

## Cancers of the cervix and uterus

### Anatomical sites, case numbers and histological types

Invasive cancers of the uterus and cervix are defined by their location in the womb – cancers of the corpus uteri (ICD10 code: C54) referring to those located in the body of the uterus itself and cervix uteri (C53) referring to cancers sited in the lower constricted portion of the uterus or neck which connects the womb to the vagina. Cancers which are not classified to a precise site within the womb are referred to as “uterus, not otherwise specified, (NOS)” (C55). Many cancers of the cervix uteri are non-invasive or precancerous and are termed *in situ* (D06).

An average of 216 invasive and 1440 *in situ* cancers of the cervix uteri were diagnosed annually from 1994 to 2009 (Table 1). A total of 270 cancers of the corpus uteri were diagnosed per year and approximately 20 uterine cancers per year were of unspecified site (uterus, NOS).

Over 95% of all cancers were diagnosed histologically: 75% of invasive and almost all *in situ* cancers of cervix uteri were squamous cell subtypes. 76% of cancers of the corpus uteri were adenocarcinoma subtypes. Sarcomas represented 8% of all cancers of corpus uteri and made up almost one-fifth of unspecified uterine cancers.

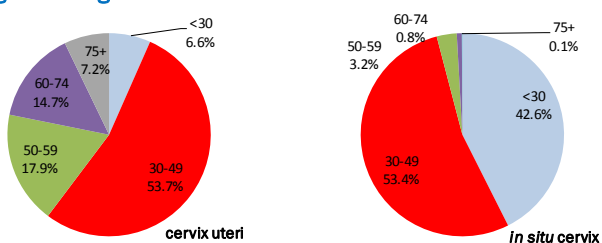
**Table 1. Annual average numbers of cancers of cervix and uterus (% at each site) by histological type, 1994–2009**

	cervix uteri	<i>in situ</i> cervix	corpus uteri	uterus, NOS
adenocarcinoma	30 (14%)	17 (1%)	205 (76%)	10 (47%)
squamous	163 (75%)	1416 (98%)	5 (2%)	1 (5%)
adeno-squamous	6 (3%)	0 (0%)	7 (3%)	0 (0%)
sarcomas	2 (1%)	0 (0%)	22 (8%)	4 (19%)
other/unspecified	15 (7%)	7 (1%)	31 (11%)	6 (29%)
<b>total</b>	<b>216</b>	<b>1440</b>	<b>270</b>	<b>21</b>

### Age profile

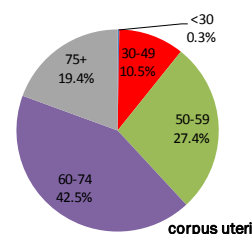
Cervical cancer has a younger profile than uterine cancer; over 60% of invasive tumours and almost all *in situ* cases were diagnosed in women aged under 50 years (Figure 1a). 43% of all *in situ* cancers were diagnosed in women aged under 30. In contrast, 20% of uterine cancers were diagnosed in women aged over 75 and only 10% were diagnosed in those under 50 years (Figure 1b).

**Figure 1a. Age distribution of cervical cancers 1994–2009**



More information on cancer is available on our website [www.ncr.ie](http://www.ncr.ie)

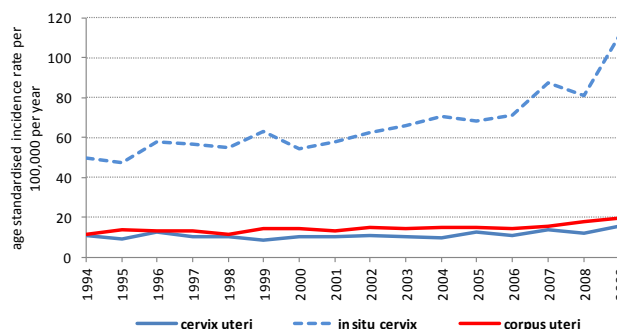
**Figure 1b. Age distribution of uterine cancers 1994–2009**



### Time trends

Age-standardised incidence rates for invasive cervical and uterine cancers ranged from 9 to 15 and from 11 to 19 cases per 100,000 women per year respectively and both showed a slight increase over time (annual percentage increases (APC, 1994–2009) 2.1%±1.5% and 2.6%±0.9% respectively (Figure 2). Incidence rates for *in situ* cervical cancers were much higher and also showed a greater rate of increase between 1994 and 2009 (APC=4.7%±1.3%). Incidence rates for *in situ* cervix increased particularly from the mid/late 2000's when the cervical screening programme extended nationwide, although annual incidence rates, particularly in recent years, have varied somewhat (APC: 1994–2004=3.1%±1.4%; 2005–2009=12.3%±10.6%).

**Figure 2. Trends in cervical & uterine cancer incidence rates, 1994–2009**



### Geographical distribution

Overall incidence rates of 11 invasive cervical and 15 uterine cancers per 100,000 women per year were recorded between 1994 and 2009 (Table 2). Incidence of cervical cancer was highest in the HSE areas centred on Dublin while the highest incidence of uterine cancer was found in the HSE South and West areas. A similar pattern has been reported in a recent report.<sup>1</sup> *In situ* cervical cancer (68 cases per 100,000 per year) had the highest incidence in the Dublin & North East region.

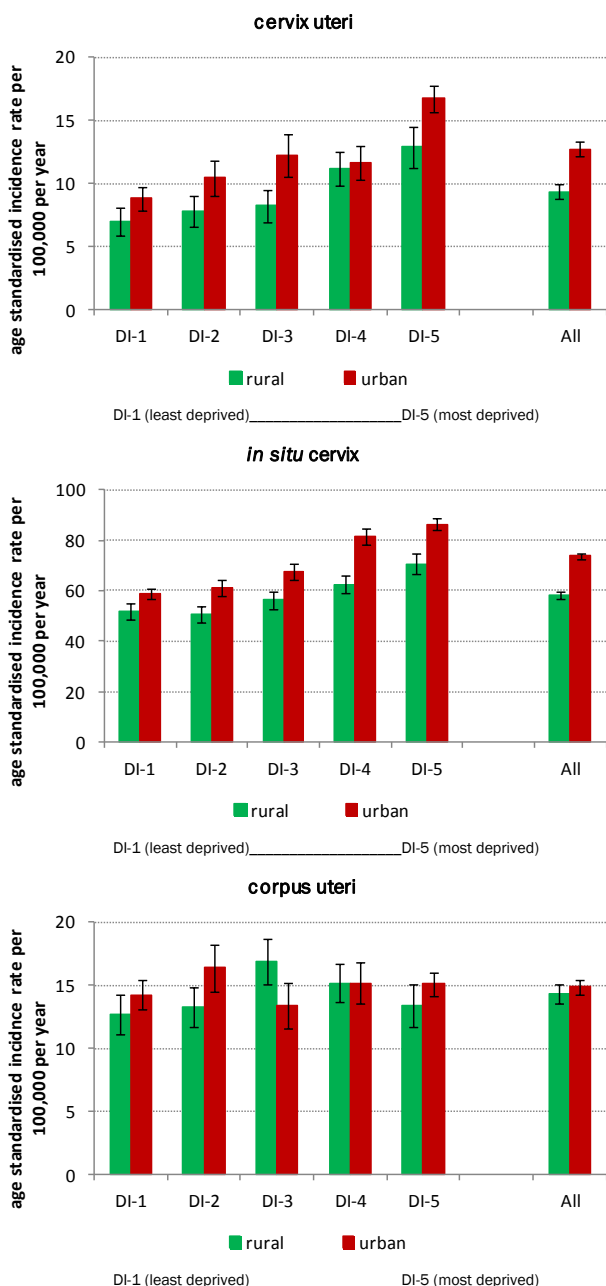
**Table 2. Incidence rates (cases per 100,000 per year) by HSE region, cervical and uterine cancer, 1994–2009**

	cervix uteri	<i>in situ</i> cervix	corpus uteri
Dublin & Mid Leinster	12.0	64.7	14.1
Dublin & North East	11.8	75.2	13.0
South	11.1	67.0	15.5
West	9.8	64.2	15.3
Ireland overall	11.2	67.6	14.5

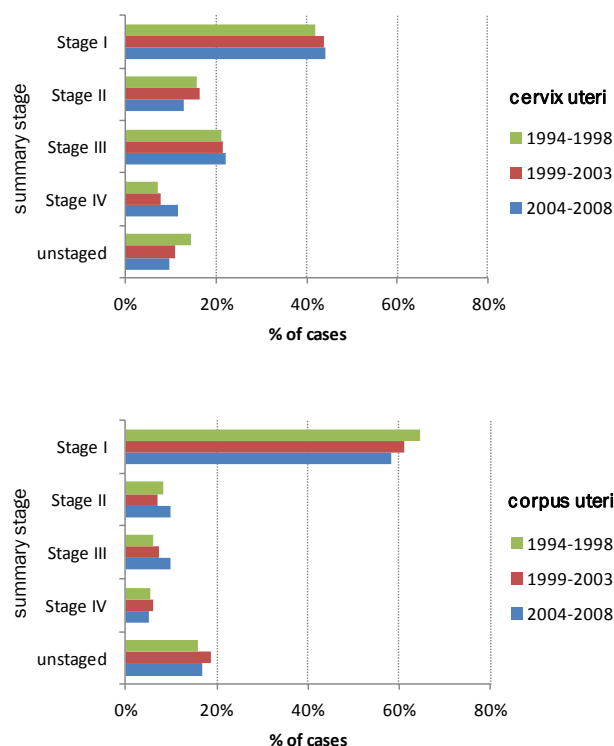
Socio-economic status is a known risk factor for cervical cancer and this has also been shown recently in Irish data.<sup>1</sup> Rates of incidence of both invasive and *in situ* cervical cancer were highest

in areas of highest deprivation (Figure 3). This was evident in both urban and rural areas - urban areas having consistently higher incidence rates than rural at all deprivation levels. In contrast, uterine cancer incidence had no clear relationship with deprivation and overall incidence rates in urban and rural areas were similar.

**Figure 3. Incidence of cervical and uterine cancer and variation with deprivation index (DI) and urban/rural area of residence, 1994–2009** (DI ranges from 1 (least deprived) to 5 (most deprived)<sup>2</sup> (Rural areas defined by population density <1 person per hectare)



**Figure 4 Percentage of cervical and uterine cancers by stage 1994–2008<sup>3</sup>**



**International variation in incidence and mortality<sup>4</sup>**

Estimated incidence of both cancers in 2008 varied widely between European countries, particularly for cervical cancer (Figure 5). Highest rates for this cancer were recorded for Romania and some other eastern European countries, with lowest incidence rates in Malta, Finland, Switzerland and Greece. Rates in Ireland were similar to the European average and were 12<sup>th</sup> highest of 30 countries. Uterine cancer rates were somewhat more uniform across countries, Ireland ranking 21<sup>st</sup> and with a rate close to the European average.

The ratio between cervical and uterine cancer incidence in Ireland (0.8) was similar to that in Europe overall (0.7). However this ratio varied widely, from 0.1 (Malta) to 3.3 (Romania) - lowest ratios generally found in northern and western Europe and highest ratios in Eastern European countries.

Mortality rates for cancer of cervix uteri were very variable across Europe - highest in Romania, Latvia and Lithuania and lowest in northern and western Europe generally (Figure 6). Ireland ranked 12<sup>th</sup> of 30 countries and had similar incidence to the European Union overall. Mortality rates for corpus uteri were more uniform generally, Ireland ranking 16<sup>th</sup> overall and with rates similar to the European average.

The high variability observed in cancer incidence and mortality rates between countries may be linked to variation in the coding of these cancers - for example substantial misclassification of corpus uteri cancer as site unspecified has been previously reported and mortality rates for corpus uteri in particular have been found to be higher in eastern Europe<sup>5</sup>. It is possible that the very low incidence and mortality

**Stage at diagnosis**

The majority of both cervical and uterine cancers were at stage I when diagnosed (40% cervix uteri and 60% corpus uteri approximately) (Figure 4). The distribution of tumour stage has remained fairly constant over time for both cancers. Between 16% and 19% of uterine cancers were unstaged - slightly higher than for cervical cancers, which have shown a slight decline in the proportion of unstaged tumours, from 14% to 10%.

of corpus uteri but high incidence and mortality of cervix uteri cancer in Romania for example may be related to such coding issues.

45% in 1999-2003 to 38% in 2004-2008 but remained unchanged for corpus uteri.

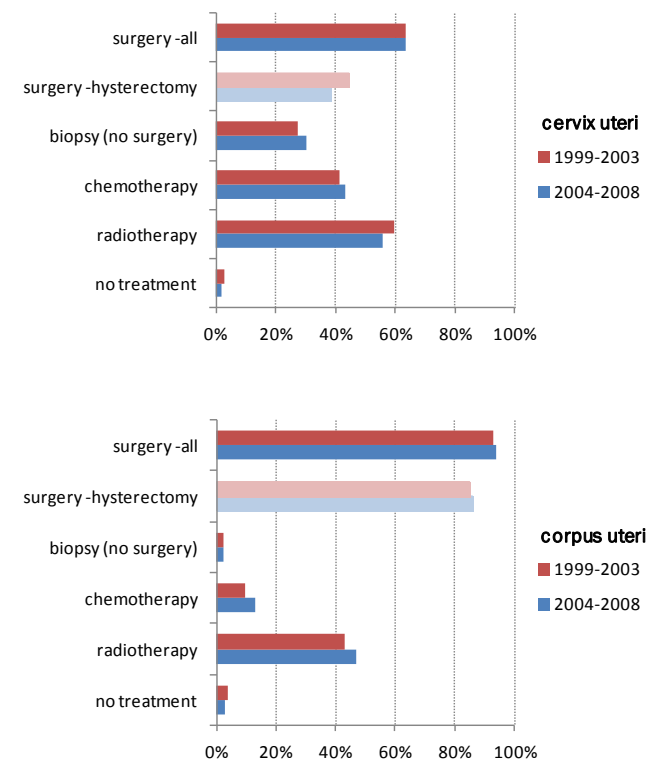
LLETZ procedures are included here in the figures for surgery. However, over 30% of cervical cancer patients had a biopsy only with no further surgery and this proportion varied little over time – the biopsy procedure alone (eg cone biopsy) removing the tumour and eliminating the need for further surgery.

Chemotherapy was administered to over 40% of cervical cancer patients but only to about 10% of patients with uterine cancer and little variation was observed over time for both cancers.

Radiotherapy rates were also higher for cervix uteri than corpus uteri – between 56% and 60% of cervical patients had radiotherapy compared to 43%-47% of corpus uteri patients. The proportion of patients having radiotherapy did not vary to a large degree over time but there was a slight decrease for cervix uteri and a slight increase in the case of corpus uteri.

For both cancer types, very few patients (less than 5%) had no tumour directed treatment.

Figure 7 Treatment by time period: cervical and uterine cancer, 1999–2008<sup>6</sup>



Survival<sup>7</sup>

Survival rates for both cervical and uterine cancer in Ireland have improved since 1994-1997 (Figure 8). The improvement in cervical cancer survival may reflect increased (if only slight) proportions of early stage (stage I) cancers and a decline in unstaged tumours, possibly detected through screening. Five year relative survival for uterine cancer (between 73% and 75%) was significantly better than for cervical cancer (between 60% and 67%) throughout all time periods.

Figure 5. Estimated incidence for cervical and uterine cancer, 2008<sup>4</sup>

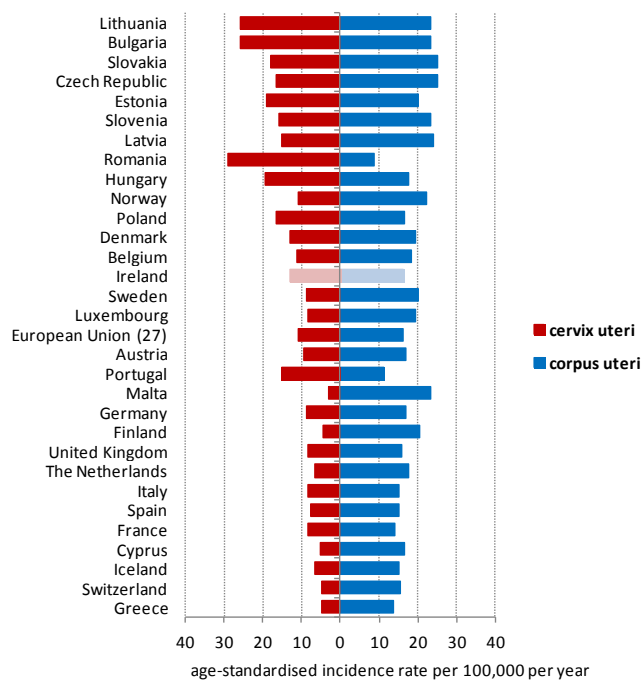
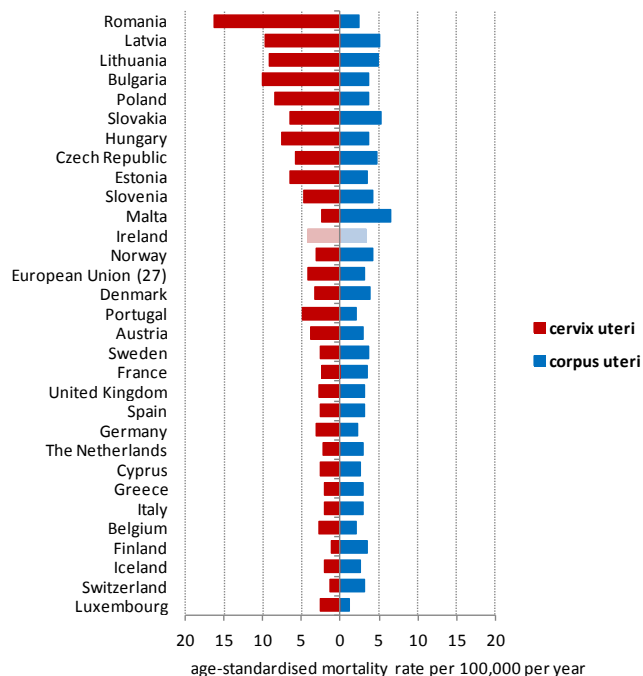


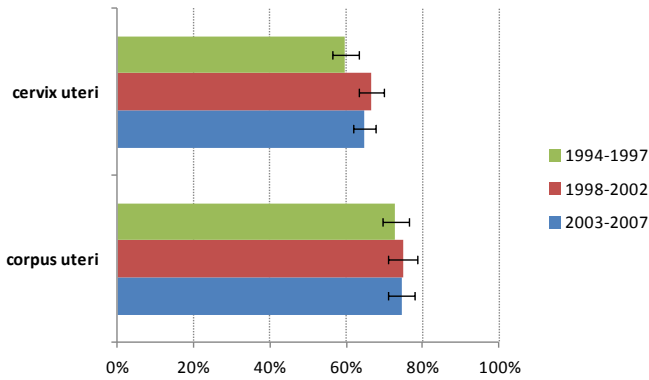
Figure 6. Estimated mortality for cervical and uterine cancer, 2008<sup>4</sup>



Treatment

In the 10 year period 1999-2008 overall<sup>6</sup>, 64% of cervix uteri and 93% of corpus uteri cancer patients had tumour directed surgery (Figure 7) and this proportion remained unchanged over time. Over 90% of surgical procedures for corpus uteri were partial or total hysterectomies compared to 65% for cervix uteri. The proportion of cervix uteri patients having hysterectomy procedures declined from

**Figure 8. Five year relative survival by time period (with 95% confidence intervals) for cancers of cervix and uterus**

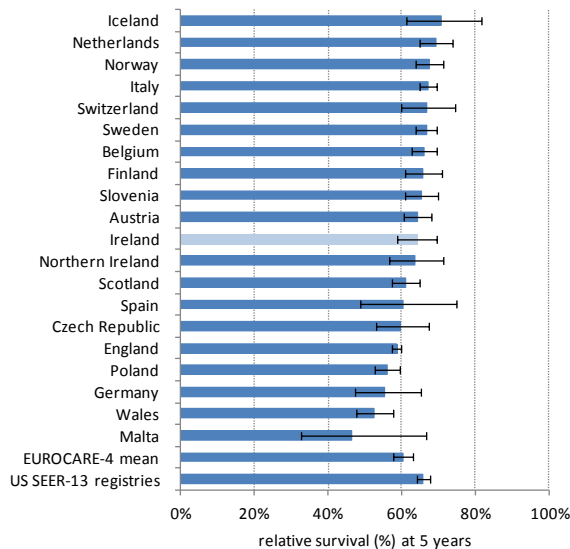


**International variation in survival<sup>8</sup>**

Five year relative survival estimates for cervical cancer patients diagnosed in Europe between 2000 and 2002 ranged from 71% in Iceland to 47% in Malta (Figure 9). Results for Ireland indicate that we are almost equal to Northern Ireland, close to the European average and rank 11<sup>th</sup> of 20 European countries analysed. Survival rates in Ireland are slightly higher than the EUROCARE-4 average<sup>9</sup> and slightly lower than equivalent survival figures from the US.

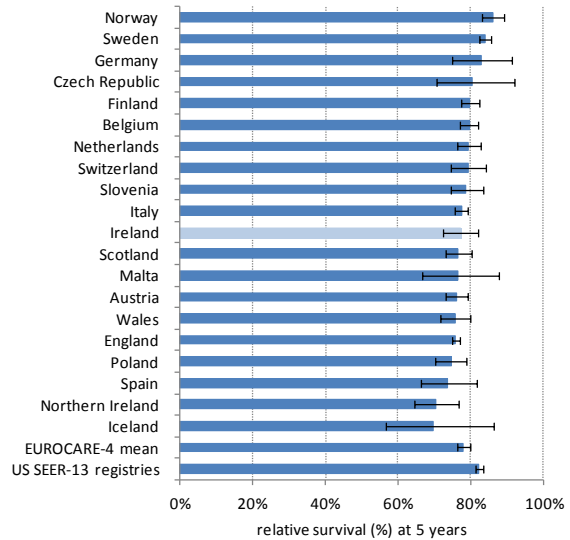
It should be noted that more recent figures released by the OECD (patients diagnosed 2001-2003 and followed up to 2009) indicate a relatively poorer survival rate for Irish cervical cancer patients – Ireland ranking lowest of 20 countries with a 5 year relative survival rate of 57.6%<sup>10</sup>. This figure is close to that reported for the UK (58.8%) and 9% lower than the overall average for the OECD-16.

**Figure 9. Five year relative survival for cervical cancers (period analysis 2000-2002<sup>8</sup>)**



Ireland also ranks 11<sup>th</sup> of the 20 European countries analysed for corpus uteri survival rates (2000-2002 period analysis<sup>8</sup>, Figure 10). In this case, highest survival rates were found in Norway (86%) and lowest rates in Iceland (70%). An estimate of 77% was found for Ireland which is close to the equivalent European average and previous EUROCARE-4 estimates and slightly lower than similar figures for the US.

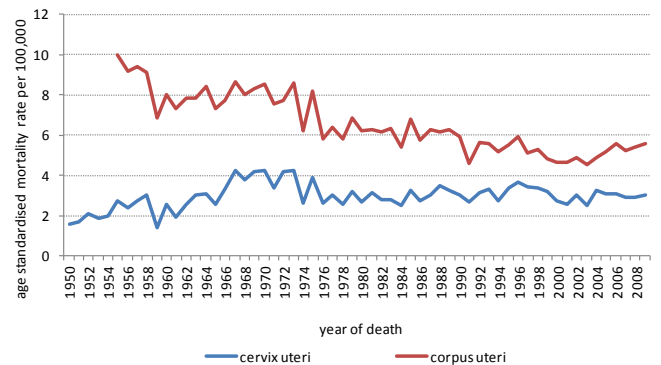
**Figure 10. Five year relative survival for cancers of the corpus uteri (period analysis 2000-2002<sup>8</sup>)**



**Long Term Trends in Irish Mortality Rates**

Age-standardised mortality rates from cancer of the uterus have declined noticeably in Ireland since the 1950s with current rates an average of 40% less than in the late 1950's (Figure 11). In contrast, mortality from cervical cancer increased in the late 1960's and early 70's, and although rates have subsequently declined somewhat, average mortality rates for this cancer in the last 5 years are approximately 60% higher than in the early 1950's. There has been relatively little change in the mortality rate for cervical cancer in recent years.

**Figure 11. Age-standardised mortality rate (world standard population) for cancer of cervix and uterus 1950-2009<sup>11</sup>**



**References and notes**

1. All Ireland Cancer Atlas, 1995-2007. NCRI Cork/NICR Belfast 2011.
2. Deprivation Index as per 2002 census. SAHRU ([www.sahrutcd.ie](http://www.sahrutcd.ie))
3. Information on cancer stage is complete to the end of 2008 only
4. Source: European Cancer Observatory (ECO) <http://eu-cancer.iarc.fr/>
5. Bray, F et al, 2005. Geographic and temporal variations in cancer of the corpus uteri: Incidence and mortality in pre- and postmenopausal women in Europe Int J Cancer 117: 123-131
6. Full treatment information is available to the end of 2008 only.
7. Cases followed up to 31/12/2009.
8. Recent cancer survival in Europe: a 2000-02 period analysis of EUROCARE-4 data. Verdecchia A, et al; EUROCARE-4 Working Group. Lancet Oncol. 2007 ;8:784-96.
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