NHS Lincolnshire

LINCOLNSHIRE PUBLIC HEALTH

Annual Report 2010

Lincolnshire COUNTY COUNCIL

Contents

Introduction

It is good to welcome you to my first Annual Report as Director of Public Health for Lincolnshire. I have probably taken a different approach to my predecessor. You will find only small amounts of numerical information and a good deal of commentary. The background data can be found on the Lincolnshire Research Observatory website, as part of the new Joint Strategic Needs Assessment which will be published soon.

In addition, it is not my intention that this Annual Report will give you a comprehensive account of the state of health of the people of Lincolnshire. That would be an enormous tome which very few would read. Instead, we have chosen some important areas where we know there are recommendations for action that need to be made. Over the course of several Public Health Annual Reports we will build up a more comprehensive view of health and well-being in Lincolnshire.

The new Coalition Government published a White Paper on Public Health: Healthy Lives, Healthy People, in November 2010. This indicates very significant changes in responsibilities for public health but also identifies this Government's priorities for public health over the next few years. Although our topics for this report were identified before the White Paper was published, these topics feature amongst the White Paper priorities.

The first chapter of the report looks at inequalities in Children's Health in Lincolnshire and identifies some essential improvements in breastfeeding, parental smoking and teenage pregnancy.

Chapter two considers the health of offenders. This is a preliminary view as we are currently working on a comprehensive health needs assessment on the health of prisoners in Lincolnshire. This group within the population starts with many inequalities and the criminal justice system offers an opportunity to address some of their health inequalities.

Chapter three identifies successful work to increase levels of physical activity and chapter four looks at cancer, both in terms of prevention and treatment. The final chapter makes some observations on emergency planning and response.

I am grateful to senior colleagues within the Public Health Directorate for writing the individual chapters and to those who have reviewed and proof-read the report.

I hope you enjoy reading this report and find something in it which will enable you to take some action to improve the public's health.

Dr Tony Hill

Joint Director of Public Health
NHS Lincolnshire and Lincolnshire County Council

Drivers of Children's Health Inequalities

Health inequalities can be defined as: General differences in health outcomes between different populations which cannot be explained in biological terms, and are mainly due to social or economic factors.

Health inequalities are driven by a number of factors: deprivation, age, gender, access to services (health and social care services), educational attainment, social exclusion or being part of a minority ethnic group, and finally social drift where ill health or addiction causes a person to be less economically or socially engaged. These factors rarely happen in isolation, they are almost always interlinked and complex. Although the overall health and life expectancy of the British population has continued to improve throughout the 20th century, it is recognised that some segments of society have been, in essence, left behind.

Health inequalities are responsible for considerable levels of reduced length and quality of life in the United Kingdom and children are amongst the most vulnerable sections of society. As such, they are greatly affected by the outcomes of any social and economic deterioration surrounding them. These inequalities mean poorer health, reduced quality of life and an overall shorter life expectancy for many. Children are susceptible throughout their life course; from before birth and all the way through their crucial developmental, pre-school and school years. Their early physical and emotional development will eventually help determine educational and social progress, employment prospects and health outcomes. The need to ensure all children within Lincolnshire get the support they need to obtain the best start in life is obvious.

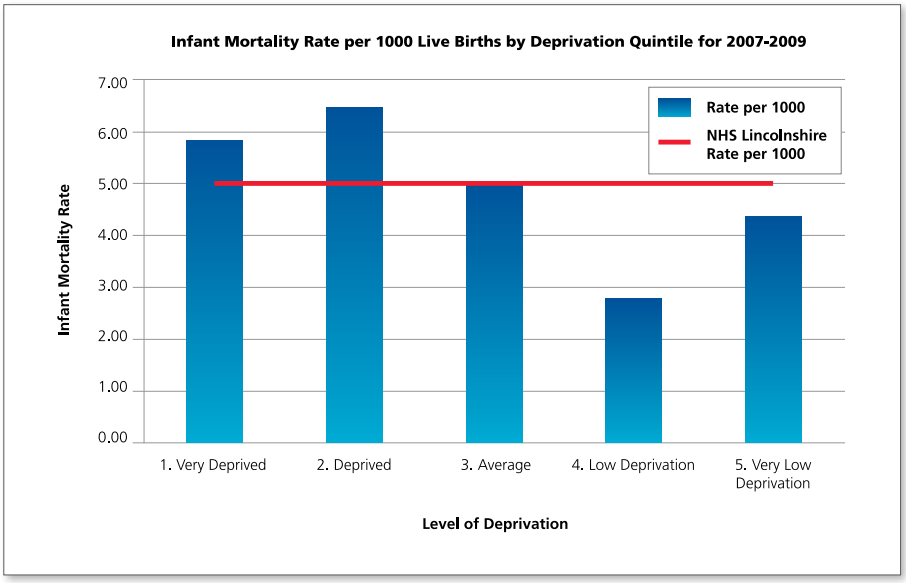
Infant Mortality

Infant mortality is the number of babies who die before their first birthday. This is an important indicator of inequalities in health outcomes for children and society as a whole. A century ago the rates of children dying in early infancy were approximately 150 babies for every 1,000 births. This figure has dramatically reduced because of improved housing, welfare and access to universal health and social care. Nevertheless, although the overall infant mortality rate in England has fallen to just under five deaths per 1,000 births, there continues to be a gap in outcomes between the poorer and more affluent groups in society.

Infant mortality is closely associated with all aspects of health inequalities and deprivation; housing quality and living environment, maternal lifestyle factors, infant feeding choice, access to services and so on. These in turn are directly affected by the education level of the mother, her age, and her income. Crucially, there is no single method of tackling these wide-ranging causes. Babies born in the most deprived areas of England can be up to six times more likely to die than those from more affluent areas. This trend is reflected in Lincolnshire where infant mortality rates are greater within our more deprived populations (see Figure 1.1).

The reduction in the differences in health outcomes faced by deprived population compared to affluent populations remains a priority for the Government, NHS Lincolnshire and partners. This chapter will examine some of the fundamental reasons for differences in child health outcomes and how they are being addressed.

Figure 1.1. Infant Mortality by Deprivation Level in Lincolnshire 2007-2009



Sources: ONS Mortality File, Exeter GP Registrations, Indices of Multiple Deprivation 2007

Deprivation and the Wider Determinants of Child Health Outcomes

As a whole, the Lincolnshire population would appear to be fairly affluent with the majority living with average, low or very low deprivation levels. Nevertheless, when we examine the population by General Practice Cluster populations we can see there are areas across the county where deprivation levels are high. In particular, over 80% of the Skegness and Coast population demonstrate significant levels of deprivation; Boston, South Holland, Lincoln City and Gainsborough also exhibit higher concentrations (See Table 1.1).

Table 1.1. Lincolnshire's General Practice Cluster Population by Deprivation Quintile

Cluster	Very Deprived	Deprived	Average	Low Deprivation	Very Low Deprivation
Boston	16.7%	32.9%	26.6%	21.3%	2.5%
East Lindsey	0.2%	18.8%	49.3%	25.4%	6.4%
Lincolnshire West	15.1%	15.7%	18.1%	30.3%	20.8%
Mid Kesteven	7.2%	13.3%	20.7%	29.9%	28.9%
Skegness & Coast	40.9%	41.4%	14.4%	3.3%	0.0%
Sleaford & District	0.0%	11.8%	30.2%	24.9%	33.1%
South Holland	0.1%	20.0%	42.1%	30.5%	7.3%
Welland	0.0%	0.0%	20.4%	23.9%	55.7%
NHS Lincolnshire	11.3%	19.0%	26.2%	24.9%	18.5%

Sources: Exeter GP Registrations, Indices of Multiple Deprivation 2007

Deprivation strongly influences children's health outcomes throughout all aspects of their development. Poor maternal health and lifestyle choices, premature labour, low birth weight and social/physical developmental problems are strongly associated with higher levels of poverty and worse health outcomes. Successful early emotional, physical and social developments are essential to enhance a child's future ability to form positive relationships, improve their educational attainment and achieve good health. Research shows, if children fall behind in these aspects of development during their first year they will continue to do so throughout the rest of their pre-school and school education.

Deprivation also negatively impacts on a child's health through: their parents' age, level of education, whether they are unemployed and in good health, the environment they live in, housing quality, choice of nursery / schools, opportunities for social interaction and the quality of services accessed such as transport, leisure, libraries, shops, health and social care, etc. These broad social characteristics determine health outcomes by impacting directly, e.g. poor housing causing health problems, or indirectly, e.g. by making it impossible for children to study in cold damp rooms leading to poor educational attainment, reducing work choices and lowering future income, decreasing aspirations and self esteem.

The Child Poverty Act (2010) and Lincolnshire Child Poverty Strategy

The Child Poverty Act aims to end child poverty by 2020; this legislation compels Governments at local and national levels to take positive action to achieve this. As we have discussed, deprivation and poverty are persistent problems within areas of Lincolnshire. The Lincolnshire Child Poverty Strategy is currently being written in partnership with all agencies involved with both the causes and outcomes of poverty, these include local authority education, housing, children's and adult social services, job centre plus, police, probation and youth offending teams, health services, voluntary and third sector organisations, local people along with children and young people. The priority outcomes are maximising family income and narrowing the gap in health and education outcomes between the most disadvantaged and affluent in Lincolnshire. The children living in greatest poverty in Lincolnshire are concentrated in the Skegness coast and Lincoln City areas.

This strategy will address both the consequences and causes of poverty and will directly address the root causes of children's health inequalities at a strategic and operational level. It will work across the broad range of factors we know impact on and exacerbate deprivation and the associated health outcomes.

Table 1.2 clearly shows areas with higher deprivation levels, such as Skegness and Coast also consistently exhibit higher numbers of their population accessing benefits, experiencing higher crime rates and achieving lower school level qualifications, demonstrating the 'layering effect' deprivation has on society.

Table 1.2. General Practice Cluster Population by Wider Social Determinants of Health

General Practice Cluster	% of Children on Role for Free School Meal Eligibility	Police recorded Crime rate / 1000 GP Cluster Population	% of Pupils Achieving >5 GCSE at Grade C or above (inc Maths & English)	% of GP Cluster Population Claiming Job Seekers Allowance	Average Index of Multiple Deprivation Score
Boston	10.46	76.92	52.42	3.18	21.30
East Lindsey	8.85	46.49	59.88	2.66	16.23
Lincolnshire West	11.25	79.29	58.33	3.78	19.21
Mid-Kesteven	8.94	71.72	59.40	3.50	15.35
Skegness & Coast	16.86	89.92	46.44	4.95	32.05
Sleaford & District	6.25	42.40	62.22	2.74	12.27
South Holland	10.18	59.12	57.22	3.13	15.97
Welland	6.38	45.82	61.04	2.66	8.40
Lincolnshire	10.19	67.50	57.23	3.41	18.07

Sources: Department of Work and Pensions 2010, LCC Childrens Services 2010, Lincolnshire Police 2008-09, DCLG 2007

Improving Children's Health Outcomes during Pregnancy and the Early Years

Children's health outcomes are initially determined during their time in the womb and their early developmental years. Therefore, early access to maternity care is an important opportunity for healthcare professionals to interact and build relationships with women and families who, although in most need, would not otherwise access health services.

Early access allows midwives to monitor the pregnancy, the baby's growth and development and focus on the mother's health and well-being, including lifestyle factors such as diet, physical activity, smoking, drugs and alcohol. Information on benefits, housing, free vitamins available through the Healthy Start programme, along with support to breastfeed are also vitally important at this stage to address the health inequalities experienced by children within our most vulnerable groups. Across England approximately 16% of women delay booking into maternity care until after five months, this delay often results in worse outcomes for both mother and baby. In Lincolnshire around 90% of pregnant women book before the 12th week of pregnancy, however information is continually being produced by our maternity units to encourage mothers to attend in early pregnancy and consultations undertaken to understand why some mothers choose not to attend until later.

In Lincolnshire we continually strive to improve children's health outcomes by offering support and information to mothers and their families during pregnancy and the child's early years. Some essential areas where we are currently influencing child health outcomes are:

Breastfeeding: There is a wealth of evidence which acknowledges breastfeeding has both short and long-term health benefits for mothers and babies. The World Health Organisation recommends that wherever possible infants should be fed exclusively on breast milk from birth until six months of age. Social inequalities in breastfeeding exist, where more affluent mothers are more likely to successfully breastfeed than mothers from deprived areas. Nevertheless, we must be aware that breastfeeding has a greater impact on the health outcomes of more vulnerable infants. Breastfeeding is a crucial element to help decrease inequalities in children's health, including lowering infant mortality rates, reducing preventable infections and unnecessary hospital admissions in infancy, halting the rise in obesity in under 11s and improving the general health and well-being of children and young people. Breastfeeding rates have been low in the UK for several generations and professionals, childbearing women, families and the general public have all been exposed to formula feeding as the norm. There are many social and psychological factors which may influence a woman's choice to breastfeed, e.g. maternal age, socio-economic status, marital status, and ethnicity along with peer, social and family pressures. A woman's ability to choose to breastfeed is far from being a simple matter of 'informed choice'. The overall breastfeeding rates in Lincolnshire are between 39% to 40% of mothers continuing to breastfeed until their baby is six to eight weeks of age. Nevertheless, in more deprived

areas the rates are between 25% and 30%. In Lincolnshire, staff from a range of backgrounds, along with service users, are working together to improve breastfeeding rates through increased education for staff, support (including peer support) and information for women. This work also includes raising the profile of breastfeeding in other areas, for example through the media, breastfeeding friendly restaurants or cafes and working with Local Authority planners.

Smoking: The time before a baby is born is often an excellent trigger point to offer support to mothers who smoke to stop during their pregnancy and beyond. Smoking during pregnancy is the single most modifiable risk factor influencing adverse health outcomes in children. Smoking during pregnancy can increase the risk of infant death by up to 40%. It also increases the risk of premature labour and is likely to cause growth restriction of the baby in the womb where the baby is starved of vital nutrients and loses weight. Low birth weight is closely associated with poor health outcomes in childhood and later in adult life. The numbers of people smoking within more disadvantaged communities is higher than affluent populations. Smoking in pregnancy is also associated with the mother's age, level of education and whether her partner also smokes. Therefore, smoking in pregnancy is an important public health concern and a principal reason behind child health inequalities. Although only a small proportion of women continue to smoke during pregnancy these tend to be the heaviest and most addicted smokers who find it more difficult to stop. NHS Lincolnshire has committed significant resources to specialist stop smoking services for pregnant women since 2005 (Phoenix Stop Smoking Service). Every pregnant smoker in Lincolnshire is offered access to the Phoenix Programme. Since 2005 a total of 5,328 women have used the service, with 3,549 women successfully giving up cigarettes. An important aspect of stop smoking services for pregnant women is that if the quit attempt during pregnancy is not successful then women should continue to be advised to stop after their child is born.

Second Hand Smoke and the Smoke Free Homes: Children are more vulnerable to the health effects of cigarette smoke because they have higher oxygen demands, smaller airways and faster breathing rates. Small children receive a higher nicotine dose from smoke compared to adults and this can increase their risk of cot death, respiratory disorders (asthma, wheezing, chronic cough) and middle ear infections.

Lincolnshire Smoke Free Homes is a countywide initiative with 16,500 homes currently signed up to reduce the amount of cigarette smoke within rooms. The focus of this work is on the most vulnerable and deprived populations. This helps protect around 15,480 children from the effects of second hand smoke in their own homes within some of the most deprived areas in Lincolnshire. Discarded cigarettes are still the most common cause of house fires therefore this risk is reduced for children whose families have signed up to the smoke free homes promise.

Social, Emotional Development and Mental Health Wellbeing

A child's social and emotional development and subsequent mental health outcomes have significant implications for current and later social functioning, educational and employment success. If emotional development is fostered at a young age, children are more likely to settle well into school, work co-operatively, confidently and independently, and behave appropriately. A child with poor social and emotional development is at risk of fostering worse relationships with peers, academic problems, later involvement in crime, and developing physical health and adult mental-health problems. Some of the most challenging issues we face arise from young people's perception of not feeling engaged, respected, listened to or valued.

In Lincolnshire the Healthy Schools Team supports the social and emotional development of the child's early relationship with parents or carers. This helps provide a secure base from which children grow into well-rounded, capable adults with robust mental health. Programmes include: Pyramid, Peer Mediation and School Council. These aim to improve the child's social interactions, engagement with learning, confidence and self esteem. Peer mediation in particular trains young people to resolve conflict. Schools using this approach report their mediators are having a notable impact, changing the culture and atmosphere of the school. The Lincolnshire Healthy Early Years programme mirrors the principles of Healthy Schools by addressing personal and emotional development; this has been enthusiastically received by nurseries, children's centres and pre-schools. Lincolnshire Partnership NHS Foundation Trust also provides the Targeted Mental Health in Schools Programme (TaMHS). This is a three-year pathfinder programme aimed at supporting the development of innovative models of therapeutic and holistic support in schools for children and young people aged five to 13 years and their families. Early results from the pilot sites are promising with significant improvements in mental and emotional health identified. These programmes work alongside the many agencies involved in the Lincolnshire Parenting Strategy and Lincolnshire Community Health Services, who are implementing

the Healthy Child Programme, which recognises the importance of emotional and mental health development in reducing health inequalities in children.

Particularly Vulnerable Groups: Looked After Children and Teenage Parents

In Lincolnshire there are many vulnerable groups of children who we know are at most risk of ill health. Two of these groups are Looked after Children (LAC) and Teenage Parents. We have chosen to examine these specifically in this chapter because LAC are particularly vulnerable due to the specific difficulties they have experienced and Teenage Parents because of the effect pregnancy at a young age has on them and their children.

LAC: Evidence shows that looked after children and young people share many of the same health risks and problems as their peers, but often to a greater degree. They have frequently endured greater challenges, such as discord within their own families and physical, emotional and psychological problems during their lives. Children often enter the care system with a worse level of health than their peers and the health outcomes for these children are known to be poor. There is also a disproportionately larger number of children and young people with disabilities in care compared to the general population. Young people leaving care are a particularly vulnerable group, with their health and well being poorer than young people who have never been in care.

There are approximately 800 young people cared for within Lincolnshire each year. Their ages range from birth to 18 years of age. It has therefore been a priority for NHS Lincolnshire to ensure these children are assessed and receive appropriate care to improve health outcomes. To improve the health outcomes, LAC agencies from across Lincolnshire and regionally have been working together to plan and deliver services tailored to meet their needs. Initial health assessments and reviews of all children entering local authority care are completed within the first four weeks. These are carried out by specially trained GPs using the British Association for Adoption and Fostering (BAAF) model which guarantees a gold standard service providing a holistic health and social care assessment for these children. Health plans for each child are completed and evaluated for progress based on outcomes at the review assessments. This modified approach to health assessment and care will improve health outcomes and help reduce the inequalities normally experienced within this group.

Teenage pregnancy is a complex and serious social problem. Having children at a young age can influence young women's health and well being, severely limit education and career prospects and result in negative health outcomes for their children, who are significantly more likely to become teenage parents themselves. In Lincolnshire the conception rates for girls living in areas of very high deprivation are over four times greater than those of girls from the most affluent areas. Table 1.3 highlights the areas where teenage pregnancy rates are highest; these areas also have the highest levels of deprivation within Lincolnshire.

Table 1.3. Teenage Conceptions by GP Cluster (18 years or under) 2006 to 2008

Cluster	Conceptions	Population	Rate per 1000
Boston	178	4386	40.58
East Lindsey	157	4917	31.93
Lincolnshire West	527	12168	43.31
Mid Kesteven	143	4235	33.77
Skegness & Coast	216	3620	59.67
Sleaford & District	79	3198	24.70
South Holland	128	3758	34.06
Welland	112	4639	24.14
NHS Lincolnshire	1540	40921	37.63

Sources: Exeter GP Registrations, Hospital CMDS via SUS

However, there are also strong associations between high under-18 conception rates and; low educational attainment, low aspirations, poor attendance at school, being in public care, the daughter of a teenage mother, having mental health problems, sexually abused and being involved in crime. Teenage pregnancy is, therefore, a key health inequality and social exclusion issue. In Lincolnshire, there has been good progress made in reducing under-18 conception rates with a 20% reduction between 1998 and 2008; this compares favourably with the overall national reduction of 13%. In Lincolnshire the highest under 18 conception rates are found within areas of Skegness, Lincoln, East Lindsey and Boston. The Lincolnshire Teenage Pregnancy Strategy focuses both on high rate areas and high-risk groups. While the negative consequences of teenage pregnancy are felt most by young women and their children, the Lincolnshire Strategy also has a strong focus on working with boys, young men and young fathers. Healthy Schools, School Nurses and Sexual Health Services all work closely with other agencies to ensure information and services are available to the most vulnerable groups, maximising the impact these services have on health inequalities in children.

Conclusion and Recommendations

Health inequalities in children are not easy to address, the evidence clearly shows that any one agency on its own will not have sufficient impact to guarantee a reduction in the gap currently observed between populations. The examples of current services and strategies within this chapter specifically focusing on reducing inequalities illustrate that actions need to be executed in partnership with all agencies involved in the wider causes and outcomes of child health inequalities.

This requires a high level strategic understanding and commitment from everyone to secure a coordinated approach. Public Health will continue to support these services and strategies by lobbying, persuading and influencing a wide range of partner agencies to make certain the reduction in child health inequalities is high on everyone's agenda.

'Child Health Inequalities are everybody's business'

Recommendations

1. Deprivation is a key driver in children's health inequalities: the Lincolnshire Child Poverty Strategy is an important element of improving this and needs to be delivered soon. The Public Health Team will support the development and implementation of this.

2. Increasing the number of infants breastfed until six months of age will positively impact on children's health inequalities: the Public Health Team will continue to develop and implement the Lincolnshire Infant Feeding Strategy and partner organisations need to place a high priority on working with us to achieve targets.

3. Reducing the numbers of people smoking, lowering teenage conceptions, targeting vulnerable groups such as Looked After Children and supporting children and families, particularly during the early years will help reduce child health inequalities. The work of the Children's' Board and its constituent organisations must place an emphasis on this.

Offender Health

Introduction and Background

The health of offenders is worse than that of the general population and women offenders experience significantly worse health than their male counterparts. [1]

The relationship between the underlying social conditions of people who offend, the risk of offending, the effect of contact with the criminal justice system and their health is complicated. There is a relationship, however, and a number of studies have shown the relationship between geographically deprived individuals and communities, and risk of offending. [2,3]

These studies correlate well in content with a more recent expression of the underlying conditions that lead to poor health. The 'Marmot 6' [4] areas of intervention required to address health inequalities are expressed throughout the literature (see Figure 2.1).

Figure 2.1
The Marmot Six Interventions

- Give every child the best start in life
- Enable all children and young people to maximise their capabilities and have control over their capabilities and have control over their lives
- Create fair employment and good work for all
- Ensure a healthy standard of living for all
- Create and develop healthy and sustainable places and communities
- Strengthen the role and impact of health promotion.

Demographic understanding of the people who become part of offender populations show that they largely originate from communities who are not well served in terms of the Marmot conditions. This is true when the population is looked at in terms of childhood background or contemporary conditions in adulthood. For example, 49% of male and 33% of female offenders were excluded from school during childhood, compared to only 2% of the general population.

The literature on the health of offenders is much richer for people who are imprisoned than those in the community – whether under supervision of the criminal justice system or not. Brooker asserts in one study [1] of the community that there is significant interchange between imprisoned offenders and those in the community, and the richer intelligence on those in prison can safely be applied across the wider community.

Demography of Offenders in Lincolnshire

At any given time there are around 3,500 Lincolnshire residents in contact with criminal justice services excluding the Police. Because of the nature of the Prison Service many local people residing in prisons will be in establishments outside of the county. As a proportion of the above, around 25% are imprisoned at any point and under the care of Her Majesty's Prison Service, with the remainder being supervised in community settings by the National Probation Service – both of these agencies now operate under the umbrella of the National Offender Management Service (NOMS). The gender breakdown of the NOMS population is 89.7% male and 10.3% female, although Lincolnshire has one female only prison at HMP Morton Hall (see Figure 2.2).

Figure 2.2
Summary Ethnic Breakdown of Lincolnshire Offenders

All Asian	0.47%
All Black	1.14%
All Mixed	0.85%
Chinese	0.19%
Other Ethnicity	0.57%
All White	96.4%

Figure 2.2 summarises the ethnic breakdown of the people within the offending population in Lincolnshire excluding HMP Morton Hall. Morton Hall is excluded from this average as it houses a significant ethnic minority population at almost 75% of total.

Whilst around 7% of offenders have a disability as defined within the Disability Discrimination Act, their self reported levels of disability range from 46% to 60% in various studies. This compares to self declared disabling illness rates in the general population of around 26% in a matched general population sample.

There are few national studies of the socio economic conditions of offenders and none have been undertaken locally. However, a 2002 report by the Department of Health Social Exclusion Unit [5] reviewed high levels of re-offending in this population and drew a link to socio economic deprivation and a 'lifetime of service failure'. In essence offenders face all the challenges of deprivation and are also much less likely to access services successfully than the 'average' deprived person.

A large overlap exists between the offenders in Lincolnshire and the geographically defined deprived communities. Addressing health inequalities issues in these communities as well as working directly with offenders as a 'community of interest' therefore offers significant synergy.

The Health of Lincolnshire Offenders

Much is known about the health inequalities experienced by people from deprived populations and backgrounds. It can be taken as read that these problems are experienced at least equally by offenders as they are largely of these communities.

There are a number of particular areas of overall health inequality, however, that are more acute in offender populations. Figure 2.3 particularly highlights these areas of known health measure.

Figure 2.3
Significant Health Indicators for Offender Health

Description	Offenders	General Population
Smoking	83%	22%
Alcohol Misuse	44%	16%
Substance Misuse	39%	12%
Mental Illness	27%	10%

The health problems faced by offenders are compounded by their relatively low levels of access to ongoing healthcare services. When base measures of access are looked at from routine data sources there does not appear to be a particular problem with access. Offenders report in repeated studies that they access most health services at a similar rate to the general population. [6]

The primary healthcare access problem for offenders relates to chaos and disruption rather than to specific barriers to access. Chaotic lifestyles, higher priorities than healthcare, frequent moves or stays away from home and periods of being of no fixed abode all contribute to a pattern of healthcare usage that is focused on crisis and militates against the management of the many chronic problems highlighted in Figure 2.3.

In contrast, all studies report that offenders have specific and intense difficulties accessing the wider services that could improve the underlying conditions for good health. Offenders and offender managers report access to sustainable housing as 'their biggest nightmare'. Offenders are also high users of both employment and ill health based benefits and feature significantly in long term unemployed statistics.

Offenders and offender managers report frequently that there are difficult to address longer term issues that underlie some of these facts, for example numeracy and literacy problems are much more prevalent amongst offenders than the general population.

Why Offenders Are a Public Health Priority

The prevalence of health problems amongst offenders is a cause for concern on an individual and policy level. As individuals, offenders are facing many of the challenges of our deprived communities and experience significantly worse health in some areas than even these populations.

Firstly, health problems are implicated in the extraordinarily high mortality of offenders living in the community. Sattar [7] used Home Office and Prison records as well as death certificates to explore mortality rates amongst offenders. This revealed that community offenders are four times more likely to die than the general male population and imprisoned offenders twice as likely. Drugs and alcohol were related to around 46% of deaths of community offenders. Half of offender deaths occurred within 12 weeks of leaving custody.

Williamson [8] argues that recently released prisoners are a highly vulnerable group in terms of poor physical and mental health. He attributes this to them losing the protective factors of imprisonment. The most recent Chief Inspector of Prisons Annual Report identified that most inspections had highlighted that resettlement pathways for healthcare were weak. There certainly appears to be a disjuncture between the health care afforded to prisoners and that for offenders being managed in community settings.

Secondly there are clear linkages between poor health and criminal behaviour. In 2006 a review of relevant literature [9] was conducted and concluded that offenders with serious mental illness are twice as likely to fail in community supervision as those without mental illness. Re-offending rates also positively correlate with poor health status and mentally disordered offenders, who are out of contact with services, can be particularly at risk of re-offending.

Thirdly, many of these studies provide further evidence that offenders within the community will be from a socially excluded group. Not only do they suffer worse health, they also experience difficulty in accessing the requisite services to help to meet their needs. [3 5] It seems that service users on probation cannot, or sometimes will not, engage with services through conventional arrangements. A review [9] of relevant research around community-managed offenders demonstrated that mentally disordered offenders receiving community supervision are frequently failed by services that are not geared towards the needs of this population.

The Health Care Commission's review of 50 Youth Offending Teams (YOTs) found that there were still difficulties in younger offenders accessing Child and Adolescent Mental Health Services. Healthcare workers in YOTs became involved in providing healthcare themselves on the basis of what they could offer, rather than helping young offenders to access the healthcare they needed. Anecdotal evidence and referral rates from YOT to substance misuse services locally highlight the likelihood of this culture being prevalent in local services too.

Conclusions and Recommendations

Further work is required to fully understand the specific service adaptations that are required to improve the health of offenders but there are some broad areas of work clearly highlighted from the review outlined in this Chapter.

1. The ongoing review of work to address inequalities needs to better bring together work targeted at geographical communities with that linked to offenders.
2. Access to services needs to be viewed more from a continuity and long-term condition position and less from a simple count of access to service outlets, if the chronic health problems of offenders are to be addressed.
3. More work is required to understand how the underlying causes - both in the long and immediate term - can be addressed for those at risk of or already offending.

[1] *Brooker C et al, 2008: A Health Needs Assessment of Offenders in Probation Caseloads in Nottinghamshire and Derbyshire*

[2] *Care Services Improvement Partnership, 2006: Health and Social Care in Criminal Justice*

[3] *Department of Health, 2007: Improving Health – Supporting Justice – A Consultation Document*

[4] *Marmot et al, 2010: Strategic Review of Health Inequalities in England Post 2010*

[5] *Social Exclusion Unit, 2002: Review of Origins of Reoffending Behaviour in Offenders Under Probation Supervision*

[6] *Office of National Statistics, 2008: The 2006 General Household Survey*

[7] *Sattar G (2003) The death of offenders in England and Wales*

[8] *Williamson M (2006) Improving the health and social outcomes of people recently released from prison- A perspective from primary care. Sainsbury Centre for Mental Health*

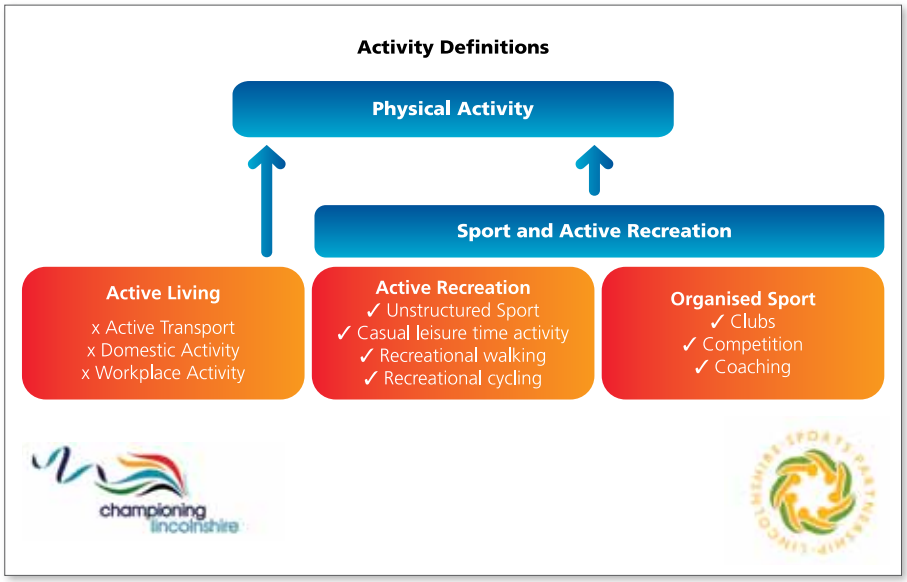
[9] *Skeem. J.L & Louden J.E (2006) Toward Evidence-Based Practice for Probationers and Parolees Mandated to Mental Health Treatment Psychiatric Services*

Physical Activity & Health

Physical activity matters to the health of our community. It is a clear and demonstrable fact that regular physical activity of moderate intensity can bring about major health benefits. The simple message is that we all need to do more - more people, doing more, more often.

Physical activity comprises a range of behaviours involving movement, use of calories and raised heart rate. Locally, a working definition for a range of physical activities promoted across the county include active living, sport and active recreation.

Figure 3.1 A Definition of Physical Activity



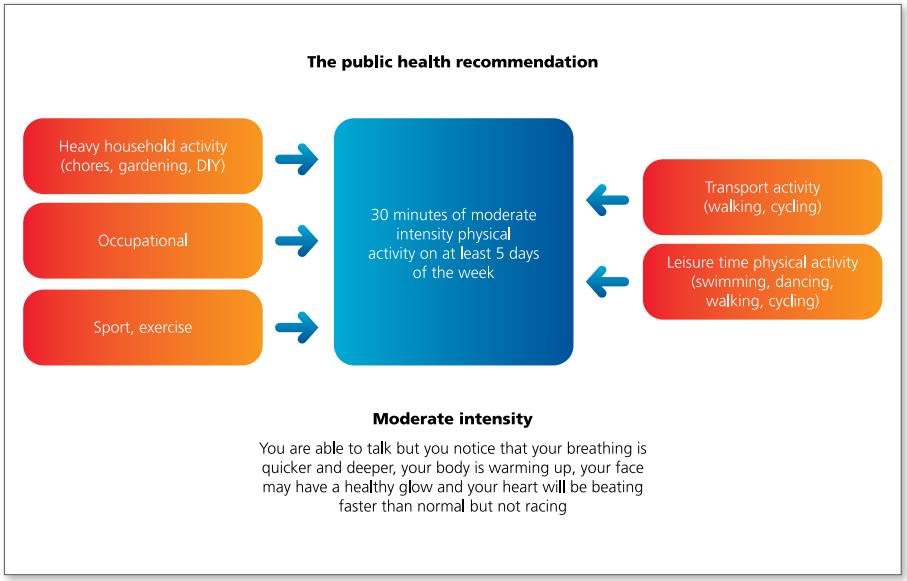
Source: Lincolnshire Sports Partnership 2008

The Chief Medical Officer's Report – *At least five a week* (2004) established the following recommendations for health-enhancing physical activity:

- children and young people should achieve a total of at least 60 minutes of at least moderate physical activity each day
- for general health benefits adults should achieve a total of at least 30 minutes a day of at least moderate intensity physical activity on five or more days a week
- the recommendations for adults are also appropriate for older adults. Older people should take particular care to keep moving and retain their mobility for daily activity
- the recommended levels of activity can be achieved either by doing all the daily activity in one session, or through several shorter bouts of activity of 10 minutes or more.

Although every day we are presented opportunities to choose to be physically active, only 40% of adult men and 28% of adult women meet the Chief Medical Officer's recommendation for health. That equates to 27 million adults in England and 390,000 in Lincolnshire who are not active enough to benefit their health. Yet, 75% of men and 67% of women think that they are sufficiently active (Health Survey of England, 2007).

Figure 3.2 Chief Medical Officer's Recommendations



Source: Let's Get Moving: A physical activity care pathway 2010

Table: 3.1 Physical Activity and Health throughout the Life-course

Stage	Gestation childhood	Adolescence/ young adulthood	Middle age	Old age
Physical activities	Maternal exercise Free play Active travel	Sport Dance Vigorous recreation Physical education Active travel	Lifestyle Gym Moderate recreation Housework Gardening DIY Active travel	Lifestyle Activities of daily living Self-paced recreation Gardening Active travel
Life-course influences on physical activity	Maternal Circumstances Birth weight Social class Gender Siblings Garden/play area Climate Poor growth	Gender School type Social class Sports ability/ self-efficacy Family influences TV watching	Educational level Car ownership Social class Job security/ control Leisure time Family pressures	Health status Social class Social network Gender Spouse's influence
Health associations	Fitness Fatness CHD risk status Fundamental motor skills	Fitness Fatness CHD risk status Bone density Other risk behaviours (smoking, diet)	Morbidity/ mortality from chronic diseases (CHD, stroke, diabetes, cancer, obesity)	Functional fitness Osteoporosis Disease resistance (immune function) Independence Social networks

Source: Mckenna J and Riddoch C, Perspectives on Health and Exercise 2003

Considerable debate and evidence exists to view the impact of physical activity on health as part of a life-course approach; from conception to death. Seeking to influence change across the environment and lifestyles from pre-conception to death in a systematic rigorous manner is currently lacking in the country and the county.

There are significant health inequalities in relation to the prevalence of physical activity according to income, educational qualifications, gender, age, ethnicity and disability. For example, physical activity is higher in men at all ages and then declines significantly with increasing age for both genders.

On average, an inactive person spends 38% more days in hospital than an active person and has 5.5% more family physician visits (Let's Get Moving, 2010). NICE and other professional bodies' clinical guidance acknowledge the impact of physical activity on over 25 clinical conditions, and this is reflected in 39 guidance documents for prevention and management of such conditions. So substantial is this association that systematic reviews of the evidence-base quote that "… for most people with major long term health conditions, if physically inactive, this will increase the risk of an adverse event, disability or premature mortality" (Warburton, 2010).

The public health rationale for promoting physical activity is compelling, and physical activity is associated with a wide range of health outcomes. There is strong evidence that a more active population would experience significantly lower rates of obesity, cardiovascular disease and type 2 diabetes, as well as reductions in the incidence of some cancers, greater mobility and fewer injuries associated with ageing in the elderly and fewer mental health problems. The benefits of physical activity are considerable - physically, mentally, emotionally and socially (see appendix).

An active lifestyle:

- Has a substantial impact on the risk of major non-communicable diseases, including coronary heart disease, hypertension, type 2 diabetes, chronic kidney disease and some cancers
- Can reduce the risk of stroke, be used to treat peripheral vascular disease and modify cardiovascular disease risk factors, such as high blood pressure and adverse lipid profiles
- Protects against cancers of the colon, breast (post-menopausal) and endometrium
- Reduces the risk and helps manage musculoskeletal health conditions, including osteoporosis, back pain, hip fractures and osteoarthritis
- Reduces the risk of depression and promotes many other mental health benefits, including reducing state and trait anxiety, improving self perceptions and esteem. It has been found to be as effective in the treatment of mental ill health as anti-depressants and psychotherapy, and
- Supports weight management – physical activity can result in modest weight loss of around 0.5-1kg per month.

Systematic reviews on physical activity support the knowledge that the more physically active a person is, the greater the benefits. Even the most sedentary adult, including the elderly, can benefit from being more active.

In cost-effectiveness terms, being physically active is value for money. There is compelling economic and clinical evidence for the investment in the promotion of physical activity through brief interventions and the use of exercise as a therapy. By utilising an outcome measure based on Quality Adjusted Life Years (QALYs) [1] ; the number of additional life years that would result from the intervention, physical activity can be viewed as an effective therapy.

The NICE guidance `Four commonly used methods to increase physical activity` (2006) identified that a brief intervention for physical activity would cost £440 per QALY; with net savings per QALY gained of between £750 to £3,150. For a more intensive physical activity intervention, such as an exercise referral programme, it has a cost of £12,111 per QALY; still an effective intervention. In comparison, a recognised behavioural intervention – helping an adult to stop smoking in the NHS costs £9,1515 per QALY and a pharmacological intervention - use of statins in coronary heart disease secondary prevention for adults between 45 and 85 years the cost is between £10,000 to £17,000 per QALY. Physical activity interventions evaluate favourably for cost-benefit.

The Scale of the Issue

The Health Survey of England (2008) and the Active People's Survey (2010) provides most of the country's adult statistics for physical activity. In 2008, 39% of men and 29% of women met the Government's recommendations of physical activity, compared with 32% and 21% respectively in 1997.

The Active People Survey describes 7.015 million adults – 16.7% of adults (4.222 million men and 2.793 million women) participating in sport and active recreation three times a week for 30 minutes.

Within Lincolnshire there has been progress in encouraging adults to be more active. The Active People Survey locally has recorded adult participation rates for active recreation, exercise and sport increasing from 20% to 23.9%.

In 2005/06 it was estimated that 111,000 adults were active for 30 minutes x three times a week. In 2009/10 over 22,000 more adults were more active. The distribution of this increase is not equally spread across the county.

The local strategy for physical activity and health over the recent years has been to enable more sedentary and inactive people to be active, and much of the national and local investment has sought to "move the curve" towards more active lives. Using this continuum the NHS, voluntary sector and local authority partners have contributed to build the three x 30 minutes capacity in Lincolnshire through improved communications, advertising and more opportunities to be active. To this end there has been a 3.9% reduction in sedentary behaviour; matching the 4% increase in three x 30 minutes.

At both a national and regional level this change is one of the top county results to-date. However, commendable as this is, the majority of adults in Lincolnshire are sedentary or too inactive to have any health gain. This will be reflected in the relatively high burden of disease in key populations.

[1] *QALYs are a measure of disease burden, including both the quality and quantity of life. NICE normally assumes that if an intervention costs less that £30,000 per QALY, it is deemed effective and can be used in the NHS*

Table 3.2 National Indicator 08 Adult Participation: Lincolnshire

Area	Indicator	Baseline	Target	Source	Notes
Adult Participation	National Indicator 8 Adult Participation in sports and active recreation	20%	+4.0%	Sport England Active People Survey	Baseline 2005/6 Active People survey measured through the Local Area Agreement

Source: Lincolnshire Sports Partnership 2010

Table 3.3 National Indicator 08 Adult Participation; Borough, City and Districts

LA Area	AP1 (2005/6)	AP4 (2008-10)	Difference
Boston	14.6%	21.9%	+7.3%
City of Lincoln	21.2%	22.5%	+1.3%
East Lindsey	20.6%	21.4%	+0.8%
North Kesteven	21.6%	26.0%	+4.4%
South Holland	16.7%	20.0%	+3.3%
South Kesteven	22.2%	25.1%	+2.9%
West Lindsey	20.6%	25.7%	+5.1%
Lincolnshire	20.0%	23.9%	+3.9%

Source: Sport England, Active People Survey 4 2010

Table 3.4 "Moving the Curve" of Participation

Participation rates Lincolnshire population %	Active People Survey 1	Active People Survey 2	Active People Survey 3
0 days - 30 minutes	54.2%	52.6%	50.3%
1-2 days - 30 minutes	26.2%	26.6%	26.7%
3+ days - 30 minutes	19.6%	20.8%	23.1%

Source: Lincolnshire Sports Partnership 2010

What has been done locally?

As part of the national social marketing campaign Change4Life (C4L) Lincolnshire residents and local partners are actively engaged with the campaign, either being in receipt of the materials and support from C4L directly or co-branding their local activities with C4L.

By July 2010 over 6,000 registrations had been made; with 4,289 considered High Risk sign-ups, i.e. 71% key audience participation. Over 450 local partners across the public, voluntary and commercial sectors are utilising C4L messages and branding to support their work.

Table: 3.5 Change4Life Statistics

PCT	Total sign ups	High Risk Sign Ups	High Risk/ Total	HATK completed	Local Supporters
Derby City PCT	2,400	1,840	77%	1,509	134
Leicester City Teaching PCT	2,697	1,896	70%	1,454	186
Lincolnshire Teaching PCT	6,070	4,289	71%	3,323	452
Nottingham City PCT	2,521	2,088	83%	1,675	209
Nottinghamshire County PCT	5,720	4,502	79%	3,405	468
Bassetlaw PCT	1,203	989	82%	788	99
Derbyshire County PCT	6,913	5,515	80%	4,228	440
Leicestershire County & Rutland PCT	5,662	3,238	57%	2,404	511
Northamptonshire Teaching PCT	6,823	4,637	68%	3,507	412
East Midlands Total	40,009	28,994	72%	22,293	2,911
National Total	496,838	304,345	61%	243,052	32,025
East Midlands/ National Total	8.1%	9.5%	n/a	9.2%	9.1%

Source: East Midlands Government Office 2010

Locally, national and local investments have primarily focussed upon a number of initiatives to enable adults to be active and tackle family and childhood obesity. What will be described next will cover the adult orientated work. Children, family and workplace orientated work such as `Fit Kids` and Motiv8 Lincs will not be covered in the report. This does not in anyway dismiss the work in those areas; for they do impact upon families and adults' attitudes and behaviours. More information is currently available relating to the schemes below:

Over 45s Activators – dedicated community staff working to promote and facilitate opportunities to the over 45s age group across Lincolnshire to become more physically active through community based sport and health improvement sessions (in association with Sport England). Fifty weekly groups are running across the county; linking in with 18 private tutors/instructors; having engaged with 1,200 adult participants doing over 9,900 activities in 2009/10.

`Vitality` – seated exercise programmes for adults with disability, limited mobility and older people (subsidised extensively for the user). The programme provides classes in community centres, residential homes and leisure facilities. In 2009/10 there were 1,640 registered clients attending on average 14 classes. This equates to annual capacity for 16,000 participants to engage with the programme.

Community-based **`Walking for Health`** programmes (free to the user) - seven programmes providing 58 weekly and ten fortnightly/monthly health walks sites and engaging over 4,073 inactive adults to walk for health gain in 2009/10. Over 240 trained walk volunteers run the hundreds of walks undertaken annually.

GP and health professional–based **Exercise Referral** programmes for adults (subsidised extensively for user). Nine schemes across 22 sites with 79 referral partners support over 2,900 inactive adults, with long-term health conditions, to gain a tangible health benefit from a structured exercise programme. A recent review of a sample of clients taken to determine the value of the scheme highlights many of the benefits that people acquire:

Table: 3.6 Reported Benefits from Exercise Referral

Reduced Prescribed Medication	19%
Reduced GP Visits	31%
Increased Mobility	87%
Decreased Pain	70%
Increased Health	92%
Decreased Unhealthy Food Consumption	95%
Increased Healthy Food Consumption	97%
Increased Confidence	76%
Increased Perception of Self Image	73%
Reduction in Stress	89%
Satisfied Weight Loss	84%
Increased Self Esteem	84%

Source: East Lindsey District Council 2010

Disability and Equality: **Inclusive Fitness Initiative** – improving access for exercise therapy and physical activity in 14 leisure centres for people with physical, sensory, psychological and learning disabilities. Changes have included additional accessible parking, improved signage, changing rooms, toilets and shower facilities, adapted and specialist gym equipment, installation of ramps and reduced desk height in reception areas. Also, disability awareness training has been delivered to customer facing staff, to increase the skills and confidence when working with people who have disabilities. To date, 534 new members with disabilities have joined the 14 centres, making 10,649 visits between them.

Health Trainers – offer key information, motivation and support to individuals and groups who want to adopt a healthier lifestyle'. More than two and a half thousand (2,572) people have been supported by trainee and qualified Health Trainers in Lincolnshire since Jan 2009. The outcomes being recorded by the programme indicate that Health Trainers signpost and record physical activity outcomes:

Table 3.7 Recorded Outcomes for Personal Health Plans

Measure (Sample size)	Change between pre and post intervention
BMI (107)	3.5% reduction
Fried high fat and snack portions consumed per day (389)	73.2% reduction
Fruit and vegetable portions consumed per day (134)	58.1% increase
Alcohol consumption (41)	55.5% reduction
Moderate exercise sessions per week (129)	137% increase
General health improvement score	15.7% increase
Self efficacy score	7.69% increase

Source: Health Trainer Programme, NHS Lincolnshire 2010

Phoenix Weight Management – is a community-based adult weight management service providing behaviour change support to obese patients (approx 1,300 per year). As part of their multi-faceted programme the service promotes physical activity as well as dietary and behaviour change strategies. Of a sample of 350 clients measured before and after 12 weeks there was a 78.8% increase in reported physical activity levels.

Conclusion

Over 11,000 adults have taken on new opportunities to be physically active through directly commissioned programmes of work seeking to enable sedentary adults to be more active, more often. A further 11,000 adults have chosen to be independently more active than previously measured. Over 6,000 families have chosen to engage with Change4Life.

The former Choosing Health and Staying Healthy strategies relating to physical activity have been based upon objectives within a framework from:

- influencing policy and legislation
- changing the environment/organisations towards greater physical activity
- developing inter-personal approaches, and
- supporting individuals to make changes.

Locally, the actions described have been biased more towards the latter objectives, where an evidence-base is more comprehensive; short-term tangible impacts are measureable and local partners are able to offer residents real choices that do affect them physically, emotionally and socially. This needs to be maintained and developed further in order to describe the local physical activity pathways adults can engage with domestically, recreationally and therapeutically as outlined in Let's Get Moving: A physical activity care pathway; a future development to enable health professionals to promote, sign-post and refer adults towards exercise and more activity.

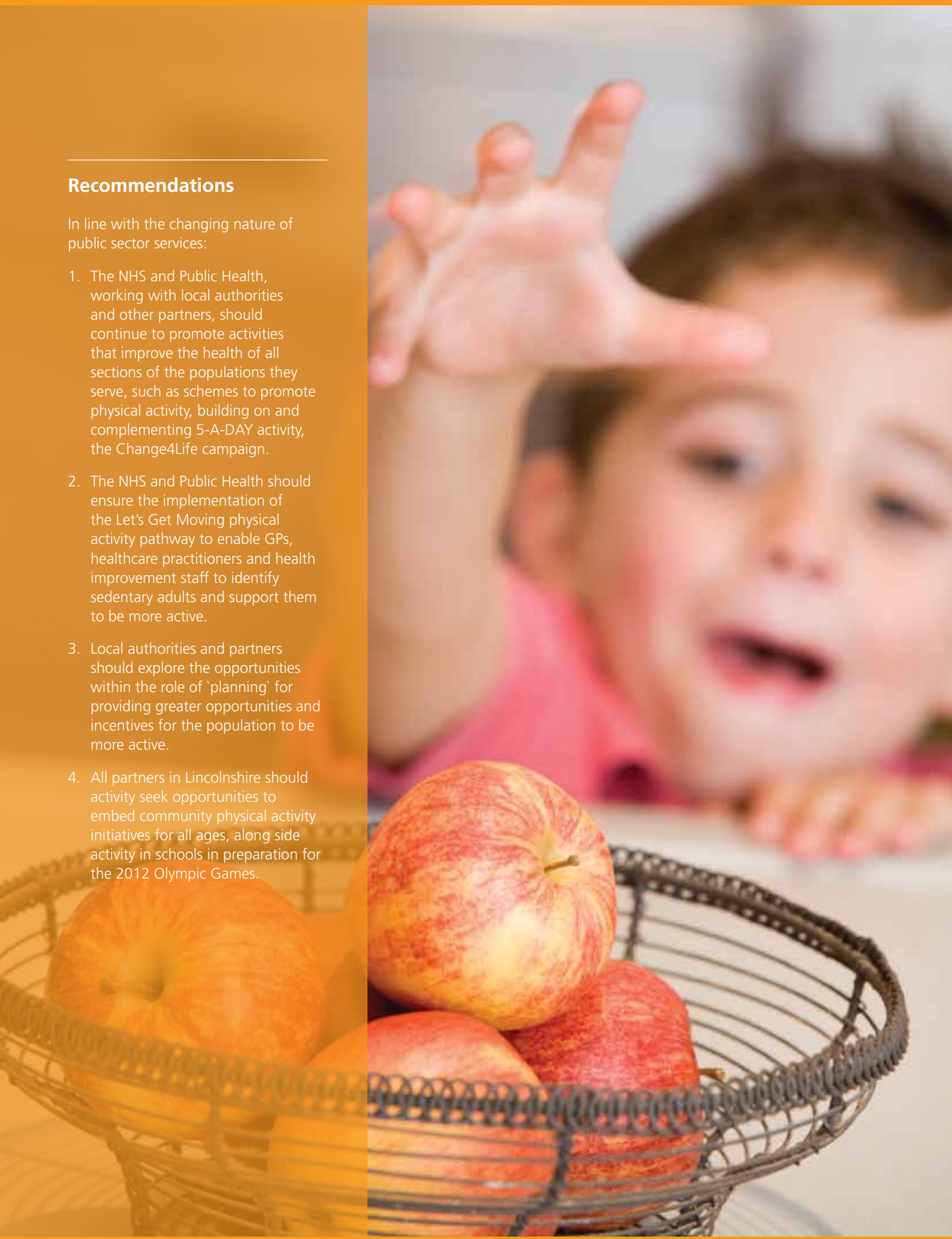
Investments have and are being made to alter the environment in relation to play, school settings, access to the countryside and the workplace that will open new opportunities for greater activity for young and old. This component of the above framework requires further development, particularly with partners with the responsibility for planning our urban and rural environments

However, this optimism has to countered by the effects of recession and future austerity. Being physically active is viewed as `discretionary` for many public sector organisations and an economic and domestic luxury individually. The rise in degenerative and metabolic diseases is the "wake-up call" that our sedentary, hi-tech, convenience lives are "killing us". More people, more active, more often!

Recommendations

In line with the changing nature of public sector services:

1. The NHS and Public Health, working with local authorities and other partners, should continue to promote activities that improve the health of all sections of the populations they serve, such as schemes to promote physical activity, building on and complementing 5-A-DAY activity, the Change4Life campaign.
2. The NHS and Public Health should ensure the implementation of the Let's Get Moving physical activity pathway to enable GPs, healthcare practitioners and health improvement staff to identify sedentary adults and support them to be more active.
3. Local authorities and partners should explore the opportunities within the role of `planning` for providing greater opportunities and incentives for the population to be more active.
4. All partners in Lincolnshire should activity seek opportunities to embed community physical activity initiatives for all ages, along side activity in schools in preparation for the 2012 Olympic Games.



The Relationship between Physical Activity and Health Outcomes

Health Outcome	Nature and association with physical activity	Effect size	Strength of evidence
All-cause mortality	Clear inverse relationship between physical activity and all-cause mortality.	There is an approximately **30% risk reduction** across all studies, when comparing the most active with the least active.	Strong
Cardiorespiratory health	Clear inverse relationship between physical activity and cardiorespiratory risk.	There is a **20% to 35% lower risk of CVD, CHD and stroke.**	Strong
Metabolic health	Clear inverse relationship between physical activity and risk of type 2 diabetes and metabolic syndrome.	There is a **30% to 40% lower risk of metabolic syndrome, and a 35% to 50% * lower risk of type 2 diabetes** in at least moderately active people compared with those who are sedentary.	Strong
Energy balance	There is a favourable and consistent effect of aerobic physical activity on achieving weight maintenance.	A aerobic physical activity has a consistent effect on achieving weight maintenance (less than 3% change in weight).	Strong
		Physical activity alone has no effect on achieving 5% weight loss, except for exceptionally large volumes of physical activity, or when an isocalorific diet is maintained throughout the physical activity intervention.	Strong
		Following weight loss, aerobic physical activity has a reasonably consistent effect on weight maintenance.	Moderate
Musculoskeletal health	**Bone**: There is an inverse association of physical activity with relative risk of hip fracture and vertebral fracture. Increases in exercise and training can increase spine and hip bone marrow density (and can also minimise reduction in spine and hip bone intensity).	**Bone:** **Risk reduction of hip fracture is 36% to 68%** at the highest level of physical activity. The magnitude of the effect of physical activity on bone mineral density is 1% to 2%	Moderate (weak for vertebral fracture)
	Joint: In the absence of a major joint injury, there is no evidence that regular moderate physical activity promotes the development of oseoarthritis. Participation in moderate intensity, low-impact physical activity has disease specific benefits in terms of pain, function, quality of life and mental health for people with osteoarthritis, rheumatoid arthritis and fibromyalgia.	**Joint:** Risk reduction of incident osteoarthritis for various measures of walking ranges **from 22% to 83%.** Among adults with osteoarthritis, pooled effect sizes (ES) for pain relief are small to moderate, i.e. 0.25 to 0.52. Function and disability effect sizes are small: function ES = 0.14 to 0.49 and disability ES = 0.32 to 0.46.	Weak Strong
	Muscular: Increases in exercise training enhance skeletal muscle mass, strength, power, and intrinsic neuromuscular activation.	**Muscular:** The effect of resistance types of physical activity on muscle mass and function is highly variable and dose-dependent.	Strong
Functional health	There is observational evidence that mid-life and older adults who participate in regular physical activity have reduced risk of moderate/severe functional limitations and role limitations.	There is an approximately **30% risk reduction** in terms of the prevention or delay in function and/or role limitations with physical activity	Moderate to strong
Cancer	There is an inverse association between physical activity and risk of breast and colon cancer.	There is an approximately **30% to 50% * lower risk of colon cancer** and approximately **20% lower risk of breast cancer.**	Strong

Source: Adapted from Department of Health and Human Services (2008) *Physical Activity Guidelines Advisory Committee Report, Washington*, DC: US Department of Health and Human Services.

* These statistics are specific to: Chief Medical Officer (2004) *At least five week: Evidence on impact of physical activity and its relationship to health*, London: Department of Health.

Cancer

Introduction

Cancer affects around one in three of us at some point in our lives, and is now the biggest single cause of death. Cancer is largely a disease of ageing: as Lincolnshire has an older population structure than England, we have a large, and growing, number of cases of cancer diagnosed each year.

Cancer services are best seen as a pathway or patient journey: from prevention to diagnosis to treatment to death or long-term survival. The majority of NHS spending on cancer has historically been on diagnosis and treatment. Prevention and palliative care have been relatively neglected.

It is estimated [1] that the NHS spent around £6.3 billion on cancer services in 2008/2009. A separate exercise in 2008/2009 found that NHS Lincolnshire spent around 8.4% of its budget on cancer, which compares to 6.2% for England as a whole.

What is Cancer? [2]

Cancer is a disease caused by normal cells changing so that they grow in an uncontrolled way. If not treated, problems can be caused in one or more of the following ways:

- Spreading into normal tissues nearby
- Causing pressure on other body structures
- Spreading to other parts of the body through the lymphatic system or bloodstream.

There are over 200 different types of cancer because there are over 200 different types of body cells. Normally cells grow and reproduce in an orderly and controlled way. If the system goes wrong for any reason, the usual result is that the cell dies. Rarely, the system goes wrong in a way that allows a cell to keep on dividing until a tumour is formed.

Tumours can be benign or malignant. Benign tumours:

- Usually grow quite slowly
- Do not spread to other parts of the body
- Usually have a covering made up of normal cells.

Malignant tumours:

- Usually grow faster than benign tumours
- Spread into and destroy surrounding tissues
- Spread to other parts of the body.

It is the ability to spread that makes a cancer harmful.

Organisation of Cancer Services

Patients with cancer receive treatment from a number of NHS services. In Lincolnshire, this can include their local GP practice, community nursing services, their local acute hospital and specialist services located in Nottingham or Leicester. To ensure co-ordination of these services, cancer services are planned together in networks. The East Midlands Cancer Network (EMCN) covers a population base of approximately four million people. It was formed by the integration of three previous networks: Mid Trent (which included Lincolnshire), Derby-Burton, and Leicestershire, Northamptonshire and Rutland. EMCN provides the strategic overview for cancer services across Lincolnshire, Nottinghamshire, Derbyshire, Leicestershire, Northamptonshire, Rutland, and part of Staffordshire, to ensure that national policies on cancer are implemented at all levels.

In Lincolnshire, clinicians, managers and patient representatives plan services together as the Lincolnshire Cancer Partnership (LINCAP).

Cancer Reform Strategy [3]

The Cancer Reform Strategy, which was published in 2007; as a review of the Cancer Plan which was published in 2000, sets out the national priorities for the NHS in the delivery of cancer services. In July 2010 the Coalition Government announced that this strategy would be reviewed.

According to the Cancer Reform Strategy:

Prevention: Over half of all cancers could be prevented by changes in lifestyle:

- Smoking is the single biggest preventable risk factor for cancer
- Clear evidence linking obesity to cancer. As an example, breast cancer (the most common cancer in women) is more common in women who are obese
- Excessive alcohol consumption is strongly linked to an increased risk of several cancers
- Skin cancer incidence is rising rapidly, linked to greater exposure to the sun
- Vaccination now presents a further opportunity in cancer prevention. A national programme of vaccination against the human papillomavirus has recently been introduced.

Early Diagnosis:

- In general, the earlier a cancer can be diagnosed the greater the chance of a cure. Late diagnosis is the most important single factor contributing to the relatively poor cancer survival rates in this country compared to other European countries
- Screening programmes for breast, cervical and bowel cancer have been proven to improve survival rates for these cancers
- A National Awareness and Early Diagnosis Initiative will coordinate a programme of activity to support local interventions to raise public awareness of the signs and symptoms of early cancer and encourage people to seek help sooner.

Better treatment:

- 31 day and 62 day waiting times standards, and the maximum two week wait from referral to appointment, reduce the delays in treating cancer
- Investment in radiotherapy and chemotherapy.

Living with and beyond cancer:

- Although cancer is now the most common cause of death, an increasing number of patients will be cured and thus may live for many years following their diagnosis and treatment. Cancer patients and their families and carers may need psychological support.

An Audit of the Reasons for Late Presentation

In 2009, one of Lincolnshire's public health trainees led an audit of patients who presented late with cancer, defined as patients who presented to hospital in Lincolnshire with advanced cancer (the stage of a cancer tells the doctor how big the cancer is and whether it has spread. In advanced cancers, the cancer has spread to neighbouring tissue or more widespread to other parts of the body).

41 patients who had presented with advanced cancer were identified by Lincolnshire cancer specialists, and general practice casenotes were available for review in 34 of these patients. Breast cancer (17 patients) and lung cancer (11 patients) made up the bulk of the patients in this study.

It was considered that there was a delay in presenting to hospital in 31 patients, with patient-related reasons (e.g. not seeking medical attention despite signs or symptoms of cancer) being present in 19 cases. In four patients, there were delays within the healthcare system.

The audit recommended that patient awareness of the signs and symptoms of cancer should be raised, together with measures to try to reduce the fear and stigma associated with a diagnosis of cancer. This is already starting to be addressed through the 'Early Presentation of Cancer' project, although this has a limited geographical spread at present.

NHS Lincolnshire Tobacco Control Profile

Smoking causes around one third of all cases of cancer, and is thus the single greatest cause of cancer. In October 2010, the Association of Public Health Observatories published a tobacco control profile for each Primary Care Trust in England. This profile allows each area to compare its performance.

Table 4.1 shows tobacco-related indicator data for Lincolnshire compared to the average for England and for the East Midlands. This table shows that smoking prevalence is slightly lower in Lincolnshire than England as a whole, and that deaths from smoking are also lower. Hospital admissions due to smoking are slightly higher than average.

Table 4.1 Selected Tobacco Control Indicators, Comparing Lincolnshire to the East Midlands and to England

Indicator	Lincolnshire	East Midlands	England
Smoking attributable deaths 2006-2008	196.2	204.1	206.8
Deaths from lung cancer 2006-2008	35.6	37.0	38.6
Deaths from chronic obstructive pulmonary disease 2006-2008	23.9	25.7	26.6
Smoking attributable hospital admissions 2008/2009	1,345.0	1,316.9	1,265.3
Cost of smoking attributable hospital admissions 2008/2009	32.1	31.2	33.3
Lung cancer registrations 2005-2007	43.7	47.2	48.0
Oral cancer registrations 2005-2007	7.5	8.1	8.5
Estimated adult smoking prevalence 2006-2008	22.7	24.0	22.2
GP recorded smoking prevalence 2009/2010	16.4	N/A	18.8
Smoking in pregnancy 2008/2009	15.2	16.0	14.6
Successful quitters at four weeks 2009/2010	1,043.8	973.8	894.7

Source: Association of Public Health Observatories, 2010

[1] *Delivering the Cancer Reform Strategy. National Audit Office. 2010*
[2] *What cancer is. Cancer Research UK. http://www.cancerhelp.org.uk/about-cancer/what-is-cancer/cells/what-cancer-is*
[3] *Cancer Reform Strategy. Department of Health. 2010*

How Common is Cancer in Lincolnshire?

For many years the United Kingdom has had a system whereby doctors and other cancer specialists notify all cases of cancer that they diagnose to their local Cancer Registry. Patients are then followed up until they die, from whatever cause. Cancer registries are therefore an invaluable source of information on how many cases there are of each type of cancer and of death rates. Comparisons between different areas and hospitals are also possible.

This section sets out incidence (number of new cases within a given time period) and mortality data in Lincolnshire for all cancers, and for the four most common causes of cancer: breast, colorectal, lung and prostate.

Table 4.2 shows the number of new cases of cancer in Lincolnshire between 2003 and 2007 inclusive, and the directly age standardised rate (DASR). It can be seen that the rate of new cases of cancer in Lincolnshire is very similar to the national and regional average.

Table 4.2 Number of new cases of cancer in males and females in Lincolnshire, the East Midlands and in England between 2003 and 2007 inclusive, and the directly age standardised rate (DASR) of new cases of cancer.

	Males		Females	
	Number	DASR	Number	DASR
Lincolnshire	10,265	416.0	9,480	362.3
East Midlands	54,018	406.1	53,413	361.9
England	614,650	413.1	609,927	356.7

Source: National Cancer Information Service June 2010

Table 4.3 shows the number of deaths from cancer in Lincolnshire, and the directly age standardised rate (DASR), from 2006 to 2008 inclusive. The death rate for males is very slightly lower than the national and regional average whilst the death rate for females is very slightly higher.

Table 4.3 Number of deaths from cancer in males and females in Lincolnshire, the East Midlands and in England between 2006 and 2008 inclusive, and the directly age standardised death rate from cancer.

	Males		Females	
	Number	DASR	Number	DASR
Lincolnshire	3,333	204.6	2,904	151.0
East Midlands	17,909	207.1	15,755	149.2
England	200,225	207.4	183,075	149.9

Source: Compendium of Clinical and Health Indicators. Crown Copyright

Table 4.4 shows the number of new cases of breast cancer in women in Lincolnshire from 2003 to 2007 inclusive, and the directly age standardised rate (DASR). The number of new cases of breast cancer in Lincolnshire is around the national and regional average.

Table 4.4 Number of new cases of breast cancer in females in Lincolnshire, the East Midlands and in England between 2003 and 2007 inclusive, and the directly age standardised rate (DASR) of new cases of breast cancer.

	Number	DASR
Lincolnshire	2,987	124.2
East Midlands	17,025	125.5
England	191,835	123.7

Source: National Cancer Information Service, June 2010

Table 4.5 shows the number of deaths from breast cancer in Lincolnshire, and the directly age standardised rate (DASR), from 2006 to 2008 inclusive. The death rate is slightly higher than the national and regional average.

Table 4.5 Number of deaths from breast cancer in females in Lincolnshire, the East Midlands and in England between 2006 and 2008 inclusive, and the directly age standardised death rate from breast cancer.

	Number	DASR
Lincolnshire	510	28.4
East Midlands	2,717	27.4
England	30,294	26.8

Source: Compendium of Clinical and Health Indicators. Crown Copyright

The one year survival rate from breast cancer (i.e. the proportion of women still alive 12 months following diagnosis) was 96.4% in 2007 for women treated within the East Midlands Cancer Network, which treats the large majority of women who live within Lincolnshire. This is the same rate as for England as a whole.

More than 80% (82.1%) of women treated for breast cancer within the East Midlands Cancer Network were still alive five years following the diagnosis of breast cancer. This is lower than the rate for England as a whole, which is 84.3%.

Table 4.6 shows the number of new cases of colorectal cancer in Lincolnshire, and the directly age standardised rate (DASR) for the period 2003 to 2007 inclusive. Colorectal cancer is slightly more common in Lincolnshire than in the East Midlands or in England as a whole.

Table 4.6 Number of new cases of colorectal cancer in males and females in Lincolnshire, the East Midlands and in England between 2003 and 2007 inclusive, and the directly age standardised rate (DASR) of new cases of colorectal cancer.

	Males		Females	
	Number	DASR	Number	DASR
Lincolnshire	1,423	55.6	1,084	36.2
East Midlands	7,381	54.5	5,761	34.4
England	82,343	54.5	68,075	34.7

Source: National Cancer Information Service. June 2010

Table 4.7 shows the number of deaths, and the directly age standardised rate (DASR) from colorectal cancer from 2006 to 2008 inclusive. The death rate from colorectal cancer in Lincolnshire is slightly lower than average.

Table 4.7 Number of deaths from colorectal cancer in males and females in Lincolnshire, the East Midlands and in England between 2006 and 2008 inclusive, and the directly age standardised death rate from colorectal cancer.

	Males		Females	
	Number	DASR	Number	DASR
Lincolnshire	360	21.7	286	13.6
East Midlands	1,897	21.9	1,585	13.7
England	21,474	22.2	18,825	14.1

Source: Compendium of Clinical and Health Indicators. Crown Copyright

In 2007, 74.4% of patients with colorectal cancer treated within the East Midlands Cancer Network were still alive one year following diagnosis. This compares to 75.0% for England as a whole.

For the latest year for which data is available, 50.5% of patients with colorectal cancer treated within the East Midlands Cancer Network were still alive 5 years following diagnosis. This compares to 53.6% in England as a whole.

Table 4.8 shows the number of new cases of lung cancer in Lincolnshire, and the directly age standardised rate, in the period from 2003 to 2007 inclusive. Lung cancer is less common in Lincolnshire than average, which reflects the fact that our smoking rates are lower.

Table 4.8 Number of new cases of lung cancer in males and females in Lincolnshire, the East Midlands and in England between 2003 and 2007 inclusive, and the directly age standardised rate (DASR) of new cases of lung cancer.

	Males		Females	
	Number	DASR	Number	DASR
Lincolnshire	1,403	54.8	904	31.2
East Midlands	8,245	60.3	5,473	34.0
England	92,370	60.5	66,606	35.6

Source: National Cancer Information Service. June 2010

Table 4.9 shows the number of deaths, and the directly age standardised rate (DASR) from lung cancer from 2006 to 2008 inclusive. Lincolnshire has a lower than average death rate from lung cancer.

Table 4.9 Number of deaths from lung cancer in males and females in Lincolnshire, the East Midlands and in England between 2006 and 2008 inclusive, and the directly age standardised death rate from lung cancer.

	Males		Females	
	Number	DASR	Number	DASR
Lincolnshire	733	45.3	515	27.7
East Midlands	4,159	48.1	2,887	28.3
England	47,676	49.7	35,612	30.0

Source: Compendium of Clinical and Health Indicators. Crown Copyright

In 2007, 29.4% of those diagnosed with lung cancer and treated within the East Midlands Cancer Network were still alive 12 months following diagnosis. This compares to 29.3% for England as a whole.

For the latest year for which data is available, only 7.5% of patients treated for lung cancer within the East Midlands Cancer Network were still alive five years following diagnosis. This compares to 8.3% in England as a whole.

Prostate cancer is the most common type of cancer in men. Table 4.10 shows the number of new cases of prostate cancer in men in Lincolnshire from 2003 to 2007 inclusive, and the directly age standardised rate (DASR). The number of new cases of prostate cancer in Lincolnshire is much higher than the national and regional average. This is possibly due to better detection of prostate cancer in Lincolnshire.

Table 4.10 Number of new cases of prostate cancer in males in Lincolnshire, the East Midlands and in England between 2003 and 2007 inclusive, and the directly age standardised rate (DASR) of new cases of prostate cancer.

	Number	DASR
Lincolnshire	2,971	113.7
East Midlands	12,968	94.9
England	151,524	99.8

Source: National Cancer Information Service, June 2010

Table 4.11 shows the number of deaths from prostate cancer in Lincolnshire, and the directly age standardised rate (DASR), from 2006 to 2008 inclusive. The death rate is higher than the national and regional average.

Table 4.11 Number of deaths from prostate cancer in males in Lincolnshire, the East Midlands and in England between 2006 and 2008 inclusive, and the directly age standardised death rate from prostate cancer.

	Number	DASR
Lincolnshire	506	27.9
East Midlands	2,390	25.6
England	25,762	24.5

Source: Compendium of Clinical and Health Indicators. Crown Copyright

The one year survival rate from prostate cancer (i.e. the proportion of men still alive 12 months following diagnosis) was 93.4% in 2007 for men treated within the East Midlands Cancer Network, which treats the large majority of men who live within Lincolnshire. This is slightly lower than the rate for England as a whole.

More than 70% (77.4%) of men treated for prostate cancer within the East Midlands Cancer Network were still alive five years following the diagnosis of prostate cancer. This is lower than the rate for England as a whole, which is 83.5%.

Recommendations

1. Smoking Cessation. Smoking is the biggest single cause of cancer (and the cause of many other diseases too), and a major contributor to health inequalities. The most cost effective means of reducing the number of deaths from cancer is to invest more in smoking cessation services.

2. Early Diagnosis. Late diagnosis is the biggest single cause of the relatively poor survival rates from cancer in England. Further work should be done to build on the Lincolnshire audit of patients who present late with cancer.

3. Organisation of services. Patients with cancer receive input from a number of different services. Co-ordination of cancer services is essential. The role of LINCAP should be strengthened to ensure that cancer services in Lincolnshire are planned effectively.

Health Protection

Health Protection is one of the three main components of Public Health work. It is often defined as protecting the public's health from communicable and environmental hazards by application of a range of methods including hazard identification, risk assessment and the promotion and implementation of appropriate interventions.

Health Protection covers communicable disease control, emergency planning, control of environmental hazards to health, immunisation and screening programmes, and includes work undertaken on behalf of NHS Lincolnshire by the Health Protection Agency.

This chapter considers the emergency planning aspects of health protection. The Primary Care Trust is a category 1 responder under the Civil Contingencies Act, 2004. This means that NHS Lincolnshire has duties to:

- assess local risks and use this to inform emergency planning
- put in place emergency plans
- put in place business continuity management arrangements
- put in place arrangements to make information available to the public (warn, inform and advise)
- share information with other local responders to enhance co-ordination
- co-operate with other local responders to enhance co-ordination and efficiency

The Civil Contingencies Act 2004 defines an emergency as:

"An event or a situation which threatens serious damage to human welfare in a place in the UK, the environment of a place in the UK, or war or terrorism which threatens serious damage to the security of the UK"

The definition is concerned with consequences rather than the cause or source. A major incident may arise in one of a variety of ways and sometimes may fall into more than one category:

- Big Bang – a serious transport accident, explosion, or series of smaller incidents
- Rising Tide – a developing infectious disease epidemic, or a capacity/ staffing crisis
- Cloud on the Horizon – a serious threat such as a major chemical or nuclear release developing elsewhere and needing preparatory action
- Headline news – public or media alarm about a personal threat
- Internal incidents – fire, breakdown of utilities, major equipment failure, hospital acquired infections, violent crime
- Deliberate release of chemical, biological or nuclear materials
- Mass casualties
- Pre-planned major events that require planning - demonstrations, sports fixtures, air shows.

The past year has been a busy one for emergency planning across Lincolnshire but particularly within NHS Lincolnshire. We have reviewed and rewritten our Major Incident Plan, the Pandemic Flu plan and a number of others. We have trained our staff to put these plans into effect if needed and to lead our response to a wide variety of possible emergency situations. We have also undertaken a number of exercises, along with our partners in the Local Resilience Forum, to test our plans and our training. Finally, real life has thrown at us some emergency situations this year as the ultimate test of our planning.

Snow

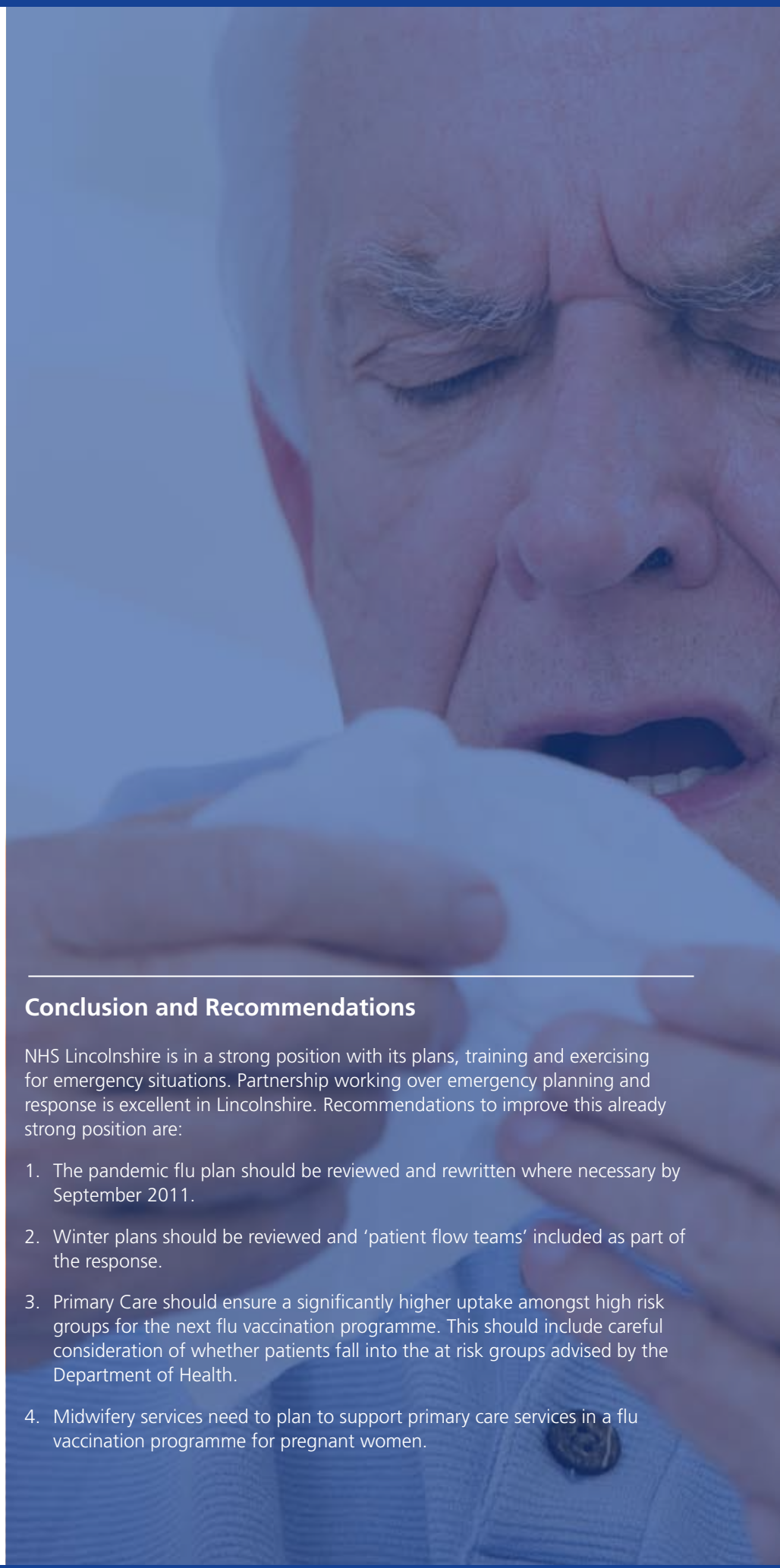
The snow and very cold weather in November and December 2010 presented a wide range of issues for Lincolnshire, which seemed to be severely affected by snowfall. The large geographical area with an extensive road network presented a problem for all public services. The road gritting was successful and well delivered but there were still concerns about access to work, school, food and health care services. Public transport was badly affected at some times. Many people in Lincolnshire were unable to get to work. Nearly all schools had to be closed at some point. Some isolated communities had difficulties with food supplies and concerns were raised about water supplies. Health care services in both Primary and Secondary Care had increased demand but suffered access difficulties and staffing capacity problems.

Senior staff from organisations across the county met on a regular basis to share intelligence and concerns, and work out ways to resolve these, often with mutual aid arrangements and sometimes with the help of voluntary organisations. These arrangements worked extremely well and most issues were quickly resolved or ameliorated.

Flu

The pandemic strain of flu from Mexico in 2009-10 was much less damaging than the extensive plans that the UK had in place predicted. In part this was because these plans had been developed, exercised and implemented. It was expected that this swine flu strain would become part of the spectrum of seasonal flu strains for 2010-11 and in the event this has been the situation. An H1N1 variant was, therefore, included in the UK seasonal flu vaccine this year. In Lincolnshire the seasonal flu vaccine uptake has been good amongst the over 65 year old age group. The vaccine is also offered to people in some high risk groups as well. This year those groups are as listed in Table 5.1. The uptake rates in these high risk groups are reasonable compared with other areas but are still too low to give the high levels of protection that are needed. These uptake rates are as given in Table 5.2. The vaccine uptake in pregnant women is far too low to be of value and considerable effort needs to be made to ensure that a substantially improved programme is put in place later this year.

Flu activity was high over Christmas and into the New Year in 2010-11. Again, senior staff from all NHS organisations in the County and Adult Social Care shared intelligence and agreed actions, although in this case by daily or more frequent teleconferences. A notable success was the use of multiagency 'patient flow teams' which worked to ensure that, after their necessary acute care, patients were moved on rapidly to community hospital beds, care home places or home as appropriate for that person. This is an innovation which needs to be used more widely.



Conclusion and Recommendations

NHS Lincolnshire is in a strong position with its plans, training and exercising for emergency situations. Partnership working over emergency planning and response is excellent in Lincolnshire. Recommendations to improve this already strong position are:

1. The pandemic flu plan should be reviewed and rewritten where necessary by September 2011.
2. Winter plans should be reviewed and 'patient flow teams' included as part of the response.
3. Primary Care should ensure a significantly higher uptake amongst high risk groups for the next flu vaccination programme. This should include careful consideration of whether patients fall into the at risk groups advised by the Department of Health.
4. Midwifery services need to plan to support primary care services in a flu vaccination programme for pregnant women.

Table 5.1 Clinical risk categories for seasonal flu vaccination with examples

Chronic respiratory disease	Asthma that requires continuous or repeated use of inhaled or systemic steroids or with previous exacerbations requiring hospital admission.
	Chronic obstructive pulmonary disease including chronic bronchitis and emphysema; bronchiectasis, and cystic fibrosis.
Chronic heart disease	Congenital heart disease, hypertension with cardiac complications, chronic heart failure, individuals requiring regular medication and/or follow-up for ischaemic heart disease.
Chronic kidney disease	Chronic kidney failure, nephrotic syndrome, kidney transplantation
Chronic liver disease	Cirrhosis, biliary artesia, chronic hepatitis.
Chronic neurological disease	Stroke, transient ischaemic attack, conditions in which respiratory function may be compromised (e.g. polio syndrome sufferers).
Diabetes	Type 1 diabetes, type 2 diabetes requiring insulin or oral hypoglycaemic drugs, diet controlled diabetes.
Immunosuppression	Immunosuppression due to disease or treatment. Asplenia or splenic dysfunction, HIV infection at all stages.
Pregnant women	All pregnant women should receive the influenza vaccine for the 2010/11 influenza season

Source: Immunisation against infectious disease, Department of Health 2006, updated 2010.

Table 5.2 Flu vaccine uptake rates in Lincolnshire 2010-11(up to 20th January 2011) and 2009-10 in parenthesis compared with National 2010-11(up to 20th January 2011)

	Lincolnshire	National
People aged over 65 Years	70.3% (71.9%)	71.7%
People aged under 65 and in at risk categories at risk	50% (53.5%)	48%
Pregnant women	28.1% (NA)	NA

Conclusions and Recommendations

The health of the people of Lincolnshire is generally good but this overall level hides some variations. Huge inequalities exist between different parts of the county, with especially poor health in the coastal areas of East Lindsey and in parts of the City of Lincoln, but also between specific groups and the general population. This report has highlighted several of these – offenders and looked after children – but there are others too – the homeless, the disabled, those with poor mental health amongst them. There is more to do in identifying, mapping and addressing these inequalities over the next few years, as well as driving general improvement in health across the whole population.

I make these recommendations based on this year's report. I intend to include a section in subsequent reports to feedback progress against these recommendations. This year my recommendations are:

1. Deprivation is a key driver in children's health inequalities: the Lincolnshire Child Poverty Strategy is an important element of improving this and needs to be delivered soon. The Public Health Team will support the development and implementation of this.

2. Increasing the number of infants breastfed until six months of age will positively impact on children's health inequalities: the Public Health Team will continue to develop and implement the Lincolnshire Infant Feeding Strategy and partner organisations need to place a high priority on working with us to achieve targets.

3. Reducing the numbers of people smoking, lowering teenage conceptions, targeting vulnerable groups such as Looked After Children, and supporting children and families particularly during the early years will help reduce child health inequalities: The work of the Children's Board and its constituent organisations must place an emphasis on this.

4. The ongoing review of work to address inequalities needs to bring together work targeted at geographical communities with that linked to offenders.

5. Access to services needs to be viewed with a focus on continuity and long-term conditions and less from a simple count of access to service outlets, if the chronic health problems of offenders are to be addressed.

6. More work is required to understand how the underlying causes, both in the long and immediate term, can be addressed for those at risk of or already offending.

7. The NHS and Public Health, working with local authorities and other partners, should continue to promote activities that improve the health of all sections of the populations they serve. Including schemes to promote physical activity, building on and complementing 5-A-DAY activity, the *Change4Life* campaign.

8. The NHS and Public Health should ensure the implementation of the Let's Get *Moving physical activity pathway* to enable GPs, healthcare practitioners and health improvement staff to identify sedentary adults and support them to be more active.

9. Local authorities and partners should explore the opportunities within the role of `Planning` for providing greater opportunities and incentives for the population to be more active.

10. All partners in Lincolnshire should actively seek opportunities to embed community physical activity initiatives for all ages, alongside actively in schools in preparation for the 2012 Olympic Games.

11. Smoking is the biggest single cause of cancer (and the cause of many other diseases too), and a major contributor to health inequalities. The most cost effective means of reducing the number of deaths from cancer is to invest more in smoking cessation services.

12. Late diagnosis is the biggest single cause of the relatively poor survival rates from cancer in England. Further work should be done to build on the Lincolnshire audit of patients who present late with cancer.

13. Patients with cancer receive input from a number of different services. Co-ordination of cancer services is essential. The role of Lincolnshire Cancer Partnership should be strengthened to ensure that cancer services in Lincolnshire are planned effectively.

14. The pandemic flu plan should be reviewed and rewritten where necessary by September 2011.

15. Winter plans should be reviewed and 'patient flow teams' included as part of the response.

16. Primary Care should ensure a significantly higher uptake amongst high risk groups for the next flu vaccination programme. This should include careful consideration of whether patients fall into the at risk groups advised by the Department of Health.

17. Midwifery services need to plan to support primary care services in a flu vaccination programme for pregnant women.

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