# **Profile Details**

* Tumour details
  + Doctor can press on the screen to indicate where the tumour is

# **Diagnosis Result**

* Overview:
  + Stage
  + Location (allow for healthcare professional to tap to indicate the location of the tumour)
  + ?Risk
  + +/- axillary lymph node involvement
* Cancer type and characteristics

*Breast cancer involves many investigations to determine its characteristics, which include the stage, type, and receptor status. After these characteristics are determined, your diagnosis is discussed with a group of specialists over a board meeting, ensuring that you receive the best standard of care.*

* + Stage
    - [Calculator](https://qxmd.com/calculate/calculator_594/breast-cancer-pathological-tnm-staging)
    - NIL: Non-cancerous, but has a high risk of turning into cancer
    - 0
      * Non-invasive cancer
      * Size: Very small, cancer has not spread beyond the milk ducts
    - 1
      * Early breast cancer
      * Size: <2cm
    - 2
      * Early breast cancer
      * Size: 2-5cm
    - 3
      * Locally advanced breast cancer
      * Size: >5cm
    - 4
      * Metastatic breast cancer
      * Cancer has spread to other parts of the body
      * While it’s not curable, many treatments can help manage it and improve quality of life.
      * Take the time to discuss your goals of care with your loved ones and with your doctor.
  + Type

*Cancer can arise from various cell types in the breast. When taking a sample of breast tissue, doctors analyse it under the microscope to determine any abnormalities and how aggressive the cancer may behave.*

* + - ADH (atypical ductal hyperplasia)
      * While this is not cancer, the milk ducts appear abnormal and grow more than usual. It has a high risk of developing into breast cancer in the future, so treatment is still recommended.
    - DCIS (ductal carcinoma in-situ)
      * Cancer that has not spread beyond the milk ducts. This is a stage 0 cancer and is very treatable.
    - IDC (invasive ductal carcinoma)
      * This is the most common type of breast cancer, starting in the milk ducts and spreading to other parts of the breast.
    - ILC (invasive lobular carcinoma)
      * This type begins in the lobules (where milk is produced) and can spread to other parts of the breast.
  + Receptor status

*Cancer cells can grow in many ways. One way they can grow is by expressing receptors. A receptor is like a padlock. Only a certain kind of key can open a specific padlock. Likewise, a receptor (“padlock”) is activated and starts growing when the specific protein (“key”) is present. Doctors are concerned with two specific receptors: Hormone and HER2.*

* + - Hormone (estrogen and progesterone: ER and PR)
      * Positive
        + Cancer cells express receptors for estrogen and progesterone, and grow with hormones.
        + Hormonal therapy is a treatment option that blocks the hormones, preventing growth of these cells (think of it as “jamming the padlock”).
      * Negative
        + Hormonal therapy is less likely to work. Other treatments, like chemotherapy or targeted therapies, may be used instead.
    - HER2
      * Positive
        + Cancer cells express receptors for HER2
        + Targeted therapy is a treatment option that blocks the growth of these cells (think of it as “jamming the padlock”).
      * Negative
        + Targeted therapy is not necessary.
  + Grade

*How quickly the cancer grows*

* 1, 2, or 3

# **Investigations**

* Ultrasound
  + A small handheld device that transmits sound waves to image your breast
  + Often used for younger women who have dense breasts
* Mammogram
  + A special x-ray device that scans only the breast and part of the chest wall
  + Often used for women over 40
* MRI
  + A special device that uses magnets and radio waves to create an extremely detailed picture of your breast
  + The scan is painless, but you have to lie still for 30-60 minutes, and there will be loud noises as the machine scans your breast
* Biopsy
  + A procedure to obtain part of your breast lump for further investigations.

# **Treatment Choices**

*When treating breast cancer, there are many options to target the cancer cells:*

* *Regional involves treatment that focuses on the breast and nearby areas. The aim is to remove or control the cancer where it started (the breast itself, and potentially the armpit).*
* *Systemic treatments work throughout the entire body, targeting any cancer cells (big or small) that may have spread beyond the breast.*

## Regional

*Treatment that targets specific areas that the cancer is affecting (the breast itself, and potentially the armpit)*

### Surgery

#### Breast

*Breast surgery is the mainstay of treatment in almost all breast cancer cases. There are many types of surgery available.*

* + - Hookwire procedure
    - Lumpectomy (AKA breast-conserving surgery)
      * Removal of tumour through a small cut
    - Mastectomy
      * Removal of the entire breast
    - Reconstruction

*Breast reconstruction serves as an option to restore the shape of your breast after a mastectomy. The aim is to restore its physical appearance so that you remain confident and feel like yourself again.*

* + - Oncoplastics
      * Done after a lumpectomy, may be within the same surgery

### Radiotherapy

* High energy rays are targeted to either the breast or armpit to kill off remaining cancer cells
* Side effects:
  + Temporary skin changes (redness, peeling, or irritation)
  + Fatigue
  + Swelling or discomfort in the treated area
  + Permanent skin changes (darker skin)
  + Arm swelling
  + Heart and lung disease

## Systemic

*Treatment that is either taken orally or injected. It can be done before surgery to shrink cancer cells so that the cancer can be removed. It can also be done after surgery to kill off any remnant cancer cells, and prevent new cancers from developing.*

### Hormonal therapy

*Hormonal therapy blocks the hormones responsible for causing cancer cells to grow. Think of it as “jamming the padlock”, with the “padlock” being the hormone receptor and the “jam” being the medications you are taking.*

### Chemotherapy

*Chemotherapy interferes with the growth and spread of rapidly dividing cancer cells. Depending on the stage and type of cancer, it is usually combined with surgery, radiotherapy, and other systemic therapies like hormonal and targeted therapy. It can also be given before or after surgery, as recommended by your doctor.*

* + Side effects (usually temporary)
  + Long term side effects
    - Tingling or numbness in hands and feet
    - Heart disease: Rare. An echocardiogram may be arranged to assess the function of your heart prior to starting therapy.

### Targeted therapy (Herceptin)

*Targeted therapy blocks specific mechanisms causing cancer cells to grow. Think of it as “jamming the padlock”, with the “padlock” being the HER2 receptor and the “jam” being the medications you are taking.*

Follow-up

* + Physical examination
    - Every 3-6 months for first 3 years
    - Every 6-12 months for next 2 years
    - Annually thereafter
  + Mammogram
    - Yearly
* Care Team
* Financial Enquiries
* Patient Support Groups
* Helplines
  + CancerLine (free, anonymous counselling service by trained nurses)
    - Phone number: + xxx
    - Email: xxx