

Putting NICE guidance into practice

# **Costing statement: Suspected cancer**

## **Implementing the NICE guideline on suspected cancer: recognition and referral (NG12)**

Published: June 2015

## Summary

This guideline covers the recognition and selection for referral or investigation in primary care of people of all ages, including children and young people, who may have cancer.

This guideline is anticipated to increase the number of diagnostics tests and referrals for suspected cancer significantly and this will have cost implications. However at the same time benefits are anticipated from earlier diagnosis of cancer, a reduction in the number of patients with cancer identified through emergency admission to hospital and from optimised diagnostic processes.

This may require significant investment in cancer services by commissioners.

The tumour groups for which a significant resource impact is estimated are:

- lung and pleural cancers
- upper gastrointestinal tract cancer
- lower gastrointestinal tract cancer.

The guideline is anticipated to increase demand on providers for additional capacity to undertake more diagnostics tests, on services that already have limited capacity.

The guideline is anticipated to increase demand on providers and will need additional capacity to undertake more diagnostic tests. Services currently report that many have too little capacity to meet existing demand.

Commissioners may need discussions with providers to understand local capacity and may need to consider alternative models of care to create additional capacity for diagnostic tests.

Benefits may occur from:

- early identification of cancer
- a reduction in cancer identified through emergency admission to hospital
- an optimised diagnostic process.
- more appropriate referrals to secondary care for suspected cancer
- extended survival for people with cancer

- reduced mortality from cancer.

This costing statement contains a detailed example of the potential costs and savings associated for a patient by making an earlier diagnosis of colorectal cancer. A local costing template has been produced to help organisations calculate costs at a local level.

# 1 Introduction

- 1.1 This guideline covers the recognition and selection for referral or investigation in primary care of people of all ages, including children and young people, who may have cancer.
- 1.2 The guideline might have resource implications at a local level depending on current pathways for the treatment of cancer. Therefore, we encourage organisations to evaluate their own practices against the recommendations in the NICE guideline and assess costs locally. Some of the resource effects to be considered locally are discussed in this statement.
- 1.3 Consultation comments have indicated that estimating the change in referral patterns cannot be undertaken with any degree of certainty but that the number of diagnostics tests for suspected cancer will increase significantly with more suspected cancer pathway referrals for an appointment within 2 weeks (also known as 2-week wait or 2WW referrals).
- 1.4 Consultation comments further indicate that commissioners and providers need to understand local capacity and demand for diagnostic tests in order to meet the anticipated increase that may occur as a result of this guideline.
- 1.5 The guideline anticipates that there may be benefits from:
- early identification of cancer
  - a reduction in cancer identified through emergency admission to hospital
  - an optimised diagnostic process.
  - more appropriate referrals to secondary care for suspected cancer
  - extended survival for people with cancer
  - reduced mortality from cancer

- 1.6 The commissioners for these services are NHS England and clinical commissioning groups. Providers are GPs, local NHS hospital trusts and specialists cancer hospitals. As the focus of this guideline is referral for suspected cancer, the most significant impact will initially be in primary care.
- 1.7 A local costing template has been produced to help organisations calculate costs at a local level.

## 2 Background

- 2.1 More than 300,000 new non-skin cancers are diagnosed annually in the UK, across over 200 different cancer types. Each of these cancer types has different presenting features, though they sometimes overlap. Approximately third of the population will develop a cancer in their lifetime.
- 2.2 The identification of people with possible cancer usually happens in primary care, because the majority of people first present to a primary care clinician. Therefore, evidence from primary care was used to inform the identification process for the guideline.
- 2.3 There were nearly 1.4 million suspected cancer pathway referrals for an appointment in 2 weeks made by GPs in the financial year 2013–14. Referrals have been rising consistently. Table 1 shows data for the past 3 years. This equates to approximately a 10% increase year on year.

**Table 1 Suspected cancer pathway referrals made by GPs 2011/12 to 2013/14**

Year	Suspected cancer pathway referrals (with an appointment in 2 weeks)	% Increase year on year
2013/14	1,361,345 <sup>1</sup>	10.4%
2012/13	1,220,177	9.2%
2011/12	1,108,523	
<sup>1</sup> NHS England (2014)		

- 2.4 The recommendations were developed using a 'risk threshold', whereby if the risk of symptoms being caused by cancer is above a certain level then action (investigation or referral) is warranted
- 2.5 The previous guideline, referral guidelines for suspected cancer (NICE guideline CG27 published date June 2005) used a disparate range of percentage risks of cancer in the recommendations. Few corresponded with a positive predictive value (PPV) of lower than 5%. The Guideline Development Group (GDG) decided that, in order to improve diagnosis of cancer, a PPV threshold lower than 5% was preferable. Taking into account the financial and clinical costs of broadening the recommendations, the GDG agreed to use a 3% PPV threshold to underpin their recommendations for suspected cancer pathway referrals and urgent direct access investigations, such as brain scanning or endoscopy.
- 2.6 However, certain exceptions to a 3% PPV threshold were agreed. Recommendations were made for children and young people at below the 3% PPV threshold, although no explicit threshold value was set. The threshold was not applied to recommendations relating to tests routinely available in primary care (including blood tests such as prostate-specific antigen and imaging such as chest X-ray), primary care tests that could be used in place of specialist referral, non-urgent direct access tests and routine referrals for specialist opinion.
- 2.7 There are no key priority recommendations for this guideline, because the GDG felt that prioritising recommendations would not be helpful across different cancer types, which were all reviewed using the same criteria, and could potentially prioritise care for certain cancers over others.

### **3 Recommendations with potential resource impact**

- 3.1 NICE's costing team worked with the GDG and other professionals to identify the recommendations that would have the most significant resource-impact.

3.2 Suspected cancer pathway referrals for the tumour groups estimated to have a significant resource impact are set out in table 2. This equates to 30% of suspected cancer pathway referrals for 2013/14.

**Table 2 Suspected cancer pathway referrals for the tumour groups estimated to have a significant resource impact.**

<b>Cancers</b>	<b>Suspected cancer pathway referrals (with an appointment in 2 weeks) 2013/14</b>
Lung and pleural cancers	52,460
Upper gastrointestinal tract cancer	142,694
Lower gastrointestinal tract cancer	209,265
<b>Total</b>	<b>404,419</b>

3.3 Suspected cancer pathway referrals for the tumour groups estimated not to have a significant resource impact are set out in table 3.

**Table 3 Suspected cancer pathway referrals for the tumour groups estimated not to have a significant resource impact.**

<b>Cancers</b>	<b>Suspected cancer pathway referrals (with an appointment in 2 weeks) 2013/14</b>
Breast cancer	252,559
Skin cancer	247,444
Urological cancers	164,013
Head and Neck cancer	126,314
Gynaecological cancers	124,468
<b>Total</b>	<b>914,798</b>

3.4 There were 1.361 million suspected cancer pathway referrals. The above analyses of the tumour groups estimated to have a significant impact and those not having a significant impact include nearly 97% of all current suspected cancer pathway referrals.

3.5 The reasons why these tumour groups were estimated not to have a significant resource impact are set out in appendix 1.

### 3.6 ***Lung cancer***

3.6.1 Recommendations anticipated to have a significant impact on resources for lung cancer are set out in appendix 2

3.6.2 The GDG considered that the recommendation to refer people aged 40 and over with unexplained haemoptysis may lead to a moderate increase in suspected cancer pathway referrals, and that the recommendation are anticipated to result in an increased number of people being diagnosed earlier with lung cancer and a corresponding decrease in the number of emergency admissions. It was noted that earlier diagnosis may result in more patients having radical treatment, and that this would have an associated cost.

### 3.7 ***Upper gastro-intestinal tract cancer***

3.7.1 Recommendations for upper gastrointestinal cancers that are anticipated to have a significant impact on resources are set out in appendix 3. The recommendations are specifically for suspected:

- oesophageal cancer
- pancreatic cancer
- stomach cancer.

3.7.2 For oesophageal cancer the GDG noted that the recommendations for direct access upper gastrointestinal endoscopy are likely to result in a cost increase because of an increase in the number of endoscopies performed. However, some of this cost increase is likely to be counteracted by a cost saving from an optimised diagnostic process that will see an increase in the proportion of patients being referred on a suspected cancer pathway who have oesophageal cancer and a decrease in the number of patients without oesophageal cancer being referred

3.7.3 For pancreatic cancer the GDG noted that the recommendation for an urgent CT scan is likely to result in a cost increase because of an increased number of CT scans performed. However, this cost increase is likely to be counteracted by a cost saving from an optimised diagnostic

process that will see an increase in the number of patients being referred to the right clinic after an abnormal CT scan. These patients could otherwise potentially be referred, consecutively, to 3 different suspected cancer clinics because of the generic nature of the presenting symptoms.

3.7.4 For stomach cancer the GDG noted that the recommendation for urgent direct access upper gastrointestinal endoscopy is likely to result in a cost increase because of an increase in the number of endoscopies performed. However, this cost increase is likely to be counteracted by a cost saving from an optimised diagnostic process that will see an increase in the proportion of patients being referred on a suspected cancer pathway who have stomach cancer and a decrease in the number of patients without stomach cancer being referred.

### 3.8 ***Lower gastrointestinal tract cancer***

3.8.1 This refers to :

- colorectal cancer

3.8.2 Recommendations anticipated to have a significant impact on resources for lower gastrointestinal cancer are set out in appendix 4.

3.8.3 The GDG considered that a potential benefit of the recommendations will be that more patients with colorectal cancer will qualify for suspected cancer pathway referral. The GDG also recognised that potential harms of the recommendations include more patients without colorectal cancer undergoing invasive procedures and experiencing psychological distress.

3.8.4 The GDG agreed that the potential benefit of recommending testing for occult blood in the faeces will be identify patients with symptoms who are less likely to have colorectal cancer and do not need a suspected cancer pathway referral. It will also help in the diagnosis of people who do have colorectal cancer.

## 4 Potential benefits of early diagnosis

4.1 In order to demonstrate the potential benefits of this guideline the following example of the potential costs and savings associated with earlier diagnosis of colorectal cancer are shown below. It uses The [Strategy for cancer: 4th annual report](#) estimated that if the proportion of cancer diagnosed at stages 1 and 2 increased by 10%, between 7000 and 9000, more people would survive cancer for 5 years (Department of Health/Public Health England 2014).

4.2 Table 4 sets out the estimated costs of diagnosing and treating colorectal cancer at the different stages of cancer (Incsive Health/Cancer Research UK 2014).

**Table 4 Estimated costs of diagnosing and treating colorectal cancer at different stages**

	Colon cancer	Rectal cancer	Weighted average
Stage 1	£3,400	£4,400	£3,900
Stage 2	£7,800	£6,900	£7,600
Stage 3	£9,200	£8,300	£8,900
Stage 4	£12,500	£11,800	£12,300

4.3 Table 5 sets out the number of colorectal cancer diagnoses at the different stages of cancer (Incsive Health/Cancer Research UK 2014).

**Table 5 Number of colorectal cancer diagnoses at different stages**

	Colon cancer	Rectal cancer	Total
Stage 1	2,931	2,946	5,877
Stage 2	7,237	2,442	9,679
Stage 3	7,450	3,267	10,717
Stage 4	5,690	2,607	8,297
<b>Total</b>	<b>23,308</b>	<b>11,262</b>	<b>34,570</b>

4.4 Table 6 sets out the estimated saving that may be achieved if cancer diagnosis at stage 1 and 2 increased by 10% for colorectal cancers rather than diagnosis at stages 3 and 4.

**Table 6 Estimated saving if cancer diagnosis at stage 1 and 2 increased by 10% for colorectal cancers rather than diagnosis at stages 3 and 4**

	Current cases	Current cost	Future cases	Future cost	Cost impact
Stage 1	5,877	£22,920,300	6,595	£25,721,834	£2,801,534
Stage 2	9,679	£73,560,400	10,862	£82,551,641	£8,991,241
Stage 3	10,717	£95,381,300	9,645	£85,843,170	-£9,538,130
Stage 4	8,297	£102,053,100	7,467	£91,847,790	-£10,205,310
<b>Total</b>	<b>34,570</b>	<b>£293,915,100</b>	<b>34,570</b>	<b>£285,964,435</b>	<b>-£7,950,665</b>

4.5 Table 7 sets out the potential saving from a 1% reduction in cases of colorectal cancer identified by emergency admission from the current 25% (National Cancer Intelligence Network 2013) to 24%.

**Table 7 Potential saving from a 1% reduction in cases of colorectal cancer identified by emergency admission**

Number of colorectal cancer cases	34,570
Estimated current percentage of colorectal cancers identified by emergency admission	25%
Estimated number of current colorectal cancers identified by emergency admissions	8,643
1% reduction to 24% of colorectal cancers identified by emergency admission	8,297
Potential reduction in emergency admission from current colorectal cancers identified by emergency admissions	346
Estimated cost of emergency admission	£1,413
Potential saving	£488,898

4.6 The report on savings from early diagnosis of cancer, [Saving lives, averting costs: an analysis of the financial implications of achieving earlier diagnosis of colorectal, lung and ovarian cancer](#) (Incisive Health/Cancer Research UK 2014), states that 'Colon, rectal, lung and ovarian cancers account for approximately 21 per cent of overall cancer diagnoses in England. If the findings for these cancers were replicated for all cancers,

then savings in treatment costs of just under £210 million would be realised, resulting in over 52,000 people being diagnosed with earlier stage cancer.’

- 4.7 Clinical commissioning groups wanting to identify their own potential savings opportunities should compare local rates of diagnosis of cancer at the different stages to the best rates of early diagnosis achieved by individual clinical commissioning groups in England.

## **5 Other considerations**

- 5.1 Commissioners and providers will need to review local capacity of diagnostic tests in order to meet the anticipated increase in demand. There may be local infrastructure costs such as extra equipment or accommodation to undertake additional diagnostic tests.
- 5.2 From the additional tariff payments (for additional CT scans, MRI scans, endoscopies and colonoscopies) received by providers for anticipated additional activity, providers may need to invest in additional staff to create additional capacity for the anticipated increase in referrals and to monitor achievement of the two week suspected cancer pathway.
- 5.3 Because the guideline recommends initial management of suspected cancer in primary care, there may be costs in primary care associated with longer consultations in order to explain the nature of the referral.
- 5.4 Whilst many cancers have been excluded from having a significant impact on costs, consultation comments have suggested at publication there may be an increase in referrals due to an increased awareness of the guideline. Commissioners and providers should work to promote awareness of the guideline and monitor any increase in referrals.
- 5.5 Efficient implementation of this guideline is dependent on additional diagnostic capacity being available. The GDG have highlighted that this may be an issue in the short term.

## **6 Impact of guidance for commissioners and providers**

6.1 This guideline is likely to have a significant impact on both commissioners and providers as set below:

6.2 This guideline is likely to have a significant impact on commissioners and providers:

### **Commissioners**

- Significant further investment in cancer services may be required.
- Additional capacity for diagnostics testing will be required. Both the GDG and consultation comments clearly stated that capacity is currently limited.
- Commissioners may need to discuss local capacity with providers, and may need to review alternative models of care to create additional capacity.

### **Providers**

- Providers will need to understand their own capacity for diagnostic testing.
- Workforce plans for the future will need to meet the requirements of this guideline.
- Additional income from extra activity from implementing the guideline will need to be invested in extra direct care staff as well as support staff (such as extra staff to track cancer patients).
- Current infrastructure will need to meet the requirements of this guideline, for example equipment and facilities to undertake additional diagnostics tests

## 7 References

Department of Health/Public Health England (2014) [Improving outcomes: A strategy for cancer fourth annual report](#)

Incisive Health/Cancer Research UK (2014) [Saving lives, averting costs: an analysis of the financial implications of achieving earlier diagnosis of colorectal, lung and ovarian cancer](#)

National Cancer Intelligence Network (2013) [Routes to diagnosis](#)

NHS England (2014) [Waiting times for suspected and diagnosed cancer patients 2013–14 annual report](#), p8

## Appendix 1: Tumour groups not anticipated to have a significant impact on resources

**Breast cancer** was excluded as not having a significant impact because:

The GDG noted that most women over 30 with a breast cancer symptom get a suspected cancer pathway referral within 2 weeks in current clinical practice. Since the recommendations made in the guideline now cover specific symptoms, the GDG considered this would result in a reduction in the number of referrals and a corresponding cost saving. However, because the new recommendations encompass most of the women who currently get referred, the GDG anticipated there would only be a small reduction in costs.

**Skin cancer** was excluded as not having a significant impact:

- **Melanoma of the skin** The GDG noted that through using the 7-point checklist, the number of referrals of people who are found not to have melanoma would probably be reduced. However, there may be more referrals based on dermatoscopy findings. Overall this may result in a small cost increase. This is not considered to be significant.
- **Squamous cell carcinoma** The GDG noted that the recommendation made for referral for squamous cell carcinoma was likely to be cost-neutral because this is already standard practice.
- **Basal cell carcinoma** The GDG considered that the overall number of patients being referred for investigation of basal cell carcinoma is unlikely to change. However there may be a small increase in the need for suspected cancer pathway referrals for those with lesions in functionally or cosmetically challenging places. The GDG considered that overall this was unlikely to have a major cost impact.

**Urological cancer** was excluded as not having a significant impact:

- **Prostate cancer** The GDG noted that the recommendation for a suspected cancer pathway referral for a malignant prostate on digital rectal examination is likely to be cost-neutral because it is currently standard practice. The GDG also estimated that the recommendations for prostate cancer were likely to result in a moderate increase in PSA testing followed by a smaller increase in suspected

cancer pathway referrals. The net effect of this was uncertain but the GDG agreed that any potential increase in costs would be balanced by improvements in the diagnosis of prostate cancer. Costing analysis indicates costs are not anticipated to be significant because of the low cost of PSA testing.

- **Bladder cancer** The GDG estimated that overall the recommendations were likely to be either cost-neutral or result in a small cost increase. However, they agreed that this balanced against improvements in earlier diagnosis of bladder cancer.
- **Renal cancer** The GDG noted that the recommendation for a suspected cancer pathway referral for visible haematuria is likely to result in a cost decrease because of the introduction of an age limit. However, the recommendation to refer if there is persistent/recurrent urinary tract infection is likely to represent a small to moderate increase in costs. Overall the GDG agreed these were likely to balance each other.
- **Testicular cancer** The GDG noted that referral for men with a non-painful enlargement or change in shape or texture of the testis is already current practice. In addition, ultrasound is a relatively inexpensive test and given the small numbers of men likely to be scanned, this was unlikely to represent a significant additional cost.

**Head and Neck cancer** was excluded as not having a significant impact:

- **Laryngeal cancer** The GDG noted that the recommendations for a suspected cancer pathway referral for persistent unexplained hoarseness and an unexplained lump in the neck in people aged 45 years and over are likely to be associated with a small cost saving because the previous recommendations did not have an age limit.
- **Oral cancer** The GDG estimated that the recommendations would result in an increase in costs within the dental service, and a decrease in the number, and therefore cost, of suspected cancer pathway referrals, but were uncertain of the net effect.
- **Thyroid cancer** The GDG noted that the recommendation for a suspected cancer pathway referral for an unexplained thyroid lump is likely to be cost-neutral because it is currently standard practice.

**Gynaecological cancers** were excluded as not having a significant impact:

- **Ovarian cancer** The recommendations are from 'Ovarian cancer', NICE clinical guideline 122 (2011) and are assumed to be implemented.
- **Endometrial cancer** The GDG noted that the recommendations made for referral for endometrial cancer will be either cost-neutral or associated with a slight decrease in resource use.
- **Cervical cancer** The GDG noted that the recommendation made for referral for cervical cancer is likely to be either cost-neutral or associated with a slight decrease in resource use.

## **Appendix 2: Lung cancer recommendations anticipated to have a significant impact on resources**

Refer people using a suspected cancer pathway referral (for an appointment within 2 weeks) for lung cancer if they:

- have chest X-ray findings that suggest lung cancer **or**
- are aged 40 and over with unexplained haemoptysis. **[new 2015]**

## **Appendix 3: Upper gastrointestinal cancer recommendations anticipated to have a significant impact on resources**

### **Oesophageal cancer**

Offer urgent direct access upper gastrointestinal endoscopy (to be performed within 2 weeks) to assess for oesophageal cancer in people:

- with dysphagia **or**
- aged 55 and over with weight loss and any of the following:
  - upper abdominal pain
  - reflux
  - dyspepsia. **[new 2015]**

### **Pancreatic cancer**

Consider an urgent direct access CT scan (to be performed within 2 weeks), or an urgent ultrasound scan if CT is not available, to assess for pancreatic cancer in people aged 60 and over with weight loss **and** any of the following:

- diarrhoea
- back pain
- abdominal pain
- nausea
- vomiting
- constipation
- new-onset diabetes. **[new 2015]**

### **Stomach cancer**

Offer urgent direct access upper gastrointestinal endoscopy (to be performed within 2 weeks) to assess for stomach cancer in people:

- with dysphagia **or**
- aged 55 and over with weight loss **and** any of the following:
  - upper abdominal pain
  - reflux

– dyspepsia. **[new 2015]**

## **Appendix 4: Lower gastrointestinal cancer recommendations anticipated to have a significant impact on resources**

### **Colorectal cancer**

Refer people using a suspected cancer pathway referral (for an appointment within 2 weeks) for colorectal cancer if:

- they are aged 40 and over with unexplained weight loss and abdominal pain **or**
- they are aged 50 and over with unexplained rectal bleeding **or**
- they are aged 60 and over with:
  - iron-deficiency anaemia **or**
  - changes in their bowel habit, **or**
- tests show occult blood in their faeces (see recommendation 1.3.4 [see below] for who should be offered a test for occult blood in faeces). **[new 2015]**

Offer testing for occult blood in faeces to assess for colorectal cancer in adults without rectal bleeding who:

- are aged 50 and over with unexplained:
  - abdominal pain **or**
  - weight loss, **or**
- are aged under 60 with:
  - changes in their bowel habit **or**
  - iron-deficiency anaemia, **or**
- are aged 60 and over and have anaemia even in the absence of iron deficiency. **[new 2015]**

## About this costing statement

## **About this costing statement**

This costing statement accompanies [Suspected cancer: recognition and referral](#) (NICE guideline NG12).

**Issue date:** June 2015

### **This statement is written in the following context**

This statement represents the view of NICE, which was arrived at after careful consideration of the available data and through consulting healthcare professionals. It should be read in conjunction with the NICE guideline. The statement is an implementation tool and focuses on those areas that were considered to have potential impact on resource utilisation.

The cost and activity assessments in the statement are estimates based on a number of assumptions. They provide an indication of the potential impact of the principal recommendations and are not absolute figures.

### **National Institute for Health and Care Excellence**

Level 1A, City Tower, Piccadilly Plaza, Manchester M1 4BT [www.nice.org.uk](http://www.nice.org.uk)

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