BREAST CANCER (RECURRENT OR METASTATIC) TREATMENT REGIMENS (Part 1 of 4)

Clinical Trials: The National Comprehensive Cancer Network recommends cancer patient participation in clinical trials as the gold standard for treatment.

Cancer therapy selection, dosing, administration, and the management of related adverse events can be a complex process that should be handled by an experienced healthcare team. Clinicians must choose and verify treatment options based on the individual patient; drug dose modifications and supportive care interventions should be administered accordingly. The cancer treatment regimens below may include both U.S. Food and Drug Administration-approved and unapproved indications/regimens. These regimens are only provided to supplement the latest treatment strategies.

These Guidelines are a work in progress that may be refined as often as new significant data becomes available. The NCCN Guidelines® are a consensus statement of its authors regarding their views of currently accepted approaches to treatment. Any clinician seeking to apply or consult any NCCN Guidelines® is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment. The NCCN makes no warranties of any kind whatsoever regarding their content, use, or application and disclaims any responsibility for their application or use in any way.

General Treatment Notes[1]

- There is no compelling evidence that combination regimens are superior to sequential single agents.
- Nab-paclitaxel may be substituted for paclitaxel or docetaxel due to medical necessity (ie, hypersensitivity reaction). If substituted for weekly paclitaxel or docetaxel, then the weekly dose of nab-paclitaxel should not exceed 125mg/m^2.

Preferred Single Agents[1]

NOTE: All recommendations are category 2A unless otherwise indicated.

REGIMEN	DOSING
Doxorubicin[2,3]	**Day 1:** Doxorubicin 60–75mg/m^2 IV. Repeat cycle every 21 days. **OR** **Day 1:** Doxorubicin 20mg/m^2 IV. Repeat cycle weekly.
Pegylated liposomal doxorubicin[4]	**Day 1:** Pegylated liposomal doxorubicin 50mg/m^2 IV. Repeat cycle every 28 days
Paclitaxel[5,6]	**Day 1:** Paclitaxel 175mg/m^2 IV. Repeat cycle every 21 days. **OR** **Day 1:** 80mg/m^2 IV. Repeat cycle weekly.
Capecitabine[7]	**Days 1–14:** Capecitabine 1,000–1,250mg/m^2 orally twice daily. Repeat cycle every 21 days.
Gemcitabine[8]	**Days 1, 8, and 15:** Gemcitabine 800–1,200mg/m^2 IV. Repeat cycle every 28 days.
Vinorelbine[9]	**Day 1:** Vinorelbine 25mg/m^2 IV. Repeat cycle weekly.
Eribulin[10]	**Days 1 and 8:** Eribulin 1.4mg/m^2 IV. Repeat cycle every 21 days.

Other Single Agents[1]

Cyclophosphamide[11]	**Days 1–21:** Cyclophosphamide 50mg orally daily. Repeat cycle every 28 days.
Carboplatin[12]	**Day 1:** Carboplatin AUC 6mg•min/mL IV. Repeat cycle every 21–28 days.
Docetaxel[13-15]	**Day 1:** Docetaxel 60–100mg/m^2 IV. Repeat cycle every 21 days. **OR** **Day 1:** Docetaxel 35mg/m^2 IV. Repeat cycle weekly for 6 weeks followed by a 2-week rest, then repeat.
Albumin-bound paclitaxel[16,17]	**Days 1, 8, and 15:** Albumin-bound paclitaxel 100mg/m^2 or 125mg/m^2 IV. Repeat cycle every 28 days. **OR** **Day 1:** Albumin-bound paclitaxel 260mg/m^2 IV. Repeat cycle every 21 days.
Cisplatin[18]	**Day 1:** Cisplatin 75mg/m^2 IV. Repeat cycle every 21 days.
Epirubicin[19]	**Day 1:** Epirubicin 60–90mg/m^2 IV. Repeat cycle every 21 days.
Ixabepilone[20]	**Day 1:** Ixabepilone 40mg/m^2 IV. Repeat cycle every 21 days.

continued

BREAST CANCER (RECURRENT OR METASTATIC) TREATMENT REGIMENS (Part 2 of 4)

Chemotherapy Combinations[1]

REGIMEN	DOSING
CAF[21]	**Days 1–14:** Cyclophosphamide 100mg/m² orally **Days 1 and 8:** Doxorubicin 30mg/m² IV **Days 1 and 8:** 5-fluorouracil 500mg/m² IV. Repeat cycle every 28 days.
FAC[22]	**Days 1 and 8 OR 1 and 4:** 5-fluorouracll 500mg/m² IV **Day 1:** Doxorubicin 50mg/m² IV (or by 72-hour continuous infusion) **Day 1:** Cyclophosphamide 500mg/m² IV. Repeat cycle every 21 days.
FEC[23]	**Days 1 and 8:** Cyclophosphamide 400mg/m² IV **Days 1 and 8:** Epirubicin 50mg/m² IV **Days 1 and 8:** 5-fluorouracil 500mg/m² IV. Repeat cycle every 28 days.
AC[24]	**Day 1:** Doxorubicin 60mg/m² IV **Day 1:** Cyclophosphamide 600mg/m² IV. Repeat cycle every 21 days.
EC[25]	**Day 1:** Epirubicin 75mg/m² IV **Day 1:** Cyclophosphamide 600mg/m² IV. Repeat cycle every 21 days.
CMF[26]	**Days 1–14:** Cyclophosphamide 100mg/m² orally **Days 1 and 8:** Methotrexate 40mg/m² IV **Days 1 and 8:** 5-fluorouracll 600mg/m² IV. Repeat cycle every 28 days.
Docetaxel + capecitabine[27]	**Day 1:** Docetaxel 75mg/m² IV **Days 1–14:** Capecitabine 950mg/m² orally twice daily. Repeat cycle every 21 days.
GT[28]	**Day 1:** Paclitaxel 175mg/m² IV **Days 1 and 8:** Gemcitabine 1,250mg/m² IV (following paclitaxel on day 1). Repeat cycle every 21 days.
Gemcitabine + carboplatin[29]	**Days 1 and 8:** Gemcitabine 1,000mg/m² **Days 1 and 8:** Carboplatin AUC 2mg•min/mL IV. Repeat cycle every 21 days.
Paclitaxel + bevacizumab[30]	**Days 1, 8, and 15:** Paclitaxel 90mg/m² by 1-hour IV **Days 1 and 15:** Bevacizumab 10mg/kg IV days 1 and 15. Repeat cycle every 28 days.

Preferred First-Line Agents for HER2-Positive Disease[1]

General treatment note: All trastuzumab-containing regimens require cardiac monitoring at baseline and at 3, 6, and 9 months.[1]

Pertuzumab + trastuzumab + docetaxel (Category 1)[31]	**Day 1:** Pertuzumab 840mg IV followed by 420mg IV **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV **Day 1:** Docetaxel 75–100mg/m² IV. Repeat cycle every 21 days.
Pertuzumab + trastuzumab + paclitaxel[32,33]	**Day 1:** Pertuzumab 840mg IV followed by 420mg IV cycled every 21 days, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** trastuzumab 8mg/kg IV followed by 6mg/kg IV cycled every 21 days, **plus** **Day 1:** Paclitaxel 80mg/m² IV weekly **OR** paclitaxel 175mg/m² cycled every 21 days.

Other Agents For HER2-Positive Disease[1]

Ado-trastuzumab emtansine (T-DM1)[34]	**Day 1:** Ado-trastuzumab emtansine 3.6mg/kg IV. Repeat cycle every 21 days.
Paclitaxel + carboplatin + trastuzumab[33,35]	**Day 1:** Carboplatin AUC 6mg•min/mL IV **Day 1:** Paclitaxel 175mg/m² IV cycled every 21 days, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.
Weekly paclitaxel + carboplatin + trastuzumab[33,36]	**Days 1, 8, and 15:** Paclitaxel 80mg/m² IV **plus** carboplatin AUC 2mg•min/mL cycled every 28 days, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.

continued

BREAST CANCER (RECURRENT OR METASTATIC) TREATMENT REGIMENS (Part 3 of 4)

Other Agents For HER2-Positive Disease[1] (continued)

REGIMEN	DOSING
Trastuzumab + paclitaxel [33,37,38]	**Day 1:** Paclitaxel 175mg/m² IV cycled every 21 days **OR** **Day 1:** Paclitaxel 80–90mg/m² IV weekly, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.
Trastuzumab + docetaxel [33,39,40]	**Day 1:** Docetaxel 80–100mg/m² IV cycled every 21 days **OR** **Days 1, 8, and 15:** Docetaxel 35mg/m² IV weekly, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.
Trastuzumab + vinorelbine[33,41,42]	**Day 1:** Vinorelbine 25mg/m² IV weekly **OR** **Days 1 and 8:** Vinorelbine 30-35mg/m² IV cycled every 21 days, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.
Trastuzumab + capecitabine[27,33,42,43]	**Days 1–14:** Capecitabine 1,000–1,250mg/m² orally twice daily cycled every 21 days, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.
Agents for Trastuzumab-Exposed HER2-Positive Disease[1]	
Lapatinib + capecitabine[45]	**Days 1–21:** Lapatinib 1,250mg orally daily **Days 1–14:** Capecitabine 1,000mg/m² orally twice daily. Repeat cycle every 21 days.
Trastuzumab + capecitabine[33,37,44,46]	**Days 1–14:** Capecitabine 1,000–1,250mg/m² orally twice daily cycled every 21 days, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.
Trastuzumab + lapatinib[33,47]	Lapatinib 1,000mg orally daily, **plus** **Day 1:** Trastuzumab 4mg/kg IV followed by 2mg/kg IV weekly **OR** **Day 1:** Trastuzumab 8mg/kg IV followed by 6mg/kg IV every 21 days.

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