Facing **UP** to health

Chief Medical Officer's Report 2005 – Taking responsibility for health in the 21st Century

Contents

1 Introduction by Professor Michael O'Donnell, Chief Medical Officer, UnumProvident

5 Dr David Ashton – Childhood obesity – time for action

10 Dr Guy Ratcliffe – Long-term effects of alcohol

17 Dr Jacqueline Chang – Alcohol and drug problems in the workplace

23 Professor Stephen Tomlinson – Diabetes Mellitus – can understanding risk reduce complications and prolong life?

Introduction

to the Chief Medical Officer's Report 2005

Welcome to the fourth Chief Medical Officer's report. This year, we are looking at what the future holds in terms of worrying trends in health and behaviour. The last thirty years have seen an explosion of new technology. The world of medicine is no exception and in many ways, the current state of the art technology would have been unimaginable even a relatively short time ago.

We are seeing a complete change in our understanding of the molecular biology of many illnesses. Taking HIV as an example, the discovery of the disease coincided with the development of new techniques to identify viruses and a new understanding of how viruses take control of cells and interfere with their functions. Had the epidemic occurred 10 years earlier, it may not even have been possible to identify the cause, let alone develop successful treatments.

The march of progress means that we are seeing real advances in the treatment and prevention of heart disease and cancer. It would not be unreasonable to predict an exponential growth in our understanding and ability to prevent and treat these 'dread diseases' over the next ten years or so. The first drugs designed to be effective on specific tumours are coming on to the market. With earlier and better treatment for heart disease, as well as much improved prevention, it is probable that in a few years time, a heart attack will no longer be seen as a catastrophic event for most people.

Unfortunately, this does not mean that we are progressing towards a rosy future. This report highlights some of the clouds on the horizon in the not too distant future. The first issue we highlight is obesity. We read more and more in the press about obesity and hear more and more predictions from public health experts about the problems that we are storing up for ourselves in future. Why is obesity a problem? Quite simply because it predisposes people to all sorts of serious illnesses and diseases, and at a much earlier age than they would normally expect.

Diseases and illnesses caused or made worse by obesity

Type 2 Diabetes (maturity onset)
Ischaemic Heart Disease
Stroke
Chest Disease
Osteoarthritis
Depression
High Blood Pressure
Some types of cancer

The National Audit Office (NAO) estimates that most Britons are now overweight and that one in five are sufficiently so to be classified as obese. It is estimated that the total cost to the economy of obesity, including NHS treatment, is £2.5billion each year and that on average, each obese person dies nine years prematurely. For the year 1998, the NAO estimated that obesity cost industry 18 million days absence and caused 30,000 premature deaths.

Dr David Ashton, an epidemiologist with an interest in childhood obesity argues that obesity may be as much to do with physical inactivity as overeating. He points out that children rarely walk to school any more, and that their leisure activities are much less physical than they used to be. I am sure that many of us over the age of 40 can remember being sent outside to play by our parents whenever we became too much of a handful. Nowadays, parents are fearful of letting their children on to busy roads or out to play where they may be at risk of abduction or worse. It seems a much safer option to turn on the television or start up a computer game. Dr Ashton's article also mentions the effects of transport policies, a topic that was addressed in last year's Government White Paper '*Choosing Health*'. Why is childhood obesity an issue for insurers and employers? Because overweight children very frequently become obese adults.

Another cloud on the horizon is binge drinking and excessive alcohol intake in general. We are all appalled by the scenes shown regularly on television of gangs of drunken young people fighting and vomiting in city centres when the nightclubs throw them out. Apart from the problems this is creating for accident and emergency departments in terms of looking after people who have alcohol poisoning and patching up the participants in street brawls, there are the longer-term health problems. We know that alcohol consumption and the incidence of alcoholism can be related in a very direct way to the price and availability of alcohol. Dr Guy Ratcliffe of the Medical Council on Alcoholism writes in more detail about these problems and their implications.

Government policy to relax drinking laws to prevent the rush to drink up before last orders appears, at least to some of us, to be making the problem worse. The proliferation of drinking outlets and the competition between them has led to price-cutting and 'happy hours'. Between the years 1980 and 2000, we have seen a massive 121% increase in the number of deaths from cirrhosis of the liver. How many cases of sexually transmitted diseases such as chlamydia and gonorrhoea with resultant infertility are acquired while drunk? How many unwanted pregnancies are conceived under the influence

of alcohol? This is not to mention the increasing number of people who are becoming seriously dependent on alcohol.

It is surely significant that so far these problems are being discussed only in terms of mortality and the cost to the NHS. The only reference the NAO made to employment when discussing obesity was to the 18 million working days lost. Clearly there are other concerns: many obese people and diabetics will develop disabilities, many binge drinkers will become alcoholics. This will be an increasing burden on society and will definitely cause problems for employers and medical insurers alike. For employers there will be the financial burden of making adjustments to the workplace so that people can remain in work, as well as the difficulties of filling vacancies as the proportion of the working age population with work capacity falls. With binge drinking, there are already undoubtedly difficulties faced by employers in coping with absenteeism due to hangovers, although this is not yet quantified.

What about people coming to work whilst under the influence? This could lead to disaster in the transport industry, but almost certainly translates into mistakes and poor customer service in all industries.

To complement Dr Ratcliffe's article, Dr Jacqueline Chang has written on how she feels employers can deal in a positive, supportive way, with employees who have alcohol problems. We should remember that people with drink problems stand a much greater chance of successfully giving up alcohol if they are still in employment, and that the sooner their problem is identified and acknowledged the less difficult the transition to abstinence and recovery will be.

Our last article by Professor Stephen Tomlinson describes the phenomenon where obesity, diabetes, high blood pressure and high cholesterol combine into what is now known as the metabolic syndrome, and what this may mean for public health. The problem is that obesity is now starting more and more frequently at a very early age, which means that by the time some children grow into adults, they have already had the problem for a number of years. We are also now seeing cases of type 2 diabetes in early adulthood with all that that means for the future – it has been remarked that the current generation of healthy young adults could be the first to see their children die before they do.

So what can employers do about all of these issues? The important thing is to realise that passive measures, such as health screening, do not work on their own. A range of simple measures, such as promoting healthy food options in the cafeteria, and providing access to individualised health and fitness advice and subsidised gym membership can all form part of the package. What does seem to be important

is commitment from the very top of the company to conveying the message that they care about their employees' health and wellbeing. Do employers have a duty of care for their staff in these matters? Possibly not, but they certainly have a major interest in them.

Last year's Government White Paper '*Choosing Health*', stressed the importance of healthy work. This year UnumProvident partnered with the Department of Health and the Health and Safety Executive in sponsoring the Business in the Community's 'Healthy Workplace Award'. The winners, 3M in Newton Aycliffe, showed that their focussed low cost approach was effective both in reducing absenteeism and improving morale in the short-term and promoting healthier lifestyle and behaviours in the longer-term.

It is probably not possible with the current level of knowledge to demonstrate that employers can have an effect on the prevalence of obesity and binge drinking in their staff, but there is increasing evidence to suggest that they can improve productivity and attendance by promoting health and taking an interest in these issues with their staff. It may well not be a case of whether we can afford health promotion? Rather, whether we can afford to do nothing?

Professor Michael O'Donnell

Michael is an accredited specialist in occupational medicine and has the Diploma of Disability Assessment Medicine. He qualified in 1975 and worked in hospital medicine and General Practice before moving to Occupational Medicine in 1984. He has now worked in Occupational Medicine for 21 years, with 6 of those years spent in the oil and petrochemical industries. He has experience in the public and private sectors in virtually all fields of operation.

His particular interests are in fitness for work, the biopsychosocial model of incapacity and presentation and assessment of risk – particularly in the area of psychosocial hazards.

Last year he was appointed honorary visiting professor in the School of Life and Environmental Sciences at Salford University.

Childhood obesity – time for action

By Dr David Ashton

"Obesity has grown by almost 400% in the last 25 years and on present trends, will soon surpass smoking as the greatest cause of premature loss of life. It will entail levels of sickness that will put enormous strains on the health service. On some predictions, today's generation of children will be the first for over a century for whom life-expectancy falls"

Health Select Committee Inquiry into Obesity[1]

Obesity – an increasing problem

Childhood obesity is a serious problem with profound health and social consequences. The increase in childhood obesity rates in the UK began in the mid 1980s with a rapid escalation occurring most noticeably over the last 5 years. Current statistics suggest the prevalence of obesity in children is at least four times higher today than it was 30 years ago. It has received a great deal of media attention recently not only because of the rapid increase in prevalence across the UK as well as internationally, but also because it is widely believed that food advertising to children is a major contributor to these trends. In this article I discuss the problem of childhood obesity, its causes and – most importantly – the potential public health consequences of inaction.

How big is the problem?

The most commonly used measure of obesity in the adult population is the body mass index (BMI) calculated as weight (kg)/height $(m)^2$ and a cut off point of $30kg/m^2$ is recognised internationally as a definition of adult obesity. In children, BMI changes substantially with age and standard adult cut-off points are not appropriate. An alternative is to use national reference ranges which define obesity as a BMI at or above the 95th percentile for age and sex. Using an international reference range derived from six countries' figures, the Health Survey for England 2002[2] suggests that 1 in 6 (16%) of boys and girls aged 2-15 years are obese. If figures for being overweight are also included, the numbers of boys and girls at a weight that poses a risk to their health rises to almost 1 in 3.

However, BMI does not distinguish between the contribution to body weight of fat tissue and that

of muscle, bone and water, nor does it provide any information about where fat is deposited. This is an important observation because there is good evidence that, compared with children only 20 years ago, at any given weight or BMI, modern children are much fatter, have less muscle and a more central distribution of body fat – an "apple" as opposed to a "pear" shape – which reflects greater deposition of "high-risk" body fat within the abdomen and around major organs[3-5]. Consistent with the central distribution of body fat, studies have also demonstrated a significant increase in waist sizes in children, especially in girls[6]. These changes in fat distribution are of particular concern because they are more likely to lead to the well recognised complications of obesity in adult life.

The health consequences of childhood obesity

Childhood obesity is not simply a cosmetic problem, but is associated with important health consequences. Even very young children are aware of the negative view held by society towards obese people and it seems likely that this could have an adverse impact on their developing sense of self and self-esteem. As a result, obesity has been linked to low self-image, low self-confidence and even depression in some obese children[7]. The risk of psychological morbidity increases with age and girls appear to be at greater risk than boys[8].

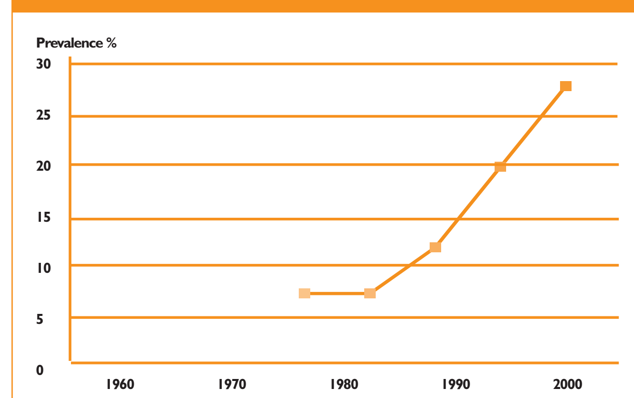
There is good evidence that obese children have a greater propensity to become obese adults. Freedman et al found that 77% of obese children were obese adults[9]. Moreover, adolescent obesity is even more likely to persist into adulthood than childhood obesity. For example, Whitaker et al found that 69% of obese 6-9 year olds became obese adults compared with 83% of obese 10-14 year olds[10].

What are the health consequences of childhood obesity tracking into adulthood?

Most of the well established risk factors for heart and circulatory diseases, including raised blood pressure, increased cholesterol levels and insulin resistance (collectively referred to as "metabolic syndrome"), cluster in overweight children compared with their normal weight peers. One recent US study showed that nearly one third of overweight and obese adolescents had evidence of metabolic syndrome[11], which greatly increases the risk of diabetes, heart disease, stroke and some forms of cancer in adulthood.

The development of type II diabetes in children – a condition usually associated with middle-aged

Overweight children in England
Trends in the last three decades



obese adults – is of particular concern, given the strong association between diabetes and cardiovascular disease, kidney failure, limb amputation and retinal damage leading to blindness. In some adolescent clinics, type II diabetes now represents up to one half of new cases of diabetes[12]. The diabetic population in the UK – currently around 2.4 million – is set to double in the next 10-15 years and many of those newly diagnosed cases will be in children.

To summarise: obese children become obese adults who are more likely to suffer premature death and disability from a range of obesity-associated diseases, including cardiovascular disease, diabetes and some forms of cancer.

Why are children getting fatter?

Put simply, an increase in body fat occurs when the amount of energy (calories) consumed as food and drink, exceeds the energy used during physical activity and other metabolic processes of the body. This is known as positive energy balance. The excess energy is stored principally as fat and each pound of fat stores approximately 3,500 kcal.

If children are getting fatter, it is clear that this must be due either to a rise in calorie intake, a decrease in energy expenditure through physical activity, or a combination of both.

It is commonly assumed that today's children consume more "junk" foods than ever before and that this over-consumption is the most important factor in fuelling the current obesity epidemic in children. Furthermore, the press and media have

encouraged the widespread belief that food advertising to children has an adverse effect on children's food preferences and purchasing behaviour. There are, however, compelling arguments to resist both of these claims[13].

Firstly, evidence suggests that consumption of energy dense foods may not be the primary factor in determining childhood obesity. Epidemiological studies do not show a consistent association between dietary fat and weight in young children and adults. Moreover, the current obesity epidemic appears to be taking place against a background of declining energy intake in children, especially younger children[14].

Secondly, despite media assertions to the contrary, there is no good evidence that advertising has a substantial influence on children's food consumption and, consequently, no reason to believe that a complete ban on food advertising – which some politicians and lobbyists have demanded – would have any useful impact on childhood obesity rates. This conclusion is supported by experience from Quebec where, although food advertising to children has been banned since 1980, childhood obesity rates are

no different from those in other Canadian provinces[15]. A similar advertising ban has existed in Sweden for over a decade, but again this has not translated into a reduction in obesity rates[16].

If an increase in energy intake is not causally linked to childhood obesity, then we have to look for an alternative explanation. Clearly, if children over-consume energy-dense foods they will become fat, but there are good reasons for regarding the current epidemic of childhood obesity as primarily a problem of energy expenditure rather than energy intake.

A sedentary environment

Anthropological studies indicate we are more sedentary today than at any time in our evolutionary history – and that includes our children. Today, children expend about 600 kcal/day less than their counterparts 50 years ago and recent evidence confirms that the sedentary lifestyle is well established even in pre-school children[17]. Television watching and computer games contribute and there has been a large increase in car journeys undertaken on behalf of children[18]. Especially worrying is the marked decline in physical activity during adolescence among girls, an observation consistent with studies demonstrating a greater increase in waist size in girls compared with boys[6,19].

The failure of Government

Studies reveal that the pattern of children's travel in modern cities is characterised by high car use, low levels of bicycling, and a steep decline in walking with increasing car ownership. In these cities, over a third of the children sampled spent less than five minutes walking per day[20]. This decline in physical activity in both adults and children has been exacerbated by the failure of successive governments to provide a safe environment in which physical activity can be incorporated into everyday life. If parents have concerns about their children's safety, either because of traffic or because of possible abuse by strangers, they will probably opt for the car and not the pavement – and who can blame them?

Strategies to address the problem

Firstly, we have to acknowledge the problem and then confront it. We have to concede that our children are getting fatter and that this has worrying implications for their health and well-being. In the USA one clothing retailer now displays jeans for 8-year olds in three sizes: "regular", "loose" and "husky". Apparently "husky" is the name company executives came up with because they had to invent a euphemism for "fat". One understands their dilemma, but this does not help deal with the problem. On the contrary, it encourages parents to indulge in a modern version of the Emperor's clothes, a form of delusion which underscores the trend towards "fat acceptance" in the US and other countries. But the problem should not be accepted – it should be attacked.

In one study from Toronto, youngsters engaging in 60 minutes of activity per day during school time, had better academic results than their relatively sedentary counterparts.

Given that dietary strategies have failed to slow the rising tide of obesity in children, I believe a more fruitful approach would be to identify innovative ways in which to increase children's activities of daily living. It will not be achieved by simply including extra sessions of gym activity, because children spend a large part of their time away from school and need to be physically active throughout the day.

One obvious way to do this would be to invest in safe walk-ways and cycle tracks so that children could be physically active on the way to and from school. This would also help to mitigate the adverse effects of the school run which now accounts for 20% of peak morning urban congestion, with the inevitable pollution which accompanies it. Japanese children usually walk to school in groups organised in such a way that older children chaperone the younger ones at traffic junctions and crossings, so why shouldn't we do the same?

The role of schools in promoting an active lifestyle needs more emphasis and funding. However, the relentless emphasis on competition and sporting performance in schools alienates many children who lack the physical attributes or interest required for competitive sport and who then become sedentary adults. This is especially true for girls who are vulnerable to weight gain and sedentary behaviours in adolescence. The National Curriculum should include a lifestyle module in which children learn about the benefits of physical activity for health for life, rather than simply competitive sport during their school years.

Another practical strategy would be to include a daily walk of 30 minutes within the school curriculum. In anticipation of the inevitable objection that taking time to walk during school time would have an adverse impact on the children's academic work, evidence suggests otherwise. In one study from Toronto, youngsters engaging in 60 minutes of activity per day during school time, had better academic results than their relatively sedentary counterparts.

Health policy makers and those who control the public purse should also bear in mind that active children are more likely to become physically active adults, who will have lower rates of heart disease, diabetes and cancer[21,22].

Many parents worry from time to time about whether their children are being adequately taught at school and whether they will pass their GCSE exams. Unless we are willing to implement radical strategies to address the epidemic of obesity in children, parents may be faced with something much worse to worry about.

Dr David Ashton BSC, MB, ChB, PhD

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Long-term effects of alcohol

By Dr Guy Ratcliffe

Alcohol

Alcohol (Ethanol, Ethyl Alcohol, C_2H_5OH) has for thousands of years been ubiquitous in a variety of forms, and has become without question, our favourite drug. Because of its increasing availability in various forms and relative cheapness, alcohol consumption in the UK has significantly increased during the decades after the Second World War with both deleterious social consequences and affects on health. The British, throughout history, have had a tendency to binge drink, and the present epidemic, particularly amongst the young, was one of the main drivers behind the Government's Alcohol Strategy for England.

Most people drink sensibly, but what does this actually mean? Alcohol affects our behaviour and demeanour as we drink. Primarily it has a depressant effect on higher brain centres. It makes us less inhibited, more inappropriately confident, talkative and argumentative. The social consequences are well known with the impact being particularly noticeable within Accident and Emergency Departments during weekend nights when up to 70% of patients seen are under the influence of alcohol.

Units of alcohol

We need a simple method for calculating how much alcohol we drink. The concept of a unit of alcohol ought to be easy: in practice, it is not, primarily because we purchase alcohol in a variety of volumes and containers. A UK unit is the equivalent of 10ml or 8g of absolute alcohol. All alcohol beverage containers should specify the percentage of alcohol by volume (ABV%),

and the simple equation to calculate the number of units contained is as follows:

$$\frac{\text{ABV\%} \times \text{Vol of beverage}}{1000} = \text{Number of Units}$$

Thus: One can of beer of **440ml** volume of **5% ABV** contains **2.2** units.

One glass of wine of **175ml** volume of **12% ABV** contains **2.1** units.

One tot of whisky of **25ml** of **40% ABV** contains **1** unit.

And: A standard bottle of wine contains **750ml** and thus the number of units contained will be **3/4** of the **% ABV**. Thus, a bottle of wine containing **12% ABV** will contain **9** units of alcohol.

One bottle of whisky of **700ml** of **40% ABV** contains **28** units.

Containers of alcohol legally must stipulate the % ABV on the label. There is no legal requirement presently to stipulate the number of units on the label, although some do and there is increasing support for this. In practice, with or without specific information about alcohol content on the container label, it is easy to underestimate alcohol consumption, particularly in the home where specific measures are rarely, if ever, used particularly as far as wines and spirits are concerned.

Metabolism of alcohol

Alcohol is rapidly absorbed from the stomach and the upper small intestine: drinking on a full stomach will slow the rate of absorption. Alcohol is primarily metabolised by the liver at a fixed rate of one unit per hour. Thus, consumption of ten units of alcohol within three hours will require roughly eight hours after cessation of drinking to completely metabolise. In this context, driving the morning after an episode of binge drinking when the blood alcohol concentration may well be above the legal limit is a potential problem.

A key difference between men and women is that the latter have a smaller body water compartment, and consequently will produce a higher blood alcohol concentration for the same volume of alcohol consumed. This difference between the sexes leads to low risk alcohol consumption being defined as up to **21** units per week for men, and **14** units for women. Between **21** and **50** units per week for men, and between **14** and **35** units for women are defined as hazardous drinking and above **50** for men and **35** for women are described as harmful drinking.

It can be seen that low risk drinking limits daily input to no more than one pint of beer, two small glasses of wine or two pub measures of spirit. Constantly higher rates of consumption inevitably increase the risks. On the contrary, there is some evidence that low regular consumption of alcohol may have some cardio-protective effect in middle-aged men and postmenopausal women.

Long-term effects of alcohol

Effects on health

The effects of alcohol on health are wide and numerous and virtually any bodily system can be affected by regular alcoholic excess. (www.medicouncilalcol.demon.co.uk). This review will concentrate on three specific areas, the liver, alcohol dependence and associated psychiatric co-morbidity, and the present impact of alcohol on accident and emergency departments. The latter includes comment about the increased prevalence of risk taking relating to casual unprotected sexual activity. Some general comments on the epidemiological effects of alcohol on cardiovascular disease complete this review.

Alcohol and the liver

As the most important site of alcohol metabolism, it is not surprising that the liver may be affected by excessive consumption. Fortunately, some of the early changes are reversible, assuming alcohol consumption is dramatically reduced or discontinued altogether. Men drinking more than 6-7 units daily, and women more than 5 units daily are at increased risk of developing alcoholic liver disease. It is difficult to define the exact period of consumption of such levels to produce significant liver disease: incidence of alcoholic cirrhosis, when changes are permanent may take up to 10 – 15 years to develop and occurs in 20 – 30% of individuals who consume alcohol in such quantities. Presently we cannot identify those susceptible but presumably, genetic and environmental factors have a contributory role.

The earliest change is the development of fatty change in the liver. This is frequently associated with no symptoms, even though the liver may be enlarged and there may be a rise in certain liver enzymes within the blood. Ultrasound of the liver will detect the fatty deposits in the liver. Alcohol withdrawal will allow reversal of this process.

Alcoholic hepatitis, in which evidence of inflammation occurs in the liver, is the next stage and again may not produce any symptoms. Alternatively, symptoms of jaundice, fluid retention and liver enlargement may occur and severe cases are associated with a mortality rate of up to 40%. Evidence of inflammation may also disappear with abstinence from alcohol.

Alcohol cirrhosis may remain asymptomatic or alternatively present with signs of liver failure with a high mortality rate. The appearance of liver failure in such circumstances may be an indication for liver transplantation at some stage: liver failure due to alcoholic cirrhosis is the commonest indication for transplantation in the UK. There is a shortage of organs for transplantation presently in this country.

A further complication of alcoholic cirrhosis is the subsequent development of primary liver cancer, which is itself a cause of reduced survival.

Long-term abstinence is the most important factor in managing alcoholic cirrhosis. An asymptomatic middle aged man identified incidentally as having cirrhosis has a 60% chance of surviving 10 years if he abstains from alcohol.

The development of Alcoholics Anonymous, the best-known self-support group, has enabled several dependent alcoholics to remain abstinent.

Alcohol dependence

It is well known that alcohol dependence has been recognised for centuries, with Noah being the first documented sufferer circa 1700BC.

Alcohol dependence or alcoholism is a syndrome characterised by the presence of some or all of the following:

- A strong desire or compulsion to drink
- Difficulty in controlling the levels of alcohol consumed
- A physiological withdrawal state if consumption is ceased
- Increasing tolerance to alcohol so that increased amounts are necessary to achieve the same effects
- Neglect of other interests
- Persisting use of alcohol despite evidence that this is contrary to good health.

There has been much debate as to whether alcoholism is an illness, with many sufferers being convinced that it is a disease. This may be partly explained by the fact that the problem has an hereditary aspect. Alternatively, is it the personality type that is inherited? Whichever, there is no doubt that its causation is multifactorial in origin. Moreover, different varieties of alcoholics have been described based primarily on their drinking patterns. Social stigmata of alcohol dependence remain, which probably explains the attitude of some to hide their habit at the exclusion of all else.

Self-acknowledgement that a problem exists is crucial to successful treatment: abstinence after a supervised withdrawal (detoxification) programme has generally been the aim of any form of therapy. Formulated programmes of withdrawal and rehabilitation have been developed within the NHS, the private sector and via various voluntary agencies. Regrettably, relapse is not infrequent and a pattern of recurrent relapse and recovery is not uncommon. The development of Alcoholics Anonymous, the best-known self-support group, has enabled several dependent alcoholics to remain abstinent. The parallel organisations, AlAnon and AlAteen, have been developed to offer help and support to partners and relatives

Long-term effects of alcohol

and to teenage sons and daughters of alcoholics respectively.

Therapeutic options in treating alcohol dependence include disulfiram (antabuse) which blocks the breakdown of alcohol by the liver, thereby allowing the build up of acetaldehyde in the blood stream which itself produces nausea, vomiting, and facial flushing in most cases. Patients taking antabuse are aware of these side effects should they drink.

More recently, drugs which reduce the craving for alcohol, such as acamprosate, have been introduced with some success, certainly in the short-term. Further research in identifying other therapeutic options is needed.

It is appropriate here to comment on possible psychiatric co-morbidity occurring in association with alcohol dependence. This can be defined as the co-existence of an alcohol misuse or alcohol dependence problem and one or more additional mental illness or behavioural disorders. In such terms, co-morbidity and 'dual diagnosis' are synonymous. Some patients drink because they are depressed; others are depressed because they drink. Several surveys have shown significantly higher incidence of associated psychiatric disorders, perhaps as high as 30-40%. Specific associations include 10-16% having neuroses, 10-24% having personality disorders, 2-3% affective psychoses and 1% having schizophrenia. Up to 5% may be dependent on other drugs. Some studies in young people suggest that such co-morbidity is much more common.

Alcohol may be an important precipitant to both deliberate self-harm and suicide: in one report nearly one third of young suicides were intoxicated with alcohol at the time of death. An association with eating disorders has also been described in females with 30% in one study.

The incidence of alcohol dependence amongst the criminal population is higher than in the general population, and one may exacerbate the other although this in itself does not infer causality.

Alcohol and the A&E Department

The increase in alcohol consumption in this country, and in particular the increasing incidence of binge drinking, has had a very significant impact on the NHS, not least on the acute services including Accident and Emergency departments. Up to 70% of attendees in A & E late on Friday and Saturday nights have been binge drinking, and have developed a medical problem as a direct result, whether it is fight related, due to a fall or due to the development of other symptoms etc. There have been several studies investigating different aspects of this increasing problem. Moreover, there have been several high profile television programmes produced to debate the concerns expressed by A & E Consultants and Chief Constables as well as Ambulance Trusts' staff. The increase in the number of licensed premises within city and town centres has not always been well planned, and the outpouring of large numbers of intoxicated people on to the streets at more or less the same time, together with cheap alcohol beverage promotions have all contributed to this worsening situation. The majority of young intoxicated people however, do not require medical assistance of any sort and proceed home to sleep off their drunkenness, only to repeat the process in the near future.

Clinical circumstances may dictate the attendee may require hospital admission: in one study over a two-month period, 12% of all attendances were alcohol related. Of these, 28% required admission, which represented 6.2% of all admissions to the hospital during the period of the study. In another study, 43% of head injury attendances were alcohol related, and in a further study over 50% of head injury patients requiring admission were alcohol related.

Many intoxicated patients are abusive to other patients and to staff, which will increase possible security costs. Financial costs to the NHS as a direct result of management of alcohol related problems are suggested to lie between £500m and £2bn per year.

Some A & E departments have introduced simple screening techniques to try to identify any evidence of underlying alcohol abuse, and where necessary have offered such patients appropriate brief interventions to not only identify the possibility that a problem exists, but how the patient may deal with it. Such interventions can be very successful, certainly in the short-term, and make such patients far more aware of the potential harm their alcohol habit may be producing.

The disinhibition associated with excessive alcohol consumption is significant in raising the risk of casual unprotected sexual activity, with its inherent risks of unplanned pregnancy and/or sexually transmitted diseases. The incidence of the common sexually transmitted diseases is on the increase in the UK, and part of this increase is related to the increase in risk taking associated with binge drinking. Regrettably, the pharmacological action produced by alcohol is sometimes used as an excuse for what can be construed by some to be inexcusable behaviour.

Long-term effects of alcohol

Alcohol and the cardiovascular system

Several studies over the last 50 years have suggested a cardio-protective effect of alcohol consumed in small quantities, up to 3 units per day in men, and up to 2 units per day for women. It is important to understand that this applies predominantly to men over 40 and to post-menopausal women, in whom the evidence suggests a reduction in overall mortality compared with non-drinkers. This effect is not sustained if more alcohol is regularly consumed: conversely the reverse is the case with an overall increase in mortality as consumption rises, and this rise continues in a more or less linear fashion. The result is the well-described 'J'-shaped curve quoted in so many epidemiological studies.

What is undoubtedly true is that regular consumption of alcohol in quantities greater than those quoted above will potentially raise blood pressure significantly, thereby increasing the risk of haemorrhagic stroke, heart attack, irregularities of heart rhythm and cardiac muscle damage. These effects persist even when other factors such as smoking and obesity have been considered.

Of course, an explanation for these effects has been sought. Inevitably, some have expressed certain scepticism towards any such hypothesis. What does seem to be a plausible explanation is that alcohol increases levels of high-density lipoproteins and reduces fibrinogen levels and platelet stickiness, both of which are important factors in thrombosis. Further research suggests that the cardio-protective effects are best provided by red wine because of the anti-oxidants contained in the grape skins used in its production.

Summary

This short paper has tried to describe the position of alcohol today within our society, and help to define some of the key medical issues, which are direct consequences of alcohol consumption. There are others such as the impact of alcohol on the brain and peripheral nerves. However, it must be remembered that the majority of the population consume alcohol sensibly, and do not necessarily come to harm as a result. Nevertheless, it is essential that people are aware of the risks and are able to make informed decisions about their alcohol consumption.

Dr Guy Ratcliffe

Dr Ratcliffe has been the Medical Director for the Medical Council of Alcohol (MCA) since the year 2000. The MCA was founded by doctors in 1967, with an aim to better understand alcoholism, its prevention and the treatment and after-care of alcoholics.

Guy served in the army for 35 years and was the commanding officer for various hospitals around the world. He has professional qualifications in general medicine and is a fellow of the Royal College of Physicians.

Alcohol and drug problems in the workplace

By Dr Jacqueline Chang

Alcoholism in the UK workplace – a growing problem

Statistics published by the Government's Strategy Unit (2003)[1] suggest that risky drinking costs employers £6.4 billion annually through absence, accidents and violence.

Up to 17 million working days per year are lost through alcohol related sickness absence and up to 20 million days per year are lost through lower activity rates and increased mistakes due to alcohol consumption. It is also estimated that up to 20% of workplace deaths are alcohol related and 58,000 years of work are potentially lost due to alcohol related deaths under the age of 65[2]. Other alcohol misuse prevalence studies suggest that one in twelve employees has some kind of drinking problem and almost a fifth of these drinkers also use illegal drugs. These statistics represent a three-fold increase in the last decade and therefore clearly indicate that the services we have in place in this country are wholly inadequate. It is very clear that alcohol and drug misuse in today's workplace have reached epidemic proportions. Furthermore the problem is pervasive, touching every industry at every level, and it will not go away on its own.

The most recent British Household Survey showed that 26% of working men had consumed more than eight alcohol units on at least one day and that 14% of working women had consumed more than 6 units on one day. It is not hard to imagine the direct effect that such excessive consumption might have on work safety, performance and productivity the following day. Drinking at lower levels, particularly at inappropriate times can also cause alcohol related harm. Lunch time drinking or drinking before shifts can also cause inefficiency, accidents and damage to customer relations.

Alcohol and drug problems in the workplace

Classification of drug problems

According to the Diagnostic and Statistical Manual of Mental Disease (DSM IV) there are two major classes of drug problems. Drug or alcohol misuse occurs where the drug is used by choice but in illegal or unsafe situations, or at inappropriate times or places, or in cases where the drug is harmful to the individual concerned or to others. Drug dependence or addiction is categorised by episodes of loss of control over its use and an apparent inability on the part of the sufferer to modify the drug use in spite of adverse consequences. The important difference between the two conditions is that when a person is dependent on chemicals (i.e. alcohol and/or other drugs) they lose control and are unable to stop once they have started to consume. It is noteworthy that withdrawal and tolerance are side-effects associated with moderate to heavy consumption rather than rigid criteria for diagnosing addiction.

It is important to differentiate between the two conditions because misuse can respond well to education and simple counselling strategies, whereas dependence is much more difficult and expensive to treat. There are certain behavioural characteristics which help to differentiate between the two states.

The presence of four of the following characteristics strongly points towards addictive behaviour:

Characteristics of addictive behaviour are:

1. preoccupation, where the person constantly thinks about the next opportunity to use
2. use alone – that is solitary drinking rather than for social contact
3. use for effect – an alcoholic often gulps down the first few drinks to get the effect
4. use as a medicine to calm nerves or help sleep
5. protection of supply which involves hiding bottles or stockpiling to make sure something is always available
6. using more than planned
7. higher capacity than others which means the ability to drink others 'under the table' in the early stage of addiction and the opposite in the late stage due to loss of tolerance
8. episodes of memory loss related to drinking.[3]

Individual susceptibility

Why one person becomes dependent and another not, is finally beginning to be understood by scientists and researchers. There is no single cause. Dependence occurs only in certain people and three major antecedents have been identified. These are genetic susceptibility, environmental stress and the use

Drug dependence or addiction is categorised by episodes of loss of control over its use and an apparent inability on the part of the sufferer to modify the drug use in spite of adverse consequences.

of addictive drugs. About 60% of alcoholics have a family history of alcoholism. A person with two alcoholic parents has a much higher risk of developing alcoholism than a person with just one alcoholic grandparent. Thus each person starts out with a high, medium or low genetic susceptibility.

Environmental stress varies in intensity and people perceive stress in different ways. Here too, individuals have a high, medium and low risk of developing addiction as a consequence. For example a person suffering major physical, sexual or emotional abuse in childhood or adolescence may be more likely to develop addiction than a person who suffered less trauma.

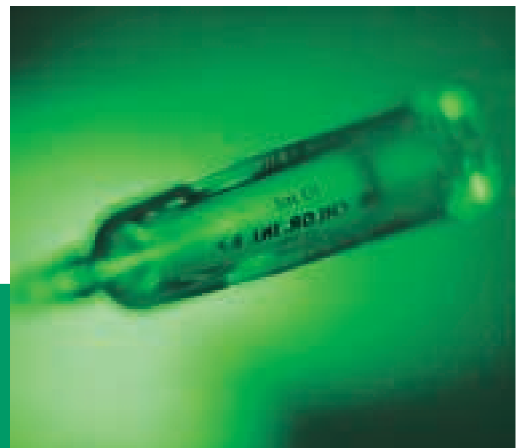
The third factor which influences the development of addiction is the use of addictive drugs. The type of drug used is more important than the amount. The most addictive drug known is nicotine followed in order by crack cocaine, heroin, amphetamine, opioid pain killers, alcohol, marijuana and LSD.

A person with a low inherited susceptibility and a low environmental stress level may need intensive use of drugs to develop the state of dependence. If the environmental stress level is high, less drugs may be needed. If a person has a low to medium inherited susceptibility, it may take a large amount of stress to push him to the critical level. The opposite applies to a person with a high genetic loading.

Although most people who suffer from addiction are not literally on skid row, they spend their waking hours in a skid row state of mind. They may not actually be under the influence while on the job but they bring their addicted state of mind to the workplace. Their co-workers and supervisors are affected most directly by their lack of performance, dysfunctional behaviour and poor work performance as they constantly wonder where their next drink or fix is coming from. The productivity and morale of people around them suffers. Product and service quality can deteriorate, putting clients at risk and driving up costs.

Studies suggest that one in twelve employees has some kind of drinking problem and almost a fifth of these drinkers also use illegal drugs.

Source: (CBI)



Alcohol and drug problems in the workplace

Dealing with addiction in the workplace

Managers and supervisors are usually aware that something is wrong but they do not always associate the problem with alcohol or other drug consumption. Repeated but trivial absences from work on Mondays or Fridays should arouse suspicion as should repeated episodes of time off for gastric problems or minor injuries. However, even if some managers see a possible link between alcohol and the absence, they may be reluctant to confront it, hesitating to intrude on their employees' private lives. They tend to act only when the employee is actively intoxicated or disruptive but by this time, the employee may have reached a crisis stage and the addiction is likely to be very far advanced. In addition to the respect for privacy, there may be a concern about legal liability and a complete lack of knowledge about how to approach the problem.

It is never the role of the manager to label an employee as an addict. A professional therapist or doctor needs to assess the situation and make appropriate recommendations with regard to treatment options. The manager should confine his or her remarks to the employee's actions, performance and conduct and should resist any inclination to assume things which are unproven or to rely on negative stereotypes. A factual approach will minimise potential grey areas that might be fodder for a legal challenge by the employee. There is therefore a tremendous need for the provision of training for managers and supervisors to help them provide a respectful, compassionate and helpful service for the employee whilst avoiding legal pitfalls for the company.

A significant number of people who come to services may not be actually addicted and thus may respond to education. Employees can refuse to be referred to company sponsored services. They may be reluctant to seek help in the early stages before their problem becomes unmanageable. There may be fear of retribution; they may be 'in denial', thinking that they don't need help or that they can handle the problem on their own. Another possibility is that they may be unaware of what is on offer and how it can help or they may have great fear of being labelled.

A growing number of companies have access to medical and assessment services through occupational health schemes or employee assistance programmes (EAPs). Sadly, expertise about addiction is not universal and services are patchy. Psychiatrists, GPs and other doctors often miss the true problem and may label the patient with an inappropriate psychiatric diagnosis such as depression or bipolar disorder. The National Health Service is able to provide immediate access to detoxification but only in life threatening situations. Counselling services aimed at helping people to remain abstinent are a rarity in the public sector but in the private sector there are many excellent therapy programmes available. Since these private treatments are expensive, they are usually only available at executive level and, in most instances, shop floor and clerical workers are considered expendable and cheaper to sack than to treat.

To do nothing for addicted employees is a costly short-sighted choice.

Treating addiction

With regard to treatment, detoxification is usually the first step. Following this, a variety of counselling techniques can be used and research has shown that there is little to choose between them in terms of short-term efficacy. However in the long-term, research studies clearly demonstrate that better outcomes are associated with people who become involved with Alcoholics Anonymous or Narcotics Anonymous. It therefore makes good sense for companies to shun treatment services which do not encourage patients to become involved with AA. An ideal form of treatment is one which is based on the twelve steps of Alcoholics Anonymous and which in practice also uses cognitive behavioural therapy and motivational enhancement interventions where appropriate.

Concern on the part of managers can be addressed by training. The management of drug and alcohol problems amongst staff should be seen as part of regular healthcare. A judgmental attitude is counterproductive and if addiction exists it can be treated just like any other illness which impairs the functioning of the employee. The provision of effective treatment for staff at all levels within the company may have considerable cost implications. However it is often possible to negotiate favourable terms or contracts with treatment agencies, making treatment available right across the board to employees rather than restricting it to executive level staff who may be covered by company policies.

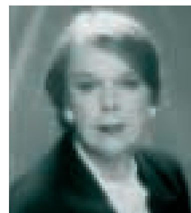
When addicted employees do not get help, the situation invariably deteriorates, often with high costs to the employee and to the employer. One cannot predict how long this downward spiral will take or how much damage will be done on the way. The fate of the employee who does get help and who responds favourably is entirely different. Employees who are treated and thus given a second chance are generally so grateful for the support that they have received that they usually throw themselves into work, becoming models of loyalty and productivity. There is some evidence that employees recovering from addiction are overall safer and more productive than any other employees. Certain medical indemnity organisations in the USA contribute funding to intervention services for addicted doctors because they find that treated doctors perform better and incur lower medico-legal costs than other 'normal' doctors who do not suffer from addictions.

An American study[4] on the cost effectiveness of treatment in industry showed remarkable gains for the treated employees. There was a 91% decrease in absenteeism, an 88% decrease in problems with supervisors, a 93% decrease in mistakes at work, a 97% decrease in workplace injuries and a 71% drop in injuries outside the workplace.

To do nothing for addicted employees is a costly short-sighted choice. Benevolent employers increasingly provide good assessment and treatment services for their work force. It is essential that every employer should have a written drug and alcohol policy that sends a consistent message to all employees at every

level. Such a policy gives a company a firm platform on which to act if it encounters drug or alcohol problems and decides to intervene. It is not sufficient to make the employee aware of this policy only at the time of hiring, it needs to be emphasised and repeated at regular intervals. Companies should also look closely at their policies concerning lunch time drinking, entertaining of clients and staff parties where alcohol can be drunk to excess, often resulting in major and far reaching disruption to working relationships.

There are huge and growing difficulties associated with alcohol and drug misuse and dependence in industry. Supervisors and employers need training to identify and confront problems in an appropriate way. Professional services need to be in place to further assess and provide education and treatment where necessary. Good and effective treatment can be expensive. There is a growing realisation that chemical misuse and dependency problems in the workplace incur major costs at all levels and many of these costs, hitherto undetected, may be offset by investment in good treatment for all employees across the board. Successful treatment results in major gains in productivity and goodwill.



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Dr Chang has recently retired from full time general medical practice after 30 years. During this time her special interest has been the treatment of addictive disorders. Currently, in addition to part time general practice sessions, she works as an addiction and family therapist and also as a trainer and supervisor.

Jacqueline holds a diploma in counselling and an MSc in addictions counselling.

Successful treatment results in major gains in productivity and goodwill.

Diabetes Mellitus – can understanding risk reduce complications and prolong life?

By Professor Stephen Tomlinson

Background

Diabetes mellitus is characterised by raised blood sugar levels caused by either a lack of insulin in the blood or resistance to its mechanism of action in normally responsive tissues. It is a common condition affecting between 1-2% of the population. About 10% of all people with diabetes have Type I Diabetes, which begins in childhood or adolescence. Type I Diabetes is caused by destruction of the cells in the pancreas (islets of Langerhans) which make insulin. Around 90% of people with diabetes have Type II Diabetes in which levels of insulin in the blood are normal or high, and the tissues fail to respond.

Until relatively recently, Type II Diabetes was thought to be a disease that did not occur in children and young people but began in adulthood ("maturity onset diabetes"), increased in incidence and prevalence with increasing age, and was associated with obesity. Obesity rates have tripled in adult men and women in 20 years.

However, it is now recognised that Type II Diabetes is beginning to appear in children and young people and is associated with the increasing incidence of obesity now also being seen in these younger age groups. The prevalence of Type II Diabetes in older age groups is of the order of 10%. In some groups however, such as the Asian and Afro-Caribbean communities, the prevalence may be much

Diabetes Mellitus – can understanding risk reduce complications and prolong life?

higher, even as high as 25-30% of people over 50 years of age. The incidence and prevalence of diabetes is increasing world-wide, to the extent that it is now being referred to as "a global epidemic"; currently it is estimated that there are approximately 150 million people with diabetes, but that this will double to 300 million by 2025.

Furthermore, diabetes will become increasingly important as a major cause of morbidity and mortality not only in affluent nations, but also in developing countries where, until now, infectious disease has been at the top of the health agenda. Even in affluent countries it has been estimated that for every person with diagnosed Type II Diabetes there is another undiagnosed person. The extent of this hidden disease may be even higher in developing countries.

Complications in diabetes

Whatever the type of diabetes (and I shall be focusing mainly on Type II Diabetes), life expectancy is reduced and serious complications can occur. Compared with the non-diabetic population there is a 3-4 fold increase in the risk of coronary artery disease and stroke and a 15 fold increase in the risk of losing lower limbs. In addition, diabetes is the commonest cause of blindness in the working population, it can lead to kidney failure and there is a 3-4 fold increase in the risk of congenital anomalies in the infants of mothers with diabetes.

Some conditions seem to be so frequently associated with Type II Diabetes that the expression "metabolic syndrome" has been coined to describe this collection of associations. Thus Type II Diabetes is frequently associated with obesity, raised cholesterol (and other abnormalities in the blood), and high blood pressure (hypertension). The unifying mechanism of these clinical manifestations is resistance to insulin (metabolic syndrome is sometimes also called the "syndrome of insulin resistance"). These features with other associated abnormalities in the blood go a long way to explaining the marked increase in the incidence of coronary artery disease, strokes and peripheral blood vessel disease (which contributes to limb loss) that cause so much of the increased mortality and morbidity in diabetes.

And now for the good news!

The good news is that the risk of these complications can be markedly reduced and perhaps prevented with appropriate intervention. The Diabetes Control and Complications Trial (DCCT) in the United States and the United Kingdom Prospective Diabetes Study (UKPDS) in people with Type II Diabetes in the UK, have shown significant reductions in the risk of problems with the eyes, kidneys and the lower limbs, and there are indications that heart problems can also be reduced by appropriate interventions.

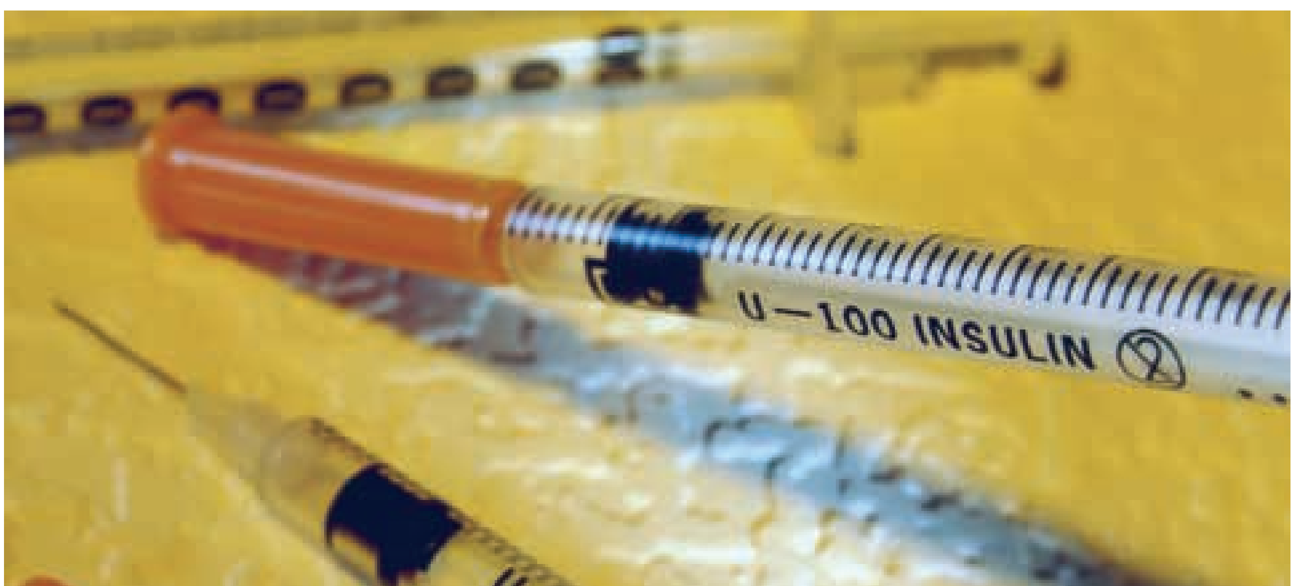
Studies have focussed on improvements in the control of blood sugar, but there is also evidence that improvements in blood pressure control can be equally effective in reducing the

risk of some of these complications. Other studies have shown that lifestyle interventions, including changes in nutrition and increasing exercise/physical activity, can also be effective not only in improving control of diabetes, but even preventing diabetes and reducing mortality in susceptible individuals.

There is thus incontrovertible evidence that pharmaceutical and/or lifestyle interventions not only reduce the risk of complications of diabetes but also reduce the risk of developing diabetes in those who stand a very high chance of developing it. In the latter circumstance, a key indicator is family history. A number of studies have shown a 20-40% risk of developing the condition in those people with a first degree relative who has diabetes. In Type II Diabetes, the concordance rate for identical twins is more than 90%. This has been taken as evidence that genetic susceptibility is mainly responsible, but there is also evidence that the intra-uterine nutritional environment (and identical twins share that environment) may have an effect on pre-programming the foetus for the metabolic syndrome in adulthood. This was first suggested because there is to be a link between low birth weight and an increased risk of coronary artery disease in later life. It seems likely that in Type II Diabetes there are a number of genes responsible for susceptibility to disease and that it is the interaction between these genes and environmental influences that ultimately are responsible for the development of the disease.

Risk

The major problem therefore, is how to convince people with diabetes that they have a major role to play in ensuring that they remain healthy. Furthermore, how do we encourage people who are susceptible to diabetes/metabolic syndrome (family history, low birth weight, obesity) to lead a lifestyle



Diabetes Mellitus – can understanding risk reduce complications and prolong life?

that could prevent the onset of diabetes or significantly reduce the morbidity and mortality associated with it?

Patients must be encouraged to play active roles in the management of their disease and in the prevention of its complications, rather than being passive recipients of health care. What are the psycho-social and cultural determinants which influence beliefs, attitudes and behaviours of people with diabetes? What interventions are most likely to modify these in people susceptible to diabetes and metabolic syndrome to facilitate lifestyle changes, self-monitoring and management and pursuit of well-being and health? The emphasis must be to focus on solutions, not problems, and the general view is that something must be done which will facilitate coherent and co-ordinated action across a wide number of areas.

Behavioural change is the key to securing effective solutions to the public health challenge posed by obesity and its associated health problems. There is a real risk that the multi-system problems which are associated with obesity, such as diabetes, coronary artery disease, cancer and other complications, will have a negative effect on life expectancy. This could worsen and reverse the gains in health and longevity that have taken decades to achieve.

There may well be light at the end of the tunnel. Drawing on experiences in the USA, the population has demonstrated the ability to shift to healthy lifestyles. There has been a reduction in adult smokers from 42% in 1965 to 23% in 2001. The problem of Americans with high levels of serum cholesterol has fallen from 33% in 1961 to 18% in 2000.

Behavioural change which underpins these observations on smoking and cholesterol must also be the reason why the incidence of AIDS has fallen by 50% since 1992, and fatal crashes involving drunk drivers have declined by half. Each of these improvements accompanied national campaigns in the USA that addressed the hazards of particular behaviours. It is paradoxical that whilst these specific health related behaviours have improved, obesity has worsened. Perhaps this is because factors causing obesity are far more complex and less easily understood than the risks of smoking, raised cholesterol and consequences of AIDS and drink driving. Furthermore, the interventions required are also multiple and complex.

If changing people's behaviour is the key, how can we most effectively communicate the risk? Can we personalise analysis of risk for people, then motivate them to change their behaviour based upon their individual health risk profile?

Health-related personal/ psychological and social/cultural influences interact in the individual person as powerful obstacles to recovery from common health problems. Each of these influences must be successfully addressed to facilitate recovery.

Such biopsychosocial factors may aggravate ill-health behaviours, disability and lack of perception about risk, amongst people with

Patients must be encouraged to play active roles in the management of their disease and in the prevention of its complications, rather than being passive recipients of health care.

diabetes and those predisposed because of sustained obesity.

They may also act as obstacles or barriers to lifestyle changes and risk avoidance. More aggressive application of multiple interventions individually tailored to modify these biopsychosocial obstacles and their interaction (a "personalised medicine" approach), offer the step change that is needed to reduce the risk of developing diabetes and the serious complications associated with it. We firmly believe that biopsychosocial interventions are the key, not pharmaceutical intervention ("a pill for every ill"!), which has its place but cannot be the long-term answer.

The state, the insurance industry, providers of health care and, not least, the patients themselves, bear the considerable financial and social burdens which are inevitably associated with what we have described above.

There is a pressing need for concerted action, focussed research, partnership approaches, and educational and behavioural modifying strategies, to evaluate and exploit potential solutions. Not least, in this regard, the insurance industry must have an important part to play.

Professor Stephen Tomlinson
MD FRCP FmedSci Provost, Wales College of Medicine, Biology, Life and Health Sciences and Deputy Vice Chancellor, Cardiff University

Professor Tomlinson graduated in medicine in 1968 from Sheffield. In 1985 he became Professor of Medicine at the Manchester Royal Infirmary, and was Dean of the Medical School and Faculty of Medicine, Dentistry and Nursing from 1993-99.

Stephen is an associate member of the GMC, leading the inspection team for recognition of the Peninsula Medical School. He was President of the Association of Physicians of Great Britain and Ireland in 2002-03. He became Vice Chancellor of UWCM in August 2001, and from 1 August 2004, following merger, he became Provost of the Wales College of Medicine, Biology, Life and Health Sciences and Deputy Vice Chancellor, Cardiff University.

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