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Original Paper

Survival of European Women with Gynaecological Tumours, During the Period 1978–1989

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This study concerns the survival of European patients diagnosed between 1978 and 1989 with cancer of corpus and cervix uteri and ovary. Variations in survival in relation to age, country and period of diagnosis were examined. Data from the EUROCARE study were supplied by population-based cancer registries in 17 countries to a common protocol. Five years after diagnosis, relative survival rates were 75, 62 and 35% for cancers of the endometrium, cervix and ovary, respectively. Survival decreased markedly with age. The decrease was especially evident for ovarian cancer, which declined from 65% (15–45 years) to 18% (75+ years). In 1985–1989 there were important inter-country differences in survival for European women with gynaecological cancers: Eastern European countries were characterised by low 5-year relative survival whilst in Sweden, Austria, The Netherlands and Switzerland survival was generally higher than for other European countries. From 1978–1989, 5-year relative survival improved slightly for cervical cancer and improved more among the oldest patients. Prognosis also improved slightly for patients with ovarian tumours and this increase (around 20%) was concentrated among patients between 15 and 64 years of age. Intercountry differences in survival did not in general reduce over time, although for ovarian cancer survival differences narrowed probably in relation to the more widespread use of more effective chemotherapy. Intercountry and time differences in survival for cervical cancer are almost certainly related to variations in the effectiveness of cervical screening programmes. For corpus uteri cancer there was no improvement in survival over the period of this study and intercountry survival differences for this cancer are probably related to differences in patient management. © **1998 Elsevier Science Ltd. All rights reserved.**

Key words: population-based cancer registries, relative survival, survival trends, age contrasts, endometrium cancer, cervix cancer, ovarian cancers, Europe
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INTRODUCTION

In Europe, gynaecological tumours (those affecting the corpus and cervix uteri and ovary) are the third most common malignancies in women after breast cancer and colorectal cancer [1]. In most European populations the frequencies of ovarian and endometrial cancers are either decreasing or stable and the incidence of invasive cervical cancer is decreasing [2]. Whilst the patterns of incidence of ovarian and endometrial cancer seem to correlate with the use of combined oral contraceptives which have a protective effect against these malignancies [3], the reduction in cervical cancer incidence is often explained as the result of the introduction of screening, even though a decline was evident before the widespread affirmation of this procedure. Screening identifies premalignant lesions, which can be eliminated, thereby reducing the incidence of malignant lesions. Screening also anticipates the diagnosis of malignant lesions which respond more effectively to therapy and for this reason some survival studies report improvements in the prognosis for this cancer site. There is also some evidence that the survival of patients with ovarian cancer has improved in recent years,

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due to earlier stage at diagnosis and possibly to the introduction of chemotherapy combinations containing cisplatin [3].

The present study concerns the survival of European patients diagnosed with cancer of the cervix and corpus uteri (ICD-9 180 and 182, respectively) and ovary (ICD-9 183) [4]. Variations in survival in relation to country, age and period of diagnosis are analysed.

PATIENTS AND METHODS

The study considered all cases of gynaecological cancer recorded in population-based cancer registries from 17 European countries of the EUROCARE database. Cases analysed had a follow-up of at least 5 years. Only primary, first occurrence, malignant invasive tumours, as defined by ICD-O behaviour code 3 or higher [4] were included; *in situ*, uncertain and borderline tumours were excluded. Both histologically verified and non-verified cases were included, but cases known to registries by death certificate only (DCO) or discovered incidentally at autopsy, were excluded.

Descriptions of the cancer registries, their data gathering methods, and the standardised procedures for ensuring data comparability were published in the first and will be published in the second EUROCARE monographs [5, 6].

Table 1 provides a breakdown, according to cancer site and country, of the total of 82 192 gynaecological cancer cases diagnosed in 1985–1989. The registries of Finland, Denmark, Iceland, Scotland, Estonia, Slovakia and Slovenia cover the entire populations of those countries. English registries cover a large fraction of the whole population; other countries are represented by one or more local or regional registries. Table 1 also gives information on cancer site, histiotype, proportion of histologically or cytologically verified cases (microscopically verified), DCOs, cases lost to follow-up, and the proportion of patients aged more than 74 years. For cervical cancer, 12% of cases were over 74 years of age, varying from 25% (Finland) to less than 10% (Iceland, Slovakia and Slovenia). For the other cancer sites, the proportion of cases over 74 years of age was high: 20 and 22% for endometrial and ovarian cancer, respectively. There was no considerable intercountry variation in the proportion of cases over 74 years, but for these two cancer sites Switzerland always had the highest proportion of such patients and Slovakia the lowest.

Overall, 93% of cervical and endometrial cancers and 82% of ovarian cancers were microscopically verified. For England the percentages were relative low and for the Nordic countries, The Netherlands, Switzerland and France percentages were high, but intercountry variability in these figures was relatively minor. Ten per cent of cervical cancers were adenocarcinomas, with lower percentages in Eastern European countries and Austria (< 10%) and higher percentages (19%) in Finland and Sweden. Five per cent of corpus uteri cancers were sarcomas and there was little intercountry variation. Austria (12%) and Iceland (9%) had the highest proportions of these histotypes. Five per cent of ovary cancers were non-epithelial, ranging from 4% in Austria, England, Finland, Slovenia and Sweden to 10% in Iceland.

Trends in survival over time were analysed for 13 countries for which registries could provide data for the whole period 1978–1989, a total of 135 613 cases were included.

Relative survival rates were calculated as the ratio of the observed survival in a given patient group to the expected survival derived from the mortality rates of the general population, according to the Hakulinen method [7]. Overall (European) relative survival was estimated as the weighted average of the relative survival of the individual countries, with weightings proportional to the number of incident cases yearly in each country. Age-standardised survival rates were calculated from age-specific rates in the five age classes considered: 15–44, 45–54, 55–64, 65–74 and 75–99 years. The age distribution of cases in the entire European sample was used, for all periods, both sexes and all geographical areas, as the standard distribution. In order to compare survival trends and differences, the relative risks of death are given; these were calculated as the ratio of the logarithm of relative survival for the category of interest (e.g. age class or period of diagnosis) to that of a corresponding reference category.

RESULTS

The effect of site and age on survival

Figure 1 shows relative survival rates at 1, 3 and 5 years after diagnosis for cancers of the cervix (cervix uteri), endometrium (corpus uteri) and ovary in European patients. Survival for endometrial cancer was higher than for the other cancers, whilst ovarian cancer survival was lowest. Five years after diagnosis, relative survival rates were 75, 62 and 35% for cancers of the endometrium, cervix and ovary, respectively. Figure 2 shows the effect of age on survival. For all tumours, 5-year relative survival decreased markedly with age. The decrease was especially evident for ovarian cancer, which declined from 65 to 18% from the youngest to the oldest age group. For patients aged 75 years and over, the relative risk of dying compared with the youngest patients (15–45 years) was 6 for ovarian cancer and around 4 for cervical and endometrial cancers.

Intercountry differences in survival

Figure 3 shows the effect of country on age-standardised 5-year relative survival. Countries divide into three groups according to survival figures: those with survival close to the

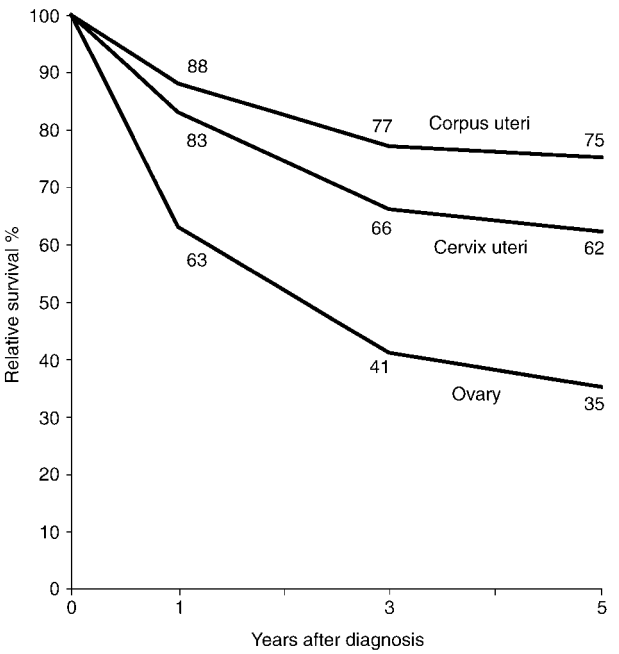

Figure 1. Relative survival for gynaecological cancers in European countries, 1985–1989 (EUROCARE II).

European average (RR of dying from 0.9 to 1.1 versus Europe), those with high survival (RR of dying less than 0.9) and countries with low survival (RR of dying greater than 1.1). For all sites, Eastern European countries were characterised by low 5-year relative survival. Scotland had low survival for cervical and endometrial tumours. In Sweden, Austria, The Netherlands, Iceland and Switzerland survival was generally higher than for other European countries.

Time trends in survival

Table 2 shows the effect of time (from 1978–1989) on 5-year relative survival according to age. Five-year relative survival for cervical cancer improved slightly over the entire period (RR of dying reduced by 7%) and it is interesting that survival improved most (RR = 0.7) among the oldest patients (75 + years). The prognosis also improved slightly for patients with ovarian cancer (RR = 0.9) and this improvement

Table 1. *Data quality of gynaecological tumour cases by country (EUROCARE* II*)*

Cervix uteri (ICD-9 180)	Country	No. of cases	% ≥ 75 years of age	% MV	% Adeno	% Lost to follow-up	% DCO
	Northern Europe						
	Iceland	65	5	100	11 (0)	0.0	0.0
	Finland	686	25	99	19 (3)	0.0	0.2
	Sweden*	438	15	100	19 (0)	0.0	0.0
	Denmark	2791	12	99	12 (1)	0.0	0.0
	U.K.						
	Scotland	2109	10	91	10 (1)	0.0	0.8
	England	10 627	10	89	10 (3)	0.1	2.8
	Western and Central Europe						
	The Netherlands*	166	15	99	13 (1)	5.4	0.0
	Germany*	434	14	98	n.a.	0.0	1.0
	Austria*	175	10	94	8 (15)	0.0	4.6
	Switzerland*	185	17	99	13 (1)	6.0	0.5
	France*	752	14	99	11 (1)	0.8	n.a.
	Southern Europe						
	Spain*	668	11	98	11 (2)	1.5	1.7
	Italy*	1324	16	96	10 (5)	0.7	0.4
	Eastern Europe						
	Slovenia	807	9	99	9 (0)	0.9	0.1
	Slovakia	2461	6	97	6 (4)	0.0	2.2
	Poland*	856	11	94	6 (7)	1.4	1.2
	Estonia	806	11	97	6 (6)	1.4	0.0
	Europe	25 350	12	93	10 (5)	0.4	1.6
Corpus uteri (ICD-9 182)	Country	No. of cases	% ≥ 75 years of age	% MV	% Sarcoma†	% Lost to follow-up	% DCO
	Northern Europe						
	Iceland	78	23	100	9 (1)	0.0	0.0
	Finland	2313	22	99	5 (2)	0.0	0.1
	Sweden*	715	19	100	0 (0)	0.0	0.0
	Denmark	3092	19	100	7 (1)	0.0	0.0
	U.K.						
	Scotland	1568	22	91	7 (2)	0.0	1.3
	England	9505	24	85	4 (8)	0.1	3.6
	Western and Central Europe						
	The Netherlands*	300	16	100	6 (0)	2.7	0.0
	Germany*	658	24	98	n.a.	0.0	1.5
	Austria*	121	24	93	12 (8)	0.0	5.8
	Switzerland*	441	27	100	8 (1)	3.0	0.2
	France*	748	24	100	5 (1)	1.5	n.a.
	Southern Europe						
	Spain*	1111	14	98	8 (2)	2.2	1.3
	Italy*	2278	18	97	6 (3)	0.5	0.1
	Eastern Europe						
	Slovenia	933	15	98	6 (2)	0.6	1.1
	Slovakia	2496	11	95	5 (5)	0.0	3.1
	Poland*	615	11	93	7 (8)	2.9	1.1
	Estonia	763	16	98	8 (5)	1.1	0.1
	Europe	27 735	20	93	5 (7)	0.4	1.8

(continued)

Table 1 *(continued).*

Ovary (ICD-9 183)	Country	No. of cases	% ≥ 75 years of age	% MV	% Non epithelial†	% Lost to follow-up	% DCO
	Northern Europe						
	Iceland	88	22	98	10 (1)	0.0	0.0
	Finland	1901	20	97	4 (7)	0.1	0.3
	Sweden*	864	20	100	4 (2)	0.0	0.0
	Denmark	2932	21	98	6 (3)	0.0	0.0
	U.K.						
	Scotland	2547	23	82	6 (5)	0.0	2.8
	England	12551	22	71	4 (14)	0.0	7.7
	Western and Central Europe						
	The Netherlands*	261	11	99	7 (0)	0.8	0.0
	Germany*	460	23	81	n.a.	0.0	11.1
	Austria*	138	23	86	4 (23)	0.0	10.1
	Switzerland*	361	24	99	7 (1)	3.6	0.8
	France*	707	20	96	6 (5)	0.9	n.a.
	Southern Europe						
	Spain*	750	15	93	6 (6)	0.1	3.6
	Italy*	1737	19	83	5 (20)	0.9	2.5
	Eastern Europe						
	Slovenia	714	15	94	4 (4)	0.6	2.0
	Slovakia	1689	10	90	9 (12)	0.0	4.5
	Poland*	643	13	78	8 (25)	1.9	3.4
	Estonia	764	16	88	6 (36)	0.3	0.0
	Europe	29107	22	82	5 (13)	0.2	4.4

* < 20% of the national population covered. †In parenthesis proportion of cases with histotype not specified. n.a., not available.; DCO, death certificate only; MV; microscopically verified; Adeno, adenocarcinoma.

(around 20%) was concentrated among patients 15–64 years of age. No improvement in survival over time was observed for endometrial cancer, whilst among young women there seemed to be a decrease in survival for this malignancy.

Table 3 shows the effect of period of diagnosis on relative survival by country. In this table, the 95% confidence intervals (CI) for relative survival refer to the last diagnosis period only, but since the number of patients diagnosed in each

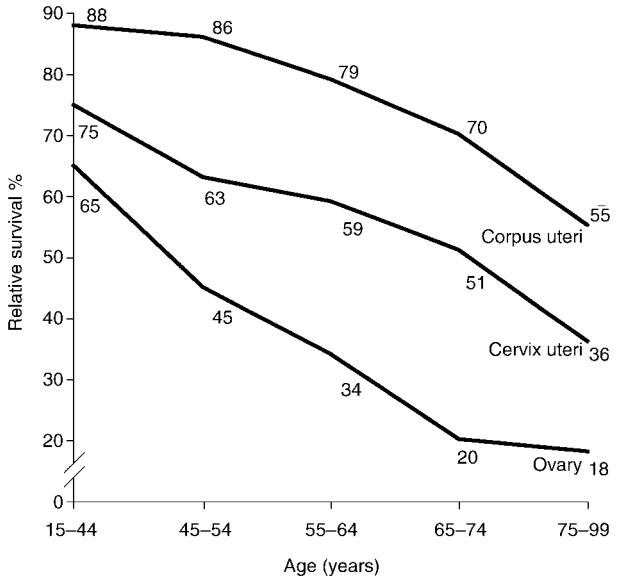

Figure 2. Five-year relative survival by age for gynaecological cancers diagnosed between 1985 and 1989 by country (EUROCARE II).

Table 2. *Five-year relative survival by age and period of diagnosis in Europe for gynaecological cancers (EUROCARE* II*)*

Cervix uteri (No. of cases)	1978–1980 (9996)	1981–1983 (10506)	1984–1986 (10709)	1987–1989 (10575)	RR*
Age					
15–44	72	73	79	76	0.8
45–54	66	63	57	64	1.1
55–64	61	62	63	58	1.1
65–74	50	48	52	55	0.9
75+	31	29	33	43	0.7
Overall	61	60	63	64	0.9
Corpus uteri (No. of cases)	1978–1980 (10386)	1981–1983 (11545)	1984–1986 (11507)	1987–1989 (11471)	RR*
Age					
15–44	91	92	88	87	1.5
45–54	85	82	88	85	1.0
55–64	82	78	78	80	1.1
65–74	67	69	69	71	0.9
75+	54	54	64	56	0.9
Overall	75	73	75	75	1.0
Ovary (No. of cases)	1978–1980 (10993)	1981–1983 (12440)	1984–1986 (12595)	1987–1989 (12889)	RR*
Age					
15–44	57	61	70	64	0.8
45–54	33	38	46	44	0.7
55–64	28	32	34	34	0.8
65–74	21	21	22	20	1.0
75+	20	22	18	18	1.1
Overall	30	33	35	33	0.9

*Relative risk of dying 1987–1989 versus 1978–1980.

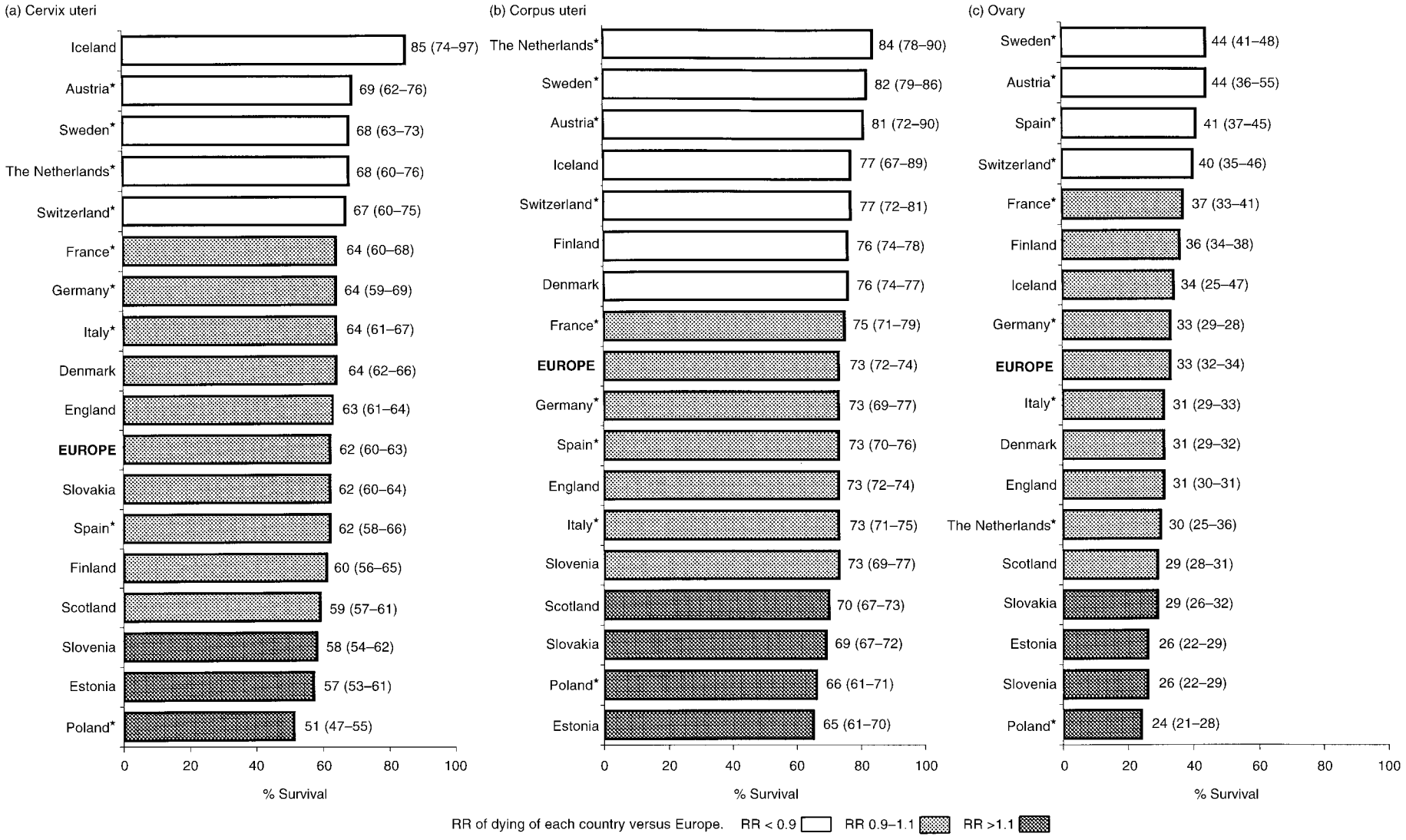

Figure 3. Age-standardised 5-year relative survival (95% confidence interval) for gynaecological cancers by country, 1985–1989 (EUROCARE II). * < 20% of the national population covered.

Table 3. Age-standardised 5-year relative survival for gynaecological cancers by period of diagnosis and country‡ (EUROCARE II)

	1978–1980	1981–1983	1984–1986	1987–1989	(95% CI)	RR of dying†
(a) Cervix uteri (No. of cases)	9996	10 506	10 709	10 575		
Northern Europe						
Iceland	62.9	60.4	83.9	79.8	(66.0–88.9)	0.49
Finland	58.8	63.8	59.3	59.3	(54.0–64.4)	0.94
Sweden*	65.7	64.7	68.3	65.7	(59.1–71.8)	1.00
Denmark	61.4	61.9	61.6	64.4	(62.0–66.7)	0.90
U.K.						
Scotland	51.4	53.5	56.6	56.5	(53.6–59.3)	0.86
England	55.3	58.3	60.3	62.1	(60.7–63.4)	0.81
Western and Central Europe						
The Netherlands*	58.4	60.3	65.5	67.8	(56.6–77.2)	0.72
Germany*	63.3	58.6	63.1	64.8	(57.8–71.2)	0.95
Switzerland*	74.0	51.7	78.1	68.0	(53.6–79.6)	1.28
France*	68.3	64.9	67.5	62.8	(57.3–69.1)	1.22
Southern Europe						
Italy*	63.3	64.2	62.7	68.0	(59.1–75.7)	0.84
Eastern Europe						
Poland*	48.1	55.6	49.4	49.1	(42.9–55.2)	0.97
Estonia	55.2	55.9	54.2	58.2	(53.0–63.3)	0.91
Europe	60.4	59.5	61.9	62.6	(59.9–65.2)	0.93
(b) Corpus uteri (No. of cases)	10 386	11 545	11 507	11 471		
Northern Europe						
Iceland	68.1	69.8	69.1	83.3	(62.8–93.7)	0.48
Finland	73.2	78.3	75.5	76.4	(73.7–79.0)	0.86
Sweden*	78.7	79.6	80.7	82.9	(77.9–87.0)	0.78
Denmark	73.5	76.1	75.4	76.3	(73.8–78.6)	0.88
U.K.						
Scotland	65.2	67.3	68.2	70.7	(67.2–74.0)	0.81
England	69.8	70.5	73.0	72.6	(71.1–74.0)	0.89
Western and Central Europe						
The Netherlands*	74.3	72.4	85.2	83.4	(73.9–89.9)	0.61
Germany*	75.6	74.1	75.6	72.7	(66.1–78.4)	1.13
Switzerland*	69.8	74.0	76.0	71.5	(62.2–79.2)	0.93
France*	74.4	65.5	71.3	75.5	(67.0–82.4)	0.95
Southern Europe						
Italy*	68.3	69.4	73.1	73.5	(67.2–78.0)	0.69
Eastern Europe						
Poland*	56.7	52.8	54.8	65.3	(56.8–73.0)	0.63
Estonia	58.9	66.8	63.9	66.1	(60.6–71.2)	0.78
Europe	72.7	71.7	74.2	73.8	(70.8–76.5)	0.95
(c) Ovary (No. of cases)	10 993	12 440	12 595	12 889		
Northern Europe						
Iceland	39.8	26.9	38.0	32.4	(20.6–47.0)	1.22
Finland	33.4	33.6	33.9	36.9	(34.0–39.8)	0.91
Sweden*	38.3.	45.9	44.6	44.2	(40.0–48.6)	0.85
Denmark	24.4	25.8	30.4	30.5	(28.3–32.7)	0.84
U.K.						
Scotland	26.5	29.2	29.1	28.8	(26.4–31.2)	0.94
England	25.9	29.3	29.6	30.4	(29.2–31.6)	0.88
Western and Central Europe						
The Netherlands*	22.1	34.1	34.6	31.7	(24.4–40.1)	0.76
Germany*	30.8	30.7	35.5	31.5	(25.4–38.3)	0.98
Switzerland*	37.5	29.2	41.1	40.4	(31.6–49.8)	0.92
France*	34.4	35.2	36.0	38.0	(30.1–46.6)	0.91
Southern Europe						
Italy*	24.5	29.2	35.5	28.7	(23.4–34.8)	0.89
Eastern Europe						
Poland*	23.6	26.0	22.5	26.2	(20.1–33.3)	0.93
Estonia	20.3	21.6	25.1	25.4	(21.1–30.2)	0.86
Europe	28.9	31.4	33.5	32.2	(30.0–34.4)	0.91

95% CI, 95% confidence interval for survival in period 1987–1989. * < 20% of the national population covered. †Relative risk of dying 1978–1980 versus 1987–1989. ‡Only 13 countries contributed data for the entire period 1978–1989.

Table 4. Comparison of 5-year relative survival for gynaecological cancers in population-based studies in Europe, U.S.A., Australia, Japan and an international clinical series

	Europe* 1985–1989	USA† 1983–1987 white, black	Osaka, Japan‡ 1984–1986, 1987–1989	South Australia§ 1977–1990	FIGO clinical series‖ 1990–1992
Cancer sites					
Corpus uteri	75	84, 54	74, 68	79	73
Cervix uteri	64	68, 55	72, 69	70	65
Ovary	33	39, 37	34, 37	36	42

*This study. †From the SEER program. ‡From the Osaka Cancer Registry. §From South Australia Cancer Registry. ‖From the FIGO (International Federation of Gynaecology and Obstetrics) annual report.

period was similar, the width of the CIs did not change substantially for the different periods. For cervical cancers, in the U.K., Italy, Iceland, Estonia, Denmark and The Netherlands the improvement in survival with time was greater than the European average. By contrast, in France and Switzerland survival declined with time, although survival remained above the European average. For endometrial cancer, survival improved markedly over time in The Netherlands, Estonia, Iceland, Italy, Poland and Sweden. For ovarian cancer survival improved in Sweden, but also in countries with low survival figures such as Italy, Estonia, England, The Netherlands and Denmark. In the last diagnosis period (1987–1989), the variation in survival between countries was reduced compared with earlier periods. Relatively steep increases in survival for ovarian cancer were seen in The Netherlands, U.K. and Sweden between 1978–1980 and 1981–1983. In most other countries relatively steep increases were seen from 1981, whilst for Finland and France a major increment in survival was only evident from 1984.

DISCUSSION

A comparison of 5-year European survival with other non-European Western countries is given in Table 4, for cancers of the cervix, corpus uteri and ovary [8–10]. Survival from the clinical series of the international multicentric FIGO study is also given [11]. European survival rates do not differ greatly from those in either the population-based or clinical series. Survival from ovarian cancer in the FIGO series was higher than in the population series; the mean age of this series (57 years) was lower than the European cases. The greatest survival difference was between caucasian and black American patients for cancers of the cervix and corpus uteri. This was carefully studied by the SEER programme [12] considering the impact of stage, histology and age. For cervix the racial differences largely disappeared after adjusting for stage, whereas for endometrial cancer race remained an independent prognostic factor.

Stage may in part explain the survival differences between European populations for cervical cancer. Screening can diagnose malignant disease when it is still asymptomatic and therapies are more effective when it is diagnosed early. In countries characterised by relatively poor survival for cervical cancer at the end of the 1970s, 5-year relative survival increased at a greater rate than the European average; this was particularly evident in England and Scotland. By contrast, in countries with well-organised screening programmes (e.g. Finland, Sweden and Germany) survival did not improve and incidence continued to decline to very low levels [2]. This again points to screening having a beneficial effect on the population at risk by identifying premalignant lesions and removing them from the incidence statistics. The cases that remain include both early-stage cancers and aggressive malignancies (the so-called interval cases); the latter are now present in an increased proportion and, therefore, have an adverse effect on survival figures. Note also that adenocarcinomas, which are not easily identified by screening, are also present in higher proportions in countries (Finland and Sweden) where the incidence of cervical cancer has declined to low levels. In France and Switzerland, which have 'opportunistic' screening procedures that probably still have a wide coverage, 5-year survival seemed to worsen during the period of this study (see Table 3). Nevertheless at the end of 1970s these countries had the best survival for this cancer, and survival was still above the European mean at the end of the 1980s.

An association between deprivation and survival has been found for cancers of the uterus [13] and cervix [13, 14]. A population-based study conducted in the South Thames (London, U.K.) area [13] investigated disease stage at diagnosis. It was found that patients from affluent areas had better survival than patients from deprived areas but stage differences did not explain this difference. A possible explanation is a difference in the management of cancer patients according to deprivation category. For ovarian cancer, survival did not vary by deprivation category [13].

Age at diagnosis was an important prognostic factor for all the tumours considered in this study. As age increased survival was found to decrease and this effect was more marked than for the common cancer sites (e.g. breast, colorectal and lung cancers) [5, 6]. For patients aged 75 years and over, the relative risk of dying compared with the youngest patients (15–45 years) was 6 for ovarian cancer and around 4 for cervical and endometrial cancers. Furthermore except for cervical cancer, the prognosis of the oldest patients did not improve over time (see Table 2). The SEER study on prognostic factors in gynaecological cancers [12] found that age was an independent prognostic factor and that the decrease in survival with age was also present within stage. Some authors [15, 16] have reported that the proportions of staged and histologically confirmed cases are lower for older than younger patients. Furthermore, staging was deemed insufficient and treatment inappropriate more frequently in older patients. Specialists may undertreat older patients in part because therapies have not been demonstrated effective (in this subgroup of patients) in randomised clinical trials. Note also that in the present study, approximately 20% of corpus uteri and ovarian cancer cases occurred in women aged 75 years or more, thus, in no small measure these are diseases of the elderly.

Survival in ovary cancer patients less than 65 years of age, and especially those in the 45–54 age class, improved with

period of diagnosis over the period of this study. The improvement was most marked in the periods 1978–1980 and 1981–1983 and is likely due to the introduction and affirmation of cisplatin-based treatment protocols [3]. Finally, the between-country differences in survival for ovarian cancer reduced over time, possibly as a result of the increased application of more effective chemotherapy.

In conclusion, there are major between-country differences in survival for European women with gynaecological cancers. These differences did not, in general reduce over time, although for ovarian cancer survival differences narrowed, probably in relation to the introduction of more effective chemotherapy. Intercountry and time differences in survival for cervical cancer are almost certainly related to variations in the effectiveness of cervical screening programmes. For corpus uteri cancer there was no improvement in survival over the period of this study and intercountry survival differences for this cancer are probably related to differences in patient management. We emphasise the markedly poorer survival for the oldest patients who develop gynaecological cancers and suggest that the country and age-related survival inequalities confirmed by this population-based study should be further investigated as part of an effort to improve the outlook for all European women suffering from gynaecological malignancies.

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APPENDIX

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