Public Health England

Protecting and improving the nation's health

Local Health and Care Planning: Menu of preventative interventions

November 2016

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

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PHE is keen to receive feedback from stakeholders as local work and learning progresses. Please provide any feedback via stp@phe.gov.uk.

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Introduction

Public Health England (PHE) has produced this menu of preventative interventions (MoI), building on the NHS England Prevention Aide-Memoire, a guide that was developed to help local leaders work together across sustainability and transformation plan (STP) footprints.

The MoI is a work in progress, and PHE welcomes feedback from system partners via email at stp@phe.gov.uk. This will help inform the development of future PHE products.

1.1. About the MoI

The MoI outlines evidence-based, preventative public health interventions that can help improve the health of the population and reduce health and care service demand in the short to medium term.

This resource aims to help local decision makers consider evidence-based public health and preventative interventions as they seek options to address local challenges through the health and care planning processes. As this resource is focused on contributing to the Five Year Forward View, it does not cover the full breadth of interventions that can help prevent ill-health, particularly over longer time periods.

It may be particularly useful when exploring the steps that health and care organisations need to take to deliver the first two years of local STPs, contribute to delivering the Five Year Forward View's ambitions and help drive improvements in health and care. It is intended for STP footprint leaders and their teams; local authority directors of public health and their teams; local providers, including those from primary care and acute and mental health trusts; clinical commissioning groups (CCGs); and other local partners.

For the MoI to be useful in supporting local decisions, it will need to be complemented by local expertise. PHE centre staff and National Institute for Health and Care Excellence (NICE) local implementation consultants can help provide more targeted advice to support local leaders in their decision-making processes – please see the appendix for a list of contacts. Right Care delivery partners may also be of assistance when considering these interventions in a local context.

The MoI is structured into 14 topic areas; each has an overview section with evidence of the problem and a selection of up to five interventions for consideration; two of which are then presented in more detail. The detailed intervention sections bring together clinical and operational advice, clinical and cost effectiveness evidence, indicators for monitoring progress, and a list of resources.

1.2. Interventions with potential to deliver savings to the NHS within 5 years

There are at least six areas where we have identified preventative interventions that are estimated to improve health and wellbeing and save money to the health and/or care system within a five-year horizon.

- Alcohol – identification and brief advice (IBA) in primary care (section 1.3)
- Alcohol – alcohol care teams (ACT) in secondary care (section 1.2)
- Tobacco – screening, advice and referral in secondary care (section 2.2)
- Hypertension – improved management of hypertension in primary care (section 5.3)
- Contraception – increase uptake of long-acting reversible contraceptives (LARC) in general practice, maternity and abortion pathways (section 10.2)
- Falls – implement a fracture liaison service (FLS) in secondary care (section 7.3)

These interventions have been implemented in parts of the country and have proven to be effective. They are also generally based on NICE guidance and/or recommendations.

Details of the potential savings and benefits from these interventions can be found in the sections listed above.

1.3. Improving quality in organisations

As well as the six above, the MoI outlines a number of other interventions. Many of these could help NHS organisations in developing their plans to meet the '9 must dos for 2017-19' in the NHS Operational Planning guidance; in particular, *'implementing plans to improve quality of care'.*

Therefore, the majority of preventative interventions included will not only help contribute to addressing the health and wellbeing gap, they can also help tackle the care and quality gap. For example, an intervention to improve the management of patients with atrial fibrillation (AF) can also deliver direct improvements in care while being cost effective and reduce demand on social care.

1.4. Consider whole care pathways

This MoI outlines individual interventions on a per-topic basis. However, PHE recommends that CCGs, local authorities and other local partners work collaboratively to establish effective and comprehensive pathways of care based on the local population needs.

In addition, PHE recommends that organisations join up and work to integrate commissioning intentions and the provision of health and care services, particularly across adult and children's social services. NHS England as commissioner for Section

7a services, such as immunisations, and specialised services will often be a key partner to engage in local integrated pathways.

1.5. Moving to implementation

Interventions outlined in the MoI may already be delivered as part of existing services and so won't require the commissioning of new services, but may require contracts being changed or reorganisation of existing delivery. This can also help in realising efficiencies.

There are numerous levers that can incentivise the implementation of preventative action, from regulatory and planning to financial, contractual and performance-driven levers. This resource focuses on making the case for organisations as part of their planning processes and to use their levers to implement interventions effectively.

In addition, there are some interventions which are already being incentivised, such as:

- brief interventions, assessment and referral. This approach is included throughout the MoI and is supported in secondary care by a Preventing ill health - alcohol and tobacco CQUIN for 2017-19, and the Making Every Contact Count requirement SC8 in the NHS Standard Contract
- workplace-based interventions feature throughout the MoI, such as those to support healthy food procurement. These are supported in secondary care by the Improving Staff Health and Wellbeing CQUIN
- interventions tackling antimicrobial resistance (AMR), which are supported in secondary care by the Reducing the impact of serious infections (AMR and Sepsis) CQUIN and primary care by Bloodstream infections Quality Premium

1.6. Caveats for use

PHE produced earlier versions of this MoI, which were disseminated as a slide deck locally in June 2016. Following stakeholder feedback, PHE updated this MoI for sharing more widely, working with partners including teams in the Department of Health, NHS England and NICE.

PHE has included interventions in the MoI when they have the potential to address key aspects of preventable ill health. They have not been selected as part of a systematic review of the evidence, nor is the order in which they are presented a ranking of interventions; and the list is not exhaustive.

While PHE has quality assured the evidence and analysis, figures are likely to be subject to change as a result of new evidence becoming available. Therefore caution should be taken when interpreting and using the information provided. PHE

recommends that any advice from this document is triangulated with published and peer-reviewed evidence you may be aware of, and adapted to reflect local circumstances.

The costs and net savings included in the MOI are all averaged over a five-year period. This should be noted, as some interventions will require upfront costs and the savings are likely to accrue over time.

1. Alcohol

1.1. Overview

1.1.1. Evidence

In England, 25% of the population (33% of men and 16% of women) consume alcohol at levels that increase their risk of alcohol-related ill health (analysis of health survey for England 2014).

The annual cost of alcohol-related harm to the NHS in England is £3.5 billion, a third of which is due to alcohol-related hospital admissions.

Alcohol misuse contributes significantly to 48 health conditions, wholly or partially, due either to acute alcohol intoxication or to the toxic effect of alcohol misuse over time. Conditions include cardiovascular conditions, cancers, depression and accidental injuries. Risk of ill health increases exponentially as regular consumption levels increase. Most of these harms are preventable.

1.1.2. Root causes

Limited awareness of health risks from alcohol consumption; addictive nature of alcohol; failure of health professionals to address alcohol as a causal factor in patients' ill health; socio-economic deprivation; lack of local system join-up.

1.1.3. Public health ambitions

Reduce excessive alcohol consumption and associated burden on NHS and local authorities and wider society to:

1. Reduce alcohol-related hospital admissions, re-admissions, length of stay and ambulance call-outs by 2020/21
2. Reduce the burden on NHS, police and social care services from high volume service users
3. Reduce the impact of parental alcohol misuse on children

1.1.4. Selected interventions

1. Establish and/or optimise alcohol care teams in district general hospitals – see section 1.2

2. Provide alcohol Identification and Brief Advice in primary and secondary care settings – see section 1.3
3. Establish Alcohol Assertive Outreach Teams (AAOT) to reduce repeat users of hospital and other services such as police and social services. CCGs and local authorities work together to commission outreach teams in hospitals or the community that complement alcohol care teams by identifying and proactively engaging patients with repeated admissions. AAOT will also work face-to-face with patients to implement tailored care plans that address their alcohol dependence, mental/physical health and welfare needs.
4. Establish clear care pathways to ensure sustained engagement with high volume service users. Local authorities work with CCGs to establish pathways and commission specialist services that engage high-impact users as a priority.
5. Ensure alcohol treatment systems provide prompt access for parents who are identified as harmful/dependent drinkers with agreed pathways between services to maximise support and reduce risks to children and families. Local authorities establish clear pathways to alcohol treatment and commission interventions for families where parental alcohol misuse may pose a risk.

1.2. Alcohol care teams in acute hospitals

Aim: to reduce the harm to individuals, including to those whose alcohol use impacts most heavily on services such as repeat admissions.

Seek to achieve this by improving staff awareness of alcohol-related ill health in hospitals and providing specialist care to alcohol misusing patients, through:

1. Training for healthcare staff on screening, and brief advice (note: associated national CQUIN)
2. Comprehensive alcohol use assessments
3. Care planning
4. Delivering medically assisted alcohol withdrawal management and psychotherapeutic interventions
5. Planning safe, accelerated discharge and continued alcohol treatment in community services (note: alcohol assertive outreach teams should be considered as a complementary intervention

A review of evaluations indicates that successful alcohol care teams (ACTs), regardless of team composition, geographic location or size of hospital, combine: clearly defined alcohol pathways with referrals to and from the community; a 7-day service with particular focus on Friday, Saturday and Sunday; and involvement of a larger group of healthcare staff, including ward nursing and specialist medical staff.

1.2.1. Evidence

Effectiveness: a consultant-led, multi-disciplinary ACT in Bolton saved 2,000 alcohol-related bed days and reduced readmissions by 3%. An external evaluation showed a 43% reduction (3,814 to 2,155) in alcohol-related A&E attendances alone, in the year following the introduction of a small alcohol care team in the Alexandra Hospital, Worcestershire.

Costs: cost per nurse c£41,250 p.a., including on-costs. Depending on the size of the hospital, 3-5 specialist nurses would be needed to effectively deliver ACT. For example, to achieve this, Royal Bolton deployed a team of 4 alcohol specialist nurses providing a 7-day service costing c£165,000 p.a.

Net savings: net savings per nurse can be c£111,930 p.a. on average, based on this case study which demonstrated net savings of £471,000 p.a. This is equivalent to a return of investment (ROI) of £3.85 for every £1 invested, a year from implementation.

1.2.2. Who should take action

Providers: acute hospitals

Commissioners: CCGs, with an opportunity for co-commissioning with local authorities

1.2.3. Progress indicators

- alcohol-related hospital admission (narrow measure): rate per 100k (by CCG and local authority)
- emergency alcohol-specific readmission to any hospital within 30 days of discharge following an alcohol-specific admission (by CCG)
- ambulance call-out data (locally held data by ambulance service)

1.2.4. Further information

- Alcohol Care in England’s hospitals: (PHE) 2014 provides current baseline of provision from survey data
- QIPP alcohol care teams: case study
- Newcastle Alcohol Care and Treatment Service
- Passetti F, Jones G, Chawla K, Boland B, Drummond C. Pilot Study of Assertive Community Treatment Methods to Engage Alcohol-Dependent Individuals. Alcohol and Alcoholism [Internet]. 2008; 43(4):[451-5 pp.].
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- Hughes NR, Houghton N, Nadeem H, Bell J, McDonald S, Glynn N, et al. Salford alcohol assertive outreach team: a new model for reducing alcohol-related admissions. Frontline gastroenterology [Internet]. 2013 Apr; 4(2):[130-4 pp.]. Available from: http://dx.doi.org/10.1136/flgastro-2012-100260.
- PHE Good practice prompts for planning comprehensive interventions 2016-17
- Alcohol Concern's blue light project manual

1.3. Alcohol identification and brief advice

Aim: to reduce the risk of harm to individuals from their alcohol consumption by encouraging lower consumption, which can result in fewer alcohol-related conditions and hospital admissions.

Seek to achieve this by tackling the poor understanding of alcohol-related health risks among patients by:

1. increasing screening of patients (using Audit-C scratch cards)
2. providing brief advice on alcohol consumption to cover potential harm and strategies to reduce alcohol intake
3. referral for specialist treatment where relevant. This can be facilitated in secondary care by training for staff provided by in house alcohol care teams (see section 1.2) and in primary care by ensuring effective delivery within NHS Health Check

SIPS trials: 3,562 patients routinely presenting to 34 primary care practices and 3,737 patients presenting to nine A&E in England were screened for hazardous alcohol use and those who were positive were offered brief advice. Results confirmed international evidence that simple brief advice was clinically effective and cost effective in reducing consumption and alcohol problems.

1.3.1. Evidence

Effectiveness: identification and brief advice (IBA) can reduce weekly drinking by between 13% and 34%, resulting in 2.9 to 8.7 fewer drinks per week. This will reduce relative risk of alcohol-related conditions by c14%, and absolute risk of lifetime alcohol-related death by c20%.

Costs: PHE estimates that the costs of IBA could be c£7.50 per person receiving brief advice. This would include the following components: £0.04 per person at consultation to complete an Audit-C scratch card; of the people completing the scratch card, we would expect c30% to screen above threshold, and their costs would also include at

least £3.40 (1 min GP time) and £3.70 (5 min nurse time), when delivered in primary care.

Net savings: PHE estimates that the net saving to the NHS per person receiving brief advice could be on average £27 p.a. (or equivalently a saving of £136 over 5 years).

1.3.2. Who should take action

Providers: GPs and nurses in primary care; and doctors, nurses and/or health care assistants in hospitals, augmented by pharmacy teams in Healthy Living Pharmacies

Commissioners: CCGs and/or local authorities, with an opportunity for co-commissioning.

1.3.3. Progress indicators

- Alcohol-related hospital admission (narrow measure): rate per 100k
- Alcohol-related hospital admission (broad measure): rate per 100k
- Alcohol-related mortality
- Associated CQUIN for secondary care providers

1.3.4. Further information

- Health Innovation Network, “IBA commissioning toolkit”
- NICE Public Health Guidance 24 “Alcohol-use disorders: prevention”
- Kaner EF, Beyer F, Dickinson HO, Pienaar E, Campbell F, Schlesinger C, et al. Effectiveness of brief alcohol interventions in primary care populations. The Cochrane database of systematic reviews [Internet]. 2007 Apr 18; (2):[Cd004148 p.]. Available from: http://dx.doi.org/10.1002/14651858.CD004148.pub3.
- PHE alcohol learning resources - IBA resources and training
- Phillips, Jonathan S, Colin Drummond EK, Martin B, Paul C, Simon C, et al. Effectiveness of screening and brief alcohol intervention in primary care (SIPS trial): pragmatic cluster randomised controlled trial2013 2013-01-09. Available from: http://www.bmj.com/content/346/bmj.e8501.
- Drummond C, Paolo D, Simon C, Martin B, Paul C, Crawford M, et al. PLOS ONE: The Effectiveness of Alcohol Screening and Brief Intervention in Emergency Departments: A Multicentre Pragmatic Cluster Randomized Controlled Trial2016. Available from: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0099463.

2. Tobacco

2.1. Overview

2.1.1. Evidence

Smoking is the single largest cause of health inequalities and premature death, responsible for 17% of all deaths in people aged 35+. Nearly 1 in 5 adults smoke and there are around 90,000 regular smokers aged between 11 and 15. Smoking is the primary reason for the gap in life expectancy between those in the most deprived quintile and those in least deprived quintile.

The annual cost of smoking to the public is estimated to be £13.8bn in England. Of that, direct costs to the NHS are estimated to be c£2bn and costs to social care c£1.1bn. Smoking causes cancers, circulatory disease, respiratory disease and premature labour (leading to high neonatal intensive care unit costs) as well as impotence and infertility. Smokers that manage to quit reduce their lifetime cost to the NHS and social care providers by 48%.

The biggest short-term savings opportunity lies in helping smokers who are in contact with the NHS; the greatest long-term savings would come from preventing people from ever smoking altogether

2.1.2. Root causes

Around two-thirds of smokers started before the age of 18 for a variety of reasons including smoking role models, availability of tobacco and peer pressure. Once a smoker, they are more likely to be sick, more often. When in touch with secondary care services, the screening and referral rates to evidence based smoking cessation support services are low.

2.1.3. Public health ambitions

Reduce national smoking rates across the population and associated burden on NHS, local authorities and wider society to:

1. Reduce the number of smoking attributable admissions by 2020/21
2. Increase delivery of very brief advice on smoking cessation in secondary health care settings (see section 9.3)
3. Decrease rates of smoking during pregnancy

2.1.4. Selected interventions

1. Provide screening, advice and referral in secondary care settings. Secondary care providers to provide screening, advice and referral in acute and mental health trusts, and ensure that the care plan at discharge of patients who smoke addresses their tobacco dependence – see section 2.2
2. Trusts to implement NICE guidance PH45 “Smoking: Harm reduction”. Trusts to provide support for temporary abstinence for smokers unready to stop smoking completely or permanently. May include cutting down to quit and long-term nicotine use to prevent relapse to smoking – see section 2.3
3. Assess all pregnant women for carbon monoxide to identify potential smoking and refer for specialist support. Healthcare professionals screen all pregnant women at ante-natal appointments and refer women with elevated levels to specialist services – see section 12.2
4. All mental health trusts to have smokefree buildings and grounds with staff trained to facilitate smoke cessation. CCGs require acute trusts to implement smokefree policies on estate grounds and support staff to encourage compliance with the policy – see section 9.3

2.2. Assessment, very brief advice and referral in hospitals

Aim: to accelerate the savings to the NHS by treating tobacco dependence as an essential part of care plans for patients.

Seek to achieve this through a comprehensive approach as per NICE PH48 by:

1. Assess (using CO monitoring) and recording smoking status during every patient episode
2. Providing very brief advice (VBA) about the smoking cessation offer and immediate access to nicotine replacement therapies (NRT) and/or pharmacotherapies
3. Offering smokers access to specialist in-situ quitting support
4. automatic e-referral for intensive behavioural support and other specialist treatment
5. Making secondary care settings smoke-free
6. Where relevant, training of healthcare staff to deliver interventions. Success will also require continuing care after discharge. Patients who smoke should leave hospital with a clear treatment plan to address their tobacco dependence

Whittington Health and NHS Islington CCG developed a CQUIN to normalise and embed evidence-based cessation in hospital. Motivated patients accepting a referral to quit support quadrupled within the first six months of the CQUIN.

2.2.1. Evidence

Effectiveness: the quit rates among patients who want to quit and take up a referral are between 15% and 20% compared to 3% to 4% among those without a referral. A Cochrane Review highlighted the appropriateness of offering VBA to all hospitalised smokers, regardless of admitting diagnosis.

Costs: PHE estimates total costs of the intervention to be more than c£690 per successful quitter. Of these, the NHS could incur a one-off c£190 per successful long-term quitter from delivery of nicotine replacement therapy and follow-up, and could face a potential one-off investment from setting up an electronic referral system (ERS) of c£11k and annual ERS maintenance costs of c£3.5k. Local authorities could incur £500 of costs per successful quitter, through commissioning local stop smoking services (LSSS).

Net savings: cumulative minimum of c£119 per quitter over the first 5 years to NHS (ie average savings of £24 p.a.), assuming it is phased and excluding the ERS investment. The intervention can become net saving in year 5 after implementation. NB this is a conservative estimate.

2.2.2. Who should take action

Providers: NHS trusts; stop smoking providers in community settings including HLPs; free online training resources from the National Centre for Smoking Cessation and Training.

Commissioners: CCGs (assess/VBA) and local authorities, with options for co-commissioning arrangements.

2.2.3. Progress indicators

- Prevalence of smoking among persons aged 18 years and over
- Directly standardised rate of smoking attributable admissions in people aged 35 and over
- Successful quitters at 4 weeks per 100,000 smokers

2.2.4. Further information

- NICE Public Health guidance 48 ‘Smoking cessation: acute, maternity and mental health services’
- NICE Public Health guidance 45 ‘Smoking: Harm Reduction’

- PHE: Smoking cessation in mental health settings; Guidance and tools for commissioners
- London Clinical Senate programme: Helping smokers quit: Adding value to every clinical contact by treating tobacco dependence
- British Thoracic Society (2013) The case for change: Why dedicated, comprehensive and sustainable stop smoking services are necessary for hospitals.
- NCSCT: Including the clinical case for proving stop smoking support to hospitalised patients

2.3. Reduce harm to patients who smoke

Aim: to reduce harm from smoking for individuals who are unable or unwilling to stop smoking. The best thing a smoker can do is to stop. Not all smokers are willing to quit permanently, immediately and forever, but there are ways we can help them reduce their harm by temporary abstinence and cutting down to quit.

Implementing NICE guidance PH45 within treatment / care pathways is recommended. This supports a programme of harm reduction enabling temporary abstinence or smoking reduction, such as a ‘stop before the op’ initiative. This improves medical outcomes and reduces complications.

Seek to achieve this by:

1. Providing appropriate information on harm reduction to healthcare staff;
2. Enabling them to support patients who have independently used a harm reduction approach to make the next step towards quitting; and
3. Support the use of or prescription of nicotine containing products long term

Case study: a briefing on the short-term benefits of preoperative smoking cessation in London modelled up to 5,300 fewer post op complications, resulting in up to 4,000 bed days saved, £1.1m savings to commissioners and up to £2.8m savings to hospital trusts.

2.3.1. Evidence

NICE assessed scenarios which sought to help someone quit or reduce their consumption, and of these, three were cost saving and 12 were highly cost effective.

Costs per quality adjusted life year (QALY) were as low £437. Of the scenarios based around temporary abstinence five were highly cost effective. They ranged from an estimated £765 per QALY to £8,464 per QALY.

NICE found that the benefits outweigh the costs; except in scenarios where NRT was prescribed for more than five years and quit rates were modelled at less than 4%.

2.3.2. Who should take action

Providers: NHS trusts; LSSS providers in community settings; free online training resources from the National Centre for Smoking Cessation and Training.

Commissioners: CCGs and local authorities, with options for joint commissioning arrangements.

2.3.3. Progress indicators

- Prevalence of smoking among persons aged 18 years and over
- Directly standardised rate of smoking attributable admissions in people aged 35 and over
- Successful quitters at four weeks per 100,000 smokers

2.3.4. Further information

- Framework for local conversations on implementing a harm reduction approach; following NICE PH45
- NICE Public Health Guidance 45: Smoking: harm reduction
- Aveyard P, Dautzenberg B. Temporary abstinence from smoking prior to surgery reduces harm to smokers. International journal of clinical practice [Internet]. 2010 Feb; 64(3):[285-8 pp.]. Available from: http://dx.doi.org/10.1111/j.1742-1241.2009.02300.x.
- Joint Briefing: Smoking and Surgery
- Stop before the op: a briefing on the short term benefits of preoperative smoking cessation in London

3. Diet and obesity

3.1. Overview

3.1.1. Evidence

The annual costs associated with obesity to the wider economy, NHS and social care systems are estimated to be £27 billion, £6.1 billion a year and £352 million respectively.

Over one fifth of 4 to 5-year-old children, more than a third of 10 to 11-year-olds and two-thirds of English adults are obese or overweight. Being obese can increase the risk of developing a range of serious diseases, including hypertension, type 2 diabetes, cardiovascular diseases, some cancers, obstructive sleep apnoea and musculoskeletal problems.

3.1.2. Root causes

Poor diet and physical inactivity are causal factors of obesity. Excess weight gain is a result of an imbalance between energy consumed and energy expended. Environments in England tend to encourage over consumption of food and physical inactivity. Obesity disproportionately affects the most deprived communities.

3.1.3. Public health ambitions

Reduce the proportion of children leaving primary school overweight or obese and tackle excess weight in the adult population to:

1. Reduce the risk of a wide range of long-term diseases, principally type 2 diabetes, hypertension and cardiovascular disease including stroke, as well as cancer
2. Reduce the financial burden on the NHS and social care services and the costs to the wider economy
3. Reduce the longer term impact on children and young people including consequences for the physical and mental health in both the short and the longer term

3.1.4. Selected interventions

1. CCGs and local authorities ensure there are evidence-based weight management services accessible to their local population through co-commissioning across the obesity pathway and that these are robustly evaluated – see section 3.2

2. Implement Government Buying Standards for food and catering services (GBSF) across a range of public settings and facilitate the uptake of nutrition policy tools. CCGs and local authorities to require providers to do this and promote consistency across hospital and health settings and local businesses – see section 3.3
3. Integrate weight management and mental health services. CCGs and local authorities work together with providers to enable access into appropriate community and clinical obesity services for individuals suffering with mental health illness and/or with learning disabilities
4. Tackle the obesogenic environment. CCGs and local authorities work together to support healthier food and drink choices, increase physical activity opportunities and reduce sedentary behaviour and access to energy dense food and drinks
5. Make every contact count. Health and care professionals empower healthier lifestyle choices and improve access to relevant and appropriate obesity services supported by All Our Health.

3.2. Improve weight management services

Aim: to reduce levels of excess weight among adults and children through increased and improved access to comprehensive weight management pathways across England.

This can be achieved by ensuring there are evidence-based weight management services accessible to the local population. This should include provision of tier 2 and tier 3 weight management services, tier 4 services and post-surgery services to support overweight and obese individuals in achieving a healthier weight. Services should be co-commissioned across the obesity pathway, based on the most effective interventions, and incorporate a robust evaluation.

Improved integration both across the obesity pathway and through opportunities to link in with existing health services such as NHS Health Checks, the National Child Measurement Programme and the Diabetes Prevention Programme to refer overweight and obese individuals into weight management services.

3.2.1. Evidence*

* Data based on a published evidence using the PHE weight management economic tool. PHE has assumed a tier 2 intervention funded by local authorities that recruits 45 men and 255 women with an average age of 51 years, a mean starting BMI of 33.2 kg/m2 and a 36% drop out rate.

Effectiveness: participants completing a 12-month intervention could reduce their body mass index by an average of 2.46 kg/m^2.

Costs: estimated at a total upfront cost of £50 per person enrolled.

Net savings: over a 5 year period, average annual health and care savings are c£30 p.a. per person enrolled (ie cumulative saving of c£150 per person over 5 years). Weight management interventions aim to have lifelong impact and are unlikely to manifest as high savings in the short term. This intervention could be cost saving to the health and care system by year 2.

3.2.2. Who should take action

Providers: weight management providers, health care professionals and public health professionals.

Commissioners: CCGs and local authorities working together to improve and integrate the system across all tiers, and to continue to build effective partnerships across health and local government.

3.2.3. Progress indicators

- Public Health Outcomes Framework 2.06i - Child excess weight in 4-5 & 10-11year olds – 4-5year olds
- Public Health Outcomes Framework 2.06ii - Child excess weight in 4-5 & 10-11 year olds – 10-11year olds
- Public Health Outcomes Framework 2.12 - Excess weight in adults

3.2.4. Further information

- NICE Public Health guidance (PHG) 53 'Weight management: lifestyle services for overweight or obese adults'
- NICE PHG 47 'Weight management: lifestyle services for overweight or obese children and young people'
- NICE PHG 53 Economic modelling report (Tier 2 adults)
- PHE: Mapping of weight management services: provision of tier 2 and tier 3 services
- PHE: Standard evaluation framework for weight management services
- BOMSS: Tier 3 commissioning guide

3.3. Procurement of healthier food

Aim: to increase the procurement of healthier food and drink options within public settings that fully reflect current government dietary recommendations and wider standards for food and drink.

This can be achieved through: increasing the uptake of Government Buying Standards for food and catering services (GBSF) and going beyond these standards to adopt PHE's healthier catering guidance and supporting tools. Commissioners may need to work with providers to incorporate GBSF principles into contracts.

Hull and East Yorkshire Hospitals NHS Trust in 2014 made healthier, more sustainable eating easier by ensuring full compliance with GBSF in patient, staff, and visitor catering. Retail outlets now sell smaller portion sizes of confectionery, savoury snacks and sugary drinks. While higher catering standards cost more in some areas, the Hull and East Yorkshire Hospital NHS Trust achieved savings of £60k per annum by producing some meals in-house, which have been reinvested in wider catering improvements.

3.3.1. Evidence

In 2011, food and drink sales in public sector organisations accounted for 6.5% of total sales in the food service sector. At £2.1bn, this provides a large-scale opportunity with significant purchasing power to influence the diets of those who use these services.

In 2008, meeting catering guidance in a care home setting reduced total fat consumption by 12g, saturated fat by 13g and salt by 0.1g while micronutrients such as iron, potassium and folate increased by 50% to 75%; all meeting government recommendations.

Buying healthier food following the implementation of GBSF in two canteens in 2013 resulted in an increase in annual sales of 9% and 17% respectively when compared to 2012, in part due to the perception of food being more appetising when made on site.

3.3.2. Who should take action

Providers: all settings with food outlets, including schools and hospitals, and caterers with public sector contracts.

Commissioners: all public and private sector organisations.

3.3.3. Progress indicators

- compliance with GBSF (GBSF could be incorporated into local interventions and monitored and reported locally)
- Patient led-assessment of the care environment (PLACE). These assessments will apply to hospitals, hospices and day treatment centres providing NHS-funded care
- achievement of CQUIN for hospitals: Healthy food for NHS staff, visitors and patients

3.3.4. Further information

- PHE Healthier and more sustainable catering guidance
- Defra: A plan for public procurement: food and catering: the balanced scorecard
- DH: Healthy lives, healthy people
- PHE: Sugar reduction: the evidence for action
- Patient-led assessments of the care environment (PLACE)
- Newton JN, Briggs ADM, Murray CJL, Dicker D, Foreman KJ, Wang H, et al. Changes in health in England, with analysis by English regions and areas of deprivation, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. The Lancet [Internet]. 386(10010):[2257-74 pp.]. Available from: http://dx.doi.org/10.1016/S0140-6736(15)00195-6.

4. Health and work

4.1. Overview

4.1.1. Evidence

The economic cost of working age ill health is £100bn a year to the national economy, with 131m working days lost. Some is preventable. Health-related staff absence is higher in the NHS than other sectors, costing £2.4bn a year.

Almost 30% of employees already have a long-term health condition. By 2030, 40% of workers will have at least one long-term condition, increasing the burden on the economy. On average, people with long-term conditions are less likely to be employed. The gap in the employment rate between those with a long-term health condition and the overall employment rate is 8.6% in England.

Employment is a primary determinant of health. Socioeconomic factors – of which employment is greatest – are responsible for 50% of an individual's health status. Unemployment is associated with an increased risk of mortality and morbidity, including cardiovascular disease, poor mental health, suicide and health-damaging behaviours.

4.1.2. Root causes

Inflexible and unsupportive workplaces: over 33% of Employment Support Allowance claimants with a musculoskeletal condition attribute it to work.

Historic disability gap: the employment rate of people with long-term conditions in 2012 was 59.6% and 46.1% among people classified as 'disabled', compared to a 73.5% population average.

4.1.3. Public health ambitions

Reduce work-related ill health and health-related worklessness, and their resulting economic costs by:

1. Creating healthier and more productive workplaces, including a focus on the NHS, local authorities and small and medium-sized enterprises (SMEs) where there is the greatest potential for improvement
2. Increasing collaboration between the NHS and wider public and employer systems to maximise health and work initiatives

4.1.4. Selected interventions

1. Implement a holistic approach to workplace health and wellbeing. Employers participate in local accreditation schemes such as the Better Health at Work Award, Workplace Wellbeing Charter and Mindful Employer Charter to put in place a structured, evidence-based approach to employee health and wellbeing – see section 4.2
2. Increase collaboration in delivery of health-related employment support. CCGs commission NHS providers to work with Job Centre Plus to co-locate employment advice services and individual placement support – see section 4.3
3. Integrate multi-disciplinary occupational health and vocational occupational therapy advice into care pathways. CCGs encourage collaboration between primary care, secondary care and patients to make work a positive, achievable clinical outcome for long-term disease and acute health event recovery
4. Create health and care premises that actively promote healthy choices and behaviours. CCGs and local authorities require all providers to implement food standards (eg Government Food Buying Standards) – see diet and obesity slides for further detail
5. Support recruitment and retention of staff with/who develop health issues or disabilities. NHS and local authority employers encourage this by role modelling practices and through the use of Government grant schemes (eg Access to Work)

4.2. Implement a holistic approach to workplace wellbeing

Aim: to improve employee wellbeing and reduce avoidable sickness absence cost effectively, thereby increasing lifetime productivity, with a focus on the NHS, local authorities and SMEs where there is the greatest potential for improvement.

Seek to achieve this through engagement with local workplace health and wellbeing accreditation schemes, eg Workplace Wellbeing Charter, Better Health at Work Award and Mindful Employer Charter, which provide employers with a structured approach. Approaches include policies to:

a) manage absence
b) ensure health and safety
c) identify and support mental health issues
d) reduce smoking harms
e) encourage physical activity
f) inform about and provide access to healthy food
g) identify and support substance misuse issues. Links to risk reduction services (eg NHS Health Checks), campaigns (eg One You) and evidence-based employer toolkits (eg Mental Health Toolkit for Employers)

PHE and the College of Occupational Therapists are piloting Health and Work Champions to promote employment as a clinical outcome through peer to peer training across the NHS. Contact the PHE Health and Work Team for information.

4.2.1. Evidence

Effectiveness: NICE estimated the effectiveness of workplace mental wellbeing programmes to be between 0.02 and 0.04 quality adjusted life years (QALY) gains per worker per intervention. This translates into two additional depression-free days over a 35 day observation period (bringing it to 33 depression free days), compared to those who didn't receive support.

Costs: NICE estimates the total cost to companies of implementing staff stress management programmes to be between c£140 and c£370 per participant per intervention.

Net savings: NICE estimates that the net benefit to employers of implementing interventions to promote the mental wellbeing of employees ranges from £130 to £5,020 per participating employee through reductions in absenteeism and presenteeism. Other Workplace Wellbeing Charter interventions such as promoting physical activity or diet improvements are also considered cost effective by NICE.

4.2.2. Who should take action

Providers: CCGs, other NHS organisations and local authorities.

Commissioners: local authorities in collaboration with public and private sector organisations, supported by Job Centre Plus (Fit for Work); providers can deliver workplace wellbeing for NHS staff.

4.2.3. Progress indicators

- Local implementation and uptake of the local workplace wellbeing accreditation scheme.
- Rates of sickness absence, regionally and through the Health and Social Care Information Centre for the NHS
- Associated CQUIN by NHS acute trusts
- Public Health Outcomes Framework 1.08 % employment disability gaps

4.2.4. Further information

- Bryson et al., Does workplace wellbeing affect workplace performance, NIESR, 2014
- Chapman, Meta-evaluation of workplace health
- Marmot et al., Fair society, healthy lives., The Marmot Review, 2010
- Office for National Statistics, Full report: sickness absence in the labour market, February 2014
- PHE Evidence reviews: Productivity, physical environments – impact on workplace health
- NICE PH guidance 22 'Mental wellbeing at work'
- How are you feeling NHS? NHS Employers
- BITC PHE Mental health toolkit for employers

4.3. Individual placement and support

Aim: to reduce unemployment among individuals with common and severe mental problems through greater integration of clinical and employment support services in primary and secondary care settings.

Seek to achieve this through co-locating dedicated employment advisors (EA) in local mental health services to provide tailored employment support for service users in line with the 8 principles of of Individual placement and support (IPS). This includes raising awareness among clinical staff about availability of and referral pathways to employment advice services. EA will work with referred service users to:

a) Identify the required level of support
b) Depending on need, develop job-search action plan and application support
c) Provide 1:1 coaching sessions
d) Signpost to benefits
e) Support with interview preparation

A pilot in Sussex saw implementation of full IPS across 17 sites, focused on improving employment outcomes for service users with severe mental illnesses. After 12 months' support, 24.9% of IPS participants had taken up competitive employment compared to 14.3% of individuals before IPS was implemented.

4.3.1. Evidence

Effectiveness: IPS participants are **twice as likely to gain employment compared** with traditional vocational rehabilitation alternatives (55% v 28%). In addressing employment issues for people with common mental health issues, RAND estimates that

one EA leads to 35 additional Increasing access to Psychological Therapies (IAPT) users finding work per year.

Costs: The cost of IPS are viewed as being similar to traditional vocational services in mental health settings. RAND estimates that attaching one EA to an IAPT service costs c£75,000 p.a. (£40,000 for salary, pension and benefits costs; £35,000 for indirect costs such as overheads).

Net savings: RAND estimates that the net savings from employing one EA are c£44,000 p.a. (ROI of 1.59). Savings accrue to the Exchequer from moving individuals from Job Seekers Allowance and Statutory Sick Pay to employment (c£3,900 and £1,225 per person per year respectively); and to the NHS from fewer GP visits and limited use of secondary care (£300 per person per year).

4.3.2. Who should take action

Providers: CCGs, local authorities and NHS England.

Commissioners: secondary care (especially mental health) providers in partnership with Job Centre Plus.

4.3.3. Progress indicators

- Public Health Outcomes Framework (PHOF) 1.08 % employment gap for those with long-term health conditions.
- PHOF 1.08ii % employment gap for those with learning disabilities.
- PHOF 1.08iii % employment gap for secondary mental health service users.
- Local ESA Off-Flows across DWP Districts.

4.3.4. Further information

- Delivering Brief Health Interventions through Job Centre Plus Social Justice Coaches, 2016
- Centre for Mental Health, Individual Placement and Support (IPS), 2016
- Department of Work and Pensions, Quarterly work programme national statistics, 2015
- Department for Work and Pensions, Fuller working lives - a framework for action, 2016
- Office for National Statistics, Labour Force Survey, 2009
- PHE, Public Health Outcomes Framework, 2015
- Steadman et al., Investing in a workforce fit for the future, The Work Foundation, 2015

5. CVD secondary prevention

5.1. Overview

5.1.1. Evidence

Diseases caused by high blood pressure are estimated to cost the NHS over £2 billion every year.

Over 5 million people are unaware they have high blood pressure, yet it affects more than 1 in 4 adults and is one of the biggest risk factors for premature death and disability in England.

High blood pressure accounts for 12% of all visits to GPs in England. People from the most deprived areas are 30% more likely to have high blood pressure.

Atrial fibrillation (AF) related illnesses cost the NHS over £2.2bn p.a. The risk of suffering a stroke is increased by nearly 500% for AF patients. AF affects nearly 2% of the population.

As many as 60% of adults in England have raised cholesterol, which is a key risk factor for cardiovascular disease (CVD). CVD in total costs £19bn to the UK economy each year. It is estimated that 1 in 500 people have familial hypercholesterolaemia, a genetic cause of raised cholesterol affecting individuals since birth.

5.1.2. Root causes

Poor diet, being overweight, smoking, excess alcohol consumption and physical inactivity are leading risk factors for developing high blood pressure and high cholesterol. Some people will have genetic disorders such as familial hypercholesterolaemia. Upon developing a condition, many individuals are undiagnosed. Once diagnosed, many conditions are managed ineffectively, increasing the probability of developing further complications.

5.1.3. Public health ambition

1. Higher proportion of patients with hypertension, atrial fibrillation and familial hypercholesterolaemia are diagnosed and optimally managed, through an enhanced use of NHS Health Checks, pharmacies and community settings

5.1.4. Selected interventions

1. local authorities commission NHS Health Checks and CCGs support providers to increase offer of NHS Health Checks, testing and risk assessment (being more proactive with deprived groups), particularly via GPs and outreach testing eg pharmacy
2. CCGs support primary care to ensure patients receive optimal care and drug treatment where relevant; extend the role of pharmacists in clinical management; and support patient activation and self-care

5.1.5. These steps can be taken to improve management of the following conditions:

1. AF – see section 5.2
2. Hypertension (high blood pressure) – see section 5.3
3. Raised cholesterol and familial hypercholesterolaemia:
    a) Increased detection – through practice audit, find patients with cholesterol levels suggestive of familial hypercholesterolaemia, confirm, cascade test and treat
    b) Improve the cholesterol management of people with high-CVD-risk conditions such as diabetes, measured through QOF indicator DM004
    c) Improve statin prescribing and adherence among people, particularly those with established CVD
    d) Diabetes – see section 6

5.2. Reduce the incidence of avoidable AF-related strokes

Aim: to reduce the incidence of avoidable AF-related strokes by 5,000 nationally over the next 5 years.

Seek to achieve this by:

a) Increasing the proportion of known AF patients who are offered and started on appropriate treatment from 74% to 89% over the next 5 years
b) Introducing regular systematic audit in all practices (using tool such as GRASP-AF) to identify people at risk who are not anticoagulated or who are sub-optimally anticoagulated
c) Increasing opportunistic detection rates in line with expected prevalence through NHS Health Checks and other mechanisms
d) Strengthening and upskilling clinical leadership on AF

In Leicester City CCG during April to June 2014, 23% of patients admitted to hospital with a stroke had known AF. Of these, only 38% were on anticoagulation. By 2015, prescription of anticoagulation for known AF patients rose to 82.6%; opportunistic

screening identified 138 AF patients; 37 strokes prevented; and estimated prevention savings of £499K.

5.2.1. Evidence

Effectiveness: 1 stroke will be prevented for every 25 patients treated with anticoagulation.

Costs: PHE estimates the cost per intervention, when prescribing anticoagulation, is £648 per patient p.a. in year 1, increasing to £1,000 by year 5. Cost of the anticoagulation per person p.a. ranges from £283 to £800.

Net savings: PHE estimates that the intervention would result in net savings to the system of c£1,453 per person p.a. by year 5. These can be broken down into c£1,815 p.a. per person savings to the social care system and a cost to the NHS of £362 per person p.a. This cost would contribute towards improved care and quality, and patient safety.

Part A of this intervention is estimated to deliver a cumulative net saving of c£191m over 5 years across the health economy.

5.2.2. Who should take action

Providers: a range of healthcare professionals including pharmacists both in community pharmacies and in GP practices (detection) and GPs, specialist nurses and haematologists (treatment and management)

Commissioners: CCGs supported by academic health science networks

5.2.3. Progress indicators

- Number of AF related strokes (SSNAP)
- Proportion of patients with a CHA2DS2VASc score ≥ 2 on anticoagulation treatment without exception reporting (QOF)
- The percentage of patients with atrial fibrillation in whom stroke risk has been assessed using the CHA2DS2-VASc score risk stratification (QOF)

5.2.4. Further information

- NICE guideline CG180 Atrial fibrillation: management
- AF: how can we do better? CCG profiles
- Atrial fibrillation prevalence estimates
- CVD prevention opportunities
- CVD: Primary care intelligence packs
- Innovation exchange
- Sentinel Stroke National Audit Programme
- NHS RightCare commissioning for value and atlas of variation

5.3. Improve management for patients with high blood pressure

Aim: to increase the proportion of people with a hypertension diagnosis whose blood pressure is optimally managed to less than 140/90mmHg.

Seek to achieve this by implementing innovative approaches to managing hypertension using multiple interventions such as:

a) Regular systematic audits of practice registers to identify diagnosed hypertensives with suboptimal blood pressure control
b) Developing the role of community and GP practice-based pharmacists to monitor and control blood pressure of sub-optimally managed hypertensives, support adherence to drug regime and advise on lifestyle change
c) Wider use of self-monitoring by patients to help eliminate false readings and provide a clearer picture of blood pressure over time

In Dudley, practice-based pharmacists worked with GP practices to identify patients with undiagnosed or sub-optimally managed hypertension, as part of a wider blood pressure strategy. Using the EMIS search and report system, practice-based pharmacists identified 11,000 hypertensives who were not treated to target and diagnosed 1,096 new hypertensives.

5.3.1. Evidence

Effectiveness: Pharmacist-led interventions have been shown to reduce systolic blood pressure by an estimated 7.6 mmHg. In the Dudley pilot, 90% of GP practices achieved optimal treatment targets of 140/90mmHg for their hypertensive population (the standard is 50%, and inter-practice variation 6-99%).

Costs: PHE estimates costs of c£28 per new controlled person in year 1 (average cost of one 10 minute and three 5 minute consultations with a pharmacist at £64 hourly unit

cost) based on the assumption that achieving a blood pressure treatment to target for one patient will require four consultations with a practice-based pharmacist.

Net savings: PHE estimates that for a 20% improvement in management of hypertension, to 140/90 mmHg target, system net savings would be estimated to be c£14 p.a. per controlled patient over a 5 year horizon. Of these, c£5.75 would accrue to the NHS and c£7.91 would accrue to local authorities.

5.3.2. Who should take action

Providers: GPs and/or pharmacists in general practice or community pharmacy teams.

Commissioners: CCGs or, if part of the NHS Health Checks, by local authorities.

5.3.3. Progress indicators

- Hypertension prevalence
- Patients with hypertension in whom last blood pressure measure (last 12 months) is <=150/90 mmHg

5.3.4. Further information

- High blood pressure map
- Toolkit for developing a local strategy to tackle high blood pressure
- PHE blood pressure resource hub
- NHS Health Check website
- NHS Right Care support and resources
- CVD prevention opportunities
- Hypertension profiles
- Making Every Contact Count resource hub

6. Diabetes

6.1. Overview

6.1.1. Evidence

Diabetes treatment currently costs the NHS £9.8bn a year, which represents around 10% of the annual NHS budget. Indirect societal and productivity costs raise this figure to nearly £23.7bn.

It is estimated that in 2015 there were 5 million people aged 16 years and over with non-diabetic hyperglycaemia.

There is a direct association between obesity and type 2 diabetes – those who are overweight or obese are at higher risk of developing the condition and 75% of people with type 2 diabetes are overweight or obese. Two-thirds of English adults and one third of 11 to 15-year-olds are currently overweight or obese. Projections show that 70% of people will be overweight or obese by 2034 and one in ten will develop type 2 diabetes.

People with diabetes are at risk of a range of health complications including CVD, blindness, amputation, kidney disease, depression and dementia.

6.1.2. Root causes

Rise in prevalence of obesity; ignorance of unhealthy levels of sugar consumption; socio-economic deprivation (type 2 diabetes is 40% more common among people in the most deprived quintile compared with those in least deprived quintile).

6.1.3. Public health ambitions

1. Reduce the projected growth in incidence of diabetes
2. Improve support for self-care in people with a diagnosis of diabetes
3. Improve the treatment and care of people with diabetes

6.1.4. Selected interventions

1. NHS Diabetes Prevention Programme – in particular, CCGs and local authorities support NHS Health Checks, primary care and NHS Diabetes Prevention Programme providers (where in place) to jointly implement effective referral pathways – see section 6.2

2. Increase the proportion of newly diagnosed diabetes patients attending a structured education course – see section 6.3
3. Reduce variation in treatment target achievement through all GP practices meeting the 2014/15 median level, to be reviewed annually. CCGs support local GPs to perform at the level of the median, in relation to the the 3 NICE-recommended diabetes treatment targets (HbA1c <=58mmol/mol (7.5%); cholesterol <5mmol/L; blood pressure <=140/80 mmHg)
4. Establish multi-disciplinary diabetic foot teams. CCGs support the provision of multidisciplinary diabetic foot teams for people with diabetic foot disease, and access to specialist diabetes teams for inpatients with diabetes
5. Provide specialist inpatient support. CCGs support all secondary care providers to have diabetes inpatient specialist nurses as part of a diabetes inpatient service

6.2. Healthier You: the NHS Diabetes Prevention Programme

Aim: to prevent cases of type 2 diabetes.

Seek to achieve this by identifying those at high risk of developing type 2 diabetes, confirming non-diabetic hyperglycaemia and referring them to a behavioural intervention programme.

The National Diabetes Prevention Programme (NDPP) is designed to tackle current variation in the provision and underpinning evidence of local diabetes prevention programmes and will be available nationally by 2020.

The sustainability and transformation plan (STP) process offers an opportunity to support the implementation of the NDPP. Local authorities and CCGs should work with regional teams to undertake an assessment of readiness to join the programme. Local authorities and CCGs will work together to identify the at risk population and jointly implement effective referral pathways with primary care, NHS Health Checks and NDPP providers.

6.2.1. Evidence

Effectiveness: The intervention effectiveness corresponds to a mean weight loss of 3.24kg per person.

Cost: The intervention cost is assumed to be £270 per person. Local expenditure in case finding and referring individuals to the programme is not included.

Net savings: In addition to significant health benefits, the DPP Return On Investment tool, soon to be published by PHE, suggests that implementing the NHS DPP will lead to an average undiscounted cumulative net NHS saving of £35m within 15 years (gross

savings of £141m plus DPP costs of £105m), plus an additional £7m for social care. This equates to roughly £90 savings per person, assuming that 390,000 individuals undergo the intervention throughout the duration of the programme (30,000 in year 1, 60,000 in year 2 and 100,000 in each of years 3, 4 and 5).
* The programme has worked with the University of Sheffield to develop a Return on Investment Tool.

6.2.2. Who should take action

Providers: NDPP providers on a national framework, called off locally through mini-competitions.

Commissioners: NHS England and supported by local authorities and CCGs in case finding and implementation of referral pathways.

6.2.3. Progress indicators

- Uptake of the NHS DPP (local reports provided by national programme)
- Retention to the NHS DPP (local reports provided by national programme)
- Incidence of diabetes among service users (CCG IAF)

6.2.4. Further information

- PHE evidence review - diabetes prevention programmes
- NCVIN prevalence estimates (2015)
- NHS DPP website
- NICE PH38 Type 2 diabetes: prevention in people at high risk

6.3. Encourage uptake of structured education in diabetes

Aim: to improve patient outcomes and reduce complications associated with diabetes.

Seek to achieve this by increasing the proportion of newly diagnosed type 1 and type 2 diabetes patients attending structured education by 10% per year. This will be measured by the National Diabetes Audit (NDA) and reviewed annually.

Only 5.7% of newly diagnosed diabetes patients attended a course in 2014/15. A lack of robust data collection on provision and uptake, services that are insufficiently holistic for patients' needs and referrals of insufficient quality are some of the principal barriers to achieving good uptake.

CCGs will seek to address these by reviewing performance of local practices, ensuring that local processes are in place to track attendances and audit outcomes, developing referral strategies and encouraging practices to sign-post patients to supportive digital resources.

6.3.1. Evidence

Effectiveness: structured education can support patients to stabilise blood glucose levels, reducing the risk of complications and improving quality of life, thus reducing the financial burden on the NHS and wider social care system.

Costs: evidence suggests that cost of delivering X-PERT (type 2 diabetes focused) per person attending is £65.

A diabetic service can set up a DAFNE project (type 1 diabetes focused) with a cost of c£8,000 in year 1 and c£3,700 in years 2 and 3 respectively.
Net savings*: NHS England estimates that X-PERT could save between £66 to £76 per person p.a. One organisation delivering the programme to c3,500 patients could save c£260k per year

Delivery of DAFNE could deliver savings of an estimated c£93,000 per 100,000 population.

* Please note that updated modelling is expected to become available shortly.

6.3.2. Who should take action

Providers: foundation trusts, social enterprises, charities or private sector organisations that meet NHS standards and costs.

Commissioners: CCGs.

6.3.3. Progress indicators

- Number of patients attending a structured education course within a year of diagnosis (CCG IAF – as measured by the NDA)
- Practice-level performance on offers and take up – as measured by the NDA
- Patient attendance and outcomes – as measured by locally implemented systems

6.3.4. Further information

- APPG report on structured education (March 2015)
- NICE NG28 Type 2 diabetes in adults: management
- Deakin T, X-Pert Health HBWYUK, X-Pert Health LMLRHBWYHXDPUK. The diabetes pandemic: is structured education the solution or an unnecessary expense? Practical Diabetes [Internet]. 2016; 28(8):[1-14 pp.]. Available from: http://onlinelibrary.wiley.com/doi/10.1002/pdi.1635/abstract
- QIPP evaluation of DAFNE

7. Falls and musculoskeletal health

7.1. Overview

7.1.1. Evidence

Around 30% of people aged 65 and c50% aged 80 experience a fall each year. Fractures and hospitalisation occur in around 5% of community dwelling adults with a history of falls. Falls are estimated to cost the NHS more than £2.3bn per year.

Each year 30% of people in England see a doctor about a musculoskeletal (MSK) problem.

The NHS spends £5bn* each year treating these conditions (*2012/13). Lower back and neck pain is the leading cause of disability in England for both adult men and women.

7.1.2. Root causes

For the elderly, muscle weakness, physical inactivity and balance impairment increase the likelihood of falling. Environmental risk factors such as poor housing can also contribute towards an increased risk of falling. Being physically inactive, poor work posture, repetitive movements, weak muscles and joints contribute towards MSK conditions.

7.1.3. Public health ambitions

1. 10% reduction in the number of injuries due to falls in people aged 65+ by 2020/21, through improved and more co-ordinated preventative services
2. Reduce the number of working days lost and the disability employment gap due to preventable MSK conditions

7.1.4. Selected interventions

1. Establish/test a self-referral scheme to physiotherapy. CCGs commission physiotherapists to provide early advice and support and establish self-referral schemes – patients 16+ complete self-referral form, physiotherapist to evaluate urgency and provide service, enabling patients to manage MSK conditions and recover effectively – see section 7.2
2. Acute trusts to establish fracture liaison services – see section 7.3

3. Implement strength and balance exercise programmes. CCGs and local authorities commission strength and balance exercise programmes for older people at risk of falling to improve independence and reduce the likelihood of a fall
4. Encourage employers to participate in local workplace health accreditation schemes such as the Better Health and Work Award, Workplace Wellbeing Charter and Mindful Employer Charter to put in place a structured, evidence-based approach to employee health and wellbeing
5. Encourage employers to ensure occupational health services promote the health of people with MSK conditions and provide rehabilitation to support people with MSK conditions to remain at or return to work

7.2. Musculoskeletal physiotherapy: patient self-referral

Aim: to improve access for MSK patients to a physiotherapist in general practice by allowing people to self-refer to NHS physiotherapy services, rather than waiting to be referred by their GP. This speeds up access to treatment and reduces the costs associated with GP appointments and diagnostic imaging.

Early signposting to physical activity as a first line treatment intervention can support better clinical outcomes and may negate or retard need for more expensive treatment. Physiotherapists can access free peer-to-peer training from the PHE Clinical Champions programme.

Self-referral pilots have shown that people who self-refer to physiotherapy take fewer days off work and are half as likely to be off work for longer than a month, when compared with people who have been referred using more conventional routes. In South Lakeland, Windermere, direct access to the physiotherapist in the practice over 11 months in 2014 saw 710 patients and 560 GP appointments saved; 20% less consultant referrals; and excellent patient satisfaction at 92%.

7.2.1. Evidence

Effectiveness: a two-year pilot involving 26 practices concluded that compared with traditional GP referral that costs £133, an episode of GP-suggested self referral costs 10% less at £118 and an episode of patient self-referral costs 25% less at £100.

This initiative provides savings of £25,207 per 100,000 of the population as a result of reducing GP contact, unnecessary prescribing and diagnostic imaging. The evidence shows that there is no long-term increase in the overall number of physiotherapy contacts following introduction of the scheme (Department of Health, 2008b).

7.2.2. Who should take action

Providers: physiotherapist in primary care or community settings.

Commissioners: CCGs.

7.2.3. Progress indicators

- % point gap in the employment rate between those with a long-term health condition and the overall employment rate
- Rheumatoid Arthritis (RA) Indicator Set
- Hip and knee replacements (HSCIC)

7.2.4. Further information

- Ludvigsson ML, Enthoven P. Evaluation of physiotherapists as primary assessors of patients with musculoskeletal disorders seeking primary health care. Physiotherapy [Internet]. 2012 Jun; 98(2):[131-7 pp.]. Available from: http://dx.doi.org/10.1016/j.physio.2011.04.354.
- Childs JD, Whitman JM, Sizer PS, Pugia ML, Flynn TW, Delitto A. A description of physical therapists' knowledge in managing musculoskeletal conditions. BMC Musculoskelet Disord [Internet]. 2005; 6:[32 p.]. Available from: http://dx.doi.org/10.1186/1471-2474-6-32.
- PHE health matters - MSK
- Arthritis UK: MSK – a public health approach
- CSP website: primary care resources
- Physiotherapy cost calculator
- Self-referral pilots (DH)
- Physiotherapy clinical champion training for can be accessed via physicalactivity@phe.gov.uk

7.3. Establish fracture liaison services

Aim: to reduce repeat fractures from falls.

Seek to achieve this by identifying people at risk of future fractures and falls and offering bone strengthening medicines and referrals to services that can reduce this risk (for example, strength and balance programmes).

Fracture liaison services (FLS) will support elderly patients at risk of fracture and reduce demand for social care provision.

A RCP audit (2011) found 37% national coverage of fracture liaison service in acute trusts and variation in their delivery model and effectiveness. An evaluation of Glasgow's FLS over a 10-year period found a decline in the hip fracture rate in Greater Glasgow and Clyde of 3.6%, while it rose by 2% during the same time period in England.

7.3.1. Evidence

Effectiveness: a 2009 Department of Health FLS economic evaluation proposed that in an area with a population of 320,000, a cohort of 797 patients would present with a hip, humerus, spine or forearm fracture. On average, the relative risk reduction from an FLS for a second fracture is 40%, and an average of 75% of the cohort who are scanned would be treated for osteoporosis.

Costs: from this it can be estimated that the cost of running an FLS in NHS trusts for a year 1 cohort of 797 patients is c£59 p.a. per person over 5 years. This includes one year costs of running the FLS (staff and scanning equipment) and five year drug costs, the majority of which are incurred in the first year.

Net savings: in terms of the Department of Health evaluation, FLS could save net savings of c£14p.a. per person on average over 5 years for the year 1 cohort. Based on our assumptions, these savings would benefit the NHS acute services (£11), community services (35p) and local authority social care (£3). The majority of fractures are avoided, and consequent savings are realised in the first three years.

7.3.2. Who should take action

Providers: acute trusts.

Commissioners: CCGs or to increase effectiveness co-commissioned with local authorities to further integrate social care component.

7.3.3. Progress indicators

- Emergency admissions due to hip fractures in people aged 65+ per 100,000

7.3.4. Further information

- FLS implementation toolkit (National Osteoporosis Society)
- Fracture Liaison Service Database (FLS-DB) facilities audit
- NICE CG146: Osteoporosis: assessing the risk of fragility fractures
- Department of Health: Fracture prevention services – an economic evaluation

8. Physical activity

8.1. Overview

8.1.1. Evidence

It is estimated that physical inactivity costs the NHS £0.9bn, and an additional £6.5bn each year to wider society.

The UK Chief Medical Officers (CMOs) recommend adults undertake at least 150 minutes per week of moderate physical activity, muscle strengthening activities on two days per week and minimise extended periods of sitting.

Current evidence shows that 20% of men and 25% of women are doing less than 30 minutes activity per week, and 62.5% of those with long-term health conditions are inactive.

An inactive person has 38% higher hospital bed days, 5.5% higher GP visits and 13% higher use of specialist services. Physical activity can reduce the risk and help the management of over 20 long-term conditions.

8.1.2. Root causes

Health care professionals lack training in delivering effective behaviour change advice to patients. The built environment, workplaces and education settings do not routinely support active lifestyles and active travel.

8.1.3. Public health ambitions

Prevent premature deaths and long term conditions by:

1. Reducing the number of physically inactive people and increasing the number of people achieving the level of activity in the CMO guidelines
2. Ensuring health care professionals have the skills to deliver brief advice on physical activity to patients to make every contact count

8.1.4. Selected interventions

1. Healthcare professionals to deliver effective brief advice on the benefits of physical activity. Invest in raising skills and knowledge of healthcare professionals such as the PHE Clinical Champions Programme – see section 8.2.
2. Increase active travel for staff, patients and local population. Develop travel plans with supporting local activation to get staff, patients and the local population to walk and cycle – see section 8.3
3. CCGs and local authorities to invest in evidence-based exercise programmes for patients. For example, providing exercise referral schemes where patients receive supervised support by trained professionals
4. Adopt and promote PHE's campaigns. Local government, NHS providers and CCGs to draw on Start4Life, Change4Life and One You campaigns
5. Local authorities to encourage employers through Chamber of Commerce and NHS procurement levers to participate in local workplace health accreditation schemes such as the Better Health and Work Award, Workplace Wellbeing Charter and Mindful Employer Charter to put in place a structured, evidence-based approach to employee health and wellbeing

8.2. Deliver effective brief advice on physical activity in clinical care

Aim: to increase the proportion of people achieving more than 30 minutes moderate activity each week and the proportion undertaking at least 150 minutes per week through brief advice from healthcare professionals.

Seek to achieve this by training healthcare professionals, via clinical champions, to provide physical activity brief advice. Clinical champions provide peer-to-peer teaching to primary, secondary and community care professionals to integrate brief advice into routine care to make every contact count. GP clinical champions cover the whole of England and will be joined by a cadre of nurse and allied health professional champions towards the end of 2016.

In a year, one champion could train 350 healthcare professionals to provide brief advice, which could move over 168,000 adults out of inactivity and support 25,226 to achieve the CMOs' guidelines. PHE estimates that this could prevent 69 cases of type 2 diabetes, 38 cases of CVD, 58 cases of IHD, 6 cases of depression (and result in 1 additional serious road traffic incidence from active travel) over 5 years; additional benefits could be accrued for a further 20 or more conditions.

8.2.1. Evidence

Effectiveness: PHE estimates that each clinical champion could train 150 qualified healthcare professionals and 200 healthcare professionals in training (trainees) per year. Healthcare professionals are expected to have c10,000 patient contacts, and trainees are expected to have c5,000 patient contacts per year. PHE estimates that 40% of those trained will retain the information and act on it and that in 64% of consultations the patient is eligible for the intervention and will receive advice. Finally PHE expects that 30% of targeted patients will respond to a very brief intervention and 15% of those patients taking action will achieve 150 minutes per week of physical activity.

Costs: a dedicated local champion costs the local area approximately £13,000 per annum based on 1 session per week, supervision, travel and training costs, equating to £38 per healthcare professional trained.

Net savings: PHE estimates using a champion for 1 year could deliver a minimum of £308,000 of direct savings to the local NHS over 5 years, through the four modelled conditions alone and potential savings within the financial year.

8.2.2. Who should take action

Providers: GP, sport and exercise medicine, nursing/midwifery or allied health professional clinical champions or other health care professionals, including pharmacy teams in Healthy Living Pharmacies, who have completed clinical champion training.

Commissioners: CCG and/or local authorities in partnership with PHE.

8.2.3. Progress indicators

- Percentage of adults classified as ‘inactive’
- Percentage of physically active adults

8.2.4. Further information

- NICE PH44 Physical Activity: brief advice for adults in primary care
- NICE physical activity return on investment tool
- Making Every Contact Count resources (PHE)
- Physical activity and health CPN e-learning modules
- Motivational interviewing CPD e-learning module
- Making Every Contact Count e-learning

- Gates AB. Making every contact count for physical activity—for tomorrow's patients: the launch of the interdisciplinary, undergraduate, resources on exercise medicine and health in the UK2015 2015-10-19. Available from: http://bjsm.bmj.com/content/early/2015/10/19/bjsports-2015-095489.

Training provided by clinical champions can be booked by contacting physicalactivity@phe.gov.uk.

8.3. Increasing active travel for staff, patients and local population

Aim: to increase the proportion of people achieving more than 30 minutes of moderate exercise each week and the proportion undertaking at least 150 minutes per week through everyday walking and/or cycling.

Seek to achieve this through active travel plans with supporting local activation activities like walking groups, cycling classes and workplace reinforcement through the local workplace health and wellbeing accreditation scheme eg Better Health at Work Award.

Promotion of cycle to work schemes combined with provision of facilities such as showers and secure cycle parking.

These can be combined with evidence-backed, population-based interventions, such as ‘Beat the Street’.

Commissioners and providers within footprints are encouraged to set stretching active travel targets and monitor the impact of their interventions through annual surveys. Travel plans can reduce the proportion of people arriving by car by 18%.

8.3.1. Evidence

A North West Reading CCG-commissioned population-based ‘Beat the Street’ intervention engaged 11% of the population (>23,000 people). Over 1,200 adults who had moved into activity were still achieving 150 minutes per week 12 months after intervention.

Department for Transport estimates a 35:1 cost-benefit ratio of for interventions that increase cycling and walking. Evidence suggests active travel plans are more effective with supporting activation activities like cycling classes or group walking interventions.

The Kings Fund calculated that getting one more person to walk to school pays back £768; and to cycle to work rather than by car between £539 and £641 in terms of NHS savings, productivity improvements and reductions in air pollution and congestion.

8.3.2. Who should take action

Providers: local authorities and NHS within primary, secondary, and social care settings.

Commissioners: CCGs and local authorities.

8.3.3. Progress indicators

- Percentage of adults classified as ‘inactive’
- Percentage of physically active adults
- Percentage of journeys to GP, hospitals, schools by walking/cycling

8.3.4. Further information

- Start active, stay active
- NICE PH41: walking and cycling
- NICE PH8: Physical activity and the env.
- PHE active travel briefing for local government
- LGA and PHE: Obesity and the environment
- NHS SDU briefing on active travel planning
- WHO health economic assessment tool for walking and cycling
- Department for Transport’s Claiming the Health Dividend
- National Cycling Network

9. Mental health

9.1. Overview

9.1.1. Evidence

Mental health problems cost the NHS c£14bn p.a. and wider societal costs are estimated at c£100bn. Of these, perinatal mental health costs the NHS c£1.2bn, and wider social costs of c£8.1bn for each annual birth cohort.

In any given year in England, nearly 1 in 4 adults experiences at least one mental health problem. Diagnosable mental health problems are experienced by 23% of adults and 10% of children (aged 5 to 16). 25% of women experience a mental health problem during pregnancy or the first year after childbirth. This is equivalent to c11 million adults in England (2013), of whom c8 million have a common mental health problem.

Physical and mental health are closely linked. People with severe and prolonged mental illness are at risk of dying on average 15 to 20 years earlier than other people – one of the greatest health inequalities in England; and of these deaths, 2 out of 3 are due to avoidable physical illness.

Although 3 out of 4 people with physical illness receive treatment, only 1 in 4 people with mental health problems do.

9.1.2. Root causes

The impact of parental mental health; low income; employment and housing status; discrimination; isolation and marginalisation.

9.1.3. Public health ambitions

To reduce prevalence of mental health and mental health-related emergency admissions by:

- improving earlier and wider access to mental health services including for children and new mothers
- improving the physical health of those with mental health problems
- reducing the disability employment gap (see health and work slides)

9.1.4. Selected interventions

1. Maternity staff to offer mental health support to women in pregnancy and after childbirth. CCGs commission maternity pathways that embed perinatal mental health support in line with NICE guidelines – see section 9.2
2. Support smokers within the mental health trusts to quit. Trusts deliver care in entirely smokefree buildings and grounds with appropriate support – see sections 2 and 9.3
3. Take action to become a suicide safer area. CCGs take an active role in developing multi-agency suicide prevention plans, including primary care action, alcohol misuse and support to high risk groups
4. Provide early intervention in psychosis services. CCGs encourage trusts to ensure that people experiencing a first episode of psychosis have access to a NICE approved intervention within 2 weeks of referral
5. Train accident and emergency and other frontline staff in mental health first aid. CCGs commission training for accident and emergency staff, school nurses, maternity, health visitors, GPs and walk-in centres

9.2. Improving perinatal mental health services

Aim: for every women to be able to access evidence-based specialist mental health advice, support and treatment during the perinatal period.

Seek to ensure that every footprint establishes a comprehensive perinatal pathway with four key components:

1. Access to mental health advice and support embedded within universal maternity, health visiting and GP services
2. Routinely asking about mental health in all consultations with pregnant women and to one year after childbirth
3. Rapid access to psychological therapies for all women who will benefit
4. Clear pathways including support during and after childbirth, specialist perinatal community teams, parent-infant services, and appropriate access to mother and baby units

Homerton Hospital (London) trains all of its practitioners to ensure pregnant women are offered access to the perinatal mental healthcare pathway (component a) in a timely fashion. When booking their appointments women are routinely asked about their mental health. This has reduced the number of late diagnoses of mental health problems, which has increased rates of full recovery.

9.2.1. Evidence

In Hampshire Trust the intervention increased the number of pregnant women being referred into the mental health pathway. In 2012/13 c690 of the c5,700 women giving birth at Hampshire Trust were referred into the pathway, compared to 425 in 2011/12. This resulted in a reduction in occupied bed days across the trust from 98/1000 births in 2011/12, to 75/1000 in 2012/13.

London School of Economics estimates that the total costs of the intervention (components a-d) to the NHS are £407 per birth p.a. Per birth costs for each component being are:

a) £205 for training and specialist supervision
b) £18 mental health assessments
c) £184 specialist psychological and clinical support and networks

London School of Economics estimates that the provision of perinatal mental health services are cost saving to the NHS. Early intervention in psychosis has been shown to save £3.98 for every £1 spent over a 2-5 year (component c).

9.2.2. Who should take action

Providers: maternity services, communities, specialist community or inpatient services.

Commissioners: CCGs.

9.2.3. Progress indicators

- Perinatal mental health: Estimated number of women requiring support during pregnancy or postnatal period
- Percentage of women who were asked the recommended questions for prediction and detection of mental health issues
- Maternal deaths from psychiatric causes (suicide or substance misuse) related to a pregnancy

9.2.4. Further information

- Mental health taskforce
- NICE CG192 Antenatal and postnatal mental health
- Mental health promotion and prevention: the economic case (LSE)

- Sontag-Padilla L, Sontag-Padilla L, Schultz D, Schultz D, Reynolds K, Reynolds K, et al. Maternal Depression2013 2013. Available from: http://www.rand.org/pubs/research_reports/RR404.html.
- The cost of perinatal mental health problems (LSE)

9.3. Smoke free mental health trusts and quitting support

Aim: to reduce smoking related ill-health for patients of mental health trusts and their staff.

Seek to achieve this by:

1. Enforcing smoke free buildings and ground
2. Providing a mix of very brief advice and intensive interventions training to all staff
3. Consistently recording smoking status
4. Offering stop smoking support to all people who smoke

16 out of 59 mental health trusts are currently smoke free in buildings and grounds. Current smoking rates for those receiving inpatient treatment of less than 12 weeks is 34%; for longer stays the rate is 70%. Smoking increases NHS psychotropic medication costs by approximately £40m per year, by a more rapid metabolism due to smoking.

South London and Maudsley NHS Foundation Trust achieved a reduction in medication costs by implementing smoke free policies. It also saved four hours a day of staff time previously used to facilitate smoking escorting, and reinvested savings in therapeutic activities. Patients were also better engaged in therapy, both attending and completing more sessions. Savings from reduced impact on staff time are potentially over £130,000 per trust per year [based on 6,028 staff hours facilitating smoking across four wards].

9.3.1. Evidence

Effectiveness: PHE estimates that 95% of patients could be screened and 95% of those who are smokers could be given appropriate help to quit. It is estimated the long-term quit rate for long term patients is 40%, and 25% for short-term patients.

Costs: PHE estimates that the intervention could cost c£1,430 p.a. to the health and care system on average over 10 years. The average cost per person to the NHS is c£790 p.a. over 10 years, and c£640 to local authorities. This includes nicotine replacement therapy, one off set up cost and training and estate costs (eg activities to replace smoking).

Net savings: PHE estimates net savings of c£1,460 p.a. per person to the health and care system on average over 10 years. The average net saving per person to the NHS

is £1,890 p.a. over 10 years, although this comes at a net cost to local authorities of c£430.

9.3.2. Who should take action

Providers: staff in mental health trusts and local stop smoking services.

Commissioners: CCGs and local authorities.

9.3.3. Progress indicators

- Smoking rates in people with serious mental illness (SMI)

9.3.4. Further information

- NICE PH48 Smoking: acute, maternity and mental health services guidance and Implementation tools
- PHE: Smoking cessation in mental health settings; Guidance and tools for commissioners
- Mental health promotion and prevention: the economic case (LSE)
- Statistics on smoking in England 2015 (HSCIC)
- The stolen years MH smoking and action report (ASH)
- Improving NHS staff health and wellbeing: tackling smoking Briefing Note
- Sohal H, Huddlestone L, Ratschen E. Preparing for Completely Smoke-Free Mental Health Settings: Findings on Patient Smoking, Resources Spent Facilitating Smoking Breaks, and the Role of Smoking in Reported Incidents from a Large Mental Health Trust in England. International journal of environmental research and public health [Internet]. 2016 Feb 25; 13(3). Available from: http://dx.doi.org/10.3390/ijerph13030256.

10. Sexual health

10.1. Overview

10.1.1. Evidence

There are approximately 6,000 new HIV diagnoses each year. Of these, 42% are late diagnoses, which have higher levels of morbidity and mortality compared to those diagnosed promptly and a ten-fold increased risk of death in the year following diagnosis.

Treating HIV is estimated to cost the NHS £770m per year (2014). Around 85,000 people accessed HIV services in 2014 and the annual per person cost of providing HIV care was estimated to be around £9,000. Preventing one UK-acquired HIV infection would save c£0.36m in undiscounted lifetime treatment and clinical care costs.

It is also estimated that just over half of all pregnancies in England are planned. The Department of Health estimates that the annual direct costs to the NHS of unplanned pregnancy are around £240m, with an estimated unit cost of around £1,600, which includes costs from abortions, maternity care, miscarriage and mental health problems. Not all unplanned pregnancies can be prevented but more effective contraceptive methods can reduce prevalence.

10.1.2. Root causes

Inequalities and lack of information on contraceptive choices and their relative effectiveness; stigma and lack of information about sexual health and sexually transmitted infections; lack of access to HIV testing and contraceptive choices.

10.1.3. Public health ambitions

To reduce prevalence of sexually transmitted infections, late diagnosis and unplanned pregnancies by:

1. Improved access to high quality, actionable information about sexually transmitted diseases, sex and contractive choices and effectiveness
2. Improved access to STI testing and full range of effective contraceptive methods, available in most appropriate care setting

10.1.4. Selected interventions

1. Increase access to the most effective long-acting reversible contraceptives (LARCs) in various care settings. GPs to offer LARCs as part of their contraception offer and secondary care providers to include LARCs as part of a contraception offer within routine maternity and abortion pathways – see section 10.2.
2. Expand access to HIV testing in high-prevalence areas. GPs and hospitals to offer testing at all general hospital admissions and to newly-registered patients in GP clinics – see section 10.3.
3. Reduce increasing rates of STIs and improve detection of STIs. Primary care professionals including GPs and pharmacists to ensure that good prescribing practice and national guidance on the management of STIs in primary care is followed, and to refer those diagnosed with STIs to specialist services including for partner notification.

10.2. Improve access to long-acting reversible contraceptives

Aim: to increase the effectiveness of female contraception methods by improving access to highly effective LARCs to reduce the number of unplanned pregnancies.

Seek to achieve this by improving knowledge about and skills to fit and remove LARCs among healthcare staff and making LARCs more widely available through:

1. Making LARCs routinely available as part of GP contraceptive offer
2. Include LARCs in routine maternity and abortion pathways and where relevant
3. Deliver training programme to healthcare professionals (GP, practice nurses, midwives) to ensure they are confident to provide advice

Barriers to widespread uptake include lack of integration and join-up due to fragmentation of the commissioning cycle and dispersed funding responsibilities, which can be overcome by taking a more collaborative approach.

Wigan Borough CCG and Wigan Council pooled and aligned budgets to commission sexual health services collaboratively, which led to significant savings to the CCG and improvements in non-attendance rates and uptake of LARCs.

10.2.1. Evidence

Effectiveness : LARCs are non-user dependent and 99.9% effective in preventing unwanted pregnancy compared to 92% for the contraceptive pill (typical use) or 82% for the male condom (typical use).

Costs : based on a peer-reviewed paper supporting NICE guidelines, PHE estimates that the provision of LARC for one user over 5 years costs £514 ie c£211 in year 1 and £74 each year thereafter; the oral contraceptive pill costs £456 over the same time horizon ie £137 in year 1 and £80 each year thereafter. On average and excluding training costs, the intervention would cost around c£12 p.a. per woman moving to LARC over 5 years.

Training costs would vary depending on specification and numbers of staff trained. Based on our assumptions, total training costs would be equivalent to an average of c£8 p.a. per woman moving to LARC, of which c£4 p.a. per woman moving to LARC would be incurred by the NHS (ie backfilling).

Net savings : PHE estimates that if 1,000 women switch from oral contraceptive to LARCs, 291 unplanned pregnancies could be avoided over 5 years. This leads to average net saving to the NHS of £29 p.a. per woman moving to LARC (total net savings of £143 over 5 years), which does reflect the impact of backfilling healthcare professionals on training.

10.2.2. Who should take action

Commissioners: CCGs (abortion and maternity services); NHS England and local authorities fund contraceptives supplied in community sex health services and in GPs
Providers: general practice and hospitals and other secondary care providers who provide maternity and abortion services

10.2.3. Progress indicators

- Totally prescribed LARC excluding injections
- GP prescribed LARC excluding injections
- Sexual and Reproductive Health Services prescribed LARC excluding injections

10.2.4. Further information

- PHE 2014, Making it work: a guide to whole system commissioning for sexual health, reproductive health and HIV – including further case studies
- NICE 2013, Long-acting reversible contraception the effective and appropriate use of long-acting reversible contraception
- Department of Health, 2013 Commissioning sexual health services and interventions - best practice guidance for local authorities
- PHE 2015, Commissioning regional and local HIV sexual and reproductive health services

10.3. Increasing uptake of HIV testing

Aim: to expand HIV testing to offer testing at all general hospital admissions and for newly registered patients in GP clinics in the 66 local authorities with the highest diagnosed HIV prevalence to reduce late diagnosis and onward transmission rates.

Seek to achieve this by expanding HIV testing in general medical services in areas of high diagnosed HIV prevalence through:

1. Offering HIV tests routinely at GP registration or hospital admission;
2. For GPs: testing through additional blood test or point-of-care tests (POCTs)
3. For hospitals to add HIV test to routine blood tests upon hospital general medical admission

Current barriers include lack of awareness and training, which can be addressed by clinical training, awareness raising and improved protocols.

Brighton LA implemented successfully routine HIV testing in primary care and community venues. This decreased the rate of late diagnosis from 51% to 33%, and an increased diagnosis of HIV in GP and community settings (27% in 2000 to 59% in 2012).

10.3.1. Evidence

A diagnosis of HIV can reduce onward transmission through treatment and changes in behaviour. Individuals diagnosed with HIV infection demonstrated a reduction in risk behaviour, which has been shown to contribute to a reduced rate of onward transmission.

Costs will accrue to the NHS from administering HIV tests (registrar time and material costs) in acute medical admission units (estimated at £12 per person per test) or tests done in GP settings (estimated at £20 per person per test).

Savings accrue due to prevented onward HIV transmission and reduced, expensive late diagnosis (care costs for late stage diagnosis have been estimated at £12,800; care costs for early diagnosis £10,500 (both 2008 prices)). Over a 10-year period, increasing HIV screening as outlined above has the potential to save £278 million.

10.3.2. Who should take action

Providers: all primary care (GPs) and secondary care (general medicines hospital admissions) providers.

Commissioners: local authorities and CCGs with options for co-commissioning arrangements, and adoption of an integrated approach across all pathways.

10.3.3. Progress indicators

- Coverage of HIV testing measured in GUM
- % of adults (aged 15 or above) newly diagnosed with HIV at a late stage of infection
- Rate of new HIV diagnosis per 100,000 population among people aged 15 or above
- Prevalence of diagnosed HIV infection per 1,000 among persons aged 15 to 59 years

10.3.4. Further information

- PHE 2014, Addressing late HIV diagnosis through screening and testing
- Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, et al. Prevention of HIV-1 Infection with Early Antiretroviral Therapy. http://dxdoiorg/101056/NEJMoa1105243 [Internet]. 2011 2011-08-10. Available from: http://www.nejm.org/doi/full/10.1056/NEJMoa1105243.
- Fox J, White PJ, Macdonald N, Weber J, McClure M, Fidler S, et al. Reductions in HIV transmission risk behaviour following diagnosis of primary HIV infection: a cohort of high-risk men who have sex with men. HIV medicine [Internet]. 2009 Aug; 10(7):[432-8 pp.]. Available from: http://dx.doi.org/10.1111/j.1468-1293.2009.00708.x.
- Marks G, Crepaz N, Senterfitt JW, Janssen RS. Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the United States: implications for HIV prevention programs. Journal of acquired immune deficiency syndromes (1999) [Internet]. 2005 Aug 1; 39(4):[446-53 pp.]. Available from: https://www.ncbi.nlm.nih.gov/pubmed/16010168.
- NICE PHG91 (forthcoming)

11. Healthy ageing, dementia and frailty

11.1. Overview

11.1.1. Evidence

The number of people over 85 in the UK is predicted to more than double in the next 22 years, from 1.5 million to 3.4 million. Hospitals have experienced increases in the number of emergency admissions of older patients by 18% in the period between 2010-11 and 2014-15. Older patients now account for 62% of total bed days spent in hospital. Promoting active and healthy ageing is essential to compress morbidity as much as possible.

There are 850,000 people living with dementia in the UK, costing on average £5,300 to healthcare and £12,500 in social care costs p.a. It is estimated that the annual cost of dementia to society in the UK is £26.3bn.

The overall prevalence of frailty detected in hospitals has been rising in England: 150,000 frailty spells were identified in January 2013 compared with 65,000 in 2005.

11.1.2. Root causes

NICE (NG16) guidance highlights the need to address the following in midlife to reduce the risk of dementia, frailty and disability: give up smoking, be more active, reduce alcohol consumption, eat a healthy diet and maintain a healthy weight. Across the entire life course, educational attainment and social connectedness are protective factors. The above also impact on healthy ageing.

Frailty is caused by the accumulation of health deficits, which accrue with age, and is a predominant risk factor for mobility loss, falls, dependence, institutionalisation and death after exposure to minor illness stressors.

11.1.3. Public health ambitions

Reduce the risks of dementia, or associated with ageing and frailty to:

1. Support people to live longer, healthier lives
2. Save the health and social care system money by reducing the prevalence and impact of dementia and co-morbidities across the population
3. Reframe ageing positively to promote the prevention of unhealthy ageing

11.1.4. Selected interventions

1. Raise awareness of actions the public can take to reduce their risk of dementia using midlife healthy lifestyle messages to tackle local dementia risk factor prevalence – see section 11.2
2. CCGs and local authorities to invest in evidence-driven integrated frailty pathways. The Electronic Frailty Index (eFI) can identify older people with mild, moderate and severe frailty with robust predictive validity allowing for appropriate intervention to prevent progression, eg addressing risk factors for mild frailty. The Healthy Ageing Guide, and the Healthy Caring Guide give further examples of appropriate intervention
3. CCGs and local authorities develop an occupational health response to dementia risk, including working with Alzheimer's Society to drive uptake of of Dementia Friends, the Dementia Friendly Employer's Toolkit and addressing social isolation
4. local authorities adapt the homes of those experiencing frailty who cannot afford to do so themselves. Targeted home adaptation support reduces demand for health and social care by enabling older people to live independently. The Care Act 2014 provides the statutory guidance and the Better Care Fund provides the framework for local areas to integrate home adaptations into their health and wellbeing commissioning

11.2. Raise public awareness about reducing the risk of dementia

Aim: to reduce the population risk of dementia.

Seek to achieve this by:

a) Identifying local dementia risk factor profiles via the Dementia Intelligence Network and Dementia Profile, and commissioning appropriately;
b) Investing in awareness raising campaigns to target prevalent local risk factors, such as reducing higher blood pressure and promoting smoking cessation in midlife, and promoting physical activity in later life. The simple message 'what is good for your heart is good for your head' is valuable and can be supplemented with infographics and resources from Health Matters: midlife approaches to reduce dementia risk
c) Fully using national campaigns and resources. These include:
   - Supporting increased uptake of NHS Health Checks and the One You Campaign in local areas
   - Ensuring staff undertaking NHS Health Checks carry out the dementia training component, which will be refreshed later this year
   - Ensuring the reducing your risk of dementia booklet is promoted

11.2.1. Evidence

Evidence suggests that an unhealthy lifestyle can increase the risk of dementia. For example, smoking can double the risk of dementia. Raising awareness of this risk could encourage the implementation of interventions such as smoking cessation interventions and ultimately reduce dementia risk.

Smoking cessation interventions can be 15-20% effective in stopping smoking – see tobacco slides for more detail.

The annual cost of dementia to society in the UK is estimated to be £26.3bn. A 20% reduction in risk factors per decade could reduce UK prevalence by 16.2% (300,000 cases) by 2050. This would constitute annual savings to society of £4.26bn vs current prevalence.

11.2.2. Who should take action

Providers: including primary and secondary care, pharmacy teams and leisure centres.

Commissioners: CCGs and local authorities based on understanding of population risk and dementia prevalence via the dementia profile.

11.2.3. Progress indicators

- Cumulative percentage of the eligible population aged 40 to 74 offered and received an NHS Health Check
- Reduction in smoking prevalence rates
- Increase in physical activity levels in local population

11.2.4. Further information

- NICE guidance: Dementia, disability and frailty in later life – mid-life approaches to delay or prevent onset
- Prime Minister's Challenge on Dementia 2020: Implementation plan
- Explore NHS Health Check data
- NHS Health Check Programme: Introducing the dementia component – increasing awareness and signposting (e-learning resource)
- The NHS Health Check in England: an evaluation of the first four years

12. Maternity and early years

12.1. Overview

12.1.1. Evidence

What happens during gestation and in early childhood impacts on health and wellbeing and life chances throughout the life course. Babies who have very low weight at birth have a 22% chance of dying within their first year.

The national rate of smoking at time of delivery is 10.6%, but this varies from 2.1% in Westminster to 26.2% in Blackpool. The total annual cost of smoking in pregnancy for infant outcomes is estimated to be between £12m and £23.5m.

c26,000 5 to 9-year-olds were admitted to hospital for the surgical removal of teeth due to tooth decay during 2013/14, costing c£15m to the NHS.

12.1.2. Root causes

Low birth weight is caused by exposure to tobacco smoke in the womb, maternal or fetal stress, infections and violence toward the pregnant woman. Tooth decay is caused by consumption of sugar and lack of tooth brushing in children.

12.1.3. Public health ambitions

To have healthier babies and increase the proportion of children ready to learn at 2 and ready for school at 5, by:

1. Reducing the number of babies with low birth weight at term
2. Improving the oral health of children and reduce the oral health gap for disadvantaged children
3. Increasing the proportion of parents taking up the offer of early years placement for disadvantaged <2yrs and support for working parents

12.1.4. Selected interventions

1. Maternity staff to assess all pregnant women for carbon monoxide at antenatal appointment, ensuring those with elevated levels are referred for specialist support – see section 12.2

2. Implement evidence-based oral health improvement programmes. For example, supervised tooth brushing for children where nurseries and/or schools carry out supervised tooth brushing programmes with children – see section 12.3
3. Sign-post patients to early years services available. Healthcare professionals to sign-post and encourage take up of free early years support by eligible, disadvantaged families who are entitled (nursery, education and/or childcare)
4. Join up of childrens services. Health visitors to ensure all children have access to a universal offer of assessment, early identification and early intervention by working closely with early years practitioners, voluntary organisations, family nurse partnerships, GPs and primary and secondary care providers
5. Provide perinatal mental health services. CCGs to commission effective specialist community perinatal services for women with severe or complex conditions – see section 9.2 on perinatal mental health.

12.2. Screen and refer women who smoke during pregnancy

Aim: to reduce the number of pregnant women who smoke.

Seek to achieve this by screening all pregnant women for carbon monoxide (CO) at booking appointment and all other antenatal appointments in maternity services.

Those having elevated CO levels are referred via an opt-out system to specialist stop smoking support services. Local stop smoking services will require sufficient resourcing to respond to referrals and provide behavioural support and medication.

The North East has reduced rates of smoking at time of delivery from 21.1% in 2011 to 16.7% in 2015. This has been achieved through partnership working, embedding system-wide implementation of NICE guidance, ensuring CO screening and referral pathways are in place and working closely with both pregnant women and healthcare professionals.

12.2.1. Evidence

Evidence shows that it is possible to double the number of pregnant women who stop smoking during pregnancy once CO screening and an opt-out referral system is put in place (Reference: Campbell et al).

Based on an evaluation (submitted for publication) of the North East babyClear programme (including CO screening, training healthcare professionals, providing materials and stop smoking support), estimates suggest that overall health system cost is c£31 per pregnancy. The majority of the costs are attributable to the increased referrals to smoking cessation services. This is calculated using an average trust size of 3,000 deliveries per year.

Based on the North East babyClear programme, where 28% of women were smoking at the start of pregnancy, estimates suggest the programme would lead to 96 additional quitters per trust. Referral rates doubled and birthweight of babies born to mothers who stopped smoking was higher than those who continued.

12.2.2. Who should take action

Providers: maternity services within acute trusts.

Commissioners: CCGs, or co-commissioned with local authorities.

12.2.3. Progress indicators

- Smoking status at time of delivery
- Low birth weight of term babies
- Neonatal mortality and stillbirths

12.2.4. Further information

- Smoking cessation: a briefing for midwifery staff
- Smoking in Pregnancy Challenge Group
- NICE PH26 - Smoking: stopping in pregnancy and after childbirth
- NICE PH48 Guidance – Smoking: acute, maternity and mental health services
- Passive smoking and children (RCP)
- Campbell KA, Sue C, Samantha JF, Katharine B, Jo L-B, Andy M, et al. 'Opt-out' referrals after identifying pregnant smokers using exhaled air carbon monoxide: impact on engagement with smoking cessation support2016 2016-05-25. Available from: http://tobaccocontrol.bmj.com/content/early/2016/05/25/tobaccocontrol-2015-052662.abstract.

12.3. Implement programmes that increase access to fluorides

Aim: to improve the oral health of children and reduce the oral health gap for disadvantaged children by applying fluoride to teeth.

Seek to achieve this by implementing evidence-based fluoride intervention programmes that improve tooth decay outcomes at age 5 years, which include:

1. Community water fluoridation schemes
2. Targeted provision of toothbrushes and fluoride toothpaste
3. Targeted supervised tooth brushing using fluoride toothpaste in nurseries and schools
4. Targeted community based fluoride varnish programmes

In areas with fluoridated water there are on average15% fewer 5-year-olds and 11% fewer 12-year-olds with tooth decay than in areas with non-fluoridated water (PHE 2014 – Water fluoridation: Health monitoring report for England 2014).

In Bradford Metropolitan District Council 91% of 6-12 month health visitor contacts include provision of targeted provision of toothbrushes and fluoride toothpaste, a fluoride varnish programme delivers 20,000 applications (p.a.) and 40 nursery schools take part in supervised brushing. Oral health has significantly improved reducing 5 year old tooth decay from 52% (2008) to 37% (2015).

12.3.1. Evidence

Effectiveness: based on evidence collated in the rapid review of oral-health cost-effectiveness interventions, water fluoridation, targeted provision of toothbrushes and fluoride toothpaste by post and health visitor and community-based fluoride varnishing programmes had evidence of cost-effectiveness and high-quality evidence of clinical effectiveness.

Costs: the estimated costs p.a. per child averaged over 5 years for interventions in the ROI tool include the 50p for running costs for water fluoridation and £8 for the targeted provision of toothbrushes and fluoride toothpaste by post. The other interventions are two year programmes so the costs p.a. per person averaged over two years for the following interventions are £10 for the targeted provision of toothbrushes and fluoride toothpaste health visitor and post, £17 for supervised tooth brushing and £26 for fluoride varnish.

Net savings: from the ROI tool, the net savings to the health and social care system have been calculated for the following interventions:

a) Targeted provision of toothbrushes and fluoride toothpaste by health visitors with net savings of c£16 (£1:£5)
b) Supervised tooth brushing with net savings of c£14 (£1:£3)
c) Fluoride varnish programme with net savings of c£13 (£1:£2)
d) Water fluoridation c£6 all p.a. per child on average over 5 years

The ROI tells a different story with a £1:£13 ratio for water fluoridation due to it being a universal programme with very low running costs per person. The ROI ratios for the other interventions are provided in brackets above and in the online infographic.

12.3.2. Who should take action

Providers: local authorities and/or NHS England.

Commissioners: nurseries, children's centres, schools (including special schools), health visitors.

Advice and support is available from consultants in dental public health at local PHE centres.

12.3.3. Progress indicators

- Prevalence of tooth decay in children aged 5 (PHOF and NHS Outcomes Framework)
- Decayed, missing or filled teeth of 5 year olds
- Tooth extractions in secondary care for children under 10 (NHS Outcomes Framework)

12.3.4. Further information

- NICE PH55: Oral health: local authorities and partners
- Local authorities improving oral health: commissioning better oral health for children and young people (PHE)
- Delivering better oral health: An evidence based toolkit for prevention PHE third edition
- Improving oral health: community water fluoridation toolkit (PHE)
- A return on investment tool for oral health interventions and infographic (PHE)
- Water fluoridation health monitoring report for England 2014

Targeted programmes modelled on population with average of two decayed missing or filled teeth and a decayed missing or filled teeth universal average for England at just under one (0.8)

13. Drugs

13.1. Overview

13.1.1. Evidence

Drug use and dependency can significantly affect people, their families, friends and the wider community. It commonly co-exists with a wide range of physical and mental health problems. UK drug misuse costs society £10.7bn a year (2010/11), with a conservative estimate of c£80m p.a. in NHS costs alone.

An estimated 300,000 people in England are dependent on heroin and/or crack, but use is not evenly spread and tends to cluster in areas of high deprivation. Past or present injecting drug use is associated with hepatitis C and other bloodborne viruses, general poor health and a high risk of overdose. Nearly one in nine deaths registered among people in their 20s and 30s in England and Wales in 2014 were related to drug misuse.

There is increasing use and problems associated with other drugs, including new psychoactive substances, image and performance-enhancing drugs and growing concern about dependence on prescribed and over-the-counter medicines.

13.1.2. Root causes

Socioeconomic deprivation; the addictive nature of drugs being used; experience of abuse/trauma; stigma/complexity as a barrier to accessing protective services; health and social care professionals finding it difficult to identify problem use early and appropriately intervene.

13.1.3. Public health ambitions

1. Prevent dependence forming, or prevent it becoming entrenched
2. Reduce the preventable death and health harm caused by drug misuse
3. Reduce the impact of parental drug misuse on children

13.1.4. Selected interventions

1. Regular review of patients prescribed medicines liable to dependence – see section 13.2
2. Naloxone provision targeted at high-risk groups to prevent fatal overdoses. Health professionals to provide targeted support to overdose survivors, for example by

raising awareness of heightened future fatal overdose risk, providing naloxone to frequent ambulance and A&E users, and referring to specialist treatment

3. Screen, identify and treat hepatitis C in the community. local authorities to commission drug treatment services, needle and syringe programmes and outreach services such as ‘Find and Treat’. The new hepatitis C treatments are provided via the 22 NHS England operational delivery networks
4. Co-commission care for co-existing substance misuse and mental health issues. CCG and local authorities commission a targeted intervention focused on delivery of crisis response/ongoing care to this complex needs group by addressing exclusion – see section 9
5. Implement comprehensive drug treatment systems that provide prompt access for parents who are identified as using drugs with agreed pathways between services to maximise support and reduce risks to children and families. local authorities establish clear pathways to drug treatment and commission interventions for families where parental drug misuse may pose a risk

13.2. Review prescriptions of medicines liable to dependence

Aim: to reduce addictions to medicines (ATM) among GP patients.

Seek to achieve this by:

1. GPs identify patients with repeat prescription for medicines liable to dependence (either as part of ongoing clinical practice or through one-off systematic audit of GP patient register)
2. GPs request identified patients to attend an appointment to review prescription
3. GPs review effectiveness and patient need for prescription and decide to either continue prescription, change prescription or end prescription

PHE is working with a pilot site in Doncaster with 10 GP practices. Each practice nominated an ATM champion who received relevant training and carried out additional patient appointments where necessary. The reviews focused on Pregabalin use in the GP practices and conducted audits of use in April and September 2015, comparing outcomes pre- and post-intervention. Collectively, the GP surgeries reduced prescribing of Pregabalin by 29% (ranging from - 88% to +5%). This represents an annualised gross saving from reduced prescribing costs of £120,000 compared to an investment of c£10,000.

13.2.1. Evidence

Effectiveness: based on the Doncaster pilot, the programme reduced prescriptions of the pain killer Pregabalin between April and September 2015 by 29%.

Costs: evidence from the Doncaster pilot site suggests that the intervention costs c£19.50 per patient seen (ie everyone with a repeat prescription for Pregabalin is audited, but only a proportion are seen by a GP). These costs accrue to the NHS from additional GP appointments (Doncaster saw 462 additional 15 minute GP appointments at c£19.50 per appointment) and training of GPs (one-off total costs of c£1,000 for 60 GPs).

Net savings: evidence from the Doncaster pilot site shows net savings of c£182 p.a. per patient. These savings accrued to the NHS from a lower number of prescriptions of Pregabalin or less expensive prescriptions.

13.2.2. Who should take action

Providers: GPs and primary care teams. Local drug treatment providers can provide training for GPs on ATM, including signposting to appropriate local services.

Commissioners: CCGs. Training from drug treatment providers can be co-commissioned with local authorities.

13.2.3. Progress indicators

- Local prescriptions data is available via the NHS Prescription Services prescribing toolkit
- National Drug Treatment Monitoring System (NDTMS) quarterly reports can be used to track changes in the profile of medicines causing problems locally

13.2.4. Further information

- PHE (2013). Commissioning treatment for dependence on prescription and over-the-counter medicines: a guide for NHS and local authority commissioners
- NTA (2011). Addiction to medicine: an investigation into the configuration and commissioning of treatment services
- RCGP Substance Misuse and Associated Health, (n.d.) Prescription and over-the-counter medicines misuse and dependence

14. Antimicrobial resistance

14.1. Overview

14.1.1. Evidence

The overuse of antimicrobials in clinical and other settings (eg in animal health) is leading to increasing resistance to antibiotics that is spreading worldwide. Antimicrobial resistance (AMR) makes treating infections caused by multi-drug resistant organisms increasingly difficult, which is both costly and a safety risk.

The European Centre for Disease Prevention and Control estimated that AMR costs the European Union about 1.5bn euro in healthcare and lost productivity. In England 50% of all Gram-negative infections are healthcare-associated infections (HCAI), 30% are hospital onset and overall 50% are related to urinary tract infections (UTI). At least a third of these infections are now resistant to ≥ 1 key antibiotic. In 2015 there were more than 50,000 Gram-negative blood stream infections and infections are increasing by almost 10% per year. Treatment of Gram-negative blood stream infections is estimated to cost £3,000 per case and a 10% reduction is estimated to be able to save £11.4m per year.

14.1.2. Root causes

Increasing resistance to antimicrobial agents is exacerbated by both inappropriate prescribing of antimicrobials and increased infection rates attributed to a lack of compliance with infection prevention and control (IPC) measures.

14.1.3. Public health ambitions

The UK government’s ambition is to halve inappropriate prescribing of antibiotics and Gram-negative bloodstream infections by 2020 from the 2016 baseline. Achieving these ambitions can slow the development and spread of AMR and be achieved by:

1. Reducing the number of inappropriate antibiotic prescriptions in primary and secondary care through effective antimicrobial stewardship (AMS)
2. Improving clinical practice, especially in relation to the insertion and management of medical devices and hand and environmental hygiene to prevent and control infections

14.1.4. Selected interventions

1. Reduce antibiotic prescribing to achieve local targets (2016/17 AMR Quality Premium and CQUIN)
2. Achieve infection protection and control (IPC) targets in relation to a range of infections caused by Gram-negative organisms including *E. coli*
3. Education and training on antimicrobial resistance, infection protection and control alongside routine reports on local antimicrobial resistance and rates of antibiotic prescribing
4. Effective local antimicrobial stewardship (AMS) and optimised infection protection and control by providers working closely with directors of infection prevention and control, directors of public health and other appropriate leads

14.2. Reducing inappropriate prescribing of antibiotics

Aim: to reduce inappropriate prescribing of antibiotics.

Seek to achieve this through AMS, a co-ordinated system-wide approach achieved by:

1. Establishing AMS management groups with good clinical governance within trusts, CCGs and STPs
2. Ensuring appropriate diagnostic tests available to aid effective prescribing
3. Using up-to-date AMR surveillance data to inform clinical treatment guidelines
4. monitoring adherence to evidence-based antibiotic prescribing guidelines
5. audit and feedback on antibiotic prescribing quality measures, eg CQUIN and Quality Premium (QP)
6. delivering education and training on antibiotics to health and care staff
7. monitoring and benchmarking antibiotic consumption at prescriber/speciality level by ensuring appropriate health informatics are available (eg electronic prescribing)

14.2.1. Evidence

Effectiveness: AMS programmes can reduce resistance and costs while improving health outcomes. Prescriber feedback can reduce antibiotic use by 11% on average, and physician-targeted interventions to improve antibiotic use for respiratory tract infections in primary care reduced prescription by 11.6% on average. A systematic review of quality improvement strategies found broad-based interventions extrapolated to larger community-level impacts on total antibiotic use, with savings of 17-117 prescriptions per 1,000 person-years.

Cost-effectiveness: hospital AMS programmes can reduce antimicrobial costs by 15% per patient day, representing two-year savings of $261,630 in one long-term acute hospital care study. Audit and feedback can significantly reduce antibiotic costs for a

hospital ($390,000 per yr1). A Chicago study found AMS teams cost $2367 per QALY gained with a 90% likelihood of cost-effectiveness at a threshold of $20,000 per QALY (and with an even higher probability of cost-effectiveness, and a net monetary benefit of approximately £18,000, using the NHS threshold). Prescribing appropriate antibiotics for UTI (eg nitrofurantoin) as first line is cost-minimising.

14.2.2. Who should take action

Providers: in primary and secondary care settings by NHS trust staff across all clinical care pathways.

Commissioners: CCGs.

14.2.3. Progress indicators (CQUIN and QP measures)

- Total number of prescribed antibiotic items per 1000 resident individuals [GP and CCG] and STAR-PU [GP and CCG]
- Defined daily doses of antibiotics per 1000 admissions [Acute Trusts]
- Reductions in broad spectrum prescribing [GP, CCG]
- Reductions in broad spectrum prescribing [Carbapenems and Piperacillin/Tazobactam Acute Trusts]
- Trimethoprim: Nitrofurantoin ratio [GP and CCG]

14.2.4. Further information

- Rosenberg DJ. Infections, bacterial resistance, and antimicrobial stewardship: the emerging role of hospitalists. Journal of hospital medicine [Internet]. 2012; 7 Suppl 1:[S34-43 pp.]. Available from: http://dx.doi.org/10.1002/jhm.978.
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- McKinnell. Mayo ClinProc 2011
- Start Smart Then Focus – Antimicrobial Stewardship Toolkit for English Hospitals
- RCGP TARGET Antibiotics Toolkit
- NICE NG15: Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use
- 2016/17 AMR CQUIN
- Quality premium guidance 2016/17
- Patient safety alert: Addressing antimicrobial resistance through implementation of an antimicrobial stewardship programme
- The antimicrobial self-assessment toolkit for NHS Trusts

14.3. Reducing Gram-negative bloodstream infections

Aim: to reduce the incidence of preventable Gram-negative bloodstream infections (GNBSI) by 10% per year (assuming that 50% of the 50,000 annual GNBSI are related to urinary tract infections (UTI) of which 50% are catheter associated and also that at least 30% of the more that 38,000 *E. coli* blood stream infections (BSI)/year are preventable).

Seek to prevent infection by establishing system-wide quality improvement programmes that will reduce rates of infection by:

1. Preventing UTI by urinary catheter (UC) avoidance strategies (eg by using bladder scanners) and using care bundles for urinary catheter insertion and daily review of urinary catheter to reduce catheter-associated UTI
2. Preventing central venous catheter (CVC) related blood stream infections (CVC-BCI) by optimising infection protection and control measures
3. Preventing progression of blood stream infection sepsis by treating community urinary tract infections with appropriate antibiotics, based on local AMR data (ie Nitrofurantoin when Trimethoprim resistance is greater than 20%)

14.3.1. Evidence

Effectiveness: a meta-analysis demonstrated that bladder scanners reduced catheter-associated UTI by 75% (OR 0.27). Similarly, a quality improvement programme in intensive care units reduced CVC-BSI by 80%4, while another for urinary catheters reduced catheter-associated UTI by 75%.

Assuming 50% of the 50,000 annual GNBSI are related to urinary tract infections, and 50% of these are catheter associated, a 75% reduction estimate results in 12,500 cases of GNBSI related to catheter-associated UTI prevented per year.

Costs: costs of implementing bladder scanners are £49 per scan. Assuming the equivalent of all GNBSI related to UTI are scanned, this gives costs of £1.4m p.a. nationally. Quality improvement programme costs will vary.

Cost-effectiveness: conservatively assuming a cost per case of £1,500 (with estimates up to £20,0006), a 75% reduction in GNBSI related to catheter-associated UTI would provide annual savings of almost £19m in England (minus implementation costs). Studies have found quality improvement programmes to be cost-saving: saving approximately £450 per 100 hospitalised patients. Decision models have demonstrated that nitrofurantoin is cost-minimising when resistance rates to trimethoprim are over 17% (which is the case in England).

14.3.2. Who should take action

Providers: in primary and secondary care settings by NHS trust staff across all clinical care pathways.

Commissioners: CCGs

14.3.3. Progress indicators.

- Incidence of BSI caused by *E.coli* (hospital onset and CCG)
- Proportion of *E. coli* infections specimens from BSI & UTI with susceptibility tests to key drugs required for treatment and key resistance patterns
- Trimethoprim: Nitrofurantoin ratio [GP and CCG]

14.3.4. Further information

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- NICE CG139: Healthcare-associated infections
- NICE CG74: Surgical site infections
- NICE CG191: Pneumonia in adult; Prevention and control of multi-drug-resistant Gram-negative bacteria. JHI 2015.
- PHE CPE Toolkit. 2014 [Acute and non-Acute]

Appendix A: Local support:

15. Considerations to support interventions into practice

15.1. A place-based approach

This menu of interventions (MoI) resource aims to help support a place-based approach for local populations.

Some key stages that may be helpful to consider during implementation include:

- identify local leaders including the director(s) of public health and their teams who will help ensure that a joined-up prevention and care pathway is put in place to support delivery. Local leaders include identifying lead commissioner and lead provider representation
- develop a shared vision with and across the local community and partners in the STP footprint
- establish the local population profile and needs assessment (profile/key risk factors such as age/ethnicity, utilising existing JSNAs, and tools such as Primary Care Practice Profiles and Fingertips tools)
- identify relevant interventions from this MoI and determine which services will need to be in place to deliver across your footprint for example weight management education for overweight adults/children via NHS Health Checks
- what would the translation of the interventions look like locally? For example, if aiming for a 5% local population engagement how many nurses or practitioners or clinic hours may be required?
- how will the local geography or existing service configurations factor in the delivery model for the interventions? For example, rural or city based services in areas where there are local teaching hospitals, or where there are isolated communities.
- use learning from weighted capitation approaches and formulas to help in measuring relative need between areas
- pathways mapping: what existing prevention and care pathway and commissioned models are in place across the STP footprint that are relevant to this condition area or intervention?
- begin to identify potential delivery sites and the types of providers that will need to be involved in delivery
- identify relevant existing protocols, guidance, networks and clinical or public health leads

- establish common delivery and success criteria, which are specific and measurable with clear delivery leads
- robust evaluation should be in place for services delivered, to help ensure the effectiveness of interventions
- share learning and have mechanisms in place for an iterative process locally, feeding key challenges upwards

16. PHE and NICE contacts for STP footprint areas

16.1. PHE contacts

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1	Northumberland, Tyne and Wear	Sue Gordon, Deputy Director Healthcare Public Health, PHE North East	sue.gordon@phe.gov.uk
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14	Nottinghamshire	Sean Meehan, Health & Wellbeing Programme Manager, PHE East Midlands	sean.meehan@phe.gov.uk
15	Leicester, Leicestershire and Rutland	Philip Monk, Consultant, PHE East Midlands	philip.monk@phe.gov.uk
16	The Black Country	Helen Carter, Deputy Director for Healthcare Public Health, PHE West Midlands	helen.carter@phe.gov.uk
17	Birmingham and Solihull	Helen Carter, Deputy Director for Healthcare Public Health, PHE West Midlands	helen.carter@phe.gov.uk
18	Coventry and Warwickshire	Helen Carter, Deputy Director for Healthcare Public Health, PHE West Midlands	helen.carter@phe.gov.uk
19	Herefordshire and Worcestershire	Helen Carter, Deputy Director for Healthcare Public Health, PHE West Midlands	helen.carter@phe.gov.uk
20	Northamptonshire	Samia Latif, Consultant Communicable Disease Control, PHE East Midlands	samia.latif@phe.gov.uk
21	Cambridgeshire and Peterborough	Jo Broadbent, Deputy Director for Healthcare Public Health, PHE East of England	jo.broadbent@phe.gov.uk
22	Norfolk and Waveney	Jo Broadbent, Deputy Director for Healthcare Public Health, PHE East of England	jo.broadbent@phe.gov.uk

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34	Frimley Health	Alison Barnett, Deputy Centre Director, PHE South East	alison.barnett@phe.gov.uk
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42	Hampshire and the Isle of Wight	Alison Barnett, Deputy Centre Director, PHE South East	alison.barnett@phe.gov.uk
43	Gloucestershire	Debra Lapthorne, Centre Director PHE South West	debra.lapthorne@phe.gov.uk
44	Buckinghamshire, Oxfordshire and Berkshire West	Alison Barnett, Deputy Centre Director, PHE South East	alison.barnett@phe.gov.uk

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8	Cheshire and Merseyside	Annie Coppel	annie.coppel@nice.org.uk	07766 504518
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13	Lincolnshire	Deborah O'Callaghan	deborah.ocallaghan@nice.org.uk	07899 066347
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17	Birmingham and Solihull	Christopher Connell	chris.connell@nice.org.uk	07747 454983
18	Coventry and Warwickshire	Christopher Connell	chris.connell@nice.org.uk	07747 454983
19	Herefordshire and Worcestershire	Christopher Connell	chris.connell@nice.org.uk	07747 454983
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22	Norfolk and Waveney	Deborah O'Callaghan	deborah.ocallaghan@nice.org.uk	07899 066347
23	Suffolk and North East Essex	Deborah O'Callaghan	deborah.ocallaghan@nice.org.uk	07899 066347
24	Milton Keynes, Bedfordshire and Luton	Christopher Connell	chris.connell@nice.org.uk	07747 454983
25	Hertfordshire and West Essex	Deborah O'Callaghan	deborah.ocallaghan@nice.org.uk	07899 066347
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33	Sussex and East Surrey	Vacant	fieldteam@nice.org.uk	
34*	Frimley Health	Vacant	fieldteam@nice.org.uk	
35	Surrey Heartlands	Vacant	fieldteam@nice.org.uk	
36	Cornwall and the Isles of Scilly	Stephen Judge	stephen.judge@nice.org.uk	07887 633459
37	Devon	Stephen Judge	stephen.judge@nice.org.uk	07887 633459
38	Somerset	Stephen Judge	stephen.judge@nice.org.uk	07887 633459
39	Bristol, North Somerset and South Gloucestershire	Stephen Judge	stephen.judge@nice.org.uk	07887 633459
40	Bath, Swindon and Wiltshire	Stephen Judge	stephen.judge@nice.org.uk	07887 633459

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42	Hampshire and the Isle of Wight	Stephen Judge	stephen.judge@nice.org.uk	07887 633459
43	Gloucestershire	Stephen Judge	stephen.judge@nice.org.uk	07887 633459
44**	Buckinghamshire, Oxfordshire and Berkshire West	Chris Connell	chris.connell@nice.org.uk	07747 454983

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** STP 44 Berkshire West covered by Stephen Judge

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