Status: Created
Doc ID: ONC01-0721.1

Effective Date: 07/01/2021
Last Review Date: 02/03/2020

Approval and implementation dates for specific health plans may vary. Please consult the applicable health plan for more details.

Clinical Appropriateness Guidelines

Medical Oncology

Appropriate Use Criteria: Febrile Neutropenia Risk

Table of Contents

Description and Application of the Guidelines

The Carelon Clinical Appropriateness Guidelines (hereinafter “the Carelon Clinical Appropriateness Guidelines” or the “Guidelines”) are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. As used by Carelon, the Guidelines establish objective and evidence-based criteria for medical necessity determinations where possible. In the process, multiple functions are accomplished:

- To establish criteria for when services are medically necessary (i.e., in general, shown to be effective in improving health outcomes and considered the most appropriate level of service)
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To advocate for patient safety concerns
- To enhance the quality of health care
- To promote the most efficient and cost-effective use of services

The Carelon guideline development process complies with applicable accreditation standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up-to-date clinical principles and best practices. Relevant citations are included in the References section attached to each Guideline. Carelon reviews all of its Guidelines at least annually.

Carelon makes its Guidelines publicly available on its website twenty-four hours a day, seven days a week. Copies of the Carelon Clinical Appropriateness Guidelines are also available upon oral or written request. Although the Guidelines are publicly-available, Carelon considers the Guidelines to be important, proprietary information of Carelon, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of Carelon.

Carelon applies objective and evidence-based criteria, and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The Carelon Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient’s unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient’s condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. Applicable federal and state coverage mandates take precedence over these clinical guidelines. If requested by a health plan, Carelon will review requests based on health plan medical policy/guidelines in lieu of the Carelon Guidelines. Pharmaceuticals, radiotracers, or medical devices used in any of the diagnostic or therapeutic interventions listed in the Guidelines must be FDA approved or conditionally approved for the intended use. However, use of an FDA approved or conditionally approved product does not constitute medical necessity or guarantee reimbursement by the respective health plan.

The Guidelines may also be used by the health plan or by Carelon for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

General Clinical Guideline

Clinical Appropriateness Framework

Critical to any finding of clinical appropriateness under the guidelines for a specific diagnostic or therapeutic intervention are the following elements:

- Prior to any intervention, it is essential that the clinician confirm the diagnosis or establish its pretest likelihood based on a complete evaluation of the patient. This includes a history and physical examination and, where applicable, a review of relevant laboratory studies, diagnostic testing, and response to prior therapeutic intervention.
- The anticipated benefit of the recommended intervention should outweigh any potential harms that may result (net benefit).
- Current literature and/or standards of medical practice should support that the recommended intervention offers the greatest net benefit among competing alternatives.
- Based on the clinical evaluation, current literature, and standards of medical practice, there exists a reasonable likelihood that the intervention will change management and/or lead to an improved outcome for the patient.

If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would supersede the requirements set forth above. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account.

Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions

Requests for multiple diagnostic or therapeutic interventions at the same time will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all interventions simultaneously. This is based on the fact that appropriateness of additional intervention is often dependent on the outcome of the initial intervention.

Additionally, either of the following may apply:

- Current literature and/or standards of medical practice support that one of the requested diagnostic or therapeutic interventions is more appropriate in the clinical situation presented; or
- One of the diagnostic or therapeutic interventions requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice.

Repeat Diagnostic Intervention

In general, repeated testing of the same anatomic location for the same indication should be limited to evaluation following an intervention, or when there is a change in clinical status such that additional testing is required to determine next steps in management. At times, it may be necessary to repeat a test using different techniques or protocols to clarify a finding or result of the original study.

Repeated testing for the same indication using the same or similar technology may be subject to additional review or require peer-to-peer conversation in the following scenarios:

- Repeated diagnostic testing at the same facility due to technical issues
- Repeated diagnostic testing requested at a different facility due to provider preference or quality concerns
- Repeated diagnostic testing of the same anatomic area based on persistent symptoms with no clinical change, treatment, or intervention since the previous study

- Repeated diagnostic testing of the same anatomic area by different providers for the same member over a short period of time

Repeat Therapeutic Intervention

In general, repeated therapeutic intervention in the same anatomic area is considered appropriate when the prior intervention proved effective or beneficial and the expected duration of relief has lapsed. A repeat intervention requested prior to the expected duration of relief is not appropriate unless it can be confirmed that the prior intervention was never administered.

Febrile Neutropenia Risk

Description and Scope

These guidelines address determination of the febrile neutropenia risk that guides the use of white blood cell growth factors for oncology drug treatment regimens for adults. For interpretation of the Guidelines, and where not otherwise noted, “adult” refers to persons age 19 and older. These drug treatments may include cytotoxic chemotherapy, biologic agents, and other targeted therapies used to treat cancer. Treatments may be given orally, by injection, or by infusion. A regimen may consist of a single agent or include two or more agents.

The purpose of these guidelines is to clarify the risk categorization of cancer treatment regimens (i.e., the combination of one or more anti-cancer drugs) and to specify which patient risk factors will be taken into account when assessing regimens that are considered intermediate risk. The Guidelines are intended to be coupled with health plan policies, specific to use of white blood cell growth factors, in order to bring greater transparency to the use of risk categorization in management of this category of drugs (when used prophylactically in the setting of cancer treatment). Although there are compendia that list examples of regimens in each risk category, these judgements can be difficult due to the lack of standardization in reporting febrile neutropenia in cancer research and the lack of consensus about how to weigh different types of evidence about febrile neutropenia risk.

Clinical Indications

Febrile neutropenia risk

Febrile neutropenia risk determination for use of white blood cell growth factors for primary prophylaxis

Primary prophylaxis with white blood cell growth factors is considered medically necessary in **EITHER** of the following scenarios:

- High risk of febrile neutropenia (≥ 20%) based on chemotherapy regimen
- Intermediate risk of febrile neutropenia (≥ 10% but < 20%) based on chemotherapy regimen, and **ANY** of the following additional risk factors* based on literature and consensus supported guidelines, including:
    - Age > 65 years
    - Poor performance status (ECOG 3 or 4)
    - Preexisting neutropenia, for example resulting from bone marrow damage or tumor infiltration (ANC < 1500 mm^3)
    - Renal dysfunction with creatinine clearance < 50 ml/min
    - Poor nutritional status (typically defined as a serum albumin ≤ 3.5 g/dL or BMI < 20)
    - Active HIV infection

*Other risk factors and risk factor definition may depend on individual guidance from other sources, such as health plan clinical criteria.

The regimen-specific risk category will be based on published information in the medical literature with the highest weight given to rigorously conducted, prospective clinical trials that include patients enrolled in the U.S. Data from retrospective studies will also be considered and evaluated according to the scientific and methodological rigor of the work.

Commonly used outpatient regimens are shown in **Table 1. Febrile Neutropenia Risk**. Regimens considered high risk or intermediate risk for febrile neutropenia are summarized in **Appendix A. Guideline Notes**. Other

selected regimens are risk-classified consistent with the NCCN as specified in the NCCN Guidelines for Hematopoietic Growth Factors.

Table 1. Febrile Neutropenia Risk

Tumor Type	Regimen	Carelon FN Risk	Evidence Grade
Breast Cancer	Docetaxel (100-75 mg/m^2)	Intermediate	High
Breast Cancer	Docetaxel (< 75 mg/m^2)	Low	Moderate
Breast Cancer	TCHP	High	Moderate
Breast Cancer	TC	Intermediate	Low
Cervical Cancer	Cisplatin and Paclitaxel +/- Bevacizumab	Low	Moderate
Cervical Cancer	Topotecan	Low	Low
Gastroesophageal Cancer	Cisplatin and Irinotecan	Low	Low
Head and Neck Squamous Cell Carcinoma	Cetuximab/Panitumumab plus platinum-based chemotherapy	Low	High
Head and Neck Squamous Cell Carcinoma	Pembrolizumab plus platinum-based chemotherapy	Low	High
Non-Small Cell Lung Cancer	Carboplatin, Paclitaxel/nab-Paclitaxel, Pembrolizumab	Low	Moderate
Non-Small Cell Lung Cancer	Carboplatin, Paclitaxel, Atezolizumab +/- Bevacizumab	Low	Moderate
Non-Small Cell Lung Cancer	Carboplatin/Cisplatin, Pemetrexed, Pembrolizumab	Low	High
Non-Small Cell Lung Cancer	Cisplatin and Vinorelbine	Intermediate	Moderate
Non-Small Cell Lung Cancer	Cisplatin and Docetaxel	Low	Moderate to High
Non-Small Cell Lung Cancer	Docetaxel	Low	High
Non-Small Cell Lung Cancer	Docetaxel and Ramucirumab	Intermediate	Moderate
Small Cell Lung Cancer	Carboplatin, Etoposide, Atezolizumab	Low	High
Lymphoma	GDP+/- Rituximab	Intermediate	Low
Ovarian Cancer	Carboplatin and Docetaxel	Intermediate	Moderate
Ovarian Cancer	Carboplatin and Paclitaxel	Low	High
Ovarian Cancer	Topotecan	Intermediate	Moderate
Pancreatic Cancer	FOLFIRINOX	Low	High
Prostate Cancer	Cabazitaxel	Intermediate	Moderate to High
Sarcoma	Doxorubicin	Intermediate	High

Germ Cell Tumor	BEP	Intermediate	High
Germ Cell Tumor	EP	Intermediate	Moderate

Key: BEP = bleomycin plus etoposide and cisplatin; EP = etoposide and cisplatin; FN = febrile neutropenia; GDP = gemcitabine, dexamethasone, cisplatin; TCHP = docetaxel, carboplatin, trastuzumab, pertuzumab; TC = docetaxel and cyclophosphamide

Rationale

A neutrophil is a type of white blood cell that helps protect against bacterial infections. Patients receiving treatment for cancer such as chemotherapy, targeted agents, and/or radiation therapy can experience a reduction in the number of neutrophils and this may cause serious infection and even death. The lower limit of normal for the neutrophil count is 1500 per microliter of blood. Neutropenia refers to lowering of the neutrophil count, and the risk of infection is significantly increased when the neutrophil count is below 1000, and further increased when it is below 500. In addition to the degree of neutropenia, the risk of having serious infection due to low neutrophil counts varies according to factors such as the underlying type of cancer, the timing and types of cancer treatment, and the burden of other types of illness that make some patients more vulnerable to infection.[1]

Chemotherapy-induced neutropenia is a major risk factor for infection-related morbidity and mortality and also a significant dose-limiting toxicity in cancer treatment. This may impact the success of treatment, particularly when treatment intent is either curative or to prolong survival. White blood cell growth factors include drugs such as pegfilgrastim (Neulasta) and filgrastim (Neupogen) and also biosimilar agents for these products. These drugs have been shown to reduce the degree and duration of neutropenia. The use of these agents and the spending on this category of supportive care products has steadily increased over the past 18 years since these drugs were introduced. These drugs are very expensive, and they are frequently overused, particularly in the U.S. The U.S. accounts for over 75% of the world's purchases of white blood cell growth factors. Health plans and some provider organizations have specific policies related to the use of white blood cell growth factors in order to reduce underutilization or overutilization of these agents.[1, 2]

Guidelines from the American Society of Clinical Oncology (ASCO) and other organizations consider the occurrence of fever and neutropenia (so-called "febrile neutropenia") to be the clinical scenario that requires action to protect patients who may be on the verge of serious infection. The safe care of patients with febrile neutropenia requires urgent assessment and rapid administration of antibiotics. Depending on the circumstances, such patients may require evaluation in the emergency room and sometimes require hospitalization. There is general agreement among guidelines on the definition of neutropenia and the definition of fever. In the context of cancer treatment, the ASCO and other guidelines that patients at high risk for febrile neutropenia (> 20%) should receive white blood cell growth factors prophylactically (i.e., after chemotherapy but before developing symptoms or signs of febrile neutropenia). There is also agreement that those with a < 10% risk of febrile neutropenia should not receive these growth factors. Patients whose risk of febrile neutropenia is between 10%-20% are considered intermediate risk, and for those patients the use of these growth factors depends on specific patient circumstances.[3, 4] Unfortunately, there is significant overuse of white blood cell growth factors for primary prophylaxis, particularly for patients receiving palliative chemotherapy.[5, 6]

Several studies demonstrate that a decision support-enabled utilization management tool can improve risk-appropriate, guideline-adherent use of white blood cell growth factors.[7, 8] ASCO recommends primary prophylaxis with a white blood cell growth factor should also be administered in patients receiving dose dense chemotherapy. ASCO also recommends consideration to alternative, equally effective, and safe chemotherapy regimens not requiring white blood cell growth factors support when available. In patients receiving concomitant chemo-radiotherapy, use of white blood cell growth factors should be avoided, especially when radiation involves the mediastinum.[2, 4]

Appendix A. Guideline Notes

Evidence grading system: GRADE methodology

Category	Interpretation	Examples
High	Very confident that future research will not change febrile neutropenia category assignment (low, moderate, high)	Multiple consistent RCTs with methodological flaws but consistent results One or more well designed applicable RCTs
Moderate	Confident that future research is unlikely to change febrile neutropenia category assignment	RCTs with one or more reasons to downgrade evidence quality Well designed prospective studies with dramatic effect
Low	Less confident that future research will change febrile neutropenia category assignment	RCTs with two or more reasons to downgrade Well designed observational studies
Very low	Little confidence that future research will change febrile neutropenia category assignment	RCTs with three or more reasons to downgrade, poorly designed observational studies, case series

GRADE = Grading of Recommendations, Assessment, Development, and Evaluation; RCT = randomized controlled trial

Criteria – reasons to downgrade or upgrade evidence quality

- **Internal validity / Risk of bias** – methodological limitations in study design, such as incomplete randomization, high drop-out rates
- **Indirectness** – applicability of the research to the population, intervention and outcomes of interest
- **Imprecision** – confidence intervals cross a decision-making threshold, inadequate sample size
- **Inconsistency** – unexplained heterogeneity in the data
- **Publication bias** – positive selection bias in published results
- **Effect size** – dramatic effects may upgrade evidence quality

Breast cancer

Febrile neutropenia risk in patients with advanced breast cancer treated with docetaxel (100 mg/m^2 given every 21 days; also weekly dosing or 75 mg/m^2 and lower dosing every 21 days): Intermediate

For docetaxel dosing at 100 mg/m^2 every 21 days, Intermediate risk* (versus NCCN intermediate risk) based on high-quality evidence. Estimated pooled risk of FN for all patients receiving docetaxel dosed at 100 mg/m^2 is 14% (range: 6%-21%) based on high-quality evidence. The addition of trastuzumab and/or pertuzumab appears to confer at least a FN risk of 10%-20%. The majority of the evidence provided addressed neutropenia and FN when docetaxel dosed at 100 mg/m^2 is used. Weekly and/or 75 mg/m^2 or lower dosing every 21 days is associated with a lower risk of FN and should be considered low risk (< 10%) (3%-10%) based on moderate-quality evidence. *Carelon Guidelines currently treat docetaxel as an intermediate-risk regimen when given sequential with doxorubicin and cyclophosphamide in the adjuvant and neoadjuvant setting and low risk in the metastatic setting.

Febrile neutropenia risk in a young adult with breast cancer on neoadjuvant TCHP: High

High risk based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving TCHP was 6%-17% (range: 1%-32%) based on moderate-quality evidence.[1, 3, 4, 7, 8] Estimated pooled risk of FN in patients not receiving primary prophylaxis is 10%-20% based on moderate-quality evidence.

Febrile neutropenia risk in an older adult with breast cancer on adjuvant TC: Intermediate

Intermediate based on low-quality evidence. Estimated pooled risk of FN for all patients receiving TC was 17%-23% (range: 1%-68%) based on low-quality evidence.[9, 10] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 20% based on low-quality evidence – downgrade evidence quality for applicability (and inconsistent definitions of FN), imprecision and unexplained heterogeneity.

Cervical cancer

Febrile neutropenia risk in patients with advanced cervical cancer treated with cisplatin and paclitaxel +/- bevacizumab: Low

Low risk* based on moderate-quality evidence. Estimated pooled risk of FN for all patients cisplatin and paclitaxel +/- bevacizumab is 10% (range: < 5%-16%) based on moderate-quality evidence. The estimation of FN is lower (< 10%) when not taking into account the Japanese trials (where neutropenia risk is generally higher based on Japanese ethnicity). Both GOG 240 and GOG 169 reported a low incidence of FN while GOG 204 reported an intermediate risk. *Carelon Guidelines currently treat cisplatin and paclitaxel +/- bevacizumab for treatment of advanced cervical cancer a low-risk regimen.

Febrile neutropenia risk in patients with advanced cervical cancer treated with topotecan: Low

Low risk* based on low-quality evidence. Estimated pooled risk of FN for all patients topotecan is 5% (range: 0%-12%) based on low-quality evidence. The estimation of FN is difficult based on lack of large studies, multiple dosing regimens, and atypical reporting of febrile complications. *Carelon Guidelines currently consider topotecan for treatment of advanced cervical cancer a low-risk regimen.

Gastroesophageal cancer

Febrile neutropenia risk in patients with gastroesophageal cancer treated with cisplatin and irinotecan: Low

Low risk based on low-quality evidence. Estimated pooled risk of FN for all patients receiving cisplatin and irinotecan is 9% (range: 0%-13%) based on low-quality evidence. The estimation of FN is problematic as multiple dosing schedules are used. Currently NCCN recommends irinotecan 65 mg/m^2 D 1, 8 and cisplatin 25-30 mg/m^2 D 1, 8 every 3 weeks. In total, patients studied under this specific regimen number approximately 120, and a definitive risk of FN is poorly estimated. Other schedules may have lower risk of FN. *Carelon Guidelines currently treat cisplatin and irinotecan for treatment of gastroesophageal cancer as a low-risk regimen.

Head and neck cancer

Febrile neutropenia risk in patients with recurrent/metastatic head and neck cancer treated with EGFR-inhibitor (cetuximab or panitumumab) plus platinum-based chemotherapy: Low

Low risk based on high-quality evidence. Estimated pooled risk of FN for all patients receiving cetuximab plus platinum-based chemotherapy is < 10% based on high-quality evidence. Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on high-quality evidence.

Febrile neutropenia risk in patients with recurrent/metastatic head and neck cancer treated with pembrolizumab plus platinum-based chemotherapy: Low

Low risk based on high-quality evidence. Estimated pooled risk of FN for all patients receiving pembrolizumab plus platinum-based chemotherapy is < 10% based on high-quality evidence. Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on high-quality evidence.

Non-small cell lung cancer

Febrile neutropenia risk in patients with metastatic squamous non-small cell lung cancer treated with carboplatin, paclitaxel/nab-paclitaxel, and pembrolizumab: Low

Low risk based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving carboplatin, paclitaxel/nab-paclitaxel, and pembrolizumab is < 10% (range: < 10%-18%) based on moderate-quality evidence.[11, 12] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on moderate-quality evidence, downgrade for imprecision.

Febrile neutropenia risk in patients with metastatic nonsquamous non-small cell lung cancer treated with carboplatin, paclitaxel, and atezolizumab +/- bevacizumab: Low

Low risk based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving carboplatin, paclitaxel, and atezolizumab +/- bevacizumab is 5%-9% (range: 5%-18%) based on intermediate-quality evidence.[13, 14] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on moderate-quality evidence, downgrade for imprecision.

Febrile neutropenia risk in patients with metastatic non-small cell lung cancer treated with carboplatin/cisplatin, pemetrexed, and pembrolizumab: Low

Low risk based on high-quality evidence. Estimated pooled risk of FN for all patients receiving carboplatin/cisplatin, pemetrexed, and pembrolizumab is 2% (range: 2%- 5.7%) based on intermediate-quality evidence.[13, 14] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on high-quality evidence.

Febrile neutropenia risk in patients with non-small cell lung cancer treated with cisplatin and vinorelbine: Intermediate

Intermediate risk* based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving cisplatin and vinorelbine is 13% (range: 5%-26%) based on intermediate-quality evidence. The estimation of FN is highly dependent on dose and schedule. Currently NCCN recommends three different regimens that differ both in dosing and schedule. *Carelon Guidelines currently consider cisplatin and vinorelbine for treatment of NSCLC as a low-risk regimen.

Febrile neutropenia risk in patients with advanced non-small cell lung cancer treated with cisplatin and docetaxel: Low

Low risk* based on intermediate-to-high quality evidence. Estimated pooled risk of FN for all patients receiving cisplatin and docetaxel for treatment advanced non-small cell lung is 8% (range: 0%-16%) based on intermediate-to-high quality evidence. Although there is a wide range, the low and high outliers are from Asian studies. The majority of the remaining studies report incidence of FN as low FN risk. *Carelon Guidelines currently consider cisplatin and docetaxel for treatment advanced non-small cell lung cancer a low-risk regimen.

Febrile neutropenia risk in patients with advanced non-small cell lung cancer treated with docetaxel: Low

Low risk* based on high-quality evidence. Estimated pooled risk of FN for all patients receiving docetaxel is 7% (range: 0%-13%) based on high-quality evidence. The estimated pooled risk of FN for patients not receiving primary prophylaxis is less than 10% based on high-quality evidence. The risk of FN may be higher in patients receiving ramucirumab and docetaxel, docetaxel dosed at 100 mg/m^2, or an Asian population. Consideration should be given to ramucirumab and docetaxel as an intermediate-risk regimen based on the data from the

original REVEL trial and subsequent updates. *Carelon Guidelines currently treat docetaxel for treatment of advanced NSCLC as a low-risk regimen.

Small cell lung cancer

Febrile neutropenia risk in patients with extensive stage small cell lung cancer treated with carboplatin, etoposide, and atezolizumab: Low

Low risk based on high-quality evidence. Estimated pooled risk of FN for all patients receiving carboplatin, etoposide, and atezolizumab is 3% based on intermediate-quality evidence.[15] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on high-quality evidence.

Lymphoma

Febrile neutropenia risk in patients with lymphoma treated with gemcitabine, dexamethasone, and cisplatin +/- rituximab: Intermediate

Intermediate risk* based on low-quality evidence. Estimated pooled risk of FN for all patients receiving gemcitabine, dexamethasone, and cisplatin +/- rituximab is 15% (range: 3%-36%) based on low-quality evidence. The estimation of FN is challenging as most trials did not clearly detail myeloid growth factor use, relatively small study population with the exception of LY.12, and large number of studies not representative of an American population. *Carelon Guidelines currently treat gemcitabine, dexamethasone, and cisplatin +/- rituximab for treatment of lymphoma as a low-risk regimen.

Ovarian cancer

Febrile neutropenia risk in patients with advanced ovarian cancer treated with carboplatin and docetaxel: Intermediate

Intermediate risk based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving carboplatin and docetaxel is 11% (range: 0%-23%).[16] Estimated pooled risk of FN in patients not receiving primary prophylaxis is 10%-20% based on moderate-quality evidence, downgrade for imprecision.

Febrile neutropenia risk in patients with advanced ovarian cancer treated with carboplatin and paclitaxel: Low

Low risk based on high-quality evidence. Estimated pooled risk of FN for all patients receiving carboplatin and paclitaxel is 2%-7% (range: 2%-7%) based on high-quality evidence.[16-22] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on moderate-quality evidence.

Febrile neutropenia risk in patients with advanced ovarian cancer treated with topotecan: Intermediate

Intermediate risk based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving topotecan is 3%-4% (range: 1%-18%) based on intermediate-quality evidence.[23-27] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on moderate-quality evidence, downgrade for applicability (dosing regimen).

Pancreatic cancer

Febrile neutropenia risk in healthy middle aged adult with pancreatic cancer treated with FOLFIRINOX: Low

Low risk based on high-quality evidence. Estimated pooled risk of FN for all patients receiving FOLFIRINOX was 4%-10% (range: 2%-17%) based on moderate-quality evidence.[28-32] Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on moderate-quality evidence, downgrade for imprecision and heterogeneity.

Prostate cancer

Febrile neutropenia risk in patients with castrate-resistant prostate cancer treated with cabazitaxel: Intermediate

Intermediate risk* based on moderate-to-high quality evidence (depending on dose). Estimated pooled risk of FN for all patients receiving cabazitaxel dosed at 25 mg/m^2 is < 10% (range: 8%-12%) based on moderate-quality evidence. Estimated pooled risk of FN in patients not receiving primary prophylaxis is < 10% based on high-quality evidence; however, the risk of neutropenic complication should prompt categorization as intermediate risk. Estimated pooled risk of FN for all patients receiving cabazitaxel dosed at 20 mg/m^2 is < 10% based on high-quality evidence. *Carelon Guidelines currently treat cabazitaxel for the treatment of castrate recurrent prostate cancer as a low-risk regimen.

Soft tissue sarcoma

Febrile neutropenia risk in patients with advanced soft tissue sarcoma treated with doxorubicin: Intermediate

Intermediate risk* based on high-quality evidence. Estimated pooled risk of FN for patients not receiving primary prophylaxis treated with single agent doxorubicin is 13% (9%-20%) based on high-quality evidence. *Carelon Guidelines currently treat doxorubicin for the treatment of advanced soft tissue sarcoma as an intermediate-risk regimen.

Germ cell tumors

Febrile neutropenia risk in patients with advanced germ cell tumors treated with bleomycin, etoposide, and cisplatin: Intermediate

Intermediate risk* based on moderate-to-high quality evidence. Estimated pooled risk of FN for all patients receiving bleomycin, etoposide, and cisplatin is 15% (range: 5%-20%) based on moderate-quality evidence. The estimated pooled risk of FN for patients not receiving primary prophylaxis is 10%-20% based on moderate-quality evidence. *Carelon Guidelines currently treat bleomycin, etoposide, and cisplatin for treatment of advanced germ cell tumors as an intermediate-risk regimen.

Febrile neutropenia risk in patients with advanced germ cell tumors treated with etoposide and cisplatin: Intermediate

Intermediate risk* based on moderate-quality evidence. Estimated pooled risk of FN for all patients receiving etoposide and cisplatin is 15% (range: 3%-23%) based on moderate-quality evidence. The estimated pooled risk of FN for patients not receiving primary prophylaxis is 10%-20% based on moderate-quality evidence. *Carelon Guidelines currently treat etoposide and cisplatin for treatment of advanced germ cell tumors as an intermediate-risk regimen.

References

1. Patel K, West HJ. Febrile neutropenia. JAMA Oncol. 2017;3(12):1751. PMID: 28750112
2. Smith TJ, Hillner BE. Real-world conundrums and biases in the use of white cell growth factors. Am. 2016;35:e524-7. PMID: 27249762
3. Aapro MS, Bohlius J, Cameron DA, et al. 2010 update of EORTC guidelines for the use of granulocyte-colony stimulating factor to reduce the incidence of chemotherapy-induced febrile neutropenia in adult patients with lymphoproliferative disorders and solid tumours. Eur J Cancer. 2011;47(1):8-32. PMID: 21095116
4. Smith TJ, Bohlke K, Lyman GH, et al. Recommendations for the use of WBC growth factors: American Society of Clinical Oncology clinical practice guideline update. J Clin Oncol. 2015;33(28):3199-212. PMID: 26169616
5. Waters GE, Corrigan P, Gatesman M, et al. Comparison of pegfilgrastim prescribing practice to national guidelines at a university hospital outpatient oncology clinic. J Oncol Pract. 2013;9(4):203-6. PMID: 23942922

6. Zullo AR, Lou U, Cabral SE, et al. Overuse and underuse of pegfilgrastim for primary prophylaxis of febrile neutropenia. J Oncol Pharm Pract. 2018;25(6):1357-65. PMID: 30124123
7. Adeboyeje G, Agiro A, Malin J, et al. Reducing overuse of colony-stimulating factors in patients with lung cancer receiving chemotherapy: evidence from a decision support-enabled program. J Oncol Pract. 2017;13(4):e337-e45. PMID: 28260403
8. Agiro A, DeVries A, Malin J, et al. Real-world impact of a decision support tool on colony-stimulating factor use and chemotherapy-induced febrile neutropenia among patients with breast cancer. J. 2018;16(2):162-9. PMID: 29439177
9. Do T, Medhekar R, Bhat R, et al. The risk of febrile neutropenia and need for G-CSF primary prophylaxis with the docetaxel and cyclophosphamide regimen in early-stage breast cancer patients: a meta-analysis. Breast Cancer Res Treat. 2015;153(3):591-7. PMID: 26337685
10. Younis T, Rayson D, Thompson K. Primary G-CSF prophylaxis for adjuvant TC or FEC-D chemotherapy outside of clinical trial settings: a systematic review and meta-analysis. Support Care Cancer. 2012;20(10):2523-30. PMID: 22252548
11. Ohe Y. MS 05.04 Practical approach to combination of chemotherapy with IO. J Thorac Oncol. 2017;12 (11, Suppl 2):S1677. Epub Volume 12, Issue 11, Supplement 2, Page S1677. PMID: none
12. Paz-Ares L, Luft A, Vicente D, et al. Pembrolizumab plus chemotherapy for squamous non-small-cell lung cancer. N Engl J Med. 2018;379(21):2040-51. PMID: 30280635
13. Gandhi L, Rodriguez-Abreu D, Gadgeel S, et al. Pembrolizumab plus chemotherapy in metastatic non-small-cell lung cancer. N Engl J Med. 2018;378(22):2078-92. PMID: 29658856
14. Langer CJ, Gadgeel SM, Borghaei H, et al. Carboplatin and pemetrexed with or without pembrolizumab for advanced, non-squamous non-small-cell lung cancer: a randomised, phase 2 cohort of the open-label KEYNOTE-021 study. Lancet Oncol. 2016;17(11):1497-508. PMID: 27745820
15. Horn L, Mansfield AS, Szczesna A, et al. First-line atezolizumab plus chemotherapy in extensive-stage small-cell lung cancer. N Engl J Med. 2018;379(23):2220-9. PMID: 30280641
16. Vasey PA, Jayson GC, Gordon A, et al. Phase III randomized trial of docetaxel-carboplatin versus paclitaxel-carboplatin as first-line chemotherapy for ovarian carcinoma. J Natl Cancer Inst. 2004;96(22):1682-91. PMID: 15547181
17. Coleman RL, Brady MF, Herzog TJ, et al. Bevacizumab and paclitaxel-carboplatin chemotherapy and secondary cytoreduction in recurrent, platinum-sensitive ovarian cancer (NRG Oncology/Gynecologic Oncology Group study GOG-0213): a multicentre, open-label, randomised, phase 3 trial. Lancet Oncol. 2017;18(6):779-91. PMID: 28438473
18. Katsumata N, Yasuda M, Isonishi S, et al. Long-term results of dose-dense paclitaxel and carboplatin versus conventional paclitaxel and carboplatin for treatment of advanced epithelial ovarian, fallopian tube, or primary peritoneal cancer (JGOG 3016): a randomised, controlled, open-label trial. Lancet Oncol. 2013;14(10):1020-6. PMID: 23948349
19. Katsumata N, Yasuda M, Takahashi F, et al. Dose-dense paclitaxel once a week in combination with carboplatin every 3 weeks for advanced ovarian cancer: a phase 3, open-label, randomised controlled trial. Lancet. 2009;374(9698):1331-8. PMID: 19767092
20. Lawrie TA, Rabbie R, Thoma C, et al. Pegylated liposomal doxorubicin for first-line treatment of epithelial ovarian cancer. Cochrane Database Syst Rev. 2013(10):article number CD010482. PMID: 24142521
21. Marchetti C, De Felice F, Di Pinto A, et al. Dose-dense weekly chemotherapy in advanced ovarian cancer: An updated meta-analysis of randomized controlled trials. Crit Rev Oncol Hematol. 2018;125:30-4. PMID: 29650273
22. Qu CP, Sun GX, Yang SQ, et al. Toxicities of different first-line chemotherapy regimens in the treatment of advanced ovarian cancer: a network meta-analysis. Medicine (Baltimore). 2017;96(2):e5797. PMID: 28079805
23. Gordon AN, Fleagle JT, Guthrie D, et al. Recurrent epithelial ovarian carcinoma: a randomized phase III study of pegylated liposomal doxorubicin versus topotecan. J Clin Oncol. 2001;19(14):3312-22. PMID: 11454878
24. Gordon AN, Tonda M, Sun S, et al. Long-term survival advantage for women treated with pegylated liposomal doxorubicin compared with topotecan in a phase 3 randomized study of recurrent and refractory epithelial ovarian cancer. Gynecol Oncol. 2004;95(1):1-8. PMID: 15385103
25. Gore M, Oza A, Rustin G, et al. A randomised trial of oral versus intravenous topotecan in patients with relapsed epithelial ovarian cancer. Eur J Cancer. 2002;38(1):57-63. PMID: 11750840
26. Meier W, du Bois A, Reuss A, et al. Topotecan versus treosulfan, an alkylating agent, in patients with epithelial ovarian cancer and relapse within 12 months following 1st-line platinum/paclitaxel chemotherapy. A prospectively randomized phase III trial by the Arbeitsgemeinschaft Gynaekologische Onkologie Ovarian Cancer Study Group (AGO-OVAR). Gynecol Oncol. 2009;114(2):199-205. PMID: 19446314
27. Sehouli J, Stengel D, Oskay-Oezcelik G, et al. Nonplatinum topotecan combinations versus topotecan alone for recurrent ovarian cancer: results of a phase III study of the North-Eastern German Society of Gynecological Oncology Ovarian Cancer Study Group. J Clin Oncol. 2008;26(19):3176-82. PMID: 18591555
28. Chiorean EG, Cheung WY, Giordano G, et al. Real-world comparative effectiveness of nab-paclitaxel plus gemcitabine versus FOLFIRINOX in advanced pancreatic cancer: a systematic review. Therapeutic Advances in Medical Oncology. 2019;11(eCollection 2019):1-17. PMID: 31205510

29. Conroy T, Desseigne F, Ychou M, et al. FOLFIRINOX versus gemcitabine for metastatic pancreatic cancer. N Engl J Med. 2011;364(19):1817-25. PMID: 21561347
30. Suker M, Beumer BR, Sadot E, et al. FOLFIRINOX for locally advanced pancreatic cancer: a systematic review and patient-level meta-analysis. Lancet Oncol. 2016;17(6):801-10. PMID: 27160474
31. Thibodeau S, Voutsadakis IA. FOLFIRINOX chemotherapy in metastatic pancreatic cancer: a systematic review and meta-analysis of retrospective and phase II studies. J. 2018;7(1):1-11. PMID: 29300345
32. Tong H, Fan Z, Liu B, et al. The benefits of modified FOLFIRINOX for advanced pancreatic cancer and its induced adverse events: a systematic review and meta-analysis. Sci. 2018;8(Article Number 8666):pp. 8. PMID: 29875415

Other References Reviewed

1. Abe T, Takeda K, Ohe Y, et al. Randomized phase III trial comparing weekly docetaxel plus cisplatin versus docetaxel monotherapy every 3 weeks in elderly patients with advanced non-small-cell lung cancer: the intergroup trial JCOG0803/WJOG4307L. J Clin Oncol. 2015;33(6):575-81. PMID: 25584004
2. Abu-Rustum NR, Lee S, Massad LS. Topotecan for recurrent cervical cancer after platinum-based therapy. Int J Gynecol Cancer. 2000;10(4):285-8. PMID: 11240688
3. Ahn JS, Ahn YC, Kim JH, et al. Multinational randomized phase III trial with or without consolidation chemotherapy using docetaxel and cisplatin after concurrent chemoradiation in inoperable stage III non-small-cell lung cancer: KCSG-LU05-04. J Clin Oncol. 2015;33(24):2660-6. PMID: 26150444
4. Alba E, Martin M, Ramos M, et al. Multicenter randomized trial comparing sequential with concomitant administration of doxorubicin and docetaxel as first-line treatment of metastatic breast cancer: a Spanish Breast Cancer Research Group (GEICAM-9903) phase III study. J Clin Oncol. 2004;22(13):2587-93. PMID: 15226326
5. Al-Mansouri L, Gurney H. Clinical concepts for cabazitaxel in the management of metastatic castration-resistant prostate cancer. Asia-Pacific Journal of Clinical Oncology. 2019;15(6):288-95. PMID: 31313526
6. Antonarakis ES, Tagawa ST, Galletti G, et al. Randomized, noncomparative, phase II trial of early switch from docetaxel to cabazitaxel or vice versa, with integrated biomarker analysis, in men with chemotherapy-naive, metastatic, castration-resistant prostate cancer. J Clin Oncol. 2017;35(28):3181-8. PMID: 28632486
7. Aoki Y, Sato T, Tsuneki I, et al. Docetaxel in combination with carboplatin for chemo-naive patients with epithelial ovarian cancer. Int J Gynecol Cancer. 2002;12(6):704-9. PMID: 12445246
8. Aribi M, Mesli N, Remla N, et al. Gemcitabine and treatment of diffuse large B-cell lymphoma in relapsed or refractory elderly patients: a prospective randomized trial in Algeria. J Cancer Res Ther. 2010;6(1):41-6. PMID: 20479546
9. Armoiry X, Tsertsvadze A, Connock M, et al. Comparative efficacy and safety of licensed treatments for previously treated non-small cell lung cancer: A systematic review and network meta-analysis. PLoS ONE. 2018;13 (7) (no pagination)(e0199575). PMID: 623173680
10. Arriagada R, Bergman B, Dunant A, et al. Cisplatin-based adjuvant chemotherapy in patients with completely resected non-small-cell lung cancer. N Engl J Med. 2004;350(4):351-60. PMID: 14736927
11. Bachelot T, Ciruelos E, Schneeweiss A, et al. Preliminary safety and efficacy of first-line pertuzumab combined with trastuzumab and taxane therapy for HER2-positive locally recurrent or metastatic breast cancer (PERUSE). Ann Oncol. 2019;30(5):766-73. PMID: 30796821
12. Bahl A, Masson S, Malik Z, et al. Final quality of life and safety data for patients with metastatic castration-resistant prostate cancer treated with cabazitaxel in the UK Early Access Programme (EAP) (NCT01254279). BJU Int. 2015;116(6):880-7. PMID: 25639506
13. Bajorin DF, Sarosdy MF, Pfister DG, et al. Randomized trial of etoposide and cisplatin versus etoposide and carboplatin in patients with good-risk germ cell tumors: a multiinstitutional study. J Clin Oncol. 1993;11(4):598-606. PMID: 8386751
14. Basch E, Loblaw DA, Oliver TK, et al. Systemic therapy in men with metastatic castration-resistant: guideline recommendations. (2014 [In review 2018 Dec]) The CCO-ASCO Joint Castration Resistant Prostate Cancer Expert Panel and the CCO Genitourinary Cancer Disease Site Group. Available from: https://www.cancercareontario.ca/en/content/systemic-therapy-men-metastatic-castration-resistant-prostate-cancer-american-society-clinical-oncology-and-cancer-care-ontario-clinical-practice-guideline.
15. Baselga J, Cortes J, Kim SB, et al. Pertuzumab plus trastuzumab plus docetaxel for metastatic breast cancer. N Engl J Med. 2012;366(2):109-19. PMID: 22149875
16. Bayo J, Avino V, Toscano F, et al. Toxicity of docetaxel, carboplatin, and trastuzumab combination as adjuvant or neo-adjuvant treatment for Her2 positive breast cancer patients and impact of colony-stimulating factor prophylaxis. Breast J. 2018;24(4):462-7. PMID: 29205665
17. Beer TM, Hotte SJ, Saad F, et al. Custirsen (OGX-011) combined with cabazitaxel and prednisone versus cabazitaxel and prednisone alone in patients with metastatic castration-resistant prostate cancer previously treated with docetaxel (AFFINITY): a randomised, open-label, international, phase 3 trial. Lancet Oncol. 2017;18(11):1532-42. PMID: 29033099

18. Bennouna J, Havel L, Krzakowski M, et al. Oral vinorelbine plus cisplatin as first-line chemotherapy in nonsquamous non-small-cell lung cancer: final results of an International randomized phase II study (NAVotrial 01). Clin Lung Cancer. 2014;15(4):258-65. PMID: 24954228
19. Berghmans T, Lafitte JJ, Scherpereel A, et al. An ELCWP phase III trial comparing ifosfamide and cisplatin regimens in advanced NSCLC. Anticancer Res. 2013;33(12):5477-82. PMID: 24324084
20. Beslija S, Obralic N, Basic H, et al. Randomized trial of sequence vs. combination of capecitabine (X) and docetaxel (T): XT vs. T followed by X after progression as first-line therapy for patients (pts) with metastatic breast cancer (MBC). J Clin Oncol. 2006;24(18 Suppl):abstract 571. PMID: none
21. Blay JY, Leahy MG, Nguyen BB, et al. Randomised phase III trial of trabectedin versus doxorubicin-based chemotherapy as first-line therapy in translocation-related sarcomas. Eur J Cancer. 2014;50(6):1137-47. PMID: 24512981
22. Boku N, Yamamoto S, Fukuda H, et al. Fluorouracil versus combination of irinotecan plus cisplatin versus S-1 in metastatic gastric cancer: a randomised phase 3 study. Lancet Oncol. 2009;10(11):1063-9. PMID: 19818685
23. Bonneterre J, Roche H, Monnier A, et al. Docetaxel vs 5-fluorouracil plus vinorelbine in metastatic breast cancer after anthracycline therapy failure. Br J Cancer. 2002;87(11):1210-5. PMID: 12439707
24. Bookman MA, Blessing JA, Hanjani P, et al. Topotecan in squamous cell carcinoma of the cervix: a phase II study of the Gynecologic Oncology Group. Gynecol Oncol. 2000;77(3):446-9. PMID: 10831357
25. Borghaei H, Paz-Ares L, Horn L, et al. Nivolumab versus docetaxel in advanced nonsquamous non-small-cell lung cancer. N Engl J Med. 2015;373(17):1627-39. PMID: 26412456
26. Bracarda S, Gernone A, Gasparro D, et al. Real-world cabazitaxel safety: the Italian early-access program in metastatic castration-resistant prostate cancer. Future Oncology. 2014;10(6):975-83. PMID: 24295376
27. Brahmer J, Reckamp KL, Baas P, et al. Nivolumab versus docetaxel in advanced squamous-cell non-small-cell lung cancer. N Engl J Med. 2015;373(2):123-35. PMID: 26028407
28. Burris HA, 3rd. Single-agent docetaxel (Taxotere) in randomized phase III trials. Seminars in Oncology. 1999;26(3 Suppl 9):1-6. PMID: 10426452
29. Burtness B, Harrington KJ, Greil R, et al. Pembrolizumab alone or with chemotherapy versus cetuximab with chemotherapy for recurrent or metastatic squamous cell carcinoma of the head and neck (KEYNOTE-048): a randomised, open-label, phase 3 study. Lancet. 2019:6 p. [Epub ahead of print]. PMID: 31679945
30. Castellano D, Anton Aparicio LM, Esteban E, et al. Cabazitaxel for metastatic castration-resistant prostate cancer: safety data from the Spanish expanded access program. Expert Opinion on Drug Safety. 2014;13(9):1165-73. PMID: 25001524
31. Chan S, Friedrichs K, Noel D, et al. Prospective randomized trial of docetaxel versus doxorubicin in patients with metastatic breast cancer. J Clin Oncol. 1999;17(8):2341-54. PMID: 10561296
32. Chen YM, Perng RP, Shih JF, et al. A randomized phase II study of docetaxel or vinorelbine in combination with cisplatin against inoperable, chemo-naive non-small-cell lung cancer in Taiwan. Lung Cancer. 2007;56(3):363-9. PMID: 17306906
33. Chen Z, Luo Q, Zhou Z, et al. Endostar in combination with postoperative adjuvant chemotherapy prolongs the disease free survival of stage IIIA NSCLC patients with high VEGF expression. Oncotarget. 2017;8(45):79703-11. PMID: 29108350
34. Chow LWC, Biganzoli L, Leo AD, et al. Toxicity profile differences of adjuvant docetaxel/cyclophosphamide (TC) between Asian and Caucasian breast cancer patients. Asia-Pacific Journal of Clinical Oncology. 2017;13(6):372-8. PMID: 28371190
35. Clamp AR, McNeish I, Dean A, et al. ICON8: a GCIG phase III randomised trial evaluating weekly dose-dense chemotherapy integration in firstline epithelial ovarian/fallopian tube/primary peritoneal carcinoma (EOC) treatment: results of primary progression free survival (PFS) analysis. . Ann Oncol. 2017;28(Suppl 5):627. PMID: none
36. Clavel M, Vermorken JB, Cognetti F, et al. Randomized comparison of cisplatin, methotrexate, bleomycin and vincristine (CABO) versus cisplatin and 5-fluorouracil (CF) versus cisplatin (C) in recurrent or metastatic squamous cell carcinoma of the head and neck. A phase III study of the EORTC Head and Neck Cancer Cooperative Group. Ann Oncol. 1994;5(6):521-6. PMID: 7522527
37. Colosia A, Njue A, Trask PC, et al. Clinical efficacy and safety in relapsed/refractory diffuse large B-cell lymphoma: a systematic literature review. Clin Lymphoma Myeloma Leuk. 2014;14(5):343-55.e6. PMID: 24768510
38. Coronel J, Cetina L, Candelaria M, et al. Weekly topotecan as second- or third-line treatment in patients with recurrent or metastatic cervical cancer. Med Oncol. 2009;26(2):210-4. PMID: 19016011
39. Creemers GJ, Bolis G, Gore M, et al. Topotecan, an active drug in the second-line treatment of epithelial ovarian cancer: results of a large European phase II study. J Clin Oncol. 1996;14(12):3056-61. PMID: 8955650
40. Crump M, Baetz T, Couban S, et al. Gemcitabine, dexamethasone, and cisplatin in patients with recurrent or refractory aggressive histology B-cell non-Hodgkin lymphoma: a phase II study by the National Cancer Institute of Canada Clinical Trials Group (NCIC-CTG). Cancer. 2004;101(8):1835-42. PMID: 15386331
41. Crump M, Kuruvilla J, Couban S, et al. Randomized comparison of gemcitabine, dexamethasone, and cisplatin versus dexamethasone, cytarabine, and cisplatin chemotherapy before autologous stem-cell transplantation for relapsed and refractory aggressive lymphomas: NCIC-CTG LY.12. J Clin Oncol. 2014;32(31):3490-6. PMID: 25267740
42. Cruz AB, Jr., Thames EA, Jr., Aust JB, et al. Combination chemotherapy for soft-tissue sarcomas: a phase III study. Journal of Surgical Oncology. 1979;11(4):313-23. PMID: 376950

43. Culine S, Kerbrat P, Kramar A, et al. Refining the optimal chemotherapy regimen for good-risk metastatic nonseminomatous germ-cell tumors: a randomized trial of the Genito-Urinary Group of the French Federation of Cancer Centers (GETUG T93BP). Ann Oncol. 2007;18(5):917-24. PMID: 17351252
44. Culine S, Kramar A, Theodore C, et al. Randomized trial comparing bleomycin/etoposide/cisplatin with alternating cisplatin/cyclophosphamide/doxorubicin and vinblastine/bleomycin regimens of chemotherapy for patients with intermediate- and poor-risk metastatic nonseminomatous germ cell tumors: Genito-Urinary Group of the French Federation of Cancer Centers Trial T93MP. J Clin Oncol. 2008;26(3):421-7. PMID: 18202419
45. de Bono JS, Oudard S, Ozguroglu M, et al. Prednisone plus cabazitaxel or mitoxantrone for metastatic castration-resistant prostate cancer progressing after docetaxel treatment: a randomised open-label trial. Lancet. 2010;376(9747):1147-54. PMID: 20888992
46. de Mello RA, Geros S, Alves MP, et al. Cetuximab plus platinum-based chemotherapy in head and neck squamous cell carcinoma: a retrospective study in a single comprehensive European cancer institution. PLoS ONE. 2014;9(2):e86697. PMID: 24516537
47. de Wit R, de Bono J, Sternberg CN, et al. Cabazitaxel versus abiraterone or enzalutamide in metastatic prostate cancer. N Engl J Med. 2019(Sep 30):[Epub ahead of print]. PMID: 31566937
48. de Wit R, Roberts JT, Wilkinson PM, et al. Equivalence of three or four cycles of bleomycin, etoposide, and cisplatin chemotherapy and of a 3- or 5-day schedule in good-prognosis germ cell cancer: a randomized study of the European Organization for Research and Treatment of Cancer Genitourinary Tract Cancer Cooperative Group and the Medical Research Council. J Clin Oncol. 2001;19(6):1629-40. PMID: 11250991
49. de Wit R, Skoneczna I, Daugaard G, et al. Randomized phase III study comparing paclitaxel-bleomycin, etoposide, and cisplatin (BEP) to standard BEP in intermediate-prognosis germ-cell cancer: intergroup study EORTC 30983. J Clin Oncol. 2012;30(8):792-9. PMID: 22271474
50. de Wit R, Stoter G, Kaye SB, et al. Importance of bleomycin in combination chemotherapy for good-prognosis testicular nonseminoma: a randomized study of the European Organization for Research and Treatment of Cancer Genitourinary Tract Cancer Cooperative Group. J Clin Oncol. 1997;15(5):1837-43. PMID: 9164193
51. de Wit R, Stoter G, Sleijfer DT, et al. Four cycles of BEP versus an alternating regime of PVB and BEP in patients with poor-prognosis metastatic testicular non-seminoma; a randomised study of the EORTC Genitourinary Tract Cancer Cooperative Group. Br J Cancer. 1995;71(6):1311-4. PMID: 7540039
52. de Wit R, Stoter G, Sleijfer DT, et al. Four cycles of BEP vs four cycles of VIP in patients with intermediate-prognosis metastatic testicular non-seminoma: a randomized study of the EORTC Genitourinary Tract Cancer Cooperative Group. European Organization for Research and Treatment of Cancer. Br J Cancer. 1998;78(6):828-32. PMID: 9743309
53. Dear RF, McGeechan K, Jenkins MC, et al. Combination versus sequential single agent chemotherapy for metastatic breast cancer. Cochrane Database Syst Rev. 2013(12):article number CD008792. PMID: 24347031
54. Douillard JY, Gervais R, Dabouis G, et al. Sequential two-line strategy for stage IV non-small-cell lung cancer: docetaxel-cisplatin versus vinorelbine-cisplatin followed by cross-over to single-agent docetaxel or vinorelbine at progression: final results of a randomised phase II study. Ann Oncol. 2005;16(1):81-9. PMID: 15598943
55. Douillard JY, Rosell R, De Lena M, et al. Adjuvant vinorelbine plus cisplatin versus observation in patients with completely resected stage IB-IIIA non-small-cell lung cancer (Adjuvant Navelbine International Trialist Association [ANITA]): a randomised controlled trial. Lancet Oncol. 2006;7(9):719-27. PMID: 16945766
56. Dranitsaris G, Yu B, King J, et al. Nab-paclitaxel, docetaxel, or solvent-based paclitaxel in metastatic breast cancer: a cost-utility analysis from a Chinese health care perspective. ClinicoEcon. 2015;7:249-56. PMID: 25999749
57. Edmonson JH, Ryan LM, Blum RH, et al. Randomized comparison of doxorubicin alone versus ifosfamide plus doxorubicin or mitomycin, doxorubicin, and cisplatin against advanced soft tissue sarcomas. J Clin Oncol. 1993;11(7):1269-75. PMID: 8315424
58. Einhorn LH, Williams SD, Loehrer PJ, et al. Evaluation of optimal duration of chemotherapy in favorable-prognosis disseminated germ cell tumors: a Southeastern Cancer Study Group protocol. J Clin Oncol. 1989;7(3):387-91. PMID: 2465391
59. Eisenberger M, Hardy-Bessard AC, Kim CS, et al. Phase III study comparing a reduced dose of cabazitaxel (20 mg/m^2) and the currently approved dose (25 mg/m^2) in postdocetaxel patients with metastatic castration-resistant prostate cancer-PROSELICA. J Clin Oncol. 2017;35(28):3198-206. PMID: 28809610
60. Enzinger PC, Burtness BA, Niedzwiecki D, et al. CALGB 80403 (Alliance)/E1206: a randomized phase II study of three chemotherapy regimens plus cetuximab in metastatic esophageal and gastroesophageal junction cancers. J Clin Oncol. 2016;34(23):2736-42. PMID: 27382098
61. Fehrenbacher L, Spira A, Ballinger M, et al. Atezolizumab versus docetaxel for patients with previously treated non-small-cell lung cancer (POPLAR): a multicentre, open-label, phase 2 randomised controlled trial. Lancet. 2016;387(10030):1837-46. PMID: 26970723
62. Feldman DR, Bosl GJ, Sheinfeld J, et al. Medical treatment of advanced testicular cancer. JAMA. 2008;299(6):672-84. PMID: 18270356
63. Fidias PM, Dakhil SR, Lyss AP, et al. Phase III study of immediate compared with delayed docetaxel after front-line therapy with gemcitabine plus carboplatin in advanced non-small-cell lung cancer. J Clin Oncol. 2009;27(4):591-8. PMID: 19075278

64. Fiorica JV, Blessing JA, Puneky LV, et al. A phase II evaluation of weekly topotecan as a single agent second line therapy in persistent or recurrent carcinoma of the cervix: a Gynecologic Oncology Group study. Gynecol Oncol. 2009;115(2):285-9. PMID: 19726073

65. Fizazi K, Pagliaro L, Laplanche A, et al. Personalised chemotherapy based on tumour marker decline in poor prognosis germ-cell tumours (GETUG 13): a phase 3, multicentre, randomised trial. Lancet Oncol. 2014;15(13):1442-50. PMID: 25456363

66. Forastiere AA, Metch B, Schuller DE, et al. Randomized comparison of cisplatin plus fluorouracil and carboplatin plus fluorouracil versus methotrexate in advanced squamous-cell carcinoma of the head and neck: a Southwest Oncology Group study. J Clin Oncol. 1992;10(8):1245-51. PMID: 1634913

67. Fossa SD, Kaye SB, Mead GM, et al. Filgrastim during combination chemotherapy of patients with poor-prognosis metastatic germ cell malignancy. J Clin Oncol. 1998;16(2):716-24. PMID: 9469362

68. Fossella F, Pereira JR, von Pawel J, et al. Randomized, multinational, phase III study of docetaxel plus platinum combinations versus vinorelbine plus cisplatin for advanced non-small-cell lung cancer: the TAX 326 study group. J Clin Oncol. 2003;21(16):3016-24. PMID: 12837811

69. Fossella FV, DeVore R, Kerr RN, et al. Randomized phase III trial of docetaxel versus vinorelbine or ifosfamide in patients with advanced non-small-cell lung cancer previously treated with platinum-containing chemotherapy regimens. The TAX 320 Non-Small Cell Lung Cancer Study Group. J Clin Oncol. 2000;18(12):2354-62. PMID: 10856094

70. Francis J, Coakley N, Elit L, et al. Systemic therapy for recurrent epithelial ovarian cancer: a clinical practice guideline. Curr Oncol. 2017;24(6):e540-e6. PMID: 29270064

71. Garassino MC, Martelli O, Broggini M, et al. Erlotinib versus docetaxel as second-line treatment of patients with advanced non-small-cell lung cancer and wild-type EGFR tumours (TAILOR): a randomised controlled trial. Lancet Oncol. 2013;14(10):981-8. PMID: 23883922

72. Garcia-del-Muro X, Maroto P, Guma J, et al. Chemotherapy as an alternative to radiotherapy in the treatment of stage IIA and IIB testicular seminoma: a Spanish Germ Cell Cancer Group Study. J Clin Oncol. 2008;26(33):5416-21. PMID: 18936476

73. Garon EB, Ciuleanu TE, Arrieta O, et al. Ramucirumab plus docetaxel versus placebo plus docetaxel for second-line treatment of stage IV non-small-cell lung cancer after disease progression on platinum-based therapy (REVEL): a multicentre, double-blind, randomised phase 3 trial. Lancet. 2014;384(9944):665-73. PMID: 24933332

74. Gebbia V, Lorusso V, Galetta D, et al. First-line cisplatin with docetaxel or vinorelbine in patients with advanced non-small-cell lung cancer: a quality of life directed phase II randomized trial of Gruppo Oncologico Italia Meridionale. Lung Cancer. 2010;69(2):218-24. PMID: 19910076

75. Georgoulias V, Ardavanis A, Agelidou A, et al. Docetaxel versus docetaxel plus cisplatin as front-line treatment of patients with advanced non-small-cell lung cancer: a randomized, multicenter phase III trial. J Clin Oncol. 2004;22(13):2602-9. PMID: 15226327

76. Gibson MK, Li Y, Murphy B, et al. Randomized phase III evaluation of cisplatin plus fluorouracil versus cisplatin plus paclitaxel in advanced head and neck cancer (E1395): an intergroup trial of the Eastern Cooperative Oncology Group. J Clin Oncol. 2005;23(15):3562-7. PMID: 15908667

77. Gilbar P, McPherson I, Sorour N, et al. High incidence of febrile neutropenia following adjuvant breast chemotherapy with docetaxel, carboplatin and trastuzumab. Breast Cancer Manag. 2014;3(4):327-33. PMID: none

78. Gilbar P, McPherson I, Sorour N, et al. High incidence of febrile neutropenia seen following adjuvant chemotherapy with docetaxel plus cyclophosphamide for early breast cancer. Breast Cancer Management. 2014;3(1):9-11. PMID: none

79. Gopal AK, Press OW, Shustov AR, et al. Efficacy and safety of gemcitabine, carboplatin, dexamethasone, and rituximab in patients with relapsed/refractory lymphoma: a prospective multi-center phase II study by the Puget Sound Oncology Consortium. Leuk Lymphoma. 2010;51(8):1523-9. PMID: 20578815

80. Gore M, ten Bokkel Huinink W, Carmichael J, et al. Clinical evidence for topotecan-paclitaxel non--cross-resistance in ovarian cancer. J Clin Oncol. 2001;19(7):1893-900. PMID: 11283120

81. Gradishar WJ, Krasnojon D, Cheporov S, et al. Significantly longer progression-free survival with nab-paclitaxel compared with docetaxel as first-line therapy for metastatic breast cancer. J Clin Oncol. 2009;27(22):3611-9. PMID: 19470941

82. Guo Y, Shi M, Yang A, et al. Platinum-based chemotherapy plus cetuximab first-line for Asian patients with recurrent and/or metastatic squamous cell carcinoma of the head and neck: results of an open-label, single-arm, multicenter trial. Head Neck. 2015;37(8):1081-7. PMID: 24710768

83. Gupta AA, Yao X, Verma S, et al. OUTDATED -ARCHIVED ON CCO website - Chemotherapy (gemcitabine, docetaxel plus gemcitabine, doxorubicin, or trabectedin) in inoperable, locally advanced, recurrent, or metastatic uterine leiomyosarcoma: a clinical practice guideline. Curr Oncol. 2013;20(5):e448-54. PMID: 24155641

84. Gupta AA, Yao X, Verma S, et al. Systematic chemotherapy for inoperable, locally advanced, recurrent, or metastatic uterine leiomyosarcoma: a systematic review. Clin Oncol (R Coll Radiol). 2013;25(6):346-55. PMID: 23295078

85. Hafez R, Hussein S, Ismail M. Definitive salvage chemotherapy for the treatment of refractory/relapsed non-Hodgkin lymphoma, a single center experience. Alexandria Journal of Medicine. 2018;54(4):679-83. PMID: none

86. Hamilton EP, Topping DL, Peppercorn JM, et al. Clinical impact of febrile neutropenia (FN) increase among patients receiving adjuvant docetaxel/cyclophosphamide (TC) chemotherapy compared to TC plus pegfilgrastim for breast cancer. J Clin Oncol. 2013;31(Suppl 15):abstract 1076. PMID: none
87. Hanna N, Johnson D, Temin S, et al. Systemic therapy for stage IV non-small-cell lung cancer: American Society of Clinical Oncology clinical practice guideline update. (2017 [Review in Progress Dec 2019]) American Society of Clinical Oncology (ASCO). Available from: https://www.asco.org/research-guidelines/quality-guidelines/guidelines/thoracic-cancer#/10201.
88. Hanna N, Shepherd FA, Fossella FV, et al. Randomized phase III trial of pemetrexed versus docetaxel in patients with non-small-cell lung cancer previously treated with chemotherapy. J Clin Oncol. 2004;22(9):1589-97. PMID: 15117980
89. Harvey V, Mouridsen H, Semiglazov V, et al. Phase III trial comparing three doses of docetaxel for second-line treatment of advanced breast cancer. J Clin Oncol. 2006;24(31):4963-70. PMID: 17033039
90. Hazelden LA, Newman MJ, Shuey S, et al. Evaluation of the head and neck cancer patient population and the incidence of hospitalization at an academic medical center. J Oncol Pharm Pract. 2019;25(2):333-8. PMID: 29050538
91. He X, Wang J, Li Y. Efficacy and safety of docetaxel for advanced non-small-cell lung cancer: a meta-analysis of phase III randomized controlled trials. Onco Targets Ther. 2015;8:2023-31. PMID: 26346649
92. Heidenreich A, Bracarda S, Mason M, et al. Safety of cabazitaxel in senior adults with metastatic castration-resistant prostate cancer: results of the European compassionate-use programme. Eur J Cancer. 2014;50(6):1090-9. PMID: 24485664
93. Heidenreich A, Scholz HJ, Rogenhofer S, et al. Cabazitaxel plus prednisone for metastatic castration-resistant prostate cancer progressing after docetaxel: results from the German compassionate-use programme. Eur Urol. 2013;63(6):977-82. PMID: 23116658
94. Herbst RS, Baas P, Kim DW, et al. Pembrolizumab versus docetaxel for previously treated, PD-L1-positive, advanced non-small-cell lung cancer (KEYNOTE-010): a randomised controlled trial. Lancet. 2016;387(10027):1540-50. PMID: 26712084
95. Higuchi K, Tanabe S, Shimada K, et al. Biweekly irinotecan plus cisplatin versus irinotecan alone as second-line treatment for advanced gastric cancer: a randomised phase III trial (TCOG GI-0801/BIRIP trial). Eur J Cancer. 2014;50(8):1437-45. PMID: 24560487
96. Hirano H, Kato K. Systemic treatment of advanced esophageal squamous cell carcinoma: chemotherapy, molecular-targeting therapy and immunotherapy. Jpn J Clin Oncol. 2019;49(5):412-20. PMID: 30920626
97. Hirte H, Kennedy EB, Elit L, et al. Systemic therapy for recurrent, persistent, or metastatic cervical cancer: a clinical practice guideline. Curr Oncol. 2015;22(3):211-9. PMID: 26089720
98. Hosein PJ, Macintyre J, Kawamura C, et al. A retrospective study of neoadjuvant FOLFIRINOX in unresectable or borderline-resectable locally advanced pancreatic adenocarcinoma. BMC Cancer. 2012;12(Article number 199):1-7. PMID: 22642850
99. Hoskins P, Eisenhauer E, Beare S, et al. Randomized phase II study of two schedules of topotecan in previously treated patients with ovarian cancer: a National Cancer Institute of Canada Clinical Trials Group study. J Clin Oncol. 1998;16(6):2233-7. PMID: 9626225
100. Hou Y, Wang HQ, Ba Y. Rituximab, gemcitabine, cisplatin, and dexamethasone in patients with refractory or relapsed aggressive B-cell lymphoma. Med Oncol. 2012;29(4):2409-16. PMID: 22476761
101. Hsu C, Shen YC, Cheng CC, et al. Geographic difference in safety and efficacy of systemic chemotherapy for advanced gastric or gastroesophagealcarcinoma: a meta-analysis and meta-regression. Gastric Cancer. 2012;15(3):265-80. PMID: 22576708
102. Huddart RA, Gabe R, Cafferty FH, et al. A randomised phase 2 trial of intensive induction chemotherapy (CBOP/BEP) and standard BEP in poor-prognosis germ cell tumours (MRC TE23, CRUK 05/014, ISRCTN 53643604). Eur Urol. 2015;67(3):534-43. PMID: 25001888
103. Hurvitz SA, Martin M, Jung KH, et al. Neoadjuvant trastuzumab emtansine and pertuzumab in human epidermal growth factor receptor 2-positive breast cancer: three-year outcomes from the phase III KRISTINE study. J Clin Oncol. 2019;37(25):2206-16. PMID: 31157583
104. Hurvitz SA, Martin M, Symmans WF, et al. Neoadjuvant trastuzumab, pertuzumab, and chemotherapy versus trastuzumab emtansine plus pertuzumab in patients with HER2-positive breast cancer (KRISTINE): a randomised, open-label, multicentre, phase 3 trial. Lancet Oncol. 2018;19(1):115-26. PMID: 29175149
105. Ilson DH. Phase II trial of weekly irinotecan/cisplatin in advanced esophageal cancer. Oncology 2004;18(14 Suppl 14):22-5. PMID: 15685830
106. Ilson DH, Saltz L, Enzinger P, et al. Phase II trial of weekly irinotecan plus cisplatin in advanced esophageal cancer. J Clin Oncol. 1999;17(10):3270-5. PMID: 10506629
107. Jain MD, Morin RD, Prica A, et al. Obinutuzumab plus gemcitabine, dexamethasone and cisplatin (O-GDP) as salvage chemotherapy prior to autologous stem cell transplant in aggressive B cell lymphoma. Blood. 2018;132(Suppl 1):4610. PMID: none
108. Janne PA, Shaw AT, Pereira JR, et al. Selumetinib plus docetaxel for KRAS-mutant advanced non-small-cell lung cancer: a randomised, multicentre, placebo-controlled, phase 2 study. Lancet Oncol. 2013;14(1):38-47. PMID: 23200175

109. Janne PA, van den Heuvel MM, Barlesi F, et al. Selumetinib plus docetaxel compared with docetaxel alone and progression-free survival in patients with KRAS-mutant advanced non-small cell lung cancer: the SELECT-1 randomized clinical trial. JAMA. 2017;317(18):1844-53. PMID: 28492898

110. Jones S, Holmes FA, O'Shaughnessy J, et al. Docetaxel with cyclophosphamide is associated with an overall survival benefit compared with doxorubicin and cyclophosphamide: 7-year follow-up of US Oncology Research Trial 9735. J Clin Oncol. 2009;27(8):1177-83. PMID: 19204201

111. Jones SE, Collea R, Paul D, et al. Adjuvant docetaxel and cyclophosphamide plus trastuzumab in patients with HER2-amplified early stage breast cancer: a single-group, open-label, phase 2 study. Lancet Oncol. 2013;14(11):1121-8. PMID: 24007746

112. Jones SE, Erban J, Overmoyer B, et al. Randomized phase III study of docetaxel compared with paclitaxel in metastatic breast cancer. J Clin Oncol. 2005;23(24):5542-51. PMID: 16110015

113. Judson I, Verweij J, Gelderblom H, et al. Doxorubicin alone versus intensified doxorubicin plus ifosfamide for first-line treatment of advanced or metastatic soft-tissue sarcoma: a randomised controlled phase 3 trial. Lancet Oncol. 2014;15(4):415-23. PMID: 24618336

114. Katsumata N. Docetaxel: an alternative taxane in ovarian cancer. Br J Cancer. 2003;89 (Suppl 3):S9-S15. PMID: 14661041

115. Kaye SB, Mead GM, Fossa S, et al. Intensive induction-sequential chemotherapy with BOP/VIP-B compared with treatment with BEP/EP for poor-prognosis metastatic nonseminomatous germ cell tumor: a Randomized Medical Research Council/European Organization for Research and Treatment of Cancer study. J Clin Oncol. 1998;16(2):692-701. PMID: 9469359

116. Kim M, Keam B, Kim TM, et al. Phase II study of irinotecan and cisplatin combination chemotherapy in metastatic, unresectable esophageal cancer. Cancer Res Treat. 2017;49(2):416-22. PMID: 27488873

117. Kimmel J, Michaud L, Koenig K. Primary growth factor prophylaxis in breast cancer patients receiving TCHP. J Oncol Pharm Pract. 2019;25 (3 Suppl):abstract CR018. PMID: none

118. Kitagawa R, Katsumata N, Shibata T, et al. Paclitaxel plus carboplatin versus paclitaxel plus cisplatin in metastatic or recurrent cervical cancer: the open-label randomized phase III trial JCOG0505. J Clin Oncol. 2015;33(19):2129-35. PMID: 25732161

119. Koroleva I, Wojtukiewicz M, Zaluski J, et al. Preliminary results of a phase II randomized trial of Taxotere (T) and doxorubicin (A) given in combination or sequentially as first line chemotherapy (CT) for for metastatic breast cancer (MBC). J Clin Oncol. 2001;20(Part 1 of 2):abstract 117.

120. Kosaka Y, Rai Y, Masuda N, et al. Phase III placebo-controlled, double-blind, randomized trial of pegfilgrastim to reduce the risk of febrile neutropenia in breast cancer patients receiving docetaxel/cyclophosphamide chemotherapy. Support Care Cancer. 2015;23(4):1137-43. PMID: 25576433

121. Kosmidis PA, Samantas E, Fountzilas G, et al. Cisplatin/etoposide versus carboplatin/etoposide chemotherapy and irradiation in small cell lung cancer: a randomized phase III study. Hellenic Cooperative Oncology Group for Lung Cancer Trials. Seminars in Oncology. 1994;21(3 Suppl 6):23-30. PMID: 8052870

122. Kreuter M, Vansteenkiste J, Fischer JR, et al. Randomized phase 2 trial on refinement of early-stage NSCLC adjuvant chemotherapy with cisplatin and pemetrexed versus cisplatin and vinorelbine: the TREAT study. Ann Oncol. 2013;24(4):986-92. PMID: 23161898

123. Kubota K, Sakai H, Katakami N, et al. A randomized phase III trial of oral S-1 plus cisplatin versus docetaxel plus cisplatin in Japanese patients with advanced non-small-cell lung cancer: TCOG0701 CATS trial. Ann Oncol. 2015;26(7):1401-8. PMID: 25908605

124. Kuruvilla J, Crump M, Villa D, et al. Canadian Cancer Trials Group (CCTG) LY.17: a randomized phase II study evaluating novel salvage therapy pre-autologous stem cell transplant (ASCT) in relapsed/refractory diffuse large B cell lymphoma (RR-DLBCL) - outcome of ibrutinib + R-GDP. Hematol Oncol. 2017;35 (S2):88. PMID: none

125. Kurzeder C, Bover I, Marme F, et al. Double-blind, placebo-controlled, randomized phase iii trial evaluating pertuzumab combined with chemotherapy for low tumor human epidermal growth factor receptor 3 mRNA-expressing platinum-resistant ovarian cancer (PENELOPE). J Clin Oncol. 2016;34(21):2516-25. PMID: 27269942

126. Ladwa R, Kalas T, Pathmanathan S, et al. Maintaining dose intensity of adjuvant chemotherapy in older patients with breast cancer. Clin Breast Cancer. 2018;18(5):e1181-e7. PMID: 29778788

127. Laguna MP, Albers P, Albrecht W, et al. EAU guidelines on testicular cancer. (2015) Available from: https://uroweb.org/guideline/testicular-cancer/.

128. Lakhanpal R, Stuart-Harris R, Chan A, et al. Docetaxel and cyclophosphamide as adjuvant chemotherapy for early breast cancer: primary prophylaxis with G-CSF is required. Breast Cancer Management. 2013;2(5):367-74. PMID: none

129. Lee DH, Kim HT, Han JY, et al. A phase II trial of modified weekly irinotecan and cisplatin for chemotherapy-naive patients with metastatic or recurrent squamous cell carcinoma of the esophagus. Cancer Chemother Pharmacol. 2008;61(1):83-8. PMID: 17468871

130. Li A, Wei ZJ, Ding H, et al. Docetaxel versus docetaxel plus cisplatin for non-small-cell lung cancer: a meta-analysis of randomized clinical trials. Oncotarget. 2017;8(34):57365-78. PMID: 28915677

131. Long HJ, 3rd, Bundy BN, Grendys EC, Jr., et al. Randomized phase III trial of cisplatin with or without topotecan in carcinoma of the uterine cervix: a Gynecologic Oncology Group Study. J Clin Oncol. 2005;23(21):4626-33. PMID: 15911865

132. Lorigan P, Verweij J, Papai Z, et al. Phase III trial of two investigational schedules of ifosfamide compared with standard-dose doxorubicin in advanced or metastatic soft tissue sarcoma: a European Organisation for Research and Treatment of Cancer Soft Tissue and Bone Sarcoma Group Study. J Clin Oncol. 2007;25(21):3144-50. PMID: 17634494
133. Lorusso D, Mainenti S, Pietragalla A, et al. Phase II study on weekly bolus topotecan in advanced or recurrent cervical cancer. Oncology. 2011;80(5-6):390-4. PMID: 21829040
134. Lowrance WT, Murad MH, Oh WK, et al. Castration-resistant prostate cancer: AUA guideline amendment 2018. J Urol. 2018;200(6):1264-72. PMID: 30086276
135. Mackey JR, Ramos-Vazquez M, Lipatov O, et al. Primary results of ROSE/TRIO-12, a randomized placebo-controlled phase III trial evaluating the addition of ramucirumab to first-line docetaxel chemotherapy in metastatic breast cancer. J Clin Oncol. 2015;33(2):141-8. PMID: 25185099
136. Malik Z, Heidenreich A, Bracarda S, et al. Real-world experience with cabazitaxel in patients with metastatic castration-resistant prostate cancer: a final, pooled analysis of the compassionate use programme and early access programme. Oncotarget. 2019;10(41):4161-8. PMID: 31289614
137. Markman M, Kennedy A, Webster K, et al. Combination chemotherapy with carboplatin and docetaxel in the treatment of cancers of the ovary and fallopian tube and primary carcinoma of the peritoneum. J Clin Oncol. 2001;19(7):1901-5. PMID: 11283121
138. Marty M, Cognetti F, Maraninchi D, et al. Randomized phase II trial of the efficacy and safety of trastuzumab combined with docetaxel in patients with human epidermal growth factor receptor 2-positive metastatic breast cancer administered as first-line treatment: the M77001 study group. J Clin Oncol. 2005;23(19):4265-74. PMID: 15911866
139. Mauri D, Kamposioras K, Tsali L, et al. Overall survival benefit for weekly vs. three-weekly taxanes regimens in advanced breast cancer: a meta-analysis. Cancer Treat Rev. 2010;36(1):69-74. PMID: 19945225
140. Mavroudis D, Malamos N, Papakotoulas P, et al. Abstract P3-09-01: a multicenter randomized study comparing the dose dense G-CSF-supported sequential administration of FEC followed by docetaxel versus docetaxel plus cyclophosphamide as adjuvant chemotherapy in women with HER2-negative, axillary lymph node-positive breast. Cancer Research. 2015;75(9 Suppl):P3-09-1. PMID: none
141. Monk BJ, Sill MW, McMeekin DS, et al. Phase III trial of four cisplatin-containing doublet combinations in stage IVB, recurrent, or persistent cervical carcinoma: a Gynecologic Oncology Group study. J Clin Oncol. 2009;27(28):4649-55. PMID: 19720909
142. Moore DH, Blessing JA, McQuellon RP, et al. Phase III study of cisplatin with or without paclitaxel in stage IVB, recurrent, or persistent squamous cell carcinoma of the cervix: a Gynecologic Oncology Group study. J Clin Oncol. 2004;22(15):3113-9. PMID: 15284262
143. Mori T, Hosokawa K, Kinoshita Y, et al. A pilot study of docetaxel-carboplatin versus paclitaxel-carboplatin in Japanese patients with epithelial ovarian cancer. Int J Clin Oncol. 2007;12(3):205-11. PMID: 17566844
144. Mottet N, Bellmunt J, Briers E, et al. EAU-ESTRO-ESUR-SIOG guidelines on prostate cancer. (2019) Available from: https://uroweb.org/guideline/prostate-cancer/.
145. Motzer RJ, Sheinfeld J, Mazumdar M, et al. Etoposide and cisplatin adjuvant therapy for patients with pathologic stage II germ cell tumors. J Clin Oncol. 1995;13(11):2700-4. PMID: 7595727
146. Muderspach LI, Blessing JA, Levenback C, et al. A phase II study of topotecan in patients with squamous cell carcinoma of the cervix: a Gynecologic Oncology Group study. Gynecol Oncol. 2001;81(2):213-5. PMID: 11354055
147. Muss HB, Bundy B, DiSaia PJ, et al. Treatment of recurrent or advanced uterine sarcoma. A randomized trial of doxorubicin versus doxorubicin and cyclophosphamide (a phase III trial of the Gynecologic Oncology Group). Cancer. 1985;55(8):1648-53. PMID: 3884128
148. Nabholtz JM, Senn HJ, Bezwoda WR, et al. Prospective randomized trial of docetaxel versus mitomycin plus vinblastine in patients with metastatic breast cancer progressing despite previous anthracycline-containing chemotherapy. 304 Study Group. J Clin Oncol. 1999;17(5):1413-24. PMID: 10334526
149. Nichols CR, Catalano PJ, Crawford ED, et al. Randomized comparison of cisplatin and etoposide and either bleomycin or ifosfamide in treatment of advanced disseminated germ cell tumors: an Eastern Cooperative Oncology Group, Southwest Oncology Group, and Cancer and Leukemia Group B Study. J Clin Oncol. 1998;16(4):1287-93. PMID: 9552027
150. Nichols CR, Williams SD, Loehrer PJ, et al. Randomized study of cisplatin dose intensity in poor-risk germ cell tumors: a Southeastern Cancer Study Group and Southwest Oncology Group protocol. J Clin Oncol. 1991;9(7):1163-72. PMID: 1710655
151. Nielsen OS, Dombernowsky P, Mouridsen H, et al. High-dose epirubicin is not an alternative to standard-dose doxorubicin in the treatment of advanced soft tissue sarcomas. a study of the EORTC soft tissue and bone sarcoma group. Br J Cancer. 1998;78(12):1634-9. PMID: 9862576
152. Nishikawa K, Fujitani K, Inagaki H, et al. Randomised phase III trial of second-line irinotecan plus cisplatin versus irinotecan alone in patients with advanced gastric cancer refractory to S-1 monotherapy: TRICS trial. Eur J Cancer. 2015;51(7):808-16. PMID: 25797356
153. Noda K, Sasaki H, Yamamoto T, et al. Phase II trial of topotecan for cervical cancer of the uterus. J Clin Oncol. 1996;15(Program/proceedings: American Society of Clinical Oncology):abstract 754. PMID: none

154. Nokihara H, Lu S, Mok TSK, et al. Randomized controlled trial of S-1 versus docetaxel in patients with non-small-cell lung cancer previously treated with platinum-based chemotherapy (East Asia S-1 Trial in Lung Cancer). Ann Oncol. 2017;28(11):2698-706. PMID: 29045553

155. Ohe Y, Ohashi Y, Kubota K, et al. Randomized phase III study of cisplatin plus irinotecan versus carboplatin plus paclitaxel, cisplatin plus gemcitabine, and cisplatin plus vinorelbine for advanced non-small-cell lung cancer: four-arm cooperative study in Japan. Ann Oncol. 2007;18(2):317-23. PMID: 17079694

156. O'Shaughnessy J, Miles D, Vukelja S, et al. Superior survival with capecitabine plus docetaxel combination therapy in anthracycline-pretreated patients with advanced breast cancer: phase III trial results. J Clin Oncol. 2002;20(12):2812-23. PMID: 12065558

157. Oudard S, Fizazi K, Sengelov L, et al. Cabazitaxel versus docetaxel as first-line therapy for patients with metastatic castration-resistant prostate cancer: a randomized phase III trial-FIRSTANA. J Clin Oncol. 2017;35(28):3189-97. PMID: 28753384

158. Ouyang X, Shi M, Jie F, et al. Phase III study of dulanermin (recombinant human tumor necrosis factor-related apoptosis-inducing ligand/Apo2 ligand) combined with vinorelbine and cisplatin in patients with advanced non-small-cell lung cancer. Invest New Drugs. 2018;36(2):315-22. PMID: 29134432

159. Parente P, Ng S, Parnis F, et al. Cabazitaxel in patients with metastatic castration-resistant prostate cancer: safety and quality of life data from the Australian early access program. Asia-Pacific Journal of Clinical Oncology. 2017;13(6):391-9. PMID: 28488360

160. Park CK, Oh IJ, Kim KS, et al. Randomized phase III study of docetaxel plus cisplatin versus pemetrexed plus cisplatin as first-line treatment of nonsquamous non-small-cell lung cancer: a TRAIL trial. Clin Lung Cancer. 2017;18(4):e289-e96. PMID: 28185792

161. Patel K, Diergaarde B, Brufsky A, et al. Incidence of febrile neutropenia with use of docetaxel plus cyclophosphamide (TC) for breast cancer. J Clin Oncol. 2017;35(Suppl 15):abstract e12073. PMID: none

162. Pervaiz N, Colterjohn N, Farrokhyar F, et al. A systematic meta-analysis of randomized controlled trials of adjuvant chemotherapy for localized resectable soft-tissue sarcoma. Cancer. 2008;113(3):573-81. PMID: 18521899

163. Petrelli F, Barni S. Anti-EGFR-targeting agents in recurrent or metastatic head and neck carcinoma: a meta-analysis. Head Neck. 2012;34(11):1657-64. PMID: 21953841

164. Pillai RN, Fennell DA, Kovcin V, et al. Randomized phase III study of ganetespib, a heat shock protein 90 inhibitor, with docetaxel versus docetaxel in advanced non-small-cell lung cancer (GALAXY-2). J Clin Oncol. 2019;38:[Epub ahead of print]. PMID: 31829907

165. Pozzo C, Barone C, Szanto J, et al. Irinotecan in combination with 5-fluorouracil and folinic acid or with cisplatin in patients with advanced gastric or esophageal-gastric junction adenocarcinoma: results of a randomized phase II study. Ann Oncol. 2004;15(12):1773-81. PMID: 15550582

166. Pujade-Lauraine E, Hilpert F, Weber B, et al. Bevacizumab combined with chemotherapy for platinum-resistant recurrent ovarian cancer: The AURELIA open-label randomized phase III trial. J Clin Oncol. 2014;32(13):1302-8. PMID: 24637997

167. Pujol JL, Breton JL, Gervais R, et al. Gemcitabine-docetaxel versus cisplatin-vinorelbine in advanced or metastatic non-small-cell lung cancer: a phase III study addressing the case for cisplatin. Ann Oncol. 2005;16(4):602-10. PMID: 15741225

168. Qi WX, Shen Z, Lin F, et al. Paclitaxel-based versus docetaxel-based regimens in metastatic breast cancer: a systematic review and meta-analysis of randomized controlled trials. Curr Med Res Opin. 2013;29(2):117-25. PMID: 23216340

169. Ramalingam SS, Perol M, Reck M, et al. Efficacy and safety of ramucirumab with docetaxel versus placebo with docetaxel as second-line treatment of advanced non-small-cell lung cancer: a subgroup analysis according to patient age in the REVEL trial. Clin Lung Cancer. 2018;19(3):270-9. PMID: 29373274

170. Ramzi M, Rezvani A, Dehghani M. GDP versus ESHAP regimen in relapsed and/or refractory Hodgkin lymphoma: a comparison study. Int. 2015;9(1):10-4. PMID: 25802695

171. Reck M, Kaiser R, Mellemgaard A, et al. Docetaxel plus nintedanib versus docetaxel plus placebo in patients with previously treated non-small-cell lung cancer (LUME-Lung 1): a phase 3, double-blind, randomised controlled trial. Lancet Oncol. 2014;15(2):143-55. PMID: 24411639

172. Resnick MJ, Lacchetti C, Bergman J, et al. Prostate cancer survivorship care guideline: American Society of Clinical Oncology clinical practice guideline endorsement. J Clin Oncol. 2015;33(9):1078-85. PMID: 25667275

173. Reyners AK, de Munck L, Erdkamp FL, et al. A randomized phase II study investigating the addition of the specific COX-2 inhibitor celecoxib to docetaxel plus carboplatin as first-line chemotherapy for stage IC to IV epithelial ovarian cancer, fallopian tube or primary peritoneal carcinomas: the DoCaCel study. Ann Oncol. 2012;23(11):2896-902. PMID: 22689176

174. Rimawi MF, Cecchini RS, Rastogi P, et al. A phase III trial evaluating pCR in patients with HR+, HER2-positive breast cancer treated with neoadjuvant docetaxel, carboplatin trastuzumab, and pertuzumab (TCHP) +/estrogen deprivation: NRG Oncology/NSABP B52. Cancer Res. 2017;77(4 Suppl):abstract S3-06. PMID: none

175. Rittmeyer A, Barlesi F, Waterkamp D, et al. Atezolizumab versus docetaxel in patients with previously treated non-small-cell lung cancer (OAK): a phase 3, open-label, multicentre randomised controlled trial. Lancet. 2017;389(10066):255-65. PMID: 27979383

176. Rivera E, Mejia JA, Arun BK, et al. Phase 3 study comparing the use of docetaxel on an every-3-week versus weekly schedule in the treatment of metastatic breast cancer. Cancer. 2008;112(7):1455-61. PMID: 18300256

177. Rocque G, Onitilo A, Engel J, et al. Adjuvant therapy for HER2+ breast cancer: practice, perception, and toxicity. Breast Cancer Res Treat. 2012;131(2):713-21. PMID: 22065290

178. Rose PG, Blessing JA, Gershenson DM, et al. Paclitaxel and cisplatin as first-line therapy in recurrent or advanced squamous cell carcinoma of the cervix: a Gynecologic Oncology Group study. J Clin Oncol. 1999;17(9):2676-80. PMID: 10561341

179. Rouyer M, Oudard S, Joly F, et al. Overall and progression-free survival with cabazitaxel in metastatic castration-resistant prostate cancer in routine clinical practice: the FUJI cohort. Br J Cancer. 2019;121:1001-8. PMID: 31719685

180. Ryan CW, Merimsky O, Agulnik M, et al. PICASSO III: a phase III, placebo-controlled study of doxorubicin with or without palifosfamide in patients with metastatic soft tissue sarcoma. J Clin Oncol. 2016;34(32):3898-905. PMID: 27621408

181. Saad F, Winquist E, Hubay S, et al. Efficacy, quality of life, and safety of cabazitaxel in Canadian metastatic castration-resistant prostate cancer patients treated or not with prior abiraterone. Can Urol Assoc J. 2016;10(3-4):102-9. PMID: 27217856

182. Salles GA, Pettengell R, Cordoba R, et al. Treatment of aggressive B-cell non-Hodgkin lymphoma beyond frontline therapy in patients not eligible for stem cell transplantation: a structured review. Leuk Lymphoma. 2019;60(7):1610-25. PMID: 30702000

183. Santoro A, Tursz T, Mouridsen H, et al. Doxorubicin versus CYVADIC versus doxorubicin plus ifosfamide in first-line treatment of advanced soft tissue sarcomas: a randomized study of the European Organization for Research and Treatment of Cancer Soft Tissue and Bone Sarcoma Group. J Clin Oncol. 1995;13(7):1537-45. PMID: 7602342

184. Sarcoma Meta-analysis Collaboration. Adjuvant chemotherapy for localised resectable soft-tissue sarcoma of adults: meta-analysis of individual data. . Lancet. 1997;350(9092):1647-54. PMID: 9400508

185. Saxman SB, Finch D, Gonin R, et al. Long-term follow-up of a phase III study of three versus four cycles of bleomycin, etoposide, and cisplatin in favorable-prognosis germ-cell tumors: the Indian University experience. J Clin Oncol. 1998;16(2):702-6. PMID: 9469360

186. Schiller JH, Harrington D, Belani CP, et al. Comparison of four chemotherapy regimens for advanced non-small-cell lung cancer. N Engl J Med. 2002;346(2):92-8. PMID: 11784875

187. Schneeweiss A, Chia S, Hickish T, et al. Pertuzumab plus trastuzumab in combination with standard neoadjuvant anthracycline-containing and anthracycline-free chemotherapy regimens in patients with HER2-positive early breast cancer: a randomized phase II cardiac safety study (TRYPHAENA). Ann Oncol. 2013;24(9):2278-84. PMID: 23704196

188. Seddon B, Strauss SJ, Whelan J, et al. Gemcitabine and docetaxel versus doxorubicin as first-line treatment in previously untreated advanced unresectable or metastatic soft-tissue sarcomas (GeDDiS): a randomised controlled phase 3 trial. Lancet Oncol. 2017;18(10):1397-410. PMID: 28882536

189. Sehouli J, Stengel D, Harter P, et al. Topotecan weekly versus conventional 5-day schedule in patients with platinum-resistant ovarian cancer: a randomized multicenter phase II trial of the North-Eastern German Society of Gynecological Oncology Ovarian Cancer Study Group. J Clin Oncol. 2011;29(2):242-8. PMID: 21115872

190. Shelley MD, Burgon K, Mason MD. Treatment of testicular germ-cell cancer: a Cochrane evidence-based systematic review. Cancer Treat Rev. 2002;28(5):237-53. PMID: 12435371

191. Shen G, Bian G, Yu H, et al. Comparison between cisplatin plus vinorelbine and cisplatin plus docetaxel in the treatment of advanced non-small-cell lung cancer: a meta-analysis of randomized controlled trials. Mol Clin Oncol. 2014;2(1):146-50. PMID: 24649324

192. Shukuya T, Yamanaka T, Seto T, et al. Nedaplatin plus docetaxel versus cisplatin plus docetaxel for advanced or relapsed squamous cell carcinoma of the lung (WJOG5208L): a randomised, open-label, phase 3 trial. Lancet Oncol. 2015;16(16):1630-8. PMID: 26522337

193. Sjostrom J, Blomqvist C, Mouridsen H, et al. Docetaxel compared with sequential methotrexate and 5-fluorouracil in patients with advanced breast cancer after anthracycline failure: a randomised phase III study with crossover on progression by the Scandinavian Breast Group. Eur J Cancer. 1999;35(8):1194-201. PMID: 10615229

194. Smith TJ, Bohlke K, Lyman GH, et al. Recommendations for the use of WBC growth factors update. (2015) American Society of Clinical Oncology (ASCO). Available from: https://www.asco.org/research-guidelines/quality-guidelines/guidelines/supportive-care-and-treatment-related-issues%20#/9806.

195. Socinski MA, Jotte RM, Cappuzzo F, et al. Atezolizumab for first-line treatment of metastatic nonsquamous NSCLC. N Engl J Med. 2018;378(24):2288-301. PMID: 29863955

196. Sohal DP, Mangu PB, Khorana AA, et al. Metastatic pancreatic cancer: American Society of Clinical Oncology clinical practice guideline. J Clin Oncol. 2016;34(23):2784-96. PMID: 27247222

197. Sohal DPS, Kennedy EB, Khorana A, et al. Metastatic pancreatic cancer: ASCO clinical practice guideline update. J Clin Oncol. 2018;36(24):2545-56. PMID: 29791286

198. Soria JC, Fulop A, Maciel C, et al. SELECT-2: a phase II, double-blind, randomized, placebo-controlled study to assess the efficacy of selumetinib plus docetaxel as a second-line treatment of patients with advanced or metastatic non-small-cell lung cancer. Ann Oncol. 2017;28(12):3028-36. PMID: 29045535

199. Strauss HG, Henze A, Teichmann A, et al. Phase II trial of docetaxel and carboplatin in recurrent platinum-sensitive ovarian, peritoneal and tubal cancer. Gynecol Oncol. 2007;104(3):612-6. PMID: 17069876

200. Su Q, Sun Z, Zhang C, et al. PD-1/PD-L1 antibodies efficacy and safety versus docetaxel monotherapy in advanced NSCLC patients after first-line treatment option: systems assessment. Oncotarget. 2017;8(35):59677-89. PMID: 28938671

201. Sugawara S, Nakagawa K, Yamamoto N, et al. Japanese subgroup analysis of a phase III study of S-1 versus docetaxel in non-small cell lung cancer patients after platinum-based treatment: EAST-LC. Int J Clin Oncol. 2019;24(5):485-93. PMID: 30830659

202. Sugiyama T, Mizuno M, Aoki Y, et al. A single-arm study evaluating bevacizumab, cisplatin, and paclitaxel followed by single-agent bevacizumab in Japanese patients with advanced cervical cancer. Jpn J Clin Oncol. 2017;47(1):39-46. PMID: 27803033

203. Suzuki K, Matsubara N, Kazama H, et al. Safety and efficacy of cabazitaxel in 660 patients with metastatic castration-resistant prostate cancer in real-world settings: results of a Japanese post-marketing surveillance study. Jpn J Clin Oncol. 2019(Jul 30):[Epub ahead of print]. PMID: 31361807

204. Swain SM, Im YH, Im SA, et al. Safety profile of pertuzumab with trastuzumab and docetaxel in patients from Asia with human epidermal growth factor receptor 2-positive metastatic breast cancer: results from the phase III trial CLEOPATRA. Oncologist. 2014;19(7):693-701. PMID: 24869931

205. Swisher EM, Mutch DG, Rader JS, et al. Topotecan in platinum- and paclitaxel-resistant ovarian cancer. Gynecol Oncol. 1997;66(3):480-6. PMID: 9299264

206. Tabernero J, Climent MA, Lluch A, et al. A multicentre, randomised phase II study of weekly or 3-weekly docetaxel in patients with metastatic breast cancer. Ann Oncol. 2004;15(9):1358-65. PMID: 15319242

207. Tan EH, Rolski J, Grodzki T, et al. Global Lung Oncology Branch trial 3 (GLOB3): final results of a randomised multinational phase III study alternating oral and I.V. vinorelbine plus cisplatin versus docetaxel plus cisplatin as first-line treatment of advanced non-small-cell lung cancer. Ann Oncol. 2009;20(7):1249-56. PMID: 19276396

208. Tanaka K, Kawano M, Iwasaki T, et al. A meta-analysis of randomized controlled trials that compare standard doxorubicin with other first-line chemotherapies for advanced/metastatic soft tissue sarcomas. PLoS ONE. 2019;14(1):e0210671. PMID: 30629708

209. Tap WD, Papai Z, Van Tine BA, et al. Doxorubicin plus evofosfamide versus doxorubicin alone in locally advanced, unresectable or metastatic soft-tissue sarcoma (TH CR-406/SARC021): an international, multicentre, open-label, randomised phase 3 trial. Lancet Oncol. 2017;18(8):1089-103. PMID: 28651927

210. ten Bokkel Huinink W, Gore M, Carmichael J, et al. Topotecan versus paclitaxel for the treatment of recurrent epithelial ovarian cancer. J Clin Oncol. 1997;15(6):2183-93. PMID: 9196130

211. Ter Veer E, Haj Mohammad N, van Valkenhoef G, et al. Second- and third-line systemic therapy in patients with advanced esophagogastric cancer: a systematic review of the literature. Cancer Metastasis Rev. 2016;35(3):439-56. PMID: 27417221

212. Ter Veer E, Haj Mohammad N, van Valkenhoef G, et al. The efficacy and safety of first-line chemotherapy in advanced esophagogastric cancer: a network meta-analysis. J Natl Cancer Inst. 2016;108(10):[13 p.]. PMID: 27576566

213. Tewari KS, Sill MW, Long HJ, 3rd, et al. Improved survival with bevacizumab in advanced cervical cancer. N Engl J Med. 2014;370(8):734-43. PMID: 24552320

214. Tomova A, Bartsch R, Brodowicz T, et al. Concomitant docetaxel plus gemcitabine versus sequential docetaxel followed by gemcitabine in anthracycline-pretreated metastatic or locally recurrent inoperable breast cancer patients: a prospective multicentre trial of the Central European Cooperative Oncology Group (CECOG). Breast Cancer Res Treat. 2010;119(1):169-76.

215. Toner GC, Stockler MR, Boyer MJ, et al. Comparison of two standard chemotherapy regimens for good-prognosis germ-cell tumours: a randomised trial. Australian and New Zealand Germ Cell Trial Group. Lancet. 2001;357(9258):739-45. PMID: 11253966

216. Tsuboi M, Kenmotsu H, Yamanaka T, et al. JIPANG study: Randomized phase III study of pemetrexed/cisplatin (PEM/Cis) versus vinorelbine /cisplatin (VNR/Cis) for completely resected p-stage II-IIIA non-squamous non-small cell lung cancer (Ns-NSCLC): outcomes based on EGFR mutation status. Ann Oncol. 2019;30(Suppl 5):abstract 1440PD. PMID: none

217. Tsukada H, Yokoyama A, Goto K, et al. Randomized controlled trial comparing docetaxel-cisplatin combination with weekly docetaxel alone in elderly patients with advanced non-small-cell lung cancer: Japan Clinical Oncology Group (JCOG) 0207. Jpn J Clin Oncol. 2015;45(1):88-95. PMID: 25378648

218. U.S. Food & Drug Administration (FDA). JEVTANA® (cabazitaxel) injection, for intravenous use (2010 [revised 09/2017]) Available from: https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/201023s019lbl.pdf.

219. Valero V, Forbes J, Pegram MD, et al. Multicenter phase III randomized trial comparing docetaxel and trastuzumab with docetaxel, carboplatin, and trastuzumab as first-line chemotherapy for patients with HER2-gene-amplified metastatic breast cancer (BCIRG 007 study): two highly active therapeutic regimens. J Clin Oncol. 2011;29(2):149-56. PMID: 21115860

220. Vermorken JB, Mesia R, Rivera F, et al. Platinum-based chemotherapy plus cetuximab in head and neck cancer. N Engl J Med. 2008;359(11):1116-27. PMID: 18784101

221. Vermorken JB, Stohlmacher-Williams J, Davidenko I, et al. Cisplatin and fluorouracil with or without panitumumab in patients with recurrent or metastatic squamous-cell carcinoma of the head and neck (SPECTRUM): an open-label phase 3 randomised trial. Lancet Oncol. 2013;14(8):697-710. PMID: 23746666

222. von Minckwitz G, Procter M, de Azambuja E, et al. Adjuvant pertuzumab and trastuzumab in early HER2-positive breast cancer. N Engl J Med. 2017;377(2):122-31. PMID: 28581356

223. Wagner AD, Syn NL, Moehler M, et al. Chemotherapy for advanced gastric cancer (review). Cochrane Database Syst Rev. 2017(8):article number CD004064. PMID: 28850174

224. Wailoo A, Sutton A, Morgan A. The risk of febrile neutropenia in patients with non-small-cell lung cancer treated with docetaxel: a systematic review and meta-analysis. Br J Cancer. 2009;100(3):436-41. PMID: 19190633

225. Wakelee HA, Dahlberg SE, Keller SM, et al. Adjuvant chemotherapy with or without bevacizumab in patients with resected non-small-cell lung cancer (E1505): an open-label, multicentre, randomised, phase 3 trial. Lancet Oncol. 2017;18(12):1610-23. PMID: 29129443

226. Wang Y, Herrstedt J, Havsteen H, et al. A multicenter, non-randomized, phase II study of docetaxel and carboplatin administered every 3 weeks as second line chemotherapy in patients with first relapse of platinum sensitive epithelial ovarian, peritoneal or fallopian tube cancer. BMC Cancer. 2014;14(937):1-7. PMID: 25494701

227. Winton T, Livingston R, Johnson D, et al. Vinorelbine plus cisplatin vs. observation in resected non-small-cell lung cancer. N Engl J Med. 2005;352(25):2589-97. PMID: 15972865

228. Wissing MD, van Oort IM, Gerritsen WR, et al. Cabazitaxel in patients with metastatic castration-resistant prostate cancer: results of a compassionate use program in the Netherlands. Clin Genitourin Cancer. 2013;11(3):238-50.e1. PMID: 23659772

229. Xiao H, Mazumdar M, Bajorin DF, et al. Long-term follow-up of patients with good-risk germ cell tumors treated with etoposide and cisplatin. J Clin Oncol. 1997;15(7):2553-8. PMID: 9215824

230. Yamamoto D, Sato N, Rai Y, et al. Efficacy and safety of low-dose capecitabine plus docetaxel versus single-agent docetaxel in patients with anthracycline-pretreated HER2-negative metastatic breast cancer: results from the randomized phase III JO21095 trial. Breast Cancer Res Treat. 2017;161(3):473-82. PMID: 28005247

231. Yang Y, Chang J, Huang C, et al. A randomised, multicentre open-label phase II study to evaluate the efficacy, tolerability and pharmacokinetics of oral vinorelbine plus cisplatin versus intravenous vinorelbine plus cisplatin in Chinese patients with chemotherapy-naive unresectable or metastatic non-small cell lung cancer. J Thorac Dis. 2019;11(8):3347-59. PMID: 31559038

232. Yoshino T, Hasegawa Y, Takahashi S, et al. Platinum-based chemotherapy plus cetuximab for the first-line treatment of Japanese patients with recurrent and/or metastatic squamous cell carcinoma of the head and neck: results of a phase II trial. Jpn J Clin Oncol. 2013;43(5):524-31. PMID: 23479384

233. Zhong WZ, Wang Q, Mao WM, et al. Gefitinib versus vinorelbine plus cisplatin as adjuvant treatment for stage II-IIIA (N1-N2) EGFR-mutant NSCLC (ADJUVANT/CTONG1104): a randomised, open-label, phase 3 study. Lancet Oncol. 2018;19(1):139-48. PMID: 29174310

234. Zhou C, Huang Y, Wang D, et al. A randomized multicenter phase III study of single administration of mecapegfilgrastim (HHPG-19K), a pegfilgrastim biosimilar, for prophylaxis of chemotherapy-induced neutropenia in patients with advanced non-small-cell lung cancer (NSCLC). Clin Lung Cancer. 2016;17(2):119-27. PMID: 26781346

Codes

The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

Specific CPT codes for services should be used when available. Nonspecific or not otherwise classified codes may be subject to additional documentation requirements and review.

CPT

96377	Application of on-body injector (includes cannula insertion) for timed subcutaneous injection [Neulasta OnPro injector]

HCPCS

J1442	Injection, filgrastim (G-CSF), excludes biosimilars, 1 microgram [Neupogen]
J1447	Injection, tbo-filgrastim, 1 microgram [Granix]
J2505	Injection, pegfilgrastim, 6 mg [Neulasta]
J2820	Injection, sargramostim (GM-CSF), 50 mcg [Leukine, Prokine]
Q5101	Injection, filgrastim-sndz, biosimilar, (Zarxio), 1 microgram
Q5108	Injection, pegfilgrastim-jmdb, biosimilar, (Fulphila), 0.5 mg

Q5110	Injection, filgrastim-aafi, biosimilar, (Nivestym), 1 microgram
Q5111	Injection, pegfilgrastim-cbqv, biosimilar, (Udenyca), 0.5 mg
Q5120	Injection, pegfilgrastim-bmez, biosimilar, (ziextenzo), 0.5 mg
Q5122	Injection, pegfilgrastim-apgf, biosimilar, (nyvepria), 0.5 mg

ICD-10 Diagnosis

All diagnoses

History

Status	Review Date	Effective Date	Action
Created	02/03/2020	07/01/2021	Independent Multispecialty Physician Panel review. Original effective date.