Supporting direct access to diagnostic imaging for cancer
Best practice pathways for diagnostic imaging teams

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# Contents

1. Improving cancer outcomes – prevention and earlier diagnosis  
2. Development of the pathways  
3. Key principles in the design of the best practice pathways  
4. Overcoming the challenges  
5. Best practice examples  
6. Clinical pathway – Non-obstetric ultrasound  
7. Clinical pathway – Chest x-ray  
8. Clinical pathway – Brain Magnetic Resonance Imaging (MRI)  
9. References  
10. Acknowledgements

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3

5

6

7

10

11

12

13

14

15
Improving cancer outcomes: prevention and early diagnosis

*Improving Outcomes: A Strategy for Cancer, January 2011*, sets out how the Government, NHS and public can help prevent cancer, improve the quality and efficiency of cancer services and move towards achieving outcomes that rival the best. The strategy sets out the ambition to drive up England’s cancer survival rates so that by 2014/15 an extra 5,000 lives will be saved every year. Key to this strategy is prevention and earlier diagnosis.

Improving GP direct access to diagnostic tests (imaging and endoscopy) and making a diagnosis of cancer as early as possible are important steps in improving outcomes for cancer patients and achieving the overall aim of saving lives.

For the purpose of this document, ‘direct access’ is defined as enabling primary care to refer a patient for a diagnostic test without having to access a specialist consultant referral.
Development of the pathways

‘Direct Access to Diagnostics Tests for Cancer’: Best Practice Referral Pathways for General Practitioners’, April 2012 guide, covers the process for direct referral by GPs to four specific diagnostic tests for the assessment of particular symptoms where cancer may be suspected but the urgent GP referral (two week wait) process is not applicable. The guide does not extend into the pathway beyond the diagnostic testing stage or include endoscopy pathways.

This NHS Improvement document has been written to support diagnostic imaging teams, and to help them to understand the best practice pathways for GP direct access to diagnostic imaging tests for suspected cancer.

The pathways in Annex A have been developed following extensive consultation with consultant radiologists, radiology managers, GPs, patients, representatives from radiology professional bodies and forums, Department of Health (DH) Cancer and Imaging Policy teams, the Cancer Diagnostic Advisory Board and NHS Improvement. The expert groups have identified ‘best practice diagnostic pathways’ for:

- Non-obstetric ultrasound: to support the diagnosis of ovarian cancer
- Chest x-ray: to support the diagnosis of lung cancer
- Cancer
- Brain MRI: to support the diagnosis of brain cancer.

In doing so, expert panels provided an insight into what ‘good practice’ currently exists and explored the challenges and support required to deliver such pathways. The main basis of each pathway is from NICE guidelines.

The expert groups explored several models for primary care access and considered the best fit for each pathway, including:

1. Exclusive diagnosis and management in primary care
2. Imaging as a triage for primary care to then refer to secondary care
3. Primary care access to diagnostic tests before an outpatient attendance for patients routinely referred to secondary care.
4. Primary care requests a direct access diagnostics test alongside a two week wait urgent referral for suspected cancer.

It is recognised that implementation of the pathways may be challenging and may require changes to the way services are commissioned and delivered.
Key principles in the design of the best practice pathways

When designing the pathways, the expert groups developed the following 10 key principles to underpin the design and implementation of the pathways:

- The patient should be fully informed at every step, and involved in the decision making process. Patients should be able to give informed consent with clinicians explaining the limitations of the investigation, where appropriate.
- GPs should support secondary care by providing relevant referral information, such as, patient symptoms, relevant clinical history, details of other examinations, as well as generic patient information for example, NHS number, date of birth.
- Robust communication between primary and secondary care clinicians needs to be maintained at all stages of the pathway.
- A single queue for direct access requests should be adopted to ensure equitable access.
- The pathway should not break down at any step and should be as seamless and automatic as possible, with clear lines of responsibility.
- Patient appointments and tests should be coordinated in the shortest possible timeframe and with the minimum number of attendances.
- Professional roles should be developed and planned to meet the needs of the patient pathway.
- Information technology (IT) should meet the needs of the patients and professionals in the pathway and support speedy communications and decision making.
- Recommended NICE guidance should be followed.
- Pathways should be designed generically and allow for local innovation and development.
Overcoming the challenges

The expert groups identified challenges that affect all pathways and developed ideas about how these challenges could be overcome to create an environment in which the best practice pathways can be delivered.

Variation in current services and practices
Variation in current services and local practice is a concern and the expert groups agreed that pathways needed to follow recommended best practice and enable a diagnosis to be achieved within the shortest time possible. The pathways are based on the best known evidence and have agreed timeframes for imaging as agreed with representatives on the expert working group from the Royal College of Radiology (RCR) and the National Imaging Clinical Advisory Group (NICAG). It is expected that local teams will develop the best models of service for patients and professionals to meet the requirements of the health community in which they are based, whilst still observing these standards.

Communication
Pathways can break down when diagnosticians are operating independently or where the process relies on a single individual. Clinicians have a responsibility to ensure that results are communicated effectively\(^1\). The introduction of electronic referral management systems (‘order communications’- the electronic ordering of tests and results delivery) with robust decision support criteria were seen as being of great value for GP’s and secondary care in improving the timeliness of patient pathways.

Improvements need to be made in information and communication to ensure adequate support and consistent messages are provided to meet the needs of patients as they cross organisational boundaries within the healthcare system. Good communication between primary and secondary care was identified and emphasised as a key principle for design of best practice pathways. Some good practice examples have been identified including use of the NHS Direct ‘111’ telephone service.
Multidisciplinary team work
The expert group agreed that commissioning standards would be helpful to ensure all providers can achieve best practice pathways that integrate diagnostic testing with multidisciplinary team management.

Minimising steps and patient attendances
The expert group identified a growing trend where additional steps in patient pathways were a source of unnecessary delays for patients. The best practice pathways were developed to be seamless and minimise the number of patient attendances required.

Information technology (IT)
A need for consistent and effective IT systems and interfaces between primary and secondary care was seen to be essential to enabling speedier communications and decisions across the pathway. Increasing use of the Image Exchange Portal (IEP) is one example of how images and reports can be shared across organisational boundaries. Other best practice examples from organisations who are working to improve ‘order communications’ and reporting systems are available as case studies for others to learn from via the NHS Improvement website www.improvement.nhs.uk/diagnostics/ImageExchangePortal.aspx

Access to MRI scans
Most departments across the country have increasing demands and capacity constraints on MRI services. The National Audit Office report ‘Managing high value equipment in the NHS in England’ March 2011, demonstrated the variation in the utilization of MRI scanners. Some units are developing new approaches to improve capacity and throughput, best practice guidance and case studies are available on NHS Improvement website at: www.improvement.nhs.uk/diagnostics/RadiologyCaseStudies.aspx

Radiology reporting best practice
No diagnostic test is complete until a report is issued which provides the referring clinician with the expert opinion on the findings of the diagnostic test. For imaging, best practice guidance on reporting times has been developed by the National Clinical Imaging Advisory Group. Imaging services should aim to provide reporting turn around times as follows:

- **Urgent cases**: Immediate (within 30 minutes)
- **Inpatients and A&E**: Same working day*
- **All other cases**: By next working day*

Exceptions will inevitably occur where a specialist opinion is required and a tolerance of 90% achievement is reasonable.

*This is currently under review.
Seven day services
To provide a responsive diagnostic service, tests and reports need to be available seven days a week. A number of organisations have already developed seven day services and many are considering the steps required to deliver seven day services as there is evidence to demonstrate improvements in quality and reduction in delays in patient management can be achieved. The following publications demonstrate this:


Equality for all: delivering safe care – seven days a week: NHS Improvement, March 2012, provides examples of seven day services across the wider healthcare system. For more information visit: www.improvement.nhs.uk/sevendayservices
There have been many contributions of best practice examples and papers from across England and Wales. These examples, papers and the case studies from numerous sites have been and continue to be produced and are available on the following websites:

- **NHS Improvement website**
  www.improvement.nhs.uk/diagnostics

- **Macmillan Cancer Support** have also developed a short version of the pathways
  www.macmillan.org.uk/Documents/AboutUs/Health_professionals/PCCL/Rapidreferralguidelines.pdf
Supporting direct access to diagnostic imaging for cancer

Non-obstetric ultrasound: to support the diagnosis of ovarian cancer

**Woman presents to GP**

- Physical examination identifies ascites and/or pelvic or abdominal mass (not uterine fibroids)
  - Refer urgently for two week wait

**GP examines patient no mass on examination**

- Woman reports having any of the following symptoms, persistently or frequently - particularly more than 12 times per month especially if she is 50 or over
  - Persistent abdominal distension (‘bloating’)
  - Feeling full (early satety) and or/loss of appetite
  - Pelvic or abdominal pain
  - Increased urinary urgency and/or frequency
  - Or:
    - Woman is 50 or over and has had symptoms within the last 12 months that suggest IBS.

**GP examines patient no mass on examination**

- Woman reports any of the following:
  - Unexplained weight loss
  - Fatigue
  - Changes in bowel habit

**Measure CA125**

- >35 IU/ml
  - GP arranges ultrasound of abdomen and pelvis
  - Direct access to ultrasound (within seven days and report within 24 hours*)

- <35 IU/ml
  - Assess carefully: are other clinical causes of symptoms apparent?

**Findings suspicious of functional cyst repeat ultrasound in three months**

**Findings suspicious of ovarian cancer book CT +/- MRI scan**

**Findings suggestive of ovarian cancer book CT +/- MRI scan**

**Findings suggestive of ovarian cancer book CT +/- MRI scan**

**Positive findings**

- Radiology sends report to GP within 24 hours and if locally agreed arrange next imaging tests and inform patient and GP of appointment date

**Negative findings**

- Radiology send report to GP within 24 hours

**GP refers to two week wait pathway**

**Ovarian cancer suspected?**

- Yes:
  - Consider symptoms and whether urgent referral for suspected colorectal cancer might be appropriate
  - Ensure safety netting for review if symptoms persist

- No:
  - Advise patient to return if symptoms become more frequent and or persistent. If ovarian cancer is still suspected, GP requests ultrasound investigation ideally within four weeks
  - Fibroids or Benign Cyst
    - GP decides treatment plan with patient consider general gynaecology referral if appropriate
  - Suspicious mass or other scan
    - Findings suggestive of ovarian cancer
      - GP refers two week wait pathway

**Consider symptoms and whether urgent referral for suspected colorectal cancer might be appropriate**

**Gynaecology referral clinic within two weeks**

**Refer urgently for two week wait**
**Chest x-ray: to support the diagnosis of lung cancer**

- **Patient presents to GP**
- **GP explains to patient that CT or outpatient appointment may be required**

**Immediate referral or emergency admission**
- Stridor
- Signs of superior vena cava obstruction
- Massive haemoptysis

**2 week wait referral**
- Persistent haemoptysis in smokers or ex-smokers age 40 years or older
- Chest x-ray or CT scan suggestive of Ca lung including:
  - slowly resolving consolidation
  - pleural effusion, where no direct referral has been made.
- Patients presenting with direct access signs and symptoms AND current or ex-smoker
  - COPD
  - exposure to asbestos
  - history of cancer (especially head and neck)

**Direct access chest x-ray**
- Haemoptysis
- Unexplained or persistent (over three weeks)
  - cough with or without any of the following
    - dyspnoea
    - loss of weight/appetite
    - underlying chronic respiratory problems with unexplained changes in existing symptoms
  - chest pain (non cardiac) shoulder pain (no obvious cause)
  - hoarseness
- Chest signs
- Features suggestive of metastasis from lung cancer
- Other signs:
  - Finger clubbing
  - Cervical/lymphadenopathy
  - Worsening spirometry

**CXR suggestive of Ca lung inc.**
- Slowly resolving consolidation
- Pleural effusion

**Urgent i.e. 2 week referral**

**CT suggestive of lung cancer**

**Chest x-ray – 1 day turnaround for image and report**

**Normal**

**Indeterminate CXR findings and moderate probability for Ca lung, consider CT on radiologist’s advice**

**CT Normal**

**Clinical review and consideration of alternative diagnosis**

**MDT review within 1 week**

**Additional tests as required by specialist team e.g. biopsy, PET-CT**
Supporting direct access to diagnostic imaging for cancer

Brain MRI: to support the diagnosis of brain cancer

1. Refer urgently (and consider direct access to MRI brain scanning if available) for patients with:
   - CNS Symptoms including progressive neurological deficit
   - New onset seizures (refer to neurologist)
   - Headaches
   - Mental changes
   - Cranial nerve palsy
   - Unilateral sensorineural deafness (e.g. confined to recent onset or where malignancy suspected)
   - Headaches of recent onset accompanied by features suggestive of raised intracranial pressure (e.g. vomiting, drowsiness, posture related headache, pulse-synchronous tinnitus, or by other focal or non-focal neurological symptoms, e.g. blackout, change in personality change in memory)
   - A new, qualitatively different, unexplained headache that becomes progressively severe
   - Suspected recent onset of seizures
   - Previous history of cancer accompanied with symptoms as described above.

2. Consider urgent referral (to an appropriate specialist) or proceed direct to MRI brain (1) in patients with rapid progression of:
   - Subacute focal neurological deficit
   - Unexplained cognitive impairment, behavioural disturbance or slowness, or a combination of these
   - Personality changes, confirmed by a witness for which there is no reasonable explanation, even in the absence of the other symptoms and signs of brain tumour.

3. Consider non-urgent referral (2) or discussion with specialist for:
   - Unexplained headaches of recent onset: present for at least 1 month and not accompanied by features suggestive of raised intracranial pressure.

Additional groups for direct referral to MRI:

- Over 50 (excluding patients where a primary diagnosis is made and MRI would not be helpful e.g. temporal arteritis)
- Headache causing wake from sleep
- New headache with history of immunocompromise
- A& E referral
- Emergency admission
- Neuroscience referral

GP refers for MRI scan within 14 days - Radiology report within 24 hours**

GP refers for MRI scan within 7 days, radiology report to GP within 24 hours

Negative findings: Radiologist sends results to GP
Positive findings: Radiologist contacts neurologist and GP within 24 hours
Clinical assessment before MDT
Brain MDT (or patient's original MDT) review within one week

Clinical assessment before MDT, Brain MDT (or patient's original MDT) review

Patient presents to GP

Urgent

Non Urgent

Emergency

Negative findings: Radiologist sends results to GP
Positive findings: Radiologist contacts neurologist and GP within 24 hours
Clinical assessment before MDT
Brain MDT (or patient's original MDT) review within one week

* British Association for Study of Headache and Making Best Use of Radiology Guidance.
** Best Practice Reporting Guidance (National Imaging Board now the National Imaging Clinical Advisory Group).
# Professional opinion is it should be confined to recent onset.

(1) This may be accompanied by urgent referral or GPs may wish to wait for MRI scan result before deciding most appropriate referral for specialist review

(2) MRI brain may be suitable as an alternative as part of the initial management plan with referral for specialist review dependant on the results.
References

1 Improving Outcomes: A Strategy for Cancer: Department of Health, January 2011

2 Direct Access to Diagnostic Tests for Cancer: Best Practice Referral Pathways for General Practitioners: Department of Health, April 2012
   www.dh.gov.uk/health/2012/04/access-cancer-tests

3 Radiology reporting – where does the radiologist duty end?: The Lancet, Volume 367, February 4, 2006
   www.improvement.nhs.uk/diagnostics

4 Image Exchange Portal

5 Managing high value capital equipment in the NHS in England: National Audit Office, March 2011
   www.improvement.nhs.uk/diagnostics/RadiologyKeyResources/DHpublications.aspx

   www.improvement.nhs.uk/diagnostics

7 Case studies: NHS Improvement website
   www.improvement.nhs.uk/diagnostics

8 Implementing 7 day working in imaging departments: Good practice guidance, January 2012

9 Equality for all: delivering safer care – seven days a week: NHS Improvement, March 2012
   www.improvement.nhs.uk/SevenDayWorking/tabid/218/Default.aspx

10 Service Improvement for consultant radiologists: NHS Improvement, September 2008
    www.improvement.nhs.uk/diagnostics

11 Macmillan Cancer Support - Rapid Referral Toolkit
    www.macmillan.org.uk/Documents/AboutUs/Health_professionals/PCCL/Rapidreferralguidelines.pdf
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- NHS Improvement Cancer
- Diagnostics National Clinical Leads
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NHS Improvement

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