Spread of cancer
The main reason cancer can be difficult to cure is that it can spread to a different part of the body from where it started.

The cancer that grows where it first started in the body is called the 'primary cancer'. The place a cancer spreads to and then starts growing is called the 'secondary cancer' or 'metastasis'.

How a cancer spreads?

In order to spread, some cells from the primary cancer must break away, travel to another part of the body and start growing there. Cancer cells do not stick together as well as normal cells do. They also may produce substances that stimulate them to move.
There are five main ways a cancer spread

- Local invasion
- Through the blood circulation (haematogenous spread)
- Lymphatic spread
- Transcoelomic spread
- Intraepithelial spread (paget disease of the breast)
Local invasion

As a tumour gets bigger, it takes up more and more room in the body. Soon it begins to grow into the body structures nearby. This is called local invasion. How a cancer actually grows into surrounding normal body tissues is not fully understood. But research has pointed to 3 ways that the tumour is most likely to do this:
Pressure from the growing tumour

- Using enzymes
- Cancer cells moving through the tissue

A particular tumour will probably use all 3 of these ways of spreading. Which way is used most will depend partly on the type of tumour, and partly on where in the body it is growing.
Diagram showing a tumour forcing its way through normal tissue.

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Through the blood circulation (haematogenous spread)

In order to spread, the cancer cell must first become detached from the primary cancer. It must then move through the wall of a blood vessel to get into the bloodstream. When it is in the bloodstream, it is swept along by the circulating blood until it gets stuck somewhere, usually in a very small blood vessel called a capillary. Then it must move back through the wall of the capillary and into the tissue of the organ close by. There it must start to multiply to grow a new tumour which is called secondary cancer or metastasis.
How Cancer Spreads

- Attachment
- Local Breakdown

Blood Vessel

Secondary Tumor
Haematogenous spread, *a tumor embolus* within a blood vessel.
Through the lymphatic system

The way a cancer spreads through the lymphatic system is very similar to the way it spreads through the bloodstream. The cancer cell must become detached from the primary tumour. Then it travels in the circulating lymph fluid until it gets stuck in the small channels inside a lymph node. There it begins to grow into a secondary cancer.
Lymphatic involvement by the tumour: to the right Para-aortic lymph node enlarged due to involvement by the tumour. To the left are clump of malignant cells within a lymphatic vessel.
Transcoelomic spread

Transcoelomic (meaning “across the peritoneal cavity”) metastasis refers to the dissemination of malignant tumors throughout the surfaces and organs of the abdominal and pelvic cavity covered by peritoneum. For example,

- ovarian tumors can spread transperitoneally to the surface of the liver. Mesothelioma and primary lung cancers can spread through the pleural cavity, often causing malignant pleural effusion.
Transcoelomic metastasis can occur as a result to either seeding during surgical manipulation or direct invasion.

Following intraperitoneal seeding during surgical manipulation e.g. during surgical resection of a colorectal tumor.
Peritoneal involvement by malignancy
Intra epithelial spread (paget disease of the breast)

occur following in situ or invasive ductal carcinoma of the breast where the tumor cells pass through ducts to the skin of nipple and areola and appear as red eczematous lesion at the nipple which does not respond to treatment.