

ICBP Module 5: One-year cancer survival simulation model

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Concept

- The model is designed to simulate the effect that differences in data collection practises at individual registries have on the calculation of overall one-year survival for each of the ICBP tumour sites.
- The user can modify:
 - the jurisdiction
 - the tumour site
 - the proportion of cases with different “dates of diagnosis”
 - the proportion of patients with different stage of cancer at presentation.
 - the inclusion / exclusion of cases that are identified from a death certificate

Overview

Registry ICBP

Select Cancer: Breast

Breast

England

Year Survival

93.7 %

Norway

Year Survival

93.7 %

Sweden

Year Survival

93.7 %

Denmark

Year Survival

93.7 %

Canada

Year Survival

93.7 %

Australia

Year Survival

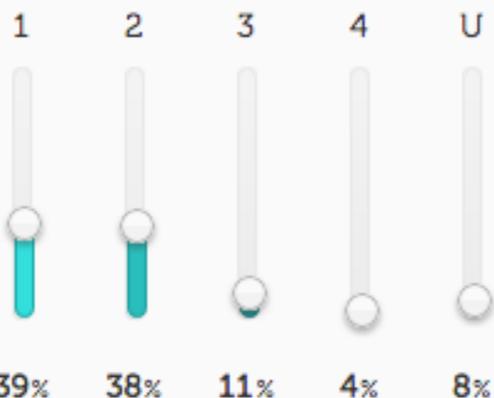
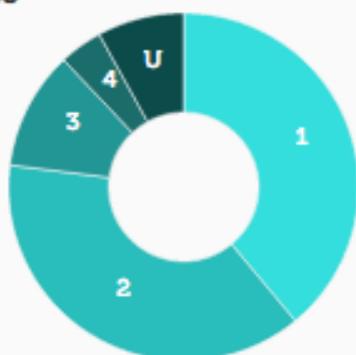
93.7 %

Jurisdiction: England

Save

STAGES

EDIT



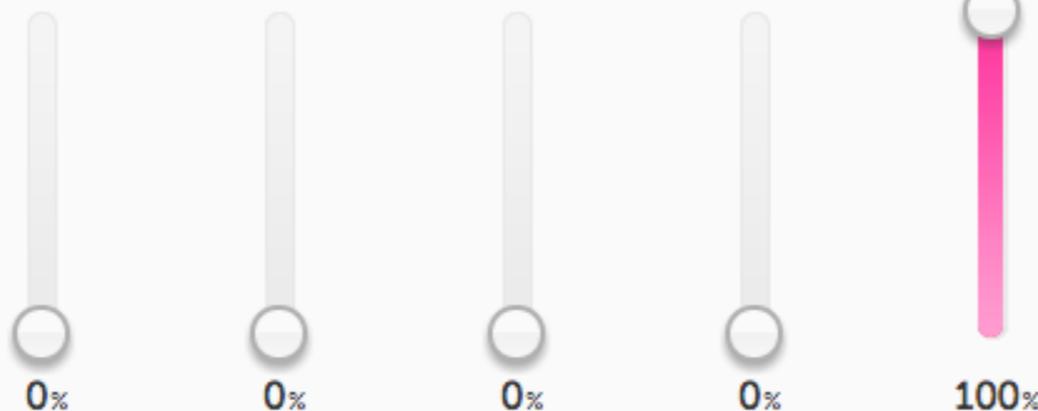
FILTERS

- Exclude DCO
- Exclude GP Trackback

DATE OF DIAGNOSIS COHORTS

EDIT

Primary Care 2ndry Referral 2ndry Seen Imaging Pathology



DAYS BEFORE PATHOLOGY:



Year Survival:

93.7 %



Jurisdiction selection pane

Registry ICBP Select Cancer: **Breast**

England
Year Survival
93.7 %

Norway
Year Survival
93.7 %

Sweden
Year Survival
93.7 %

Denmark
Year Survival
93.7 %

Canada
Year Survival
93.7 %

Australia
Year Survival
93.7 %

Jurisdiction: **England** Save

STAGES



1 2 3 4 U

39% 38% 11% 4% 8%

DATE OF DIAGNOSIS COHORTS

Primary Care 2ndry Referral 2ndry Seen

0% 0% 0%

DAYS BEFORE PATHOLOGY:

Imaging 0 - 35+ Days

2ndry Seen 0 - 35+ Days

2ndry Referral 0 - 35+ Days

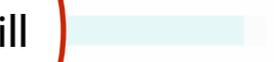
Primary Care 0 - 35+ Days

FILTERS

Exclude DCO

Exclude GP Trackback

Year Survival: **93.7 %**

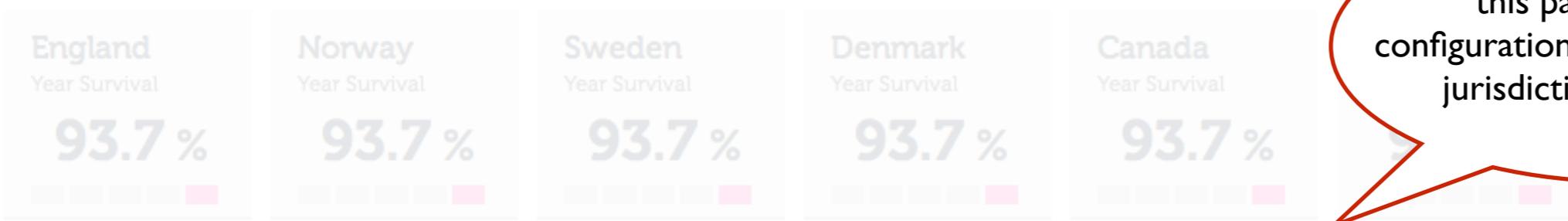


The header gives a summary of the one-year survival results for each jurisdiction. Clicking on a country panel will bring up the configuration pane for that jurisdiction

Jurisdiction configuration pane

Registry ICBP

Select Case



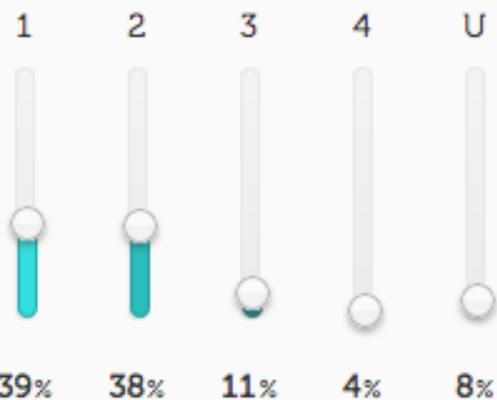
this pane shows the configuration parameters for one jurisdiction - in this case England

Jurisdiction: England

Save

STAGES

EDIT

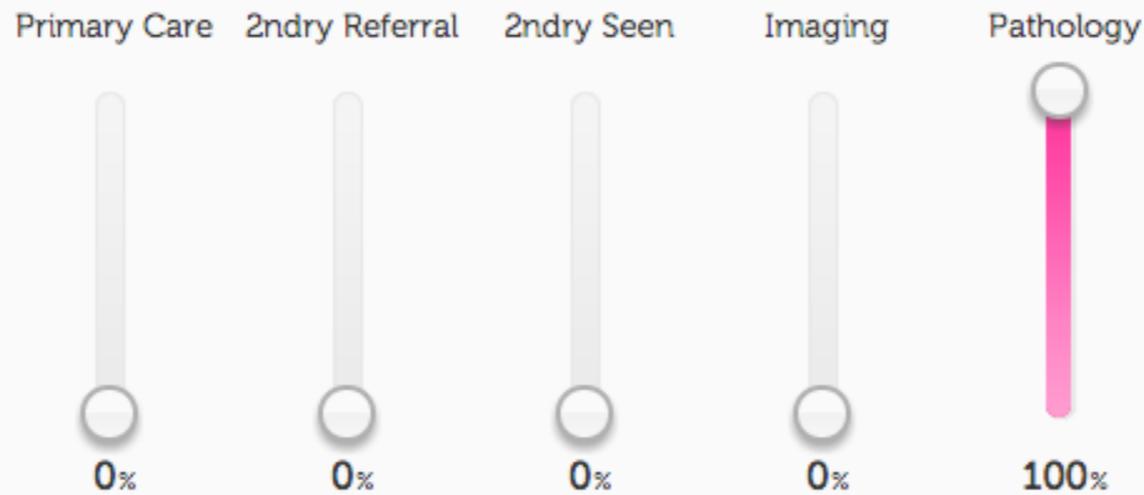


FILTERS

- Exclude DCO
- Exclude GP Trackback

DATE OF DIAGNOSIS COHORTS

EDIT

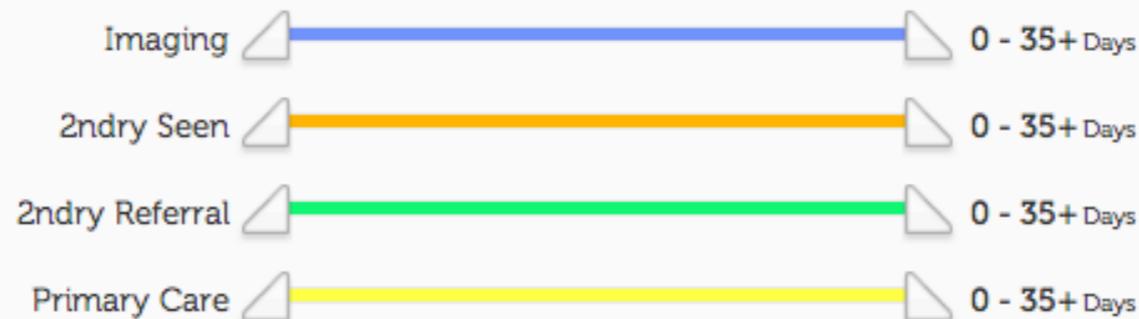


Year Survival:

93.7 %



DAYS BEFORE PATHOLOGY:



Tumour site selection

Registry ICBP

Select Cancer:

- Breast
- Breast
- Colorectal
- Lung
- Ovary

The tumour site can be selected from the drop down menu

England
Year Survival

93.7 %

Norway
Year Survival

93.7 %

Sweden
Year Survival

93.7 %

Denmark
Year Survival

93.7 %

Sweden
Year Survival

86.9 %

Jurisdiction: England

Save

STAGES



DATE OF DIAGNOSIS COHORTS

Primary Care 2ndry Referral 2ndry S



DAYS BEFORE PATHOLOGY:

Imaging 0 - 35+ Days

2ndry Seen 0 - 35+ Days

2ndry Referral 0 - 35+ Days

Primary Care 0 - 35+ Days

FILTERS

Exclude DCO

Exclude GP Trackback

Jurisdiction selection

Registry ICBP

Select Cancer: Breast

England Year Survival: 93.7%
Norway Year Survival: 93.7%
Sweden Year Survival: 93.7%
Denmark Year Survival: 93.7%

Jurisdiction: Norway **Save**

- England
- Norway
- Sweden
- Denmark
- Canada
- Australia

SAVE SETTINGS

Settings name: Norway

Save Cancel

STAGES

DATE OF DIAGNOSIS COHORTS

Primary Care 2ndry Referral 2ndry Seen Imaging Pathology Year Survival: 93.7%

1 2 3 4 U

39% 38% 11% 4% 8%

FILTERS

Exclude DCO

Exclude GP Trackback

DAYS BEFORE PATHOLOGY

Imaging 0 - 35+ Days

2ndry Seen 0 - 35+ Days

2ndry Referral 0 - 35+ Days

Primary Care 0 - 35+ Days

The jurisdiction can be selected from the drop down menu

Click on the **Save** button to save the configuration. Using the name of an existing jurisdiction will over-write the configuration for that jurisdiction.

Varying the “Date of Diagnosis”

- The initial assumption is that date of diagnosis used in all cases is the date the pathology specimen was taken.
- The user can then decide to reallocate the date of diagnosis for some or all cases to an earlier date relative to date for pathology.
- The model has four earlier time points*:
 - Date of imaging
 - Date seen in secondary care
 - Date of referral into secondary care
 - Date see in primary care
- Each of these time points can be set independently as a range of days before the pathology date.

* the name given to these time points is based on specific data that was available for England.

Setting the date of diagnosis ranges

Select Cancer: Breast

DAYS BEFORE PATHOLOGY:

Imaging



28 - 35+ Days

2ndry Seen



21 - 28 Days

2ndry Referral



14 - 21 Days

Primary Care



0 - 14 Days

DAYS BEFORE PATHOLOGY:

Imaging



28 - 35+ Days

2ndry Seen



21 - 28 Days

2ndry Referral



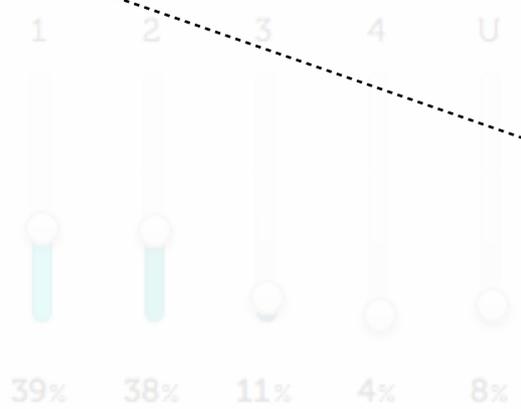
14 - 21 Days

Primary Care



0 - 14 Days

The relative time prior to date of pathology



FILTERS
Exclude DCO
Exclude GP Trackback



Varying the proportion of cases with “Date of Diagnosis”

- The proportion of cases that are assumed to have a diagnosis date with each of each of these time points can then be set.

England

Year Survival

93.7 %

Norway

Year Survival

93.7 %

Sweden

Year Survival

93.7 %

Denmark

Year Survival

93.7 %

Canada

Year Survival

93.7 %

Australia

Year Survival

93.7 %

Jurisdiction: England

Save

STAGES

EDIT



1 2 3 4 U

DATE OF DIAGNOSIS COHORTS

Primary Care 2ndry Referral 2ndry Seen Imaging Pathology



8%



12%



18%



27%



35%

EDIT

The proportion of cases at each diagnosis date can be selected.

The **EDIT** button allows exact figures to be entered rather than using the sliders.

DATE OF DIAGNOSIS COHORTS

EDIT

Primary Care 2ndry Referral 2ndry Seen Imaging Pathology



8%



12%



18%



27%



35%

28 - 35+ Days
21 - 28 Days
14 - 21 Days
0 - 14 Days

SET COHORT PERCENTAGES

Pathology	<input type="text" value="35"/>
Imaging	<input type="text" value="27"/>
2ndry Seen	<input type="text" value="18"/>
2ndry Referral	<input type="text" value="12"/>
Primary Care	<input type="text" value="8"/>

Apply

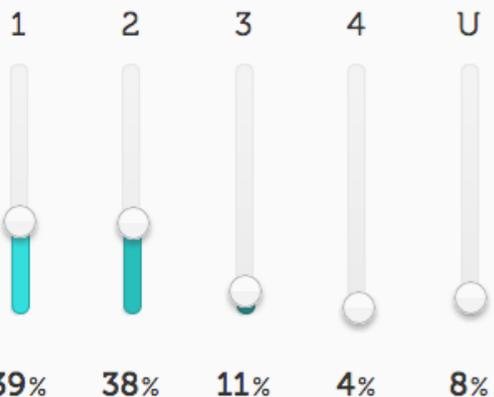
Cancel

Adjusting the mix of tumours at different stage

- Tumour stage at diagnosis significantly affects the overall survival.
- For each tumour site the model allows the user to adjust the portion of cancers at each stage. Stage I-4 and unknown stage can all be included.

STAGES

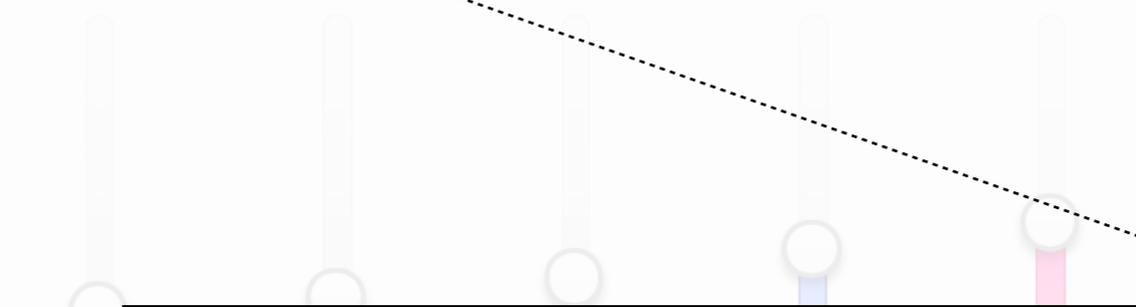
EDIT 



DATE OF DIAGNOSIS COHORTS

EDIT 

Primary Care 2ndry Referral 2ndry Seen Imaging Pathology



SET STAGE PERCENTAGES

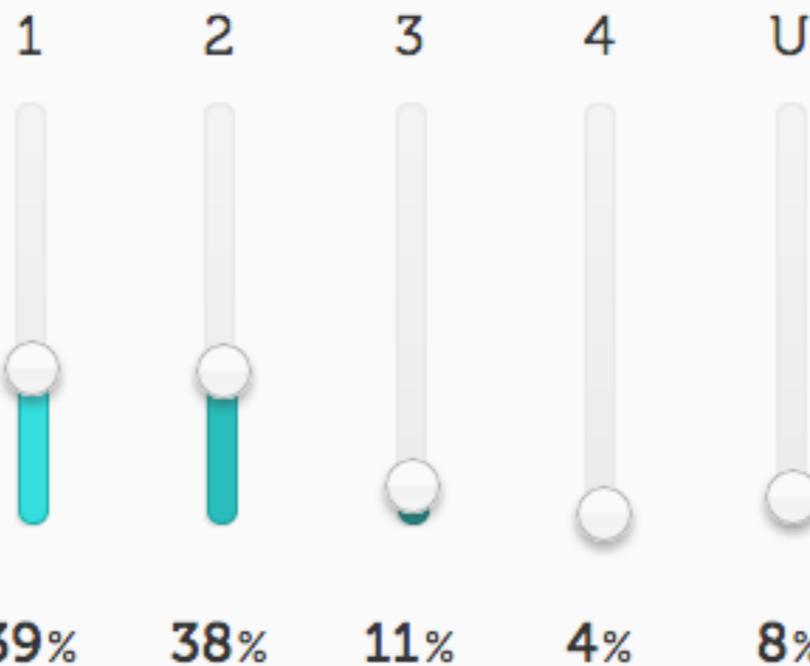
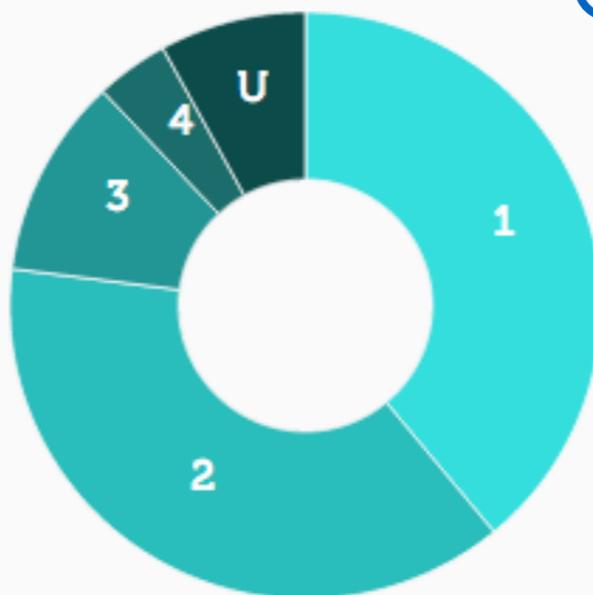


1	<input type="text" value="39"/>
2	<input type="text" value="38"/>
3	<input type="text" value="11"/>
4	<input type="text" value="4"/>
U	<input type="text" value="8"/>

Apply Cancel

STAGES

EDIT 



The proportion of cases at each stage at the time of diagnosis

The **EDIT** button allows exact figures to be entered rather than using the sliders.

Other factors

- The model allows two other factors to be included:
 - Some calculations of one-year survival have excluded “zero survivors”. These are patients detected only on death certificates - known as Death Certificate Only (DCO) cases.
 - We have found that there is a subgroup of the DCO patients (in our data about 14% of all DCO cases) who when investigated by the registry are found to have been diagnosed in primary care, but do not go on to further treatment or investigation; in England these cases are therefore not detected on routine registry feeds. We assume that these are patients with advanced disease or significant co-morbidities who opt for no further investigation. The significance for the model is that as a group they are longer survivors than other DCO cases.
 - By default the model includes both these patients - but they can be removed by selecting relevant filters.



The FILTERS allow the user to select whether to include "Zero Survival" cases recorded just on death certificates (Death Certificate Only or DCOs).

GP Trackback are those DCOs where the diagnosis is only based on primary care data.

FILTERS

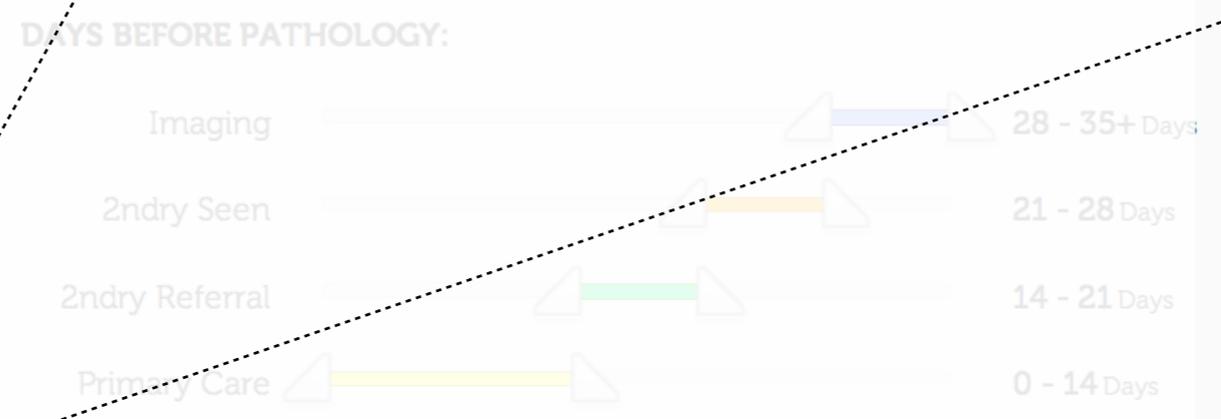
Exclude DCO

Exclude GP Trackback

FILTERS

Exclude DCO

Exclude GP Trackback



Notes

- The model incorporates parameters that have been identified in the qualitative survey of registry practise as potentially significant in one-year survival calculations.
- The survival calculations use the same methodology as that used previously in ICBP studies.
- The current model is based on a data from the East of England cancer registry for patients diagnosed in 2010. Additional information from records linked to NHS Hospital Episode Statistics and Cancer Waiting Times data. Event dates and staging is largely complete in this conjoined dataset.
- This is work in progress
 - not all features are complete
 - results are not saved on the web-based version