**Conclusion:** This centre's experience of SA-GCSF demonstrates a significant increase in febrile neutropenia admissions, longer average inpatient stay and risk of dose reduction with SA-GCSF. This prompted a local agreement to switch patients with neutropenic sepsis on SA-GCSF to LA-GCSF for subsequent cycles with the aim of avoiding treatment-related morbidity, mortality and potentially impacting prognosis.

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## A Multicentre Study of Pathological Complete Response in HER2-positive Early Breast Cancer Treated with Neoadjuvant Pertuzumab and Trastuzumab

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**Purpose:** Pathological complete response (pCR) at the time of surgery following neoadjuvant HER2-targeted chemotherapy and dual antibody therapy has been reported as 45–66% [1–3]. It may act as an early indication of long-term outcomes [1]. We retrospectively collected pCR rates after dual antibody therapy across the Peninsula region.

**Methods:** We included all patients who received neoadjuvant pertuzumab and trastuzumab alongside chemotherapy treatment for HER2-positive early or locally advanced breast cancer.

**Results:** Forty patients across three oncology centres started treatment between December 2016 and July 2017. Backbone chemotherapy varied between centres. Centres A and B used six doses of monoclonal antibodies alongside docetaxel and carboplatin (TC-HP regimen). Centre C used three doses of monoclonal antibodies with docetaxel in cycles 4–6 of the FEC-T HP regimen. The pooled pCR was 54.5% (60, 66 and 37.5% of cases in centres A–C, respectively). In centre A, 27% (5/18) achieved six cycles without modifications; 50% had one or both chemotherapy drugs omitted during six cycles, continuing the targeted antibodies alone. Reasons included tinnitus, diarrhoea, renal impairment or neutropenic sepsis. Eighty-eight per cent (8/9) and 82% (14/17) completed six cycles without any drug omission in centres B and C, respectively. Total numbers of patients admitted one or more times during neoadjuvant therapy were 66, 55 and 31% in centres A–C, respectively. The likelihood of pCR was similar if ER-positive (1–8/8) or ER-negative (0/8) disease, at 53 and 56%, respectively. Eighty-five per cent had a preplanned surgical procedure (36% breast-conserving surgery [BCS], 49% mastectomy). Thirteen per cent had a preplanned mastectomy converted to BCS after neoadjuvant treatment.

**Conclusion:** Our multicentre study demonstrated pCR rates similar to seminal trials. The data suggest that pCR rates were still maintained if chemotherapy drugs required omission due to toxicity. Preplanned mastectomies were converted to BCS for a minority of patients.

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## Deep Inspiratory Breath Hold Technique to Reduce Cardiotoxicity when Delivering Left Breast/Internal Mammary Chain Radical Radiotherapy: Obstacles to Compliance

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**Purpose**: Radical radiotherapy to the left breast is associated with cardiotoxicity and subsequent long-term morbidity [1]. Deep inspiratory breath holding (DIBH) is effective in reducing cardiotoxicity, having been shown to reduce the predicted mean cardiac dose to 2.41 Gy versus 3.86 Gy with free-breathing [2]. DIBH is also utilised to treat both the right- and left-sided internal mammary chains (IMC). This study aims to identify the factors affecting poor patient compliance with DIBH.

**Methods:** A retrospective analysis over a 3-month period identified 35 patients requiring DIBH at the Royal Free Hospital (RFH). Twenty-one patients were able to achieve DIBH. The reasons for failure included claustrophobia, anxiety, a lack of understanding of the technique and language barriers. To improve understanding, patients were instructed in clinic to practice breath-holding at home prior to the planning CT scan. A post-intervention retrospective analysis over a 2-month period identified 14 patients requiring DIBH. Compliance rates and reasons for failure were documented.

**Results:** Seven of the 14 patients were able to achieve DIBH. Twelve of the patients (including all seven who failed to achieve DIBH) had been instructed to practice breath-holding at home. Of those who failed to achieve DIBH, six patients were not able to achieve breath-holding/consistent breath-holding, but a lack of understanding was not identified as the reason for failure. The notes were unavailable for the remaining patient. These patients instead underwent radiotherapy with real-time position management (RPM).

**Conclusion:** Verbal DIBH instructions have eliminated a lack of understanding as a cause for failure, with difficulty achieving breath-holding now dominating. RPM is an alternative for patients with claustrophobia, anxiety and difficulties tolerating the DIBH equipment. However, difficulties achieving consistent breath-holding is problematic with RPM. Virtual environment for radiotherapy training (VERT) is offered to RFH patients; reinforcement of the breathing technique within this session is a potential solution.

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## The Use of Pertuzumab for Breast Cancer Patients in the Neoadjuvant Setting Presenting to a Tertiary Centre

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**Purpose:** The use of pertuzumab in combination with trastuzumab and chemotherapy agents for neoadjuvant breast cancer patients for HER2-positive, locally advanced, inflammatory or early-stage malignancy was recently approved by NICE. We describe our experience of response to treatment in a tertiary hospital.

**Methods:** All patients requiring pertuzumab (April 2017 to April 2018) from the pharmacy department were included. Records were reviewed to confirm receipt of pertuzumab in a neoadjuvant context. Data were collected on histology, chemotherapy regimens, radiological and pathological response to dual HER2 blockade (DHB).

**Results:** Fifteen patients were identified. Nine patients had ductal carcinoma, the remaining were mixed. Six had grade 3 tumours, the remaining were grade 2. Nine were ER-positive. The median tumour size was 26 mm at diagnosis. Twelve had pertuzumab and trastuzumab with FEC-T (FEC-T PH) and three with docetaxel and carboplatin (TC-PH). Six were currently receiving chemotherapy or awaiting surgery and one patient died due to coexisting morbidity. There was no cardiac toxicity. Three patients relapsed (20%). The median time between first administration of treatment and relapse was 7.5 months. Radiologically, eight patients had a partial response and five had a complete response (pCR). Eight had undergone histological review of their surgical specimens. ER-positive patients had a pCR of 75% (3), whereas ER-negative patients had a 25% (1) rate. TC-PH was more successful than FEC-T (FEC-T PH) (100 and 33.33%, respectively).
**Conclusion:** Pertuzumab and trastuzumab has been successfully delivered to patients and is associated with radiological and pathological responses. TC-PH seems to be more effective than FEC-T PH. Further evaluation will take place on a larger cohort.

### A National Retrospective Multicentre Audit of Long-term Trastuzumab Use in Metastatic Breast Cancer: Breast Cancer Trainees Research Collaborative Group (BCTRCG)

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**Purpose:** Approximately 25–30% of breast cancers overexpress HER2, previously associated with higher risk of relapse and worse prognosis [1,2]. The addition of anti-HER2 targeted agents has improved the prognosis for metastatic HER2-positive patients [3]. Current NICE guidance is to continue trastuzumab until evidence of extracranial disease progression [4]; in some this may be many years. Long-term trastuzumab is not without impact on quality of life, risk of cardiotoxicity and cost. There is a clear indication for a need to gain more information on long-term trastuzumab use to inform future practice.
**Methods:** This project proposal was presented at the inaugural meeting of the BCTRCG in May 2018 and subsequently adopted as a BCTRCG research project. A project steering group, run by trainees with oversight by clinical clinicians, has been set up and key tasks have been allocated. A literature search has been performed and feasibility data have been collected from local trusts to estimate patient numbers.
**Results:** The project protocol has been written; this includes both a current practice questionnaire and a national retrospective audit, for patients who have undergone a minimum of 2 years of trastuzumab for metastatic breast cancer without disease progression. The current practice questionnaire will obtain an overview of trastuzumab prescribing practice throughout the UK and highlight variations. The audit will focus on overall and progression-free survival, evidence of cardiotoxicity, previous and current systemic anticancer treatments and indications for discontinuing trastuzumab.
**Conclusion:** This national retrospective audit and current practice questionnaire will provide a large quantity of data on treatment and outcomes of HER2-positive metastatic breast cancer in the UK. This will allow an in-depth analysis and a platform for future research. The audit and questionnaire will be piloted locally, with data capture on an electronic database. We aim to start national recruitment in the first half of 2019.
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### Variation in the Delivery of Breast Boosts in Adjuvant Radiotherapy Across the UK

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**Purpose:** Breast tumour bed boosts are used as an adjunct to standard adjuvant radiotherapy for a proportion of patients (a recent RCR consensus document states this includes all patients with invasive breast cancer who are less than 50 years old, and to be considered if over 50 years with higher risk pathological features [1]). The benefits of tumour bed boosts were demonstrated in EORTC Boost, with a reduced rate of local recurrence [2]. There is no universally accepted dose and fractionation for breast boosts, and with the move towards intensity-modulated radiotherapy in some centres, simultaneous integrated boost (SIB) use may well increase pending the results of IMPORT HIGH. We set out to gain information about different practice for breast boosts across the UK.
**Methods:** A survey was sent to the heads of radiotherapy physics in all centres in the UK, to assess fractionation schedules of boosts and frequency of SIB versus sequential tumour bed boost. An option for free text commentary was included.
**Results:** In total, 23 centres replied to the survey, all of which give tumour bed boosts to high-risk patients. Two centres are using SIB, with the remainder using sequential boosts. Fractionation schedules were varied, with six different sequential fractionations used, ranging from 9 Gy/3 fractions to 16 Gy/8 fractions. Eight centres volunteered that they were in discussion or planning on implementing SIB. Both centres using SIB were giving 48 Gy to the tumour bed.
**Conclusion:** This survey demonstrates that practice is variable throughout the UK. The RCR consensus statement had no 100% consensus on any one fractionation [1]. A move towards SIB is occurring or being considered in a number of centres, and standardisation of fractionation may occur as a result. We recommend more work is carried out to establish clear recommendations, including indication, suggested dose and fractionation to standardise treatment, and we await IMPORT HIGH results to help guide this.
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### Prevention of Everolimus-related Stomatitis: a Retrospective and Prospective Study

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**Purpose:** In 2017, the SWISH trial reported that prophylactic dexamethasone mouthwash was effective in preventing everolimus-associated stomatitis [1,2]. In December 2017, the Royal Marsden Hospital (RMH) breast unit changed from aspirin mucilage (AM) prophylaxis alone to AM + steroid-based mouthwash (AM+S) using betamethasone soluble tablets, due to the high cost of dexamethasone mouthwash.
**Methods:** Data were collected for patients receiving everolimus between August 2016 and August 2017 for the AM group and from December 2017 to May 2018 for the AM+S group. Chi-squared test was used to determine whether the rate of toxicities differed between the two groups.
**Results:** In total, 54 patients received AM and 23 patients received AM+S during the study period. The median starting dose of everolimus in both