Driving investment in upstream cancer services

A report prepared for Cancer Research UK on the opportunity to increase prevention and early diagnosis of cancer through investment

2020 DELIVERY
Together we will beat cancer
ACKNOWLEDGEMENTS

This report was prepared for Cancer Research UK by 2020 Delivery to investigate opportunities to use financial mechanisms to drive investment and activity in the prevention and early diagnosis of cancer.

It is based on analysis of existing data as well as expert interviews with decision makers at various levels across the NHS and in local government. We are grateful to everyone interviewed as part of this work for their time and insight.

The contents of this report do not represent Cancer Research UK policy. The recommendations contained within it are designed to highlight the barriers and opportunities to improve prevention and early diagnosis and to spark discussion about how to address them.

The findings of this report largely date from 2018.
# Table of Contents

1 EXECUTIVE SUMMARY ........................................................................................................3

2 PROJECT CONTEXT AND PROGRESS .............................................................................7
   2.1 PROJECT CONTEXT .....................................................................................................7
   2.2 PROJECT DESIGN .......................................................................................................7

3 BASELINE: THE CURRENT COMMISSIONING ENVIRONMENT AND PROGRESS TO DATE IN PREVENTION AND EARLY DIAGNOSIS .............................................................8
   3.1 CURRENT COMMISSIONING ENVIRONMENT ................................................................8
   3.2 PROGRESS TO DATE ..................................................................................................9
   3.3 MECHANISMS CURRENTLY IN USE TO PROMOTE PREVENTION AND EARLY DIAGNOSIS OF CANCER ...........................................................................................................11
   3.4 ADDITIONAL FACTORS THAT IMPACT ON THE SYSTEM PRIORITISATION OF PREVENTION AND EARLY DIAGNOSIS OF CANCER ................................................................. ERROR! BOOKMARK NOT DEFINED.
   3.5 CONCLUSION .............................................................................................................14

4 MULTI-YEAR BUDGETING AS A LEVER TO SUPPORT PREVENTION AND EARLY DIAGNOSIS OF CANCER ..............................................................................................................15
   4.1 INTRODUCTION TO MULTI-YEAR BUDGETING ........................................................15
   4.2 MULTI-YEAR BUDGETING FOR PREVENTION OF CANCER ....................................17
   4.3 MULTI-YEAR BUDGETING FOR EARLY DIAGNOSIS OF CANCER ..........................19
   4.4 CONCLUSIONS ........................................................................................................22

5 PROSPECTIVE AREAS FOR IMPROVEMENTS IN EARLY DIAGNOSIS AND PREVENTION .................................................................................................................................23
   5.1 CHALLENGES IDENTIFIED THROUGH INTERVIEWS ............................................23
   5.2 BLOCKERS CONSIDERED AND FOUND TO BE WEAKLY OR NOT SUPPORTED ....30

6 RECOMMENDATIONS TO IMPROVE PREVENTION AND EARLY DIAGNOSIS OF CANCER ...............................................................................................................................32
   6.1 CONSTRAINTS ............................................................................................................32
   6.2 RECOMMENDATIONS ...............................................................................................32
1 EXECUTIVE SUMMARY

Against a complex and financially constrained commissioning landscape in England, progress is being made on cancer prevention and early diagnosis; though there are opportunities to go further, as highlighted in the NHS Long Term Plan. Cancer mortality in England, as well as performance on a variety of other measures, has been consistently improving over time. However, there is significant opportunity for further improvement, in particular in the stage at which cancers are diagnosed and further reducing smoking prevalence.

The current commissioning environment contains non-financial and financial mechanisms designed to support greater prevention and early diagnosis of cancer. However, there are also mechanisms which can inhibit prevention and early diagnosis. Non-financial mechanisms include: (i) clinical guidance; (ii) publication of early diagnosis data; (iii) publication of materials for public awareness campaigns; (iv) decision support tools for GPs. Financial mechanisms include quality-dependent payments and ringfenced funding. However, cancer prevention and early diagnosis operate within a commissioning environment where funding resources, clinical outcomes and patient experience for diagnosed patients, and political commitments must all be balanced.

Multi-year budgeting (MYB) is an innovative approach to funding health interventions, but its requirement that interventions generate a net reduction in system costs is difficult to satisfy. Interventions to improve the early diagnosis of cancer may generate a net increase in system costs and are therefore not a candidate for most MYB models, although early diagnosis of cancer is highly cost-effective. Prevention interventions, including smoking cessation and tobacco control, may lead to a net reduction in system costs if non-cancer savings are considered, but the evidence assessed by this paper was not yet found to be at a level to justify designing and implementing a multi-year budgeting approach.

Three critical factors with a financial or commissioning component emerged which will prevent continued improvements in cancer prevention and early diagnosis: (i) system fragmentation, especially in tobacco control and screening, and unstable funding for the regional Cancer Alliances which could support STPs to play an integrating role; (ii) the prioritisation of post-referral and post-diagnosis care over early diagnosis and prevention, for instance in targets and incentives schemes including the use of performance against the 62-day RTT standard; and (iii) the expected future loss of ringfencing for the Public Health Grant to Local Authorities. These three factors all prevent further improvements in prevention and early diagnosis from being realised at pace.

Six core recommendations, and six additional recommendations, would enable further progress in prevention and early diagnosis if implemented. The six core recommendations are as follows:

Recommendation 1: NHS England and Improvement should continue to provide Cancer Alliances with committed core funding for at least five years and ensure this funding delivers flexibility as well as consistency of implementation.

Cancer Alliances represent an important strategic level in local design and delivery of cancer services. By working across organisational boundaries and integrating NHS and local government they are well-placed to address the challenges posed by system fragmentation in cancer. In particular they are well-placed to identify appropriate targets for their region and work across the pathway to achieve them.
Cancer Alliances now have five-year visibility of their budgets, which is welcome and should support regions to develop further the local governance and delivery structures that will enable the emergence of more integrated system working. Such integration should in turn address the challenges associated with (i) system fragmentation in tobacco control, and (ii) targets and incentives that do not sufficiently prioritise prevention and early diagnosis.

However, a significant proportion of this funding is contingent on delivering specific projects outlined at the national level, rather than acting on local priorities. Achieving national ambitions is important but funding should also allow some flexibility for undertaking specifically local work. Moreover, visibility is not the same as accessibility, and Cancer Alliances report problems arising from the annual budgeting cycle such as not being able to make permanent hires, and not being able to guarantee project funding year to year. While multi-year budgeting in its full sense has not been supported by the evidence in this paper, increasing the certainty of Alliance funding year to year could have a positive impact on planning and delivery.

Cancer Alliances that are strengthened in this way will be able to devote more resources to supporting GPs as well as secondary trusts. Supporting GPs within regional strategic initiatives is logistically challenging due to the number and organisational independence of GP practices; yet primary care remains a critical component in increasing the prevention and early diagnosis of cancer. There are well-evidenced mechanisms to support the capacity of primary care in this area, and Cancer Alliances will be able to identify, and implement, and encourage approaches that are most appropriate within their footprint.

**Recommendation 2:** NHS England and Improvement should expand its use of ringfenced budgets to include not only screening programmes, but also NHS-specific tobacco control programmes. A proportion of annual growth-related funding increases should be ringfenced for such activities and allocated to STPs to invest in locally-prioritised prevention activities.

While there is evidence for the cost-effectiveness of both early diagnosis and prevention, the benefits accruing from prevention are often difficult to attribute to specific organisations and emerge after a time delay. Ringfencing is an effective mechanism within the existing system to ensure that funding is allocated to activity that benefits the wider system but may not result in a measurable benefit to the organisation delivering the activity. Ringfencing is therefore an appropriate mechanism to ensure that prevention activities are commissioned: using annual growth-related funding from which to draw this ringfence is recommended since prevention activity often generates reductions in future activity that are expected to support system ability to manage anticipated future demand.

**Recommendation 3:** NHS England and Improvement should strengthen the relative weighting of incentives for ‘upstream’ services, for example by:

- Reducing the proportion of the payment for the “Cancers diagnosed at early stage” Quality Premium that is dependent on achieving operational performance of 85% against the 62-day referral-to-treatment standard.

Performance-dependent payments are an important financial mechanism to promote prevention and early diagnosis. The Quality Premium incentives for CCGs in respect of prevention and early diagnosis of cancer are effective and appropriately weighted in their own right, constituting 17% of the value for quality indicators. However, because failure to achieve 85% operational performance against 62-day RTT results in a 50% payment reduction on all
quality indicators, achievement of the 62-day RTT becomes more important financially than achieving early stage diagnosis. Partial or full exemption of the ‘early stage’ indicator from performance against the 62-day RTT target would signal the importance of early stage diagnosis and reduce the extent to which the 62-day RTT is disproportionately incentivised within the NHS.

**Recommendation 4:** NHS England and Improvement and Public Health England should enhance public and political support for investment in early diagnosis of cancer by strengthening public transparency of cancer staging performance in the following two ways:

a) **NHS England and Improvement** should strengthen transparency of cancer staging performance by reporting staging figures as well as improvements in staging completeness, by Trust and by STP region, with the same prominence as 62-day RTT performance.

62-day RTT performance is an important measure of access to healthcare and should continue to be published and reported. However there are other measures such as cancer staging performance which should be given equal prominence, published both at regional and at trust level, with an indicator of whether this is improving or deteriorating. This would provide patients and the public with information not only about accessing healthcare, but also about the outcomes being achieved in their local health system. The work ongoing to optimise this indicator is therefore welcome.

b) **Public Health England** should aim to make staging data available within a 6 month reporting period.

Staging cancers is a more complex task than analysing performance against 62-day RTT performance: at the time of writing the most recent available figures date from September 2017. Completing and publishing the analysis of cancer staging more quickly would enable this measure to be used more widely alongside measures such as 62-day RTT performance.

**Recommendation 5:** DHSC should commit to providing increased and sustainable investment in public health to ensure Local Authorities can commission the services they need in their region, including important smoking cessation services.

Local Authorities have made efficiencies through better commissioning, but cuts to public health have placed a severe strain on Local Authorities’ ability to fund a range of frontline prevention services, including those to help people quit smoking. Increasing investment in public health, and finding a sustainable mechanism following the dissolution of the Public Health Grant in the future, will allow Local Authorities to commission important services like smoking cessation services to prevent ill health, narrow the health inequalities gap and support NHS sustainability over the longer term.

**Recommendation 6:** Cancer Research UK and the research community should continue to monitor and support ongoing research in the following three areas:

a) **Cancer Research UK and the research community** should continue to research the evidence base supporting the cost-saving benefits of interventions based in primary and secondary care and other locations by reducing prevalence of smoking, obesity, and alcohol consumption.

This report was unable to demonstrate clearly that tobacco prevention interventions would be suitable for a multi-year budgeting approach; however, the evidence that they may generate a net cost saving provides support for further increases in activity in this area. Further research into possible approaches to fund and deliver such activity would therefore be valuable.
b) Cancer Research UK and the research community should, in light of ongoing research elsewhere and innovations anticipated over the coming five years, continue to stay abreast of developments affecting the opportunity for Artificial Intelligence to enhance patient outcomes, and the cost-effectiveness of early diagnosis, by reducing overdiagnosis and overtreatment as a consequence of screening programmes and optimising referrals.

There is some evidence that there may be an opportunity for artificial intelligence to identify which screening patients will benefit from immediate treatment, and which patients should instead be monitored rather than treated. This would enable improved outcomes for patients and reduced financial costs associated with diagnostics, but the opportunity is currently poorly understood.

c) Cancer Research UK and the research community should assess the impact of new contractual models in stimulating and incentivising investment in ‘upstream’ services.

New contract models for integrated redefine the relationships between providers and CCGs: this allows the emergence of new dynamics such as a shift of demand risk to providers, increased flexibility of funding to move within the pathway, and enhanced collaboration between partners within a healthcare system. There is some evidence that these models can result in cost savings, although as to be expected this has not been found through increased investment in prevention or early diagnosis; moreover, the evidence for these models enhancing integration and collaboration is weak. A stronger evidence base in this area would be of value in clarifying the opportunity for new contracting models to drive increased investment in upstream services.
2 PROJECT CONTEXT AND PROGRESS

2.1 PROJECT CONTEXT
Cancer Research UK commissioned 2020 Delivery to support a better understanding of how new approaches to budgeting and investment in cancer services could support Cancer Research UK’s calls to shift the NHS towards better prevention and early diagnosis of cancer, with particular emphasis on a multi-year budgeting approach.

This report presents the findings from this work, based on desk-based research and expert interviews.

2.2 PROJECT DESIGN
This project was delivered at pace during August and early September 2018 to enable its findings to fit in with NHS England and Improvement’s timelines for the development of longer-term commissioning plans. The structure of the project has been designed to support engagement with stakeholders and experts, ensuring a rigorous approach to collecting and analysing information through ~20 expert interviews and desk-based research: see Insert 1 below.

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<td>Lead, Commissioning and Population Health</td>
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<td>Clinical Director and Clinical lead</td>
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<td>GP lead</td>
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<td>Programme Director, Integrated Cancer Centre</td>
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<td>Public Health Medicine Consultant</td>
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<td>Chief Economist</td>
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<td>Department for Health and Social Care</td>
<td>Deputy Director, Financial Planning</td>
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Insert 1: Organisation type and role of expert interviewees consulted for this report
3 BASELINE: THE CURRENT COMMISSIONING ENVIRONMENT AND PROGRESS TO DATE IN PREVENTION AND EARLY DIAGNOSIS

3.1 CURRENT COMMISSIONING ENVIRONMENT

Insert 2 below demonstrates the arrangements by which services for the prevention and early diagnosis of cancer are commissioned.

Some services within this picture, for example cancer screening, are commissioned directly by NHS England and Improvement through a ringfenced budget. Other services are commissioned through a variety of different mechanisms and organisations.

As well as the variety of commissioning arrangements in operation, the diagram above shows the overlapping regional footprints of different organisations involved: national and regional bodies must work together with highly localised organisations such as GP surgeries and Local Authorities.

In addition, while for most of England Cancer Alliances are the sole regional bodies with a cancer focus, they operate alongside 44 regional Sustainability Transformation Partnerships (STPs). Some of the 19 English Cancer Alliances are co-terminous with one STP; others cut across several STPs, reflecting a larger relevant population base for strategic planning in relation to cancer. The future size and scope of Cancer Alliances following the publication of the Long Term Plan has not yet been confirmed.
3.2 PROGRESS TO DATE

3.2.1 POSITIVE OVERALL TRAJECTORY

Progress is being made in the NHS in England in the prevention and early diagnosis of cancer, although there is clear opportunity for further improvement.

Progress already being achieved can be seen from improvements in a variety of indicators, including:

- More cancers are being diagnosed at stages 1 and 2, and age-standardised cancer mortality is reducing: see Insert 3, below.

![Cancer mortality trends, ages under 75, England (2014).](image)

- Fewer cancers are being diagnosed through emergency pathways and non-two-week-wait pathway GP referrals
- More cancers are being diagnosed through screening
- Smoking-attributable cancers are reducing

3.2.2 AREAS FOR FURTHER IMPROVEMENT

However, the opportunity for further improvements in both prevention and early diagnosis are clear from indicators, for example:

- **Staging profile:** The stage at which cancers are diagnosed has very marked implications for patient outcomes: cancers diagnosed at stages 1 and 2 are associated with much higher survival than those diagnosed at stages 3 and 4: see Insert 4 below. The commitment of the Long Term Plan to diagnose 75% of cancers at stage 3 and 4 by 2028 is therefore welcome. There is considerable variation in staging profiles between CCGs and Cancer Alliances — this could reflect a higher prevalence of diagnoses of less survivable cancers and should therefore not be used to draw firm conclusions. However, it could nonetheless be indicative of unwarranted variation. Kent and Medway Cancer Alliance had the highest proportion of all cancers being diagnosed at stages 1 and 2 in 2016 (46.5%) in 2016; East Midlands Cancer Alliance had the lowest, diagnosing only 39.6% of all cancers at stages 1 or 2. If Kent and Medway’s staging profile were
replicated across England, 9800 more patients would be diagnosed at stage 1 or 2 instead of stage 3 or 4 each year.\textsuperscript{vi} More research should be done to identify the cause of variation between Cancer Alliances on stage at diagnosis.

Insert 4: Age-standardised one-year relative survival estimates by TNM stage at diagnosis, cancer site, sex, England, 2012. \textsuperscript{vii}

- **Bowel screening uptake:** Colorectal screening uptake is low around the country, and very low in some areas: at regional (STP) level the uptake varies from 46-65\%.\textsuperscript{viii} This is a significant health inequality, with screening uptake likely to be lower among more deprived groups, among men, and among people from an ethnic minority background. Addressing these inequalities towards achieving national uptake of at least 60\% of people screened in the last 30 months could result annually in 500 colorectal cancers being prevented and 1800 more cancers being diagnosed at stage 1 or 2 through screening.\textsuperscript{1}

- **Stop smoking support:** Since 2013, stop smoking services have been commissioned locally by Local Authorities rather than through the NHS (except where CCGs also commission additional services locally). The scale of recent cuts to the Public Health Grant means that Local Authorities are forced to make difficult decisions about the services they commission, meaning they must prioritise delivering some services over others. Unfortunately, because stop smoking services are not mandated through the Public Health Grant, they are often among the first to be cut. While Local Authorities have made efficiencies through better commissioning practices, many are no longer able to offer a stop smoking service for all smokers in their area (despite these services being the most effective way for smokers to quit).

- There is variation across CCGs in smoking support offered \textsuperscript{ix} and prevalence/quit rates.\textsuperscript{x}

\textsuperscript{1} This figure applies the national target to the figures for England: if STPs that already achieve over-60\% uptake rates were excluded, this figure would be higher.

Page 10 of 42
- **Human Papillomavirus (HPV) vaccine uptake**: The HPV vaccine is offered routinely to girls aged 12-13, and the first round of vaccinations for boys was offered in September 2019. It is a two-stage dose, with the second dose usually being offered 6 or 12 months later. 99.7% of cervical cancers are caused by ‘high risk’ HPV, and the vaccine is an effective way of preventing people from being infected with some of these high-risk types of HPV. If HPV vaccine uptake can be maintained, it is expected to reduce cervical cancer incidence to almost nil. However, there is considerable variation between STPs in HPV vaccine uptake, with the range varying between 48% and 95% of 13-14 year olds receiving the second and final vaccination in 2017. Uptake has also been declining in recent years.xi

There remains a considerable opportunity to improve patient outcomes through better prevention and early diagnosis of cancer, especially in respect of lung and colorectal cancers.

For example, lung cancer is a common cancer and is also commonly diagnosed at a late stage, with around 71% of lung cancers with a known stage diagnosed at stage 3 or 4 in 2017xii. Achieving stage shift in lung cancer is therefore likely to improve survival. Moreover, lung cancer is highly preventable, with around 7 in 10 lung cancer cases in the UK caused by smokingxiii.

Similarly, 56% of colorectal cancers with a known stage are diagnosed at stage 3 or 4, meaning there is also a significant opportunity to improve survival by driving greater earlier diagnosisxiv. Colorectal cancer also has some clear preventable risk factors – more than half of all bowel cancers are estimated to be preventable by addressing factors such as poor diet, obesity, and over consumption of alcoholxv. Bowel cancer also has a national screening programme, so optimising this programme, for example by removing barriers to screening, could also lead to earlier diagnosis.

There are also significant opportunities to improve early diagnosis and/or prevention in other cancer types. For example, 22% of prostate cancers are diagnosed at stage 4, and prostate cancer survival by stage is significantly lower at stage 4 than stages 1-3xvi. Cervical cancer has a screening programme which can remove pre-cancerous changes and prevent cancers from developing, yet the percentage of women screened has dropped to 71.4%xvii. We can therefore see that there are several clear opportunities within certain cancer types to drive improvements in patient outcomes by prioritising the prevention and early diagnosis of cancer.

### 3.2.3 INITIATIVES TO ACHIEVE THESE FURTHER OPPORTUNITIES

Expert interviews revealed a widespread acknowledgement of these opportunities and awareness of cost-effective interventions that would support their achievement if budget and service capacity to support them could be found. These interventions are discussed in a more systematic way in section 6 below.

### 3.3 MECHANISMS CURRENTLY IN USE TO PROMOTE PREVENTION AND EARLY DIAGNOSIS OF CANCER

There are a number of financial and non-financial mechanisms currently in use to promote prevention and early diagnosis of cancer. Together they are having a positive impact in continuing to improve cancer outcomes, as described in section 3.2.1 above.
3.3.1 FINANCIAL MECHANISMS

Cancer prevention and early diagnosis are embedded into core contracts across primary and secondary care and commissioners. In addition to this, we have identified two primary approaches that are currently being used to ensure that funds are directed towards prevention and early diagnosis of cancer: quality-dependent payments and ringfenced funding.

**Quality-dependent payments**

All the NHS organisations described in Insert 1 (section 3.1) have quality-dependent payment structures that aim to incentivise prevention and/or early diagnosis of cancer. To the extent that these structures have led to the improvements described in section 2 above they could be seen as successful, however, a number of potential limitations to their effectiveness have emerged through desk-based research and interviews:

a) The quality indicators on which these payments are conditional are often ‘process’ or ‘activity’ oriented rather than outcomes oriented. For example, the most heavily-weighted prevention-related CQUIN indicator (CQUIN 9c) offers 0.06% of contract value for achieving a threshold of 30% of smokers being offered both a referral to stop-smoking services and stop-smoking medication. 

Attaching the incentive to a measure of activity (the offering of services and medication) rather than an outcome (e.g., increase in the number or proportion of smokers who quit) creates the possibility that achieving the activity threshold could be prioritised above the outcome in order to guarantee the additional payment. A notable exception to this is the Quality Premium for CCGs, which includes a national measure which incentivises CCGs to increase the proportion of cancers diagnosed at stage 1 or 2: this is closely aligned with improved patient outcomes.

b) Prevention and early diagnosis of cancer only account for a small part of these payment structures (QOF contains 72 indicators, the CCG Improvement and Assessment Framework contains 51, and there are 14 acute trust CQUINS). The amount of funding available for the indicators that relate to prevention and early diagnosis of cancer – and the strength of the incentive – is therefore limited.

c) These payment structures are themselves part of much larger and more complex performance framework holding significant opportunities for and threats to funding and reputation. As a result, these quality-dependent payments can attract only divided attention from managers and clinicians.

d) Most quality-dependent payments are based on the attainment of thresholds, which fail to incentivise all organisations. Organisations that meet the threshold without making additional effort have no financial incentive to improve further; while those that will struggle to reach the threshold even with such extra effort likewise have no financial incentive to make the attempt.

e) While NHS quality-dependent payments have remained consistent over time, a final risk to the sustainability of this approach arises from the requirement to set aside funds for the payments. Under conditions of financial pressure on DHSC and other national bodies, these funds may be reallocated. In 2014/15, after responsibility for Public Health services had passed to Local Authorities in 2013/14, DH introduced a £5m Health Premium Incentive Scheme that would make payments to Local Authorities that achieved a 2% increase in two targets: successful completions of drug treatment, and one other to be selected locally. This was not repeated after 2014/15, possibly due to budgetary constraints.

**Ringfenced funding**
In addition to quality-dependent payments, three grant programmes from DHSC provide ringfenced funding for specific activities, some of which relate to the prevention and early diagnosis of cancer:

- The S7A screening grant to NHSE funds national immunisation programmes (including HPV vaccination), screening programmes (including screening for breast, bowel, and cervical cancers), and smoking management services for the prison population.
- Public Health allocations to Local Authorities fund public health services including stop smoking services, weight management services, and drug and alcohol misuse services.
- Cancer Alliance Transformation Funding from NHSE funds interventions including early diagnosis interventions. Although this funding is not strictly ringfenced to specific activities, eligible activities are tightly limited: early diagnosis is one of three intervention types that can be funded under this grant.

### 3.3.2 NON-FINANCIAL MECHANISMS

Non-financial mechanisms currently in use to support prevention and early diagnosis of cancer include:

**Clinical guidelines, such as NICE Guidance 12 (NG12).** NG12 provides guidelines for GPs to support the recognition and referral of cancer. It makes recommendations for appropriate courses of action for GPs depending on a patient’s symptoms, the suspect cancer in question, and other factors about the patient’s risk. NG12 was updated in 2015 to simplify the standards and lower the risk threshold for referral on this pathway to closer to 3%. By lowering the threshold for GP referral for suspected cancer, the revised NG12 supports greater early diagnosis of cancer, providing that onward services are available to a GP to refer at this threshold.

**Publication of early diagnosis rate data.** Since 2012 the National Cancer Registration and Analysis Service (NCRAS) has been publishing data about routes to diagnosis and staging information for cancers diagnosed in England. This transparency supports accountability in performance as well as peer pressure among secondary providers and the wider system to deliver better early diagnosis results.

**Awareness campaign materials.** Public Health England makes much of its materials, guidance, and designs for awareness campaigns available for NHS organisations and the public to use in running additional awareness activity. This supports greater early diagnosis by facilitating earlier presentation to GP with symptoms of cancer.

**Implementation of GP decision support tools.** For example, the QCancer tool has been integrated into the EMIS Web GP IT system. This tool supports GPs to establish a patient’s risk of cancer, ask appropriate further questions, and refer them effectively onto the correct pathway. By increasing GP awareness and lowering the barrier to refer, tools such as this improve early diagnosis.

### 3.4 EARLY DIAGNOSIS AND PREVENTION ARE ONLY TWO OF MANY PRIORITIES

Increasing prevention and early diagnosis of cancer are valuable and worthwhile goals, but for commissioners, planners and providers they must necessarily be balanced against other priorities for the health system. For example, targets for access to healthcare, patient
experience, and non-cancer care also require ongoing attention from health professionals and system leaders.

**Access to healthcare** is supported especially through 62-day RTT performance, but also 4-hour A&E performance. The importance of ensuring that patients receive timely access to high-quality healthcare on a 62-day cancer referral-to-treatment pathway prevents resources and attention being directed elsewhere.

**Patient experience** is measured by the Cancer Patient Experience Survey and after receiving a diagnosis is supported, for example, by ensuring that funding and staffing is available for specialist treatment of cancer, which can often be high-cost. Providing the best possible treatment and patient experience will always be a core purpose of the NHS but within a limited funding envelope this necessarily means that high treatment costs must be balanced against funding for prevention and early diagnosis.

**High quality care in non-cancer areas** likewise must be balanced against the need to continue to improve cancer care and early diagnosis of cancer, in an environment where the total NHS budget has now been set for the next five years. Mechanisms here include CQC inspections and national patient experience surveys and publications.

### 3.5 CONCLUSION

A number of non-financial and financial mechanisms are in place to support continued progress in prevention and early diagnosis of cancer, and progress has been made in key areas. However, there are still significant areas where further progress could be made, and where well-evidenced interventions are available, but where countervailing mechanisms within the healthcare system limit the rate at which this progress can be made.
4 MULTI-YEAR BUDGETING AS A LEVER TO SUPPORT PREVENTION AND EARLY DIAGNOSIS OF CANCER

4.1 INTRODUCTION TO MULTI-YEAR BUDGETING

Multi-year allocations, as with five-yearly CCG allocations (see Insert 2, section 3.1 above), provide NHS organisations with a valuable forward-view of the funding they can expect to receive in future years, and hence with the opportunity to plan accordingly. An approach which gives government organisations some degree of visibility of future expenditure is defined by the OECD as a ‘medium-term budgeting framework’ (MTBF).  

Multi-year budgeting (MYB) builds on the MTBF approach by allowing organisations, where an investment made now would generate savings in future years, to access funding from future year(s) now in order to make the investment.

Multi-year budgeting is currently incompatible with the legal frameworks and constitutions which govern NHS England and Improvement and CCGs, both of which are restricted to spending money within their annual funding allocation. NHS Foundation Trusts, and private providers delivering public services, have the ability (within tightly defined limits for Foundation Trusts) to use their balance sheet to fund investments in upstream services that would yield a saving in future: this would be similar to a MYB approach, though the organisations would not be allocated additional funding from the state in order to enable the investment.

Various possible partnering and contracting approaches could be used to gain access to the funds required for early investments, for example, social impact bonds. Three main actors in such an arrangement can be schematically identified:

- An investor provides funding for the investment in anticipation of a return
- A delivery agent delivers and manages the service that has been funded
- An evaluator, who typically pays for the current service and stands to see their costs lowered if the investment yields the expected results, evaluates the success of the investment.

Various configurations of this schema are possible, some of which are shown below in Insert 6. It is beyond the scope of this report to explore or assess these or other options for MYB implementation.

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Insert 6: options for implementation of a Multi-Year Budget approach

Where the service generates the expected benefit, the evaluator sees a reduction in their costs, and repays the investor according to a pre-agreed sliding scale based on the size of that cost-reduction. The details of this agreement allow the risk to be apportioned between the funder and the state.
(who may receive lower or no repayments if performance is not achieved) and the evaluator (who may have to make repayments regardless of having achieved a cost saving).

Multi-year budgeting is thus well suited to enable investments which will generate a net financial saving, but which are impossible for NHS organisations without the ability to borrow funds or to operate a balance sheet to fund directly. Services supporting cancer prevention will ultimately reduce cancer incidence and treatment in the long term, while early diagnosis of cancer reduces the cost of that treatment, since early-stage cancers are almost always cheaper to treat than late-stage cancers.\(^2\) As such, ‘upstream’ cancer services (services for the prevention and/or early diagnosis of cancer) would be candidates for the kinds of investments that MYB would make possible.

### 4.1.1 NECESSARY CONDITIONS FOR MULTI-YEAR BUDGETING

The features of MYB mean that, largely regardless of the partnering and contracting approaches adopted, three conditions all need to be met in order to justify its application to a particular investment opportunity.

A. **The investment must generate savings within a reasonable timeframe (e.g., five years).** The UK government is unusual in announcing CCG funding in (non-rolling) five-year blocks: while CCG funding is subject to annual adjustments (e.g., through commissioner sustainability funding), this is nevertheless a relatively long horizon of visibility. We posit that investments with payback periods longer than this would be practically very difficult for NHSE or DHSC to incorporate into their financial planning processes, and so to account for the investment. (In fact, we anticipate that this horizon-limit is likely to be significantly shorter than five years). However, it should be noted that a private funder might be willing to consider a payback period considerably longer than five years, providing that risks related to unpredictable changes in politically-driven funding, demographically-driven demand, and treatment costs could be adequately mitigated.

B. **The savings generated must also enable a reduction in future budgets.** This can be divided into two considerations:
   a. **The investment must generate cost savings in future years.** This requirement is stronger than that the investment should be cost-effective, as it requires that future budgets should not just represent better value for money than at present, but that (relative to an agreed benchmark) they should be lower than they would otherwise have been - and lower by at least as much as was extracted from them to fund the initial investment. It should be noted that ‘cost-effective’ and ‘cost-saving’ are not equivalent: highly cost-effective interventions (i.e., well within the threshold of £20-30,000 per QALY set by NICE) represent excellent value for money to the taxpayer and are important to implement. Such interventions may be the only way a health system can prepare itself to absorb anticipated future demand: but unless they enable a reduction in future budgets sufficient to pay for the upfront investment, they are not viable candidates for a MYB approach.
   b. **It must be possible to convert the cost savings into budget reductions.** Cost savings are often calculated by combining reductions in activity with the unit costs of the activity-types involved. For example, treatment for colorectal

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\(^2\) A notable exception to this is lung cancer, for which diagnosis at stage 4 is associated with lower treatment costs than diagnosis at each of stages 1-3.
cancers diagnosed at stage 1 costs on average ~£8,200 less than for those diagnosed at stage 4: an investment (say, to increase screening uptake) might result in 100 cancers that would previously have been diagnosed at stage 4 now being diagnosed at stage 1 each year. This would generate an annual cost saving for treatment of ~£820,000. However, this ‘saving’ represents reduced activity for specialist clinical staff and equipment. Unless working hours for these staff are reduced, and equipment is either sold or leased to other organisations, the delivery agent’s costs will remain unchanged. The investment, though ‘cost-saving’, would still not enable a reduction in future budgets, and would still not be a suitable candidate for a MYB approach.

It may be possible for a cost-saving intervention that would not enable a net reduction in future budgets still to be a candidate for a MYB approach: in the context of an agreed funding settlement for the NHS, there will be points at which additional equipment will need to be purchased and specialist staff recruited. Where an intervention would demonstrably delay the moment when such action would need to be taken, it would to that extent generate a cost saving when compared to a ‘do-nothing’ approach. This is, however, a demanding and highly context-dependent consideration: while a relevant consideration for a well-evidenced and detailed proposal in the context of a specific trust, it is beyond the scope of this report to assess.

4.1.2 LOCAL AND SYSTEM-WIDE CONDITIONS FOR MULTI-YEAR BUDGETS

In some instances there might be a financial case for individual organisations to adopt a MYB approach where there would not be a corresponding system-wide benefit. For example, a secondary provider failing to achieve the 95% 4-hour A&E waiting time standard may incur financial costs through:

- Penalties attaching to failure to achieve the standard
- Loss of income through the cancellation of profitable elective activity in order to release beds and other resources for urgent care patients
- Marginal rate emergency tariff (MRET) attaching to above-baseline emergency admissions

For such a provider, an investment aimed at avoiding one or more of these financial costs may well attract a positive ROI. However, avoiding these financial costs for the provider does not result in a saving for the healthcare system as a whole. Such motivations for a MYB approach are not considered further in this report: both because they are unlikely to apply to prevention and early diagnosis of cancer; and because such schemes would be unlikely to receive the support of NHS England and Improvement or DHSC, whose approval is likely to be required for their implementation.

4.2 MULTI-YEAR BUDGETING FOR PREVENTION OF CANCER

The major cancer types with the greatest opportunities to improve patient outcomes through prevention are lung and colorectal. Increased HPV vaccine uptake rates would improve cervical cancer prevention rates, but while there is considerable regional variation in uptake, it is
unlikely that uptake for the two-stage vaccine would be substantially better than an average rate of 90% per vaccination (i.e. an overall rate of 81% across two stages of vaccination). Reducing alcohol consumption would have a variety of benefits, but these would predominantly not be expressed in terms of cancer prevention.

### 4.2.1 PREVENTION OF COLORECTAL CANCER

More than half of all bowel cancers could be prevented every year through changes to diet (such as eating less processed meat or eating more fibre), drinking less alcohol, not smoking or exercising more. As well as this, colorectal cancer can be prevented through the bowel cancer screening programme, which as well as detecting early stage cancers can identify and remove pre-cancerous changes. As will be demonstrated below (section 4.3.3), this is highly cost effective but is not cost saving for the NHS and is therefore not an appropriate intervention for a MYB approach.

### 4.2.2 PREVENTION OF LUNG CANCER

Prevention of lung cancer is overwhelmingly achieved through smoking prevention and cessation. The long lead time for developing lung cancer (even those who have been heavy smokers since the age of 16 are unlikely to develop lung cancer until they are 50) means that this intervention is unlikely to satisfy condition A: “The investment must generate savings within a reasonable timeframe (e.g., five years).”

However, the cost of smoking-related illness to the NHS is far higher than that caused by lung cancers, and there is some evidence that tobacco control interventions may in some cases generate savings within a reasonable timeframe if non-cancer costs are also included.

<table>
<thead>
<tr>
<th>Table 8.2: Potential incremental 1-year cost saving comparing the intensive smoking cessation intervention and the minimum intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-year absolute risk reductionsa</td>
</tr>
<tr>
<td>All cause readmission</td>
</tr>
<tr>
<td>Smoking-related readmission</td>
</tr>
<tr>
<td>All-cause A&amp;E visit</td>
</tr>
<tr>
<td>GP visit</td>
</tr>
</tbody>
</table>

Insert 7: incremental one-year cost savings of an intensive smoking cessation intervention

(Source: Royal College of Physicians)xxiv

This recent (2018) finding by the Royal College of Physicians is a significant development on previous work: NICE’s Tobacco ROI Tool,xxv for example, calculates the cost of delivering a user-defined package of interventions and models the ROI of that package over two years, five years, and ten years. The design of the tool makes it difficult to use it to identify conclusively whether tobacco control initiatives are likely to generate cost savings for the NHS: but when the tool was run across the whole of England using the default settings provided, the headline figures suggested that it would take slightly over six years for the initial investment to generate a positive ROI.

Page 18 of 42
The cost savings in Insert 7 above are calculated by the reduction in all-cause readmission, smoking-related readmission, all-cause A&E visits, and GP visits, as found among those receiving the ‘Ottawa model’ (universal identification, treatment and follow-up of smokers admitted to secondary care, implemented on an opt-out basis) relative to those receiving a leaflet (‘the minimum intervention’ referenced in Insert 7).

These cost savings are calculated to be within one year from treatment, and to be net of implementation cost: this makes tobacco control a potential candidate for a MYB approach. Reductions in GP visits cannot be factored in for MYB purposes since payments to GPs are based on patient lists not activity, however, this is a small proportion of the benefit and does not change the result. But the savings are expressed in reductions in demand: this means that they can only be used for a MYB approach if either there is a plan to reduce expenditure on staff, equipment, or other costs; or if it can be shown that additional planned investments in these areas can be postponed due to slowed growth in demand. This cannot be shown in this report, but should be pursued as an avenue for further research (see Recommendation 4a).

4.3 MULTI-YEAR BUDGETING FOR EARLY DIAGNOSIS OF CANCER

4.3.1 ROUTINE AND SYMPTOMATIC EARLY DIAGNOSIS APPROACHES

Early Diagnosis of cancer can be facilitated by asymptomatic and symptomatic routes. See Insert 8 for a brief overview of options for some major cancer types.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Asymptomatic Early Diagnosis</th>
<th>Symptomatic Early Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>Breast screening</td>
<td></td>
</tr>
<tr>
<td>Lung</td>
<td>CT scans for at-risk population (service at pilot stage)</td>
<td>Enhanced patient awareness, leading to GP presentation and referral for suspected cancer</td>
</tr>
<tr>
<td>Colorectal</td>
<td>Bowel screening</td>
<td></td>
</tr>
<tr>
<td>Prostate</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Insert 8: Asymptomatic and Symptomatic early diagnosis in England

Improving early diagnosis for symptomatic patients depends on a variety of interventions aimed at increasing awareness of symptoms, addressing cultural barriers to primary care access, and combatting fears about cancer in patients, and awareness of cancer symptoms and risk factors among GPs (to name a few). While essential, it is typically more complex to achieve improvements in these areas than it is in routine services, where improved roll-out of screening programmes can often be more straightforwardly achieved.

4.3.2 ECONOMIC MODELLING OF THE IMPACT OF EARLY DIAGNOSIS ON NHS COSTS AND BENEFITS
In 2011 the Department of Health commissioned Frontier Economics to conduct economic modelling to investigate the likely impact of earlier diagnosis of cancer on costs and benefits to the NHS. This paper calculated the cost of delivering early diagnosis services and offset this against the savings in reduced treatment costs achieved through early diagnosis. The results showed that, for each of colorectal, breast, and lung cancers, the savings achieved through reduced treatment costs were outweighed by the additional costs of delivering more screening and of performing more diagnostic activity, both on people flagged through screening but who do not receive a cancer diagnosis and people who present with symptoms. This is without considering the additional costs associated with people who were living with a non-cancer illness that is diagnosed through the screening process and who subsequently receive treatment. Details of their findings are below in insert 9:

<table>
<thead>
<tr>
<th></th>
<th>Colorectal</th>
<th>Breast</th>
<th>Lung</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increase in numbers of people tested</strong>&lt;sup&gt;3,4&lt;/sup&gt;</td>
<td>FOBT: +958,000&lt;sup&gt;5&lt;/sup&gt;</td>
<td>Mammogram: +1,864,555</td>
<td>X-ray: +557,571</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colonoscopy/ sigmoidoscopy: +864,000</td>
<td>Other: +187,870</td>
<td>Other: +79,653</td>
<td></td>
</tr>
<tr>
<td><strong>Increase in cost of diagnosis</strong>&lt;sup&gt;6,7&lt;/sup&gt;</td>
<td>+£272m</td>
<td>+£85m</td>
<td>+£95m</td>
<td>+£452m</td>
</tr>
<tr>
<td><strong>Increase in cost of treatment</strong>&lt;sup&gt;5,6&lt;/sup&gt;</td>
<td>-£14m</td>
<td>-£9m</td>
<td>+£5m</td>
<td>-£18m</td>
</tr>
<tr>
<td><strong>Net cost increase</strong></td>
<td>+£258m</td>
<td>+£76m</td>
<td>+£100m</td>
<td>+£434m</td>
</tr>
</tbody>
</table>

Insert 9: Findings of Frontier Economics regarding the financial impact of early diagnosis

Notes:

1. **Transitional surge:** In the above table the increase in numbers of people tested is the peak figure during a transitional surge. This surge occurs because when moving to higher levels of screening (whether through widening eligibility or investing in increased take-up), not only will more people be screened annually in each year’s cohort, there is a ‘backlog’ of people who will now be screened but who would not have been previously. While this ‘backlog’ is being processed the numbers of patients to be screened will be higher. The increases in diagnosis and treatment costs reflect the steady state once this surge has passed.

2. **Non-Cancer diagnoses:** The treatment costs in the table above relate solely to cancer treatment. In practice, those whose screening pathway results in contact with a GP or other clinical professional may receive a non-cancer diagnosis, whether or not they receive a diagnosis of cancer. Some of these non-cancer diagnoses would not otherwise have been

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<sup>3</sup> Increases in numbers of people tested are based on hypothesised increases in screening roll-out and awareness required to achieve staging profiles that would deliver contemporary European good-practice 1-year survival

<sup>4</sup> Increase in test numbers are ‘surge’ numbers in year 1 of a new policy: post-surge steady-state increases would be lower

<sup>5</sup> FOBT stands for Faecal Occult Blood Test. Numbers in this table are based on data available in 2009

<sup>6</sup> Increases in costs of diagnosis and treatment are based on unit costs and other methodologies where applicable, as well as taking into account improved staging profiles

<sup>7</sup> Cost increases are based on post-surge steady-state activity levels
made: the costs of treating those conditions would therefore be an additional, non-cancer, cost of a programme promoting early diagnosis of cancer.

The paper concludes:

“For these cancers generally, the modelling found that earlier diagnosis is generally cost-effective, but not cost-saving. If people are diagnosed earlier, either through screening programmes or through their general practice, the main benefit is a substantial improvement in health outcomes. There is not a cost reduction, rather an increase in NHS costs (large increase in testing costs generally offset by a modest reduction in treatment costs).” (P.6)

4.3.3 EARLY DIAGNOSIS AND PREVENTION THROUGH BOWEL SCREENING

Colonoscopies and flexible sigmoidoscopies, which are performed on individuals with a positive FOBT (soon to be FIT) result, are able not only to diagnose colorectal cancer but also may be able to prevent it by performing polypectomies on pre-cancerous polyps. Bowel screening thus has dual financial benefits: see Insert 10 below:

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value (49% screening uptake)xxvi</th>
<th>Value (60% screening uptake)xxvii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible population (60-74 year olds)</td>
<td>8.2m</td>
<td></td>
</tr>
<tr>
<td>Annual screening uptake</td>
<td>1.6m p.a.</td>
<td>2.0m p.a.9</td>
</tr>
<tr>
<td>Conversion rate: screening to colonoscopy/ FS</td>
<td>5%xxviii</td>
<td></td>
</tr>
<tr>
<td>Colonoscopies/ FS performed p.a.</td>
<td>80,000 p.a.</td>
<td>98,000 p.a.</td>
</tr>
<tr>
<td>Unit Cost of colonoscopy/ FS</td>
<td>£550</td>
<td></td>
</tr>
<tr>
<td>Annual cost of colonoscopy/ FS</td>
<td>£44m</td>
<td>£54m</td>
</tr>
<tr>
<td>% of colonoscopies/ FS resulting in polypectomy</td>
<td>10%xxix</td>
<td></td>
</tr>
<tr>
<td>Annual polypectomies</td>
<td>8,000 p.a.</td>
<td>9,800 p.a.</td>
</tr>
<tr>
<td>Lifetime bowel cancer risk per adenoma</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Bowel cancers avoided through polypectomy</td>
<td>400 p.a.</td>
<td>490 p.a.</td>
</tr>
<tr>
<td>Weighted per-colorectal cancer treatment cost (no screening)</td>
<td>£10,650</td>
<td></td>
</tr>
<tr>
<td>Weighted per-colorectal cancer treatment cost (with screening)</td>
<td>£10,490xxxii</td>
<td>£10,450</td>
</tr>
<tr>
<td>Reduction in per-colorectal cancer treatment cost due to early diagnosis effect</td>
<td>£160</td>
<td>£200</td>
</tr>
<tr>
<td>Annual colorectal cancers diagnosed through all routes</td>
<td>139,000</td>
<td></td>
</tr>
</tbody>
</table>

---

8 FOBT will shortly be replaced in England with FIT, which is anticipated to result in fewer ‘false positive’ results of positive indications from individuals who turn out not to have cancer but will, depending on threshold, return more normal endoscopy results.

9 Ignores implementation cost of increasing uptake and cost of incidental diagnoses.

10 Assumes one polyp removed per colonoscopy/ FS, and that removed polyps would not otherwise have been removed in future unless cancerous.

11 Assumes prevented bowel cancers would otherwise have been diagnosed at national average staging profile.
| Impact on total treatment costs due to early diagnosis | £-22m | £-27m |
| Impact on total treatment costs due to prevention | £-4.2m | £-5.1m |
| Gross annual savings (prevented + early diagnosed) | £-26m p.a. | £-32m p.a. |
| Net cost increase | £18m p.a. | £22m p.a. |

Insert 10: calculated financial impact of bowel screening as both preventive and early diagnosis measure.

Using these figures, while bowel screening emerges as a highly cost-effective way to improve patient outcomes, it is still demonstrated to result in a net cost increase for the NHS. As such, bowel screening is not an appropriate candidate for a MYB approach.

### 4.3.4 SCREENING-RELATED OVERDIAGNOSIS: A CHALLENGE FOR OUTCOMES AND COST-EFFECTIVENESS

A final consideration in relation to screening programmes, though largely not relevant for symptomatic presentation, is that of overdiagnosis as a side-effect alongside beneficial early diagnosis. Overdiagnosis is the diagnosis of a medical condition or disease that would not cause symptoms or death during a patient's lifetime. In the case of cancer, screening can lead to overdiagnosis of adenomas which would not develop but which are sometimes treated rather than left. This practice has the potential not only inflates reported cancer incidence levels and early diagnosis of cancer rates, but can also cause potential patient harm through unnecessary (and sometimes invasive) intervention.

Overdiagnosis is recognised as causing a risk of harm in mammography screening and PSA testing.

Our ability to differentiate ‘overdiagnosed’ adenomas from non-overdiagnosed adenomas is still limited, and data about levels of overdiagnosis are weak. However, it should be noted that an overdiagnosis will tend to weaken the cost-effectiveness of early diagnosis, by reducing the estimated number of early diagnoses that improve outcomes and by the harm caused through any overtreatment interventions.

### 4.4 CONCLUSIONS

Early diagnosis has been shown to be a cost-effective intervention for the NHS, but not a cost-saving one, for several major cancer types: therefore, MYB is not a suitable lever to encourage increased early diagnosis activity in purely financial terms.

Prevention of colorectal cancer is similarly not cost-saving, while prevention of lung cancer suffers from too long a lead time to be achievable within a realistic timeframe for MYB.

Tobacco, and possibly alcohol, control may generate system savings within a five-year timeframe, and as such the case for MYB is strongest in these areas. However, in neither case are the short-term cost savings achieved likely to be cancer-related. In addition, multi-year budgeting is not the only lever that could be used to promote enhanced tobacco and alcohol control.
5 PROSPECTIVE AREAS FOR IMPROVEMENTS IN EARLY DIAGNOSIS AND PREVENTION

5.1 CHALLENGES IDENTIFIED THROUGH INTERVIEWS

We have used expert interviews to refine our understanding of the opportunities for improved outcomes through prevention and early diagnosis of cancer, and to explore what might be blocking the achievement of those opportunities. Three critical factors emerged from these interviews: system fragmentation and uncertain cancer alliance funding; the prioritisation of post-referral and post-diagnosis care over early diagnosis and prevention in targets and incentives schemes; and reductions and uncertainty in public health grant funding.

5.1.1 SYSTEM FRAGMENTATION

Cancer service commissioning operates in a highly fragmented environment (see Insert 2, section 3.1 above). This fragmentation has several consequences for prevention and early diagnosis of cancer.

5.1.1.1 STOP SMOKING SERVICES

GPs and secondary care providers are expected to provide some measure of support and treatment to smokers to help them stop smoking. This is likely to involve referral to a local stop-smoking service, which is Local Authority-funded. Since Public Health funding was transferred from the NHS to Local Authorities in 2013, most stop smoking services have seen reductions in funding. This has resulted in numerous changes, including reconfiguration (for example by being delivered in different locations); more exclusive eligibility criteria; reduction in scope or capacity; and closure.

This has several adverse consequences. First, when making a referral to a smoking cessation provider outside of the NHS, this may introduce a disruption to the pathway (the patient must navigate a new system which may have different requirements and eligibility criteria). This disruption is likely to reduce the uptake of those services.

Second, where GPs and secondary providers are not aware of changes to stop smoking services, or do not know the most recent service arrangements available in their area, they are more likely to refer patients inappropriately, or simply not refer them to Local Authority-commissioned services at all. This more extreme form of disruption clearly jeopardises patients’ ability to access services that would help them to quit. With fewer NHS providers referring to these locally-commissioned services, stop smoking services may experience a decline in footfall. This artificial decline in service utilisation may risk important services being scaled down or decommissioned altogether, despite continuing need for the service in the community.

Third, some interviewees suggested that because stop smoking services target people before they are unwell, and because responsibility for them lies with Local Authorities not the NHS – and despite Health Education England’s ‘Make Every Contact Count’ initiative – some staff in primary and secondary care do not see this as a core part of their responsibilities. The lack of a single point of accountability for smoking cessation means that both Local Authorities and NHS organisations can only be held responsible for process-related measures (such as the proportion of smokers given support and treatment to quit), not outcome measures: this lack of focus on outcomes may also contribute to a ‘silico’ mentality in this regard.
5.1.1.2 SCREENING SERVICES

There are national screening programmes for breast, cervical, and colorectal cancers. These are commissioned by NHS England and Improvement and delivered locally by secondary providers. The service specifications for these programmes identify a quality assurance role for Public Health England: however the 2016/17 report ‘NHS Screening Programmes in England’ states that ‘Public Health England leads the NHS Screening Programmes’, and describes the planning, securing, and monitoring of programme delivery as being undertaken by NHS England and Improvement regional teams containing embedded Public Health England staff, who provide professional leadership.xxxiii

In the case of screening programmes, delivery is wholly within the NHS, but oversight and responsibility for outcomes are divided unclearly between NHS England and Improvement and Public Health England. Several interviewees referred to this situation as hindering accountability and improvement. The recent Richards’ review of adult screening programmes has recommended that this oversight and responsibility sits with a single organisation to improve accountability.

5.1.1.3 LOGISTICAL AND FINANCIAL CHALLENGES ASSOCIATED WITH REGIONAL-LEVEL PROVISION OF SUPPORT TO GPS

Most GPs see just a few patients with cancer every year, and symptoms of cancer are often non-specific. NICE guideline 12 includes a number of recommendations for the clinical management of cancer risk in general practice. In broad terms its recommendations mean that GPs should refer patients on the two-week cancer pathway if they have a risk of cancer of 3% or higher. While different practices will have populations with differing underlying cancer prevalence and risk factors, if the guidelines were being adopted uniformly by GPs and referrals accepted by secondary care, this indicates that the average conversion rate in Trusts from two-week pathway to diagnosis should be somewhere above 3%.
Excluding non-acute trusts with very low (<=0.1%), and specialist trusts with very high (>16.0%) conversion rates, the most common conversion rates are from 6.1-8.1% (67 of 153 trusts).\textsuperscript{xxxiv} 14 trusts were ‘outliers’ with conversion rates below 5.1%, while 11 trusts had conversion rates above 10.1%. It is difficult to establish baselines for conversion rates because local populations vary, and because different cancer types tend to generate different conversion statistics irrespective of variation in GP behaviours. However, the graph above shows in broad terms that the majority of Trusts have conversion rates significantly higher than 3% and that the number of two-week wait referrals could therefore be increased in several trusts.

Four blockers make this difficult to achieve.

1. **Low cancer awareness among GPs**

Low cancer awareness, and low awareness of clinical guidance such as NICE NG12, among some GPs can be inferred from Insert 12 above. This inference has been supported in some interviews, which have suggested that cancer awareness is variable among GPs. There is a lack of mechanisms prompting GPs to ‘think cancer’ when encountering potential cancer symptoms. Further, a 2017 study showed that 71% of patients who were diagnosed with cancer in A&E had been seen their GP at least once with symptoms that turned out to be cancer, though some of these are likely to have been atypical symptoms.\textsuperscript{xxxv}

2. **Lack of diagnostic support for GPs**

NICE guidelines state that GPs should refer patients with a risk of cancer that is 3% or higher. Establishing this risk level, which depends on factors such as ethnicity, age, and location, as well as presenting symptoms, and potentially having a discussion about possible cancer, can be challenging within a short GP appointment. Diagnostic support tools, such as Macmillan’s Cancer Decision Tool, use patient records to generate a risk level and prompt GPs with additional questions during an appointment. In this way they ensure GPs are able to make informed assessments of cancer risk: in their absence, diagnostic approaches may favour more common or straightforward initial diagnoses, missing the possibility of cancer.

3. **Volume of primary care organisations**

Roughly 90% of public contacts with healthcare professionals are with GPs;\textsuperscript{xxxvi} GPs initiate referrals on most non-emergency cancer pathways; and GPs have access to a variety of cost-effective interventions (such as Very Brief Advice) affecting patient behaviours to reduce risk factors for several health conditions, including numerous cancers. Primary care must therefore form an integral component of almost any strategy for improving prevention and early diagnosis of cancer.

However, the sheer number of GP surgeries – almost 7,500 in England in 2017\textsuperscript{xxxvii} – makes it difficult for GPs to be engaged in developing such a strategy on a regional level, to stay abreast of any findings and recommendations, and to ensure its effective and consistent implementation. And there are variations in what primary care services are available across the country. This contrasts with England’s 211 CCGs and 233 secondary providers, 150 Local Authorities, 44 STPs, and (currently) 19 Cancer Alliances. Some interviewees drew attention to this fact in explaining the difficulties of implementing regional cancer strategies: larger organisations may be able to make a concerted move towards a new regional way of working.

\textsuperscript{12} The conversion rates here have not been adjusted to take into account patients on 62-day wait pathways who did not start on two-week wait pathways, for example emergency presentations. This adjustment would tend to increase trusts’ conversion rates, but would be unlikely to alter substantially the relative distribution of trusts.
but this is logistically harder to achieve with GPs.

In the specific context of regional attempts at collective action, an additional potential barrier relates to the way primary care is funded. GP practices are owned by GPs and commissioned on a capitated basis by NHS England and Improvement to provide certain NHS services. GPs therefore have no interest in contributing funds towards any initiative that lacks a clear benefit to the delivery of those services: and strategic initiatives to pool or reallocate budgets in order to improve regional outcomes will not normally be able to make use of GP allocations.

4. Lack of alternative referral pathways

Where patients do not meet the risk threshold for an urgent two week wait referral, and where the GP’s level of clinical suspicion is raised but not high enough to justify an urgent referral, they can be referred on a non-urgent pathway. This affects patient experience (both in terms of delay and uncertainty), and may also compromise clinical effectiveness or efficient access to diagnostic tests, if the GP is not sure what the cancer risk is.

One health system that has introduced rapid access clinics for non-specific symptoms described that it has found a higher conversion-to-diagnosis rate than for the two-week-wait pathway, demonstrating the clinical value of making it easier for GPs to refer patients with non-specific symptoms. We found similar anecdotal evidence of the benefit of a rapid advice protocol enabling GPs to receive advice quickly from a specialist in a secondary trust to support a decision whether to refer on a two-week wait.

Where such options are not available or widely communicated to GPs, some patients may be less likely to receive a timely referral for suspected cancer and ultimately may receive a less timely diagnosis of cancer, which could be clinically significant.

5.1.1.4 CANCER ALLIANCE FUNDING

The Independent Cancer Taskforce’s national cancer strategy in 2015 recommended the formation of Cancer Alliances, and there are now 19 across England, though this number is set to increase. Cancer Alliances bring together local senior clinical and managerial leaders representing the whole cancer patient pathway across a specific geography. They are tasked with leading the local delivery of the Independent Cancer Taskforce and Long Term Plan’s ambitions for improving services, care and outcomes for everyone with cancer.

Cancer Alliances thus have the geographical scope, the end-to-end pathway coverage, and the strategic remit to bring organisations together from across the prevention, early diagnosis, and treatment pathways for cancer. Achieving this requires commitment to a unifying vision for improving outcomes, sustained investment in relationships between local organisations across the region, and the authority to shape regional discussions about the commissioning and provision of services.

Cancer Alliances now have five-year visibility of their budgets, which is welcome and should support regions to develop further the local governance and delivery structures that will enable the emergence of more integrated system working. Such integration should in turn address the challenges associated with (i) system fragmentation in tobacco control, and (ii) targets and incentives that do not sufficiently prioritise prevention and early diagnosis.

However, a significant proportion of this funding is contingent on delivering specific projects outlined at the national level, rather than acting on local priorities. Achieving national ambitions is important but funding should also allow some flexibility for undertaking specifically local work.
Moreover, visibility is not the same as accessibility, and Cancer Alliances report problems arising from the annual budgeting cycle such as not being able to make permanent hires, and not being able to guarantee project funding year to year. While multi-year budgeting in its full sense has not been supported in this paper, increasing the certainty of Alliance funding year to year would have a positive impact on planning and delivery.

5.1.2 THE PRIORITISATION OF POST-REFERRAL AND POST-DIAGNOSIS CARE OVER EARLY DIAGNOSIS AND PREVENTION IN TARGETS AND INCENTIVES SCHEMES

5.1.2.1 TARGETS AND INCENTIVES SCHEMES

While there are efforts underway to simply to complexity of performance management, NHS organisations are nonetheless subject to a complex performance control system, with every specialism subject to targets that are set centrally by NHS England and Improvement, and separate performance-related financial incentives frameworks to support the delivery of quality care. Prevention and early diagnosis feature within this system but, despite the NHS Five Year Forward View’s bold ambitions regarding ‘a radical upgrade in prevention’, are not promoted as priorities within these frameworks. This can be seen in insert 11 below. However, it should be noted that this insert is accurate to 2018/19 – the new GP contract has altered the number of QOF points available, while there are new service specifications in development for Primary Care Networks which may alter the balance towards prevention and early diagnosis.

<table>
<thead>
<tr>
<th>Organisation type</th>
<th>Prevention / early diagnosis of cancer measure</th>
<th>Size of financial incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GP (Primary Care) (QOF)</strong></td>
<td>Have a strategy to help smokers quit (SMOK003: 2 points) Smokers aged 15+ who are offered support and treatment to quit (Threshold: 40-90%) (SMOK004: 12 points) Maintain a record of smokers with various conditions, and percentage offered support and treatment in last 12 months (Threshold: 56-96%) (SMOK002, SMOK005: 50 points) Cervical screening management protocol; percentage of women 25-65 receiving screening in last 5 years (Threshold: 45-80%); policy for auditing screening service (CS001, CS002, CS004: 20 points) Maintain register of patients with BMI &gt;= 30 (OB001: 8 points)</td>
<td>92 points Equivalent to £16,492 available per GP practice (£114M nationally) This is 16% of the 559 QOF points available</td>
</tr>
<tr>
<td><strong>Secondary Provider (CQUINs)</strong></td>
<td>Admitted patients who are screened for smoking and the result recorded: Threshold: 90% (CQUIN 9a: 0.01% of contract value) Smokers who are given ‘very brief advice’. Threshold: 90% (CQUIN 9b: 0.05% of contract value) Smokers who are offered referral to stop smoking services and medication. Threshold: 30%</td>
<td>0.13% of providers’ contract value available This is 5% of the total CQUIN scheme value (total scheme value: 2.5% of contract value)</td>
</tr>
</tbody>
</table>

13 Indeed, the Five Year Forward View’s references to early diagnosis are somewhat confusingly badged as ‘swifter access to diagnosis’ (p.37), although earlier diagnosis does not necessarily require or enable shorter waiting times for diagnosis.

Page 27 of 42
## Financial Prioritisation

The targets described above are ‘upstream’, in that they incentivise prevention and early diagnosis. They are also ‘clinical effectiveness’ targets, in that they aim to improve patient outcomes. They can be contrasted with ‘downstream’ targets which relate to the diagnosis, treatment, and ongoing care of patients after they have been referred with suspected cancer (or after they have been diagnosed with cancer after presenting through a different pathway); and with ‘patient experience’ targets which aim to improve patient satisfaction, for example through timely access to healthcare. The rewards attaching to these upstream, clinical effectiveness targets are far less financially compelling than the funding conditional on performance against downstream process targets such as 62-day RTT performance.

Downstream targets are less likely to affect the practice of GPs as they are not directly affected by them, and the design of some of the QOF targets renders them relatively ineffective. While GPs are incentivised to provide support and treatment to smokers, their performance against this target depends on how consistently they ask patients whether they are smokers: if they don’t, their register of smokers will remain sparse, and they will have fewer known smokers to offer support and treatment to, in order to meet the target. Moreover, the strength of QOF incentives related to prevention has been reduced by the removal of several QOF indicators from 2019/20 including SMOK003 and several relating to cervical screening. The new health inequalities primary care network service specification may provide opportunities to address this but this is to be developed.

Meanwhile Cancer Alliances’ transformation funding for early diagnosis has previously been conditional on 62-day RTT performance. This was intended to ensure that funds go to alliances with ‘a solid foundation for transforming care’. However, the usefulness of performance on a ‘downstream’ target aimed at improving access to healthcare in predicting effectiveness in improving an ‘upstream’ measure aimed at improving patient outcomes is not obvious.

## Non-Financial Prioritisation

In addition to the relative strength of financial incentives for secondary providers and CCGs, there are powerful non-financial incentives that lead these organisations to prioritise downstream and access-related targets. The Handbook to the NHS Constitution includes a government pledge on a ‘maximum 62-day wait from urgent referral for suspected cancer to first treatment for all cancers’. The public and political focus on performance on access targets, and the 62-day wait target, is intense: by contrast, survival or staging performance is
far less publicly or politically visible.

5.1.2.2 CONCERNS OVER DIAGNOSTIC CAPACITY IN SECONDARY CARE

Improving early diagnosis of cancer requires greater diagnostic capacity in secondary care (see s.4.3.2, above). This is because increasing activity through either symptomatic or asymptomatic routes to improving early diagnosis (see Insert 8, s.4.3.1) results in more patients being referred for diagnostic tests delivered by secondary providers, and in more diagnostic tests being performed on patients who turn out not to have cancer.

NHS England and Improvement committed to increase funding for diagnostic capacity by up to £300m per year by 2020 compared to a 2015 baseline.\textsuperscript{xli} However, there is evidence that capacity continues to be a rate-limiting step in achieving 62-day RTT performance in some health systems.\textsuperscript{xlii} Local concerns over diagnostic capacity may be exacerbated by the significant financial consequences for both providers and commissioners of failure to achieve the 62-day RTT standard. Such concerns could therefore be expected to result in measures exerting a suppressing influence on activity that aims at increasing early diagnosis of cancer.

There is some evidence that mechanisms are in place in some health systems which, whether intentionally or not, have such a suppressing influence:

- Some CCGs have referral management programmes in places. While these are not typically aimed at cancer referrals, they are likely to have an effect in reducing cancer referrals as well, particularly where there is any uncertainty among GPs as to their scope.

- Some CCGs have not updated their referral advice to reflect the 3% (or higher) risk of cancer threshold for urgent cancer referrals contained in the revised NG12 guidelines. Very few of the recommendations in the previous guidelines, which dated from 2005, related to risks below 5%; where referral advice has not been updated, therefore, GPs are likely to be using a higher risk threshold and therefore referring fewer patients.

- Independently of CCG advice, there is evidence that not all GPs are aware of the 3% (or higher) risk threshold described in NG12. If GPs are mistakenly using the 2005 thresholds, this will have the same effect as non-updated CCG referral advice described in the previous paragraph.

- There is some anecdotal evidence that local health systems, wary of losing funding that is contingent on 62-day RTT performance and concerned that an increase in demand for diagnostic activity might adversely affect 62-day performance, have restricted the reach of public awareness campaigns in order to avoid an increase in demand for diagnostic capacity.

5.1.3 REDUCTIONS AND UNCERTAINTY IN PUBLIC HEALTH GRANT FUNDING

The responsibility for funding and delivery of public health was devolved from the NHS to local authority level in 2013. The public health grant, centrally administered to councils, is currently the primary mechanism for funding local tobacco control services in England.

The public health system is experiencing a period of rapid change and significant cuts are being made to services. In the 2015 Budget, the then-Chancellor announced a £200 million in year cut, followed by a further real-terms cut averaging 3.9% each year until 2020/21 (9.6% cash cut).
reduction) in the 2015 Spending Review\textsuperscript{xiii}. To date, the public health grant has seen a £700m real terms reduction in funding since 2014/15\textsuperscript{xiv}. According to analysis by the Health Foundation, almost all Local Authority public health services faced cuts between 2014/15–2019/20: Stop smoking services were among with the worst hit, with spending falling by 45\%\textsuperscript{xiv}. Local Authorities have made efficiencies through better commissioning, but cuts to public health has placed a severe strain on Local Authorities’ ability to fund frontline prevention services to help people quit smoking, including important smoking cessation services. Despite strong support by Local Authorities for the commissioning of these services, smoking cessation budgets were cut in 50% of Local Authorities in England in 2017, following similar cuts in 59% in 2016, and 39% in 2015. As a result, 4 in 10 are no longer able to offer a stop smoking service for all smokers in their area despite continued need\textsuperscript{xvii}. Indeed, the British Medical Association has identified that reductions in public health spending do not align with local populations’ specific needs.\textsuperscript{xvii}

These funding cuts have been significant and widespread, impacting a range of important public health services beyond smoking cessation and tobacco control; sexual and mental health services, child and youth services, services that support and prevent long-term conditions and cancer, alcohol and drug misuse services and obesity management services have all seen slashed since the 2015 budget cuts.

The Government must increase its investment in public health so that Local Authorities can commission important services like stop smoking services to prevent ill health, narrow the health inequalities gap and support NHS sustainability by preventing cancer and in the long term. The Government has announced that the Public Health grant will continue until 2021, after which the funding mechanism has not been confirmed. However, a number of potential solutions have been suggested, including funding public health budgets through a Business Rates Retention Scheme. Whatever the mechanism, it is integral that sustainable public health funding is available beyond the dissolution of the Public Health Grant to ensure services are available to reduce the number of preventable cancers.

### 5.2 BLOCKERS CONSIDERED AND FOUND TO BE WEAKLY OR NOT SUPPORTED

A number of potential blockers were considered and were either not supported by findings from interviews and desk-based research; too weakly supported to be considered further; or not considered:

**Not supported:**

- Using targets to drive quality in the NHS blocks improvements in prevention and early diagnosis. Interviewees, especially clinicians, argued that targets are an effective way of ensuring that high quality care is provided across the NHS, including in this area.
- The number and complexity of targets divide managers’ attention, preventing any but the most financially-compelling targets from receiving attention. Interviewees have indicated that organisations are nevertheless able to navigate the system in order to take advantage of financial opportunities where these are achievable.
- The NHS is acutely underfunded and the only way to improve prevention and early diagnosis outcomes is to improve the funding settlement. Interviewees were clear that the NHS’s funding settlement is not open for further negotiation, and that the...
solution(s) lie in system improvements rather than increased funding. While Local Authority funding cuts were seen as regrettable, interviewees also underscored the importance of working with public health teams rather than attempting to prop them up with additional funding from the NHS.

**Too weakly supported to consider further:**

- NHS organisations other than Cancer Alliances lack access to transformation funding required to redesign services to improve prevention and/or early diagnosis. Some Cancer Alliances mentioned an inability to access transformation funding because of weaker 62-day RTT performance, but this was not found among other organisations.
- GPs or health systems more broadly are seeking to manage downstream capacity restraints by restricting referrals for suspected cancer.
  - Interviewed clinicians in primary care and secondary care had had no experience of this taking place, even in cases where secondary providers might be ‘bouncing back’ patients (and we have not found support for the idea that ‘bouncing back’ patients is commonly used as an alternative mechanism to manage diagnostic capacity).
  - In reviewing documentation on regional “Be Clear on Cancer” campaigns, we found that TV, which reached 90%+ of the target audience in other campaigns,\(^\text{14}\) is not always included as an advertising channel. This is partly due to whether campaigns are national or regional, and due to whether funding is made available centrally or not.

**Not considered:**

- Awareness and cultural barriers among the public, such as non-awareness of symptoms of cancer or cultural reticence to access primary care. Factors such as these have been treated as constitutive of the opportunity to improve prevention and early diagnosis, rather than as blockers to its realisation.

\(^{14}\) TV reached 94.5% of the target audience in the East and West Midlands lung cancer campaign and 90% of the target audience in the South West and East of England campaigns. (https://www.cancerresearchuk.org/health-professional/awareness-and-prevention/be-clear-on-cancer/programme-evaluation#BCOC_evaluation2)
6 RECOMMENDATIONS TO IMPROVE PREVENTION AND EARLY DIAGNOSIS OF CANCER

6.1 CONSTRAINTS

This report focuses on opportunities to improve patient outcomes through prevention and early diagnosis of cancer within current funding settlements. Opportunities to spend new money if it were identified have therefore been excluded.

The NHS commissioning and performance management system is a highly complex, adaptive system: to operate successfully within it, therefore, any intervention must support the formation of processes that enable large numbers of incremental gains. Solutions that aim to support regional and local health economies to become more effective, robust, and outcomes-oriented have therefore been prioritised.

6.2 RECOMMENDATIONS

Three core challenges were identified in section 5.1 above: recommendations are categorised into three corresponding themes, with an additional theme for further research. For each recommendation the implications for prevention and early diagnosis of cancer are discussed. Finally, some additional recommendations are described which did not fit into the three thematic categories.

6.2.1 SYSTEM REDESIGN

Strategic goal: bring together health and care into a combined system that prioritises system-level outcomes as well as specific process targets

To address the problems generated by the fragmentation of the current structures through which health and care are provided, an integrated delivery approach which can set and prioritise strategic regional-level goals is required. This is consistent with the existing national trajectory towards system working of this kind from both NHS and local government, as reflected in national guidelines from NHS England and Improvement, and the establishment of arrangements and partnerships such as integrated care systems, STPs, Cancer Alliances, and Health and Wellbeing Boards.

However, notwithstanding the positive direction of travel, the blockers discussed in section 5 continue to prevent effective progress towards this goal. Two commissioning-related recommendations aim to address these blockers, by strengthening Cancer Alliances with core funding; and identifying a specific source of funding to use to invest in ‘upstream’ services at a regional level.

Recommendation 1: NHS England and Improvement should continue to provide Cancer Alliances with committed core funding for at least five years and ensure this funding delivers flexibility as well as consistency of implementation.

Cancer Alliances represent an important strategic level in local design and delivery of cancer services. By working across organisational boundaries and integrating NHS and local...
government they are well-placed to address the challenges posed by system fragmentation. In particular they are well-placed to identify appropriate targets for their region and work across the pathway to achieve them.

Cancer Alliances were initially granted core funding for a two-year period from 2017/18 to 2018/19, but these allocations were confirmed on a yearly basis. Identifying core funding locally for partnerships such as Cancer Alliances and STPs is often challenging, and in the absence of centrally-assured funding security Cancer Alliances are unlikely to engage with longer-term strategic redesign.

It is therefore welcome that Cancer Alliances have been provided with five-year allocations as a basis for longer-term planning and investment in integrated regional cancer strategies involving other STP workstreams as well as Public Health and social care structures. Such integration will in turn address the challenges associated with (i) system fragmentation in tobacco control, and (ii) targets and incentives that do not sufficiently prioritise prevention and early diagnosis.

In line with this five-year funding commitment, each Cancer Alliance is required to develop a five-year plan to improve cancer outcomes across the Alliance footprint. However, a majority of the five-year funding has been earmarked for specific projects. This will ensure that all Alliances are able to implement some specific deliverables, but may limit flexibility.

Moreover, visibility is not the same as accessibility, and Cancer Alliances report problems arising from the annual budgeting cycle such as not being able to make permanent hires, and not being able to guarantee project funding year to year. While multi-year budgeting in its full sense has not been supported in this paper, increasing the certainty of Alliance funding year to year would have a positive impact on planning and delivery.

Cancer Alliances that are strengthened in this way will be able to devote more resources to supporting GPs as well as secondary trusts. Supporting GPs within regional strategic initiatives is logistically challenging due to the number and organisational independence of GP practices; yet primary care remains a critical component in increasing the prevention and early diagnosis of cancer. There are well-evidenced mechanisms to support the activity of primary care in this area, and Cancer Alliances will be able to identify, and implement, and encourage approaches that are most appropriate within their footprint.

Some interviewees suggested that all Cancer Alliances should be coterminous with a single STP (see section 3.1 above), which has since become NHS England and Improvement policy. Since prevention and early diagnosis of cancer must be addressed in concert with broader health and care strategic action, we recommend that Cancer Alliance planning and activity should be thoroughly integrated with wider STP plans. As one interviewee commented, “The Cancer Alliance functions as the STP’s ‘Cancer’ workstream, and benefits from STP resources when required”. Any changes to geographies should be carefully considered to ensure minimum disruption to existing workstreams.

**Recommendation 2:** NHS England and Improvement should expand its use of ringfenced budgets to include not only screening programmes, but also NHS-specific tobacco control programmes. A proportion of annual growth-related funding increases should be ringfenced for such activities and allocated to STPs to invest in locally-prioritised prevention activities.

While there is evidence for the cost-effectiveness of both early diagnosis and prevention, the benefits accruing from prevention are often difficult to attribute to specific organisations and emerge after a time delay. Ringfencing is an effective mechanism within the existing system to
ensure that funding is allocated to activity that benefits the wider system but may not result in a measurable benefit to the organisation delivering the activity. Ringfencing is therefore an appropriate mechanism to ensure that prevention activities are commissioned: using annual growth-related funding from which to draw this ringfence is recommended since prevention activity often generates reductions in future activity that are expected to support system ability to manage anticipated future demand. These characteristics are often also true of early diagnosis, which has delayed benefits across a number of organisations. Ringfenced funds for diagnostic capacity should also be considered.

Growth funding to the NHS enables the system to cope with increasing demand. Allocating this to individual organisations carries the risk that this will be used to invest in absorbing anticipated growth in demand based on current activity trajectories, rather than investing in measures designed to reduce activity levels. Making a part of this funding available to STPs, however, would both further establish STPs as meaningful fora for strategic planning, and enable the funding itself to be used to achieve strategic improvements in performance and patient outcomes, regardless of whether the service best placed to deliver those improvements is in primary or secondary care, or public health.

This approach, while a significant change to the way growth funding has been allocated in the past, is incremental by design. It is intended to allow for meaningful but gradual repurposing, in line with local needs and priorities, of the make-up of NHS spend towards ‘upstream’ services without introducing unnecessary disruption to service provision. This reflects both the risk of making more ambitious changes to the highly complex and inter-dependent set of core commissioning and incentive structures within the NHS, and a desire to avoid asking organisations actively to transfer funding away from existing services and patients towards ‘upstream’ services.

Discussion: impact on prevention and early diagnosis

These two recommendations would provide regional partnerships with a financial incentive, strengthened financial and structural capacity, and enhanced public transparency and accountability, to integrate services across organisations in the service of system-wide objectives, with particular focus on prevention.

One key enabler of greater regional system integration is a shared strategy and some degree of integrated service planning, perhaps with shared or pooled budgets, between NHS and local government organisations. Such an approach is already in use through the Better Care Fund as well as in the arrangements in devolved regions such as Greater Manchester, however this is not reflected in a recommendation. This is because one lesson from Greater Manchester has been that strategic integration of this kind works well when locally-led rather than centrally imposed. In the absence of such local initiatives, the NHS does not have the levers required to compel Local Authorities to participate in a scheme of this kind.

6.2.2 PRIORITISATION OF TARGETS AND INCENTIVES

Strategic goal: incentivise appropriate levels of prevention and early diagnosis across the NHS, and remove the motivation to protect 62-day RTT performance by suppressing initiatives to increase early diagnosis

As discussed in s.5.2 above, the hypothesis that the complex system of targets within the NHS is itself a blocker of improved prevention and early diagnosis of cancer was not supported through expert interviews. However, as discussed in s.5.1.2, the relative weight of 62-day RTT performance in both financial and non-financial terms is a clear obstacle to increased activity.
in services supporting both prevention and early diagnosis activity. Two recommendations aim at adjusting this financial and non-financial weighting in favour of upstream services.

**Recommendation 3:** NHS England and Improvement should strengthen the relative weighting of incentives for ‘upstream’ services, for example by:

- Reducing or eliminating the proportion of the payment for the “Cancers diagnosed at early stage” Quality Premium that is dependent on achieving operational performance of 85% against the 62-day referral-to-treatment standard.

Performance-dependent payments are an important financial mechanism to promote prevention and early diagnosis. The Quality Premium incentives for CCGs in respect of prevention and early diagnosis of cancer are effective and appropriately weighted in their own right, constituting 17% of the value for quality indicators. However, because failure to achieve 85% operational performance against 62-day RTT results in a 50% payment reduction on all quality indicators, the financial impact of this downstream measure far exceeds that of the ‘early stage’ indicator. Partial or full exemption of the ‘early stage’ indicator from performance against the 62-day RTT target would reduce the extent to which the target is disproportionately incentivised financially within the NHS.

**Recommendation 4:** NHS England and Improvement and Public Health England should enhance public and political support for investment in early diagnosis of cancer by strengthening public transparency of cancer staging performance in the following two ways:

a) NHS England and Improvement should strengthen transparency of cancer staging performance by reporting staging figures as well as improvements in staging completeness, by Trust and by STP region, with the same prominence as 62-day RTT performance.

62-day RTT performance is an important measure of access to healthcare and should continue to be published and reported. However there are other measures such as cancer staging performance which should be given equal prominence, published both at regional and at trust level, with an indicator of whether this is improving or deteriorating. This would provide patients and the public with information not only about accessing healthcare, but also about the outcomes being achieved in their local health system. The work ongoing to optimise this indicator is therefore welcome.

This should be broken down for the most common cancers, as well as reported for cancers overall. This would be likely to increase public accountability and political support to invest in outcomes as well as access to healthcare, and to increase the emphasis placed on improving outcomes in guidelines to NHS organisations: both these changes would be likely to increase the investment made by local NHS organisations in upstream services.

One emerging finding from interviews is that access targets such as 62-day RTT performance are important to patients because they are timely, easy to understand, and well-suited to holding organisations to account. By contrast, it can often be hard to articulate the benefits generated by investments in regional bodies and partnerships, leading to lower public visibility, and perhaps scepticism about the value of these initiatives.

Reporting on cancer performance figures at an STP level, and reporting on STP-level activities to improve these, would strengthen the visibility and awareness of the impact of these strategic partnerships on clinical outcomes and patient experience, and counteract scepticism as to their efficacy and value.

Page 35 of 42
Cancer survival statistics may also be more representatively reported at a regional level than at a trust level, to adjust for irregular local peaks and troughs as well as unevenly-distributed baseline population acuity.

Unstaged cancers reduce the value of staging data as a proxy for health outcomes, since it cannot be assumed that their staging profile would align with that of staged cancers. As well as publishing staging data, NHS England and Improvement should continue to work with NHS trusts and Public Health England to improve the completeness of staging data.

b) Public Health England should aim to make staging data available within a 6 month reporting period

Staging cancers is a more complex task than analysing performance against 62-day RTT performance: at the time of writing the most recent available figures date from September 2017. Completing and publishing the analysis of cancer staging more quickly would enable this measure to be used more widely alongside measures such as 62-day RTT performance.

The planned 28-day faster diagnosis standard may improve early diagnosis; but it should be noted that ‘pre-referral’ interventions (such as greater symptom awareness or higher screening uptake) aiming to bring forward the time of patient presentation to a GP will often bring forward the referral by a matter of months or even years. ‘Post-referral’ interventions to reduce delays through the 62-day referral-to-treatment pathway can only bring forward the point of treatment by a matter of days or perhaps weeks: this represents a far smaller likely gain in stage of diagnosis for affected patients.

Discussion: impact on prevention and early diagnosis

Increasing the strength of tobacco and alcohol control CQUINs for secondary providers would directly support cancer prevention, since there is clear evidence that both tobacco and alcohol cause cancer. It is possible that increasing screening for tobacco usage within secondary providers might also generate a slight improvement in early diagnosis of lung cancer, since discovering that a patient on a non-cancer pathway is a smoker may in certain circumstances lead a clinician to consider the merit of additional diagnostic activity to assess for a possible cancer risk.

Increasing the transparency of cancer staging performance and improvement would be likely to result in investment in services to support early diagnosis, especially of the most common cancers and those with the worst current staging profile: lung cancer, colorectal cancer, and ovarian cancer. (Activity to increase early diagnosis of prostate cancer causes relatively more incidental harm to patients who would not have died of their prostate cancer: staging performance should be reported in such a way as not to incentivise clinically unjustified activity in this area.) Due to its high public profile, female breast cancer could also be included in this list, although the marginal improvements in clinical outcomes from further investment in early diagnosis of breast cancer are likely to be much smaller than for the other cancer types.

6.2.3 RINGFENCING FOR THE PUBLIC HEALTH GRANT

Recommendation 5: DHSC should commit to providing increased and sustainable investment in public health to ensure Local Authorities can commission the services they need in their region, including important smoking cessation services.

Local Authorities have made efficiencies through better commissioning, but cuts to public health has placed a severe strain on Local Authorities’ ability to fund a range of frontline prevention services, including those to help people quit smoking. Increasing investment in
public health, and finding a sustainable mechanism following the dissolution of the Public Health Grant in 2020/21, will allow Local Authorities to commission important services like smoking cessation services to prevent ill health, narrow the health inequalities gap and support NHS sustainability over the longer term.

**Discussion: impact on prevention and early diagnosis**

Increasing investment in public health, and finding a sustainable mechanism following the dissolution of the Public Health Grant in 2020/21, will allow Local Authorities to commission important services like smoking cessation services to prevent ill health, narrow the health inequalities gap and support NHS sustainability over the longer term.

6.2.4 **RECOMMENDATIONS FOR FURTHER RESEARCH**

**Recommendation 6:** Cancer Research UK and the research community should continue to monitor and support ongoing research in the following three areas:

- **a)** Cancer Research UK and the research community should continue to research the evidence base supporting the cost-saving benefits of interventions based in primary and secondary care and other locations by reducing prevalence of smoking, obesity, and alcohol consumption.

This report was unable to demonstrate clearly that tobacco prevention interventions would be suitable for a multi-year budgeting approach; however, the evidence that they may generate a net cost saving provides support for further increases in activity in this area. Further research into possible approaches to fund and deliver such activity would therefore be valuable.

- **b)** Cancer Research UK and the research community should, in light of ongoing research elsewhere and innovations anticipated over the coming five years, continue to stay abreast of developments affecting the opportunity for Artificial Intelligence to enhance patient outcomes, and the cost-effectiveness of early diagnosis, by reducing overdiagnosis and overtreatment as a consequence of screening programmes and optimising referrals.

There is some evidence that there may be an opportunity for artificial intelligence to identify which screening patients will benefit from immediate treatment, and which patients should be monitored rather than treated. This would enable improved outcomes for patients and reduced financial costs associated with diagnostics, but the opportunity is currently poorly understood.

- **c)** Cancer Research UK and the research community should assess the impact of new contractual models in stimulating and incentivising investment in ‘upstream’ services.

New contract models for integrated redefine the relationships between providers and CCGs: this allows the emergence of new dynamics such as a shift of demand risk to providers, increased flexibility of funding to move within the pathway, and enhanced collaboration between partners within a healthcare system. There is some evidence that these models can result in cost savings, although as to be expected this has not been found through increased investment in prevention or early diagnosis; moreover, the evidence for these models enhancing integration and collaboration is weak. A stronger evidence base in this area would be of value in clarifying the opportunity for new contracting models to drive increased investment in upstream services.
Discussion: impact on prevention and early diagnosis

Stronger and more detailed evidence into the opportunity for smoking prevention interventions to achieve cost savings for the NHS would encourage commissioners and providers to ensure that these interventions were implemented: in some cases this might include investigating the potential for mechanisms such as multi-year budgeting to support this.

Where Artificial Intelligence becomes able to reduce overdiagnosis and overtreatment of cancer, helping to identify those that will benefit from referral and testing, commissioners will be able to support early diagnosis for more people, possibly without needing to increase funding for diagnostic services and treatment. This will also have the effect of reducing the extent to which concerns over capacity in diagnostic services result in suppression of early diagnosis activity, since the additional diagnostic demand produced by such activity will be lower.

Stronger and more detailed evidence into the opportunity for different contracting models to incentivise investment in ‘upstream’ services would enable local health systems to use these models appropriately to support improvements in these areas, where a lack of evidence is one reason preventing their uptake at present.

It is, however, difficult to predict with confidence the findings that research in these areas will uncover: the recommendations are therefore that such research should be monitored, and supported where appropriate.

6.2.5 ADDITIONAL RECOMMENDATIONS

In the course of conducting expert interviews, six additional interventions with the capacity to improve the prevention and/or early diagnosis of cancer were described. These are reproduced below. These proposals support interventions that are either relatively minor in scale, already in practice throughout the NHS or in specific regions, or already planned for implementation. As such they do not represent the same degree of transformational ambition as the previous six recommendations.

Recommendation 7: Continue the roll-out of Decision Support Tools for GPs (GP IT providers)

Decision support tools for GPs interrogates patient files and presenting symptoms to suggest further questions and establish an overall cancer-risk during a GP appointment. This improves GPs’ ability to come to an accurate assessment of a patient’s cancer risk, supports GPs’ cancer awareness for patients with non-specific or unusual symptoms, and facilitates the completion of necessary documentation for a two-week urgent referral.

This and other tools are in use in some practices but not all, and it is recommended that GP IT providers continue to work with providers of these services to roll them out to all GP practices.

Recommendation 8: Continue to capture and evaluate the effectiveness of local initiatives, and support other health economies to replicate successful schemes (NHSI)

A number of CCG interviewees mentioned locally-developed initiatives that were working well, but the same people were often not aware of other initiatives that had been piloted elsewhere. In addition, a lack of evidence for the clinical effectiveness of different schemes, especially for improving health outcomes among hard-to-reach communities, was a major obstacle for many in adopting programmes trialled elsewhere. It is recommended that NHSI continue to evaluate and share best practice across the country.
Recommendation 9: Invest in improvements such as Artificial Intelligence to target for early diagnostic activity those patients with stage 1 cancers who would most benefit from active treatment rather than ongoing surveillance (NHSE and the research community)

As screening activity increases, levels of ‘overdiagnosis’ increase (see section 4.2.4, above), with associated risk of harm to patients. Advances in Artificial Intelligence may in the future enable clinicians to differentiate between patients whose cancer (or pre-cancerous lesion) is very unlikely to affect their health, and who should therefore not be operated on at that time, from those whose cancer does need immediate treatment. NHSE should continue to explore the opportunity to improve patient outcomes in this way.

Recommendation 10: Further develop the evidence base around the system-level financial impact of additional preventive activity (NHSI)

Limited work has been done on the cost implications of early diagnosis (see section 4.2, above), and even less has been done regarding prevention. Further investigation into the possible cost savings from cancer prevention in general, and from specific preventative programmes, would support CCGs to design and invest in programmes where a financial saving might be made.

Recommendation 11: Continue to run Public Health England’s public awareness campaigns such as Be Clear on Cancer (PHE)

Evaluations of recent Be Clear on Cancer campaigns show that they are effective at increasing GP presentations and referrals. These should be continued.

Recommendation 12: Continue with the planned transition from FOBT to FIT in bowel screening, and with the extension of the target age range for bowel screening from 60-74 to 50-74 year olds

The UK FIT national screening pilot saw a higher uptake among the FIT group (66.4%) than among the FOBT group (59.3%). Moreover FIT is more sensitive, with fewer false positive and false negative results than FOBT. Both these considerations give reason to support the planned transition to FIT in England. Because of the additional cost associated with increased early diagnosis, there are no recommendations specifically dealing with increasing bowel screening uptake. However, it is to be expected that STPs wanting to improve cancer staging performance (cf. Recommendation 4) will include bowel screening uptake among their targets.
References

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