Cancer - defining a definition
• Insurers have started reviewing Trauma definitions to be “up to date”

• Initial focus on Heart Attack and Severe Rheumatoid Arthritis.

• Limited changes currently being made to cancer despite it being the majority of claims.
Agenda

• Gen Re Dread Disease Survey
• What is Cancer?
• Issues for Insurers in Cancer Definitions
• Cancer Definitions
Gen Re Dread Disease Survey
Gen Re Dread Disease Survey

- 6th survey covered 2008-2012
- 84 companies in 7 markets
- 7 companies in Australia
Cause of Claim

Major Causes of Claims - Male

Source: Gen Re Dread Disease Survey 2008-2012
Cause of Claim

Major Causes of Claims - Female

Source: Gen Re Dread Disease Survey 2008-2012
Cause of Claim - Australia

62.1% of Male Claims are Cancer

85.2% of Female Claims are Cancer

Source: Gen Re Dread Disease Survey 2008-2012
Cause of Claim by Age

Major Cause of Claim - Australia - Male

- Other
- Cardiomyopathy
- Benign Brain Tumour
- Heart Surgery
- Kidney Failure
- Stroke
- Ischemic Heart Disease
- Cancer

Major Cause of Claim - Australia - Female

- Other
- Cardiomyopathy
- Benign Brain Tumour
- Heart Surgery
- Kidney Failure
- Stroke
- Ischemic Heart Disease
- Cancer

Source: Gen Re Dread Disease Survey 2008-2012
Cancer Claim by Site - Males

Figure 4.11 – Cancer Site Distribution for Cancer Claims by Market – Males

[Diagram showing cancer site distribution by country with different color codes for various sites such as colorectal, liver, lung, stomach and oesophagus, urinary tract, male genital organs, and others.]
Cancer Claim by Site - Females

Figure 4.12 – Cancer Site Distribution for Cancer Claims by Market – Females
Insured vs Population Incidence

Source: Gen Re Dread Disease Survey 2008-2012
Trends

Figure 4.29 – Age Standardised Cancer Incidence Rates (per 1000). Duration 2+ by Year and Market – Males
Figure 4.30 – Age Standardised Cancer Incidence (Duration 2+) by Year and Market – Females
What is Cancer?
What is Cancer?

- Normally cells grow and multiply (via mitosis) in a controlled way to replace cells that have died or been damaged.
What is Cancer?

• Sometimes the copying of DNA can go wrong and create damage known as a mutation.

• Most times cells can repair damage or the cell undergoes “programmed cell death” or apoptosis.
Contributing Causes

- Individuals may have certain inherited genetic defect
- Infections can assist in the process of causing mutations
- Environmental factors such as smoking, alcohol etc can assist in the process of causing mutations
Development of Cancer

- Normal
- Hyperplasia
- Mild dysplasia
- Carcinoma in situ (severe dysplasia)
- Cancer (invasive)
Cervix
- CIN I: 6–10 years
- CIN III/CIS: 5–10 years

Breast
- Atypical hyperplasia: 14–18 years
- DCIS: 6–10 years

Colon
- Adenoma: 5–15 years
- Latent carcinoma: 3–15 years

Prostate
- PIN: >10 years
- Clinical carcinoma: 20–40 pack-years

Lung (smokers)
- Severe dysplasia: ~3–4 years

Oesophagus
- Barrett’s: ~9–13 years

Bladder
- Dysplastic oral leukoplakia: 6–8 years
- TIS: <5 years

Head and neck
- Tobacco use: 4–10 years

Skin (non-melanoma)
- Actinic keratosis: >10 years

Nature Reviews | Cancer
## Benign vs. Malignant

<table>
<thead>
<tr>
<th>Benign</th>
<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grow slowly</td>
<td>Grow rapidly</td>
</tr>
<tr>
<td>Well-defined capsule</td>
<td>Not encapsulated</td>
</tr>
<tr>
<td>Not invasive</td>
<td>Invade locally</td>
</tr>
<tr>
<td>Well differentiated</td>
<td>Poorly differentiated</td>
</tr>
<tr>
<td>Low mitotic index</td>
<td>High mitotic index</td>
</tr>
<tr>
<td>Do not metastasize</td>
<td>Can spread distantly (metastasis)</td>
</tr>
</tbody>
</table>

Mitotic index = how fast cells divide
TNM Tumour Staging

- Staging is about size and spread

The TNM staging system:

- **T** (Tumour) - within its organ of origin, how large is it, and the extent it has invaded LOCALLY

- **N** (Node) - absence or presence and extent of lymph node metastases

- **M** (Metastases) - absence or presence of distant (non lymph node) metastases e.g. prostate spreads to bone, lung to brain etc
### Staging example: Breast Carcinoma

<table>
<thead>
<tr>
<th>TNM</th>
<th>Description</th>
<th>Risk Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Tis N0 M0: Tis: carcinoma in situ, Intraductal carcinoma, lobular carcinoma in situ, or Paget’s disease of the nipple with no tumour</td>
<td>BC5</td>
</tr>
<tr>
<td>IA</td>
<td>T1 N0 M0: T1: Tumour ≤ 20 mm in greatest dimension</td>
<td>BC5</td>
</tr>
<tr>
<td>IA</td>
<td>T1mi N0 M0: T1mi: Micro-invasion ≤ 1 mm</td>
<td>BC5</td>
</tr>
</tbody>
</table>
| IA  | T1a-c N0 M0: T1a: Tumour > 1 mm but ≤ 5 mm  
T1b: Tumour > 5 mm but ≤ 10 mm  
T1c: Tumour > 10 mm but ≤ 20 mm | BC4 |
| IB  | T0-1 N1mi M0: T0: no evidence of primary tumour  
N1: Metastases to movable ipsilateral level I (low-axilla), II (mid-axilla) axillary lymph nodes  
pN1: Micrometastases; or metastases in 1-3 axillary lymph nodes; and/or in internal mammary lymph nodes with metastases detected by sentinel lymph node biopsy but not clinically detected  
pN1mi: Micrometastases (> 0.2 mm and/or more than 200 cells, but ≤ 2 mm) | BC3 |
| IIA | T0-1 N1 M0: T2: Tumour size > 20 mm but ≤ 50 mm in greatest dimension  
pN1a: Metastases in 1-3 axillary lymph nodes, at least one metastases > 2 mm  
pN1b: Metastases in internal mammary nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected  
pN1c: Metastases in 1-3 axillary lymph nodes and in internal mammary nodes with micrometastases or macrometastases detected by sentinel lymph node biopsy but not clinically detected | BC3 |
| IIB | T2 N1 M0: T3: Tumour > 50 mm in greatest dimension | BC2 |
Tumour grading

Grading is a microscopic term used to qualify how “aggressive” a tumour is.

Grading systems vary by type of cancer.
AGGRESSIVENESS / GRADING

SIZE / STAGING
Many cancers becoming long term conditions........ Without necessary cure

Breast is for female only. Laryngeal is for male only

Ten-year survival for 2005-2006 and 2010-2011 is predicted using an excess hazard statistical model.

Survival for bowel cancer is a weighted average derived from data for colon (C18) and rectum cancer (C19-C20, C21.8).

Source: cruk.org/cancerstats

You are welcome to reuse this Cancer Research UK statistic. Suggested style: Cancer Research UK, full URL of the page.
Issues for Insurers in Cancer Definitions
Issues for Insurers in Cancer Definitions

• New Diagnostic techniques
• Changing Approaches to Prostate Cancer Treatment
• Thyroid Cancer
NEW DIAGNOSTIC TECHNIQUES
A Blood Test for Early Cancer Detection Sparks Debate

A new ‘liquid biopsy’ detects bits of DNA common in several cancers, though critics question its value
Fishing for clues – how ‘liquid biopsies’ are uncovering cancer’s secrets

It takes just three minutes for a precious 10 millilitre blood sample to be carried from the specialist cancer wards of the Christie Hospital in Manchester, down a corridor, and into a lab housing several large, white machines.

But before arriving in the fluorescent light of the Cancer Research UK Manchester Institute, the blood was on a different journey: flowing around a cancer patient’s body – and potentially revealing traces of the illness.

Medical experts can now take a closer look at how cancer cells are behaving by analysing the body fluids associated with the disease. The result: a liquid biopsy.

The sample is zapped with a laser to release fragments of DNA, which are then analysed to detect the specific genetic mutations that give rise to cancer. It is an increasingly important test that is helping researchers and clinicians to better understand the biology of cancer and improve patient care.

Read more about the developments in liquid biopsies on the Cancer Research UK Manchester Institute’s blog, where they discuss how the test is proving useful in the early detection of cancer, in predicting drug resistance, and in understanding the causes of cancer.

Related articles:
- Make a donation: http://ac.uk/donATE
- Cancer news: http://ac.uk/news
New Diagnostic Techniques

- Early days!
- No new techniques tailored for cancer diagnosis
- Currently trialled in participants where initially diagnosed by conventional methods
- Lot of marketing hype from manufacturers
New Diagnostic Techniques

• Liquid biopsy not used for screening
  – Accuracy is not known
  – Possible false positives/negatives

• Some correlation between blood test and tumour size

• Most medical research is tailored to specific tumour site and no “catch all” technique in pipeline
New Diagnostic Techniques

Cancer definition:
“...diagnosed with histological confirmation..”
• Unlikely to be replaced in the near future
• Would lead to Trauma definitions “being out of date”
New Diagnostic Techniques

+ Could detect cancers earlier leading to better treatment and survival
+ Could be used for measuring severity
- Could put pressure on to pay out new cancers detected.
Changing approaches to Prostate Cancer treatment
Prostate Cancer

- Almost 3000 Australian men die from prostate cancer each year and more than 19,000 new cases diagnosed annually.

- The lifetime risk of developing prostate cancer is 16% percent.
- but the risk of dying of prostate cancer is only 2.9%.

- More than 80% occur in older men (over the age of 60) and 97% of deaths occur in this age group.
# Prostate prognosis – 5 year survival (US)

<table>
<thead>
<tr>
<th>Stage at Diagnosis</th>
<th>Stage Distribution (%)</th>
<th>5-year Relative Survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localized (confined to primary site)</td>
<td>81</td>
<td>100.0</td>
</tr>
<tr>
<td>Regional (spread to regional lymphnodes)</td>
<td>12</td>
<td>100.0</td>
</tr>
<tr>
<td>Distant (cancer has metastasized)</td>
<td>4</td>
<td>27.9</td>
</tr>
<tr>
<td>Unknown (unstaged)</td>
<td>3</td>
<td>72.9</td>
</tr>
</tbody>
</table>

*Source: US National Cancer Institute*
Prostate Cancer

Typical Australian Definition:

The following are specifically excluded:

prostatic tumours which are histologically described as TNM classification T1 (including T1a, T1b and T1c), or characterised by **Gleason Score of less than 6**, or are of another equivalent or lesser classification.

Prostate cancer is covered if it results directly in total prostatectomy. This procedure must be performed specifically to arrest the spread of malignancy and be considered the appropriate and necessary treatment.
Gleason's Score/System for Microscopic Grading of Prostate Cancer

- A pathologic Grading classification
- Biopsy with a probe of typically 20 samples
- Each sample is graded from between 1 to 5
- The scores are added to give the Gleason Score

- Gleason scores of 2 to 4
  - 15 year risk of death 4% to 7%

- Gleason scores of 8 to 10
  - 15 year risk of death 60% +
# Clinical Treatment

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Indication</th>
<th>Complications **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostatectomy</td>
<td>Usually at least T2B; Any Gleason 7 or &gt;50% one lobe at least</td>
<td>Incontinence 6-16%; Impotence 83-88% *</td>
</tr>
<tr>
<td>Radiotherapy +/- Brachytherapy</td>
<td>Usually at least T2B; Any Gleason 7 or &gt;50% one lobe at least</td>
<td>Incontinence 3%; Impotence 42-66%*</td>
</tr>
<tr>
<td>Active surveillance</td>
<td>T1c-T2A; &lt; Gleason 7, and one lobe</td>
<td>Anxiety, intervention in up to 60% after 10 years</td>
</tr>
</tbody>
</table>
Active Surveillance Trails

• 10-year overall survival for the entire cohort was 68%
• 10-year prostate cancer specific survival was 97%
• Treatment required for 30%
Thyroid Cancer
Thyroid Cancer – South Korea

Figure 1 – Trend in age-standardised incidence rates for major cancers in Korean females

- Incidence increasing 20% each year
- Over 1 per mille

1) Major cancers selected based on 2011 crude rates
2) Age-standardized incidence Rate (ASR) uses “mid-year population in 2000” as standard population

Thyroid Cancer - China

Source: Gen Re, 6th DD Survey 2008 - 2012
# Worldwide Annual Increase Rates in Thyroid Cancer

<table>
<thead>
<tr>
<th>Country</th>
<th>Period</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2000-2007</td>
<td>4.0%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Canada</td>
<td>2002-2008</td>
<td>8.4%</td>
<td>7.3%</td>
</tr>
<tr>
<td>UK</td>
<td>2002-2011</td>
<td>6.0%</td>
<td>5.7%</td>
</tr>
<tr>
<td>US</td>
<td>2001-2011</td>
<td>5.5%</td>
<td></td>
</tr>
<tr>
<td>China (Shanghai)</td>
<td>2003-2007</td>
<td>14.4%</td>
<td>19.9%</td>
</tr>
<tr>
<td>South Korea</td>
<td>1999-2010</td>
<td>24.2%</td>
<td>23.3%</td>
</tr>
</tbody>
</table>

Note: population incidence
Thyroid Cancer

• Increase due to Papillary Thyroid Cancer (PTC).
• The size of these PTC tumours is predominately less than 2 centimetres (cm) in size with most below 1cm
• Many specialists label these small tumours “microcarcinomas”.

Thyroid Cancer

"The increase in cases coincided with technological development that enabled doctors to detect tumors they could not find by feeling the throat of a patient. The problem, however, is that these tumors are mostly far from fatal. In many cases, surgery is unnecessary."

According to the National Cancer Information Center, thyroid cancer cases per every 100,000 people increased from 6.9 in 2000 to 81 in 2011. The death rate from the conditions, however, remained virtually unchanged at around 0.5.

Recent Thyroid operations fell 35%.

Source: http://www.koreatimes.co.kr/www/news/culture/2014/03/319_154183.html
Most tumors have an excellent prognosis:

<table>
<thead>
<tr>
<th>Size</th>
<th>Papillary</th>
<th>Follicular</th>
<th>Medullary</th>
<th>Anaplastic</th>
<th>Five-Year Survival Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1cm</td>
<td>63.7%</td>
<td>1.2%</td>
<td>0.7%</td>
<td>0.02%</td>
<td>100% - ε</td>
</tr>
<tr>
<td>1-2cm</td>
<td>23.7%</td>
<td>2.1%</td>
<td>0.5%</td>
<td>0.04%</td>
<td>28%-93%</td>
</tr>
<tr>
<td>2-4cm</td>
<td>5.5%</td>
<td>1.2%</td>
<td>0.2%</td>
<td>0.03%</td>
<td>7%</td>
</tr>
<tr>
<td>&gt;4cm</td>
<td>0.6%</td>
<td>0.3%</td>
<td>0.03%</td>
<td>0.06%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Thyroid cancer is clearly overtreated:

~70% with complete thyroidectomy vs. 
~1.3% with dangerous prognosis
DEFINING A CONDITION
Defining a condition

Typical parts

- Heading
- Diagnosis
- Prognosis
- Evidence
- Exclusions
Objectives in setting a definition

• Clarity
  – Understood by experts – medical and insurance
• Up to date medical tests
  – But long term contract
• Sustainable pricing
Heading

• Clarity
  – Plain English
  – Clear not all cases may be covered

• Cancer – excluding less advanced cases
• Major Cancers
Diagnosis

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).

Malignancy is essential to the description of cancer; there are also benign tumours, which are not covered.
Diagnosis

UK Definition:
Any malignant **tumour** positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).
Diagnosis

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).

- **Leukaemia** is the name given to blood cancers
- **Sarcoma** is the name given to cancers of connective tissues such as muscle
- **Lymphoma** is the name given to cancers of the lymphatic system
Evidence

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).

Do not need “Confirmed by a oncologist or pathologist” as histological confirmation already implies diagnosed by a specialist and hospital reports not always signed by oncologist or pathologist.
Prognosis

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).
Prognosis

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).

“Uncontrolled” separates this process from normal cell multiplication and is a necessary part of the definition.
Prognosis

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).
Prognosis

UK Definition:
Any malignant tumour positively diagnosed with histological confirmation and characterised by the uncontrolled growth of malignant cells and invasion of tissue.

The term malignant tumour includes leukaemia, sarcoma and lymphoma except cutaneous lymphoma (lymphoma confined to the skin).
Exclusions

Singapore Definition

For the above definition, the following are excluded:

- All tumours which are histologically classified as any of the following:
  - Pre-malignant;
  - Non-invasive;
  - Carcinoma-in-situ;
  - Having borderline malignancy;
  - Having any degree of malignant potential;
  - Having suspicious malignancy;
  - Neoplasm of uncertain or unknown behavior; or
  - Cervical Dysplasia CIN-1, CIN-2 and CIN-3;

Not really required as definition states malignancy and invasion are required. However these can all aid clarity.
Exclusions

Singapore Definition

For the above definition, the following are excluded:
• All tumours which are histologically classified as any of the following:
  Pre-malignant;
  Non-invasive;
  Carcinoma-in-situ;
  Having borderline malignancy;
  Having any degree of malignant potential;
  Having suspicious malignancy;
  Neoplasm of uncertain or unknown behavior; or
  Cervical Dysplasia CIN-1, CIN-2 and CIN-3;

This is an in-situ staging so not required but can aid understanding.
Exclusions

Singapore Definition

- Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;
- Malignant melanoma that has not caused invasion beyond the epidermis;
- All Prostate cancers histologically described as T1N0M0 (TNM Classification) or below; or Prostate cancers of another equivalent or lesser classification;
- All Thyroid cancers histologically classified as T1N0M0 (TNM Classification) or below;
- All tumours of the Urinary Bladder histologically classified as T1N0M0 (TNM Classification) or below;
- All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;
- Chronic Lymphocytic Leukaemia less than RAI Stage 3; and
- All tumours in the presence of HIV infection.

Non-melanoma skin cancers have a very high prevalence the prognosis is excellent.

Those which have affected lymph nodes or distant metastases are higher stage.
Exclusions

Singapore Definition

• Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;

• Malignant melanoma that has not caused invasion beyond the epidermis;

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• All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;

• Chronic Lymphocytic Leukaemia less than RAI Stage 3; and

• All tumours in the presence of HIV infection.

This is an in situ melanoma as it has not invaded beyond the epidermis.

Common in other markets to exclude unless it is has a thickness of 1mm as measured by Breslow – equivalent to staging T2N0M0

Small tumours account for half of melanomas and have excellent prognosis.
Exclusions

Singapore Definition

- Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;
- Malignant melanoma that has not caused invasion beyond the epidermis;
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- All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;
- Chronic Lymphocytic Leukaemia less than RAI Stage 3; and
- All tumours in the presence of HIV infection.

Excluding minor prostate cancers with excellent prognosis. Other markets use a Gleason Score measure.
**Exclusions**

**Singapore Definition**

- Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;

- Malignant melanoma that has not caused invasion beyond the epidermis;

- All Prostate cancers histologically described as T1N0M0 (TNM Classification) or below; or Prostate cancers of another equivalent or lesser classification;

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- All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;

- Chronic Lymphocytic Leukaemia less than RAI Stage 3; and

- All tumours in the presence of HIV infection.

---

No in-situ stage for thyroid cancer all abnormalities are classified as thyroid cancer.

Excluding T1N0M0 excludes minor cancers.
Exclusions

Singapore Definition

• Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;

• Malignant melanoma that has not caused invasion beyond the epidermis;

• All Prostate cancers histologically described as T1N0M0 (TNM Classification) or below; or Prostate cancers of another equivalent or lesser classification;

• All Thyroid cancers histologically classified as T1N0M0 (TNM Classification) or below;

• All tumours of the Urinary Bladder histologically classified as T1N0M0 (TNM Classification) or below;

• All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;

• Chronic Lymphocytic Leukaemia less than RAI Stage 3; and

• All tumours in the presence of HIV infection.

Very early cancers that can be may not need any treatment just observation
Summary

• Cancer is complex
• There are lots of developments in detection, and diagnosis.
  – Detection is earlier
  – Survival improving
Summary

• Need to ensure we pay for only the cases where there is poor prognosis.
Summary

• This makes the definitions
  – Complex
  – Open to significant debate
Thank You
Exclusions

Singapore Definition

• Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;

• Malignant melanoma that has not caused invasion beyond the epidermis;

• All Prostate cancers histologically described as T1N0M0 (TNM Classification) or below; or Prostate cancers of another equivalent or lesser classification;

• All Thyroid cancers histologically classified as T1N0M0 (TNM Classification) or below;

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Very early cancer that may not need any treatment just observation
Exclusions

Singapore Definition

- Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;

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- All tumours of the Urinary Bladder histologically classified as T1N0M0 (TNM Classification) or below;

- All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;

- Chronic Lymphocytic Leukaemia less than RAI Stage 3; and

- All tumours in the presence of HIV infection.

Gastrointestinal stromal tumours (GIST) were previously not completely recorded in cancer registries.

Current studies indicate very low case numbers

Small GIST with low mitotic (rate of division) limits the risk of a strong increase in the future.
Exclusions

Singapore Definition

• Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;

• Malignant melanoma that has not caused invasion beyond the epidermis;

• All Prostate cancers histologically described as T1N0M0 (TNM Classification) or below; or Prostate cancers of another equivalent or lesser classification;

• All Thyroid cancers histologically classified as T1N0M0 (TNM Classification) or below;

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• Chronic Lymphocytic Leukaemia less than RAI Stage 3; and

• All tumours in the presence of HIV infection.

For non-solid tumours, there is no equivalent to an in-situ stage.

For CLL, both RAI and Binet staging is used.

RAI III requires anaemia and is more in line with other severity levels for cancer.

In markets where RAI is not common, Binet staging can be used instead. RAI III is comparable to Binet stage B or C.
Exclusions

Singapore Definition

- Any non-melanoma skin carcinoma unless there is evidence of metastases to lymph nodes or beyond;
- Malignant melanoma that has not caused invasion beyond the epidermis;
- All Prostate cancers histologically described as T1N0M0 (TNM Classification) or below; or Prostate cancers of another equivalent or lesser classification;
- All Thyroid cancers histologically classified as T1N0M0 (TNM Classification) or below;
- All tumours of the Urinary Bladder histologically classified as T1N0M0 (TNM Classification) or below;
- All Gastro-Intestinal Stromal tumours histologically classified as T1N0M0 (TNM Classification) or below and with mitotic count of less than or equal to 5/50 HPFs;
- Chronic Lymphocytic Leukaemia less than RAI Stage 3; and
- All tumours in the presence of HIV infection.

Karposi sarcomas occur in cases of severe immune deficiency and are nowadays almost exclusively seen in combination with an HIV infection.

Not appropriate for Australia
Prostate TNM Staging

**T1**
The tumour or cancer cannot be felt by the doctor during examination

**T2**
The cancer can be felt but it has not spread outside of the prostate

**T3**
The cancer has spread outside of the prostate into nearby tissues

**T4**
The cancer has spread into nearby organs such as the bladder