



# synthesis

*bringing together policy, evidence and intelligence*

## KEY messages:

- ❑ *Geographic, social class, gender, ethnic and other inequalities influence life expectancy levels*
- ❑ *Many North West residents face a lower life expectancy than that found elsewhere in the UK*
- ❑ *The gap between life expectancy in the North West of England, and that in England and Wales as a whole, has narrowed by approximately 10% in 3 years*
- ❑ *Public service agreement targets have been set to improve the health of the population, increase life expectancy and reduce health inequalities between different groups in society*
- ❑ *To meet short-term life expectancy targets, interventions need to contribute to cumulatively saving many 'years of life' - as calculated within life table statistics - targeting both those who die young, as well as via interventions that in the short term benefit large numbers of older people*
- ❑ *Primary care trusts need to examine local health patterns and inequity, agree interventions, calculate the effect of proposed interventions, implement them, and evaluate their effect*
- ❑ *Agencies need to work in partnership to improve health, to consider interventions appropriate to local issues, and to support communities and groups across the health inequalities gradient*

*This is the first in a new series of reports, produced by the North West Public Health Observatory, that aim to bring together policy, evidence and intelligence on specific topics, in an easily accessible format, for public health practitioners in the north west region.*

## Introduction

'LIFE EXPECTANCY AT BIRTH' estimates indicate how long, on average, a person born at a given time can expect to live. There has been a remarkable increase in life expectancy within the United Kingdom [UK] over the past century. In 1901 females expected to live until 49, or 45 for men. This compares to the current England & Wales [E&W] average of 80.65 years for females and 76.14 for males<sup>1</sup>. Life expectancy figures are increasingly used as a measure of population health, reflecting their inclusion within government public service agreement [PSA] targets. Life expectancy estimates are calculated using statistical life tables, which calculate the distribution of death rates between age groups, the likelihood of dying within a certain age band, and remaining life expectancy at any given age<sup>2,3</sup>.

Increases in longevity have been accompanied by substantial changes in the main causes of death within the UK, with chronic illnesses such as cancer and cardiovascular disease, generally affecting older age groups, replacing infectious and respiratory diseases as major killers. In 1901, 37% of deaths occurred amongst those aged 0 to 4; In 1999 only 0.8% of deaths were under the age of four. The dramatic improvements in life expectancy within Britain over recent decades has been brought about through a combination of social and economic policies and growth, improved standards of living, better housing, education and nutrition, preventative approaches to public health, advances in screening, diagnosis, medical treatment and technology, and better access to care.

continued overleaf ►►

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However, wide variations in life expectancy are found nationally, with the health of the least well off in society, particularly those suffering from poverty and social exclusion, continuing to fall well behind that of more affluent groups. October 2004 statistics highlight North West life expectancy variations<sup>4</sup>:

### KEY facts:

- A baby boy, born in Manchester, has the lowest life expectancy within England, at 71.8 years.
- A baby girl from Blackburn with Darwen can expect to live until 77.6, in comparison to 84.8 years for a girl born in Kensington and Chelsea - a difference of 7.2 years.
- Within the North West [NW], a baby girl born in Liverpool can expect to live to the age of 77.7, in comparison to 81.9 years for a girl born within South Lakeland - a difference of over 4 years.
- In 2001-03, NW male life expectancy was 74.8, in contrast to 76.14 years for East & West [E&W], and 77.4 years in the South East [SE]. NW female life expectancy was 79.5, 80.65 for E&W and 81.6 in the SE.

The social group, or socio-economic status to which members of a community belong, is a key determinant of likely health status throughout life. The greater the levels of socio-economic disadvantage within a community, the higher the risk of premature death becomes. Furthermore, as well as where you live in the North West, even wider differences, or 'inequalities', in patterns of ill health, outcomes, death rates and life expectancy exist by social group, gender, and ethnicity.

## North West position

“If you live in Manchester, make the most of today ... because the statisticians say you have the lowest life expectancy of anyone in England and Wales ... So why is Manchester so bad for you?...”

‘Why is Manchester so bad for your health?’ The Guardian. November 12th 2002.

Manchester, Blackpool and Liverpool have the lowest male life expectancy of all 374 local authorities [LA] in E&W [based on 2001-2003 data published in October 2004]<sup>4</sup>. Five North West [NW] local authorities, comprising Blackburn with Darwen, Liverpool, Manchester, Salford and Knowsley respectively, have the lowest female life expectancy of all England & Wales local authorities. Overall, a total of 11 of the 25 local authorities with the lowest male life expectancy are found within the North West, along with 12 of the worst 25 for female life expectancy. Figure 1 highlights regional variations.

Higher levels of ill health and early death are closely associated with poverty, or 'deprivation', partly explaining poor levels of life expectancy within Manchester, Liverpool and many of the regions industrial conurbations. For example, 27 of the 33 electoral wards in Manchester are amongst the most deprived 10% in the country. Poverty is linked to lifestyle choices that have a negative impact on health, such as smoking levels, alcohol consumption and poor diet.

Given that life expectancy continues to rise nationally, why do many residents within the North West, particularly those living in Greater Manchester and Merseyside, face a shorter lifespan, poorer general health and a reduced healthy life expectancy than can be found elsewhere in Britain? Many North West lifestyle, social and environmental issues that impact on health have origins that date to the industrial revolution, in part reflecting the composition of 23 North West “spearhead” local authorities included within the most deprived 20% of districts in England, for which health inequity targets will be monitored<sup>5</sup>. Spearhead authorities include some two thirds of the region's population.

Analyses by the Government Office North West [GONW] and North West Public Health Observatory [NWPHO]<sup>6</sup>, in Autumn 2004, compare how NW local authorities vary from national averages in life expectancy, by disease group and sex. This analysis offers primary care trust [PCT] and LA partnerships within the region a means of establishing where local health group interventions and priorities should be undertaken, in addition to focusing on interventions to support and improve health outcomes. Influences on life expectancy can be broken down by the proportional weight which different disease groups and categories of death have on estimates for a given area. For both NW males and females dying before 75, coronary heart disease [CHD], lung cancer and digestive disorders [including cirrhosis] show the greatest months of life lost in comparison to E&W averages. For example, 2001-03 life expectancy for males and females dying from CHD is reduced by over 3 months and 1.5 months respectively. Whilst life expectancy for many disease groups within the NW is frequently only one month, or less, behind national patterns, the cumulative effect of all causes of death adds up to provide a substantial regional deficit in life expectancy. Thus, in 2002, the gap in

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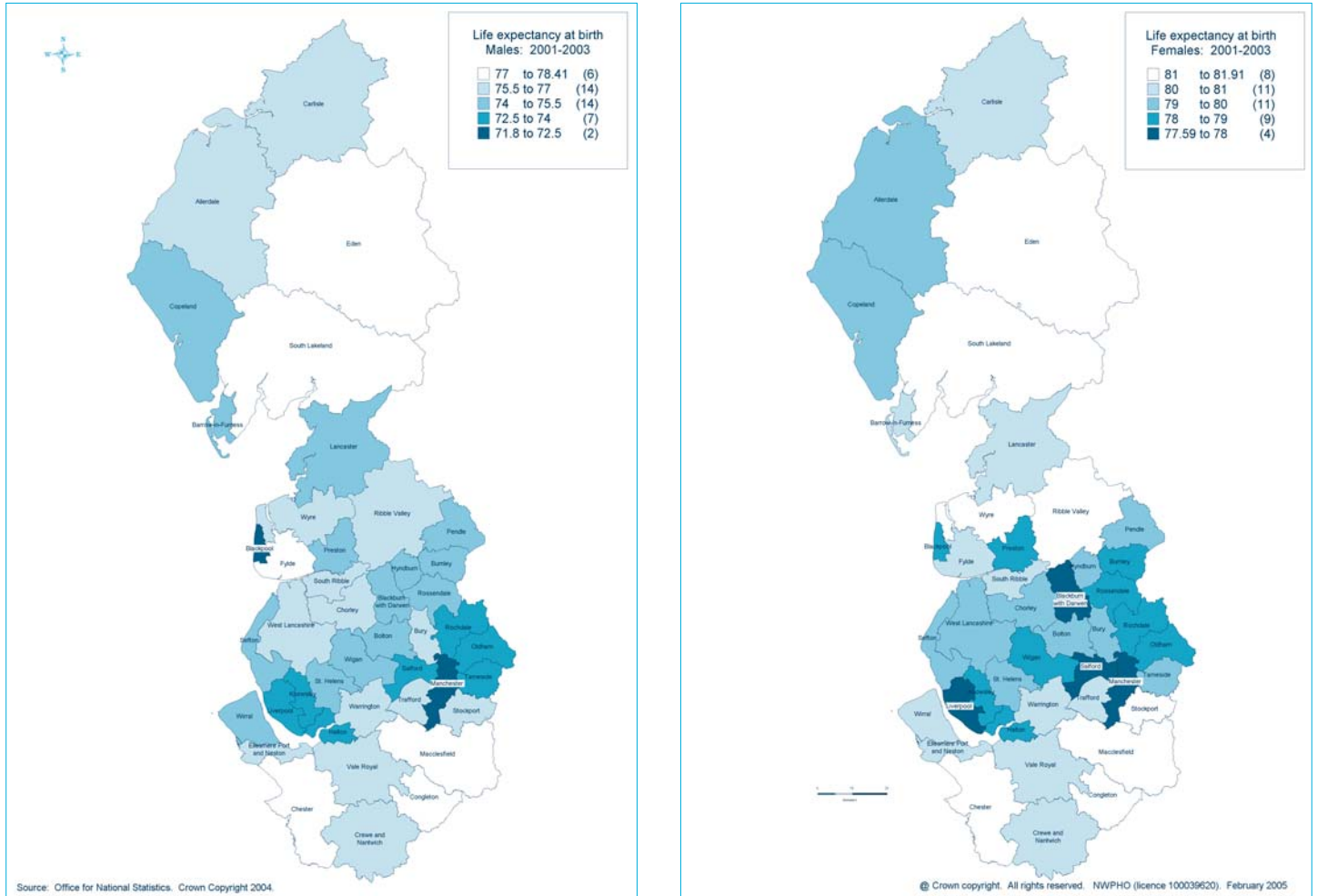


Figure 1: North West local authority male and female life expectancy at birth comparisons.

life expectancy at birth between the NW and E&W was 16 months for males and 14 months for females. Non-disease categories such as accidents, suicides and violence, injury and unintentional death, particularly amongst younger age groups, also impact on regional life expectancy estimates.

Regional analyses summarise how across the North West, gaps in life expectancy widened from 1995-1997 to 1998-2000, but have since narrowed [for males and females], approximately back to 1995-1997 levels. The key message from GONW-NWPHO analysis is that the gap between life expectancy in the NW and E&W appears to have narrowed by about 10% in three years, mainly as a consequence of reductions in local mortality rates from both male and female coronary heart disease.

Short-term medical interventions and lower smoking levels have contributed to reducing the regional gap in life expectancy. However, gaps in life expectancy resulting from digestive disorders, in particular related to alcohol, are increasing across the region. Two exceptions to regional trends are in Blackpool, where the life expectancy gap for males has continued to widen, and in Blackburn, where the female life expectancy gap has widened. Major North West urban conurbations, in particular the cities of Manchester and Liverpool, need to focus on key diseases such as cardiovascular disease and cancer in contributing to meet national targets. However, all North West primary care trusts and local authorities need to recognise issues that are important in contributing to life expectancy locally, and

to demonstrate how key disease and category groups are being tackled.

# Influences on life expectancy

## Health inequalities by area, social class, gender & ethnicity impact on life expectancy

A clear understanding of 'health inequalities' is essential in developing public health policy which supports all sections of society, as well as in particular, directing services and interventions proportionally to those in greatest need. There are marked inequalities in health between those in different occupational, or social groups in society, which in turn influence life expectancy. Occupational and socio economic measures such as income level, education and housing tenure, as well as additional influences or 'wider determinants of health', such as gender, ethnicity, age, disability, lifestyle choices, where one lives, social cohesion and access to services, impact on levels of health within different communities. Addressing wider determinants of health is key to both improving life expectancy and reducing differences in health outcomes between groups.

Socio-economic models describing wider determinants of health<sup>7</sup> are increasingly understood by joint agency strategic health partnerships. The Health Development Agency, in 2004, has highlighted a 'pathways approach'<sup>8</sup> to determining the influences on health within a population. Factors such as the education system and labour market, or 'social structure of society', help shape peoples lives. An 'individuals social position', based on socio-economic position, gender, ethnicity, and sexuality, affects their access to resources and relative exposure to health risks. 'Intermediary factors', including personal behaviour or lifestyle, environmental factors such as poor housing, and the provision of health and social care provision impact on 'health outcomes', or a person's health and well-being.

## The relative contribution deaths amongst different age groups bring to estimates

'Life tables', which calculate overall life expectancy estimates, are heavily influenced by relatively small numbers of deaths amongst those in younger age groups, as well as by far larger numbers of deaths amongst older age groups. In order to meet life expectancy targets, health interventions need to both add a few months average life expectancy to a very large number of older people, as well as saving small numbers of lives amongst far younger age groups, where each younger life saved contributes a large number of 'added years lived' to life table statistics.

A key consideration in increasing life expectancy is the development of evidence-based interventions that support healthcare teams in working with target age groups and specific disease groups. In order to support best intervention measures, local agencies need intelligence on the health needs of groups within their localities – by location, age group, sex and condition. For example, a disease register of all coronary heart disease patients registered with a group of GP practices enables additional medical interventions to be put into place to support patients on the register. In this way, a small overall increase in life expectancy may result for large numbers of older people at risk. However, if a PCT can identify teenagers at risk of suicide or accidental death, interventions that help reduce smaller numbers of young person deaths will add many 'life years' to life expectancy calculations.

Whichever age group, geographic location and condition interventions are targeted at, they need to deliver within the time frame set by government life expectancy targets. For example, schemes to encourage healthier eating amongst younger school children, whilst providing long term benefits, are unlikely to have an effect on average life expectancy for many years. Smoking cessation services, unless directed at older people, and those who are ill, may similarly not achieve short-term gains.

## Healthy life expectancy

Life expectancy and 'healthy life expectancy', namely the number of years spent in good or fairly good health, are inherently linked. General household survey data [Office for National Statistics] on healthy life expectancy, which records self-assessment of good health, suggest a negative picture. Figures indicate that whilst the population is living longer, the extra years have not necessarily been lived in good health<sup>9</sup>. Whilst in 1981 females could expect to face 10.1 years of poor health, this had risen to 11.6 years in 2001. Similarly, men now face 8.7 years poor health. In contrast, in debate regarding whether as we live longer, poorer health in old age has to become a greater burden, it has been described how further lifestyle and medical advancements are likely to continue to improve health through life. Life expectancy gains may be matched by greater gains in healthy active years of life<sup>10</sup>.

## Government policy

### Policy on public health and health inequalities

Government policy has focused around key health inequalities issues<sup>11</sup>, addressing root causes of poor health and health inequalities, and promoting partnership work and cross agency and government co-working. 'Health gradients' in chronic illness, outcomes, early death and life expectancy highlight how relative levels of health improve at each level of socio-economic status within society<sup>12</sup>. Large numbers of relatively disadvantaged people, not considered to suffer from extreme poverty or deprivation, will benefit from preventative interventions. However, short-term life expectancy PSA target interventions compete with the need to address and fund long-term health inequalities and wider determinant of health objectives. Many wider determinants of health may only be tackled through long-term action, social and economic change, involving a range of government departments, regional and local agencies. Yet, 2010 'health of the population' targets will require specific health service interventions that have short term benefits. If the meeting of targets is given too great an emphasis, priorities may be inappropriately directed away from long term interventions.

Tackling Health Inequalities: A Programme for Action<sup>13</sup>, has presented a national strategy to cut inequalities in health, to support families, mothers and children, engage with communities and individuals, prevent illness and provide effective treatment and care, and address underlying determinants of health. Action cuts across geographic area, gender, ethnic community, and between different social groups. The November 2004 Public Health White Paper, 'Choosing Health - making healthy choices easier'<sup>14</sup> details how public health has historically been diverted into analysing and understanding health problems, rather than identifying practical solutions. A new public health approach will offer the public informed choice regarding what impacts on their health, personalise support tailored to individuals needs, and further progress on effective partnership work.

### National targets on life expectancy, mortality rates and inequality

Interest in life expectancy statistics has widened since reductions in death rates were first specified as Health of the Nation targets. Targets for life expectancy, infant mortality and health inequalities, were announced in February 2001<sup>15</sup>. Targets to improve the 'health of the population', detailed below, have been formalised within the July 2004 'National Standards, Local Action'<sup>16</sup> Public Service Agreement [PSA] 'Priority I: Health of the Population' target, and 'Technical Spending Review Note'<sup>17</sup>. continued overleaf ►►►

■ **To improve the health of the population.** By 2010, increase life expectancy at birth in England to 78.6 years for men and to 82.5 years for women.

■ **To substantially reduce mortality rates** by 2010 [from the 1995-97 baseline]

*From coronary heart disease and stroke and related diseases by at least 40% in people under 75, with a 40% reduction in the inequalities gap between the fifth of areas with the worst health and deprivation indicators & the population as a whole.*

*From cancer by at least 20% in people under 75, with a reduction in the inequalities gap of at least 6% between the fifth of areas with the worst health and deprivation indicators & the population as a whole.*

*From suicide and undetermined injury by at least 20%.*

■ **To reduce health inequalities** by 2010, by 10% as measured by infant mortality and life expectancy at birth [now based on a 95-97 baseline, for consistency with mortality targets].

Infant mortality and life expectancy at birth health outcomes have been underpinned by two more detailed objectives:

*Starting with children under one year, by 2010 to reduce by at least 10% the gap in mortality between 'routine and manual' groups and the population as a whole.*

*Starting with local authorities, by 2010 to reduce by at least 10 per cent the gap between the fifth of areas with the lowest life expectancy at birth and the population as a whole.*

## Government guidance on how to reduce death rates and improve life expectancy

New public health research initiatives announced in 'Choosing Health' will "focus effort on strengthening the evidence for effective health interventions to support white paper delivery". Current PCT guidance for meeting life expectancy and death rate targets is general in coverage, and briefly mentioned in various recent documents. 2004 'National Standards, Local Action' guidance [p43], detailed below, summarises NHS interventions that will have the greatest impact:

- *"NHS interventions which will result in the largest reductions in death rates from heart disease and stroke by 2010 are the management of hypertension, high cholesterol and diabetes within primary care, both for those with established disease and at high risk. Positive effects will also be achieved by reductions in smoking, and in 'call to needle times for thrombosis'".*
- *"NHS interventions which will result in the largest reductions in death rates from cancer by 2010 are earlier detection, shorter waiting times for diagnosis and treatment along the care pathway and optimal treatment and support for people diagnosed as having cancers... Reductions in smoking rates will also have a longer term impact".*
- *Reducing mortality from suicide involves tackling risk factors for those with deteriorating mental health; Such factors include unemployment and social exclusion.*

National service frameworks [NSF] provide practical advice, guidance and support for major health issues, for example, on conditions such as CHD and diabetes, and in support of specific groups such as older people and children. NSFs provide guidance on how health outcomes can be improved, seek to ensure consistent, high quality, fair and integrated care, and set standards for health and social services. The following web links provide NSF guidance for key health topics.

Coronary heart disease guidance and March 2000 NSF.

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/CoronaryHeartDisease/fs/en>

NSF for diabetes guidance and December 2001 NSF.

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Diabetes/fs/en>

Guidance on older people and March 2001 NSF.

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/OlderPeoplesServices/fs/en>

September 2004 NSF for children, young people and maternity services, and guidance.

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/ChildrenServices/ChildrenServicesInformation/fs/en>

Cancer services and the September 2000 NHS Cancer Plan.

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Cancer/fs/en>

Mental health guidance, the September 1999 NFS, and national suicide prevention strategy.

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/MentalHealth/fs/en>

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In addition, the National Institute for Clinical Excellence [NICE] provides guidance and appraisals on the NHS use of medicines and treatments, on the safety of interventions and procedures for diagnosis or treatment, and clinical guidance on appropriate treatment and care. See:

<http://www.nice.org.uk/page.aspx?o=ourguidance>

The Health Development Agency provides an evidence base on improving public health at:

<http://www.hda-online.org.uk/html/research/index.html>

Government evidence on how best to improve life expectancy for specific age groups, disease groups and other categories, is limited and typically general in content. For example, Department of Health web based information on achieving national inequalities targets<sup>18</sup> summarises how PCTs “can make an impact on improving life expectancy through the prevention of disease – reducing smoking levels through smoking cessation clinics, poor diets, lack of physical activity, obesity and hypertension; ensuring access to health services for those who have a disease; ensuring access to doctor services; by increasing the number of elderly people getting flu vaccinations, and in tackling ‘fuel poverty’, helping reduce excess winter deaths. Developments in intermediate care should benefit older populations”. However, as required by the White Paper ‘Choosing Health’, such broad descriptions do not explain to PCTs, healthcare teams and partner agencies those short term interventions which work best in improving life expectancy levels that meet government targets.

Continued reductions in death rates from major disease groups will further improve life expectancy. However, interventions need not necessarily have a short term effect, nor reduce inequalities in health outcomes, or a narrowing of life expectancy variations between different social groups, by area, gender, or ethnicity. To reduce gaps in infant mortality and life expectancy at birth, by social group and deprivation, joint agency partnership work is imperative.

## Forecasting future trends

The first Wanless report ‘Securing our Future Health: Taking a Long-Term View’<sup>19</sup>, published in 2002, examined likely future health trends, and the subsequent resources required of the NHS and PCTs. The report identified three alternative scenarios for the future, depending on how life expectancy rises over time. In the fully engaged scenario, high levels of public engagement in relation to managing personal health, a high rate of technological uptake within the NHS, and a greater prevention of diseases would increase life expectancy beyond current forecasts. Securing Good Health for the Whole Population<sup>20</sup> followed, focusing on the prevention of ill health, the tackling of the wider determinants of health, and action that can be taken to improve health and reduce health inequalities. This second report indicates how “the life expectancy target ... could be achieved if the promising reductions of CHD and cancer continues but it also requires substantial progress to be made in the most disadvantaged areas”. PCT action, by inference, needs to target the hardest groups to reach.

# Action required by North West health services and partnerships

## Working in partnership

The North West comprises of the counties of Cumbria, Lancashire, Greater Manchester, Merseyside and Cheshire, and includes highly diverse urban, rural and remote rural geographies and economies, each of which will require locally specific interventions to improve life expectancy. 'Choosing Health' reinforces how effective partnerships are key to progress on health and healthier choices. Community partners include 'local government, the NHS, business, advertisers, retailers, the voluntary sector, communities, the media, faith organisations and many others'. Emphasis is given to "local authorities providing local leadership to bring concerted and integrated local action on health", as well as to "NHS primary care trusts working with local authorities and others [including the voluntary and community sector] to tackle inequalities". Shared priorities for action include reducing the number of smokers, reducing obesity and improving diet and nutrition, increasing exercise, encouraging and supporting sensible drinking, improving sexual health risk taking behaviour, and improving mental health. From Spring 2005, locality based 'Communities for Health' pilots will be used to promote locally chosen health priorities, with 'Local Area Agreement' pilots reinforcing the joint work of successful Local Strategic Partnerships, and bringing together separate funding streams.

## PCTs need to undertake the following action

'National Standards, Local Action' highlights how, to "reduce inequalities in health outcomes, all PCTs should work in partnership with LAs, using health equity audit, to demonstrate that effective interventions are provided for all groups in the population, targeting those with greatest needs". The undertaking of equality profiles and equity audits to determine health inequality and inequity, based on need, is a key to understanding local health patterns, and in the effective targeting of groups.

Thus, PCTs need to undertake the following actions:

**A** Examine local life expectancy patterns, inequality and inequity in healthcare provision and outcomes. With regard to life expectancy targets, PCTs need to determine which residents within a given area are dying of what causes? For what conditions and age groups is life expectancy lower than that found within other geographical areas?

**B** What resources and funding are available to provide specific interventions that target those groups identified as having lower life expectancy?

**C** Calculate the possible effects of proposed interventions on life expectancy, in the best and worst case scenarios, and within set time limits.

**D** Implement interventions, monitor their progress and evaluate their effect. Consider best evidence as it emerges, and adapt interventions where necessary.

'National Standards, Local Action' describes in general terms how [P43]:

- *In reducing inequalities in life expectancy, key interventions will require a significant reduction in smoking prevalence, and targeted action on cardiovascular disease and cancers, within the poorest areas and groups.*
- *Reductions in infant mortality will require a focus on reductions in smoking during pregnancy, improved nutrition of women of childbearing age, the increase of breastfeeding rates and duration, and providing a range of high quality midwifery, obstetric and neonatal services.*

The Government Office North West 'Investment for Health Plan' discusses how the Department of Health and NHS can work with other agencies across the region to improve health and reduce inequalities<sup>21</sup>. PCT wide, or locality focussed 'health and improvement modernisation plans' [HIMPs] reflect local partnership priorities regarding the tackling of health inequalities and health improvement, with many local authorities, and strategic and health partnerships placing health as their top issue.

## Should resources be focused on the most deprived communities?

Initial 2004 analyses by the Cumbria & Lancashire [C&L] Strategic Health Authority [SHA] highlight the massive improvement in North West mortality rates required to meet national life expectancy targets<sup>22</sup>.

## The potential impact of specific interventions

In modelling potential SHA life expectancy improvements within C&L SHA, the most effective intervention scenario appears to be to target mortality rate reductions in the most deprived 20% of wards [93 of 468 wards]. However, even if a 25% reduction in mortality is achieved in the most deprived 20% of wards, for national targets to still be met, a 19.2% reduction will still be required elsewhere within the SHA. Many who would benefit from healthcare interventions do not live within the most deprived geographic wards. Intervention needs to target social groups across the 'health gradient'. Any focus on tackling health solely within the most deprived geographic areas may not be sufficient for targets to be met.

Further analyses by the GONW and NWPFO<sup>23</sup>, in December 2004, have presented historic life expectancy trends across the North West, and modelled likely life expectancy trajectories to 2010. NW male and female life expectancy is modelled to increase to 77.18 and 81.37 years respectively by 2009-11. However, regional variations provide contrasts, with male and female life expectancy in the 20% most deprived 'spearhead' LA's forecast at 77.38 and 80.74 respectively, and 78.46 and 82.37 within less deprived non spearhead LAs. The absolute gap in mortality rates between deprived spearhead and more affluent LAs, [the government target figure], is due to fall from 38.94 per 100,000 in 1995-97 to 27.96 in 2009-11. The percentage gap though is due to rise slightly to 9.24%. Male life expectancy is anticipated to improve at a faster rate than that for females.

'Choosing Health' highlights how "there is currently limited evidence on what works to reduce health inequalities, and the evidence base needs to be expanded". Health inequalities modelling' documentation<sup>24</sup>, shared by the Department of Health with strategic health authority [SHA] Directors of Public Health in October 2004, provides detailed information on life expectancy modelling work undertaken, a summary of effective interventions, and how the impact of seven particular interventions has been modelled. Analysis highlights the contribution different age bands and major disease groups make to the life expectancy gap between the lowest fifth of local authorities and the national average. The impact of the following seven specific interventions in contributing towards achieving the 10% PSA life expectancy gap target reductions are modelled.

Each intervention provides its own estimated percentage contribution towards meeting the 10% reduction in health inequalities targets. Modelling estimates that the above interventions together could contribute approximately 8% to the 10% gap reduction requirements. Statin and antihypertensive treatment data were based on randomised control trial evidence, other interventions on observational studies. Broad benefits from increased fruit and vegetable intake were directed at 45-79 year olds.

Separately, analysis highlighted the high potential impact that a reduction in suicides [and undertermined injuries] could bring to achieving life expectancy gap targets, particularly with males. Interventions to reduce alcohol and drug usage amongst young groups could similarly impact.

National health outcome targets will have been set so that, unforeseen circumstances excepted, based on current trends, they should be achievable. Continued reductions

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### Interventions used to model life expectancy improvements [Department of Health]

- *Achieving smoking cessation targets for manual groups*
- *Statin therapy in CHD*
- *Antihypertensive therapy in untreated hypertension*
- *Increased uptake of flu vaccination in the elderly to 75%*
- *Increasing the intake of fruit and vegetables by one third of a serving*
- *Reducing physical inactivity by one tenth*
- *Increasing the proportion of pensioner households with central heating in lowest quarter of wards to the national average*

in smoking levels, which impact on reducing death rates for a variety of disease groups, will benefit progress in meeting life expectancy targets. However, negative health effects will result from the 'obesity time bomb'.

### Limited evidence on the effectiveness of medical interventions

'Choosing Health' highlights how the evidence base on medical interventions with the greatest impact on specific diseases is currently limited. Individuals may suffer various illnesses, or competing causes of death. It has been argued that deprivation has a more general effect on mortality than on specific diseases<sup>25</sup>. Academic research suggests that medical and surgical intervention, and the reduction in risk factors, have played a varying role in the decline in mortality for various causes. Thus, both longer-term wider determinants, as well as short-term medical and other interventions, play a role in increasing life expectancy.

In September 2004, the British Medical Journal reported how large increases in the cost and volume of prescribing of statins [lipid lowering drugs] for coronary heart disease [CHD], have been associated with only a modest decline in standardised hospital admission ratios<sup>26</sup>. Intervention has to include the management of other risk factors such as smoking, hypertension and diabetes. Unal et al, 2004<sup>27</sup>, estimate 42% of the decline in CHD mortality in the UK between 1981 and 2000 has been as a result of treatments, 58% by reductions in major risk factors, principally smoking. Worsening CHD risk factors [increases in obesity and diabetes] have been compensated for by reductions in other risk factors [reductions in smoking, cholesterol levels and blood pressure], early detection, improvements in surgery and medical treatment.

Medical interventions, such as the increased use of statins, may only increase average life expectancy for a large population affected by a major health condition by a matter of days. In order to meet short-term life expectancy targets, the Department of Health needs to provide PCTs and healthcare teams with best evidence on what interventions work in the short term to both save young lives, as well as add months of life to middle aged and older people suffering from varied conditions.

### Healthcare issues arising from an ageing population

As life expectancy continues to improve, by 2050 one person in five will be over 70, and retirement for many will last decades. Populations are forecast to decline in areas such as Merseyside and Greater Manchester, while rural areas, in particular, are projected to see their population grow<sup>28</sup>. A smaller proportion of the North West population will be of working age, and population change will give rise to significant health, social and economic issues. An ageing population has implications both for the size, range and quantity of future health and social care services, as well as on staffing level demands, and the age to which people will in future work.

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## Technical information

Life expectancy is calculated using life tables, which analyse population death rates by age band, the probability of surviving or dying in a given time period, and as a result life expectancy at any given age. A number of life expectancy calculation templates and technical papers are emerging through the web. Sources of further information on technical aspects of calculating life expectancy are available from the following web sites:

### Web based life expectancy calculators are available from:

<http://www.erpho.org.uk/viewResource.asp?uri=http%3A//www.erpho.org.uk/resources/%3Fid%3D5827>

[http://www.lho.org.uk/Health\\_Inequalities/Attachments/Excel\\_Files/le\\_template.xls](http://www.lho.org.uk/Health_Inequalities/Attachments/Excel_Files/le_template.xls)

The government actuaries department provides life tables, available at <http://www.gad.gov.uk>

### National Statistics and PHO papers on life expectancy are available from:

[http://www.statistics.gov.uk/downloads/theme\\_other/GSSMethodology\\_No\\_33.pdf](http://www.statistics.gov.uk/downloads/theme_other/GSSMethodology_No_33.pdf)

<http://www.erpho.org.uk/viewResource.asp?uri=http://www.erpho.org.uk/resources/?id=9479&wsID=1>

[http://www.lho.org.uk/Health\\_Inequalities/Attachments/PDF\\_Files/tech\\_supp.pdf](http://www.lho.org.uk/Health_Inequalities/Attachments/PDF_Files/tech_supp.pdf)

On the incorporation of population and death data by age band, these excel spreadsheets will calculate life expectancy for a given geographic area, though calculations are subject to various possible errors and reflect historic patterns of risk behaviour or prosperity.

## Further data on life expectancy

The Office for National Statistics website gives life expectancy statistics, information, and inequalities data. See <http://www.statistics.gov.uk>. The journal 'Health Statistics Quarterly' summarises many related themes.



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