

# Nasopharyngeal locally advanced cARBOplatin (weekly) chemoradiation

ID: 1206 v.4 Endorsed Essential Medicine List

This protocol was published over 10 years ago and has been assessed by the reference committee as suitable to be reviewed as required. The review due date has been removed. If something in this protocol requires reference committee consideration, please click on the feedback button at the bottom of the page.

Read more about the as required review process in this [factsheet](#).

## ⚠ ADDIKD Carboplatin dosing:

For dosing carboplatin, ADDIKD recommends that:

- Directly measured glomerular filtration rate (mGFR) is the preferred kidney function value in the Calvert formula, especially where estimated kidney function may be unreliable for accurate therapeutic dosing.
- Where mGFR is unavailable, eGFR adjusted to an individual's body surface area (BSA-adjusted eGFR) is a suitable alternative for use in the Calvert formula.
- Kidney function should not be capped at 125 mL/min for use in the Calvert formula.
- Recalculation of carboplatin doses at each cycle is unnecessary, except when baseline kidney function (e.g., eGFR) alters by > 20% or when there is a change in the clinical status of the patient.

For further information refer the [eviQ Factsheet](#) around carboplatin dosing and the carboplatin drug monograph within the ADDIKD guideline. To assist with calculations, use the [eviQ Estimated Glomerular Filtration Rate \(eGFR\)](#) and [carboplatin dose calculators](#).

Head and neck cancer treatment is complex and combined modality therapy is common; the involvement of a multidisciplinary team (MDT) in the initial development and ongoing evaluation of the treatment plan, and the management of the sequelae associated with treatment is recommended.

Check for clinical trials in this patient group. Link to [Australian Clinical Trials](#) website

The anticancer drug(s) in this protocol may have been included in the ADDIKD guideline. Dose recommendations in kidney dysfunction have yet to be updated to align with the ADDIKD guideline. Recommendations will be updated once the individual protocol has been evaluated by the reference committee. For further information refer to the ADDIKD guideline. To assist with calculations, use the [eviQ Estimated Glomerular Filtration Rate \(eGFR\) calculator](#).

## International Consensus Guideline for Anticancer Drug Dosing in Kidney Dysfunction (ADIKD)

2022

[Click here](#)



### Related pages:

- [Nasopharyngeal locally advanced adjuvant cARBOplatin and fluorouracil \(following chemoradiation\) SUPERSEDED](#)
- [Nasopharyngeal locally advanced ciSPlatin \(three weekly\) chemoradiation](#)
- [Nasopharyngeal locally advanced ciSPlatin \(weekly\) chemoradiation](#)
- [Nasopharyngeal locally advanced ciSPlatin \(fractionated\) chemoradiation SUPERSEDED](#)

## Treatment schedule - Overview

### Cycle 1 to 6

Drug	Dose	Route	Day
cARBOplatin	2 AUC *	IV infusion	1

\*if estimated GFR is greater than 125 mL/min (i.e. 2 AUC dose greater than 300 mg), obtaining direct measurement rather than an estimated renal function and/or dose capping is strongly recommended.

The dose of carboplatin in the trial<sup>1</sup> was calculated according to mg/m<sup>2</sup>. As renal function is poorly correlated with BSA there is no clear conversion factor. All of the phase 1 data using single agent carboplatin predates AUC dosing. There are studies in phase 1 using carboplatin AUC 2 in combination with radiation therapy and other agents which demonstrate this is a tolerable schedule. It is the consensus of the eviQ reference committee that a dose based on AUC is more commonly used in clinical practice.

**Frequency:** 7 days

**Cycles:** 6 with concurrent radiation therapy (this protocol is usually followed by adjuvant chemotherapy with carboplatin and fluorouracil after a 3 to 4 week break)

**Notes:**

While adjuvant chemotherapy has been the standard part of many concurrent chemoradiation therapy regimens, its benefit is uncertain and toxicity is substantial. It should only be considered in patients with high risk (T3 & T4) disease, good performance status and adequate recovery from the toxicity of chemoradiation therapy. See [evidence](#) section.

**Drug status:** Carboplatin is on the [PBS general schedule](#)

**Cost:** ~ \$30

## Treatment schedule - Detail

*The supportive therapies (e.g. antiemetics, premedications, etc.), infusion times, diluents, volumes and routes of administration, if included, are listed as defaults. They may vary between institutions and can be substituted to reflect individual institutional policy.*

*Antiemetics if included in the treatment schedule are based upon recommendations from national and international guidelines. These are **defaults only** and may be substituted to reflect individual institutional policy. [Select here for recommended doses of alternative antiemetics.](#)*

### Cycle 1 to 6

Day 1		
Dexamethasone	8 mg (PO)	60 minutes before chemotherapy
Palonosetron	0.25 mg (IV bolus)	30 minutes before chemotherapy
cARBOplatin	2 AUC (IV infusion)	in 500 mL glucose 5% over 30 to 60 minutes (if estimated GFR is greater than 125 mL/min (i.e. 2 AUC dose greater than 300 mg), obtaining direct measurement rather than an estimated renal function and/or dose capping is strongly recommended) *
Day 2 and 3		
Dexamethasone	8 mg (PO)	ONCE a day (or in divided doses) with or after food. Note: dexamethasone doses on day 2 and 3 may not be required and may be reduced or omitted at the clinicians discretion. **

\* The dose of carboplatin in the trial<sup>1</sup> was calculated according to mg/m<sup>2</sup>. As renal function is poorly correlated with BSA there is no clear conversion factor. All of the phase 1 data using single agent carboplatin predates AUC dosing. There are studies in phase 1 using carboplatin AUC 2 in combination with radiation therapy and other agents which demonstrate this is a tolerable schedule. It is the consensus of the eviQ reference committee that a dose based on AUC is more commonly used in clinical practice.

\*\* [Link to ID 7 Prevention of chemotherapy induced nausea and vomiting](#)

**Frequency:** 7 days

**Cycles:** 6 with concurrent radiation therapy (this protocol is usually followed by adjuvant chemotherapy with carboplatin and fluorouracil after a 3 to 4 week break)

## Indications and patient population

- Chemoradiation for Stage III and IV locally advanced nasopharyngeal cancer in patients where cisplatin is contraindicated or not tolerated
  - this protocol is followed by adjuvant chemotherapy with carboplatin and fluorouracil

## Clinical information

<b>Venous access required</b>	IV cannula (IVC) or central venous access device (CVAD) is required to administer this treatment. Read more about <a href="#">central venous access device line selection</a>
<b>Hypersensitivity/infusion related reaction</b>	High risk with carboplatin. Hypersensitivity risk increases with number of cycles of carboplatin. Rechallenge with carboplatin after hypersensitivity carries a high risk of anaphylaxis, and where clinically indicated, should be undertaken with a desensitisation protocol with appropriate supports in place. Refer to local institutional policy. Read more about <a href="#">Hypersensitivity reaction</a>
<b>Emetogenicity MODERATE</b>	Suggested default antiemetics have been added to the treatment schedule, and may be substituted to reflect institutional policy. Even though a combination of an NK1 receptor antagonist, 5HT3, and a steroid is available on the on the PBS for the prevention of nausea and vomiting associated with all moderate to highly emetogenic anti-cancer therapies, we have opted not to include the NK1 in the treatment schedule. Ensure that patients also have sufficient antiemetics for breakthrough emesis: Metoclopramide 10 mg three times a day when necessary (maximum of 30 mg/24 hours, up to 5 days) OR Prochlorperazine 10 mg PO every 6 hours when necessary. Read more about <a href="#">preventing anti-cancer therapy induced nausea and vomiting</a>
<b>Dental assessment</b>	Dental assessment is recommended for all patients prior to starting treatment Read more about <a href="#">health professional dental considerations for patients starting head and neck treatment</a>
<b>Nutrition risk HIGH</b>	All patients should be assessed by a dietitian prior to commencement of treatment. Read more about <a href="#">COSA's evidence-based practice guidelines for the nutritional management of adult patients with head and neck cancer</a>
<b>Oral mucositis</b>	Mucositis is common with this protocol. Discussion with treating clinicians, including radiation oncologists, before modification, is recommended. Access the <a href="#">oral mucositis assessment tool</a>
<b>Speech pathology</b>	All head and neck patients presenting with either a swallowing and /or communication problem should be referred
<b>Blood tests</b>	FBC, EUC, eGFR, and LFTs at baseline and prior to each cycle. Calcium and magnesium at baseline and as clinically indicated. Recalculation of carboplatin doses at each cycle is unnecessary, except when baseline kidney function (e.g., eGFR) alters by greater than 20% or when there is a change in the clinical status of the patient.
<b>Hepatitis B screening and prophylaxis</b>	Routine screening for HBsAg and anti-HBc is recommended prior to initiation of treatment. Prophylaxis should be determined according to individual institutional policy. Read more about <a href="#">hepatitis B screening and prophylaxis in cancer patients requiring cytotoxic and/or immunosuppressive therapy</a>

<b>Vaccinations</b>	<p>Live vaccines are contraindicated in cancer patients receiving immunosuppressive therapy and/or who have poorly controlled malignant disease.</p> <p>Refer to the recommended schedule of vaccination for immunocompromised patients, as outlined in the <a href="#">Australian Immunisation Handbook</a>.</p> <p>Read more about <a href="#">COVID-19 vaccines and cancer</a>.</p>
<b>Fertility, pregnancy and lactation</b>	<p>Cancer treatment can have harmful effects on fertility and this should be discussed with all patients of reproductive potential prior to commencing treatment. There is a risk of foetal harm in pregnant women. A pregnancy test should be considered prior to initiating treatment in females of reproductive potential if sexually active. It is important that all patients of reproductive potential use effective contraception whilst on therapy and after treatment finishes. Effective contraception methods and adequate contraception timeframe should be discussed with all patients of reproductive potential. Possibility of infant risk should be discussed with breastfeeding patients.</p> <p>Read more about the <a href="#">effect of cancer treatment on fertility</a></p>

## Dose modifications

*Evidence for dose modifications is limited, and the recommendations made on eviQ are intended as a guide only. They are generally conservative with an emphasis on safety. Any dose modification should be based on clinical judgement, and the individual patient's situation including but not limited to treatment intent (curative vs palliative), the anti-cancer regimen (single versus combination therapy versus chemotherapy versus immunotherapy), biology of the cancer (site, size, mutations, metastases), other treatment related side effects, additional co-morbidities, performance status and patient preferences. Suggested dose modifications are based on clinical trial findings, product information, published guidelines and reference committee consensus. The dose reduction applies to each individual dose and not to the total number of days or duration of treatment cycle unless stated otherwise. Non-haematological gradings are based on [Common Terminology Criteria for Adverse Events \(CTCAE\)](#) unless otherwise specified. Renal and hepatic dose modifications have been standardised where possible. For more information see dosing considerations & disclaimer.*

The dose recommendations in kidney dysfunction (i.e. renal impairment) displayed may not reflect those in the ADDIKD guideline and have been included for historical reference only. Recommendations will be updated once the individual protocol has been evaluated by the reference committee, with this version of the protocol then being archived. Clinicians are expected to refer to the ADDIKD guideline prior to prescribing in kidney dysfunction.

[International Consensus Guideline for Anticancer Drug Dosing in Kidney Dysfunction \(ADDIKD\)](#).

For dosing carboplatin, ADDIKD recommends that:

- Directly measured glomerular filtration rate (mGFR) is the preferred kidney function value in the Calvert formula, especially where estimated kidney function may be unreliable for accurate therapeutic dosing.
- Where mGFR is unavailable, eGFR adjusted to an individual's body surface area (BSA-adjusted eGFR) is a suitable alternative for use in the Calvert formula.
- Kidney function should not be capped at 125 mL/min for use in the Calvert formula.
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For further information refer the [eviQ Factsheet](#) around carboplatin dosing and the carboplatin drug monograph within the ADDIKD guideline. To assist with calculations, use the eviQ [Estimated Glomerular Filtration Rate \(eGFR\)](#) and [carboplatin dose calculators](#).

**Note:** All dose reductions are calculated as a percentage of the starting dose

Haematological toxicity	
ANC x 10 <sup>9</sup> /L (pre-treatment blood test)	
0.5 to less than 1.0	Delay treatment until recovery
less than 0.5	Delay treatment until recovery and consider reducing carboplatin by 25% for subsequent cycles
Febrile neutropenia	Delay treatment until recovery and consider reducing carboplatin by 25% for subsequent cycles

Haematological toxicity	
Platelets x 10 <sup>9</sup> /L (pre-treatment blood test)	
75 to less than 100	Refer to local institutional guidelines; it is the view of the expert clinicians that treatment should continue if patient is clinically well.
50 to less than 75	Delay treatment until recovery
less than 50	Delay treatment until recovery and consider reducing carboplatin by 25% for subsequent cycles

Renal impairment
Recalculate carboplatin dose using Calvert formula

Hepatic impairment
No dose modification necessary

Mucositis and stomatitis
Mucositis is common with this protocol; discussion with treating clinicians, including radiation oncologists, before dose modification, is recommended

## Interactions

The drug interactions shown below are not an exhaustive list. For a more comprehensive list and for detailed information on specific drug interactions and clinical management, please refer to the specific drug product information and the following key resources:

- [MIMS - interactions tab](#) (includes link to a CYP-450 table) (login required)
- [Australian Medicines Handbook \(AMH\) – interactions tab](#) (login required)
- [Micromedex Drug Interactions](#) (login required)
- [Cancer Drug Interactions](#)
- [Cytochrome P450 Drug Interactions](#)

For more information see [References & Disclaimer](#).

Carboplatin		
	Interaction	Clinical management
<b>Nephrotoxic drugs (e.g. aminoglycosides, amphotericin, contrast dye, frusemide, NSAIDs)</b>	Additive nephrotoxicity	Avoid combination or monitor kidney function closely
<b>Ototoxic drugs (e.g. aminoglycosides, frusemide, NSAIDs)</b>	Additive ototoxicity	Avoid combination or perform regular audiometric testing
<b>Paclitaxel</b>	Administration schedule may influence the development of myelosuppression	Minimise toxicity by administering paclitaxel first in regimens using the combination

General		
	Interaction	Clinical management
<b>Warfarin</b>	Anti-cancer drugs may alter the anticoagulant effect of warfarin.	Monitor INR regularly and adjust warfarin dosage as appropriate; consider alternative anticoagulant.
<b>Direct oral anticoagulants (DOACs) e.g. apixaban, rivaroxaban, dabigatran</b>	Interaction with both CYP3A4 and P-gp inhibitors /inducers.  DOAC and anti-cancer drug levels may both be altered, possibly leading to loss of efficacy or toxicity (i.e. increased bleeding).	Apixaban: avoid concurrent use with strong CYP3A4 and P-gp inhibitors. If treating VTE, avoid use with strong CYP3A4 and P-gp inducers.  Rivaroxaban: avoid concurrent use with strong CYP3A4 and P-gp inhibitors.  Dabigatran: avoid combination with strong P-gp inducers and inhibitors.  If concurrent use is unavoidable, monitor closely for efficacy/toxicity of both drugs.
<b>Digoxin</b>	Anti-cancer drugs can damage the lining of the intestine; affecting the absorption of digoxin.	Monitor digoxin serum levels; adjust digoxin dosage as appropriate.
<b>Antiepileptics</b>	Both altered antiepileptic and anti-cancer drug levels may occur, possibly leading to loss of efficacy or toxicity.	Where concurrent use of an enzyme-inducing antiepileptic cannot be avoided, monitor antiepileptic serum levels for toxicity, as well as seizure frequency for efficacy; adjust dosage as appropriate. Also monitor closely for efficacy of the anti-cancer therapy.
<b>Antiplatelet agents and NSAIDs</b>	Increased risk of bleeding due to treatment related thrombocytopenia.	Avoid or minimise combination. If combination deemed essential, (e.g. low dose aspirin for ischaemic heart disease) monitor for signs of bleeding.
<b>Serotonergic drugs, including selective serotonin reuptake inhibitors (SSRIs e.g. paroxetine) and serotonin noradrenaline reuptake inhibitors (SNRIs e.g. venlafaxine)</b>	Increased risk of serotonin syndrome with concurrent use of 5-HT3 receptor antagonists (e.g. palonosetron, ondansetron, granisetron, tropisetron, dolasetron, etc.)	Avoid combination. If combination is clinically warranted, monitor for signs and symptoms of serotonin syndrome (e.g. confusion, agitation, tachycardia, hyperreflexia). For more information link to <a href="#">TGA Medicines Safety Update</a>
<b>Vaccines</b>	Diminished response to vaccines and increased risk of infection with live vaccines.	Live vaccines (e.g. BCG, MMR, zoster and varicella) are contraindicated in patients on immunosuppressive therapy. Use with caution in patients on non-immunosuppressive therapy. For more information; refer to the recommended schedule of vaccination for cancer patients, as outlined in the <a href="#">Australian Immunisation Handbook</a>

## Administration

*eviQ provides safe and effective instructions on how to administer cancer treatments. However, eviQ does not provide every treatment delivery option, and is unable to provide a comprehensive list of cancer treatment agents and their required IV line giving set/filter. There may be alternative methods of treatment administration, and alternative supportive treatments that are also appropriate. Please refer to the individual*

## Day 1

**Approximate treatment time: 90 minutes**

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Oral mucositis assessment tool

Any toxicity grade 2 or greater may require dose reduction, omission or delay of treatment and review by medical officer before commencing treatment.

Mucositis is common with this protocol. Discussion with treating clinicians, including radiation oncologists, before modification is recommended.

Prime IV line(s).

Insert IV cannula or access TIVAD or CVAD.

### Pre treatment medication

Verify antiemetics taken or administer as prescribed.

Verify dexamethasone taken or administer as prescribed.

### 🕒 Chemotherapy - Time out

#### Carboplatin

**Administer carboplatin (irritant):**

- via IV infusion over 30 to 60 minutes
- observe for hypersensitivity reactions
- flush with ~100 mL of sodium chloride 0.9%
- hypersensitivity risk increases with number of cycles administered.

**Stop infusion at first sign of reaction:**

- if symptoms are mild and resolve when infusion is stopped, consider recommencing infusion after review by medical officer at a slower rate
- for severe reactions seek medical assistance immediately and do not restart infusion.

Remove IV cannula and/or deaccess TIVAD or CVAD.

**Continue safe handling precautions until 7 days after completion of drug(s)**

## Discharge Information

### Antiemetics

- Antiemetics as prescribed.

### Patient information

- Ensure patient receives patient information sheet.

## Side effects

*The side effects listed below are not a complete list of all possible side effects for this treatment. Side effects are categorised into the approximate onset of presentation and should only be used as a guide.*

Immediate (onset hours to days)	
<b>Hypersensitivity reaction</b>	Anaphylaxis and infusion related reactions can occur with this treatment. Read more about <a href="#">hypersensitivity reaction</a>
<b>Nausea and vomiting</b>	Read more about <a href="#">prevention of treatment induced nausea and vomiting</a>
<b>Taste and smell alteration</b>	Read more about <a href="#">taste and smell changes</a>
Early (onset days to weeks)	
<b>Neutropenia</b>	Abnormally low levels of neutrophils in the blood. This increases the risk of infection. Any fever or suspicion of infection should be investigated immediately and managed aggressively. Read more about <a href="#">immediate management of neutropenic fever</a>
<b>Thrombocytopenia</b>	A reduction in the normal levels of functional platelets, increasing the risk of abnormal bleeding.  Read more about <a href="#">thrombocytopenia</a>
<b>Oral mucositis</b>	Erythematous and ulcerative lesions of the gastrointestinal tract (GIT). It commonly develops following chemotherapy, radiation therapy to the head, neck or oesophagus, and high dose chemotherapy followed by a blood and marrow transplant (BMT). Read more about <a href="#">oral mucositis</a>
<b>Fatigue</b>	Read more about <a href="#">fatigue</a>
<b>Anorexia</b>	Loss of appetite accompanied by decreased food intake. Read more about <a href="#">anorexia</a>
Late (onset weeks to months)	
<b>Anaemia</b>	Abnormally low levels of red blood cells (RBCs) or haemoglobin in the blood. Read more about <a href="#">anaemia</a>
<b>Alopecia - partial</b>	Hair thinning and/or patchy hair loss. Patients can also experience mild to moderate discomfort of the hair follicles, and rarely pain as the hair is falling out. Read more about <a href="#">alopecia</a> and <a href="#">scalp cooling</a>

## Evidence

The evidence supporting the use of this protocol comes from an open label, randomised non-inferiority trial comparing concurrent chemoradiation with carboplatin versus standard concurrent chemoradiation with cisplatin in patients with locally advanced nasopharyngeal cancer (NPC). Between August 1999 and December 2004, 206 patients were randomised to receive cisplatin, arm 1 (n=101) or carboplatin, arm 2 (n=105). Patients in arm 1 received cisplatin 100 mg/m<sup>2</sup> d1, 22, 43 concurrently with radiation therapy followed by adjuvant chemotherapy consisting of cisplatin 80 mg/m<sup>2</sup> and 5FU 1000 mg/m<sup>2</sup>/day d1 to 4 every 4 weeks for a total of 3 cycles. Patients in arm 2 received carboplatin 100 mg/m<sup>2</sup> d1, 8, 15, 22, 29, 36 concurrently with radiation therapy followed by adjuvant chemotherapy consisting of carboplatin AUC 5 and 5FU 1000 mg/m<sup>2</sup>/day d1 to 4 every 4 weeks for a total of 3 cycles.<sup>1</sup>

The primary endpoint of this study was to compare the efficacy of carboplatin with that of cisplatin in locally advanced nasopharyngeal carcinoma in terms of DFS. The secondary end points included overall survival, toxicity and tolerability of the 2 regimens.<sup>1</sup>

Meta-analyses have confirmed an improvement in overall survival with the addition of concomitant chemotherapy to radiation therapy. The value of adjuvant chemotherapy following chemoradiation therapy is uncertain.<sup>2,3</sup>

The meta-analyses conducted by Baujat et al. and Langendijk et al. suggested no significant benefit.<sup>4,5</sup> More recently Ouyang et al. suggest a benefit of locoregional control but not in OS.<sup>6</sup>

### Efficacy

After a median follow up of 26.3 months, 59% of patients in cisplatin arm completed the planned concurrent chemoradiation compared to 73% in the carboplatin arm. 42% cisplatin patients completed 3 cycles of adjuvant chemotherapy compared to 70% in the carboplatin group. The 3 year disease survival rates were 64.7% for the cisplatin group and 59.6% for the carboplatin group



( $p=0.522$ ). The 3 year overall survival rates were 77% and 79% for cisplatin and carboplatin groups respectively ( $p=0.9884$ ; HR 0.83, 95% CI 0.63-1.010).<sup>1</sup>

### 3 year Disease-free Survival and Overall Survival by intent-to-treat analysis<sup>1</sup>

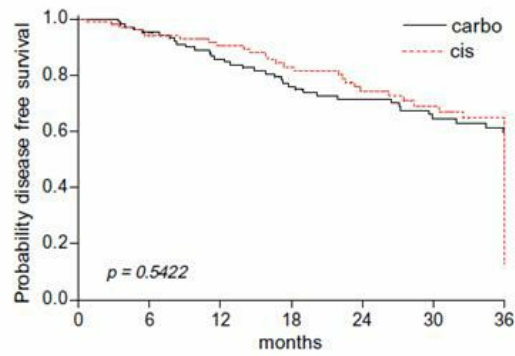


Fig. 4 - The 3 year disease free survival by intent-to-treat analysis carboplatin = 59.6 (95% CI: 48.8-70.4) cisplatin = 64.7 (95% CI: 53.1-76.3).

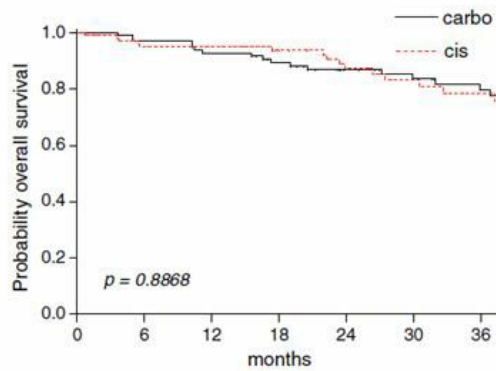


Fig. 5 - The 3 year overall survival by intent-to-treat analysis carboplatin = 79.8 (95% CI: 70.5-89.1) cisplatin = 78.6 (95% CI: 67.9-89.3).

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### Toxicity

There were more renal toxicity, leucopenia, and anaemia in the cisplatin group, and more thrombocytopenia in the carboplatin arm.<sup>1</sup>

**Table 2 – Acute toxicity of radiochemotherapy (WHO grading system/RTOG acute radiation morbidity scoring criteria)**

Acute toxicity	Cisplatin arm (n = 101) (%)	Carboplatin arm (n = 105) (%)	p-Value all grades
<b>Leucopenia</b>			
Grade 2	29 (29)	23 (22)	p = 0.2982
Grade 3	9 (9)	11 (10)	
Grade 4	2 (2)	0	
<b>Anaemia</b>			
Grade 2	33 (33)	17 (16)	p < 0.0001
Grade 3	14 (14)	2 (2)	
Grade 4	0	0	
<b>Thrombocytopenia</b>			
Grade 2	1 (1)	4 (4)	p = 0.7225
Grade 3	1 (1)	6 (6)	
Grade 4	2 (2)	2 (2)	
<b>Nausea/vomiting</b>			
WHO grade 1	39 (39)	26 (25)	p = 0.0537
Grade 2	19 (19)	9 (9)	
Grade 3	1 (1)	0	
<b>Nephrotoxicity</b>			
WHO grade 1	13 (13)	0	p = 0.0002
Grade 2	9 (9)	0	
Grade 3	3 (3)	0	
Grade 4	1 (1)	0	
<b>Mucous membrane</b>			
RTOG grade 1	54 (53)	40 (38)	p = 0.0514
Grade 2	46 (46)	60 (57)	
Grade 3	0	5 (5)	
Grade 4	1 (1)	0	
<b>Skin</b>			
RTOG grade 1	60 (59)	51 (48)	p = 0.2295
Grade 2	35 (35)	44 (42)	
Grade 3	3 (3)	6 (6)	
Grade 4	3 (3)	4 (4)	
<b>Pharynx and oesophagus</b>			
RTOG grade 1	43 (42)	37 (35)	p = 0.1029
Grade 2	44 (44)	52 (50)	
Grade 3	10 (10)	4 (4)	
Grade 4	4 (4)	0	
<b>Weight loss</b>			
>10% at week 3 of RT	15 (15)	3 (3)	p < 0.0001
>10% at week 6 of RT	35 (35)	18 (17)	
Need nasogastric tube	48 (48)	23 (22)	p = 0.0002

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## References

- 1 Chitapanarux, I., V. Lorvidhaya, P. Kamnerdsupaphon, et al. 2007. "Chemoradiation comparing cisplatin versus carboplatin in locally advanced nasopharyngeal cancer: randomised, non-inferiority, open trial." *Eur J Cancer* 43(9):1399-1406.
- 2 Al-Sarraf, M., M. LeBlanc, P. G. Giri, et al. 1998. "Chemoradiotherapy versus radiotherapy in patients with advanced nasopharyngeal cancer: phase III randomized Intergroup study 0099." *J.Clin Oncol* 16(4):1310-1317.
- 3 Wee, J., E. H. Tan, B. C. Tai, et al. 2005. "Randomized trial of radiotherapy versus concurrent chemoradiotherapy followed by adjuvant chemotherapy in patients with American Joint Committee on Cancer/International Union against cancer stage III and IV nasopharyngeal cancer of the endemic variety." *J Clin Oncol* 23(27):6730-6738.
- 4 Baujat, B., H. Audry, J. Bourhis, et al. 2006. "Chemotherapy in locally advanced nasopharyngeal carcinoma: an individual patient data meta-analysis of eight randomized trials and 1753 patients." *Int.J.Radiat.Oncol Biol.Phys.* 64(1):47-56.
- 5 Langendijk, J. A., C. R. Leemans, J. Buter, et al. 2004. "The additional value of chemotherapy to radiotherapy in locally advanced nasopharyngeal carcinoma: a meta-analysis of the published literature." *J.Clin Oncol.* 22(22):4604-4612.
- 6 Ouyang, P. Y., Xie, C. & Mao, Y. P. et al. 2013 "Significant efficacies of neoadjuvant and adjuvant chemotherapy for nasopharyngeal carcinoma by meta-analysis of published literature-based randomized, controlled trials." *Ann Oncol*

## History

### Version 4

Date	Summary of changes
31/01/2024	Protocol assessed by eviQ medical oncology reference committee and deemed suitable to be reviewed as required. Flag added, review date removed and version number increased to V.4. Read more about as required review protocol status in this <a href="#">factsheet</a> .

### Version 3

Date	Summary of changes
29/07/2011	New protocol taken to Medical Oncology Reference Committee meeting.
09/11/2011	Approved and published on eviQ.
10/04/2012	PHC OMIS view added.
01/05/2012	Palonosetron added as the preferred 5HT <sub>3</sub> antagonist for moderate emetogenicity.
31/05/2012	PHC OMIS view published.
03/05/2013	Reviewed at Medical Oncology Reference Committee meeting. Evidence updated review 2 years.
28/07/2014	PHC view removed.
19/06/2015	Reviewed electronically by Medical Oncology Reference Committee. No changes review 2 years.
16/02/2016	Carboplatin dosing - for estimated GFR > 125 mL/min, note about measuring GFR and/or dose capping added.
28/10/2016	Protocol reviewed by Medical Oncology Reference Committee. No changes review 2 years.
31/05/2017	Transferred to new eviQ website. Protocol version changed to v.2.
10/05/2018	Haematological dose modifications updated as per consensus of the expert clinician group. Version number changed to V.3.
22/06/2018	Antiemetics updated to be in line with international guidelines. Note to dexamethasone added.
15/03/2019	Protocol reviewed by Medical Oncology Reference Committee. No changes. Review 5 years.

The information contained in this protocol is based on the highest level of available evidence and consensus of the eviQ reference committee regarding their views of currently accepted approaches to treatment. Any clinician (medical oncologist, haematologist, radiation oncologist, medical physicist, radiation therapist, pharmacist or nurse) seeking to apply or consult this protocol is expected to use independent clinical judgement in the context of individual clinical circumstances to determine any patient's care or treatment. While eviQ endeavours to link to reliable sources that provide accurate information, eviQ and the Cancer Institute NSW do not endorse or accept responsibility for the accuracy, currency, reliability or correctness of the content of linked external information sources. Use is subject to eviQ's disclaimer available at [www.eviq.org.au](http://www.eviq.org.au)

**First approved:** 9 November 2011

**Last reviewed:** 15 March 2019

**Review due:** As required

***The currency of this information is guaranteed only up until the date of printing, for any updates please check:***

<https://www.eviq.org.au/p/1206>

08 Mar 2024

# Patient information - Nasopharyngeal cancer locally advanced - Carboplatin with radiation therapy

Patient's name:

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## Your treatment

The treatment schedule below explains how the drug for this treatment is given.

### Carboplatin with radiation therapy


This treatment cycle is repeated every 7 days during radiation therapy (usually for 6 weeks). Your doctor will advise you of the number of treatments you will have.

Day	Treatment	How it is given	How long it takes
1	<b>Carboplatin</b> ( <i>carb-o-PLAT-in</i> )	By a drip into a vein	About 1.5 hours

This treatment is often followed by chemotherapy alone after a break of 3 to 4 weeks. Your doctor will advise you whether you will be having chemotherapy.

## When to get help

Anticancer drugs (drugs used to treat cancer) can sometimes cause serious problems. It is important to get medical help immediately if you become unwell.

 <p><b>IMMEDIATELY go to your nearest hospital Emergency Department, or contact your doctor or nurse if you have any of the following at any time:</b></p>	<b>Emergency contact details</b> Ask your doctor or nurse from your treating team who to contact if you have a problem
<ul style="list-style-type: none"><li>• a temperature of 38°C or higher</li><li>• chills, sweats, shivers or shakes</li><li>• shortness of breath</li><li>• uncontrolled vomiting or diarrhoea</li><li>• pain, tingling or discomfort in your chest or arms</li><li>• you become unwell.</li></ul>	Daytime:..... Night/weekend:..... Other instructions:..... ..... .....

**During your treatment immediately** tell the doctor or nurse looking after you if you get any of the following problems:

- leaking from the area where the drugs are being given
- pain, stinging, swelling or redness in the area where the drugs are being given or at any injection sites
- a skin rash, itching, feeling short of breath, wheezing, fever, shivers, or feeling dizzy or unwell in any way (allergic reaction).

## Other information about your treatment

### Changes to your dose or treatment delays

Sometimes a treatment may be started at a lower dose or the dose needs to be changed during treatment. There may also be times when your treatment is delayed. This can happen if your doctor thinks you are likely to have severe side effects, if you get severe side effects, if your blood counts are affected and causing delays in treatment, or if you are finding it hard to cope with the treatment. This is called a dose reduction, dose change or treatment delay. Your doctor will explain if you need any changes or delays to your treatment and the reason why.

### Blood tests and monitoring

Anti-cancer drugs can reduce the number of blood cells in your body. You will need to have regular blood tests to check that your blood cell count has returned to normal. If your blood count is low, your treatment may be delayed until it has returned to normal. Your doctor or nurse will tell you when to have these blood tests.

### Other medications given during this treatment

- **Anti-sickness (anti-nausea) medication:** you may be given some anti-sickness medication. Make sure you take this medication as your doctor or nurse tells you, even if you don't feel sick. This can help to prevent the sickness starting.

## Side effects

Cancer treatments can cause damage to normal cells in your body, which can cause side effects. Everyone gets different side effects, and some people will have more problems than others.

The table below shows some of the side effects you may get with this treatment. You are unlikely to get all of those listed and you may also get some side effects that have not been listed.

Tell your doctor or nurse about any side effects that worry you. Follow the instructions below and those given to you by your doctor or nurse.

Immediate (onset hours to days)	
<b>Allergic reaction</b>	<ul style="list-style-type: none"> <li>• Allergic reactions are uncommon but can be life threatening.</li> <li>• <b>If you feel unwell during the infusion or shortly after it, or:</b> <ul style="list-style-type: none"> <li>◦ <b>get a fever, shivers or shakes</b></li> <li>◦ <b>feel dizzy, faint, confused or anxious</b></li> <li>◦ <b>start wheezing or have difficulty breathing</b></li> <li>◦ <b>have a rash, itch or redness of the face</b></li> </ul> </li> </ul> <p><b><u>While you are in hospital:</u> Tell your doctor or nurse immediately.</b></p> <p><b><u>After you leave:</u> Contact your doctor or nurse immediately, or go to the nearest hospital Emergency Department.</b></p>
<b>Nausea and vomiting</b>	<ul style="list-style-type: none"> <li>• You may feel sick (nausea) or be sick (vomit).</li> <li>• Take your anti-sickness medication as directed even if you don't feel sick.</li> <li>• Drink plenty of fluids (unless you are fluid restricted).</li> <li>• Eat small meals more frequently.</li> <li>• Try food that does not require much preparation.</li> <li>• Try bland foods like dry biscuits or toast.</li> <li>• Gentle exercise may help with nausea.</li> <li>• Ask your doctor or nurse for eviQ patient information - <a href="#">Nausea and vomiting during cancer treatment</a>.</li> <li>• <b>Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you have uncontrolled vomiting or feel dizzy or light-headed.</b></li> </ul>
<b>Taste and smell changes</b>	<ul style="list-style-type: none"> <li>• You may find that food loses its taste or tastes different.</li> <li>• These changes are likely to go away with time.</li> <li>• Do your mouth care regularly.</li> <li>• Chew on sugar-free gum or eat sugar-free mints.</li> <li>• Add flavour to your food with sauces and herbs.</li> <li>• Ask your doctor or nurse for eviQ patient information - <a href="#">Taste and smell changes during cancer treatment</a>.</li> </ul>

Early (onset days to weeks)	
<b>Infection risk (neutropenia)</b>	<ul style="list-style-type: none"> <li>• This treatment lowers the amount of white blood cells in your body. The type of white blood cells that help to fight infection are called neutrophils. Having low level of neutrophils is called neutropenia. If you have neutropenia, you are at greater risk of getting an infection. It also means that your body can't fight infections as well as usual. This is a serious side effect, and can be life threatening.</li> <li>• Wash your hands often.</li> <li>• Keep a thermometer at home and take your temperature regularly, and if you feel unwell.</li> <li>• Do your mouth care regularly.</li> <li>• Inspect your central line site (if you have one) daily for any redness, pus or swelling.</li> <li>• Limit contact with people who are sick.</li> <li>• Learn how to recognise the signs of infection.</li> <li>• Ask your doctor or nurse for eviQ patient information - <a href="#">Infection during cancer treatment</a>.</li> <li>• <b>Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the following signs or symptoms:</b> <ul style="list-style-type: none"> <li>◦ a temperature of 38°C or higher</li> <li>◦ chills, shivers, sweats or shakes</li> <li>◦ a sore throat or cough</li> <li>◦ uncontrolled diarrhoea</li> <li>◦ shortness of breath</li> <li>◦ a fast heartbeat</li> <li>◦ become unwell even without a temperature.</li> </ul> </li> </ul>
<b>Low platelets (thrombocytopenia)</b>	<ul style="list-style-type: none"> <li>• This treatment lowers the amount of platelets in your blood. Platelets help your blood to clot. When they are low, you are at an increased risk of bleeding and bruising.</li> <li>• Try not to bruise or cut yourself.</li> <li>• Avoid contact sport or vigorous exercise.</li> <li>• Clear your nose by blowing gently.</li> <li>• Avoid constipation.</li> <li>• Brush your teeth with a soft toothbrush.</li> <li>• Don't take aspirin, ibuprofen or other similar anti-inflammatory medications unless your doctor tells you to.</li> <li>• Tell your doctor or nurse if you have any bruising or bleeding.</li> <li>• <b>Tell your doctor or nurse immediately, or go to your nearest hospital Emergency Department if you have any uncontrolled bleeding.</b></li> </ul>
<b>Mouth pain and soreness (mucositis)</b>	<ul style="list-style-type: none"> <li>• You may have: <ul style="list-style-type: none"> <li>◦ bleeding gums</li> <li>◦ mouth ulcers</li> <li>◦ a white coating on your tongue</li> <li>◦ pain in the mouth or throat</li> <li>◦ difficulty eating or swallowing.</li> </ul> </li> <li>• Avoid spicy, acidic or crunchy foods and very hot or cold food and drinks.</li> <li>• Try bland and soft foods.</li> <li>• Brush your teeth gently with a soft toothbrush after each meal and at bedtime. If you normally floss continue to do so.</li> <li>• Rinse your mouth after you eat and brush your teeth, using either: <ul style="list-style-type: none"> <li>◦ 1/4 teaspoon of salt in 1 cup of warm water, or</li> <li>◦ 1/4 teaspoon of bicarbonate of soda in 1 cup of warm water</li> </ul> </li> <li>• Ask your doctor or nurse for eviQ patient information - <a href="#">Mouth problems during cancer treatment</a>.</li> <li>• <b>Tell your doctor or nurse if you get any of the symptoms listed above.</b></li> </ul>

<b>Tiredness and lack of energy (fatigue)</b>	<ul style="list-style-type: none"> <li>You may feel very tired, have no energy, sleep a lot, and not be able to do normal activities or things you enjoy.</li> <li>Do not drive or operate machinery if you are feeling tired.</li> <li>Nap for short periods (only 1 hour at a time)</li> <li>Prioritise your tasks to ensure the best use of your energy.</li> <li>Eat a well balanced diet and drink plenty of fluids (unless you are fluid restricted).</li> <li>Try some gentle exercise daily.</li> <li>Allow your friends and family to help.</li> <li><b>Tell your doctor or nurse if you get any of the symptoms listed above.</b></li> </ul>
<b>Appetite loss (anorexia)</b>	<ul style="list-style-type: none"> <li>You may not feel like eating.</li> <li>Try to avoid drinking fluids at meal times.</li> <li>Try to eat small meals or snacks regularly throughout the day.</li> <li>Try to eat food that is high in protein and calories.</li> <li>If you are worried about how much food you can eat, or if you are losing weight, ask to speak to a dietitian.</li> </ul>

<b>Late (onset weeks to months)</b>	
<b>Low red blood cells (anaemia)</b>	<ul style="list-style-type: none"> <li>You may feel dizzy, light-headed, tired and appear more pale than usual.</li> <li>Tell your doctor or nurse if you have any of these signs or symptoms. You might need a blood transfusion.</li> <li><b>Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you have any chest pain, trouble breathing, or feel like your heart is racing.</b></li> </ul>
<b>Hair thinning</b>	<ul style="list-style-type: none"> <li>Your hair may become dry and may break easily.</li> <li>You may lose some of your hair.</li> <li>Use a gentle shampoo and a soft hairbrush.</li> <li>Take care with hair products like hairspray, hair dye, bleaches and perms.</li> <li>Protect your scalp from the cold with a hat or scarf.</li> <li>Protect your scalp from the sun with a hat and sunscreen of SPF 50 or higher.</li> <li>Ask your doctor or nurse about the <a href="http://www.lgfb.org.au">Look Good Feel Better</a> program (www.lgfb.org.au)</li> </ul>

## General advice for people having cancer treatment

### Chemotherapy safety

- Learn how to keep you and your family safe while you are having anticancer drugs.
- See our patient information sheet - [Chemotherapy safety at home](#).

### Blood clot risk

- Cancer and anticancer drugs can increase the risk of a blood clot (thrombosis).
- Tell your doctor if you have a family history of blood clots.
- A blood clot can cause pain, redness, swelling in your arms or legs, shortness of breath or chest pain.
- If you have any of these symptoms go to your nearest hospital Emergency Department.

### Medications and vaccinations

- Before you start treatment, tell your doctor about any medications you are taking, including vitamins or herbal supplements.
- Don't stop or start any medications during treatment without talking to your doctor and pharmacist first.
- Paracetamol is safe to take if you have a headache or other mild aches and pains. It is recommended that you avoid taking aspirin, ibuprofen and other anti-inflammatory type medications for pain while you are having treatment. However, if these medications have been prescribed by your doctor, do not stop taking them without speaking with your doctor.
- Vaccinations such as flu and tetanus vaccines are safe to receive while having treatment. Do not have any live vaccines during your treatment or for 6 months after it finishes. If you are unsure, check with your doctor before you have any vaccinations.
- People you live with should be fully vaccinated, including having live vaccines according to the current vaccination schedule. Extra care needs to be taken with hand washing and careful disposal of soiled nappies for infants who have recently received the rotavirus vaccine.

### **Other medical and dental treatment**

- If you go to hospital or any other medical appointment (including dental appointments), always tell the person treating you that you are receiving anticancer drugs.
- Before you have any dental treatment, talk to your doctor.

### **Diet**

- While you are receiving this treatment it is important that you try to maintain a healthy diet.
- Speak to your doctor or nurse about whether drinking alcohol is safe with your treatment.
- If you have any concerns about recent weight loss or weight gain or questions about your diet, ask to speak to a dietitian.

### **Fertility**

- Some cancer treatments can reduce your fertility. This can make it difficult or impossible to get pregnant or father a child.
- Talk to your doctor or nurse before you start any treatment. Depending on your situation there may be fertility sparing options available to you and/or your partner, discuss these with your doctor or nurse.

### **Pregnancy and breastfeeding**

- Some cancer treatments can be dangerous to unborn babies. Talk to your doctor or nurse if you think there is any chance that you could be pregnant.
- Do not try to get pregnant or father a child during this treatment. Contraception should be used during treatment and after stopping treatment. Ask your doctor or nurse about what type of contraception you should use.
- If you are planning pregnancy/fatherhood after completing this treatment, talk to your doctor. Some doctors advise waiting between 6 months and 2 years after treatment.
- Do not breastfeed if you are on this treatment, as anti-cancer medications can also pass into breast milk.

### **Sex life and sexuality**

- The desire to have sex may decrease as a result of this treatment or its side effects.
- Your emotions and the way you feel about yourself may also be affected by this treatment.
- It may help to discuss your concerns with your partner and doctor or nurse.

### **Risk of developing a second cancer**

- Some anticancer treatments can increase your chance of developing a second cancer, this is rare. Your doctor will discuss with you the specific risks of your treatment.

### **Quitting smoking**

- It is never too late to quit smoking. Quitting smoking is one of the best things you can do to help your treatment work better.
- There are many effective tools to improve your chances of quitting.
- Talk to your treating team for more information and referral to a smoking cessation support service.

### **Staying active**

- Research shows that exercise, no matter how small, has many benefits for people during and after cancer treatment.
- Talk to your doctor before starting an exercise program. Your doctor can advise whether you need a modified exercise program.

**For more information about cancer treatment, side effects and side effect management see our [Patient and carers](#) section.**

## **Where to get more information**

### **Telephone support**

- Call Cancer Council on 13 11 20 for cancer information and support

### **Head and neck cancer information**

- Head and Neck Cancer Australia - [headandneckcancer.org.au/](http://headandneckcancer.org.au/)

### **General cancer information and support**

- Australian Rare Cancer (ARC) Portal – [arcportal.org.au/](http://arcportal.org.au/)
- Beyond Blue – [beyondblue.org.au](http://beyondblue.org.au)



- Beyond Five – [beyondfive.org.au](http://beyondfive.org.au)
- Cancer Australia – [canceraustralia.gov.au](http://canceraustralia.gov.au)
- Cancer Council Australia – [cancer.org.au](http://cancer.org.au)
- Cancer Voices Australia – [cancervoicesaustralia.org](http://cancervoicesaustralia.org)
- CanTeen – [canteen.org.au](http://canteen.org.au)
- Carers Australia – [carersaustralia.com.au](http://carersaustralia.com.au)
- Carer Help - [carerhelp.com.au](http://carerhelp.com.au)
- CHILL Cancer related hair loss - [scalpcooling.org](http://scalpcooling.org)
- eviQ Cancer Treatments Online – [eviQ.org.au](http://eviQ.org.au)
- LGBTQI+ People and Cancer - [cancercouncil.com.au/cancer-information/lgbtqi](http://cancercouncil.com.au/cancer-information/lgbtqi)
- Look Good Feel Better – [lgfb.org.au](http://lgfb.org.au)
- Patient Information – [patients.cancer.nsw.gov.au](http://patients.cancer.nsw.gov.au)
- Radiation Oncology Targeting Cancer – [targetingcancer.com.au](http://targetingcancer.com.au)
- Redkite – [redkite.org.au](http://redkite.org.au)
- Return Unwanted Medicines – [returnmed.com.au](http://returnmed.com.au)
- Staying active during cancer treatment – [patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/staying-active](http://patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/staying-active)

### Quit smoking information and support

Quitting smoking is helpful even after you have been diagnosed with cancer. The following resources provide useful information and support to help you quit smoking. Talk to your treating team about any other questions you may have.

- Call Quitline on 13 QUIT (13 78 48)
- iCanQuit – [iCanQuit.com.au](http://iCanQuit.com.au)
- Patient Information – [patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/quitting-smoking](http://patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/quitting-smoking)
- Quitnow – [quitnow.gov.au](http://quitnow.gov.au)

### Additional notes:

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This document is a guide only and cannot cover every possible situation. The health professionals caring for you should always consider your individual situation when making decisions about your care. Contact your cancer clinic staff or doctor if you have any questions or concerns about your treatment, or you are having problems coping with side effects. While eviQ endeavours to link to reliable sources that provide accurate information, eviQ and the Cancer Institute NSW do not endorse or accept responsibility for the accuracy, currency, reliability or correctness of the content of linked external information sources. Use of this document is subject to eviQ’s disclaimer available at [www.eviQ.org.au](http://www.eviQ.org.au)

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