cancer. Cumulative risks for each group were calculated using Kaplan-Meier estimates, censoring for contralateral cancer or death. Adjustment for other factors such as adjuvant treatments or individual risk factors for some cancer locations was not performed in this study. The risk of occurrence of SNBM was calculated using: [1-S(t)] where S(t) formula is the survival, using Kaplan-Meyer method. These cumulative risks were stratified by RT and groups were compared by the log-rank test.
Results: At 10.5 years median follow-up [0.2–24 yrs], there was a significant difference in the incidence of sarcomas and lung cancers between the group who received RT and the group who did not. The cumulative risks of different cancers in no RT group vs. RT group were as follows:

Cumulative risks of second malignancies at 10 years of follow-up

SNBM	No radiotherapy (No. pts = 3,234) 230	Radiotherapy (No. pts = 16,705) 1113	p*
Head and neck	0.03%±0.03	0.12%±0.03	0.15
Lung	0.18%±0.09	0.41%±0.07	0.02
Gastro-Intestinal (GI)	1.53%±0.26	1.06%±0.11	0.12
Ovarian	0.26%±0.11	0.56%±0.08	0.08
Gynaecological	0.71%±0.19	0.89%±0.09	0.28
Genito-Urinary (GU)	0.25%±0.10	0.21%±0.05	0.87
Others	0.13%±0.07	0.17%±0.04	0.87
Sarcoma	0.00%±0.00	0.26%±0.05	0.02
Malignant melanoma	0.20%±0.09	0.29%±0.06	0.41
Lymphomas	0.26%±0.11	0.26%±0.05	0.78
Leukaemia	0.29%±0.11	0.34%±0.06	0.95
Thyroid	0.16%±0.09	0.14%±0.04	0.65
All	4.00%±0.41	4.60%±0.22	0.06

*log-rank test

Conclusion: This study showed that adjuvant radiotherapy increased the rate of sarcomas and lung cancers, whereas it did not increase the rate of other malignancies. At a median follow-up of ten years, this study showed that radiotherapy did not increase the risk of other types of cancers, as for example thyroid cancer, malignant melanoma, GI or GU cancers. The risk of hematological malignancies was not increased either. Long-term follow-up is needed for this population of patients to exclude other late complications.

549 ORAL

Familial risk of colon and rectal cancer in Iceland. Different etiologic factors for colon cancer and rectal cancer

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Aim: The aim of the present study was to characterise the familial risk of colon or rectal cancer in Iceland.
Method: The standardized incidence ratio (SIR) was used to estimate the risk among relatives of colorectal cancer index cases diagnosed in Iceland over a 46 year period (1955–2000). All data was retrieved from population based registries (The Icelandic Cancer Registry and a Genealogic database from The Genetical Commity of the University of Iceland).
Result: In all 2770 colorectal cancer patients had 23,272 first degree relatives. Among the first degree relatives there was an increased risk of colon cancer (SIR 1.47, 95% confidence interval [CI]: 1.34–1.62) and rectal cancer (SIR 1.24, 95%CI: 1.04–1.47). Among the 17119 first degree relatives of colon cancer patients there was an increased risk among siblings of both colon cancer (SIR 2.03, 95%CI: 1.76–2.33) and rectal cancer (SIR 1.56, 95%CI: 1.19–2.02). If the colon cancer patients were 60 years or younger the risk of colon cancer in first degree relatives was: SIR 3.14, 95%CI: 2.27–4.23. The risk of colon cancer and rectal cancer was not increased among parents and offspring. The risk was equally distributed among men and women. Among the 6767 first degree relatives to rectal cancer patients there was an increased risk among siblings of colon cancer (SIR 1.61, 95%CI: 1.23–2.06) and of rectal cancer (SIR 1.75, 95%CI: 1.13–2.58). If the rectal cancer patients were 60 years or younger the risk of rectal cancer in first degree relatives was: SIR 2.43, 95%CI: 0.89–5.29. The risk of colon cancer was increased for brothers to rectal cancer patients (SIR 1.79, 95%CI: 1.22–2.53) and for sisters (SIR 1.45, 95%CI: 0.98–2.07) however, the risk of rectal cancer was only increased among brothers (SIR 2.46, 95%CI: 1.46–3.89) to rectal cancer patients but not among the sisters (SIR 1.0 95%CI: 0.40–2.06).
Conclusion: Family history of colon cancer is supported as a risk factor for the disease. Family history has different association with colon cancer and rectal cancer giving evidence to different etiologic factors for colon cancer and for rectal cancer. Siblings to colorectal cancer patients diagnosed in Iceland when 60 years or younger should be offered screening for colorectal cancer.

550 ORAL

Population based mammography screening results in substantial savings in treatment costs by reducing the number of breast cancer deaths

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Background: The aim of the study was to assess the effect of population based mammography on treatment costs for fatal breast cancer.
Material and methods: Population based mammography screening for women aged 40–74 years in the city of Turku, Finland was launched in 1987. The current study included 556 invasive breast cancers diagnosed among women aged 40–74 years between 1987 and 1993: 427 in the screening group (which included screen-detected and interval cancers) and 129 in the non-screening group (which included breast cancers detected before initial screening and those detected in patients who chose not to undergo screening). The treatment costs due to breast cancer for each patient at the different hospitals, in a hospice, and at a cancer clinic of the Cancer Society were followed up for eight years from diagnosis or until death, whichever occurred first.
Results: During the 8-year follow-up, 82% of patients survived in the screening group and 66% in the non-screening group, while 12% versus 25% died of breast cancer and 6% versus 9% died of other causes, respectively. In the screening group, the mean treatment costs were Euros 27,803 (95%CI: 23,175–32,431) for patients with fatal breast cancer versus Euros 8,915 (CI: 8,350–9,480) for the survivors ($p < 0.001$). In the non-screening group, they were Euros 23,800 (CI: 19,033–28,566) versus Euros 11,583 (CI: 10,258–12,909) ($p < 0.001$), respectively. Among the 81 patients who died of breast cancer there was no statistically significant difference in the mean costs per patient between screened and unscreened women ($p = 0.245$). As a result of fatal breast cancer occurring more often among unscreened than screened women, 29% of the total treatment costs in the screening group were used for the treatment of fatal breast cancer, compared to 41% in the non-screening group. On the basis of breast cancer death rates and mean costs per patient, it was estimated that without a screening programme the treatment costs of 2.1 million Euros for fatal breast cancer would have been 0.9–1.1 million Euros higher during the study period. Thus, approximately 29–33% of these costs were saved through mammography screening.
Conclusions: The treatment costs associated with fatal breast cancer are high. Early detection of breast cancer by population based mammography screening results in substantial savings in treatment costs by reducing the number of breast cancer deaths.

551 ORAL

Prevalence of abnormal Pap smears among young adult women participating in human papillomavirus (HPV) L1 virus-like particle (VLP)-vaccine clinical trials

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Background: HPV infection by oncogenic types is a necessary cause of cervical cancer and infection by non-oncogenic types causes anogenital warts and some low-grade cervical lesions. A quadrivalent vaccine against HPV types 6, 11, 16, and 18 (GARDASIL™) is currently in development. The baseline characteristics of this large Phase III study population are described here.
Methods: Two parallel pivotal clinical trials of GARDASIL™ enrolled women from Europe (50.6%), Latin America (30.6%), North America (14.7%) and the Asia-Pacific region (4.2%). Participants were to be either