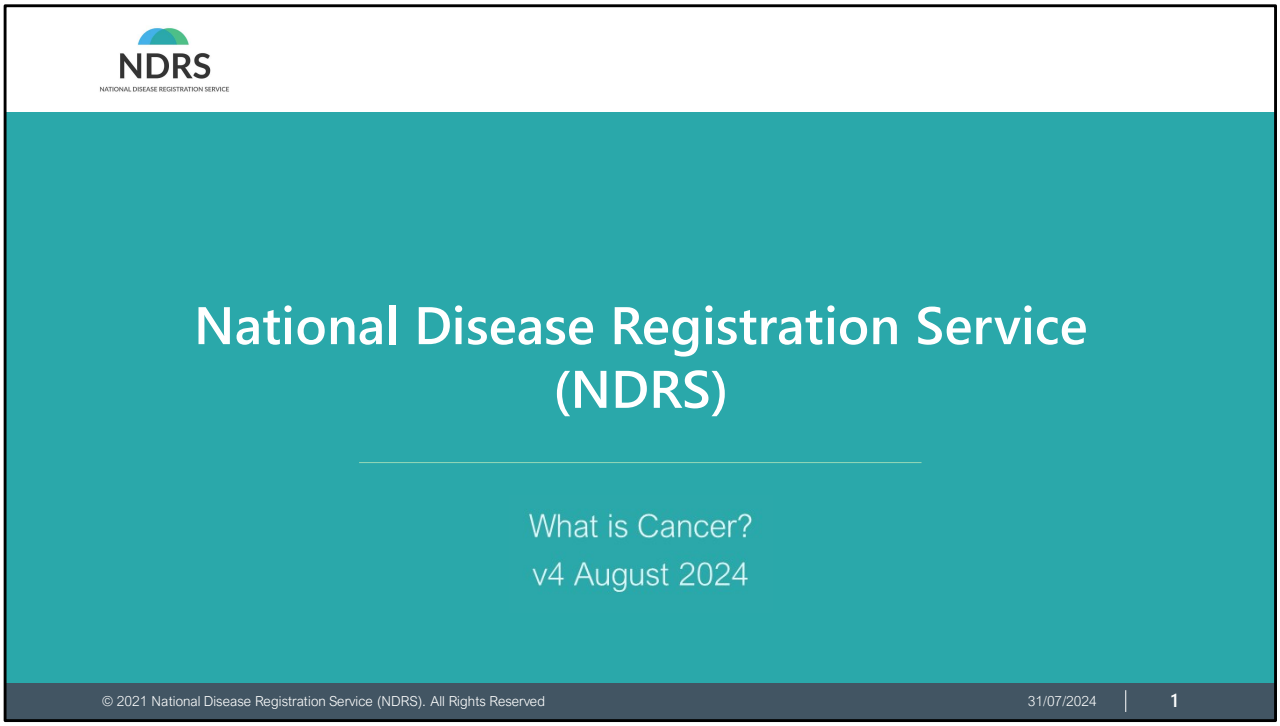


Welcome to this NDRS training module on What is Cancer?

Agenda

- How does cancer start?
- Risk factors
- Cells
- Grade
- Behaviour
- Coding systems
- Summary

This module may be paused at any time

In this module we'll examine how cancer starts, the Risk factors associated with cancer, the types of cells and the cancers they give rise to. We'll also look at Grade, Behaviours and Coding systems for cancer. Remember, this module may be paused at any time.

So, how exactly does cancer start?

Normal Cells

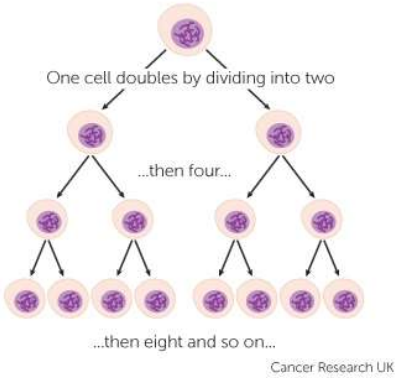
- The human body consists of more than 100 trillion cells
- More than 200 different cell types make up the different specialist tissues and organs to perform the functions required
- Different types of cells have different functions, but all are fundamentally similar:
  - Healthy cells in most tissues are able to adhere to each other and be arranged in an orderly fashion
  - Most cells have a control centre called a nucleus, which houses the cell's genetic information and can instruct the cell on how to behave, including control of the production of new cells

We are made of cells, over 100 trillion of them, and each of these cells performs a specific function within the body. It is the nucleus within most cells that houses the genetic information and cell control mechanisms which control how that cell behaves and replicates.

Normal Cells

- To regulate the number of cells within the body:
- Mitosis – new cells are produced by cell division, regulated by signals in the bloodstream and neighbouring cells
- Apoptosis – old and damaged cells are destroyed

- The rate of mitosis will also depend on cell type and function:
- Nerve cells never replicate
- Liver cells replicate once every few years
- Cells lining the stomach replicate at least twice a day



Normal cells are generated by a process called mitosis, where cells divide to make new cells. Old and damaged cells are destroyed in a process called apoptosis which is sometimes called “programmed cell death”. The rate at which cells are created and destroyed depends on the type and function of the cells.

How does cancer start?

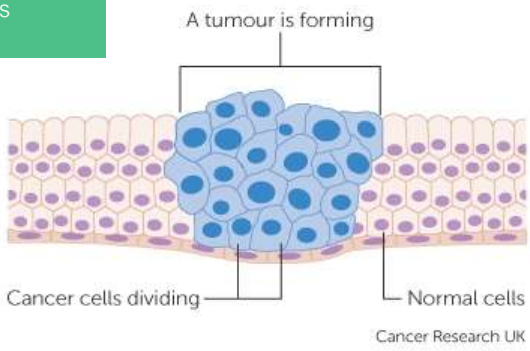
Errors in cell division can lead to changes in the genetic information, parts may be missed out, copied twice or changed. These changes are called mutations

Mutations can cause the loss of multiple control mechanisms found in normal cells to allow uncontrolled growth

When a cell replicates by division, sometimes errors occur and changes are made in the new cell. These changes are known as mutations and can cause the loss of cell control mechanisms.

How does cancer start?

Normal cells replicate when and where needed, controlled by signals in the bloodstream and neighbouring cells

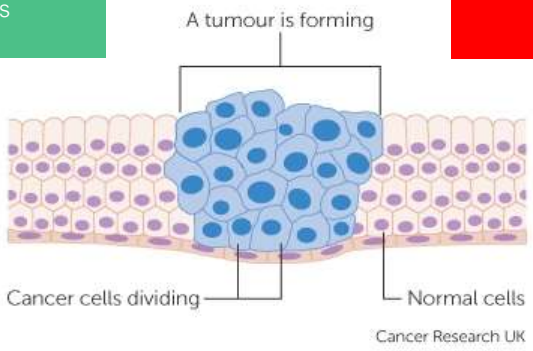


The rate of replication in normal cells is controlled by signals in the bloodstream and signals from neighbouring cells… in a normal cell, the cell control mechanisms respond appropriately…

How does cancer start?

Normal cells replicate when and where needed, controlled by signals in the bloodstream and neighbouring cells

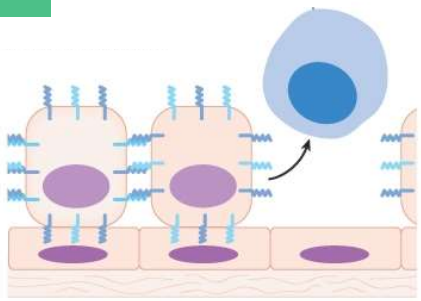
Cancer cells ignore signals, resulting in uncontrolled growth, tissue structure disruption and tumour formation



… but cancer cells have lost the ability to respond to these signals appropriately and can replicate too much, forming a tumour

How does cancer start?

Normal cells have molecules on their surface, allowing them to attach themselves to neighbouring cells to form tissues



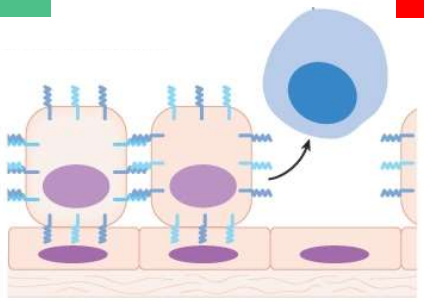
Cancer Research UK

Healthy cells are able to stick to each other and be arranged in an orderly fashion…

How does cancer start?

Normal cells have molecules on their surface, allowing them to attach themselves to neighbouring cells to form tissues.

Cancer cells lose this mechanism, allowing them to detach from neighbouring cells, potentiating spread to other parts of the body in the form of regional and metastatic spread



Cancer Research UK

… whereas cancer cells lose this adhesive quality, allowing the cells to detach and potentially spread to other parts of the body

How does cancer start?

Normal cells are able to mature/differentiate to allow them to carry out their function

There are mechanisms in normal cells facilitating repair of any DNA damage. Where this is not possible, the cell is able identify this and destroy itself through apoptosis

Normal cells mature (or “differentiate”) to allow them to fulfil their function. Any DNA copying errors are normally repaired during this differentiation process but if this isn’t possible, the cell will destroy itself through apoptosis (or “programmed cell death”).

How does cancer start?

Normal cells are able to mature/differentiate to allow them to carry out their function

There are mechanisms in normal cells facilitating repair of any DNA damage. Where this is not possible, the cell is able identify this and destroy itself through apoptosis

The increased rate of cell division in cancer cells can mean that many do not have an opportunity to differentiate

In cancer cells, the controls for DNA repair can become faulty, resulting in the accumulation of additional mutations that allow further characteristics of cancer. Cancer cells are also able to ignore any signals designed to trigger apoptosis

But cancer cells often replicate before this maturation process is complete, meaning the cell cannot perform the function it was meant to. Also, the DNA repair process is often inhibited, meaning that further mutations can accumulate within the cell. Because cancer cells are able to ignore programmed cell death and continue replicating, the tumour can then grow in size.

How does cancer start?

Cancer cells:

- Gain the ability to ignore signals from their environment
- Detach themselves from neighbouring cells
- Divide too quickly before they have had an opportunity to mature
- Have reduced ability to repair DNA damage, which can result in more mutations
- Can ignore signals for apoptosis (programmed cell death)

So cancer cells can ignore instructions, detach from their neighbours and replicate too quickly and too soon. They've also lost the ability to self-repair and can ignore the programmed cell death signal.

What is it that causes these errors?

Causes & Risk Factors

The basic cause of cancer is damage to genes, which can be sustained following exposure to carcinogens or inherited

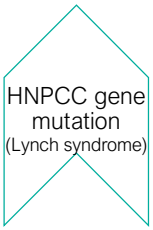
… Essentially, DNA damage within the cells, which can be caused by a number of factors…

Genetics

Some individuals are born with DNA mutations, which increase the risk of certain cells to become cancerous

Inheritance of these genes only increases an individual's risk of cancer, it does not necessarily mean they will develop cancer in their lifetime

- Breast Cancer
- Ovarian Cancer



Hereditary non-polyposis colon cancer

- Colon Cancer
- Endometrial Cancer
- Ovarian Cancer

Cancers caused by a specifically identified genetic mutation are extremely rare, other risk factors far outweigh the risk posed by genetics

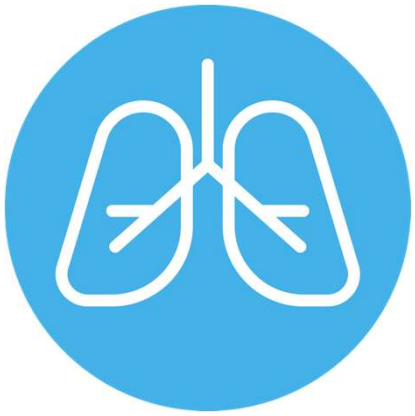
… the first of which is genetic. Some people are born with specific DNA mutations, making them more likely to develop certain cancers.

Smoking

Tobacco smoke contains chemicals which are known to be carcinogenic

Cigarette smoking is the most significant cause of lung cancer, and is also a contributing factor in many cancers of the larynx, oral cavity, oesophagus, bladder and cervix

In addition to these major cancer sites, smoking is said to be related to many other cancers



…Tobacco smoke contains known carcinogens which are a factor in many types of cancer…

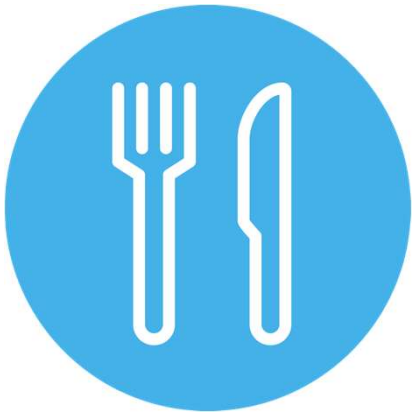
Diet

Western lifestyle in recent years has been implicated as a risk factor for cancer, namely related to obesity

Associations have been found between increased dietary fat intake and prostate, endometrial and colorectal cancer

Excess fat is thought to increase production of free radicals, which can cause DNA damage

Highly spiced, pickled, cured or smoked products also appear to promote stomach cancer



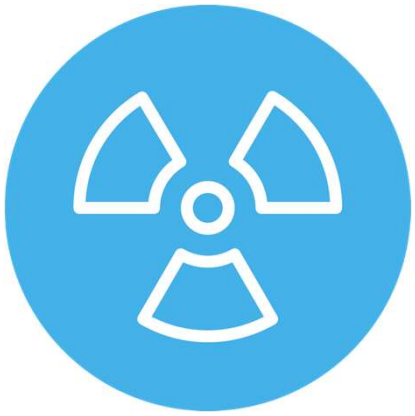
…and our diet has also been implicated as a possible cause for some cancers. Associations have been found between certain cancers and dietary fat intake as well as with highly spiced or processed foods.

Radiation

Radiation, including natural radiation and radiation therapy, is known to damage or destroy DNA

DNA damage increases the risk of cancer developing in the future

Levels of therapeutic radiation administered must be monitored very closely



Radiation is known to damage or destroy DNA which is why levels of therapeutic radiation are closely monitored.

Environment

Ultraviolet light, including from the sun and sunbeds, is a known cause of skin cancer

Malignancies may appear years after ultraviolet exposure

Certain workplaces and industries can place workers in direct contact with carcinogenic agents:

- Asbestos – mesothelioma, lung, laryngeal and ovarian cancer

Many carcinogens have been identified and banned from use in the UK

Environmental factors also play a role in cancer risk. The association between Ultraviolet light and skin cancer is well known but other environmental factors may come from home or work environments

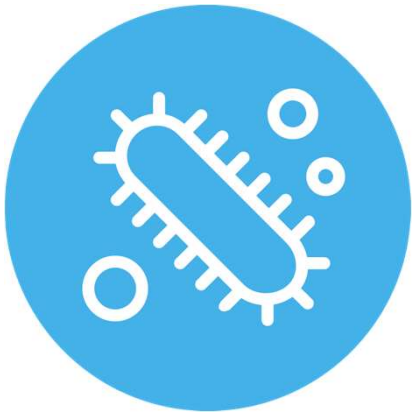
Infection

Viral infections have been implicated in some cancers:

Burkitt lymphoma – Epstein-Barr virus

Hepatocellular carcinoma – Hepatitis B and C virus

Cervical carcinoma – Human papilloma virus (HPV) subtypes 16 & 18 and other high risk subtypes (HPV 6 & 11 cause genital warts, cancer risk is low)

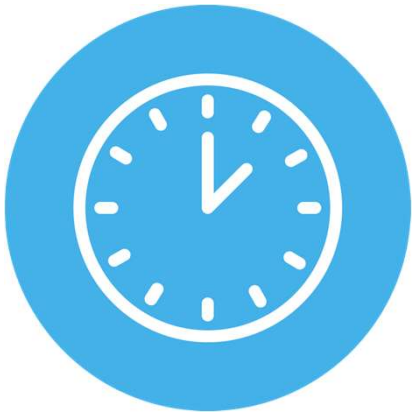


Certain infections can also cause cancers to form, for instance the link between some subtypes of the Human Papilloma virus and Cervical cancer is now well known

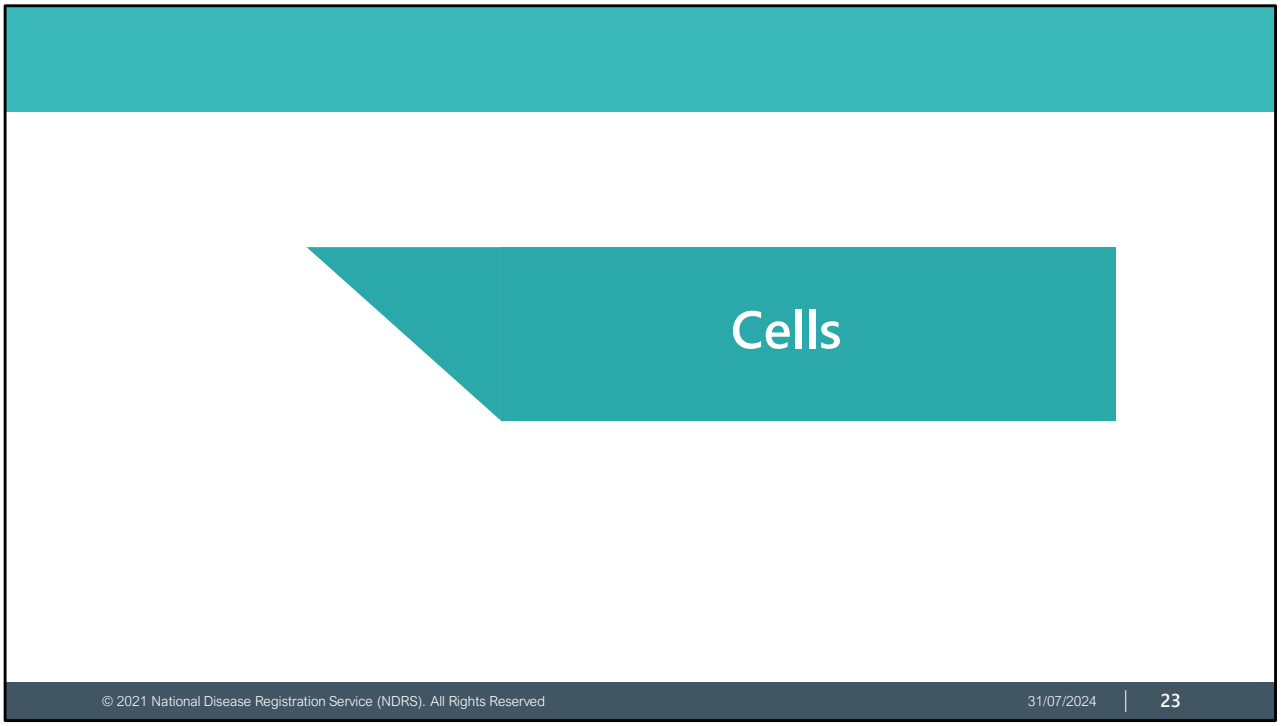
Age

DNA damage accumulates over a person's lifetime

Cancer risk increases with increasing age



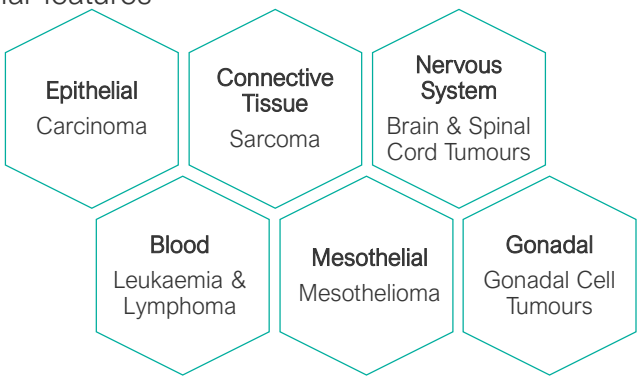
And of course age is a factor in many cancers. DNA damage is cumulative, the more cells replicate over time, the higher the likelihood of errors.



We’re now going to look at the various cell types within the body…

Cell Types

There are over 200 types of cells found in a human body which are classified under type groups. The different cell types are linked to tumours/cancers showing similar features



We have over 200 types of individual cells in the human body. Different groups of cell types are linked to cancers that show similar features.

Epithelial Cells

- Epithelial cells form our skin layers and the inner and outer linings of our organs and cavities
- Carcinomas are the most common cancer type: 85% of cancers in the UK
- Carcinomas are categorised according to the location and function of the cells from normal cells they most resemble

Squamous Cells
Squamous Cell Carcinoma

- Have a protection function and are found in most organs usually on the surface of tissue
- E.g. Oesophageal lining

Glandular Cells
Adenocarcinoma

- Secrete bodily fluids and found in most organs
- E.g. Salivary Glands

"Epithelial" is an umbrella term that covers several types of cells. Squamous cells and Glandular cells are both types of epithelial cells. Squamous cells give rise to Squamous cell carcinomas. It's not quite so obvious with glandular cells until you become aware that "Adeno" is from a Greek word meaning "pertaining to the glands" so Glandular cells develop "carcinomas pertaining to the glands" or Adenocarcinomas. About 85% of cancers in the UK are carcinomas, which arise in the epithelial cells and may be invasive or non-invasive …

Connective Tissue Cells

- Soft tissue, including muscle, bone, cartilage and fat, supports binds or separates other tissues (although has lots of other functions beyond just structural functions)
- Sarcomas arise from soft tissue
- Rare: 1% of cancers diagnosed in the UK

Bone Cells
Osteosarcoma

Fat Cells
Liposarcoma

… while Sarcomas arise in either bone or soft tissue. There are several different types of sarcoma depending on the type of cell in which the tumour has arisen, but the examples here look at bone (“Osteo”, pertaining to bone) and fat (“Lipo”, pertaining to fat).

Nervous System Cells

- Most neurological cancers develop from glial cells
  - Special connective tissue cells support nerve tissue
- Relatively rare: 3% of cancers diagnosed in the UK

Glial Cells
Glioma

Meningeal Cells
Meningioma

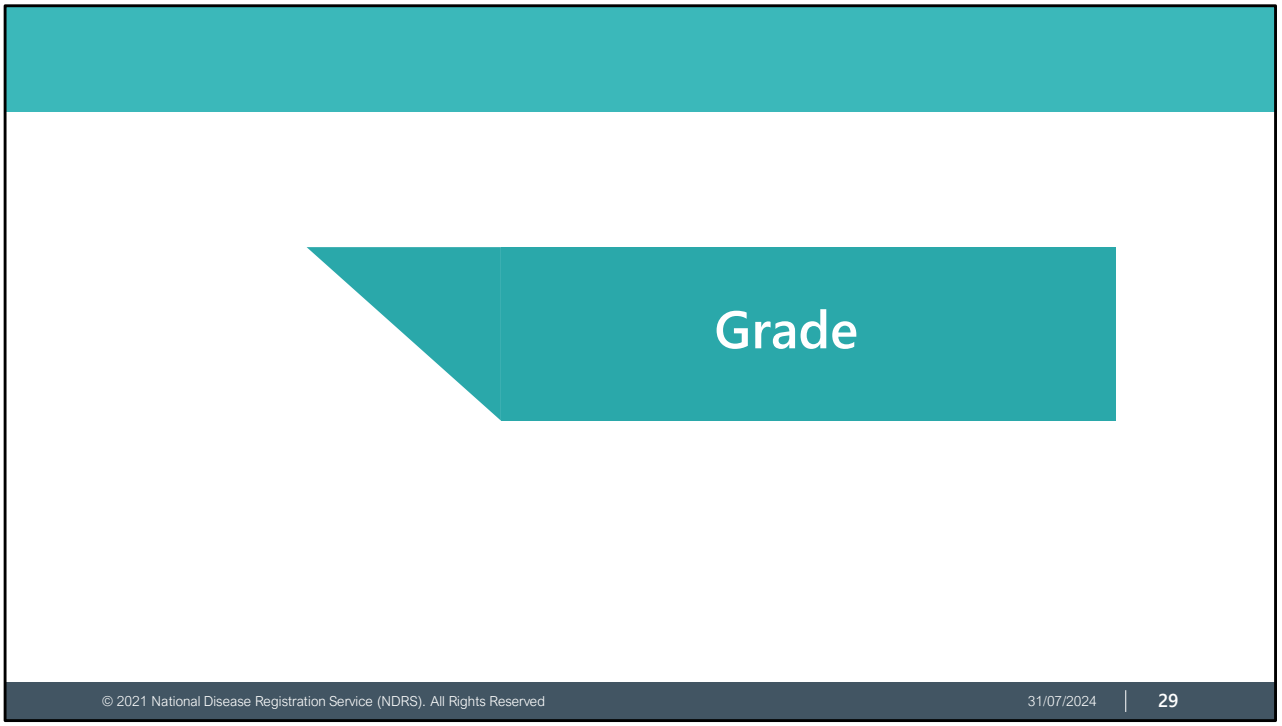
Tumours of the nervous system are relatively rare but most arise in Glial cells. Tumours may also arise in meningeal cells as well as other types of neural cells …

Blood Cells

- Leukaemias and lymphomas arise from the precursors of white blood cells.
  - Lymphomas show differentiation similar to lymphoid cells
  - Leukaemias show differentiation similar to either myeloid or lymphoid cells
- Leukaemias are identified in the blood. Lymphomas can arise in any tissue but most commonly lymph nodes, bone marrow and spleen
- Relatively rare: 8% of cancers diagnosed in the UK per year

Myeloid Cell Lines Myeloid Leukaemia	**Lymphoid Cell Lines** Lymphoid Leukaemia
B Cells (Lymphocytes) B Cell Lymphoma	**T Cells** T Cell Lymphoma

… whereas leukaemias and lymphomas arise in the pre-cursor cells that would normally go on to form different types of white blood cells.



Grade is a way of assessing how severe the cell mutations are, and how well the cell is able to perform its original function.

Grade

A normal cell is able to mature/differentiate to be able to fulfil its function. Due to the rapid growth seen in cancer cells, the amount of differentiation can vary

The grade of a tumour can be assessed by looking at the tumour under a microscope. Clinicians can use this information to give an indication of how the tumour might behave

Grade 1	Grade 2	Grade 3
Well differentiated The cancer cells look very similar to the normal tissue around it and may retain some of its normal function. These tumours typically grow slower than tumours of a higher grade	**Moderately differentiated** The cancer cells look abnormal and are growing more quickly than Grade 1 tumours	**Poorly differentiated** The cancer cells look very different to normal cells and will have lost most of their normal function, and grow quicker than in lower grades

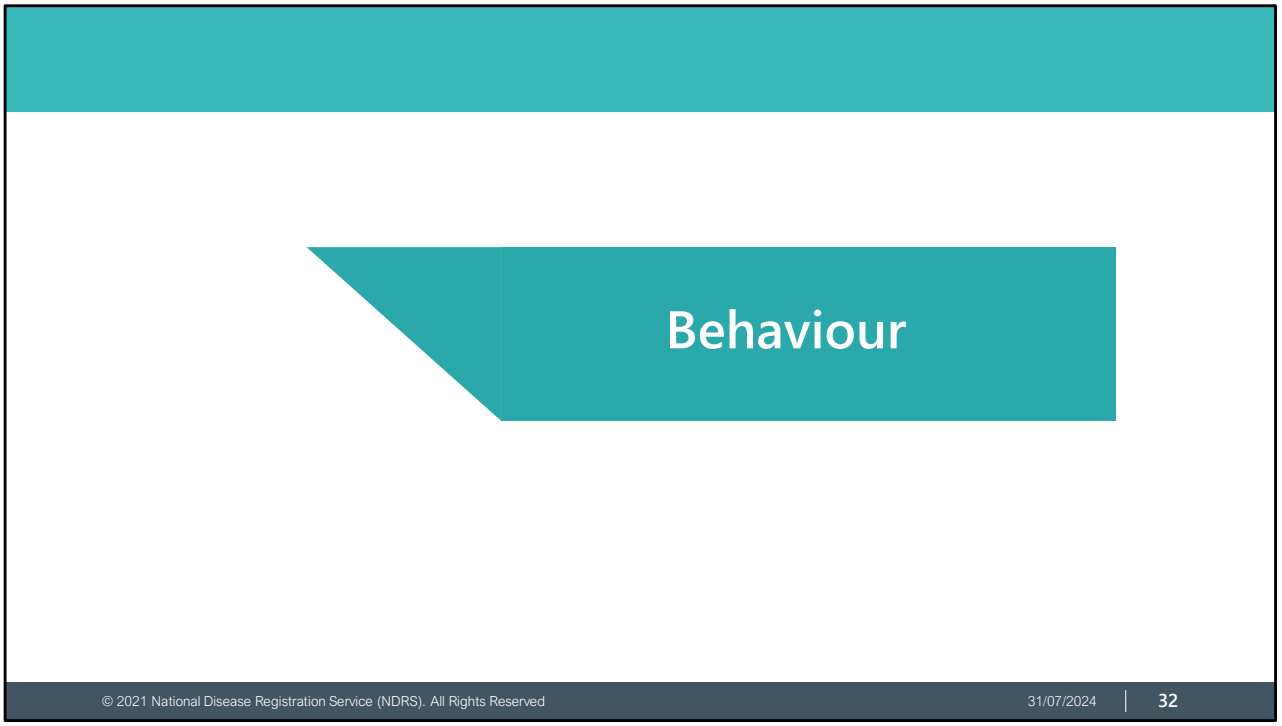
Cells mature to perform specific functions through a process known as differentiation. A well differentiated tumour cell, one that looks only a little different to a normal healthy cell, may still be able to perform **some** of its originally intended function. Growth rate is typically slow in a well-differentiated tumour. Conversely a poorly differentiated cell, one that was formed before its parent cell had fully matured, will look **very** different to a normal healthy cell. This cell is **unable** to fulfil its intended function and the tumour growth is likely to be much faster.

Site Specific Grade

- Bloom Richardson is commonly used for breast carcinoma
- Gleason Score is routinely used for Prostate Adenocarcinoma
- Low Grade/ High Grade is often seen in ovarian and haematological tumours



Some types of cancer have very specific systems of grading, such as Gleason score for adenocarcinomas of the prostate.



Now we'll look at tumour behaviour…

Benign Tumours

Benign tumours are distinguished from invasive tumours as they remain in the part of the body in which they originate and cannot usually spread elsewhere

- Grow quite slowly compared to invasive tumours
- They do not generally grow into surrounding tissue and they usually have an outer covering of normal cells that separate the tumour from the healthy tissue

Benign tumours generally grow quite slowly and would usually have a distinct covering of normal cells separating them from the surrounding tissue.

Benign Tumours

Benign tumours are distinguished from invasive tumours as they remain in the part of the body in which they originate and cannot spread elsewhere

- Grow quite slowly compared to invasive tumours
- They do not grow into surrounding tissue and they usually have an outer covering of normal cells that separate the tumour from the healthy tissue

Benign tumours are not cancer, but can have implications for the patient. In some circumstances, they can:

- cause localised pain
- press on nearby body organs or blood vessels
- cause the release of hormones, affecting the normal function of the body

Whilst these benign tumours are not cancer they can still have implications for the patient… such as causing local pain or putting pressure on nearby organs. Depending on their location, their effect can still be catastrophic to the patient, for instance, in the skull.

Benign Tumours

Benign tumours are distinguished from invasive tumours as they remain in the part of the body in which they originate and cannot spread elsewhere

- Grow quite slowly compared to invasive tumours
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Benign tumours are not cancer, but can have implications for the patient. In some circumstances, they can:

- cause localised pain
- press on nearby body organs or blood vessels
- cause the release of hormones, affecting the normal function of the body

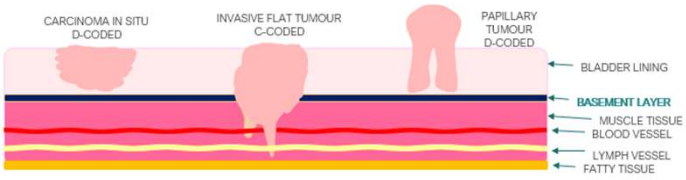
Although benign tumours are not cancer, some benign diagnoses are required to be submitted as part of the Cancer Outcomes and Services Dataset (COSD)

Some benign diagnoses do require a COSD record – if in doubt, please check the COSD User Guide.

In-situ Tumours

In situ tumours are only possible in epithelial tissues as they are the only tissue with a basement membrane

There are no blood or lymphatic vessels contained within tissue above the basement membrane of epithelial tissue therefore any tumour cells which remain here are unable to spread or metastasise until they invade beyond the basement membrane



An in-situ tumour, which can only occur in epithelial tissue, has not broken through the basement membrane to reach blood or lymphatic vessels. Without access to these vessels, the tumour cannot spread so is deemed to be “in-situ”, meaning literally “in place”. It’s worth mentioning that the cells within the in-situ tumour may be the same as the cells within the invasive tumour – in epithelial tissue, it’s the tumour breaking through the basement membrane that defines it as invasive

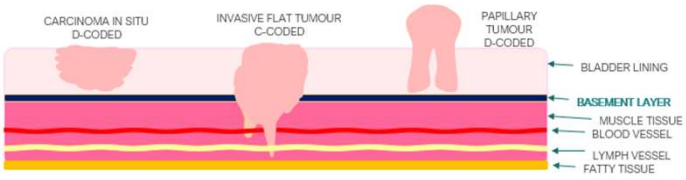
In-situ Tumours

In situ tumours are only possible in epithelial tissues as they are the only tissue with a basement membrane

There are no blood or lymphatic vessels contained within tissue above the basement membrane of epithelial tissue therefore any tumour cells which remain here are unable to spread or metastasise until they invade beyond the basement membrane

In situ carcinomas may be described as:

- carcinoma in situ
- severe dysplasia
- high grade dysplasia
- full thickness dysplasia
- intraepithelial carcinoma
- intraductal carcinoma
- intraepidermal carcinoma

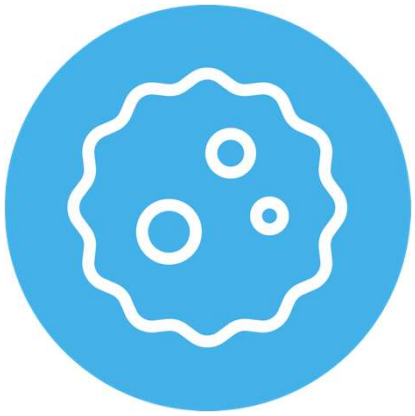


An in-situ carcinoma may also be described using one of these terms. Pause the module to read the full list.

Invasive Tumours

Invasive tumours are cancerous and are able to spread, via the lymphatic and circulatory systems

- Surrounding tissues (direct invasion)
- Local lymph nodes (regional spread)
- Other regions of the body (metastatic spread)



An invasive tumour is able to spread using the blood and lymphatic vessels it can access. In epithelial cells, this means that the tumour has broken though that basement membrane.

Metastatic Tumours

Tumour cells from invasive tumours have spread to the lymphatic or circulatory system. They are able travel to other regions of the body using these systems. Once there, they will be able to replicate to form a metastatic tumour

Once cancer cells are in the blood or lymphatic vessels, they are able to spread around the body and can replicate themselves to form another tumour.

Metastatic Tumours

Tumour cells from invasive tumours have spread to the lymphatic or circulatory system. They are able travel to other regions of the body using these systems. Once there, they will be able to replicate to form a metastatic tumour

Primary tumours can only develop in the tissue type where they originate. For example, carcinoma of the lung can only originate in the epithelial tissue of the lung. In the case of metastatic tumours, the tumour can develop anywhere in the body once the tumour cells have spread

- For example, if a patient had a biopsy of a lung lesion and the pathology report stated 'osteosarcoma' this would indicate that this is a metastasis from elsewhere (likely a bone primary) as osteosarcomas cannot arise in the lung

A lung lesion that is pathologically identified as an osteosarcoma would, by definition, be a metastatic deposit from elsewhere … because the lungs do not of course contain bone cells so the cancerous bone cells under the microscope had to have travelled from elsewhere in the body to reach the lungs. As such this would be recorded as a metastases of a known primary.

Metastatic Tumours

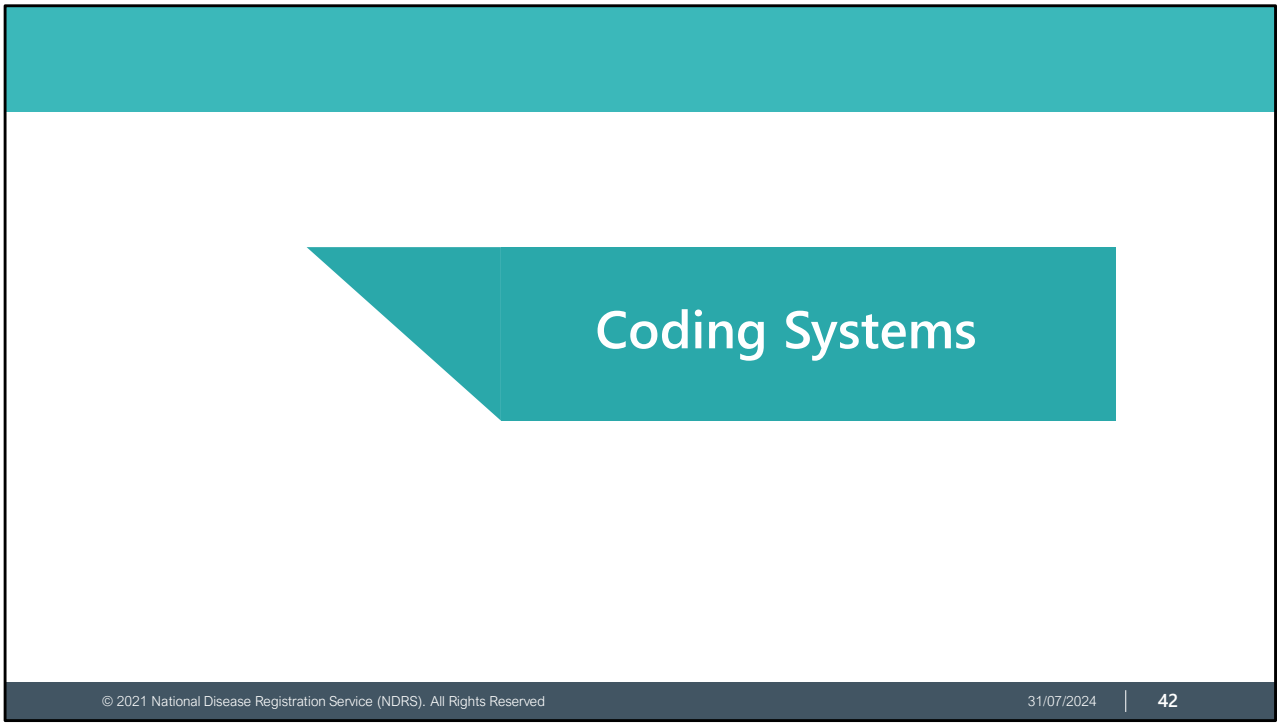
Tumour cells from invasive tumours have spread to the lymphatic or circulatory system. They are able travel to other regions of the body using these systems. Once there, they will be able to replicate to form a metastatic tumour

Primary tumours can only develop in the tissue type where they originate. For example, carcinoma of the lung can only originate in the epithelial tissue of the lung. In the case of metastatic tumours, the tumour can develop anywhere in the body once the tumour cells have spread

- For example, if a patient had a biopsy of a lung lesion and the pathology report stated 'osteosarcoma' this would indicate that this is a metastasis from elsewhere (likely a bone primary) as osteosarcomas cannot arise in the lung

A diagnosis is only recorded using a metastatic/secondary tumour code if the primary site of the tumour is not known

A metastatic ICD10 code should only be used if the primary tumour site is not known.



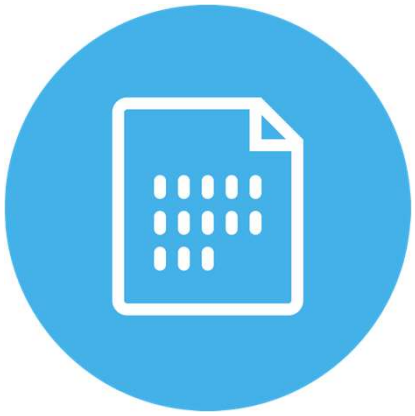
Which brings me to coding systems

The ICD-10 Coding System

International Statistical Classification of Diseases and Related Health Problems – 10th Revision

Classification system for:

- Diseases
- Signs and symptoms
- Abnormal findings
- Complaints
- Social circumstances
- External causes of injury or diseases

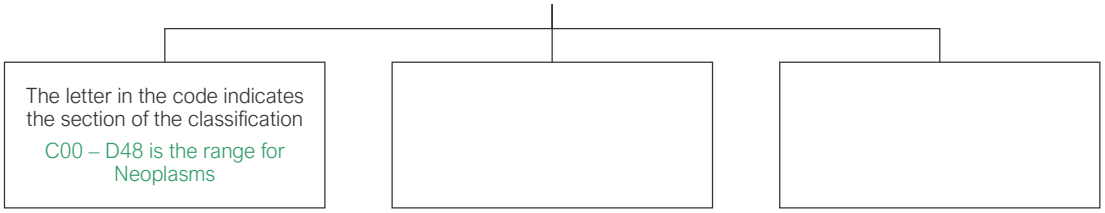


The ICD10 coding system is used to classify diseases, injuries and other conditions.

The ICD-10 Coding System

Malignant neoplasm of bronchus and lung, middle lobe

C34.2



For instance, the code C34.2 relates to a malignant neoplasm of bronchus and lung, middle lobe. The prefix C indicates that this is a malignant neoplasm…

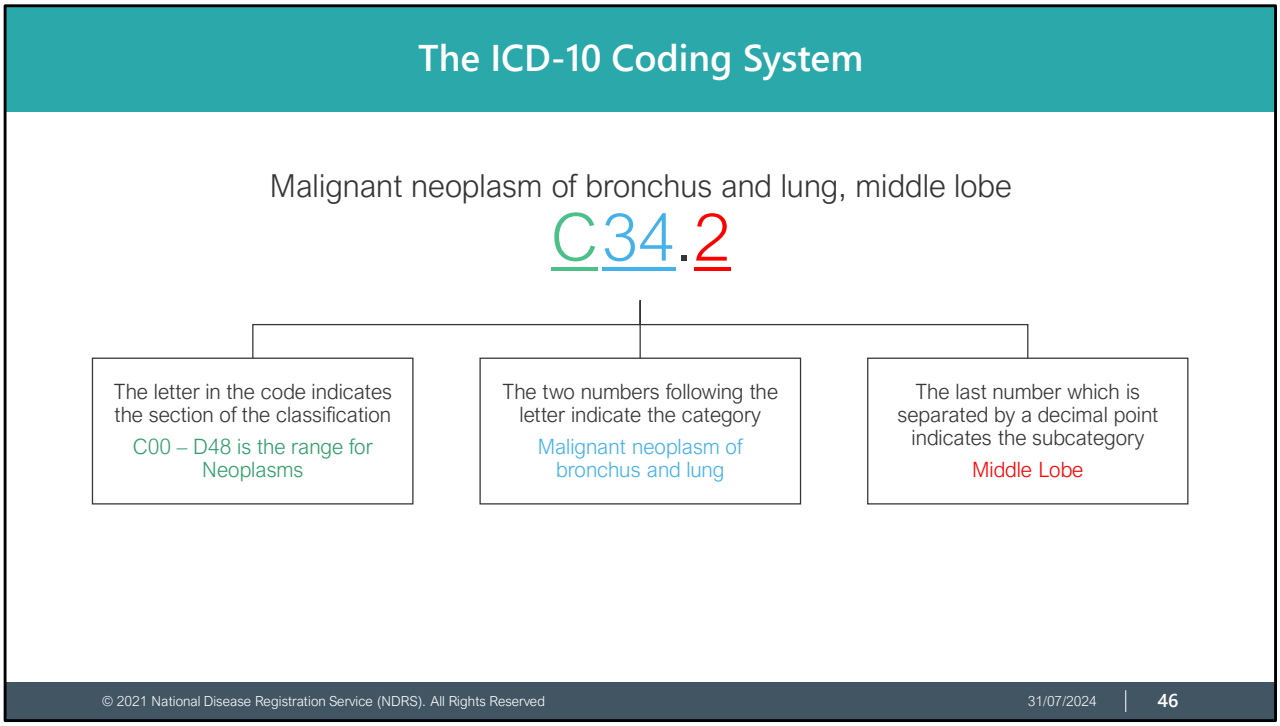
The ICD-10 Coding System

Malignant neoplasm of bronchus and lung, middle lobe

C34.2

The letter in the code indicates the section of the classification C00 – D48 is the range for Neoplasms	The two numbers following the letter indicate the category Malignant neoplasm of bronchus and lung	

The 34 indicates the neoplasm is located in the bronchus or lung…



… while the 2 after the decimal place indicates the sub category, in this case the middle lobe.

The ICD-10 Coding System

Malignant neoplasm of bronchus and lung, middle lobe

C34.2

The letter in the code indicates the section of the classification	The two numbers following the letter indicate the category	The last number which is separated by a decimal point indicates the subcategory
C00 – D48 is the range for Neoplasms	Malignant neoplasm of bronchus and lung	Middle Lobe

With the exception of haematological malignancies, melanoma, mesothelioma and Kaposi sarcoma, this classification does not provide information on histological morphologies of neoplasms

While there are exceptions, most ICD 10 neoplasm codes relate to where the cancer is rather than what the cancer is

The ICD-O-3 Coding System

International Classification of Disease for Oncology – Third Edition

Classification system specifically for Cancer

The ICD-O-3 coding system is used specifically for cancers

The ICD-O-3 Coding System

International Classification of Disease for Oncology – Third Edition

Classification system specifically for Cancer

There are two components to the ICD-O-3 classification:

- The topography code indicates where the tumour is located and is very similar to the C section in the ICD10 classification, for instance C34.2 in ICD10 is C34.2 in ICD-O-3 topography

ICD-O-3 coding has two elements: ICD-O-3 topography – which is very similar to the ICD 10 coding…

The ICD-O-3 Coding System

International Classification of Disease for Oncology – Third Edition

Classification system specifically for Cancer

There are two components to the ICD-O-3 classification:

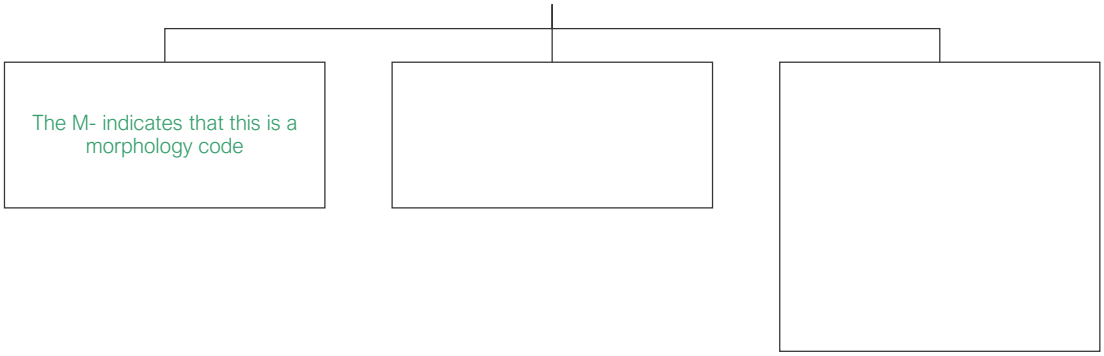
- The topography code indicates where the tumour is located and is very similar to the C section in the ICD10 classification, for instance C34.2 in ICD10 is C34.2 in ICD-O-3 topography
- The morphology code indicates the histological morphology and behaviour of the tumour

… and ICD-O-3 morphology which indicates the type and behaviour of the tumour: what the tumour is. We're now going to look at morphology coding in more detail.

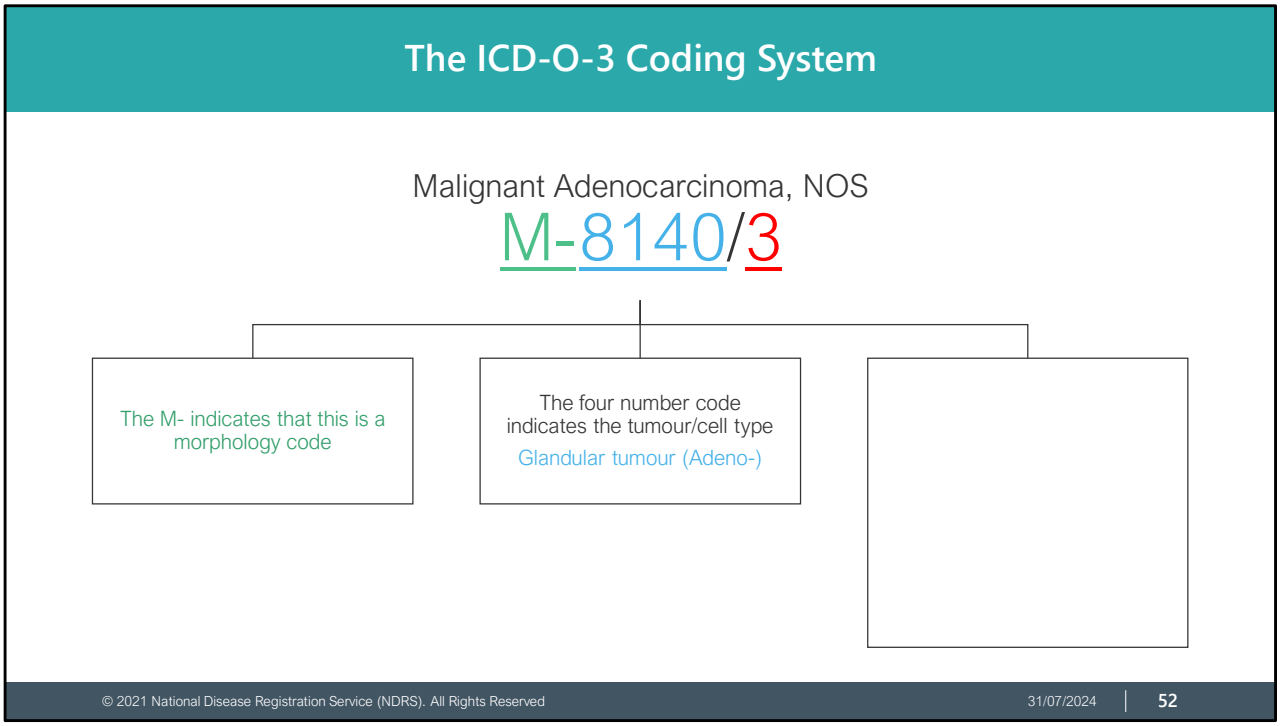
The ICD-O-3 Coding System

Malignant Adenocarcinoma, NOS

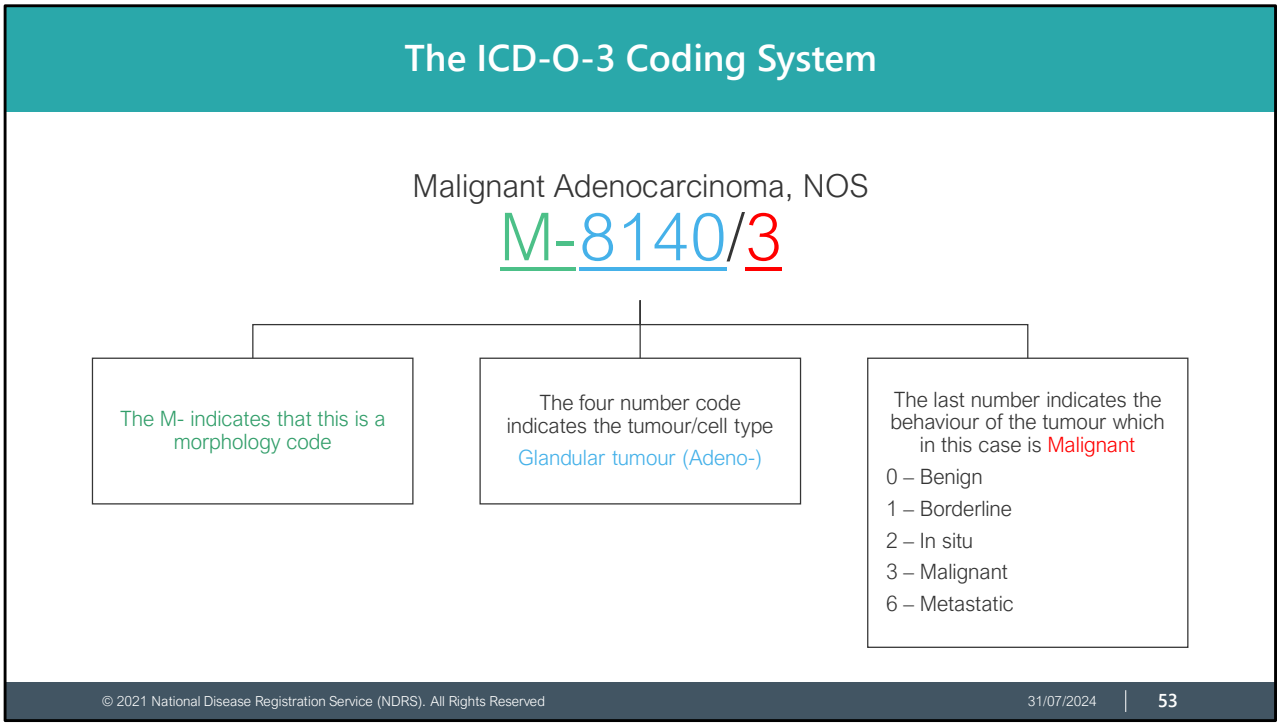
M-8140/3



The M prefix indicates that this is a morphology code…



… the next four digits indicate the tumour/cell type – in this case the tumour has arisen in glandular cells and is defined as an adeno- type tumour



… whilst the final digit tells you how that tumour behaves. In this case, the tumour is malignant as indicated by the final digit 3.

Use of ICD-10 & ICD-O3

In COSD and Cancer Waiting Times, Primary Diagnosis in ICD-10 is a mandatory data item that is used to select patients submitted to the Registry

Morphology code in ICD-O-3 is mandatory for haematological malignancies and recommended for all other cancers

ICD-10 is the main diagnosis coding system in both CWT and COSD. ICD-O-3 morphology coding is mandatory in COSD for all haematological malignancies and recommended for other cancers.

In Summary

To summarise…

In Summary

- Cancers arise from errors when cells divide. These errors are called mutations
  - The mutations may allow the cells to divide too rapidly, detach from neighbouring cells and to ignore programmed cell death

Cancers arise from errors as the cells divide. These errors allow the cells to behave abnormally.

In Summary

- Cancers arise from errors when cells divide. These errors are called mutations
  - The mutations may allow the cells to divide too rapidly, detach from neighbouring cells and to ignore programmed cell death
- The risk of cancer may be increased due to genetic factors, behaviour, environment, radiation, infection or age

The risk for cancer can be increase by a number of different factors.

In Summary

- Cancers arise from errors when cells divide. These errors are called mutations
  - The mutations may allow the cells to divide too rapidly, detach from neighbouring cells and to ignore programmed cell death
- The risk of cancer may be increased due to genetic factors, behaviour, environment, radiation, infection or age
- Different cell types give rise to different cancer types

Certain cancer types arise in specific cell types

In Summary

- Cancers arise from errors when cells divide. These errors are called mutations
  - The mutations may allow the cells to divide too rapidly, detach from neighbouring cells and to ignore programmed cell death
- The risk of cancer may be increased due to genetic factors, behaviour, environment, radiation, infection or age
- Different cell types give rise to different cancer types
- Grade is used to assess how well/poorly the cells are able to mature (differentiate) in order to fulfil their originally intended function – more aggressive cancers will be poorly differentiated

Grade is an indication of how much the cells have mutated and whether they are able to fulfil any of their normal functions

In Summary

- Behaviour. Tumour cells may be classified as:
  - Benign – not usually classified as a cancer but may need to be recorded for COSD

Tumours can behave differently as well. They may be Benign…

In Summary

- Behaviour. Tumour cells may be classified as:
  - Benign – not usually classified as a cancer but may need to be recorded for COSD
  - Borderline – where the behaviour of the cells is not certain, these may need to be recorded for COSD via your cancer management system

Borderline….

In Summary

- Behaviour. Tumour cells may be classified as:
  - Benign – not usually classified as a cancer but may need to be recorded for COSD
  - Borderline – where the behaviour of the cells is not certain, these may need to be recorded for COSD via your cancer management system
  - In-situ – would only arise in epithelial cells and may need to be recorded for COSD via your cancer management system

In-situ…

In Summary

- Behaviour. Tumour cells may be classified as:
  - Benign – not usually classified as a cancer but may need to be recorded for COSD
  - Borderline – where the behaviour of the cells is not certain, these may need to be recorded for COSD via your cancer management system
  - In-situ – would only arise in epithelial cells and may need to be recorded for COSD via your cancer management system
  - Invasive – able to spread locally, regionally or to distant parts of the body. These would need to be recorded for COSD

Invasive …

In Summary

- Behaviour. Tumour cells may be classified as:
  - Benign – not usually classified as a cancer but may need to be recorded for COSD
  - Borderline – where the behaviour of the cells is not certain, these may need to be recorded for COSD via your cancer management system
  - In-situ – would only arise in epithelial cells and may need to be recorded for COSD via your cancer management system
  - Invasive – able to spread locally, regionally or to distant parts of the body. These would need to be recorded for COSD
  - Metastatic – a secondary deposit from an invasive cancer that has spread. These would also need to be recorded for COSD

… or metastatic. With the sole exception of Basal Cell Carcinomas of the skin, ALL invasive tumours would need to be recorded for COSD. Where a BCC of the skin has metastasised, this would also need to be recorded for COSD along with all other metastatic tumours. Some Benign, Borderline and in-situ tumours may also need a COSD record – please refer to the COSD User Guide, Appendix A and Appendix B for guidance.

In Summary

- Coding systems
  - ICD 10 – used for classifying disease. C00 to D48 is the applicable range for neoplasms and generally relates to the where the cancer is (with some exceptions). Metastatic codes should only be used where the original primary cancer is not known

The ICD 10 system is used for classifying disease and for neoplasms will usually relate to where the cancer is.

In Summary

- Coding systems
  - ICD 10 – used for classifying disease. C00 to D48 is the applicable range for neoplasms and generally relates to the where the cancer is (with some exceptions). Metastatic codes should only be used where the original primary cancer is not known
  - ICD-O-3 – used for classifying:
    - The location of the cancer (topography)
    - the type of cancer (morphology)
      - It's behaviour (benign, uncertain, in-situ, invasive or metastatic)

The ICD-O-3 coding system is specific to cancer and is used for classifying both the location and type of disease as well as its behaviour

Summary

- If in any doubt as to whether you should be recording a diagnosis, please refer to the latest COSD User Guide, Appendices A, B & C
- For guidance on the required staging system, please refer to the latest COSD User Guide, Appendix E
- The COSD User Guide may be found in this section of our website:
  - https://digital.nhs.uk/ndrs/data/data-sets/cosd#downloads

Do please remember, guidance **is** available on our website. You can download the COSD User Guide by clicking on this link and selecting the COSD version appropriate to your trust.

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We'd like to thank Cancer Research UK for the use of their images.

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If you have any questions on the information contained within this module or about COSD in general, do please feel free to email your regional Data Liaison Manager