working downwards to the level of the PCT.

Sheffield Hallam University have been working on the development of a cost offset model which works from the bottom up (32). The model estimates from average risk factor data how many people will have a heart attack or stroke each year for the next five years and compares it to the number that had these events the previous year. If the predictions are accurate the model estimates what might happen if the mean risk factors were reduced by say 5%-6% through population behaviour change initiatives. For example, if smoking prevalence is 20% then a 5% reduction would take it down to 19%. The model assumes that the level will reduce gradually over the five years so in year 1 it will go to 19.8% in year 2 it will reduce to 19.6% etc.

In informal discussions with NICE the SHU team discovered that when the model was applied to a population of 250,000 the predictions were almost identical. So is population level behaviour change the ultimate QUIPP project?

The research based cost offset model developed by staff at Sheffield Hallam University, has been constructed from evidence drawn from a comprehensive, systematic review of research literature in the fields of cardiovascular related illness and prevention strategies aimed at reducing risk factors at a population level. PCT populations by General Practices, Consortia, Neighbourhoods or quintiles of deprivation are entered into a cost offset model, by age and sex. Population risk factors such as smoking rates, mean body mass index (BMI), mean total cholesterol, mean systolic blood pressure etc, are also entered by age group for each GP population. (The model uses national data from the Health Survey for England as a default in the absence of local data).

The model uses the UKPDS 60 risk engine to estimate how many people, in each age group, are likely to be diabetic. It then uses a variant of the —Framingham Risk Equation‖ to calculate how many non-diabetic people in each age group are likely to have a heart attack or stroke in the next five years. In addition, heart failure and dialysis admission rates are estimated based upon risk factors for incidence from other studies i.e. The Nhanes III trial in the US. The United Kingdom Prospective Diabetes Study (UKPDS) risk engine 56 is used to calculate the risk of coronary heart disease (CHD) and stroke respectively in people with diabetes.

The model deducts the number of people likely to die before reaching hospital and produces a predicted number of hospital admissions for each category over

a five-year period. The final part of the calculation attaches a cost to the hospital activity using the UK Health Resource Grouping (HRG) tariffs. The predicted number of events in each of the populations is then compared with the actual number of events the previous year to validate the predictive accuracy of the model.

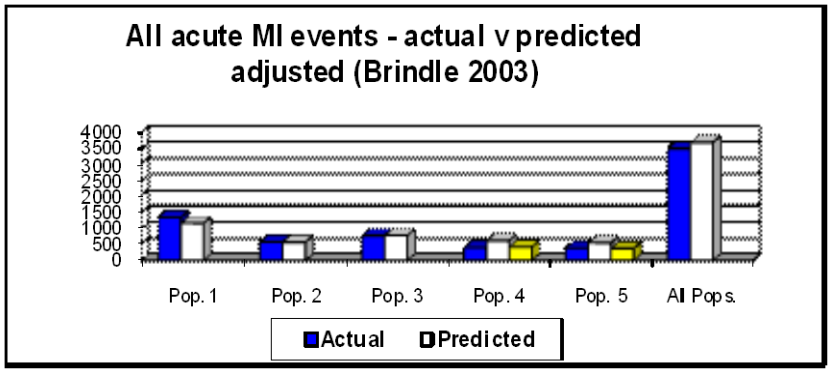
The model then estimates the impact on the predicted activity numbers if mean risk levels, i.e. smoking rates, BMI, cholesterol levels etc, were reduced in each population. HRG tariffs 20 are then used to convert the potential change in activity to levels of cost savings.

Validation:

The Framingham study was a longitudinal cohort study carried out in the USA in which a group of people have been studied since the 1950s. Their lifestyle has been charted in terms of blood pressure, cholesterol levels, smoking habits etc, and their cardio-vascular health has been mapped in terms of unstable angina events, strokes, heart attacks etc. From this study a mathematical formula has been developed to show the relationship between these biological markers and cardio-vascular events. Framingham and derivative equations have been shown to be accurate predictors of cardio-vascular risk at the level of the individual worldwide. Different populations have minor adjustments to the precepts, but by and large a doctor has a pretty good idea of the chances of an individual having an acute event on the basis of these bio-logical measures. The question arises however, how do we know if the predicted numbers of events will be accurate at a population level in particular when applied to the population of a PCT?

To test the accuracy of the predictions in South Yorkshire, an exercise was carried out as part of the first iteration of the model in 2003. The population and risk factors for five PCT's in South Yorkshire were entered into the model. This produced the predicted number of events in the cream coloured bars in figure 4 below. This was then compared with the actual numbers of events by HRG codes from hospital admission data (2003) shown in the blue coloured bars.

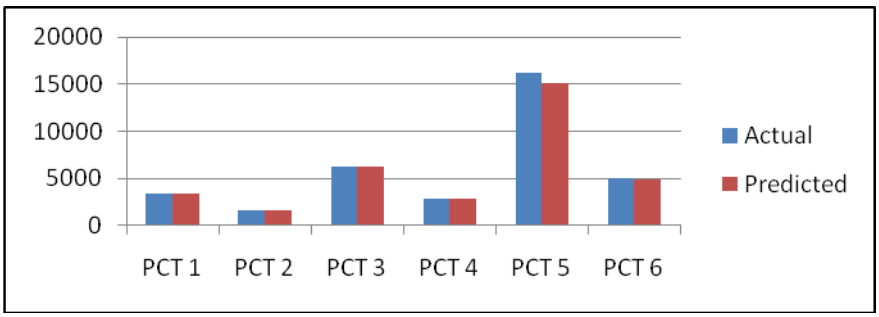
Figure 4



As can be seen from fig 3, the model slightly under predicts events in the highest risk population (pop 1), is very accurate in medium risk populations 1&2 over predicts in lower risk populations, (pop 4 & 5).

These findings are exactly in line with the literature on Framingham as applied to Northern European populations. Brindle et al (33) produced an adjustment for low risk populations as shown in the blue bar on fig 6. (This was the forerunner of the Q Risk formulae.) When this is applied, the predictions in pop 4 and pop 5 increase in accuracy. Further tests of the model in 2009 in PCTs (figure 5) around the country have produced the following levels of accuracy in predicting activity from population level risk factors:

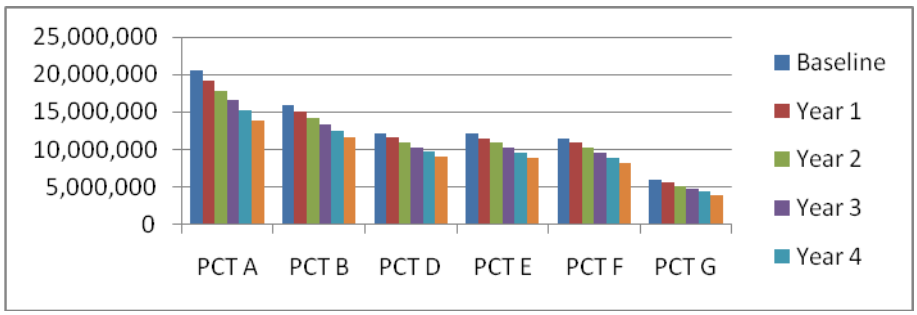
Figure 5: Correlation between estimated and actual CVD related acute activity



The key assumption in the model is that if we can accurately predict activity using mean risk factor data such as a Body Mass Index (BMI), cholesterol, Systolic Blood Pressure, smoking prevalence etc. in a population what would happen if those risk factors were reduced?

Figure 6 shows the estimated reduction in acute hospital costs alone over a five year period in risk factors were reduced by 5% over that period.

Figure 6: Estimated reduction in acute admission costs over a 5 year period



NB: PCT A is a combination of three PCTs covering a geographical area

Table 1 below shows the estimated reduction in revenue costs for acute admissions after 5 years if risk factor levels can be reduced:

Table 1: Estimated revenue savings after 5 years

PCT 1	PCT 2	PCT 3	PCT 4	PCT 5	PCT 6
£6,632,658	**£4,269,540**	**£3,164,350**	**£3,229,874**	**£3,353,523**	**£2,056,054**

Invest to save argument:

Clearly, a cost offset model simply shows what you might save if you reach a goal. PCT's will have to consider how much it might cost them and their local authority partners to reduce these risk factors. Early indications from research at SHU suggest that in many respects most of the elements required to achieve population level behaviour change are already in place. The issue is how they are organised and targeted rather than how much they are added to.

The saving in the model simply relate to the costs of acute care after an event. If you do not have a stroke you might not need home care, or residential care. You will not need rehabilitation. You may not need to give up your job or move onto disability benefits. Ever since the Black report in the 70s the clinical and moral case for prevention has been made. Could it also save us money? Wanless thought so.

Conclusion:

There is a growing belief that lifestyle change can significantly reduce demand for health care. It is the thinking underpinning health reform in the WHO, EU, the UK and a number of other countries in Europe. The Wanless report (34) contains significant evidence not only that lifestyle change can reduce future costs but that it can do so quite quickly in some areas.

There are two problems, however. The first is that lifestyle interventions tend to be sporadic, spread thinly and working in competition with each other rather than in a strategically focussed way. Funding is often segmented and fixed term, provision is often through competing providers rather than in any sort of co-ordinated format. The second problem is that they tend to be aimed at the population in general rather than at the highest risk most difficult to engage groups. Their impact is often diluted from a cost effectiveness perspective. If you achieve behaviour change in a high risk group you could avert or delay heart attacks and strokes which would have occurred in the next few weeks, months or years hence the savings accrue very quickly. If you achieve behaviour change in a low risk population you might delay events that would have happened in twenty to thirty years. Whilst this is clearly valuable it is more economically viable to start with the high risk and use the savings accrued to fund services to the low risk.

The Make Every Contact Count" has the potential to be a conduit to start to help strategically behaviour change programmes. Once people start mapping the services to sign post people to organisational anomalies will become clearer. It will also encourage the stratification of services to get the right level of service to people or groups first time.

3.3. Question 3 - Can the "Make Every Contact Counts programme" facilitate change?

The literature contains a number of terms for the basic intervention at the core of this programme. 'Health messages' or 'brief advice'. 'Positive health messages' and 'brief advice' are used in the literature to describe the same type of health related health intervention. Throughout the current report the term 'health messages' is used.

According to PharmacyHealthLink health messages are provided using opportunistic communication and are tailored to an individual's need to alter health related behaviour (PharmacyHealthLink, 2007b) (35). The content of health messages includes providing information about the importance of health related behaviour change and straightforward advice to change behaviour (Gray, Eden & Williams, 2007) (36).

According to PharmacyHealthLink the purpose of proving health messages is *'pro-actively raising awareness of, and assessing a person's willingness to engage in further discussion about healthy lifestyle issues'* (PharmacyHealthLink, 2007b, p.4) (37). The assumption is that, delivering health messages should encourage individuals to cease or adopt certain behaviours which in turn is likely to result in health improvement. The recommendation is that one health message should not last longer than 3 minutes (PharmacyHealthLink, 2007b) (38).

There are different approaches to delivering health messages identified in the literature:

Mass media messages:

This method of communicating health messages was described in the literature as being generic and not specific to individual needs. However a survey by (Hiliard et al 2007) (39) revealed that informal knowledge transferred to the public via newspapers resulted in significant reductions in sudden infant death resulting from the most commonly used face down sleeping position of infants, and a significant reduction in HIV transmission resulting from homosexual practices. This shift in behaviour had occurred even before formal education campaigns have commenced. It is possible that this generic method of transferring health messages is effective in inducing behaviour change which is based on knowledge of a direct cause/effect situation, and not as effective in situations where long term commitment is required to induce a change or to experience the deleterious effects of not changing behaviours. Distributing newsletters is another method of mass media intervention that could reach large audiences but have a surplus benefit of delivering specific health messages. A randomized controlled trial by Doersken and Eastbrookes (2006) (40) measured fruit and vegetables consumption in a group who received nine weekly newsletters related to fruit and vegetable consumption and group that did not. Participants in the intervention group demonstrated improved health behaviour by significantly increasing their fruit and vegetable intake.

Smeets et al (2008) (41) reported that mass media intervention could be effective in raising the awareness of an issue but not necessarily inducing

behavioural change. Thus they favoured interventions that were tailored to individual needs as it contained less redundant information and therefore increasing compliance. However Dresler-Hawke and Veer (2006) (42), described a model (Behavioural Ecological Model) were behavioural change is targeted at multiple levels using synergistic techniques, and multiple media channels starting from the individual level towards a social/cultural level providing a bidirectional influence. This seems to be a holistic approach where each level contributes to the process of communicating health messages to the individual.

A mess media campaign in Australia to improve public and clinicians‘ attitudes of the self management of back pain was found to be more effective when it was more intensive and contained explicit recommendations. This supports the proposition that mass media interventions are more likely to influence people‘s beliefs when it delivers explicit health messages and specific recommendations for practice (Buchbinder et al 2008) (43).

Personal advice:

In a qualitative study of paediatricians with experience of discussing obesity with families, the paediatricians‘ reported that there was little success observed.

Even though they tailored the messages to meet the specific needs of each family, there was low family commitment and a poor environment to support behaviour change. The Paediatricians‘; recommendations were to get people motivated before they encounter personal advice at the clinic, to tailor messages at a higher level to alter peoples‘ cultural values about obesity, and to improve school and community environments (Barlow et al 2007) (44).

Research evidence regarding the delivery of consistent, positive health messages to encourage health-related behaviour changes is conflicting and limited in extent. A number of studies have shown that delivering health messages is associated with increase in participation in health-related behaviour (Kahn et al., 2002) (45). This positive impact of delivering health messages on fostering behaviour change has been found to be related to three health-related behaviours: smoking, alcohol consumption and physical activity.

Evidence reviews supporting the Public Health Network (Powell and Thurston, 2009) (46) indicate that providing health messages is associated with smoking cessation and increases quitting rates from 1-3% (Stead et al., 2008 (47) ; Meyer et al., 2008 (48)).

Similarly, health messages interventions targeted at heavy drinkers are effective in decreasing alcohol use in the adult population (Fleming, Manwell & Barry, 1999) (49).

Delivering health messages has also been shown to be effective in increasing physical activity level (Ogilvie et al., 2007) (50). Evidence indicates that 5 minutes brief advice by trained professionals is as effective as 20 minutes counselling in preventing and reducing excessive alcohol consumption (Babor, Acuda, Campillo, Del Boca et al., 1996 (51)).

A German quasi-randomised controlled trial by Meyer et al. (2007) (53) found that physician–delivered brief advice and computer-tailored letters had a positive effect on long term smoking cessation in the general population. The study had a large sample size (1499 participants) from 34 randomly selected general practices. The age range was (18-70 years) and the follow ups were

done over 24 months, therefore, results could be generalisable. The computer-tailored letters were superior to the physician-delivered brief advice (bearing in mind that the physician advice was only delivered once while the computer-tailored letters were delivered over three times). The computer letters were tailored according to the Transtheoritical Model of Behaviour Change depending on the participants' assessment at that particular stage. This study supports the efficacy of a time saving and low cost behavioural change intervention. One of the key findings of the study was that low cost interventions delivered on low numbers of occasions could be effective.

A study by Summets et al (2008) (53) showed that individualized tailored computer messages were effective in improving peoples'physical activity behaviour when they had higher motivation at baseline. However people who were less motivated at baseline became more motivated after receiving the messages. This shows a possible impact of health messages on motivation. There is clearly a need for a change in cultural beliefs at the community level along with the interventions at the individual level to provide synergistic messages in order to induce behavioural change.

Smeets et al. (2008) (54) and Winocour (2006) (55) however, claim that delivering health messages cannot be linked to a sustainable behaviour change, but exclusively to raising the awareness of an issue (Smeets et al., 2008 (56); Winocour, 2006) (57). For example, Winocour (2006) (58) found that having information that certain health-related behaviour carries a high health risk may not be effective in influencing behaviour change. His survey on the behalf of the Association of British Clinical Diabetologists (Winocour 2006) (59) revealed that Diabetologists were indifferent to cardiovascular risk, even though they spent a lifetime delivering health messages to their clients, and were an educated and well informed audience. This demonstrates the importance of designing health care messages at levels that would induce cultural and life style changes (Baxter 2006) (60).

Noar at al 2007 (61) showed that messages were associated with greater effectiveness when they were tailored to represent some of the theoretical constructs (e.g. attitudes, self-efficacy and self management).

Kahn et al 2002 (62) claims that "consistent, positive health messages to encourage a health-related behaviour change 'point-of-decision' prompts are effective and low cost" (Kahn et al., 2002) (63).

Understanding the causal mechanisms underpinning certain interventions is essential to explain what works and how it works (Michie et al 2009) (64). The control theory proposes that *'goal setting, monitoring behaviour, receiving feedback, and reviewing goals in the light of feedback are central to self management and behavioural control*‖ (Michie et al 2009;p:691). Self regulation techniques derived from the control theory are: —prompt intention formation, prompt specific goal setting, provide feedback on performance, and prompt review of behavioural change‖ (Michie et al 2009; p: 691).

Health messages seen in the context of the Control Theory can be seen as the first stage and the spark for initiating the process of behavioural change. For example Albarracin et al (2005) (65) found that provision of factual information was associated with greater effective5ness when included in intervention directed to promote condom use. Overall, evidence suggests that consistent, positive messages, supported by written materials or delivered as a component of a wide approach or interventions to health-related behaviour change are the

most effective (Kahn et al., 2002 (66); Hilsdon, Foster, Cavill, Crombie & Naidoo, 2005 (67)).

Increasing impact:

The literature suggests that the effectiveness of delivering health messages can be enhanced by the following:

- delivering a message in the form that is salient to people;
- creating a supportive environment for people to make positive health choices;
- delivering a message in a form that is likely to influence a health-related behaviour change.

It is important to provide information in a form that is easily understood. For example, interventions to reduce/tackle harmful alcohol consumption revealed that individuals do not understand statistics and that using the comparable information such as lifetime risk of dying in a road traffic accident as the comparator by which to judge their alcohol consumption limit is effective method for giving information. It has been shown that this method of giving information gives salience to the limit chosen as it provides a helpful scale to assess the risk of dying. The "*Influencing Public Behaviour to Improve Health and Wellbeing"* report states that it is imperative for the Department of Health and local NHS organisations to build coalitions with other organisations which may influence/influence people's behaviours (e.g. business, media).

Ethical aspect: freedom to make informed choices:

According to the "*Influencing Public Behaviour to Improve Health and Wellbeing* report", *'Information provision is seen as the most legitimate form of intervention by the state, since it leaves the maximum room for choice for the individual'. S*ome members of public react adversely to what they perceive as *a relentlessly negative stream of campaign messages.* The proposed solution to this problem is to follow *Change4Life* example and shift the focus of messages from *health* to *life and wellbeing* and about feeling good at present as well as prevention of future conditions.

In the literature, the purpose of conveying consistent, positive health messages is 'proactively raising the awareness of, and assessing a person's willingness to engage in further discussion about healthy lifestyle issues' (PharmacyHealthLink, 2007 b)(68). An additional intention of the 'Make Every Contact Count' programme is to signpost and direct people who come into contact with the NHS, to use the relevant services.

4. Reported cost-effectiveness of behaviour change programmes

The limited amount of studies assessing the cost-effectiveness of behaviour change programmes communicates three important messages:

1. The analysis of the cost-effectiveness of behaviour change programmes has not been commonly performed.

2. These studies which conducted the cost analysis of behaviour change programme show a lack of consistency in cost-effectiveness methodologies used and reflect varying levels in terms of their quality. Overall, there is a lack of 'gold standard' for analysing the cost-effectiveness of behaviour change interventions. This means that the results cannot be compared as they are not transparent or generalisable.

3. It is common practice in analysing the cost effectiveness of health-related behaviour change is calculated using the comparison to alternative approaches and techniques. There is a lack of a conceptual framework which allows to conduct the cost-effectiveness analysis of health-related behaviour change interventions as a stand alone programme.

The question that emerges here is that whether it is possible to isolate the impact of behaviour change intervention from other factors and services which may influence individuals' health-related behaviour choices? Another question that surfaces is that whether it is appropriate to attempt to isolate the impact of a particular health-related behaviour change interventions from a wide variety of programmes aiming at encouraging changes in health-related behaviour and lifestyle. At present, in the United Kingdom, there is a significant movement which attempts to increase individuals' awareness of health and empower them to make healthy choices. This movement represents a holistic approach and calls for collaboration between numerous health care and organisations from other domains such as local government or charity organisation. The overall aim is to ensure that:

(1) Individuals are empowered and supported to make healthy choices.

(2) An environment in which individuals live make making healthy choices easier.

5. Developing a conceptual framework for evaluating the cost-effectiveness of the 'Make Every Contact Count' programme

The 'Make Every Programme Count' programme include conveying consistent, positive, health messages by the NHS staff to patient who come into contact with the NHS organisations. This part of the report presents the conceptual framework for evaluating the financial benefits of the programme. Primarily, the framework can be used to as a decision making aid in investing or withdrawing the programme.

The evaluation of the cost-effectiveness of the programme will quantify the cost of the programme and the effects.

The number of assumptions has been made in order to develop a conceptual framework for evaluating the cost-effectiveness of the 'Make Every Contact Count' programme:

1. The purpose of the programme is to change peoples' attitudes and behaviours with respect to how/whether they access and use NHS services which support and encourage health-related behaviour change, for example, smoking cessation or chronic disease management services.

2. The desirable outcome of the programme is to optimise access and use of NHS services.

3. The training provided to NHS staff will equip them with competencies and skills necessary to signpost and advice people on how to access and use NHS services.

4. We have to accept the fact that we can be sure that the effects will result from the programme only if (1) is fulfilled.

5. The calculated benefits of the programme will include costs of the hospital treatment, primary care services and outpatient clinic services.

The proposed economic framework is focused on the premise that the delivering consistent, positive, healthy messages by the NHS staff may be cost-effective, provide the means for increasing the health and wellbeing of the population and thus decrease the demand for health care in the UK. Testing this premise requires the consideration of several conceptual and methodological issues.

If the "Make Every Contact Count" program limits itself to health messages relating to lifestyle and primary prevention then it could influence life style and behaviour of some people at a very low cost. The benefits for the individuals who respond to these interventions could be significant and cost saving could well accrue to the NHS over time.

If however it broadens its remit to the analogy with John Lewis stores and encourages the workforce to pro-actively sign post people at all levels of illness to the most appropriate services and engages with the hard to reach to

encourage people to engage in early diagnosis and treatment of pre-clinical disease then the clinical and economic benefits could be both significant and immediate. Encouraging people to access the appropriate level of unscheduled care alone and modifying their behaviour in relation to service access would bring significant benefits to most PCT's.

The effects of the programme will be quantified in terms of the amount of people who will access NHS services as the result of the programme. People who come into contact with NHS services will be asked how they have learned about these services. NHS staff will keep a record of all those who come into contact with the NHS as the result of the programme.

6. How is the Make Every Contact Count linked to the Health Behaviour Change Competence Framework?

As previously mentioned, the Health Behaviour Change Competence Framework is divided into four levels of competencies:

Levels I and II are associated with skills and competencies required to increase the awareness of health related behaviour and its influence on individuals' health as well as brief interventions which help individuals to take action. Level III is associated with selecting and using appropriate techniques aiming to change health related behaviour. Level IV is associated with specialised/advanced health behaviour approaches such as Cognitive Behavioural Therapy or Motivational Interviewing.

While the 'Make Every Contact Count' programme is concerned with Level I competencies, it can optimise the access and use of NHS services associated with remaining 3 levels of competencies included in the Framework. The optimisation of NHS services in the programme will include providing relevant information to people about when, where and how they can access NHS services and use them for maximum health benefits. Likewise, NHS staff may reinforce good behaviours among individuals who participate in behaviour change programmes - these positive reinforcements represent Level II and III competencies.

To conclude, the 'Make Every Contact Count' programme pervades all levels of competencies presented in the 'Behaviour Change Competence Framework'. The programme is likely to improve peoples' behaviours associated with how/whether they access and use NHS services which encourage and support people to alter their health-related behaviours and lifestyles.

The most appropriate means of generic and specific interventions to support attitude and behaviour change at population and community levels.

7. Summary

The aim of the 'Make Every Contact Count' programme is to ensure that the NHS staff takes every opportunity to help patients and visitors to make informed choices about their health related behaviours, lifestyle and health services utilisation. The ultimate aim of the programme is to encourage improve the health outcomes of the population, through encouraging people to take more responsibility and thus gain more control over their health status.

In the context of increasing prevalence of unhealthy lifestyle-related health conditions, the Behaviour Change Competence Framework offers the opportunity for prevention and may contribute to the adoption of healthy behaviour patterns and lifestyles. A number of studies have shown that delivering health messages is associated with increase in participation in health-related behaviour and this positive impact of delivering health messages on fostering behaviour change has been found to be related to three health-related behaviours: smoking, alcohol consumption and physical activity. Therefore, the conclusion can be made that the 'Make Every Contact Counts' programme is likely to facilitate health related behaviour change. Nevertheless, it is important to bear in mind that the effectiveness of the programme will be influences by a number of factors such as how the message is delivered, its content and the context in which it is deliver.

Conveying healthy messages may improve the health-related lifestyle choices, but it may also cause reluctance among individuals. It is important to ensure that the NHS staff delivers healthy messages consistently and in the most appropriate manner. There are the varieties of methods that can be used to enhance the effectiveness of delivering healthy messages: delivering a message in the form that is salient to people (not intrusive or paternalistic); creating a supportive environment for people to make positive health choices; delivering a message in a form that is likely to influence their behaviours related to use of services within NHS. All of those approaches require a systematic approach and the co-ordination of preventive initiatives undertaken by various organisations. The reason for this is that health related lifestyle choices are the results of the mixture of individual characteristics and environmental influences (Cutler et al, 2003) (69) and not only the pure results of free choices. The Sassi and Hurst (2008) (70) state that the appropriateness of any preventive action/intervention should be assessed against a number of contextual factors such as:

'the nature of the lifestyle choice those actions are meant to influence, the characteristics of the individuals whose choices are to be influenced, the prevailing culture and view of the role and state, the actions and positions taken by the media and other opinion makers, which may affect the way interference with individual choice is perceived (p. 39).

Another important aspect is the way the policy is implemented, that could impact positively or negatively on effectiveness of the programme and the extent to which it facilitates the behaviour change.

As discussed in this current report, the Public Health Policies focus on influencing the shift in investment from curative to preventive. An important step to be undertaken by the health care organisations is to ensure that the

commitment to health promotion and disease prevention will not be exclusively limited to investment, but that it will have impact on the day-to-day practices of the NHS staff. The NHS policies should be implemented in the way that facilitates the delivery the 'Make Every Contact Count' programme on a daily basis. This may imply the change to the NHS culture. This change may have a positive impact on the working relationships and collaboration between different parts of health care organisations. Staff will gain a better knowledge of the service delivery in other parts of organisation as they will be instructing patients how to make the best use of their services.

In conclusion, the 'Make Every Contact Count' programme is likely to have profound impact on:

(I) The decrease in the demand for health care and thus its costs (though influencing a health-related behaviour change).

(II) More effective use of health care services through increasing the effectiveness and utilisation of service delivery and treatment.

References:

1. Together for Health: A Strategic Approach for the EU 2008-2013. COMMISSION OF THE EUROPEAN COMMUNITIES. Brussels. Available at: http://ec.europa.eu/health/ph_overview/Documents/strategy_wp_en.pdf

2. The NHS improvement plan (2004). Putting people at the Heart of Public Services. Department of Health. Available at: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4084522.pdf

3. "Choosing Health - Making healthier Choices Easier" UK Department of Health: http://www.mlanortheast.org.uk/documents/ChoosingHealthExecSummary_.pdf

4. European Society of Cardiology, Professor Jaakko Tuomilehto, (2009) Can we change society? Barcelona, Spain, 31 August,

5. National Institute for Health and Clinical Excellence (2007), Quick Reference Guide. Behaviour Change. Available at: http://www.nice.org.uk/nicemedia/pdf/PH006quickrefguide.pdf

6. Inequalities in health, Report of a research working group, DHSS (1980). http://www.sochealth.co.uk/history/black.htm

7. Tackling health inequalities: Status report on the Programme for Action; Department of Health; Available at: http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT_ID=4117696&chk=OXFbWI

8. The 2002 "World Health Report: The world health report (2002) - Reducing Risks, Promoting Healthy Life. Available at: http://www.who.int/whr/2002/en/whr02_en.pdf

9. Keeping children active Competition for development contracts April 2009, NHS East of England Technology Strategy Board. Driving Innovations. Available at: http://www.innovateuk.org/_assets/pdf/competition-documents/briefs/sbri-keepingchildrenactive_03.pdf)

10. Statistics on Obesity, Physical Activity and Diet: England, February (2010). Available at:

http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/obesity/statistics-on-obesityphysical-activity-and-diet-england-2010

11. The 2002 "World Health Report: The world health report 2002 - Reducing Risks, Promoting Healthy Life. Available at: http://www.who.int/whr/2002/en/whr02_en.pdf

12. Together for Health: A Strategic Approach for the EU 2008-2013. COMMISSION OF THE EUROPEAN COMMUNITIES. Brussels. Available at: http://ec.europa.eu/health/ph_overview/Documents/strategy_wp_en.pdf

13. The Wanless report: Securing good health for the whole population, (2004). Available at: http://www.hm-treasury.gov.uk/consult_wanless04_final.htm

14. World-Class Commissioning. Department of Health (2007) (Available at: http://www.dh.gov.uk/en/Managingyourorganisation/Commissioning/Worldclasscommissioning/index.htm

15. North Karelia Project Shows The World How To Reduce Heart Disease: http://kantele.com/nwfwebsite/puska_heart.html

16. Farquhar HW et al. (1990) Effects of community wide education on cardiovascular disease risk factors - the Stanford five-city project. JAMA;264:359-65.

17. Carleton RA et al. The Pawtucket Heart Health Program - Cross-sectional results from a community intervention trial. (1994) Abstract, 34th annual conference on cardiovascular disease. Epidemiology and Prevention, March, Tampa, Florida.

18. Greister E et al. Final risk factor change after 7 years of a multicentre community intervention program – the German cardiovascular prevention study. (1994) Abstract, 34th annual conference on cardiovascular disease Epidemiology and Prevention, March, Tampa, Florida.

19. Nice Review Statins. NICE implementation uptake report: Statins (2008) Available at: http://www.nice.org.uk/media/411/4F/ImplUptakeReportStatins.pdf

20. Hypertension: management of hypertension in adults in primary care. NICE Guidance. (2006) Royal College of Physicians in London.

21. Richards N, Harris K, Whitfield MD et al. (2007) The impact of population-based identification of chronic kidney disease using

estimated glomerular filtration rate (eGFR) reporting. Nephrol Dial Transplant 0: 1–6 doi: 10.1093/ndt/gfm839.

22. The West of Scotland Coronary Prevention Study: economic benefit analysis of primary prevention with pravastatin. (1997) BMJ;315:1577-81.

23. Gotto AM. Air Force/Texas Coronary Prevention Study (AFCAPS/TexCAPS) (1997). Presented at the 70th Scientific Sessions of the American Heart Association, Orlando, Florida, November.

24. Haq IU, Jackson PR, Yeo WW, Ramsay LE. (1997) ison of methods for targeting CVD risk for primary prevention. Heart;77(suppl 1):36.28.

25. Black G. M. (2000) How medicine has changed: Mother's milk BMJ;320.327.

26. Dyslipidaemia Advisory Group, on behalf of the Scientific Committee of the National Heart Foundation of New Zealand. (1996) National Heart Foundation Guidelines for the Assessment and Management of Dyslipidaemia. NZ Med J; 109: 224-32.

27. Winyard G. SMAC statement on use of statins. London: Department of Health, (1997). (EL(97) 41 HCD 750 IP Aug 97).

28. The Wanless report: Securing good health for the whole population, 2004. Available at: http://www.hm-treasury.gov.uk/consult_wanless04_final.htm

29. Improving Outcomes in Colorectal Cancers (2004). Available from:www.nice.org.uk.

30. Luengo Fernandez 2006: Cost of cardiovascular diseases in the United Kingdom. R Luengo-Fernández, J Leal, A Gray, S Petersen, M Rayner (2006). Health EconomicsResearch Centre. Annual Report Available at: http://www.herc.ox.ac.uk/about/annrept06.

31. Allender S: Prevention of cardiovascular disease in different populations. (2008) NICE. Prevention of cardiovascular disease draft scope for consultation 23rd April - 22nd May NICE Guidance. Available from: http://www.nice.org.uk/nicemedia/pdf/CVDDraftScope.pdf.

32. Whitfield M, Gillett M, Holmes M, Ogden E, (2006) Predicting the impact of population level risk reduction in cardio-vascular disease and stroke on acute hospital admission rates over a 5 year period—a pilot study. Public Health 120 1140-1148.

33. Brindle P, Emberson J, Lampe F, Walker M, Whincup P, Fahey T, Ebrahim S. (2003) Predictive accuracy of the Framingham coronary risk score in British men: prospective cohort study.BMJ. Nov 29; 327(7426):1267.

34. The Wanless report: Securing good health for the whole population, 2004. Available at: http://www.hmtreasury.gov.uk/consult_wanless04_final.htm

35. Pharmacy Health Link http://www.pharmacyhealthlink.org.uk

36. Gray J., Eden G., and Williams M. (2007), Developing the public health role of a front line clinical service: integrating stop smoking advice into routine podiatry services. J Public Health (Oxf);29:118-122

37. Pharmacy Health Link http://www.pharmacyhealthlink.org.uk

38. Pharmacy Health Link http://www.pharmacyhealthlink.org.uk

39. Hilliard N., Jenkins R., Pashyan N., Powels J. (2007), Informal knowledge transfer in the period before formal health education programmes: case studies of mass media coverage of HIV and SIDS in England and Wales. *BMC Public Health.*, 7:293.

40. Doerksen S., Estabrookes P. 2007, Brief fruit and vegetable messages integrated within a community physical activity program successfully change behaviour. *International Journal of Behavioural nutrition and Physical Activity.*, 4:12.

41. Smeets T., Burg J., de Vries H.(2008), Effect of tailoring health messages on physical activity. Health Education Research, 23:3.

42. Dresler-Hawke E., Veer E.(2006), Making healthy eating messages more effective: combining integrated marketing communication with the behaviour ecological model. *International Journal of Consumer Studies.* 30: 4.

43. Buchbinder, Rachelle; Gross, Douglas P; Werner, Erik L.; Hayden, Jill A. (2008). Understanding the Characteristics of Effective Mass Media Campaigns for Back Pain and Methodological Challenges in Evaluating Their Effects.. Spine. Volume 33 - Issue 1

44. Barlow S., Richert M., Baker E. (2007), Putting context in the statistics: paediatricians' experiences discussing obesity during office visits. *Child: Care, Health and Development*, 33:4.

45. Kahn E.B., Ramsey L, Brownson R.C., Heath G., Howze E. (2002), The Effectiveness of Interventions to Increase Physical Activity. A systematic review. *Am J Prev Med*, 222 (4S).

46. Powell, K. & Thurston, M. (2008). *Commissioning training for behaviour change interventions: Evidence and best practice in delivery.* Chester: University of Chester, Centre for Public Health Research.

47. Stead, L.F., Perera, R., Bullen, C. et al**.** (2008) Nicotine replacement therapy for smoking cessation (Cochrane Review).

48. Meyer C., Ulbricht S., Baumeister S., Schumann A., Rüge J., Bischof G., Hans- Rumpf J. and John U. (2007). Proactive interventions for smoking cessation in general medical practice: a quasi-randomized controlled trial to examine the efficacy of computer-tailored letters and physician-delivered brief advice. *Addiction*. 103; 294.

49. Fleming M F; Manwell L B; Barry K L; Adams W; Stauffacher E A. (1999) Brief physician advice for alcohol problems in older adults: a randomized. Proceedings of the Association of American Physicians;111(2):131-40.

50. Ogilvie D, Foster C.E.. Rothnie H., Cavill N., Hamilton V., Fitzsimons C.F., Mutrie N. (2007), Research Interventions to promote walking: systematic review BMJ;334:1204 (9 June), doi:10.1136/bmj.39198.722720.BE.

51. Babor et al., 1994 T.F. Babor, M. Grant, W. Acuda, F.H. Burns, C. Campillo, F.K. Del Boca, R. Hodgson, N.N. Ivanets, M. Lukomskya, M. Machona, (1994) A randomized clinical trial of brief interventions in primary care: summary of a WHO project. *Addiction* 89, pp. 657–660.

52. Meyer C., Ulbricht S., Baumeister S., Schumann A., Rüge J., Bischof G., Hans- Rumpf J. and John U. (2007). Proactive interventions for smoking cessation in general medical practice: a quasi-randomized controlled trial to examine the efficacy of computer-tailored letters and physician-delivered brief advice. *Addiction*. 103; 294.

53. Summets et al., (2008), Global HIV prevention working group. Behaviour Change in HIV prevention: (Re) Consideration for the 21st Century.

54. Smeets T., Burg J., de Vries H., Effect of tailoring health messages on physical activity. Health Education Research, 2008, 23:3.

55. Winocour PH, Fisher M (2003) Prediction of cardiovascular risk in people with diabetes. Diabet Med 20:515–527.

56. Smeets T., Burg J., de Vries H.(2008), Effect of tailoring health messages on physical activity. Health Education Research, 23:3.

57. Winocour PH, Fisher M (2003) Prediction of cardiovascular risk in people with diabetes. Diabet Med 20:515–527.

58. Winocour PH, Fisher M (2003) Prediction of cardiovascular risk in people with diabetes. Diabet Med 20:515–527.

59. Winocour PH, Fisher M (2003) Prediction of cardiovascular risk in people with diabetes. Diabet Med 20:515–527.

60. Baxter M., Translating health care messages into beneficial behavioural change. *Practical Diabetes International.* 2006, 23:6.

61. Noar, S.M., Benac, C.N. & Harris, M.S. (2007). Does tailoring matter? Psychological Bulletin, 133, 673–693.O'Cleirigh, C., Ironson, G., Weiss, A. & Costa, P.T. (2007).

62. Kahn E.B., Ramsey L, Brownson R.C., Heath G., Howze E., The Effectiveness of Interventions to Increase Physical Activity. A systematic review. *Am J Prev Med* 2002, 222 (4S).

63. Kahn E.B., Ramsey L, Brownson R.C., Heath G., Howze E., The Effectiveness of Interventions to Increase Physical Activity. A systematic review. *Am J Prev Med* 2002, 222 (4S).

64. Michie S., Abraham C., Whittington C., McAteer J., Sunjai G., Effective techniques in healthy eating and physical activity interventions: A Meta Regression. *Health Psychology*. 2009, 23:6.

65. Albarracín, D., Gillette, J.C., Earl, A.N., Glasman, L.R., Durantini, M.R., & Ho, M.H. (2005). A test of major assumptions about behavior change: a comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. Psychological Bulletin 131, 856-97

66. Kahn E.B., Ramsey L, Brownson R.C., Heath G., Howze E., The Effectiveness of Interventions to Increase Physical Activity. A systematic review. *Am J Prev Med* 2002, 222 (4S).

67. Hillsdon C., Foster N.C., Naidoo B., Crombie C. A Review of the evidence on the effectiveness of public health interventions for increasing physical activity among adults: A review. Health Development Agency 2005.

68. Pharmacy Health Link http://www.pharmacyhealthlink.org.uk

69. Cutler, D.M.E.L. Glaser and J M Shapiro (2003). Why Have Americans Become More Obese? Journal of Economic Perspectives, Vol 17, No. 3, Summer pp. 98-118

70. Sassi F., and Hurst J. (2008) Organisation for economic cooperation and development. The OECD Health Working Paper NO. 32. *The Prevention of Lifestyle-Related Chronic Disease: an Economic Framework.*