metachronous breast cancer. In Southeast Asia, the prevalence of metachronous breast cancer has been assumed to be low and non-hereditary though relevant data reporting its incidence has been scarce. Our study aims to review the incidence, tumour characteristics and survival outcome of all metachronous breast cancer diagnosed and treated in a single institution.

Methods: Patients with histologically proven metachronous breast cancer were identified from a prospectively collected database in a single institution from January 2000 to June 2017. Metachronous breast cancer was defined as a second cancer affecting the contralateral breast diagnosed after 6 months from the first cancer diagnosis.

Results: There were 2840 breast cancer patients diagnosed and treated in our institution from January 2000 to June 2017. One hundred and fifty two patients had developed bilateral breast cancers, of which 58 patients (0.38%) were diagnosed with metachronous tumours. At the first cancer diagnosis, their mean age was 54.3 (range from 41.8 to 66.8) years. The median duration to the diagnosis of metachronous cancer was 4. 9 (IQR 2.9 to 8.2, range from 0.52 to 14.9) years. Nine patients (16.1%) had a family history of breast cancer. Thirty nine patients (70.9%) had presented with a lump at the first cancer diagnosis and 38 patients (69.1%) were asymptomatic and detected to have metachronous cancer on surveillance mammogram (p < 0.001). Thirty two patients (56.1%) were found to have invasive ductal carcinoma (NOS) at the first diagnosis. Statistical analysis showed no significant correlation of histological subtype of tumour and the pathological stage between first and the subsequent cancer (p = 0.912). The type of surgery performed for the first cancer was not found to have a significant influence on the patient's choice of surgery for the metachronous cancer (p = 0.013). The average overall survival for all patients with metachronous bilateral breast cancers was 14.7 (95% CI 13.5–15.9) years with an all-cause mortality rate of 15.5%.

Conclusion: Our study concludes that the incidence of metachronous breast cancer remains extremely low. Continued mammogram surveillance can help to detect early development of metachronous cancers. Our results also suggest that development of metachronous breast cancer was independent of the histological subtype and pathological stage of the initial cancer. Lastly, the average overall survival for all patients in this study remains optimistic at 14.7 years.

No conflict of interest.

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108   Poster

Improvement of recurrent rates and survival in patients with primary breast cancer according to subtypes

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Background: Previously we reported that the survival rate of patients with the HER2 enriched breast cancer subtype who experienced recurrence after 2001 had improved with the availability of trastuzumab in Japan. Moreover, there is an increase in the variability of therapeutic agents for luminal or triple negative (TN) subtypes. The aim of this study is to demonstrate that there was a change in the recurrence rate and survival time of patients who received these new therapeutic agents after 2001, and to show the efficacy of these agents according to the different breast cancer subtypes.

Materials and Methods: Patients (n = 4539) were treated based on a multidisciplinary approach for primary breast cancer between 2001 and 2018. The patients were divided into two groups based on the year of initial diagnosis. The first group (n = 2260) received treatment from 2001 to 2010 and the second group (n = 2279) received from 2011 to 2018. Breast cancer subtypes were determined by immunohistochemistry; luminal A, luminal B, luminal-HER2, HER2 enriched and TN. The recurrence rate and the survival rate after recurrence were compared and analyzed using log rank test. Median follow up period was 10 years in the first group and 4.6 years in the second group.

Results: The recurrent rate of the second group (2011–2018) was significantly lower than the first group (2001–2010) in all of the breast cancer subtypes (p < 0.01). However, only the survival rate of the TN subtype after recurrence improved (p = 0.05). There were no remarkable changes in survival after recurrence in all of the other subtypes except TN. Moreover, an analysis of the menopausal status revealed that only the recurrence rate of postmenopausal patients with TN subtype did not decrease (p = 0.17). The findings also revealed that the premenopausal patients with TN subtype and any other menopausal patient with any of the other subtypes significantly decreased (p < 0.01). The survival rate of patients with premenopausal TN subtype after recurrence increased (p = 0.04).

Conclusion: The findings in this study indicate that patients with any of the subtypes improved with the target therapy except postmenopausal TN breast

cancer patients. Moreover, an improvement in the survival rate after recurrence was only seen in premenopausal patients with TN subtype. Further follow up studies are needed to evaluate the true efficacy of novel molecular targeting agents for recurrent breast cancer.

No conflict of interest.

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109   Poster

Characteristics of ipsilateral breast tumor recurrence after breast conserving surgery: Single center experience

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Background: Ipsilateral breast tumor recurrence (IBTR) is defined as a recurrent in situ or invasive carcinoma that occurred after breast conserving surgery (BCS) in either the skin or parenchyma of the ipsilateral breast without clinical-radiologic evidence of regional or distant disease. Incidence of IBTR after BCS is known as 5–10% during 5 years of follow-up. This study aims to analyze characteristics of IBTR after BCS in single center.

Material and Methods: We retrospectively reviewed 1130 cases who were treated with BCS between 2000. Jan and 2017. June. We analyzed the characteristics of IBTR of in situ cancer and invasive breast cancer.

Results: Follow-up period ranged from 1 to 225 months, a median of 68 months. Among the 1130 cases of BCS, 250 cases were performed for DCIS, 516 cases for stage I, 404 cases for stage II and 56 cases for stage III. The patients underwent adjuvant radiotherapy except 34 patients with IDC and 43 patients with DCIS. Among the 77 patients who didn't undergo radiotherapy, 2 patients had IBTR. Overall survival rate of total patients was 96.1%.

IBTR occurred in 33 patients, 8 in DCIS, 12 in stage I, 10 in stage II and 3 in stage III respectively. Median period to IBTR was 49 months in IDC and 62 months in DCIS.

IBTR was diagnosed by physical examination in 9 patients and by breast image during routine follow-up in 24 patients. IBTR was treated with salvage mastectomy in 30 patients and wide excision in 2 patients. 14 patients underwent systemic therapy after salvage mastectomy. Multiple times of recurrence was observed in 2 patients. Among the patients with IBTR, 4 cases of mortality were observed. Median survival of the patients with IBTR was 36 months.

Conclusions: Although IBTR rate was low in the patients treated with BCS, personalized treatment for recurred tumor is necessary according to the tumor status.

No conflict of interest.

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110   Poster

Do patients with breast cancer receive the optimal personalized follow up?

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Background: The incidence of breast cancer has increased in the last 15 years. Due to improved survival, the 10-year prevalence has increased even more, resulting in more focus on the late effects of cancer treatment and survivorship. Good quality of follow up and aftercare means that late effects of treatment and disease can be prevented or signaled at an early stage and that patients receive tailored care. However, it is unclear how optimal and efficient follow up and aftercare should look like, from the patients perspective as well as the perspective of health care organizations.

Therefore, in the Netherlands, a national inventory was initiated to gain more insight in the organization of follow up and aftercare for patients with breast cancer. Best practices within health care organizations will be shared to benchmark follow up and aftercare.

Materials and Methods: Interviews will be performed in 20+ hospitals (of which 7 Santeon hospitals). The interviews focus on: tasks and responsibilities of health care professions in follow up and aftercare, coordination of care, guidelines, personalized care, shared decision making, referral to dedicated psychosocial care. The interviews are being held with the specialized breast cancer nurse or nurse practitioner together with a breast surgeon and/or a medical oncologist. Before the interviews take place the

transmural care pathway, and if available the follow up or aftercare pathway has been studied, as well as PREM and PROM outcomes. A patient advocate is actively involved to provide valuable input.

Results: Preliminary results after the first interviews indicate variation regarding the following topics: tasks and responsibilities of health care professionals in breast cancer follow up and aftercare, patient information and quality of shared decision making.

Conclusion: Preliminary results show that for several topics regarding follow up and aftercare for breast cancer patients variation is present. After presenting these variations and sharing best practices on national level, we hope to achieve (1) more uniformity as well as an improved follow up and aftercare for breast cancer patients in the Netherlands based on best practices, (2) the revision of the section "follow up and aftercare" in the national guideline for breast cancer, (3) the deployment of nursing disciplines, and (4) the application of PROM outcomes.

No conflict of interest.

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111   Poster

Long-term prognosis is associated with residual disease after neoadjuvant systemic therapy but not with initial nodal status

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Background: This is a follow-up analysis of the Swedish prospective multicenter trial with the primary aim to determine invasive disease-free (IDFS), breast cancer-specific (BCSS) and overall survival (OS) rates and their association with axillary staging results before and after neoadjuvant systemic therapy (NAST).

Patients and Methods: In this follow-up analysis, 417 women treated with NAST for a clinically node-positive (cN+) or -negative (cN0) primary breast cancer between 2010 and 2015 were included. Patients had a sentinel lymph node biopsy (SLNB) before and/or after NAST and a completion axillary lymph node dissection (ALND) after NAST. Follow-up was until February 2019. The main outcome measures were IDFS, BCSS and OS. Uni- and multivariable Cox regression analyses were used to identify independent factors associated with survival.

Results: Median follow-up was 48 months (range 7-114). Nodal status after but not before NAST was significantly associated with crude survival: residual nodal disease (ypN+) resulted in a significantly shorter five-year OS when compared with complete nodal response (ypN0: OS 83.3 versus 91.0%, p=0.017). The agreement between breast (ypT) and nodal (ypN) status after NAST was high, and more so in cN0 (64/66, 97.0%) than in cN+ patients (49/60, 81.7%, p=0.005). On multivariable analysis, ypN0 (HR 0.41, 95% CI 0.22-0.74, p=0.003) and local radiotherapy (HR 0.23 (0.08-0.64, p=0.005) were associated with improved, while triple-negative tumors were associated with worse IDFS.

Conclusions: The present findings underline the prognostic significance of post-NAST but not pre-NAST nodal status and thus confirm the clinical value of surgical axillary staging after NAST.

No conflict of interest.

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112   Poster

Development of an information standard for breast cancer in the Netherlands

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Background: In clinical practice the same data items needed for clinical decision making are often registered many times by different caregivers in different systems. This is time consuming, prone to mistakes. In the Netherlands an Information Standard for Oncology (ISO) for breast cancer has been developed. An ISO is a defined set of items, directly related to the course of the disease and care pathway[1]. Why is this important and what are the implications?.

Methods: The ISO breast cancer was developed along the revision of the evidence based guideline which was released in 2012. The size and complexity of this guideline, over 200 pages text, gave rise to develop a schematic representation of the recommendations in the form of decision trees. Each decision tree contains nodes (representing patient- or disease characteristics, e.g. tumor stage), branches (representing cut-off points, e.g. stage <II) and leaves (recommendations). An ISO is based on these nodes (data-items) and branches (values) and thus contains all information needed to support clinical decision-making about treatment.

Results: Implementation of ISOs in electronic health records (EHR) has a considerable impact on clinical practice. Standard terminology First, by using a standard terminology an ISO reduces the huge registration burden for caregivers. The ISO facilitates the reuse and electronical exchange of data. Secondly, the availability of standardized structured information in an EHR supports clinical decision making during multidisciplinary team meetings. This makes it possible to support application of clinical decision support tools like Oncoguide (www.oncoguide.ai), which become increasingly important with the growing complexity of guidelines. And finally, structured data can be reused for export to external registries for auditing or research.

Currently, the ISO breast cancer contains 114 data items, originating from pathology (49%) and radiology reports (27%), patient characteristics (12%) and items for multidisciplinary team discussion (12%). The items are coded by international systems such as SNOMED-CT. It is co-designed by members of the National Breast Cancer Network Netherlands (NABON) guideline working group. It is published online (in Dutch) on the ART-DECOR platform (http://tiny.cc/ISObreastcancer) and NABON website (www.nabon. nl). The implementation of the ISO breast cancer into the EHR has started in two Dutch hospitals.

Conclusion: ISOs are a prerequisite to maximize reusing patient information for improved continuity of care and research, with minimal registration burden for caregivers. The ISO breast cancer is developed and implementation in the first EHRs has started.

No conflict of interest.

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113   Poster

PD-L1 and HSP-70 molecules are part of immunosupressive environment in the deep layer of the lymphocyte predominant breast cancer (LPBC)

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Background: Tumor infiltrating lymphocytes (TILs) are involved in host imunity against tumor cells. However, in later phases of the disease high TIL infiltration is related to disease progression. Tumor immunogenicity is strongly correlated with the higher tumor mutation burden. Triple negative (TN) and HER-2 enriched breast cancers have the highest immunogenic potential so the aim of our study was to investigate the TIL infiltration and expression of PD-L1, HSP-70 in such tumors.

Material and Methods: TIL infiltration was investigated in the 112 tissue samples of TN and HER-2 enriched breast cancers of women diagnosed and treated in the Clinical Hospital Centre Rijeka, Croatia, in the period between 2008 and 2016. The invasive front of the tumor (host-tumor interface), the surface layer, as well as the deep layer of the tumor were analysed. Immunohistochemistry staining of PDL-1 (SP142), HSP70 (ab2787), CD4 (SP35 Cell Marque) and CD8 (144B DakoCytomation) was performed. The results were analysed using Statistica 13 software.

Results: Overall, there is a statistically significant correlation of high (over 50%) TIL infiltration with longer 5-year survival (p = 0.035, Long rank test). In the surface layer of the tumor (invasive front) there is statistically significant correlation of the intermediate TIL infiltration with the higher survival (p = 0.051, Long rank test) whereas there is no significant difference in the deep layer of the tumor. There is significant association of TIL infiltration with CD8+ T lymphocyte expression in the surface and deep layers of the tumor (Mann Whitney U test, p = 0.004 and p < 0.001, respectively), CD4+ lymphocyte expression (p < 0.001, p < 0.001, respectively) and PDL-1 expression (p < 0.001, p < 0.001, respectively). Statistically significant correlation of TIL infiltration and HSP-70 protein was only detected in the deep tumor layer (Mann Whitney U test, p < 0.001). Furthermore, in the TIL infiltrated deep tumor layer there is statistically significant positive correlation of PD-L1 and HSP-70 expression (Mann Whitney U test, p = 0.029) as well as positive