INTRODUCTION

This Director of Public Health report focuses on the main health and wellbeing issues in Buckinghamshire and those where concerted action will make the most difference in improving health and wellbeing for our population. It particularly focuses on the significant potential to prevent a range of health and social problems throughout life.

In order to maintain and improve the health and wellbeing of the people of Buckinghamshire, it is important to understand the influences on health and wellbeing and how they can be influenced to improve health and wellbeing for everyone.

This report explores the pattern of health and illness in Buckinghamshire by

- Describing the main factors that influence health
- Describing how they are distributed in Buckinghamshire
- Demonstrating what the health consequences of this are for different localities and populations in Buckinghamshire and trends over time

It also reports on key initiatives to tackle some of the main health issues in Buckinghamshire. The report uses the evidence of what works to make recommendations about what would maintain and improve the health and wellbeing for everyone in Buckinghamshire.
EXECUTIVE SUMMARY

1. KEY DETERMINANTS OF HEALTH

Health is determined by many factors as illustrated below.

Some of the key influences are highlighted below

1.1 The Early Years

The period from before birth to the age of 5 years is vitally important in determining the health and mental wellbeing of the child and the effects persist into adult life. Before birth the health of the baby is crucially affected by the health and wellbeing of the mother. One measure of healthy development before birth is birthweight. Low birthweight is a risk factor for poorer health and educational outcomes in childhood and poorer health in adult life. The circumstances in which children live and the experiences they have in the early years dramatically influence the child’s physical, social, emotional and thinking ability. This in turn strongly influences the child’s school readiness and educational attainment which in turn influences their life chances and long term health. The evidence shows that bright children growing up in adverse circumstances do not do as well as less bright children growing up in good circumstances.

Investing in the early years is very cost effective and gives a higher return on investment than later investment. Social problems such as crime, mental illness,
family breakdown, drug abuse and obesity will cost the UK economy £4 trillion over the next 20 years yet £1.5 trillion of these problems could be avoided by investing in a range of policies in the early years.

1.2 Mental Wellbeing

People who have good mental wellbeing or put more simply are contented or happy have much better health than those who are unhappy. Mental wellbeing affects physical health and people with good mental wellbeing live on average 7.5 years longer than those who have poorer mental wellbeing. Chronic stress can produce a range of problems from depression, high blood pressure, diabetes and heart problems. Nationally 13.8 million working days were lost to work related stress, depression and anxiety which is now the largest cause of sickness related absence. Having good self esteem, feeling in control of your life and developing good coping mechanisms and strong supportive social networks promote mental wellbeing and help protect wellbeing in the face of adverse circumstances. There are evidence based ways to protect and improve mental wellbeing and the consequences of the current economic downturn provide further impetus to focus on this important aspect of health.

1.3 Educational Attainment improves many health and social outcomes including better health in later life. People with higher levels of educational attainment have better health in middle age.

1.4 Employment is very important as it affects self esteem, a sense of contribution, income and ability to participate in society. Good quality employment promotes physical and emotional wellbeing. Good physical and mental health supports people to remain in and enjoy their work and be productive. Poor quality employment is bad for health as is job insecurity and unemployment.

1.5 Material Wellbeing affects whether people can afford healthy food, to keep their homes warm, get out and about and socialise with their friends which impacts on their physical health and mental wellbeing. Children growing up in poverty are on average more likely to have poorer educational attainment and health in childhood, become unemployed, be involved in crime and have poorer health as adults.

1.6 “The Big 4” Health Related Behaviours

Physical inactivity, unhealthy eating, drinking alcohol above recommended limits and smoking, together account for 31% of all the years lived in disability and 42% of the leading causes of death. Together they cost the UK economy £32 billion per year and £9bn to the NHS.

People who are physically active, eat 5 portions of fruit and vegetables a day, drink alcohol within recommended limits and do not smoke are much healthier and live 14 years longer than those who do not. A healthy lifestyle reduces the risk of many long term conditions such as heart disease, stroke, cancer, diabetes, depression and dementia. It is estimated that half of all cancers and half of all heart disease deaths could be prevented by improvements to lifestyles.

a) Physical Activity

Physical activity is important at every age and reduces the risk of many long term conditions including high blood pressure, heart disease, stroke, diabetes, breast and
bowel cancer, depression, risk of falls and hip fractures in older people and even dementia. It is important for the healthy development of children and their educational attainment. Physical activity is also an effective treatment for many long term conditions alongside medical treatment.

**b) Healthy Eating**
A healthy diet helps children grow and develop well and protects people from a range of serious conditions such as heart disease and cancer. Eating at least 5 portions of a variety of fruit and vegetables a day could reduce deaths from chronic disease by up to 20%. A diet with too much salt is a risk factor for high blood pressure and heart disease. A poor diet and lack of physical activity is leading to a rise in overweight and obesity with consequent threats to health and life expectancy.

*Being overweight or obese* increases the risk of developing many serious conditions including diabetes, high blood pressure, heart disease, cancers, depression, infertility and obstetric problems. Obesity levels have trebled since the 1980’s in the UK. If current trends in overweight and obesity continue it is estimated that by 2023 the proportion of people with diabetes will increase by 54%, high blood pressure by 28%, heart attack by 18% and stroke by 5%.

**c) Alcohol Consumption**
Many adults are drinking alcohol in socially accepted ways at levels that will harm their health. Alcohol can be an addictive drug and is linked to the biggest causes of illness and death in the UK – cardiovascular disease and cancer. Alcohol misuse also contributes to 1.2 million incidents of violent crime a year, 40% of domestic violence cases and 6% of all road casualties and at least 14-17 million working days lost per year in the UK.

Alcohol consumption is related to price and availability of alcohol. The real cost of alcohol has fallen over the last two decades – a unit of alcohol costs 67% less in 2007 than in 1987. A minimum price for alcohol would have a significant beneficial effect on drinking habits.

**d) Smoking**
Smoking increases the risk of heart disease, stroke, cancer and lung disease. It remains the greatest avoidable cause of inequalities in health and life expectancy in the UK. Smoking also harms non-smokers through exposure to second-hand smoke.

However adoption of healthy lifestyles does not occur in a vacuum. The examples that are set by families and peers in early life strongly influence behaviours such as smoking and healthy eating. Other factors such as material wellbeing, education and work, the physical environments, price and availability of alcohol and unhealthy foods influence the adoption of healthy lifestyles. Mental wellbeing also affects the motivation and ability to adopt healthy lifestyles. It is important to understand and address all the relevant factors in order to improve lifestyles.

A range of services are already commissioned to support people to adopt healthy lifestyles. We work with partners to raise awareness of the benefits of healthy lifestyles and the opportunities they may have to promote these among Buckinghamshire residents.
1.7 Ageing

Many of the conditions we associate with ageing are due to the way we treat our bodies over time. As we age the damage from unhealthy lifestyles or the circumstances in which we live and work accumulate over time. People can age faster or slower depending on the conditions in which they live and work, how they learn to cope with stress and maintain good mental wellbeing and which health behaviours they adopt particularly the “big 4” lifestyles highlighted above.

1.8 Health and Social Care

The provision of high quality healthcare clearly affects health. Notable gains have been seen in the control and in some cases eradication of certain infectious diseases. Immunisation remains one of the most cost effective interventions. Approximately 40% of the fall in death rates from heart disease has been due to improvements in treatment – the remainder due to improvements in lifestyle. The challenge is to ensure that everyone has access to evidence based treatment within the resources allocated to the health service and is able to play a full part in their care. This drives the need for the NHS to reduce unwarranted variation in health care, pursue good value for money and greater public engagement in designing the services they need. Social care is a vital part of the holistic care that is needed by some people and closer alignment of health and social care should improve services and outcomes for those needing care.

2. KEY FACTS ABOUT HEALTH AND WELLBEING IN BUCKINGHAMSHIRE

Buckinghamshire is one of the least deprived counties in England ranking as the 8th least deprived out of 149 in the government indices of multiple deprivation for 2010. Buckinghamshire has better educational attainment and skills, lower levels of poverty and unemployment and a better environment than the national average. This combination of positive influences is reflected in the better health of the Buckinghamshire population compared to the national average.

2.1 The Population

Buckinghamshire county has a population of 498,100. The NHS Buckinghamshire area population is 533,918 and covers Buckinghamshire and Thame and Chinnor in Oxfordshire. In 2009 the age profile for NHS Buckinghamshire was similar to the national average for people aged over 65 but there was a smaller proportion of people aged 20-34 compared to the national average.

88% of people living in Buckinghamshire County are from a white background. The Asian/Asian British ethnic group make up the largest proportion of the non-white ethnic group (6.2%), followed by people who are Black or Black/British (2.2%) and people of mixed ethnic origin (1.9%).

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1 The Index of Multiple Deprivation measures seven different dimensions of deprivation: income deprivation; employment deprivation; health deprivation and disability; educational, skills and training deprivation; barriers to housing and services; living environment; and crime. All areas across the country are measured using the same indicators to give a score and rank for each of the above dimensions so comparisons can be made. An overall IMD score and rank is also calculated for each area. A higher score implies greater deprivation.
The people of Buckinghamshire are generally healthier than the national average. They live longer and spend more of those years in good health than the national average. However there are differences in the health of people across Buckinghamshire.

2.2 Life Expectancy and Healthy Life Expectancy

- Life expectancy continues to rise for men and women in Buckinghamshire
- Male life expectancy is 80.6 years - 2.3 years longer than the national average
- Female life expectancy is 84 years - 1.7 years longer than the national average.
- However, in the PCT area with the longest life expectancy in the UK, men live 4 years longer and women live 5 years longer than the residents of Buckinghamshire.
- Males born in 2001 could expect to live 67 years free from limiting longstanding illness compared to the national average of 62 years.
- Females born in 2001 could expect to live 69 years free from limiting illness compared to the national average of 65 years.
- Life expectancy is 5 years shorter in the most deprived fifth of the population compared to the least deprived fifth in Bucks and the gap at ward level is even more marked at 12 years.
- People living in the most deprived fifth of the population also experience more years lived in illness and disability than people in the least deprived fifth.

2.3 Deaths and Death Rates

Death rates are lower in Buckinghamshire and falling faster than the national average. The most common causes of death were diseases of the circulatory system (heart disease and stroke) at 31%, cancers at 30% and respiratory disease at 14%.

The all ages death rate is 15% lower than the national average and the premature death rates (deaths under age 75) is 20% lower than the national average.

Premature death rates have fallen by 17% between 2001-03 and 2007-09 and all ages death rates by 18% which is slightly faster than the national rate of fall of 15% for both age groups.

2.4 The Early Years

There are around 6,000 births every year in Buckinghamshire of which 28% are to mothers over 35. This is higher than the national average (20%).

The stillbirth rate in Buckinghamshire is similar to the England average at 5.4 stillbirths per 1000 total births in 2007-2009 compared to 5.1 stillbirths per 1000 total births for England over the same period.

Children born with a low birthweight (below 2.5Kg) can face immediate and lifelong risks to their health and development. On average low birthweight babies do less well at school, have poorer health in childhood and are at greater risk of diabetes and heart disease in middle age. In Buckinghamshire 6.7% of babies were born with low birthweight in 2007-09 which was statistically lower than the national average of
7.5%. However rates were 5.6% in the PCT with the best performance. Britain has higher rates of low birthweight babies than many other well developed countries. The proportion of babies born with a low birthweight has fallen nationally but has stayed similar in Buckinghamshire between 2001-03 and 2007-09.

Infant mortality rates in Buckinghamshire are 4.6 per 1000 live births which is similar to the national average of 4.7 per 1000. Nationally infant mortality rates have been falling. In Buckinghamshire, although numbers are small, infant mortality rates do not appear to be falling.

There are higher rates of low birthweight babies, stillbirths and infant mortality in the areas classed as the most deprived fifth in Buckinghamshire. In Buckinghamshire 8.8% of babies born in the most deprived fifth of the population were low birthweight compared to 5.4% in the least deprived fifth.

Data from the Early Years Foundation stage profiles look at personal, social, emotional, physical and creative development in children at 5 years. In Buckinghamshire in 2009 70% of children from the “wealthy achievers” areas have a good rounded level of development. This falls to 53% of children from the “comfortably off” areas, 38% of children from “moderate means” areas and 33% from the least affluent or “hard pressed” areas. This shows that children from many parts of Buckinghamshire could benefit from evidence based interventions to give them a good start in life.

Around 12,000 (10.5%) children and young people aged 0-19 years were living in poverty in Buckinghamshire in 2008\(^2\). Children and young people growing up in poverty have a range of worse health and achievement outcomes.

2.5 The “Big 4” Lifestyles

a) Physical Activity

Only 13% of adults (approximately 1 in 8) in Buckinghamshire are active at the recommended levels. Adults need to be active for at least 150 minutes a week – this is less than half an hour a day and could be anything from walking or gardening to team sports.

More than 40% of people in Buckinghamshire still do not participate in physical activity even for 30 minutes a week. Evidence shows that it is this group of inactive people who will benefit most from increasing their physical activity levels.

Children and young people should undertake at least 1 hour of moderate intensity physical activity per day. In Buckinghamshire in 2011 only 54.7% of school age children achieved the recommended 3 hours of PE and school sport per week. However there is no current measure of their activity away from school.

b) A Healthy Diet

A healthy diet improves health at all ages and protects people from a range of serious conditions including heart disease and cancer.

\(^2\) A child is defined as living in poverty if their family is in receipt of out of work benefits or tax credits where their reported income is less than 60% of national median income
National surveys estimate 30.8% of adults in Buckinghamshire eat healthily, which is higher than the England average of 28.7%. However in England’s best performing local authority area 47.8% of adults eat healthily. Breast milk is the best form of nutrition in the first 6 months of life. 80% of mothers started breastfeeding but by 8 weeks only 56% of babies were being breastfed.

**Overweight and obesity**
More adults in Buckinghamshire are now overweight or obese than are a healthy weight. It is estimated that 62% of the adults registered with a GP in Buckinghamshire are overweight or obese - amounting to almost 260,000 people.

21% of adults in Buckinghamshire are obese which is lower than the national average of 24% but worse than the best performing local authority area which is 14%.

Currently 20% of 4-5 year olds and 28% of 10-11 year olds in Buckinghamshire are obese or overweight.

In Buckinghamshire it is estimated that obesity accounts for 24% of high blood pressure (affecting more than 28,000 people), 24% of diabetes (affecting more than 4,000 people) and 20% of cardiovascular disease (affecting more than 4,000 people).

c) **Alcohol**

In Buckinghamshire 23% of adults over 16 years are drinking at levels that lead to an increased risk of cancer, high blood pressure and other conditions, and 17.7% binge drink.

d) **Smoking**

Smoking prevalence among adults aged 18 years and over in Buckinghamshire is estimated at 17%, which is better than the England average of 21%. This estimate suggests that there are more than 65,000 smokers in Buckinghamshire.

There are approximately 600 deaths due to smoking in Buckinghamshire annually.

Approximately 1700 children in Buckinghamshire between the ages of 10-14 years are regular smokers. The risk of harm from tobacco use increases the earlier someone takes up smoking.

People with long term conditions such as heart disease, diabetes, lung disease who smoke are at greater risk of serious complications if they continue to smoke. Smoking prevalence is also higher in people with mental health problems than the general population which contributes significantly to the greater death rates in this group. Currently 14% of people registered with a GP as having a long term condition continue to smoke.

**2.6 Long Term Conditions**

One of the major health challenges in Buckinghamshire is the high numbers of people living with long term conditions such as heart disease, cancer, stroke, diabetes. Long term conditions account for 70% of health and social care spend yet many are preventable. The “big 4” unhealthy lifestyles increase the risk of many long
term conditions with the result that many people have more than one long term condition. The rise in unhealthy lifestyles and the ageing of the population will drive further increases in long term conditions unless effective preventive action is taken.

The broader determinants of health such as material wellbeing and educational achievement also influence the development of long term conditions. This occurs through a variety of mechanisms including their impact on chronic stress and mental wellbeing which increases the risk of some long term conditions such as heart disease and people’s ability to adopt healthy lifestyles. The result of this is that very many long term conditions such as heart disease, diabetes and cancer are more common in people living in more disadvantaged circumstances. Effective preventive action must address both lifestyle factors and the broader determinants of health to reduce the impact of long term conditions on our population.

2.6.1 Heart Disease, Stroke.

Cardiovascular disease (which includes stroke and heart disease) is the commonest cause of death in Buckinghamshire accounting for 31% of all deaths.

There are 15,800 people with heart disease in Buckinghamshire and 8,200 recorded as having a stroke or transient ischaemic attack (a stroke that resolves within 24 hours). Death rates from cardiovascular disease are falling in Buckinghamshire - the premature death rate from cardiovascular disease halved between 1995/97 - 2007/09.

The premature death rate from cardiovascular disease for the fifth of our population living in the most deprived areas of Buckinghamshire is more than twice as high as in the least deprived fifth of the population. While the premature death rate in this group has fallen recent trends suggest further action will be required to maintain this fall.

Cardiovascular disease is the single largest contributor to health inequalities in Buckinghamshire accounting for almost 35% of the gap in death rates between the most and least deprived fifths of the population.

There are currently 68,000 people in Buckinghamshire diagnosed with high blood pressure, 79% of whom have well controlled blood pressure which reduces their risk of cardiovascular disease. However it is estimated that another 60,000 people in Buckinghamshire have high blood pressure but have not yet been diagnosed and therefore are not receiving advice and treatment that would help lower their risk of heart disease and stroke.

There are more than 8,000 people diagnosed with atrial fibrillation in Buckinghamshire which is a heart condition that increases the risk of stroke five-fold. Effective treatment of people with atrial fibrillation will reduce the risk of stroke.

Nationally, more than half the dramatic fall in death rates from heart disease was due to preventing the development heart disease rather than treatments for existing heart disease. Reducing risk factors for heart disease and stroke such as smoking, blood pressure and cholesterol levels can have a substantial impact on deaths within 1-2 years.
2.6.2 Diabetes

In 2010/11 more than 20,000 people living in Buckinghamshire were recorded as having diabetes. This has increased by 32% over the last 5 years, which represents almost 5,000 more people diagnosed with diabetes in Buckinghamshire in 2010/11 than in 2005/6. It is estimated that more than a quarter of people with diabetes in Buckinghamshire have not yet been diagnosed and are therefore not receiving advice and treatment that would help them reduce their risk of developing serious complications of diabetes such as heart disease, stroke or blindness.

In Buckinghamshire the prevalence of diabetes is highest in the most deprived fifth of the population despite the younger age profile of the population in those areas. This reflects the higher proportion of ethnic groups at higher risk of diabetes living in these areas as well as the known higher prevalence of diabetes in more deprived groups.

2.6.3 Cancer

In 2008, 2,447 people were newly diagnosed with cancer in NHS Buckinghamshire. The commonest cancers diagnosed were breast cancer (17%), followed by bowel cancer (13%), prostate cancer (13%), and lung cancer (9%). The overall incidence (new cases) of cancer in NHS Buckinghamshire for men and women combined during 2006-08 was statistically lower than the national average. However the incidence of breast and prostate cancer, as well as malignant melanoma, is statistically higher than the England average. In contrast, the incidence of lung cancer is statistically lower.

Overall cancer incidence rates have increased by 4% in Buckinghamshire between 1993-2008 compared to 9% nationally. The incidence of lung cancer fell over this period due to continued reductions in smoking but the incidence of breast cancer in women and prostate cancer in men and malignant melanoma in both sexes increased.

Cancer is the second most common cause of all deaths in Buckinghamshire. The all ages death rate from cancer in Buckinghamshire is 14% lower than the national average and fell by 10% from 2001/03 -2007-09 which is faster than the national average. The premature death rate is 17% lower than the national average and fell by 12% over the same period which is also faster than the national average.

In 2010 there were 1211 deaths from cancer in NHS Buckinghamshire. The main causes of cancer deaths were lung (18% of deaths), bowel (11%), breast (8%) and prostate (7%) cancers, which reflects the much lower survival rates for lung cancer when compared to the other common cancers.

Deaths related to a number of cancers disproportionately affect people living in more disadvantaged circumstances. In NHS Buckinghamshire, 2007-09 death rates for all cancers at any age were 45% higher in the most disadvantaged quintile compared with the least disadvantaged.

Smoking, being overweight or obese, being physically inactive and drinking alcohol at more than the recommended limits increases the risk of developing many of the commonest cancers in Buckinghamshire.
2.7 An Ageing Population

Improvements in health mean that people are living longer than ever before. 16.6% of Buckinghamshire County's population are aged 65 years or over, which is similar to the national average of 16.5%. 2.3% of the population are aged over 85, which is the same as the national average. As life expectancy continues to rise it is estimated 23% of the Buckinghamshire population will be over 65 years old by 2026.

In Buckinghamshire life expectancy at 65 is longer and people over 65 report better levels of health than the national average for this age group.

The same factors that influence health earlier in life continue to influence health in older age. Material wellbeing influences whether people can afford to eat healthily and keep themselves warm and afford good quality housing that is suitable to their needs. Strong social networks and keeping physically and mentally active are also vital for wellbeing and health. As we age the risk of developing long term conditions increases but a significant number of long term conditions are preventable.

Depression is the most common mental health problem among older people and can also lead to poorer physical health. It is estimated that 22% of men and 28% of women aged 65 and over have significant depressive symptoms. For people aged 85 years and over, levels of depressive symptoms were even higher at around 40%. It is not uncommon for depression to go undiagnosed and untreated as it is estimated that nearly two thirds of older people with a depressive illness have never discussed this with their GP.

It is estimated that there are approximately 6,000 people aged 65 and over with dementia in Buckinghamshire and as the population ages this is expected to increase to more than 9,000. Currently there are 2,243 people with a diagnosis of dementia recorded on Buckinghamshire general practice registers These are more likely to be people with moderate or severe dementia. Little is known about the cause of Alzheimer's disease limiting the options for prevention, although being physically active, a Mediterranean diet and keeping mentally active may be protective. The risk of vascular dementia can be reduced through the same measures that reduce the risk of heart disease and stroke. High blood pressure and obesity in middle age are risk factors for dementia at older ages. People with diabetes, heart disease and stroke are also at increased risk of vascular dementia and hence it is important to optimise treatment of these conditions to reduce the risk of dementia in later life.

2.8 Differences in Health throughout the Life Course

In common with the rest of the UK some groups within Buckinghamshire have poorer health than the average across a range of conditions and throughout life. In Buckinghamshire the best health tends to be experienced by the fifth of the population living in the areas classed as the least deprived on the index of multiple deprivation. The worst health is experienced by those living in the most deprived areas. As highlighted in the report, the fifth of the population living in the most deprived areas tend to have worse outcomes across a range of indicators including birthweight, infant mortality, school readiness and educational attainment, higher emergency admission rates to hospital as children, adults and older people, a higher prevalence of long term conditions, shorter life expectancy and a shorter healthy life
expectancy than their peers living in the least deprived areas. Differences in health are also observed between different ethnic groups with some ethnic groups having a higher prevalence of certain illnesses such as diabetes. Poorer health is also experienced by those with learning disability and serious mental illness. By understanding what causes ill health and who is more at risk from certain illnesses, we have the best chance of improving health for everyone.

3. RECOMMENDATIONS

The full report contains more detailed recommendations but the main themes are summarised here. Concerted action by all partners on the key areas highlighted below will have many beneficial effects including improving health and wellbeing, educational achievement and economic productivity. These actions will also help to reduce the numbers of people requiring health and social care services and tackle some pressing social problems such as crime. Reduction in demand for services will help reduce costs to the council and partners. These actions also offer the best chance of improving the health of those with the poorest health and life chances.

a) Implement evidence based actions in the early years to ensure that every child has the best start in life. This includes ensuring a healthy pregnancy for all, implementing the family nurse partnership and ensuring good provision of parenting advice and early years’ education to those who need it.

b) Improve mental wellbeing at all ages by a range of initiatives including raising awareness across Buckinghamshire of the 5 ways to wellbeing and initiatives that support them and continue to implement and evaluate programmes that develop emotional resilience.

c) Increase the number of people with healthy lifestyles focusing on the “big 4” – physical activity, healthy eating, alcohol consumption and smoking at all ages. This will improve health and wellbeing and reduce the prevalence of a wide range of conditions from high blood pressure, diabetes, heart disease, stroke, cancer, dementia, depression, falls and hip fractures in older people.

d) Strengthen the strategic approach to long term conditions by improving prevention, increasing the support for self care and carers, improving care further and including new approaches to address the increasing numbers of people with multiple long term conditions and particularly with co-existing mental health problems.

e) Improve the health of everyone in Buckinghamshire including those with the worst health or at greatest risk of poor health. The approaches above will help to improve health for everyone if we ensure that initiatives are tailored to meet the needs of the different groups in Buckinghamshire so that everyone can benefit. We also need to continue to address the broader determinants of health such as education, employment and material wellbeing to improve opportunities for all. This is particularly important during the current global economic downturn.