Title:	Impact Assessment (IA)
Public Health Outcomes Framework	
IA No: 3027	**Date:** 16/01/2012
	Stage: Final
Lead department or agency:	**Source of intervention:** Domestic
Department of Health	**Type of measure:** Other
Other departments or agencies:	**Contact for enquiries:**
	Simon Dowlman
	Clare Jones

Summary: Intervention and Options	**RPC Opinion:** RPC Opinion Status

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2009 prices)	**In scope of One-In, Two-Out?**	**Measure qualifies as**
£3.22m	£0	£0	No	NA

What is the problem under consideration? Why is government intervention necessary?

Over the past ten years, health inequalities between different groups have widened, leading to widening discrepancy in public health outcomes. In addition, England currently achieves relatively poor public health outcomes in certain major areas when compared to our peer countries. Responding and acting upon these challenges is the prime function of the proposed Public Health Outcomes Framework. Also, the government is radically shifting power to local communities. The Public Health Outcomes Framework is thus needed to provide a mechanism for transparency and accountability across the new public health system that is emerging as a result of this reform program.

What are the policy objectives and the intended effects?

The Public Health Outcomes Framework reinforces the vision for the future of public health – 'to improve and protect the nation's health and wellbeing and to improve the health of the poorest fastest' – and is a mechanism by which this vision can be achieved.

The Outcomes Framework will be comprised of a number of indicators against which Public Health delivery partners will be encouraged to demonstrate improvement. This will have a direct effect on protecting and improving the nation's health.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1: Do nothing

Option 2: Develop a Public Health Outcomes Framework using indicators selected via a rigorous assessment process

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 04/2018

Does implementation go beyond minimum EU requirements?			No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** No	**< 20** No	**Small** No	**Medium** No	**Large** No
What is the CO$_2$ equivalent change in greenhouse gas emissions? (Million tonnes CO$_2$ equivalent)			**Traded:** 0	**Non-traded:** 0	

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

Signed by the responsible Minister: Anne Milton   Date: 21/01/2012

Summary: Analysis & Evidence

Policy Option 1

Description: Develop a Public Health Outcomes Framework

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low:	**High:**	**Best Estimate:**
2011	2011	10	Unknown	Unknown	Unknown

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.71		0.17	**2.60**
High	1.23	1	0.2	**3.84**
Best Estimate	0.97		0.185	**3.22**

Description and scale of key monetised costs by 'main affected groups'

Costs of developing, collecting and disseminating the indicators that will constitute the Public Health Outcomes Framework

Other key non-monetised costs by 'main affected groups'

Costs from diverting public health expenditure to achieving improvements in the outcomes indicators.
These costs are not quantified as they will be determined at a local level based on locally agreed priorities.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low				
High				
Best Estimate	Unknown		Unknown	**Unknown**

Description and scale of key monetised benefits by 'main affected groups'

As improvements achieved through the Public Health Outcomes Framework will not be linked to e.g. nationally set levels of ambition, it is not possible to quantify the benefits of improvements that will be achieved at this stage. Therefore, no benefits have been monetised.

Other key non-monetised benefits by 'main affected groups'

Measuring and publishing outcomes indicators will give the outcomes greater visibility, providing tools for local authorities and other providers to assess the quality and outcomes of services they are providing. This will incentivise cost-effective interventions to improve performance in key areas of public health, which in turn will improve healthy life expectancy and reduce health inequalities.

Key assumptions/sensitivities/risks	**Discount rate (%)**	3.5

- Improvements in PHOF indicators will reflect improvements in public health performance as a whole
- PHOF indicators are attributable to the actions of public health service providers
- Public health service providers will know how to improve outcomes and improvements are achievable and affordable
- There is a risk that the framework may distort incentives and behaviour in undesirable ways, e.g. disproportionate focus on indicators included in the PHOF at the expense of other areas of public health

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: 0	**Benefits:** 0	**Net:** 0	No	NA

Evidence Base

References

No.	Publication
1	Public Health White Paper - Healthy Lives, Healthy People: Our strategy for public health in England http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digital asset/dh_122347.pdf
2	Consultation Document - Healthy Lives, Healthy People: transparency in outcomes, proposals for a Public Health Outcomes Framework http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_123113.pdf
3	Healthy Lives, Healthy People: Consultation responses: http://www.dh.gov.uk/en/Consultations/Responsestoconsultations/DH_128838
4	Healthy lives, healthy people: update and way forward: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128120
5	The NHS Outcomes Framework 2011/12 http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digital asset/dh_123138.pdf
6	The 2011/12 Adult Social Care Outcomes Framework http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125686.pdf

A. What is the problem under consideration?

i. Characterise the underlying problem

1. Since 1995–97, the gap in life expectancy between the fifth of LA areas with the worst health and deprivation measures, and the population as a whole, has widened. The gap in male life expectancy in 2007–09 was 7% wider than in 1995-97, while for females, this gap was 13% wider.

2. Health inequalities are not only apparent between people living in different geographical areas – they exist between different socio-economic groups, different genders, different ethnic groups, and the elderly and people suffering from mental health problems or learning disabilities also have worse health than the rest of the population.

3. The causes of health inequalities are complex, and include lifestyle factors—smoking, nutrition, exercise to name only a few—and also wider determinants such as poverty, housing and education. Access to healthcare may also play a role.

4. Examples of unacceptable variation in health outcomes are illustrated if we compare a relatively affluent Local Authority, like Westminster, and a relatively deprived Local Authority, such as Newham. For instance, if we look at early deaths from heart disease and strokes from 2007-09, the rate per 100,000 population is 62.05 in Westminster and 116.65 in Newham. Also the life expectancy in deprivation quintile 3 (2005-2009) for Westminster is 83.59, whereas the figure in Newham is 73.93. These local authorities are separated by nine stops on the Jubilee tube line.

5. The current variances in quality and outcomes of public health services means that the public health system is not currently equipped to make improvements against the causes of health inequalities that are not significantly affected by direct healthcare. This problem is exacerbated by the abolishment the Public Service Agreement (PSA) system, and the system of Local Area Agreements, as there is currently no system to monitor and facilitate improvements in public health.

6. The UK also compares unfavourably with other EU countries in key Public Health areas. For instance, in 2006 annual consumption of pure alcohol in the UK (11.4 litres per person aged 15+) was higher than the EU-15 average (10.9 litres) and significantly higher than in Sweden (6.8 litres).

Also in 2009 the UK mortality rate from selected smoking-related causes (203.9 – standardised rate per 100,000 population) was higher than the EU-15 average (173.2) and the Sweden rate (169.8), and considerably higher than the rate in France (117.1). This clearly illustrates that there is scope for further improvement in the UK's performance in key public health areas.

ii. Summarise the analytical narrative

7. This Impact Assessment is part of a suite of impact assessments that accompany the Public Health White Paper: Healthy Lives, Healthy People: Our strategy for public health in England. Other impact assessments in this suite are:

   • Structure of the public health service

   • Commissioning in the public health service

   • Ring-fenced funding of public health

   • Information and intelligence for public health

   • Social Marketing

   • Health Visitors

8. The current Government abolished the Public Service Agreement (PSA) system, and the system of Local Area Agreements. This means that there is currently no mechanism for putting forward and monitoring improvements in public health. A mechanism for putting forward and monitoring improvements in public health is crucial as there are currently considerable variations in the quality and outcomes of public health Services. This mechanism consequently needs to promote and facilitate improvement in both quality and outcomes.

9. The establishment of Public Health England as part of the Department of Health, and the return of local public health leadership and responsibility to local government means that a mechanism for promoting improvement in quality and outcomes will also be needed to clarify which parts of the delivery system will be primarily responsible for making improvements in specific areas.

B. What are the underlying causes of the problem?

10. The main issues are:

    • A lack of clarity and consistent measurement of the most important outcomes

    • A lack of comparative performance information (allowing benchmarking and re-examination of resource priorities as a result)

    • A lack of attributability - in the context of the establishment of Public Health England as part of the Department of Health, and the return of local public health leadership and responsibility to local government, there will need to be clarity over which parts of the delivery system will be primarily responsible for making improvements in specific areas.

C. What are the policy objectives and the intended effects?

11. The Public Health Outcomes Framework reinforces the vision for the future of public health - 'to improve and protect the nation's health and wellbeing and to improve the health of the poorest fastest' - and is a mechanism by which this vision can be achieved.

12. The Outcomes Framework will be comprised of a number of indicators against which Public Health delivery partners will be encouraged to demonstrate improvement. The introduction of the framework will act as a stimulus to encourage public health delivery partners to make significant improvements in services and share best practice more widely. The intention is that the introduction of benchmarking (through the indicator measures) will have a strong impact on improving public health outcomes – this is consistent with recent evidence that the introduction of indicator measures can have a strong influence on achieving successful Health Outcomes - and will have a direct effect on protecting and improving the nation's health.

13. The backbone of our proposed approach is to make publicly available a set of data and information relating to the public's health at national and where possible at local authority levels.

14. To ensure transparency and to reduce data burdens, we propose specific data are published in one place by Public Health England. Public health data come from a number of sources, and people have told us that the best way to support analyses is to publish this in one place, and in a common format.

15. At the national level, this information will allow our partners and us across government and beyond, to understand the key priorities for health and aid in our efforts to prioritise action. At the local level, this will allow people to interrogate the information as they want, and minimise costs of reproduction on councils. This will also make it easy for local areas to compare themselves with others across the country, and where possible how performance is changing within areas, and lever improvements.

16. So that we drive equality in public health outcomes, it is vital that we are able to disaggregate public health data by key equality characteristics and neighbourhoods where possible.

17. The overarching aim of this Outcomes Framework is *to improve and protect the nation's health, and to improve the health of the poorest, fastest*. In focusing on how to improve the public's health in its broadest sense, local authorities and their partners must also seek to advance equalities, eliminate the impact of discrimination and narrow inequalities in health behaviours between communities.

18. The framework is not intended to be used as a tool for setting out clear levels of accountability between parliament, the Secretary of State for Health and local authorities - this contrasts to the way that the NHS Outcomes Framework sets levels of accountability between parliament, the Secretary of State and the Commissioning Board. The reason for this contrast is that local authorities are accountable to their local populations for the delivery of public health services.

19. However, the Secretary of State for Health will be accountable to parliament for the ring-fenced budget that is being granted to local authorities for public health. The PH Outcomes Framework will help to focus local authorities on the areas where the ring-fenced budget could be used to make desirable progress. Accountability between the Secretary of State for Health and local authorities for the delivery of Public Health functions is being worked out via such levers as the role of Directors of Public Health (DsPH), and the annual report for local authorities that DsPH will produce.

20. Ultimately, the aim of the Public Health Outcomes Framework is to address the causes of health inequalities (lack of consistent measurement of outcomes and lack of comparable performance information) in order to make progress against unacceptable variations in public health outcomes and to clarify which parts of the delivery system will be primarily responsible for making improvements in specific areas.

D. What policy options have been considered?

21. The following options have been considered:

    Option 1: Do nothing

    Option 2: Develop a Public Health Outcomes Framework, using indicators selected via a rigorous assessment process

    We also considered an alternative option of setting out a Public Health Outcomes Framework but allowing local authorities discretion over what performance indicators they want to use in their areas. This was seen as being beneficial as it would allow local authorities to use the outcomes framework as a basis to focus on the specific health needs of their populations but it was felt that it would be more desirable for LA progress to be published on all the indicators that will be included in the framework. This is because there is wide range of factors that affect the public health of the population and the selection of the indicators in the framework reflects this. If the indicators truly reflect the broad range of important factors that influence public health then none of these factors should be neglected. If local authorities' progress on all indicators is published then it will allow better benchmarking to be achieved for every indicator (to the benefit of all local authorities, regardless of their priorities)

22. Option 2 is preferable to option 1 as it will highlight priorities for the public health system in regards to improvement, and act as a monitoring tool to review improvement.

23. Choosing option 1 would mean that, following the abolishment of the Public Service Agreement system and the system of Local Area Agreements, there would be no mechanism in place to provide focus for improvements (and monitor improvements) within the public health system.

i. Set out the baseline (Do Nothing Option), against which other options are assessed

24. Following the abolition of Vital Signs and the National Indicator Set, which both reported on selected public health indicators, there is no single system in place to measure public health outcomes.

25. Without the introduction of a Public Health Outcomes Framework, there would be no robust system in place that is able to monitor the extent of health protection or emergency preparedness measures. Addressing this issue is of vital importance if we are to consider resilience or preparation for emergency events.

26. In addition to a lack of monitoring of public health outcomes, there is an implicit lack of accountability at the local and national level that would drive forward improvements in health protection, health improvement and wellbeing.

27. Without a framework that addresses delivery and impact on different groups, it would not be possible to continue to assess the impact of services on core public health outcomes for these groups. Doing nothing does not further develop our approach to tackle the gender, age, geographical or socioeconomic health inequalities that currently exist.

ii. List and summarise the options assessed in the rest of the Impact Assessment

28. Option 2 consists of establishing a Public Health Outcomes Framework.

29. The framework has been developed around two overarching outcomes that will provide the whole public health system with the vision of what we want to achieve:

- Increased healthy life expectancy

- Reduced differences in life expectancy and healthy life expectancy between communities (through greater improvements in more disadvantaged communities)

30. These outcomes will be delivered through improvements across a broad range of public health indicators grouped into four domains relating to the three pillars of public health - health protection, health improvement and health-care public health including preventing premature mortality – and tackling the wider determinants of ill health.

31. The structure of the framework is illustrated below:

PUBLIC HEALTH OUTCOMES

Vision: To improve and protect the nation's health and wellbeing and for improving the health of the poorest fastest:
Outcome 1) Increase healthy life-expectancy, *i.e. taking account of the health quality as well as the length of life*
Healthy Life Expectancy (the measure uses a self-reported health assessment, applied to life expectancy data)

Outcome 2) Reduced differences in life expectancy and healthy life expectancy between communities (through greater improvements in more disadvantaged communities)
Differences in life expectancy and healthy life expectancy between communities (these two measures would work as a package covering both morbidity and mortality, and addressing within-area differences and between area differences)

DOMAINS

DOMAIN 1: **Improving the Wider Determinants of Health**	DOMAIN 2: **Health Improvement**	DOMAIN 3: **Health Protection**	DOMAIN 4: **Health-care Public Health & Preventing Premature Mortality**
Objective: Improvements against wider factors which affect health and wellbeing and health inequalities	**Objective:** People are helped to live healthy lifestyles, make healthy choices and reduce health inequalities	**Objective:** The population's health is protected from major incidents and other threats	**Objective:** Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities.
Indicator Indicator Indicator Across the life course	Indicator Indicator Indicator Across the life course	Indicator Indicator Indicator Across the life course	Indicator Indicator Indicator Across the life course

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32. The final list of indicators by domain is below:

Domain 1: Improving the wider determinants of health
1.1: Children in poverty
1.2: School readiness (Placeholder)
1.3: Pupil absence
1.4: First time entrants to the youth justice system
1.5: 16-18 year olds not in education, employment or training
1.6: People with mental illness and or disability in settled accommodation
1.7: People in prison who have a mental illness or significant mental illness (Placeholder)
1.8: Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness
1.9: Sickness absence rate
1.10: Killed and seriously injured casualties on England's roads
1.11: Domestic abuse (Placeholder)
1.12: Violent crime (including sexual violence) (Placeholder)
1.13: Re-offending
1.14: The percentage of the population affected by noise (Placeholder)
1.15: Statutory homelessness
1.16: Utilisation of green space for exercise / health reasons
1.17: Fuel poverty
1.18: Social connectedness (Placeholder)
1.19: Older people's perception of community safety (Placeholder)

Domain 2: Health improvement
2.1: Low birth weight of term babies
2.2: Breastfeeding
2.3: Smoking status at time of delivery
2.4: Under 18 conceptions
2.5: Child development at 2 – 2.5 years (Placeholder)

2.6: Excess weight in 4-5 and 10-11 year olds

2.7: Hospital admissions caused by unintentional and deliberate injuries in under 18s

2.8: Emotional well-being of looked after children (Placeholder)

2.9: Smoking prevalence – 15 year olds (Placeholder)

2.10: Hospital admissions as a result of self-harm

2.11: Diet (Placeholder)

2.12: Excess weight in adults

2.13: Proportion of physically active and inactive adults

2.14: Smoking prevalence – adults (over 18s)

2.15: Successful completion of drug treatment

2.16: People entering prison with substance dependence issues who are previously not known to community treatment

2.17: Recorded diabetes

2.18: Alcohol-related admissions to hospital

2.19: Cancer diagnosed at stage 1 and 2 (Placeholder)

2.20: Cancer screening coverage

2.21: Access to non-cancer screening programmes

2.22: Take up of the NHS Health Check programme – by those eligible

2.23: Self-reported well-being

2.24: Falls and fall injuries in the over 65s

Domain 3: Health protection

3.1: Air pollution

3.2: Chlamydia diagnoses (15-24 year olds)

3.3: Population vaccination coverage

3.4: People presenting with HIV at a late stage of infection

3.5: Treatment completion for TB

3.6: Public sector organisations with board approved sustainable development management plan

3.7: Comprehensive, agreed inter-agency plans for responding to public health incidents (Placeholder)

Domain 4: Healthcare public health and preventing premature mortality
4.1: Infant mortality
4.2: Tooth decay in children aged 5
4.3 Mortality from causes considered preventable
4.4 Mortality from all cardiovascular diseases (including heart disease and stroke)
4.5 Mortality from cancer
4.6 Mortality from liver disease
4.7 Mortality from respiratory diseases
4.8 Mortality from communicable diseases (Placeholder)
4.9: Excess under 75 mortality in adults with serious mental illness (Placeholder)
4.10: Suicide
4.11: Emergency readmissions within 30 days of discharge from hospital (Placeholder)
4.12: Preventable sight loss
4.13: Health-related quality of life for older people (Placeholder)
4.14: Hip fractures in over 65s
4.15: Excess winter deaths
4.16: Dementia and its impacts (Placeholder)

33. Note that a more detailed version of the list of indicators is found in **Annex 6** and a draft technical specification for each is to be published alongside the main Public Health Outcomes Framework document.

34. The proposal is that a Public Health Outcomes Framework, to drive forward improvements in public health, will be fully implemented by April 2013.

35. Each year Public Health England will publish national data on the indicators, including the disaggregation of data to local authority level and by key equality and inequality characteristics – where available. At the local level, this will allow people to interrogate information on public health as they want, and minimise costs of reproduction on councils. This will also make it easy for local areas to compare themselves with others across the country.

The selection process

36. The initial list of candidate indicators was developed using the following criteria:

   a) HM Treasury Transparency Framework criteria

   b) Are there evidence-based interventions to support this indicator?

   c) Does this indicator reflect a major cause of premature mortality or avoidable ill health?

   d) By improving on this indicator, can you help to reduce inequalities in health?

   e) Use indicators which are meaningful to people and communities

   f) Is this indicator likely to have a negative / adverse impact on any particular groups? (If yes, can this be mitigated?)

g) Is it possible to set measures, SMART objectives and targets against the indicator to monitor progress in both the short and medium term?

h) Are there existing systems to collect the data required to monitor this indicator and:

- Is it available at the appropriate spatial level (e.g. Local Authority)?

- Is the time lag for data short, preferably less than one year?

- Can data be reported quarterly in order to report progress?

37. DH held a formal 12-week public consultation on the proposal to introduce a Public Health Outcomes Framework in which respondents were invited to comment on the proposed structure and composition of the framework.

38. In addition, there was further engagement in the form of:

- Departmental stakeholder events

- Engagement with the Public Health community (Directors of Public Health Advisory Group)

- Engagement with BME communities

- Engagement across Government, and the wider public health workforce, including regional teams (Public Health Observatories, Regional Public Health Groups)

39. We received many responses to the consultation. There was a widespread welcome for our approach, including the focus on the wider determinants of health combined with many constructive proposals for improving it. Respondents to the consultation suggested a number of additional indicators for consideration, which were added to the list of candidate indicators.

40. Post-consultation a full assessment of all candidate indicators was carried out against a refined list of criteria. The updated list of criteria was developed in consultation with leads for PHOF indicators and can be found at **Annex 4.**

41. To conduct a first sift of the indicators we identified a number of key criteria (from the full list of criteria):

- Aligns with the government's direction for public health

- Amenable to public health intervention, e.g. by PH professionals, Local Authorities, PHE, NHS

- Major cause of premature mortality or avoidable ill health [NB. If indicators in the wider determinants domain did not meet this criterion then they were not sifted out]

- Improvements in this measure will improve health-related quality of life (including mental health)

- Improvement in this measure will help reduce inequalities in health

- Improvement in this measure will help improve healthy life expectancy

- Statistically appropriate, fit for purpose

- At least feasible at national level

- At least feasible at local authority level

42. Indicators were sifted out if they had been assessed as "criterion not met" on any of the key criteria.

43. Following this first sift we worked with key public health colleagues in DH, other government departments and the public health system to develop the final set of indicators via a series of stakeholder engagement workshops.

44. Once a draft final set of indicators has been decided upon we carried out some additional pieces of analysis:

- **Calibration**: One of the key criteria considers if improvements in an indicator will improve healthy life expectancy (one of the overarching outcomes of the PHOF). To try to quantify this criterion an assessment was made, where possible, of the incremental contribution of indicators to improving life expectancy (which is a component of healthy life expectancy). In addition to aiding the selection of indicators, presenting this analysis will provide a means by which local authorities, with knowledge of the costs of interventions, can apportion costs to benefits at a later stage and

make an informed decision on which PHOF indicators they might want to prioritise in their local area. Further details of how this assessment was carried out can be found in **Annex 5** along with summary results for all indicators that were assessed. In addition, each of the illustrative examples presented in **Annex 2** include a section on the effect of a 10% improvement in the indicator on life expectancy.

- **Assessment of comprehensiveness**: It is important that the final set of indicators is comprehensive and constitute a life course approach to public health. Therefore, comprehensiveness was considered in terms of assessing the numbers of indicators that covered each of the different life stages – see **Annex 3** for this assessment.

- **Risk-adjustment**: Underlying characteristics (e.g. socio-economic profile) could impact on achievement at a local level against PHOF indicators. This will pose challenges for comparing indicators between areas. For a number of illustrative examples (see **Annex 2**) we considered for what factors it may be appropriate to risk adjust. Work on risk adjustment will need to be taken forward when considering how the indicators will be monitored.

E. Impacts, Costs and Benefits of Option 2

i. Set out the mechanism by which Option 2 is intended to work, its expected scale of impact and the evidence supporting these expectations

45. The Public Health Outcomes Framework has been designed with the existing NHS Outcomes Framework and Adult Social Care Transparency Framework in mind, to enable close alignment between the three frameworks.

46. Indicators that are shared (or have a link) with one of the other frameworks are outlined below:

PHOF (short title)	NHSOF	ASCOF
1.6 People with mental illness or disability in settled accommodation		1G. Proportion of adults with learning disabilities who live in their own home or with their family

1H. Proportion of adults in contact with secondary mental health services living independently, with or without support |
| 1.8 Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness | 2.2 Employment of people with long term conditions

2.5 Employment of people with mental illness | 1E. Proportion of adults with learning disabilities in paid employment

1F. Proportion of adults in contact with secondary mental health services in paid employment |
4.1 Infant mortality	1.6i Infant mortality	
4.4i Under 75 mortality rate from all cardiovascular diseases (including heart disease and stroke)	1.1 Under 75 mortality rate from cardiovascular disease	
4.5i Under 75 mortality rate from cancer	1.4iv Under 75 mortality rate from cancer	
4.6i Under 75 mortality rate from liver disease	1.3 Under 75 mortality rate from liver disease	
4.7i Under 75 mortality rate from respiratory diseases	1.2 Under 75 mortality rate from respiratory disease	
4.9 Excess under 75 mortality in adults with serious mental illness	1.5 Excess under 75 mortality in adults with serious mental illness	

4.11 Emergency readmissions within 30 days of discharge from hospital	3b Emergency readmissions within 30 days of discharge from hospital	

47. The introduction of a Public Health Outcomes Framework should lead to an overall reduction in the performance monitoring burden at a local level. It will also allow a refocusing and strengthening of public health outcomes and their delivery at local and national levels.

48. The framework will provide a tool so that indicators with the greatest potential to impact on the public's health and inequalities can be prioritised. Local level contribution to the outcome indicators will be driven by local need, dependent on the outcomes that local areas choose to prioritise and any associated level of ambition they may agree regarding outcome indicators.

49. There is evidence available to support the case that publication of these sorts of indicators can influence behaviour. Smith et al. (2009)[1] argue that performance measurement instruments have two goals - to promote accountability and to improve the performance of the health system. They suggest that the accountability goal may be a worthwhile objective in its own right (enhancing transparency and promoting informed debate about the health system). However, it is argued that performance measurement instruments should be evaluated according to their ability to promote health system objectives, which include providing more cost-effective care, improving population health and addressing inequity. While they highlight some of the pitfalls of previous attempts to introduce performance measurement into the realm of public health, which the detailed design of the PHOF will need to take into account, they conclude, "Performance measurement offers scope for major health system improvements".

50. Smith et al (2009) also note the role of government in exploiting the potential benefits of performance measurement, emphasising that "performance measurement is a public good that will not occur naturally".

51. In this IA, we suggest some areas in which the pursuit of improvements in particular indicators could help to enhance the cost-effectiveness of public health provision.

52. However, there is a risk that local authorities and others may see the Public Health Outcomes Framework as a step backwards because of its top-down nature. Continuity may be difficult to achieve between previous frameworks (e.g. Vital Signs / National Indicator Set) and the new Public Health Outcomes Framework.

53. There is also a danger that any prioritisation of indicators included in the Public Health Outcomes Framework could result in unintended consequences, e.g. they become the focus for local action over and above more important local needs and priorities.

54. There may be limitations in the evidence base underpinning the interventions required to improve selected outcome indicators.

55. A summary of the key costs and benefits of a Public Health Outcomes Framework are outlined in the sections below and we investigate them in more detail for a number of illustrative examples in **Annex 2**.

ii. Set out the costs and benefits of Option 2

Costs

Costs from diverting public health expenditure to collecting and disseminating the outcome indicators

56. Wherever possible, we will use existing data sources to monitor outcomes against indicators in the Public Health Outcomes Framework to minimise costs and prevent additional burden on data suppliers.

57. In some cases, there will already be data available underpinning outcome indicators, but the frequency, timeliness or coverage of existing indicators will need improving in order for them to be suitable to monitor progress, especially at a local level.

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[1] Smith P C, Mossialos E, Papanicolas I, Leatherman S (eds) (2009). Performance meaaurement for health system improvement: experiences, challenges and prospects. Cambridge: Cambridge University Press

58. For some indicators, where all other possibilities have been exhausted, it will be necessary to develop new data systems, which will have cost implications for the government department that leads on the indicator.

59. Where any additional data burdens are placed on local authorities through new or extended data collections, DH has a duty to fund that additional burden. Additional burdens will not be placed without consultation with local government.

60. In this section, we outline the current availability of data to monitor the proposed indicators and estimate costs (where possible) of creating new data collections or amending existing ones to get to a point where data is available annually for all indicators at national and upper tier local authority level (the minimum requirement for PHOF indicators).

61. However, it should be noted that the total cost for the whole set of indicators cannot be fully determined until the technical specification for all indicators has been finalised.

Domain 1

62. Many of the proposed indicators are based on existing datasets, which provide national and upper tier LA data of a sufficient standard:

- DWP statistics on Households Below Average Income based on the Family Resources Survey and the British Household Panel Survey

- Tax credit data from HMRC

- School Census statistics

- DfE statistics on 'Participation in Education, Training and Employment by 16-18 year olds in England' based on the Labour Force Survey and a number of administrative sources

- Local Authority National Client Caseload Information System (NCCIS)

- Adult Social Care Combined Activity Return (ASC-CAR)

- DfT statistics – STATS 19 – based on information collected by the police about road injuries and casualties

- Hospital Episode Statistics

- MoJ statistics based on information from the Police National Computer

- CLG statistics on statutory homelessness

- Monitor of Engagement with the Natural Environment (MENE)

63. However, there are some indicators where exact definitions are not finalised or where existing datasets will not provide robust data at national and upper tier LA level. Below we have indicated which indicators in this domain this relates to and where possible we have estimated additional costs for data collection which will be associated with this policy:

- *School readiness*: This indicator is currently a placeholder. It will be based on data from the Early Years Foundation Stage (EYFS) Profile, which is a statutory local and national data collection run by DfE. A new version of this profile will be in place from 2012/13, which will be quite different from the previous version of the profile. A definition will be developed based on this planned data collection so there will not be any additional costs to collect LA and national level data for the PHOF.

- *People with mental illness and or disability in settled accommodation*: Data for part of this indicator will come from the Mental Health National Minimum Data Set (produced by the Information Centre). Historically, there have been data quality issues with this data, particularly at a local level. As work is already underway to resolve these data quality issues – with the quality of the data much improved recently – we have assumed there will be no additional costs associated with ensuring this data is of a sufficient standard to use in the PHOF.

- *People in prison who have a mental illness or a significant mental illness*: It is not yet clear what data source will be most appropriate to use for this indicator so we cannot yet determine if there may be additional costs associated to this policy – these will need to be estimated at a later date.

In developing this indicator, we will ensure that existing data sources are used if possible to minimise any extra costs.

- *Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness*: The data for this indicator will be based on data collected via the ONS Labour Force Survey. This survey is independent of the Public Health Outcomes Framework. Some work will be necessary to conduct a secondary analysis of the data to produce this indicator and to break it down by different health conditions but the costs associated with this are likely to be small.

- *Sickness absence rate*: This indicator is composed of three measures based on ONS Labour Force Survey data and DWP E-med data. National and LA level data is already available from the ONS Labour Force Survey. E-Med data is currently in development and expected to be available from the beginning of 2012. As work to develop E-Med data is independent of the Public Health Outcomes Framework, any costs are not related to this policy.

- *Domestic abuse:* This indicator is currently a placeholder. However, it is likely that the definition will be based on data collected via an existing data source so we do not anticipate any additional costs associated with setting up a new collection or extending an existing one in order to monitor it.

- *Violent crime (including sexual violence):* This indicator is currently a placeholder. However, it is likely that the definition will be based on data collected via an existing data source so we do not anticipate any additional costs associated with setting up a new collection or extending an existing one in order to monitor it.

- *The percentage of the population affected by noise*: The definition for this indicator requires further development. There are currently two proposed definitions for further consideration – both are based on existing data sources. One of these definitions would use data sources that are already in a position to allow national and LA level data to be produced. However, the second proposed definition, if used, would require an extension of the existing National Noise Attitude Survey (which is currently on run every 10 years) so that national and LA level data could be produced annually – these costs would need to be funded by DEFRA and would be associated with this policy. However, until the definition is finalised, we cannot estimate these costs.

- *Fuel Poverty*: DECC are currently reviewing the existing Fuel Poverty definition. Once the definition is finalised, DECC will be able to confirm whether they are able to continue to use their existing data source or whether a new one is required. Since the PHOF will use the same definition as DECC decide upon, there will be no additional costs associated to this policy from setting up a new data collection if it is required (as DECC will be doing this independently of work on the PHOF).

- *Social Connectedness*: This indicator is currently a placeholder and development work will be necessary to scope its definition and to consider if it could be based on any existing data sources. Until we have a final definition for this indicator, we cannot determine whether it will be necessary to set up a new data collection or extend an existing one so any additional costs will need to be estimated at a later date.

- *Older people's perception of community safety*: This indicator is currently a placeholder and development work will be necessary to scope its definition and to consider if it could be based on any existing data sources. Until we have a final definition for this indicator, we cannot determine whether it will be necessary to set up a new data collection or extend an existing one so any additional costs will need to be estimated at a later date.

64. Based on the information above, it is currently estimated that there will be no additional costs of collecting data at national and local authority level for indicators in domain 1.

Domain 2

65. The proposed indicators are largely based on existing datasets, which will provide national and upper tier LA data of a sufficient standard:

- ONS birth statistics
- ONS conceptions statistics

- National Child Measurement Programme

- Hospital Episode Statistics

- ONS Integrated Household Survey

- National Drug Treatment Monitoring System

- QOF information derived from the Quality Management Analysis System (QMAS) and the National Diabetes Audit

- NHS Information Centre statistics on cancer screening

- Various systems to report on non-cancer screening, e.g. Child Health Information System, Local Diabetic Retinopathy Screening Programme, Health Protection Agency

66. However, there are some indicators where exact definitions are not finalised or where existing datasets will not provide robust data at national and upper tier LA level. Below we have indicated which indicators in this domain, this relates to and where possible we have estimated additional costs for data collection which will be associated with this policy:

- *Breastfeeding initiation and prevalence at 6-8 weeks after birth*: Data for this indicator is already collected at national and PCT level by DH via UNIFY 2. Therefore, LA level data is only currently available for LAs that are coterminous with PCTs. When public health responsibilities move over to local authorities it is expected that the data will be collected from LAs rather than PCTs. As work to change collection to being on an LA basis is independent of the Public Health Outcomes Framework, any costs are not associated with this policy.

- *Smoking status at time of delivery*: This information is currently collected at national and PCT level via the NHS Information Centre's Omnibus. Therefore, LA level data is only currently available for LAs that are coterminous with PCTs. When public health responsibilities move over to local authorities it is expected that the data will be collected from LAs rather than PCTs. As work to change collection to being on an LA basis is independent of the Public Health Outcomes Framework, any costs are not associated with this policy.

- *Child development at 2 - 2.5 years*: This indicator is currently a placeholder. A study is underway to explore whether data to measure a relevant aspect of child development can be collected via the Healthy Child Programme review that takes place with families when their child is between age 2 and 2½ years and aggregated to produce national and local level population measures. Until this study has been completed and we have a final definition for this indicator, we cannot determine whether it will be necessary to set up a new data collection or extend an existing one so any additional costs will need to be estimated at a later date.

- *Emotional well-being of looked after children:* This indicator is currently a placeholder. However, it is planned that the definition will be based on data collected via an existing data source - the SSDA903 data collection on looked after children – so there will be no costs associated with setting up a new collection or extending an existing one in order to monitor it.

- *Smoking prevalence - 15 year olds:* This indicator is currently a placeholder as there is currently no system available to robustly measure it at LA level. National and regional information on smoking prevalence among 15 year olds is available for those aged 15 from the Survey of Smoking, Drinking and Drug Use Among Young People, but the sample size is insufficient to obtain robust estimates at local level. Therefore, it will be necessary to set up a new survey in order to monitor this indicator. Consideration has been given to how this might be approached and the cost of implementing such a survey has been estimated to be between £1.8m and £3.3m depending on what method of survey delivery is used. It is not appropriate to attribute the full costs of the survey to this policy as the survey would deliver significant benefits even if the indicator were not included in the PHOF. However, the inclusion of the indicator in the PHOF would give local areas a greater incentive to act where the prevalence of smoking among young adults is shown to be a priority. We have estimated that one third of the benefits of the survey would accrue through the availability at national and regional level of better information about uptake and consumption of tobacco among young adults and within subgroups of young adults; and two-thirds at local level through more informed prioritisation (half of which would be attributed to the inclusion of this indicator in the PHOF). Therefore, we have attributed one third of the cost of the survey to the PHOF - giving an estimated cost of between £0.6m and £1.1m.

- *Diet*: This is currently a placeholder. We are currently working to identify the specific definition of this indicator – this will affect which data source is appropriate to use. It is expected that at least the national level data will come from an existing data source, e.g. the National Diet and Nutrition Survey collects data on the intake of salt, trans fats, saturated fat, sugar and fruit and vegetables and the Healthy Survey for England collects data on fruit and vegetable intake. However, until we have a final definition for this indicator, we cannot determine whether it will be necessary to extend any of these existing data sources so any additional costs will need to be estimated at a later date.

- *Excess weight in adults*: Data for this indicator is already available at a national level via the Health Survey for England. There is already work underway to collect this data at LA level via existing surveys such as an ONS Household Survey or Sport England's Active People Survey and it is expected that LA level data will be available by 2013. As this work is independent of the Public Health Outcomes Framework, any costs are not associated with this policy.

- *Adult physical activity*: The intended data source at national and LA level for this indicator is Sport England's Active People Survey, which has been collecting physical activity data since October 2008. Work is underway to align questions with the new physical activity guidelines, with data collection based on these questions to commence in January 2012 – this data can then be used to measure the PHOF indicator. As this work is independent of the Public Health Outcomes Framework, any costs are not associated with this policy.

- *People entering prison with substance dependence issues who are previously not known to community treatment*: This indicator will use data collected via the System1 prison IT system and reported to the National Treatment Agency. The system is being installed this year (2011-12) and is expected to be fully in place from 2013-14. As work to develop this system is independent of the Public Health Outcomes Framework, costs are not associated with this policy.

- *Cancer diagnosed at stage 1 and 2*: Data for this indicator will be collected by cancer registries at national and LA level. This system is currently in development with the first data expected to be available in October 2013. As work to develop this system is independent of the Public Health Outcomes Framework, any costs are not associated with this policy.

- *Take up of the NHS Health Check programme – by those eligible*: National and PCT level data on health checks are currently collected by DH. Therefore, LA level data is only currently available for LAs that are coterminous with PCTs. When public health responsibilities move over to local authorities it is planned that the data will be collected from LAs rather than PCTs. As work to change collection to being on an LA basis is independent of the Public Health Outcomes Framework, any costs are not associated with this policy.

- *Self reported well-being*: ONS are currently developing a self-reported well-being measure. It is expected that this will be available from 2013 and, although the final data source has not yet been confirmed, a possibility is that this data will be collected via the existed ONS Integrated Household Survey. Once the ONS measure has been developed this will be used in the PHOF and will be available at national and LA level. As work to develop this measure (and the underlying data collection) is independent of the Public Health Outcomes Framework, any costs are not associated with this policy. Until 2013, it is proposed that a measure is used in the PHOF using data on the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) collected via the Health Survey for England at national level and via the Understanding Society longitudinal study at LA level.

- *Falls and fall injuries in the over 65s*: Data for this indicator will be sourced from Hospital Episode Statistics collected by the NHS Information Centre. The underlying data is therefore already collected at national and LA level although a tailored analysis will be required to isolate the appropriate diagnosis codes for the correct ages, and map to populations in the area. It is expected that the costs associated with this analysis will be small.

67. Based on the information above, it is currently estimated that the costs of collecting data at national and local authority level for all indicators in domain 2 will be between £0.6m and £1.1m.

Domain 3

68. Some of the proposed indicators are based on existing datasets, which provide national and upper tier LA data of a sufficient standard:

- HPA statistics on chlamydia and late HIV diagnosis

- National enhanced web-based TB surveillance system run by the Health Protection Agency (HPA)

69. However, there are some indicators where exact definitions are not finalised or where existing datasets will not provide robust data at national and upper tier LA level. Below we have indicated which indicators in this domain, this relates to and where possible we have estimated additional costs for data collection which will be associated with this policy:

- *Air pollution*: The data for population-weighted anthropogenic $PM_{2.5}$ will come from the annual assessment of air quality in the UK, already undertaken by Defra as part of its obligations under the Ambient Air Quality Directive (2008/50/EC). This produces a modelled estimate of population exposure to $PM_{2.5}$ across the UK, calibrated using measured concentrations taken from Defra's Automatic Urban and Rural Network. This data is currently only available at national level but it should also be feasible to produce LA level estimates using this data source - . The Committee on the Medical Effects of Air Pollutants (COMEAP) is currently considering appropriate methods for estimating the mortality burden associated with $PM_{2.5}$ at LA level and is expected to make recommendations shortly. At this point we will be able to estimate any costs that will be involved in producing such LA level data.

- *Population vaccination coverage*: Currently data on vaccinations is routinely produced at national and PCT or GP practice level using data collected via the COVER and KC50 returns, which gather information on vaccination coverage for childhood immunisations, and the ImmForm system, which allows collection of data for HPV, PPV and Flu vaccinations. As the underlying data contains information on postcodes, it will be possible to data that is already collected up to LA level, which means there will be no additional costs associated with producing LA level data for this indicator.

- *Public sector organisations with board approved sustainable development management plan*: The definition for this indicator is still under development, as it remains to be determined exactly which public sector organisations will be included. Currently it is possible to produce national and LA level figures for NHS organisations using data collected via a survey conducted by regional leads for sustainable development, which determines whether organisations have a Sustainable Development Management Plan (SDMP). In the future, it will be necessary to extend data collections so that such data can be collected for all public sector organisations that fall under this definition – however, we cannot estimate the costs of doing this until a decision has be made on what organisations will be included.

- *Comprehensive, agreed inter-agency plans for responding to public health incidents:* There is no current system in place to systematically monitor this indicator. Further work will be required to scope what will be required to monitor this indicator before any costs can be estimated. Therefore, it will be necessary to do the costing for data collection and a national and LA level at a later date.

70. Based on the information above, it is currently estimated that there will be no additional costs of collecting data at national and local authority level for indicators in domain 3.

Domain 4

71. The proposed indicators are largely based on existing datasets, which provide national and upper tier LA data of a sufficient standard:

- ONS death registrations data (including data linked to birth registrations for infant mortality)

- ONS census-based population estimates

- Hospital Episode Statistics

72. However, there are some indicators where exact definitions are not finalised or where existing datasets will not provide robust data at national and upper tier LA level. Below we have indicated which indicators in this domain, this relates to and where possible we have estimated additional costs for data collection which will be associated with this policy:

- *Tooth decay in children aged 5 years*: Currently data is collected via the NHS dental epidemiological survey programme led by the Dental Observatory for this indicator every 4 years.

For PHOF indicators, we want updated data to be available at least annually so it will be necessary to investigating extended this survey so that it is run each year – once this work has been scoped we can estimate the costs that will be associated to the PHOF.

- *Mortality from causes considered preventable (and sub-indicators on preventable mortality from all cardiovascular diseases, cancer, liver disease and respiratory diseases):* Independently of the Public Health Outcomes Framework, ONS are involved in work to determine the definition of preventable mortality – they are expected to report back soon following a consultation. The indicator (and series of sub-indicators) on preventable mortality in the PHOF will be based on the ONS definition once it is finalised. The underlying data source for all of this indicator and sub-indicators will be ONS death registrations and population estimates – both of these sources are already available and will provide national and LA level data so there will be no additional costs associated with this policy.

- *Excess under 75 mortality in adults with serious mental illness*: There is not currently any data available to monitor this indicator. However, the NHS Information Centre are currently carrying out a development project to set up routine production of this indicator by linking data from the Mental Health Minimum Data Set to ONS deaths data. This work is independent from the Public Health Outcomes Framework so any costs are not associated with this policy. This will provide national level data for this indicator and it is believed that if several years of data are aggregated to produce, e.g. 3-year rolling average figures, then this will provide robust LA level data. As this work is proceeding independently of the Public Health Outcomes Framework, there is no additional cost associated with this policy.

- *Preventable sight loss*: Although the definition for this indicator is not yet finalised, it is expected that data for this indicator will come from an existing data source – Certificate of Visual Impairment (CVI) registrations – so no additional costs are anticipated at this stage.

- *Health-related quality of life for older people*: This indicator is currently a placeholder. It is likely that the definition would be such that data would come from an existing survey such as the GP Patient Survey, Health Survey for England and the English Longitudinal Study of Ageing – each of which would provide data at a national level. However, it is unclear at this stage whether equivalent LA level data will be available. Once the definition is finalised, it will be possible to determine whether it is necessary to extend an existing data source to get LA level data or create a new collection so any additional costs will need to be estimated at a later date.

- *Dementia and its impacts*: This indicator is currently a placeholder and development work will be necessary to scope its definition and to consider if it could be based on any existing data sources. Until we have a final definition for this indicator, we cannot determine whether it will be necessary to set up a new data collection or extend an existing one so any additional costs will need to be estimated at a later date.

73. Based on the information above, it is currently estimated that there will be no additional costs of collecting data at national and local authority level for indicators in domain 4.

Summary of costs of collecting and disseminating the outcome indicators and further analytical tasks

74. Based on the estimates in the section above, the total cost of collecting data at national and local authority level for all indicators in the Public Health Outcomes Framework (that can currently be estimated) will be at least £0.6 – 1.1m

75. In addition to this, there will be additional opportunity costs annually relating to the DH and PHE staff who will be involved in collating and publishing the PHOF data each year and in ongoing development work on the indicators. The scope of this work and exact resources that will be required has not yet been fully determined but we have made an initial estimate that this will involve one member of staff from DH and two senior analysts in PHE corresponding to an opportunity cost of around £0.17 – 0.2m per year. As this cost is very much a rough estimate at this stage, it will need to be revised in the future.

76. There will be a number of further analytical tasks that will need to be carried out in relation to the indicators included in the Public Health Outcomes Framework.

77. Further work will be required to develop the definitions and full technical specifications for the Public Health Outcomes Framework indicators, including publishing baselines. The majority of this work will be for indicators that have initially been included as placeholders.

78. London Health Observatory will carry out this work on behalf of the network of Public Health Observatories (PHOs) in the short term. In the longer term, it is expected that PHE will carry out this work as the new organisation will take on the responsibilities that are currently carried out by PHOs. There will be no additional costs for DH / PHE associated with this analytical work, as it will be completed as part of the existing 2011/12-2012/13 PHO work plan.

79. However, there is an opportunity cost to London Health Observatory themselves. For the short term work (up until October 2012) on developing definitions and baselines we have estimated costs based on an assumption that this work will require 2 senior analysts' time for a year. This gives an estimate one-off opportunity cost of £0.11 – 0.13m. The longer-term work to be done by PHE is incorporated into the estimate of annual opportunity costs given in paragraph 75.

80. In this Impact Assessment, we have carried out some initial analysis on modifiable risk factors for a number of illustrative examples – see **Annex 2**. For many indicators it may be appropriate to expand upon this initial work to do further risk adjustment - to adjust for factors beyond the control of service providers, e.g. age and deprivation – and calibration - to assess the incremental contribution of indicators to the overall outcomes of improving healthy life expectancy and reducing health inequalities.

81. There will also be additional analytical tasks in the future relating to medium to longer-term development of indicators and work to ensure that the three outcomes frameworks – covering the NHS, Adult Social Care and Public Health – are aligned. However, at this stage we are unsure of the full scope of this work so cannot estimate the cost.

82. However, offsetting some of the costs outlined above, there is likely to be a cost saving to local authorities due to the central collection and publication of local authority data, which will prevent local authorities having to develop their own indicators.

83. In summary, based on what can currently be estimated, there are transitional financial costs of £0.6m - £1.1m associated with collecting data for indicators in the Public Health Outcomes Framework, as well as transitional opportunity costs of £0.11 - 0.13m associated with short-term development work on the indicators. Annually, there will be an opportunity cost of £0.17 - 0.2m per year related to collating, publishing and developing the indicators. These cost estimates will need to be reviewed once it has been decided what medium to long-term development work on PHOF indicators will be necessary and once some of the indicators are more fully developed and any additional costs of data collection can be estimated.

Costs from diverting public health expenditure to achieving improvements in the outcomes indicators

84. To be determined at local level, additional costs may occur as a result of diverting public health expenditure to meet locally agreed ambitions, resulting in opportunity costs.

85. See **Annex 2** for further analysis on a number of illustrative examples of indicators in the Public Health Outcomes Framework, which include further details on the cost-effectiveness of possible interventions to improve performance.

Benefits

Improvements in healthy life expectancy and reductions in health inequalities between communities from achieving improvements in the indicators in the Public Health Outcomes Framework

86. The focus of the indicators selected in the Public Health Outcomes Framework is to have an impact on the overarching outcomes – increased healthy life expectancy and reduced differences in life expectancy and healthy life expectancy between communities.

87. Two of the key criteria used in sifting indicators to include in the final framework were that an improvement in the indicator would lead to an improvement in healthy life expectancy and would reduce health inequalities (in the form of differences in life expectancy and healthy life expectancy).

88. In addition we conducted some calibration analysis (where possible) for the indicators to consider the impact of an incremental increase in a particular indicator on life expectancy (a component of healthy life expectancy). Further details of how this assessment was carried out can be found in **Annex 5** along with summary results for all indicators that were assessed. In addition, each of the illustrative examples presented in **Annex 2** include a section on the effect of a 10% improvement in the indicator on life expectancy.

Measuring and publishing outcomes indicators as part of the Public Health Outcomes Framework will give the outcomes greater visibility and support local and national benchmarking

89. As progress against the indicators included in the Public Health Outcomes Framework will be in the public domain, it will inform public scrutiny and focus attention on key areas of public health across all stages of the life course.

90. The annual measurement and publication of indicators from the Public Health Outcomes Framework by PHE will provide local authorities and other service providers with tools to assess the quality and outcomes of the services they are providing. It will also allow people using the services and others to hold them to account for improvement.

91. Data will be published at national and local authority level – this will provide a mechanism for service providers to benchmark themselves at both national and local level across a wide range of public health indicators. This will in turn drive improvements, in particular through sector led improvement.

92. It is not the intention of the Public Health Outcomes Framework to provide local authorities with a prescriptive list of priorities, but rather to enable them to make informed decisions at a local level about priorities. Without the information published via the framework, there is a risk that local authorities will not focus their resources on the right areas of public health.

93. Through the publication of the outcome indicators, there will also be a related inherent benefit through more health information being readily available in the public domain.

Measuring and publishing outcomes indicators as part of the Public Health Outcomes Framework will incentivise cost-effective interventions

94. There is evidence to suggest that cost-effective interventions exist which local authorities could implement for indicators they prioritise at a local level. We have examples of cost-effective interventions for a number of illustrative indicators in **Annex 2**.

95. In addition, the calibration analysis presented in **Annex 5** shows the impact of a 10% improvement in a number of the indicators on life expectancy. Extending and presenting this kind of analysis will provide a means by which local authorities, with knowledge of the costs of interventions, can apportion costs to benefits at a later stage and determine cost-effective ways of making improvements locally.

96. A number of PHOF indicators will be included in the Health Premium – an annual payment to local authorities based on performance. This will provide additional incentives for local authorities to make cost-effective improvements in certain key areas of public health. The Health Premium is currently under development.

Synergies across the NHS, Adult Social Care and Public Health Outcomes Frameworks will save resources compared to the burden of previous top-down performance management structures

97. One of the most important aims of the Public Health Outcomes Framework will be to support local partners to work together where they share common outcome goals.

98. This is why it has been critical to work with the teams leading on the partner frameworks for the NHS, adult social care and others from the outset to avoid creating barriers, which might act against delivery. The aim is that the three frameworks align well and tell the 'story' of health from a whole systems approach. A core function of public health is tackling the wider determinants of health and wellbeing, whereas the NHS and adult social care Adult Social frameworks cover those outcomes for people who are in need of health and social care.

99. By sharing the same or complementary measures between sectors, there is a stronger incentive for local services to work together and measure their progress on the same basis.

100. As there are no levels of ambition being set alongside the Public Health Outcomes Framework, we cannot quantify an estimated total benefit of the framework. However, in the examples in **Annex 2** some possible interventions for the indicators have been assessed and the benefits of improvements relating to these interventions have been quantified in terms of QALYs. For example, NICE public health guidance on reducing differences in the uptake of immunisations estimates that an intervention to immunise Traveller children against measles (costing £2.7m nationally) would generate a net benefit of 2,500 QALYs, valued (using the DH valuation of a QALY) at £150m.

iii. Set out the assumptions on which projections for Option 2 have been based, and the risks to which they are subject

Improvements in PHOF indicators will reflect improvements in public health performance as a whole

101. This Impact Assessment assumes that selected indicators will represent accurately the overall outcomes that are achieved in public health. However, there are risks associated with this assumption.

102. There is a risk that the framework itself may distort incentives and behaviours in undesirable ways. Public health service providers may disproportionately focus their efforts on the indicators presented in this framework, which could have a negative impact on other areas of public health that are important, but outside the scope of the framework. This risk will be heightened if certain indicators in the Public Health Outcomes Framework are incentivised as part of the Health Premium.

103. We considered this issue when selecting the final indicators to be included in the Public Health Outcomes Framework; all indicators were assessed against a criterion relating to whether indicators may be vulnerable to perverse incentives (this was a sub-criterion under the criterion on whether a measure was fit for purpose – see **Annex 4**).

104. The risk can be further mitigated by ensuring that the Public Health Outcomes Framework indicators are (and continue to be) representative of public health as a whole. The framework structure and list of indicators was co-produced with representatives from across government and the public health system. In particular, we wanted to ensure that they felt the set of indicators were representative and balanced. In addition, we used a comprehensiveness measure to analyse the final set of indicators – to consider how the set covered different life stages. Full details of this are in **Annex 3**.

105. Despite the fact that the development and design of the Public Health Outcomes Framework has included precautions, which should mitigate this risk, in some cases the framework may still lead to perverse incentives. Therefore, it will necessary to monitor the functioning of the framework closely and to review the list of outcomes indicators regularly. Full details of this are set out in the Post Implementation Review (PIR) Plan in **Annex 1**.

Outcomes framework indicators are attributable to the actions of public health service providers

106. This Impact Assessment assumes that the outcomes included in the Public Health Outcomes Framework will be attributable to service providers, and therefore will be useful in assisting local people to hold service providers to account.

107. However, for many of the outcomes included in the framework, there will be external factors that will also have a significant impact on outcomes achieved by local service providers, e.g. characteristics of the local population they are serving.

108. To mitigate this risk, as part of the selection process one of the criteria we assessed against was whether indicators were amenable to public health intervention. We also considered, for the illustrative examples in **Annex 2**, for what factors it may be appropriate to risk adjust.

109. Further work on risk adjustment will also be useful to mitigate the risk that outcomes indicators are not fully comparable across different local areas. If this risk is not mitigated it could lead to the framework being discredited if people do not feel they can use it to robustly compare their local area with others around the country.

Public health service providers will know how to improve outcomes, and improvements are achievable and affordable

110. It is assumed that there is room for improvement in the selected public health outcomes. The section on current performance in the examples in **Annex 2** give evidence that for these specific examples

there is room for improvement, e.g. international comparisons show that for some indicators performance could be improved to bring it into line with comparable European countries.

111. It is assumed that actions required to improve outcomes are achievable and affordable. Analysis of possible interventions that could be used for several indicators are presented in the illustrative examples in **Annex 2**. These examples provide evidence that cost-effective interventions are possible for indicators in the framework.

112. It is also important to consider the timeliness of actions by public health providers on outcomes, since some actions will take a long time to show an effect. For example, improvements in healthy life expectancy (one of the overarching outcomes) will show over a longer time period than many of the indicators in the Public Health Outcomes Framework.

iv. Set out the expected impacts on Equality and Human Rights

113. The expected impacts on Equalities and Human Rights is set out in a separate Equality Impact Assessment.

114. In terms of impacts on Health and Wellbeing, a central aim of the Public Health Outcomes Framework is to improve and protect the nation's health and wellbeing and to improve the health of the poorest fastest. Therefore, this policy is designed to have a positive impact on health and wellbeing.

F. Summary and weighing of options

Provisional net costs of Option 2

115. The estimated Net Present Value of the project over 10 years and assuming a discounting rate of 3.5% is:

Total costs £million	High	Low	Best
Transition financial costs	1.1	0.6	0.85
Annual financial costs	0	0	0
Total transition costs including opportunity costs	1.23	0.71	0.97
Total annual costs including opportunity costs	0.2	0.17	0.185
NPV over 10 years including opportunity costs	**3.84**	**2.60**	**3.22**

116. There are a number of costs relating to the collection and dissemination of indicators in the Public Health Outcomes Framework that are currently uncertain but costs presented in this IA are the best estimates available with the current information we have. Over time, as indicator definitions are finalised, it will be possible to refine the cost estimates.

117. **Annex 2** contains a number of illustrative examples where costs and benefits have been more fully analysed.

Summary

118. Option 2, the development of a Public Health Outcomes Framework, is the preferred option.

119. We feel that the do nothing approach, Option 1, is not a viable approach because there would be no mechanism in place to provide focus for (and monitor) improvements within the public health system.

120. The Public Health Outcomes Framework will inform public scrutiny and focus attention on key areas of public health. In particular it will provide a tool for local authorities to benchmark themselves nationally and locally, which will encourage local partners to work together to implement cost effective interventions to improve performance. There is evidence in **Annex 2** to suggest that such cost-effective interventions exist and the calibration analysis in **Annex 5** provides evidence of the relative benefits of improvements of individual PHOF indicators on one of the overarching aims of the framework – improved healthy life expectancy.

121. The costs for the implementation of a Public Health Outcomes Framework have been outlined in this Impact Assessment and are relatively small as the majority of the indicators are based on existing data sources.

122. As we have not been able to quantify the benefits of the framework, we have instead estimated the minimum benefits that would be required in order for the framework to be cost effective based on the estimated costs. As the total best estimate of the cost is £3.22m over 10 years (NPV calculation assuming a discounting rate of 3.5%), in order for the framework to break even in terms of costs / benefits it would need to generate a QALY gain of approximately 130 QALYs. Using the quantified benefits of the interventions presented in **Annex 2** for just a small number of the PHOF indicators, we are able to conclude that this is achievable.

Annex 1: Post Implementation Review (PIR) Plan

Basis of the review:

Political Commitment

Review objective:

This review will examine the first five years of operation of the Public Health Outcomes Framework and assess whether it has achieved its objectives (of driving improvement in outcomes and reducing variation) as well as suggest any necessary changes. It will be a chance to examine the effect of the framework in terms of improving public health outcomes but also as an accountability structure in greater depth than the annual reviews and consider more wide-ranging changes to the framework as a whole.

Review approach and rationale:

The review will examine the evolution of Public Health Outcomes Framework indicators over this period. The focus will be on analysing the public health Outcomes Framework as a driver for public health outcome improvements as well as its effect as an accountability framework.

It will examine issues such as:

(i) the extent to which the outcomes still reflect the priorities government wish the public health system to focus on and whether the selection of indicators is still fit for purpose

(ii) whether improvements in Public Health Outcomes Framework indicators have reflected improvements in overall performance of the public health system

(iii) the incentive effects of the framework including any evidence of perverse incentives or gaming

(iv) the interaction of the Public Health Outcomes Framework with the NHS and Social Care Frameworks: Coherence between all three DH frameworks should be assessed as part of an overall evaluation of whether the frameworks are the best way to galvanise efforts to improve outcomes

(v) the alignment between the Public Health Outcomes Framework and other (non DH) outcomes frameworks - for instance the Children's Services Framework being produced by C4EO - that are produced in the next five years.

Baseline:

We will look to compare current evidence of variability in quality and outcomes (set out in part A of the main document) with that at the time of PIR. In order to identify the contribution of the Outcomes Framework to any reduction in variability and improvement in outcomes, we will look to identify international comparator countries that do not have Outcomes Frameworks. We will also compare different areas of the country where engagement and support have been effective with those where it has been less so, in order to determine the potential of the framework.

Success criteria:

- An assessment of whether the selection of indicators still reflect the government's priorities for the public health system

- An assessment of whether the framework indicators are representative of overall public health performance and improvements in the selected indicators are indicative of an overall improvement in public health performance

- An assessment of whether the indicators are worded correctly to achieve the desired outcomes, and whether the data sources used to support the indicators are fit for purpose

- Evidence that the incentive effects of the Public Health Outcomes Framework have been positive and that the incidence of perverse incentives has been limited

- An assessment of the appropriate interaction with the NHS and Social Care Frameworks

Monitoring information arrangements:

We will use informal channels of feedback to review the approach on an ongoing basis, and the formal PIR will involve a more thorough use of these channels through feedback sessions. We will consult with established co-production groups (including stakeholders from LAs, OGDs, PHE and Public Health Professionals) to form a view on the level of engagement with the information.

Annex 2: Examples of current performance and scope for cost effective interventions for PHOF indicators

123. For the purposes of this Impact Assessment, we have done further analysis on a number of indicators to illustrate more fully the costs and benefits described in **Section E**.

124. The indicators used in this section have been chosen to represent outcomes across the four domains of the framework.

125. For each illustrative example the analysis can be divided into the following sections:

    • Current performance on the outcome (including international comparisons)

    • Effect of a 10% improvement in the outcome; analysing the incremental contribution of an indicator to the overarching aims of improving healthy life expectancy and reducing health inequalities between the most and least deprived groups

    • Modifiable risk factors associated with the outcome and examples of existing work on risk adjustment

    • An analysis of the cost effectiveness of possible interventions to improve performance

Illustrative example for domain 1: Killed and seriously injured casualties on England's roads

Current Performance

126. In 2010, 21,255 road users were reported killed or seriously injured (KSI) in road accidents in England. Of this, 1,553 were killed and 19,702 seriously injured. Figure 1 below illustrates the number of KSI casualties in England between 2001 and 2010, and compares these with the average for 1994-1998. Figure 2 shows the KSI casualty rate per million population in England between 2005 and 2010, comparing the rates to the 2005-2009 average. Figure 3 then shows the KSI casualty rate per billion vehicle miles in England for the same time period.

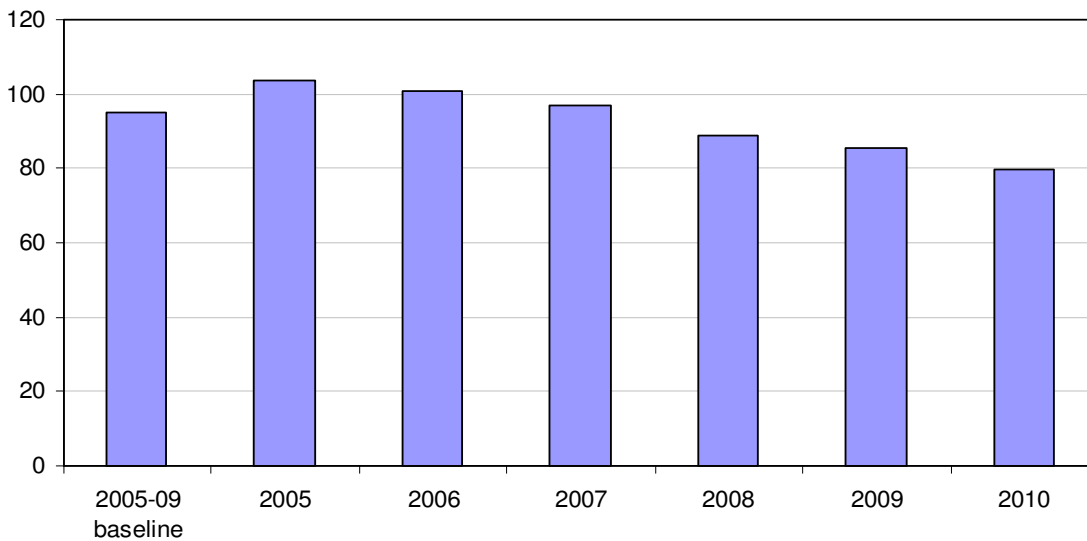**Figure 1: England Road Casualties - Killed or Seriously Injured**
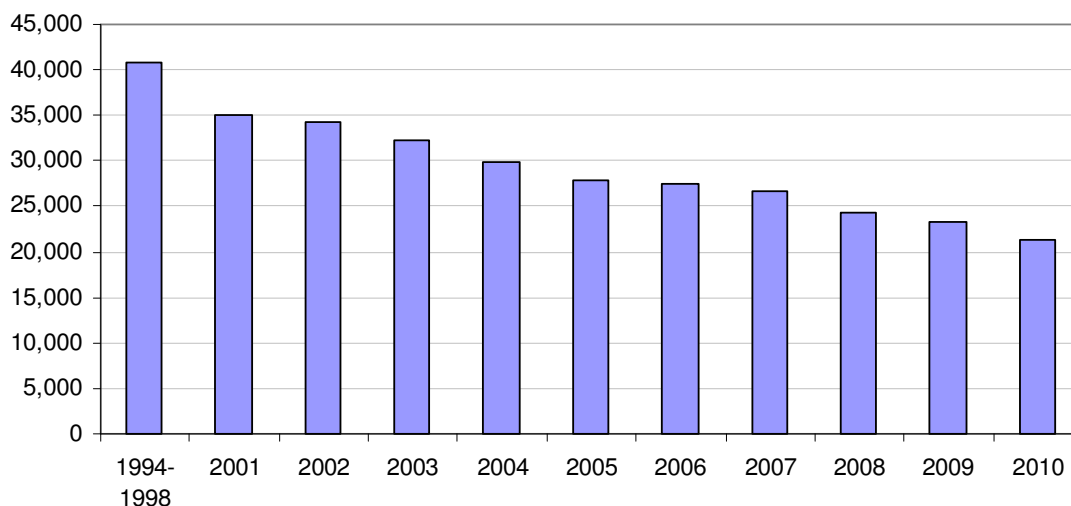
Source: DfT Statistical releases 2001-2010, ONS population estimates

Figure 2: England Road Casualties - KSI per million population
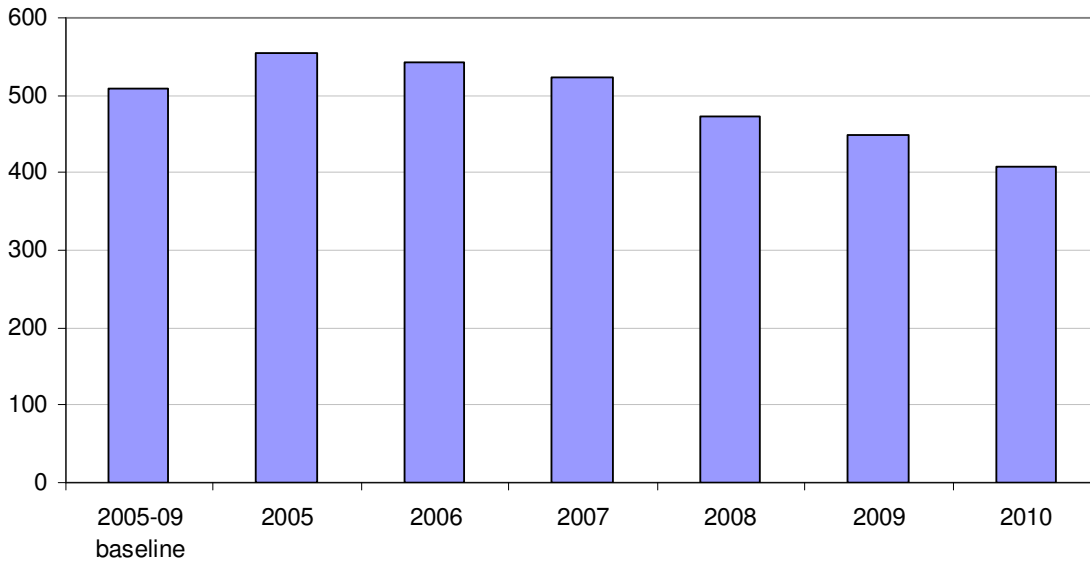
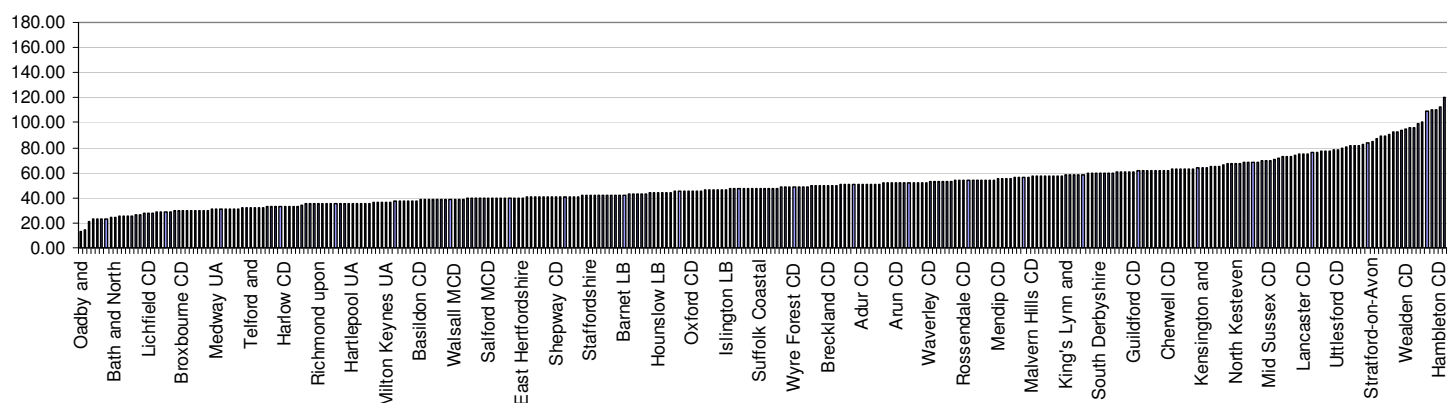*Source: DfT: Reported Road Casualties Great Britain, 2010*

Figure 3: England Road Casualties - KSI per billion vehicle miles

Source: DfT: Reported Road Casualties Great Britain, 2010

127. Figure 4 illustrates the variation of KSI casualties by local authority in 2010. This is calculated as the three-year average (2007-2009) of the number of people killed or seriously injured on the roads of a local authority in the period, as a proportion of 2001 census based mid-year population estimate for the year 2008 multiplied by 3. The rate varied from 13.68 KSI per 100,000 persons in Oadby and Wigston to 155.2 in Ryedale.

Figure 4: Road KSI (rate per 100,000 population) by English Local Authority 2007-09

Source: 2011 Local Health Profiles

International Comparisons

128. Figure 5 below compares England to EU countries in terms of road fatalities rates per million population in 2010. Road fatalities are chosen for international comparisons as the definitions of 'killed or seriously injured' vary within the EU, causing limitations to comparisons of statistics.

Figure 5: EU road fatalities per million population - 2010
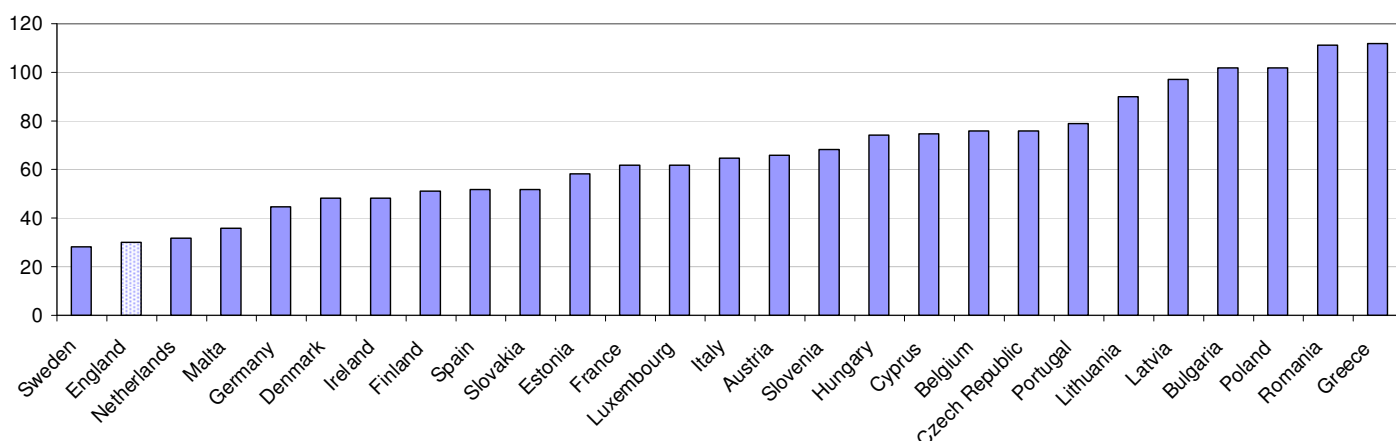
Source: European Commission Road Safety CARE database/DfT: Reported Road Casualties Great Britain, 2010

Effect of a 10% improvement in the indicator on life expectancy

129. A 10% improvement in KSI road users on 2010 would result in approximately 155 fewer deaths and 1907 fewer serious injuries per year. The Health Improvement Analytical team has estimated that eliminating all road transport deaths would result in an average increase in life expectancy of 0.16 years. Assuming linearity, it is therefore estimated that a 10% improvement in KSI road users would lead to an increase of life expectancy of at least 0.016 years.

130. In addition to this, life expectancy would be increased due to a lower number of serious injuries. This effect, however, is not calculated here.

Modifiable risk factors associated with the indicator

131. In its 2004 'World report on road traffic injury prevention' the World Health Organization divides risk factors for road traffic injuries into four broad categories:

1) Factors influencing exposure to risk:

- Economic factors, including social deprivation
- Demographic factors

- Land use planning practices which influence the length of a trip or travel mode choice
- Mixture of high-speed motorized traffic with vulnerable road users
- Insufficient attention to integration of road function with decision about speed limits, road layout and design

2) Risk factors influencing crash involvement:

- Inappropriate or excessive speed
- Presence of alcohol, medicinal or recreational drugs
- Fatigue
- Being a young male
- Being a vulnerable road user in urban and residential areas
- Travelling in darkness
- Vehicle factors – such as braking, handling and maintenance
- Defects in road design, layout and maintenance which can also lead to unsafe road user behaviour
- Inadequate visibility due to environmental factors (making it hard to detect vehicles and other road users)
- Poor road user eyesight

3) Risk factors influencing crash severity

- Human tolerance factors
- Inappropriate or excessive speed
- Seat-belts and child restrains not used
- Crash helmets not worn by users of two wheeled vehicles
- Roadside objects not crash protective
- Insufficient vehicle crash protection for occupants and those hit by vehicles
- Presence of alcohol and other drugs

4) Risk factors influencing severity of post-crash injuries

- Delay in detecting crash
- Presence of fire resulting from collision
- Leakage of hazardous materials
- Presence of alcohol and other drugs
- Difficulty in rescuing and extracting people from vehicles
- Difficulty evacuating people from buses and coaches involved in a crash
- Lack of appropriate pre-hospital care
- Lack of appropriate care in the hospital emergency rooms

132. Whilst it is clear that not all of the above can be classed as 'modifiable' risk factors, there are also many that may be subject to modification through policy intervention, such as the presence of alcohol and other drugs, or the use of seatbelts and crash helmets.

Illustrative example for domain 2: Prevalence of recorded diabetes

Current Performance

133. Approximately 2.3 million people have been diagnosed with diabetes in England (2009/2010). Figures 1 and 2 below illustrate the number of cases and prevalence of diabetes mellitus between 2004/2005 and 2009/2010.

Figure 1: Diabetes mellitus cases – England (over 17 years)
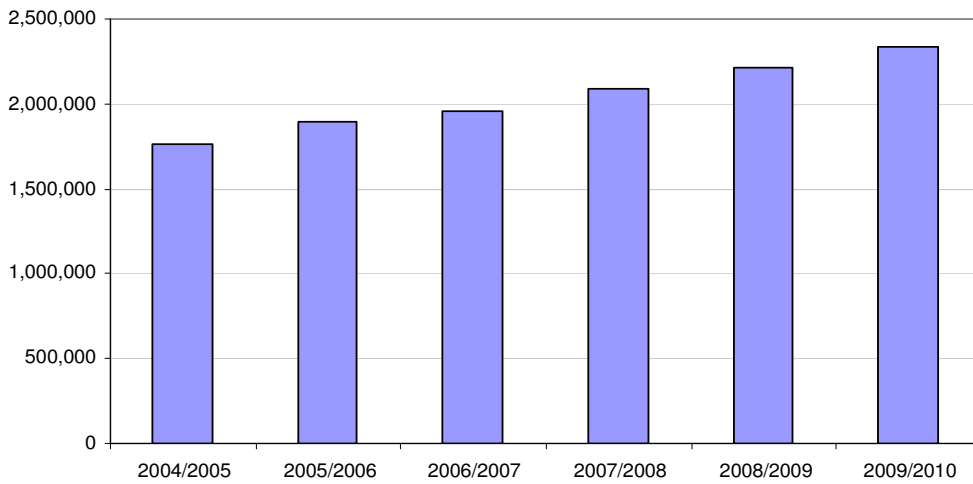
Source: Quality and Outcomes Framework

**Figure 2: Diabetes mellitus prevalence – England (over 17 years)**
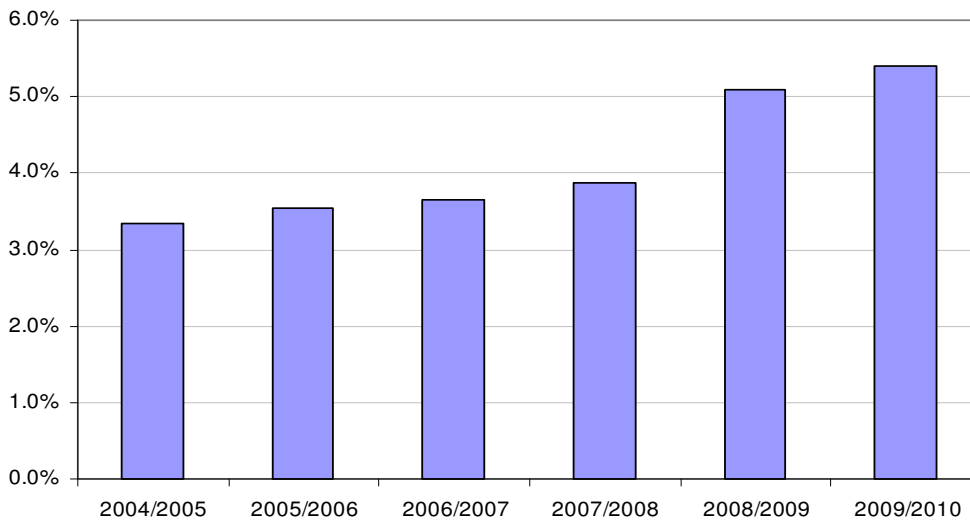
Source: Quality and Outcomes Framework

134. It is estimated that about 10% of people with diabetes have Type 1 diabetes, and 90% have Type 2 diabetes[2].

135. Figure 3 illustrates the variation of diabetes prevalence by local authority in 2009/2010. The rate varied from 3.28 in Cambridge to 7.87 in East Lindsey.

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[2] Diabetes in the UK 2010: Key statistics on diabetes, Diabetes UK

**Figure 3: Diabetes mellitus prevalence (%) by local authority 2009/2010**
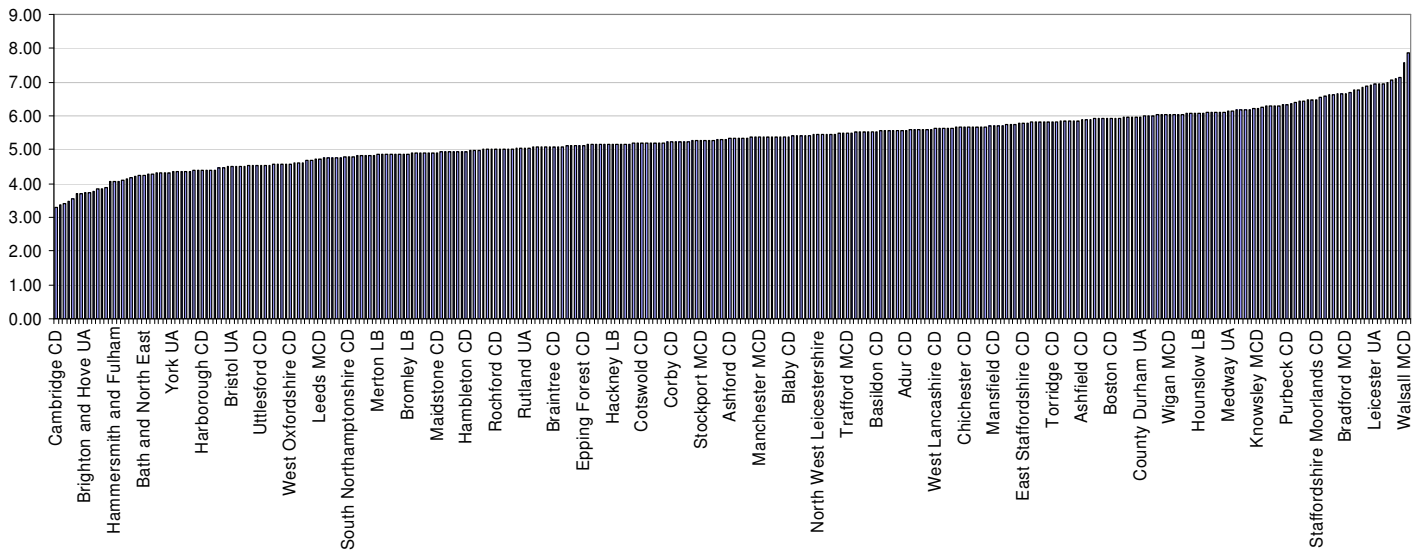
International Comparisons

136. Figures 4 and 5 compare the UK to a range of European countries in terms of estimates of diabetes prevalence in adults aged 20-79 and estimates of incidence of type 1 diabetes in children aged 0-14. Both figures capture the year 2010.

%   **Figure 4: Prevalence estimates of diabetes (%), adults aged 20-79 years, 2010**
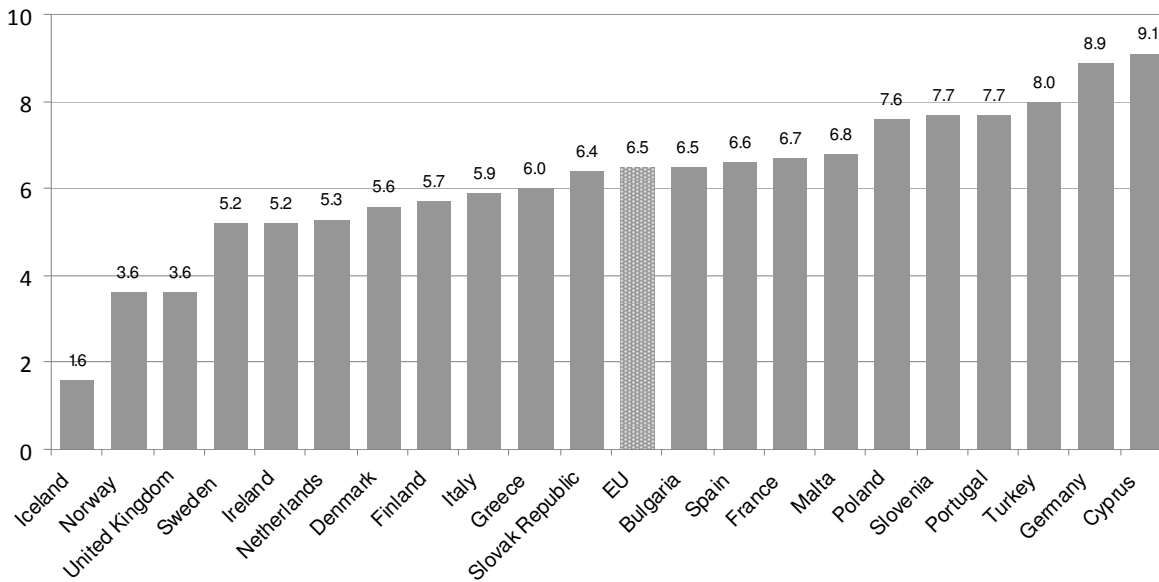
Note: The data are age-standardised to the World Standard Population.

Figure 5: Incidence estimates of type 1 diabetes, children aged 0-14 years, 2010
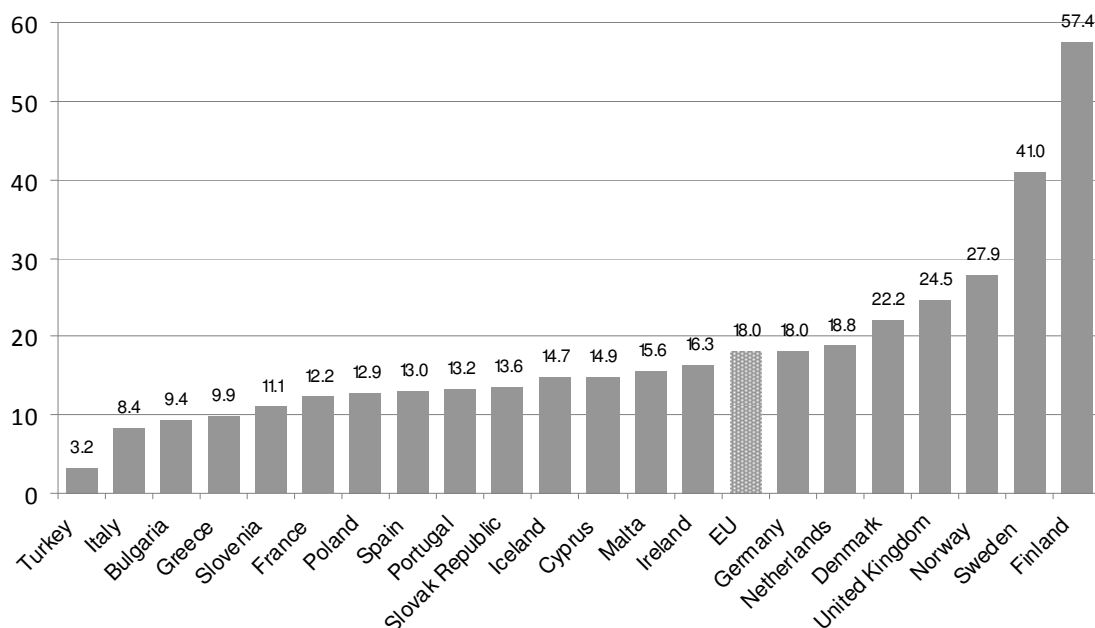
Source: Health at a Glance: Europe 2010; data source: IDF (2009)

Effect of a 10% improvement in the indicator on life expectancy

137. The effect of a 10% improvement has not been quantified. However, the Yorkshire and Humber Public Health Observatory (YHPHO) have made progress in terms of estimating the number of deaths caused by diabetes in England. It is estimated that 26,300 deaths between the ages of 20 and 79 years in 2005 can be attributed to diabetes. This represents 11.6% of all deaths in this age group. Exact figures are not available as diabetes is often not recorded on the death certificate as a cause of death, although it is proven to increase the risk of heart disease and stroke. YPHO have also estimated the relative risk of death with diabetes versus without (Figure 6).

Figure 6: Relative risk of death with diabetes versus without

	20 - 39 years	40 - 59 years	60 - 79 years
Males	2.54	2.17	1.91
Females	3.76	2.54	2.53

*Source: YHPHO: Diabetes Attributable Deaths: Estimating the excess deaths among people with diabetes*

Modifiable Risk Factors

138. Risk factors are different for Type1 and Type 2 diabetes. Type 1 develops when the insulin-producing cells in the pancreas have been destroyed. Most likely, this is a result of the body having an abnormal reaction to the cells, which may be triggered by a viral or other infection. Type 2 diabetes occurs when the body is not making enough insulin or the insulin made is not being used properly – the risk of developing Type 2 diabetes can be reduced by lifestyle changes. Type 2 diabetes usually appears in middle-aged or older people although it is increasingly being diagnosed in younger overweight people[3]

[3] Diabetes in the UK 2010: Key statistics on diabetes, Diabetes UK

139. NICE Public Health Guidance 35 'Preventing type 2 diabetes: population and community-level interventions in high-risk groups and the general population' explores several risk factors for type 2 diabetes:
    - being **overweight or obese**
    - lack of **physical activity** (sedentary lifestyle)

140. This is supported by empirical evidence by Tuomilehto et al. (2001) who find that type 2 diabetes can be prevented by changes in the lifestyle of high-risk subjects – weight loss through diet adjustment or physical activity. (During this trial, the risk of diabetes was reduced by 58% in the intervention group.)

141. A report by the All Parliamentary Group for Diabetes and Diabetes UK (2006) also states that **deprivation** represents a factor in increasing the risk of diabetes, mainly through the channels mentioned above (higher incidence of obesity and insufficient physical activity), but also through limited availability of certain healthcare features (e.g. health checks).

142. Figures 7-9 illustrate the relationship between diabetes by local authority, and obesity, physical activity, and deprivation.

Figure 7: Diabetes against obestiy
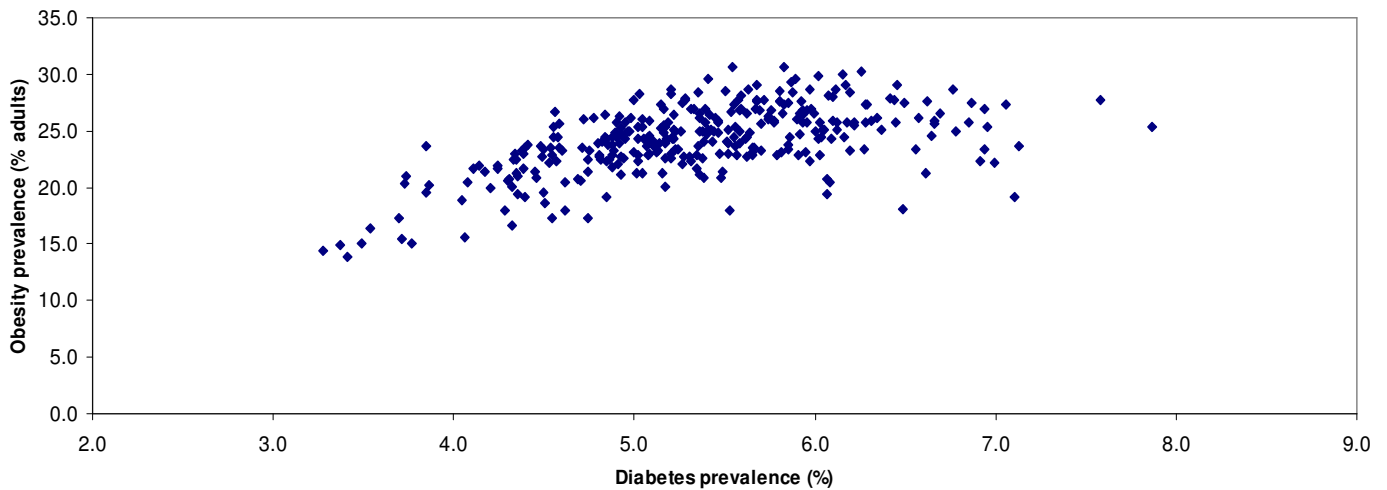
Source: 2011 Local Health Profiles

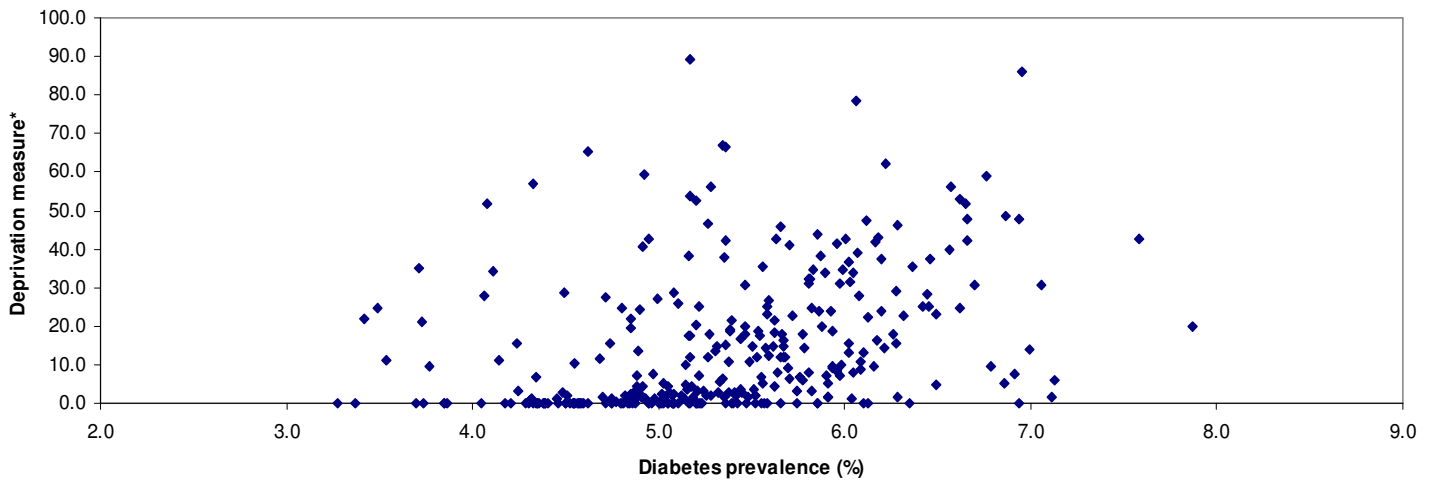**Figure 8: Diabetes against physical activity**
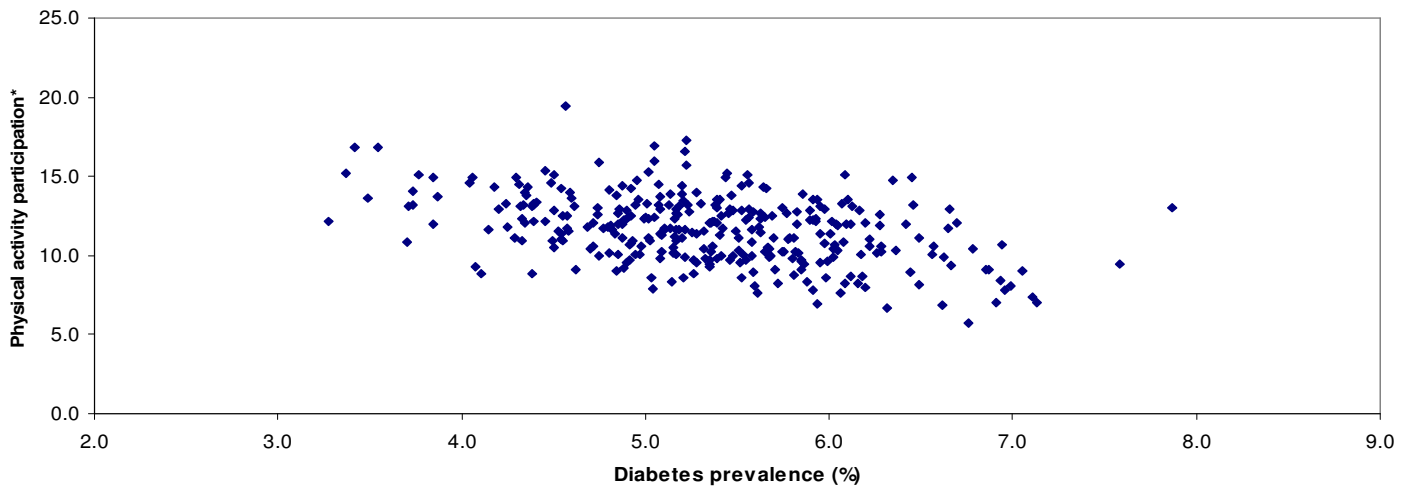
* Adult participation in moderate intensity sport and active recreation on 20 or more days in the previous 4 weeks
Source: 2011 Local Health Profiles

Figure 9: Diabetes against deprivation

* Percentage of population living in the most deprived national quintile
Source: 2011 Local Health Profiles

Cost Effectiveness of interventions to improve performance

143. NICE public health guidance 35 shows that weight-loss programmes in black and minority ethnic and Asian populations (found to be at higher risk of Type 2 diabetes) in England that cost £100 per head and yielded an average weight loss of at least 1 kg were cost effective at a cost per QALY threshold of £20,000. Interventions that could produce an average weight loss of 3-4 kg would be cost saving.

144. An intervention programme applied at the population level that resulted in an average weight loss of 0.25 kg would be cost effective at the £20,000 threshold if the cost per head of the intervention was £10. NICE recommends a balance of individual-level interventions of large effect aimed at high-risk individuals with cheaper interventions of small effect to individuals that could be cost effective when applied across whole populations.

Illustrative example for domain 3: Population vaccination coverage

Introduction

145. Data on vaccination coverage are available at PCT level, but not local authority level. The following gives examples of the data published by the Information Centre on the regular childhood vaccines apart from neonatal hepatitis vaccine, for which results are not reported due to the patchiness of the data. Coverage rates are available for only 85 of 151 PCTs (although 40 of those PCTs without a coverage rate had a zero denominator i.e. no mothers with maternal Hep B positive status). We also report coverage rates for HPV vaccination and influenza vaccination in those aged 65 and over. Secondly, we consider the impact of vaccine coverage on health and, thirdly, we discuss the cost-effectiveness of measures to improve vaccine coverage.

Current Performance

Childhood vaccinations

146. Table 1 shows the coverage of childhood vaccinations for England at first, second and fifth birthdays, for the period January-March 2011.

Table 1: childhood vaccine coverage at one, two and five years – England (%)

Vaccine		1st birthday	2nd birthday	5th birthday
DTaP/IPV/Hib%		94.2		
MenC2%		93.6		
PCV2%		93.8		
DTaP/IPV/Hib%			96.1	
MenC%			95.2	
PCV Booster%			89.7	
Hib/MenC%			91.7	
MMR%			89.5	
DT/Pol	*Primary*			95.1
Hib	*Primary*			94.5
MenC	*Primary*			92.7
MMR	*1st dose*			92.2
	2nd dose			84.5
DTaP/IPV	*Booster*			86.0
Hib/MenC	*Booster*			80.8

Source: Information Centre

147. Figure 1 illustrates the variation across PCTs for the coverage of one of these vaccines, namely DTaP / IPV / Hib. For the period January-March 2011, coverage varied between a low of 75.4% in Bournemouth and Poole PCT (possibly due to a backlog of data entry in this PCT) and a high of 98.5% in South Gloucestershire PCT. 90% of observations fell between 89.3% and 97.4%.

Figure 1: DTaP/IPV/Hib coverage by PCT (%) - 1st birthday
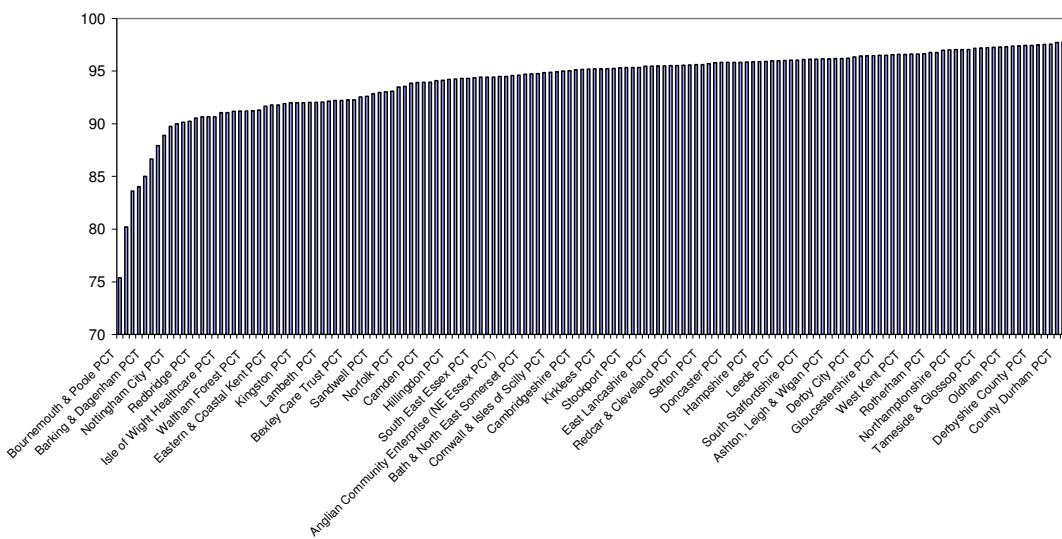
Source: Information Centre

148. Table 2 illustrates the change in childhood immunisation coverage over time.

Table 2: change in coverage of childhood vaccinations over time

|	Diphtheria	Tetanus	Polio	DTaP/IPV/Hib	Pertussis	Hib	MenC	PCV
1997-98	92.5	92.5	92.5		91.4	92.2		
1998-99	92.0	92.0	92.0		91.1	91.7		
1999-2000	92.0	92.0	92.0		91.2	91.8		
2000-01	91.2	91.0	91.1		90.5	90.9		
2001-02	90.7	90.7	90.5		90.2	90.5	89.1	
2002-03	90.9	90.9	90.8		90.5	90.7	90.0	
2003-04	90.9	90.9	90.9		90.6	90.8	90.2	
2004-05	90.1	90.1	90.0		89.9	89.9	89.6	
2005-06	91.4	91.3	91.3		91.4	91.3	90.9	
2006-07				91.1			91.0	
2007-08				91.3			90.3	83.7
2008-09				92.0			91.2	91.3
2009-10				93.6			92.7	92.9

Note: DTaP/IPV/Hib = diphtheria, tetanus, polio, pertussis (whooping cough), haemophilus influenzae type b (Hib), PCV = Pneumococcal disease

Source: Information Centre

<u>HPV vaccination</u>

149. Data are available for routine HPV vaccination in year 8 females as well as for the catch-up campaign in years 10 to 13. Figure 2 illustrates, for 2009/10, the variation by PCT in the proportions of 12-13 year-olds (year 8) receiving all three doses of the routine HPV vaccine. The lowest recorded figure was in Rotherham PCT at 15.4% although coverage of doses one and two was around 80%. The highest was 95.6% in Great Yarmouth and Waveney.

Figure 2: HPV vaccine coverage: 12-13 year-olds (routine), England 2009/10, all 3 doses (%)
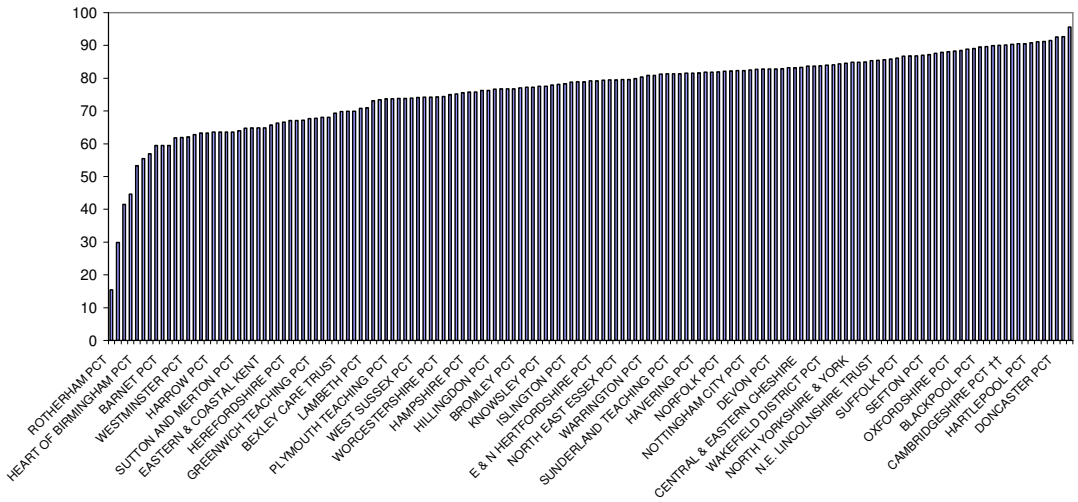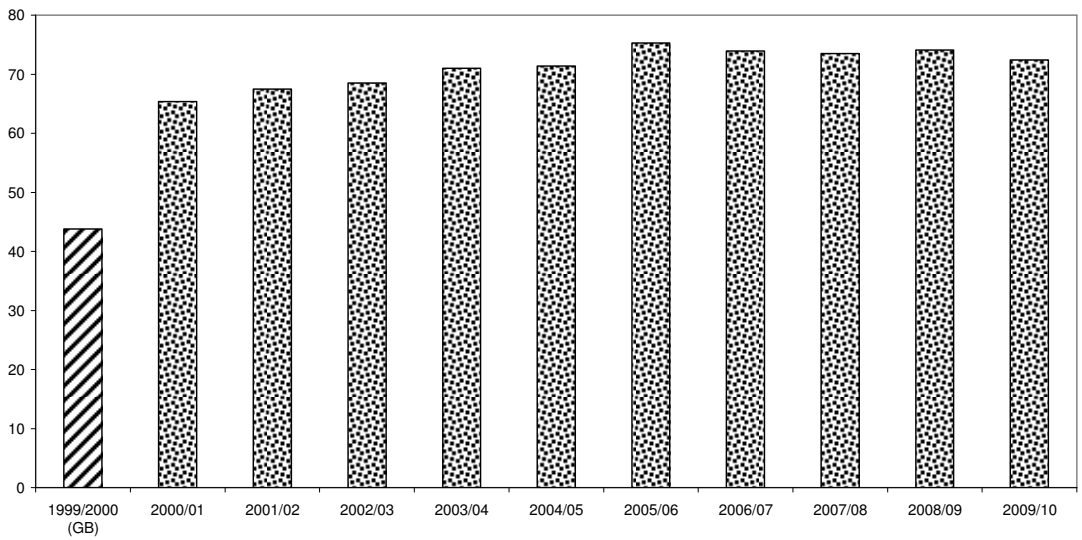

Source: DH
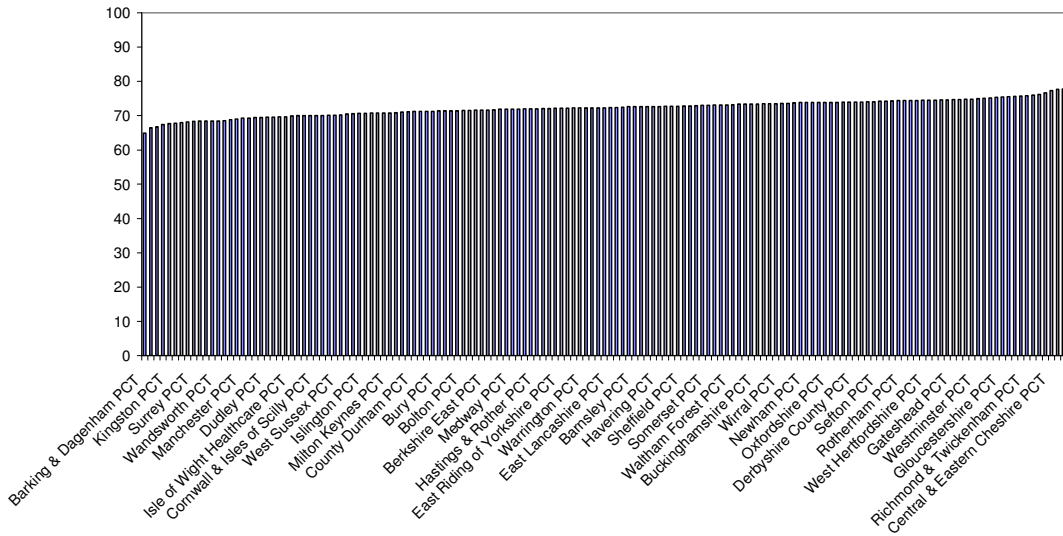
<u>Influenza vaccine – 65+ age group</u>

150. Figures 3 and 4 illustrate how influenza vaccine coverage has changed over time and the variation in coverage by PCT for 2009/10 in those aged 65 and over.

Figure 3: Influenza vaccine uptake in those aged 65+ (%), England

Source: Information Centre

**Figure 4: Influenza vaccine coverage, England 2009-10, by PCT**

*Source: Information Centre*

International comparisons

151. Figures 5 and 6 compare the UK against a range of other European countries in terms of measles vaccination coverage among children aged two years and of influenza vaccination among those aged 65 and over, respectively.

Figure 5: Vaccination rates for measles (%), children aged 2, 2008 (or nearest available year)
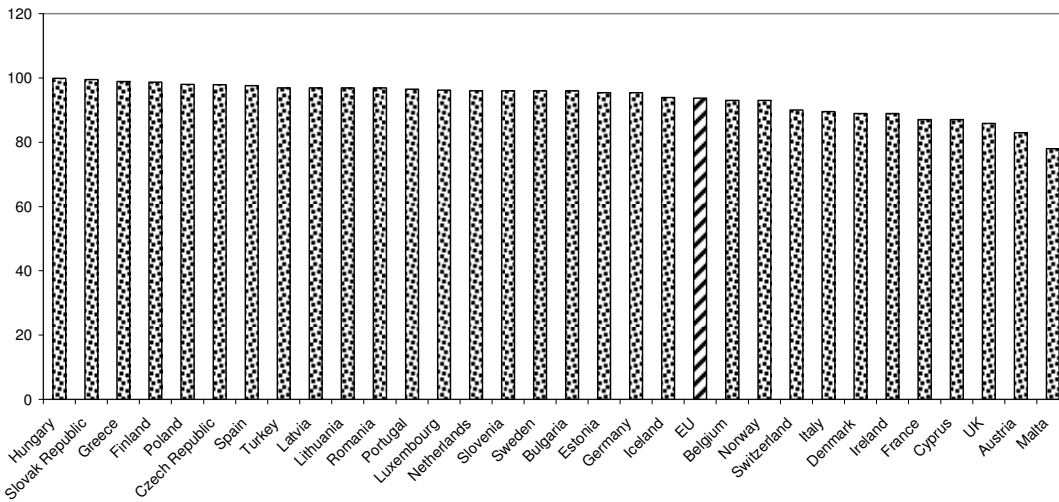
Source: OECD

Figure 6: Influenza vaccination coverage (%), population aged 65+, 2008 (or nearest available year)
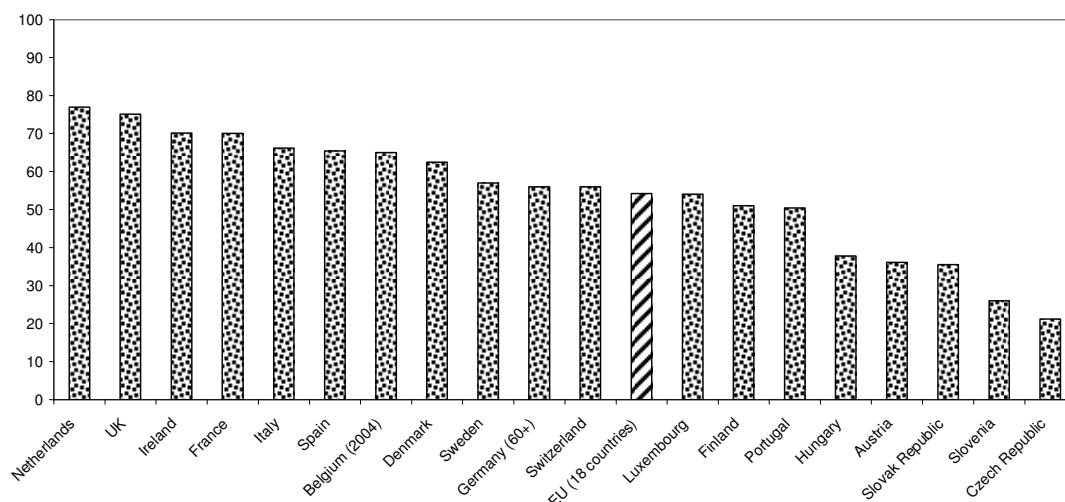
Source: OECD

Effect of a 10% improvement in the indicator on life expectancy

152. The Health Protection Analytical Team has estimated that withholding the existing ten routine vaccinations from a year's worth of children would result in the loss of 320,000 QALYs. This equates to approximately 0.52 years of life expectancy. Leaving aside issues of non-linearity, it is estimated that a 10% increase in vaccine coverage would have an impact on life expectancy of 10% of this, i.e. 0.05 years. This based partly on work relating to measles vaccine undertaken for the NICE public health guidance on reducing differences in the uptake of immunisations. This guidance has also addressed the cost-effectiveness of increasing the coverage of vaccination.

Cost Effectiveness of interventions to improve performance

153. NICE public health guidance 21 on reducing differences in the uptake of immunisations estimates that an intervention costing £2.7m to immunise Traveller children against measles would generate a net cost saving. Across England and Wales, the programme is estimated to generate 2,500 QALYs, valued (using the DH valuation of a QALY) at £150m. The model could be applied to immunisation among any target group.

154. Hepatitis B vaccination (HBV) of infants born to HBV surface antigen positive mothers was also found to be cost-effective, indicating that it would be worth devoting additional resources to ensuring high coverage in this group.

Illustrative example for domain 4: Infant Mortality

Current Performance

155. Figure 1 shows the trend in infant mortality per 1000 live births in England and Wales between 1999 and 2009, falling from 5.8 to 4.5.

Figure 1: Infant mortality per 1000 live births - England and Wales
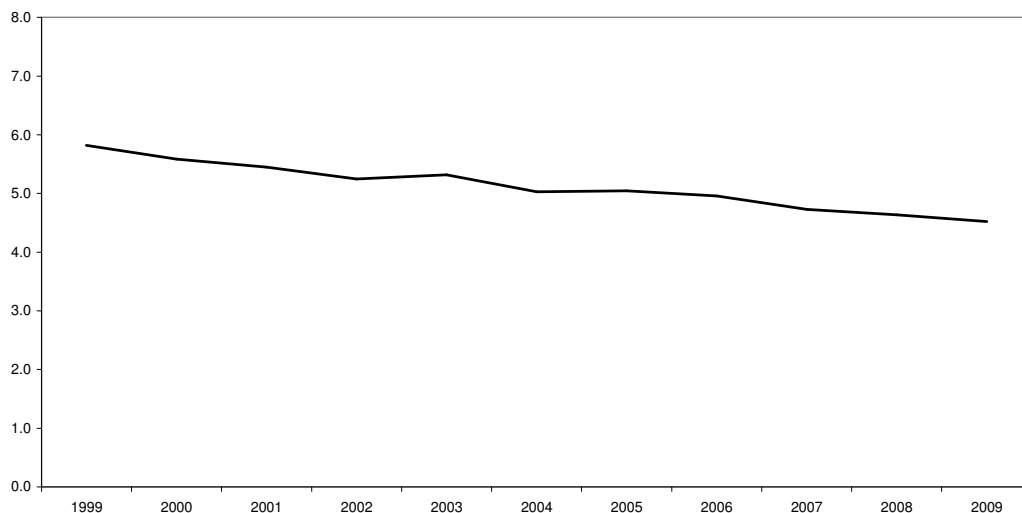
Source: ONS

156. Figure 2 illustrates the variation in infant mortality by local authority (LA) for the period 2007-2009. The rate varied from 0.68 (West Devon) to 10.63 (Newcastle-under-Lyme), with an average of 4.7.

Figure 2: Infant mortality by English local authority 2007-2009
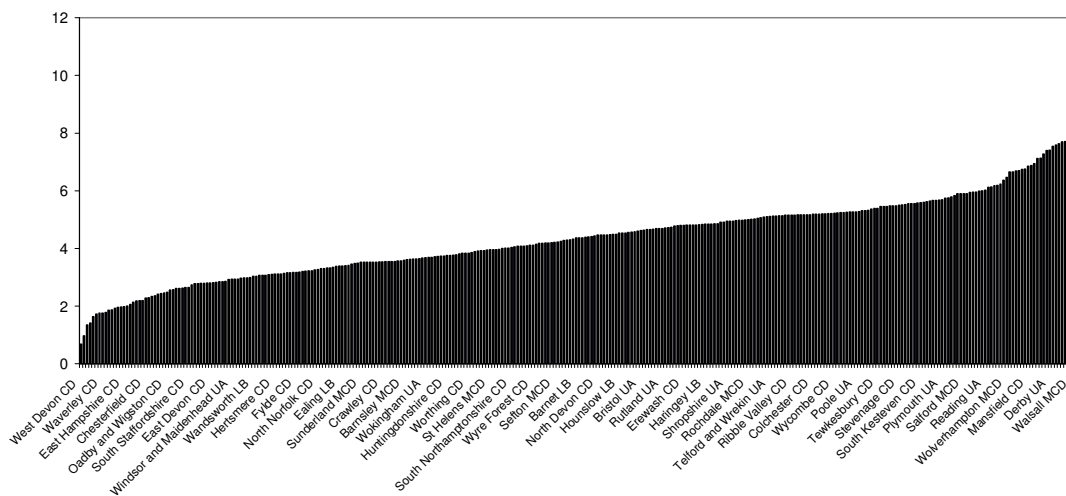
Source: 2011 Local Health Profiles

International comparisons

157. Figure 3 compares infant mortality rates across a range of European countries for 2007 (unless otherwise stated). Note that it is difficult to make valid infant mortality comparisons concerning infant mortality due to different definitions and registration systems.

Figure 3: Infant mortality per 1,000 live births, 2007

Source: WHO Health For All database

Effect of a 10% improvement in the indicator on life expectancy
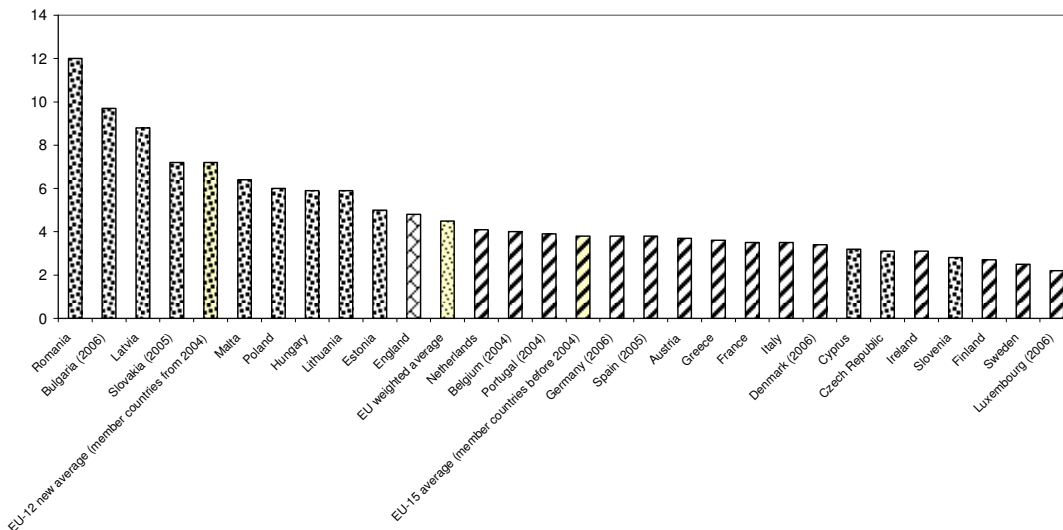
158. Elimination of infant mortality is estimated to increase life expectancy in males from 77.73 years to 78.16 years and, in females, from 81.85 to 82.21 years, an average increase of 0.4 years. Leaving aside issues of non-linearity, it is estimated that a 10% improvement in infant mortality would have an impact on life expectancy of 10% of this, i.e. 0.04 years.

Modifiable risk factors

159. The following have been cited (Gray et al., 2009) as measures to reduce infant mortality, specifically in the context of the Public Service Agreement (PSA) infant mortality target to narrow the gap between the routine and manual group and the rest of the population:

- reducing conceptions in under 18s
- targeted interventions to prevent Sudden Unexpected Death in Infancy (SUDI)
- reducing the prevalence of obesity
- reducing overcrowding
- reducing the rate of smoking in pregnancy
- increasing early booking for antenatal care
- reducing child poverty

160. Across all England, conceptions in under 18s account for around SUDI is estimated to account for around 9% of deaths in infancy in England and Wales in 2008. According to Gray et al. (2009):

"Some specific sleeping practices such as prone sleeping position and bedsharing (particularly with a parent who has consumed alcohol or drugs) are known risk factors for SIDS, while other practices such as breastfeeding and sharing the parental bedroom are protective."

161. The higher risks associated with smoking in pregnancy, obesity and poverty give population attributable fractions (PAFs) of around 6%, 8% and 1%, respectively. The combination of these factors suggests that around 25% of infant deaths might be preventable. The PAF of failure to breastfeed has also been estimated in the routine and manual socioeconomic group (about 2%). Rates of infant mortality by socioeconomic groups (father's occupation) are compared in Table 1 and rates of sudden unexplained death for the routine and manual group versus other socioeconomic groups in Table 2.

Table 1: Infant mortality and socioeconomic group, England and Wales 2009

Father's socioeconomic group	Infant mortality
1.1 Large employers and higher managerial	3.1
1.2 Higher professional	3.1
2 Lower managerial and professional	3.4
3 Intermediate	5.2
4 Small employers and own-account workers	3.7
5 Lower supervisory and technical	3.7
6 Semi-routine	5.5
7 Routine	5.1
Other	5.7

Note: groups 5, 6 and 7 constitute 'routine and manual'
Source: ONS

Table 2: Unexplained deaths by socioeconomic group: inside marriage and outside marriage joint registration

Father's socioeconomic group	Infant mortality
All	0.35
Managerial and professional	0.14
Intermediate	0.3
Routine and manual	0.37

Source: ONS

162. Figures 4 to 6 illustrate the relationship between infant mortality by LA and index of multiple deprivation (IMD), smoking in pregnancy and rate of initiation of breastfeeding. While data on infant mortality and IMD were complete for LAs, some observations on smoking and breastfeeding were missing. These LAs have been excluded from the analysis.

Figure 4: Infant mortality against deprivation by LA
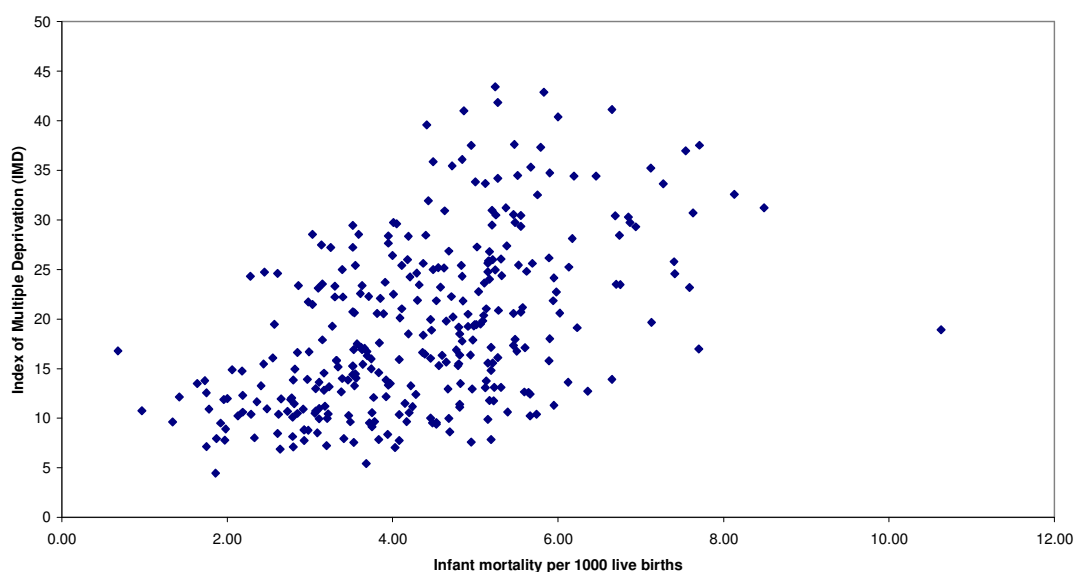
Source: 2011 Local Health Profiles, Department for Communities and Local Government

Figure 5: infant mortality against smoking in pregnancy by LA
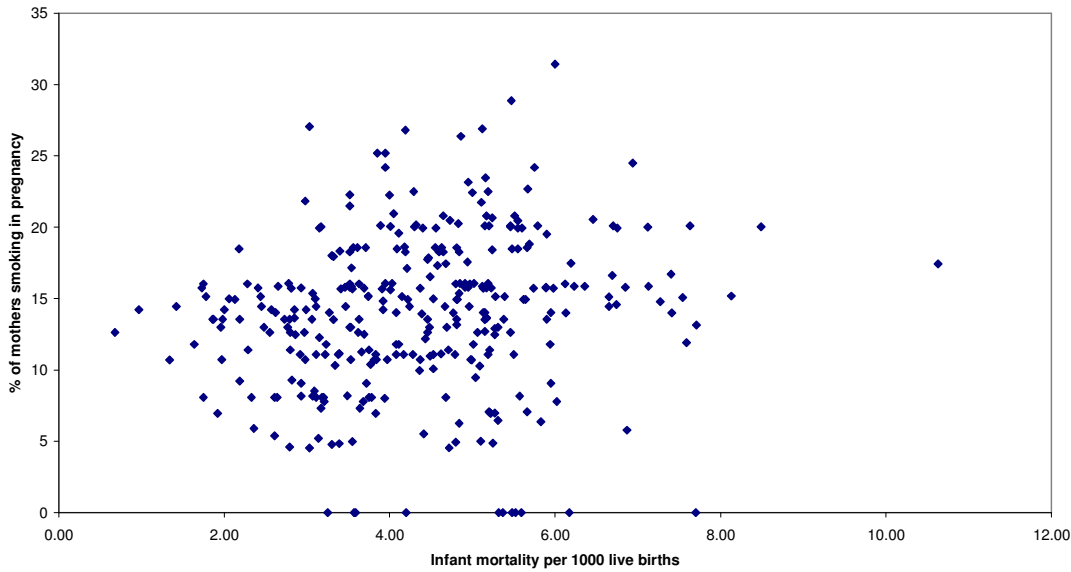
Source: 2011 Local Health Profiles

Figure 6: Infant mortality against breastfeeding by LA
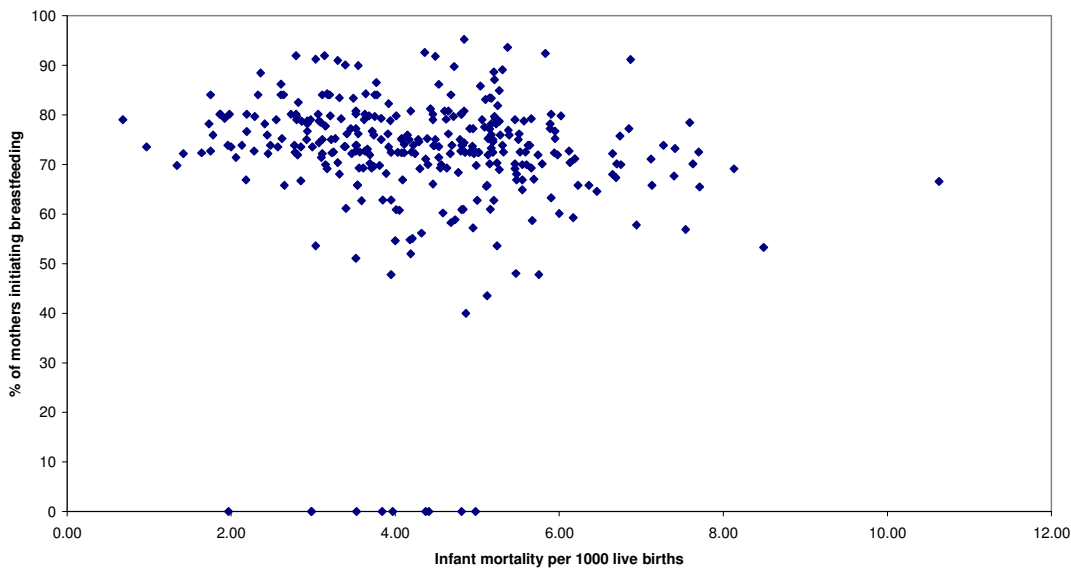
Source: 2011 Local Health Profiles

Risk adjustment

163. Using logistic regression, Messer (2011) compared infant mortality rates in singleton births by type of registration, controlling for socio-demographic characteristics. Table 3 reports the unadjusted and adjusted odds ratios for registration of birth inside marriage relative to joint registration with the same address and joint registration with different addresses. Adjustments were made for low birthweight, area deprivation, age of mother (under 20 years) and ethnicity (non-white).

Table 3: unadjusted and adjusted odds ratios for low birthweight, singleton births

Inside marriage versus:	Joint different	Sole registered
Unadjusted odds ratio	1.5	1.6
Adjusted odds ratio	1.1	1.1

Cost Effectiveness of interventions to improve performance

164. NICE has published a number of sets of public health guidance and clinical guidelines relevant to early child health. An economic model developed to support public health guidance PH11 (Improving the nutrition of pregnant and breastfeeding mothers and children in low-income households) assessed the cost-effectiveness of a peer support intervention based on a scheme introduced in north Sheffield. It was estimated that a £20,000 investment could yield savings of £5,500 and would avert almost six cases of infection requiring hospitalization in the first year of life.

165. An economic analysis prepared for public health guidance 26 ('How to stop smoking in pregnancy and following childbirth') estimated that a range of interventions, including cognitive behaviour strategies and pharmacotherapies could generate cost savings and QALY gains for mother and child. The total net benefit (based on the monetary value of QALY gains and cost savings) for a Rewards intervention (based on the 'Quit to Win' campaign is put at around £562 mn across England and Wales using NICE's approach. Because DH uses a higher value for a QALY and a lower discount rate for benefits, the net benefit according to a DH analysis would be several times greater.

Annex 3: Measuring the comprehensiveness of the set of Public Health Outcomes Framework indicators

166. This section includes an analysis of the comprehensiveness of the final set of indicators included in the Public Health Outcomes Framework.

167. We have based this assessment on how comprehensively the set of indicators cover the different life stages – starting well, developing well, living well, working well and ageing well.

168. A number of indicators will be more easy to identify as being specific to particular life stages, e.g. Infant Mortality, whilst others will be applicable across all life stages e.g. air pollution.

169. Table 1 summarises the number of indicators included in the PHOF specifically covering each life stage and table 2 (on the next page) provides an indicator-by-indicator assessment.

Table 1: Number of indicators in the PHOF relating to each life stage

Life stage	Age group	Number of indicators
Starting well	0-4	31
Developing well	5-19	38
Living & working well (combined)	16-64	44
Ageing well	65+	46

170. Every age group is representative by a wide range of indicators, so it can be said that the selected set of indicators covers the entire life course.

171. An alternative method of assessing comprehensiveness is to consider how well the balance of indicators reflect the burden of disease. The table below shows the share of morbidity (i.e. not good health) that is accounted for by different types of disease:

Type of disease	Share of morbidity (%)
Musculoskeletal	26.0
Respiratory	15.5
Cardiovascular	14.3
Mental	9.6
Endocrine	9.4
Nervous system	8.7
Digestive	4.8
Cancer	3.5
Genitourinary	2.0
Eye	1.7
Blood	1.3
Skin	1.1
Ear	0.9
Other	0.8
Infectious	0.3

172. Therefore, we can see that most of the diseases that account for a high share of morbidity are included in the PHOF. The key exception is that there is not an explicit indicator on diseases of the musculoskeletal system – however, we will investigate the possibility of including some diseases within the list of specific conditions covered by indicator 1.8 (Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness).

Table 2: Indicator by indicator assessment

Domain 1: Improving the wider determinants of health	Starting well	Developing well	Living & working well	Ageing well
1.1: Children in poverty	X	X		
1.2: School readiness (Placeholder)	X	X		
1.3: Pupil absence		X		
1.4: First time entrants to the youth justice system		X		
1.5: 16-18 year olds not in education, employment or training		X	X	
1.6: People with mental illness and or disability in settled accommodation			X	X
1.7: People in prison who have a mental illness or significant mental illness (Placeholder)			X	X
1.8: Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness			X	
1.9: Sickness absence rate			X	
1.10: Killed and seriously injured casualties on England's roads	X	X	X	X
1.11: Domestic abuse (Placeholder)	X	X	X	X
1.12: Violent crime (including sexual violence) (Placeholder)	X	X	X	X
1.13: Re-offending		X	X	X
1.14: The percentage of the population affected by noise (Placeholder)	X	X	X	X
1.15: Statutory homelessness	X	X	X	X
1.16: Utilisation of green space for exercise / health reasons		X	X	X
1.17: Fuel Poverty	X	X	X	X
1.18: Social Connectedness (Placeholder)	X	X	X	X
1.19: Older people's perception of community safety (Placeholder)				X

Domain 2: Health improvement	Starting well	Developing well	Living & working well	Ageing well
2.1: Low birth weight of term babies	X			
2.2: Breastfeeding	X			
2.3: Smoking status at time of delivery	X			
2.4: Under 18 conceptions	X	X		
2.5: Child development at 2 - 2.5 years (Placeholder)	X			
2.6: Excess weight in 4-5 and 10-11 year olds	X	X		
2.7: Hospital admissions caused by unintentional and deliberate injuries in under 18s	X	X		
2.8 Emotional well-being of looked after children (Placeholder)	X	X		
2.9 Smoking prevalence – 15 year olds (Placeholder)		X		
2.10: Hospital admissions as a result of self-harm		X	X	X
2.11: Diet (Placeholder)	X	X	X	X
2.12: Excess weight in adults			X	X
2.13: Proportion of physically active and inactive adults			X	X
2.14: Smoking prevalence – adults (over 18s)			X	X
2.15: Successful completion of drug treatment			X	X
2.16: People entering prison with substance dependence issues who are previously not known to community treatment			X	X
2.17: Recorded diabetes		X	X	X
2.18: Alcohol-related admissions to hospital		X	X	X
2.19: Cancer diagnosed at stage 1 and 2 (Placeholder)	X	X	X	X
2.20: Cancer screening coverage			X	X
2.21: Access to non-cancer screening	X		X	X

programmes				
2.22: Take up of the NHS Health Check programme – by those eligible			X	X
2.23: Self reported well-being			X	X
2.24: Falls and fall injuries in the over 65s				X

Domain 3: Health protection	Starting well	Developing well	Living & working well	Ageing well
3.1: Air pollution	X	X	X	X
3.2: Chlamydia diagnoses (15-24 year olds)		X	X	
3.3: Population vaccination coverage	X	X	X	X
3.4: People presenting with HIV at a late stage of infection		X	X	X
3.5: Treatment completion for TB	X	X	X	X
3.6: Public sector organisations with board approved sustainable development management plan	N/A	N/A	N/A	N/A
3.7: Comprehensive, agreed inter-agency plans for responding to public health incidents (Placeholder)	X	X	X	X

Domain 4: Healthcare public health and preventing premature mortality	Starting well	Developing well	Living & working well	Ageing well
4.1: Infant mortality	X			
4.2: Tooth decay in children aged 5		X		
4.3 Mortality from causes considered preventable	X	X	X	X
4.4 Mortality from all cardiovascular diseases (including heart disease and stroke)			X	X
4.5 Mortality from cancer	X	X	X	X
4.6 Mortality from liver disease			X	X
4.7 Mortality from respiratory diseases	X	X	X	X
4.8 Mortality from communicable diseases	X	X	X	X

4.9 Excess under 75 mortality in adults with serious mental illness (Placeholder)		**X**	**X**	**X**
4.10: Suicide		**X**	**X**	**X**
4.11: Emergency readmissions within 30 days of discharge from hospital (Placeholder)	**X**	**X**	**X**	**X**
4.12: Preventable sight loss			**X**	**X**
4.13: Health-related quality of life for older people (Placeholder)				**X**
4.14: Hip fractures in over 65s				**X**
4.15: Excess Winter Deaths	**X**			**X**
4.16: Dementia and its impacts (Placeholder)				**X**

Annex 4: List of criteria used to inform first sift of PHOF indicators

173. For each candidate indicator we asked leads to assess against each of the criteria listed in Table 1 below and to award one of the following rankings:

- Criterion fully met

- Criterion partially met

- Criterion not met

- Information not available

Table 1: Full list of criteria used to assess candidate PHOF indicators

Sift criteria	Y	P	N	?
	Criterion fully or largely met	**Criterion partly met**	**Criterion not met**	**Information not available**
Measure of health outcome or factor closely correlated to a health outcome	Mostly or completely a measure of health outcome, i.e. one that measures a change in the length and / or quality of life, **or** a factor closely correlated to a health outcome	Partly an outcome measure and partly a process measure	Completely a measure of health process **and** not closely correlated to a health outcome	Information is not sufficient to make a current judgement about this criterion
Aligns with the government's direction for public health	In line with the government's direction for public health **and** is one of the government's commitments (eg. is a Public Health national ambition)	In line with the direction for public health but not one of the government's commitments	Not in line with the direction for public health	Information is not sufficient to make a current judgement about this criterion
Aligns with OGD priorities / strategies	Completely in line with OGD priorities / strategies	Partially in line with OGD priorities / strategies	Not in line with OGD priorities / strategies	Information is not sufficient to make a current judgement about this criterion **or** this criterion is not applicable
Evidence-based interventions to support the measure	Substantial evidence to suggest that interventions exist which would have a positive impact on this	Some evidence to suggest that interventions exist which would have a positive impact on this measure	Evidence that interventions have a negative impact on this measure	No / insufficient evidence that interventions have a positive impact on this measure

	measure			
Amenable to public health intervention, e.g. by PH professionals, Local Authorities, PHE, NHS	Public health interventions are the most important way to make progress on this measure	Public health interventions are one of two or more factors that have a positive impact on progress against this measure	Public health interventions have minimal or no impact on progress against this measure	Information is not sufficient to make a current judgement about this criterion
Major cause of premature mortality or avoidable ill health	Recognised as a major cause of premature mortality or avoidable ill health	Not a major cause but recognised as a contributing factor to premature mortality or avoidable ill health	Not a cause of, or contributing factor to, premature mortality or avoidable ill health	Information is not sufficient to make a current judgement about this criterion
Improvements in this measure will improve health-related quality of life (including mental health)	Evidence that improvements in this measure would improve health-related quality of life	Some evidence to suggest that improvements in this measure may improve health-related quality of life	Evidence that improvements in this measure do not improve health-related quality of life	No / insufficient evidence that improvements in this measure improve health-related quality of life
Improvement in this measure will help reduce inequalities in health	Evidence that improvement in this measure could help reduce health inequalities at population level significantly, e.g. where there is a strong social gradient and large numbers of people affected by the inequality or where it has high impact on length or quality of life	Evidence that improvement in this measure could help reduce health inequalities for moderate or low numbers of people or in few areas and / or with low impact on length and /or quality of life	Evidence that improvements in this measure do not reduce health inequalities	No / insufficient evidence that improvements in this measure reduce health inequalities
Improvement in this measure will help improve healthy life expectancy	Substantial evidence to suggest that improvement in this measure would improve healthy life expectancy	Some evidence to suggest that improvement in this measure may improve healthy life expectancy	Evidence that improvements in this measure do not improve healthy life expectancy	No / insufficient evidence that improvements in this measure would improve healthy life expectancy
Meaningful to, and likely to be perceived as important by, the public	The public understand the principle of the measure, the	The public only partly understand the principle of the measure **or** there	The principle of the measure is not understood by the public **or**	Information is not sufficient to make a current judgement about

	intended direction of travel and perceive the measure as important	is some uncertainty regarding the importance of the measure to the public	they do not think it is important	this criterion
Meaningful to, and likely to be perceived as important by, local authorities	Local authorities understand the principle of the measure, the intended direction of travel and perceive the measure as important	Local authorities only partly understand the principle of the measure **or** there is some uncertainty regarding the importance of the measure to local authorities	The principle of the measure is not understood by local authorities **or** they do not think it is important	Information is not sufficient to make a current judgement about this criterion
Existing system to collect data required to monitor the measure	Existing system in place to collect at least national and local authority data **and** there are no plans to cease collection	Existing system in place to collect national but not local authority data **and** there are no plans to cease collection	No system currently in place to collect required data **or** system currently in place but there are plans to cease collection	Information is not sufficient to make a current judgement about this criterion
Statistically appropriate, fit for purpose*	The measure satisfies all four of the "fit for purpose" criteria	The measure satisfies two or three of the "fit for purpose" criteria	The measure satisfies only one or none of the "fit for purpose" criteria	Information is not sufficient to make a current judgement about this criterion

*The fit for purpose criteria were:
1.   Does it measure what it is intended to measure?
2.   Will the measure allow change over time to be detected, i.e. is it possible to measure year to year progress?
3.   Will data be available (by April 2013) at least annually to monitor the measure?
4.   The measure is not vulnerable to perverse incentives that might lead to the wrong public health behaviours

Annex 5: Calibration analysis for PHOF indicators

174. The calibration analysis presented in this section assesses the incremental contribution that PHOF indicators could make to increasing life expectancy by considering the effect of a 10% improvement in each indicator on life expectancy.

175. The analysis serves two key purposes:

   - It adds an element of quantification to one of the key criteria used in the selection of PHOF indicators – "improvements in this indicator will improve healthy life expectancy".

   - Presenting this analysis will provide a means by which LAs, with knowledge of the costs of interventions, can apportion costs to benefits at a later stage

176. The analysis was carried out by calculating the effect on life expectancy if all mortality relating to a particular indicator was eradicated and then, living aside issues of non-linearity, this is divided by 10 to determine the effect of a 10% improvement in an indicator.

177. Note that calibration has been carried out in terms of life expectancy, rather than healthy life expectancy as life expectancy is the dominating component of healthy life expectancy.

178. For many of the indicators, calibration against life expectancy is either not possible due to a lack of data or not meaningful because of the nature of the indicator, eg, alcohol-related admissions, first time entrants to the youth justice system.

179. The table below summarises the results for those indicators for which it has been possible to complete calibration analysis:

Table 1: Results of calibration analysis for PHOF indicators (where possible to perform)

Indicator	Effect of 10% change on life expectancy (years)
Premature mortality from cancer	0.17
Premature mortality from CVD	0.14
Excess weight - adults	0.1
Smoking prevalence (20 or over)	0.06*
Population vaccination coverage	0.05
Air pollution	0.05
Premature mortality from respiratory diseases	0.05
Infant mortality	0.04
Premature mortality of people with mental illness	0.03
Cancer diagnosed at stage 1 and 2	0.02
Premature mortality from chronic liver disease	0.02
Suicide	0.02
Road injuries and deaths	0.02
Premature mortality from communicable diseases	0.02
Excess winter deaths	0.005
Drug treatment	0.005
Falls in over 65s	0.004
Smoking at time of delivery	0.002
NHS health check	0.002
Under 18 conceptions	0.001
Homelessness	0.001
Fuel poverty	0.001
Child poverty	0.0004
Failure to breastfeed	0.0005

* An error in the figure for the smoking prevalence indicator originally published in January 2012 has been corrected

180. In addition to the calibration analysis presented here, a useful extension of this work in the future would be to consider the incremental contribution of PHOF indicators to reducing inequalities in life expectancy (and healthy life expectancy) between communities.

Annex 6: List of Public Health Outcomes Framework indicators – with full indicator titles

181. Below is a list of the 65 supporting indicators in the Public Health Outcomes Framework, listed by domain:

Domain 1: Improving the wider determinants of health
1.1: Percentage of children in relative poverty (living in households where income is less than 60 per cent of median household income before housing costs)
1.2: School readiness (Placeholder)
1.3: Pupil absence: Percentage of half days missed by pupils due to overall absence (including authorised and unauthorised absence)
1.4: Rate of 10-17 year olds receiving their first reprimand, warning or conviction per 100,000 population
1.5: Percentage of 16-18 year olds not in education, employment or training (NEET)
1.6 Percentage of people with mental illness and or disability in settled accommodation: • 1.6i: Percentage of adults with learning disabilities known to social services who are assessed or reviewed during the year and were in settled accommodation at the time of their latest assessment   • 1.6ii: Percentage of adults receiving secondary mental health services known to be in settled accommodation at the time of their most recent assessment, formal review or multi disciplinary care planning meeting
1.7: Proportion of all people in prison who have a mental illness or a significant mental illness
1.8: Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness   • 1.8i: Gap between the employment rate for those with a long-term health condition and the overall employment rate   • 1.8ii: Gap between the employment rate for those with a learning difficulty / disability and the overall employment rate   • 1.8iii: Gap between the employment rate for those with a mental illness and the overall employment rate
1.9 Sickness absence rate: • 1.9i: Percentage of employees who had at least one day off sick in the previous week   • 1.9ii: Number of working days lost due to sickness absence   • 1.9iii: Rate of fit notes issued per quarter (TBC)
1.10: Number of people reported killed or seriously injured on the roads, all ages, per 100,000 resident population

1.11: Domestic abuse (Placeholder)

1.12: Violent crime (including sexual violence) (Placeholder)

1.13 Occurrence of re-offending:

- 1.13i: The proportion of offenders who re-offend from a rolling 12 month cohort
- 1.13ii: The average number of re-offences committed per offender from a rolling 12 month cohort

1.14: The percentage of the population affected by noise

- 1.14i: Number of complaints per year per local authority about noise per thousand population (according to statistics collected by CIEH)
- 1.14ii: The proportion of the population exposed to transport noise (primarily road) of more than x dB(A) per Local Authority

1.15 Statutory homelessness:

- 1.15i: Homelessness acceptances (per thousand households)
- 1.15ii: Households in temporary accommodation (per thousand households)

1.16: Percentage of people using green space for exercise / health reasons

1.17: Fuel poverty

1.18: Social connectedness (Placeholder)

1.19: Older people's perception of community safety (Placeholder)

Domain 2: Health improvement

2.1: Low-birth weight of term live births

2.2 Breastfeeding initiation and prevalence at 6-8 weeks after birth:

- 2.2i: Breastfeeding initiation
- 2.2ii: Breastfeeding prevalence at 6-8 weeks after birth

2.3: Rate of smoking at time of delivery per 100 maternities

2.4: Under 18 conception rate

2.5: Child development at 2 – 2.5 years (Placeholder)

2.6 Excess weight in 4-5 year olds and 10-11 year olds

- 2.6i: Proportion of children aged 4-5 classified as overweight or obese
- 2.6ii: Proportion of children aged 10-11 classified as overweight or obese

2.7: Crude rate of hospital emergency admissions caused by unintentional and deliberate injuries in age 0-17 years, per 10,000 resident population

2.8 Emotional well-being of looked after children (Placeholder)

2.9: Prevalence of smoking among 15 years olds

2.10: Age-sex standardised rate of emergency hospital admissions for intentional self-harm per 100,000 population

2.11: Diet: comparison with national dietary targets and guidelines (Placeholder)

2.12: Proportion of adults classified as overweight or obese

2.13 Proportion of physically active and inactive adults:

- 2.13i: Proportion of adults achieving at least 150 minutes of physical activity per week in accordance with UK CMO recommended guidelines on physical activity
- 2.13ii: Proportion of adults classified as 'inactive'

2.14: Prevalence of smoking among persons aged 18 years and over

2.15: Number of drug users that left drug treatment successfully (free of drug(s) of dependence) who do not then re-present to treatment again within 6 months as a proportion of the total number in treatment

2.16: Proportion of people assessed for substance dependence issues when entering prison

2.17: Number of QOF-recorded cases of diabetes per 100 patients registered with GP practices (17 years and over)

2.18: Alcohol-related admissions to hospital

2.19: Patients with cancer diagnosed at stage 1 and 2 as a proportion of cancers diagnosed

2.20 Breast and cervical cancer screening coverage

- 2.20i The percentage of women in a population eligible for breast screening at a given point in time who were screened adequately within a specified period
- 2.20ii The percentage of women in a population eligible for cervical screening at a given point in time who were screened adequately within a specified period

2.21: Access to non-cancer screening programmes

- 2.21i: HIV coverage: The proportion of pregnant women eligible for infectious disease screening who are tested for HIV, leading to a conclusive result
- 2.21ii: Syphilis, hepatitis B and susceptibility to rubella uptake: The proportion of women booked for antenatal care, as reported by maternity services, who have a screening test for syphilis, hepatitis B and susceptibility to rubella
- 2.21iii: The proportion of pregnant women eligible for antenatal sickle cell and thalassaemia screening for whom a conclusive screening result is available at the day of report

- 2.21iv: The proportion of babies registered within the area (currently PCT) both at birth and at the time of report who are eligible for newborn blood spot screening and have a conclusive result recorded on the Child Health Information System within an effective timeframe
- 2.21v: The proportion of babies eligible for newborn hearing screening for whom the screening process is complete within 4 weeks corrected age (hospital programmes-well babies, all programmes NICU babies) or 5 weeks corrected age (community programmes – well babies)
- 2.21vi: The proportion of babies eligible for the newborn physical examination who were tested within 72 hours of birth
- 2.21vii: The proportion of those offered screening for diabetic retinopathy who attend a digital screening event

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2.22: Percentage of eligible people who receive an NHS Health Check

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2.23: Self-reported wellbeing measured using the average Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) score for adults (16+) – *to be replaced by ONS measure once developed*

2.24: Age-sex standardised rate of emergency hospital admissions for falls or falls injuries in persons aged 65 and over

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Domain 3: Health protection

3.1: The mortality effect of anthropogenic particulate air pollution (measured as fine particulate matter, $PM_{2.5}$) per 100,000 population

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3.2: Crude rate of chlamydia diagnoses per 100,000 young adults aged 15-24

3.3: Population vaccination coverage (for each of the national vaccination programmes across the life course)

- 3.3i: Hepatitis B vaccination coverage (1 and 2 year olds)
- 3.3ii: BCG vaccination coverage (1-16 year olds)
- 3.3iii: DTaP / IPV / Hib vaccination coverage (1, 2 and 5 year olds)
- 3.3iv: MenC vaccination coverage (1, 2 and 5 year olds)
- 3.3v: PCV vaccination coverage (1, 2 and 5 year olds)
- 3.3vi: Hib / MenC booster vaccination coverage (2 and 5 year olds)
- 3.3vii: PCV booster vaccination coverage (2 and 5 year olds)
- 3.3viii: MMR vaccination coverage for one dose (2 year olds)
- 3.3ix: MMR vaccination coverage for one dose (5 year olds)
- 3.3x: MMR vaccination coverage for two doses (5 year olds)
- 3.3xi: Td / IPV booster vaccination coverage (13-18 year olds)
- 3.3xii: HPV vaccination coverage (females 12-17 year olds)
- 3.3xiii: PPV vaccination coverage (over 65s)
- 3.3xiv: Flu vaccination coverage (over 65s)
- 3.3xv: Flu vaccination coverage (at risk individuals aged over 6 months)

3.4: Proportion of persons presenting with HIV at a late stage of infection

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3.5: Proportion of patients who successfully complete treatment for TB

3.6: Percentage of NHS organisations with board approved sustainable development management plan

3.7: Comprehensive, agreed inter-agency plans for responding to public health incidents (Placeholder)

Domain 4: Healthcare public health and preventing premature mortality

4.1: Crude rate of infant deaths (persons aged less than 1 year) per 1,000 live births

4.2: Rate of tooth decay in children aged 5 years (based on the mean number of teeth per child sampled which were either actively decayed or had been filled or extracted - dmft)

4.3 Age-standardised rate of mortality from causes considered preventable per 100,000 population

4.4 Mortality from all cardiovascular diseases (including heart disease and stroke):

- 4.4i Age-standardised rate of mortality from all cardiovascular diseases (including heart disease and stroke) in persons less than 75 years of age per 100,000 population
- 4.4ii Age-standardised rate of mortality that is considered preventable from all cardiovascular diseases (including heart disease and stroke) in persons less than 75 years of age per 100,000 population

4.5 Mortality from cancer:

- 4.5i Age-standardised mortality rate from all cancers for persons aged under 75 per 100,000 population
- 4.5ii Age-standardised rate of mortality that is considered preventable from all cancers in persons less than 75 years of age per 100,000 population

4.6 Mortality from liver disease:

- 4.6i Age-standardised mortality rate from liver disease for persons aged under 75 per 100,000 population
- 4.6ii Age-standardised rate of mortality that is considered preventable from liver disease in persons less than 75 years of age per 100,000 population

4.7 Mortality from respiratory diseases:

- 4.7i Age-standardised mortality rate from respiratory diseases for persons aged under 75 per 100,000 population
- 4.7ii Age-standardised rate of mortality that is considered preventable from respiratory diseases in persons less than 75 years of age per 100,000 population

4.8 Mortality from communicable diseases (Placeholder)

4.9: Excess under 75 mortality in adults with serious mental illness (Placeholder)

4.10: Age-standardised mortality rate from suicide and injury of undetermined intent per

100,000 population
4.11: Emergency readmissions within 30 days of discharge from hospital (Placeholder)
4.12 Preventable sight loss: Proportion of CVI registrations that are due to Age Related Macular Degeneration (AMD), Glaucoma and Diabetic Retinopathy
4.13: Health-related quality of life for older people (Placeholder)
4.14: Age-sex standardised rate of emergency admissions for fractured neck of femur in persons aged 65 and over per 100,000 population
4.15: Excess Winter Deaths Index: The ratio of extra deaths from all causes that occur in the winter months compared to the expected number of deaths, based on the average of the number of non-winter deaths
4.16: Dementia and its impacts (Placeholder)