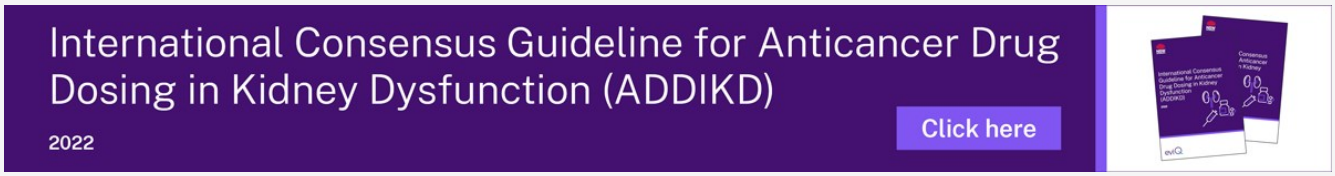
Colorectal metastatic cetuximab (two weekly)

ID: 1681 v.4 **Endorsed**

Check for clinical trials in this patient group. Link to Australian Clinical Trials website

This protocol is based on limited evidence; refer to the evidence section of this protocol for more information.

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.



Related pages:

- Colorectal metastatic cetuximab SUPERSEDED

Treatment schedule - Overview

Cycle 1 and further cycles

Drug	Dose	Route	Day
Cetuximab	500 mg/m^2	IV infusion	1

Frequency: 14 days

Cycles: Continuous until disease progression or unacceptable toxicity

Drug status: Cetuximab is PBS authority

Cost: ~ $2,780 per cycle

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 and further cycles

Day 1		
Loratadine	10 mg (PO)	60 minutes before treatment
Dexamethasone	4 mg (PO)	60 minutes before treatment
Cetuximab	500 mg/m^2 (IV infusion)	over 2 hours (first dose) subsequent doses over 60 minutes*

* Although the product information recommends a maximum cetuximab infusion rate of 5 mg/min for the loading dose and 10 mg/min for subsequent doses, rates of 2 hours for the loading dose and 60 minutes for subsequent doses were used in clinical trials.[1, 2, 3]

Frequency: 14 days

Cycles: Continuous until disease progression or unacceptable toxicity

Indications and patient population

- RAS wild-type metastatic colorectal cancer in patients who have failed standard chemotherapy
  - Not recommended for patients who have failed panitumumab therapy.

Notes:

- All patients should be tested for RAS mutations. Patients with mutant or unknown RAS status should not receive an EGFR antagonist as it may be harmful.
- Presence of a BRAF mutation has been identified as a marker of poorer prognosis, and potentially predictive of resistance to EGFR antagonists.[4]

Clinical information

Venous access required	IV cannula (IVC) or central venous access device (CVAD) is required to administer this treatment. Read more about central venous access device line selection
Hypersensitivity/infusion related reaction	High risk with cetuximab. The risk for anaphylactic reactions is increased in patients with a history of allergy to red meat or tick bites, or positive IgE antibody test results against cetuximab (α-1-3- galactose). Read more about Hypersensitivity reaction
Premedication	The product information states that premedication is required for this treatment. Please refer to the treatment schedule for suggested premedication regimen. This may be substituted to reflect institutional policy.
Emetogenicity LOW	Suggested default antiemetics have been added to the treatment schedule, and may be substituted to reflect institutional policy. 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 preventing anti-cancer therapy induced nausea and vomiting
Acneiform rash	EGFR targeted therapies are commonly associated with acneiform rash. The rash may peak in the first 2 to 4 weeks. Ensure advice on skin care (i.e. moisturisers) and sunscreen is provided. Prophylactic or early therapy with a tetracycline antibiotic (e.g. doxycycline) and 1% hydrocortisone cream to affected areas may be considered. Patients developing skin rash should be monitored for infectious sequelae, dose reductions and/or delay or cessation of treatment may be required. Read more about acneiform rash associated with EGFR inhibitors
Pulmonary toxicity	Interstitial lung disease (ILD) has been reported in patients treated with EGFR inhibitors. Read more about pulmonary toxicity associated with anti-cancer drugs.
Diarrhoea	Antidiarrhoeals (e.g. loperamide) are usually prescribed with this treatment. Read more about treatment induced diarrhoea

Blood tests	FBC, EUC, LFTs, calcium and magnesium at baseline, and then EUC, calcium and magnesium prior to each treatment. Magnesium wasting syndrome is associated with this therapy and patients should be monitored for hypomagnesaemia and accompanying hypocalcaemia for up to 8 weeks after completion of treatment.
Hepatitis B screening and prophylaxis	Routine screening for HBsAg and anti-HBc is NOT usually recommended for patients receiving this treatment. Read more about hepatitis B screening and prophylaxis in cancer patients requiring cytotoxic and/or immunosuppressive therapy
Vaccinations	Live vaccines are contraindicated in cancer patients receiving immunosuppressive therapy and/or who have poorly controlled malignant disease. Refer to the recommended schedule of vaccination for immunocompromised patients, as outlined in the Australian Immunisation Handbook. Read more about COVID-19 vaccines and cancer.
Fertility, pregnancy and lactation	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. Read more about the effect of cancer treatment on fertility

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).

Note: all dose reductions are calculated as a percentage of the starting dose.

Renal impairment
No dose modifications necessary

Hepatic impairment
No dose modifications necessary

Diarrhoea	
Grade 2	Delay treatment until toxicity has resolved to Grade 1 or less and reduce the dose for

Diarrhoea	
	subsequent cycles as follows: 1st occurrence: No dose reduction 2nd occurrence: Reduce cetuximab 25% 3rd occurrence: Reduce cetuximab by 50% 4th occurrence: Omit cetuximab
Grade 3 or Grade 4	Delay treatment until toxicity has resolved to Grade 1 or less and reduce the dose for subsequent cycles as follows: 1st occurrence: Reduce cetuximab by 50% 2nd occurrence: Omit cetuximab

Rash acneiform	
Grade 3	Delay treatment until toxicity has resolved to Grade 2 or less and reduce the dose for subsequent cycles as follows: 1st occurrence: No dose reduction 2nd occurrence: Reduce cetuximab by 25% 3rd occurrence: Reduce cetuximab by 50% 4th occurrence: Omit cetuximab

Interactions

Drug interactions in eviQ protocols are under review and being updated to align with current literature. Further site-wide updates and changes will occur in due course. References & Disclaimer

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*

Cetuximab		
	Interaction	**Clinical management**
Chemotherapeutic agents	Increased incidence of specific adverse reactions when used in combination	Monitor closely (e.g. for cardiac toxicity and hand-foot syndrome when combined with fluoropyrimidines; for severe diarrhoea with capecitabine and oxaliplatin)

General		
	Interaction	**Clinical management**
Warfarin	Anti-cancer drugs may alter the anticoagulant effect of warfarin.	Monitor INR regularly and adjust warfarin dosage as appropriate; consider alternative anticoagulant.
Direct oral anticoagulants (DOACs) e.g. apixaban, rivaroxaban, dabigatran	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.
Digoxin	Anti-cancer drugs can damage the lining of the intestine; affecting the absorption of digoxin.	Monitor digoxin serum levels; adjust digoxin dosage as appropriate.
Antiepileptics	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.
Antiplatelet agents and NSAIDs	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.
Serotonergic drugs, including selective serotonin reuptake inhibitors (SSRIs e.g. paroxetine) and serotonin noradrenaline reuptake inhibitors (SNRIs e.g. venlafaxine)	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 TGA Medicines Safety Update
Vaccines	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 Australian Immunisation Handbook

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

product information monographs via the TGA website for further information.

Day 1

Approximate treatment time: 2 hours

Handling of monoclonal antibodies and waste management

Safe administration

General patient assessment prior to each day of treatment.

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

Prime IV line(s).

Insert IV cannula or access TIVAD or CVAD.

Pre treatment medication

Verify premedication taken or administer as prescribed.

Verify dexamethasone taken or administer as prescribed.

Treatment - Time out

Cetuximab

- administer via IV infusion over 2 hours (first dose)
- if well tolerated, subsequent doses may be administered over 60 minutes
- although the product information recommends a maximum cetuximab infusion rate of 5 mg/min for the loading dose and 10 mg/min for subsequent doses, rates of 2 hours for the loading dose and 60 minutes for subsequent doses were used in clinical trials
- observe for hypersensitivity reaction
- flush with ~ 50 mL of sodium chloride 0.9%
- patient should be observed for an hour post infusion. If patient has a hypersensitivity reaction – stop infusion immediately. Review by medical officer; if re-challenge indicated, pre medicate patient and recommence infusion over 2 hours , then patient should be observed for an hour post infusion.

The product information recommends an observation period of one hour post completion of the cetuximab infusion. However, with the use of routine prophylactic measures, in clinical practice the incidence of infusion related reactions is very low and usually occurs in the first 15-30 minutes of the infusion. As a result the reference committee feels that in units using prophylactic measures routine prolonged observation is not required.

Remove IV cannula and/or deaccess TIVAD or CVAD.

Discharge information

Antiemetics

- Antiemetics as prescribed.

Antidiarrhoeals

- Antidiarrhoeals 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)	
Hypersensitivity reaction	Anaphylaxis and infusion related reactions can occur with this treatment. Read more about hypersensitivity reaction
Nausea and vomiting	Read more about prevention of treatment induced nausea and vomiting

Early (onset days to weeks)	
Diarrhoea	Read more about treatment induced diarrhoea
Fatigue	Read more about fatigue
Anorexia	Loss of appetite accompanied by decreased food intake. Read more about anorexia
Hypomagnesaemia, hypokalaemia, hypocalcaemia	Abnormally low levels of magnesium, potassium and calcium in the blood.
Acneiform rash	A skin rash, characterised by papules and pustules affecting the face and upper body. This is commonly associated with small molecule EGFR inhibitors and some monoclonal antibodies (e.g. cetuximab, panitumumab). Read more about acneiform rash associated with EGFR inhibitors

Late (onset weeks to months)	
Abnormal hair growth	Hair may become fine, brittle and curly. Eyelashes and eyebrows may grow more quickly and become unusually long.
Pulmonary toxicity	Pulmonary toxicity may include damage to the lungs, airways, pleura and pulmonary circulation. Read more about pulmonary toxicity associated with anti-cancer drugs
Paronychia	An inflammatory reaction involving the folds of the skin surrounding the fingernail. Read about nail toxicities

Evidence

The evidence supporting the use of cetuximab monotherapy in previously treated metastatic colorectal cancer is based on the CO 17 study, a randomised, phase III trial involving 572 patients comparing cetuximab monotherapy with best supportive care in chemo-refractory metastatic colorectal cancer.[5]

Between December 2003 and August 2005, 287 patients were randomised to receive weekly cetuximab 250 mg/m^2 (loading dose 400mg/m^2) and 285 patients were randomised to best supportive care alone.[5]

The primary end point was overall survival and secondary end points were progression-free survival, response rates, quality of life and toxicity.[5]

Monoclonal antibodies (mABs) targeting the epidermal growth factor receptor (EGFR) prolong survival in patients with metastatic colorectal cancer (mCRC) harbouring KRAS exon 2 wild type tumours. Recent evidence suggest that other RAS mutations (exon 3 and 4 of KRAS and exons 2, 3, 4 of NRAS) may also be predictive of resistance[6,7] and some studies even suggest that anti-EGFR mAB treatment may have a detrimental effect on PFS and OS.[8] As such, cetuximab should not be used in patients with any RAS mutations.

Several studies have shown that the 2 weekly schedule of cetuximab has similar efficacy and safety as the weekly schedule and is sometimes preferred as it is more convenient for the patient.[9] However, most studies were phase II studies with combination cetuximab and irinotecan, and phase III studies are still needed to confirm this. The expert reference panel supported publication of the protocol on the basis of the information summarised below.

Source	Study and year published	Supports use	Is the dose and regimen consistent with the protocol?	Comments
Phase II trials	Brodowicz et al 2013[1]	**Yes**	No	FOLFOX + cetuximab

Source	Study and year published	Supports use	Is the dose and regimen consistent with the protocol?	Comments
				weekly vs FOLFOX + cetuximab 2 weekly
Phase I	Tabernero et al 2010[2]	**Yes**	Yes	Population pK/pD dose escalation study
Observational studies	-	**N/A**	-	-
Case series	-	**N/A**	-	
Guidelines	**Date published/revised**	**Supports use**	**Is the dose and regimen consistent with the protocol?**	**Comments**
NCCN	v2. 2015	**Yes**	-	-
BCCA	-	**N/A**	-	-
CCO	-	**N/A**	-	-

Efficacy

In a small phase 1 dose escalation study of cetuximab monotherapy using bi-weekly dosing, efficacy data was looked at and there were comparable results for cetuximab every two weeks.[2]

Cetuximab weekly

Cetuximab monotherapy improved the progression free survival (median 1.9 vs. 1.8 months, HR=0.68; 95% CI: 0.57-0.80; p<0.0001) and overall survival (median 6.1 vs. 4.6 months, HR=0.77; 95% CI: 0.64-0.92; p=0.0046) in the ITT population, compared with best supportive care.[3]

Kaplan-Meier curves for overall survival in patients with mutated (A) and wild-type (B) K-*ras*[3]

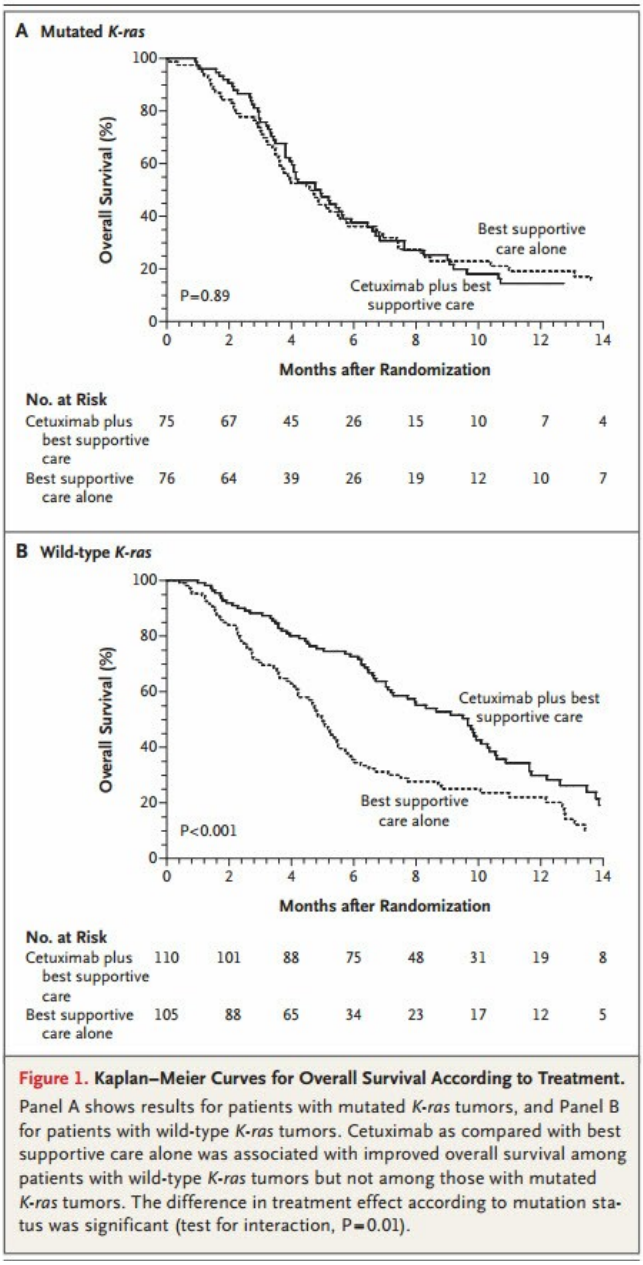


Figure 1. Kaplan–Meier Curves for Overall Survival According to Treatment.
Panel A shows results for patients with mutated *K-ras* tumors, and Panel B for patients with wild-type *K-ras* tumors. Cetuximab as compared with best supportive care alone was associated with improved overall survival among patients with wild-type *K-ras* tumors but not among those with mutated *K-ras* tumors. The difference in treatment effect according to mutation status was significant (test for interaction, P=0.01).

Toxicity

In the CO 17 study, there were no statistically significant differences between the cetuximab group and the supportive-care group in the incidence of grade 3 or higher adverse events, with the exception of rash (11.8% for cetuximab vs. 0.4% for supportive care, P<0.001), infection without neutropenia (12.8% vs. 5.5%, P=0.003), confusion (5.6% vs. 2.2%, P=0.05), and pain defined as "other" according to the NCI-CTC (14.9% vs. 7.3%, P=0.005).[5]

Haematological adverse events were uncommon, and there were no significant differences between the groups in grade 3 or higher serum chemical values or other laboratory measurements, with the exception of hypomagnesaemia, which was more common in the cetuximab group than in the group receiving supportive care alone (5.8% vs. 0.0%, P<0.001). Grade 3 or 4 infusion reactions (hypersensitivity) occurred in 4.5% of patients assigned to cetuximab.[5]

In the studies looking at the biweekly cetuximab combination regimens, there were no increased adverse events, including allergic reactions and skin toxicity associated with the double dose.[9]

Toxicity of cetuximab (weekly) plus best supportive care vs best supportive care alone[5]

Table 2. Adverse Events.

Event	Cetuximab plus Best Supportive Care (N=288)				Best Supportive Care Alone (N=274)				P Value
	number (percent)								
Grade 3 or higher with an incidence of ≥5%*									
Any adverse event	226 (78.5)				162 (59.1)				<0.001
Edema	15 (5.2)				16 (5.8)				0.85
Fatigue	95 (33.0)				71 (25.9)				0.09
Anorexia	24 (8.3)				16 (5.8)				0.32
Constipation	10 (3.5)				13 (4.7)				0.53
Nausea	16 (5.6)				15 (5.5)				1.00
Vomiting	16 (5.6)				15 (5.5)				1.00
Non-neutropenic infection	37 (12.8)				15 (5.5)				0.003
Confusion	16 (5.6)				6 (2.2)				0.05
Abdominal pain	38 (13.2)				43 (15.7)				0.40
Other pain†	43 (14.9)				20 (7.3)				0.005
Dyspnea	47 (16.3)				34 (12.4)				0.23
Rash	34 (11.8)				1 (0.4)				<0.001
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 1	Grade 2	Grade 3	Grade 4	
	number (percent)								
Other adverse events‡									
Infusion reactions	30 (10.4)	16 (5.6)	8 (2.8)	5 (1.7)	0	0	0	0	<0.001
Rash	114 (39.6)	107 (37.2)	34 (11.8)	0	32 (11.7)	11 (4.0)	1 (0.4)	0	<0.001
Hypomagnesemia§	95 (36.7)	28 (10.8)	7 (2.7)	8 (3.1)	29 (14.6)	1 (0.5)	0	0	<0.001

* Grades were determined according to the National Cancer Institute Common Toxicity Criteria (NCI-CTC), version 2.0.
† This category excludes arthralgia; myalgia; earache; headache; and abdominal, bone, chest, hepatic, neuropathic, pelvic, pleuritic, rectal, perirectal, and tumor pain.
‡ The P values, calculated with the use of Fisher's exact test, are for the difference in the incidence of adverse events between the two treatment groups.
§ The results for hypomagnesemia are based on 259 patients in the cetuximab group and 198 patients in the supportive-care group.

References

1. Brodowicz, T., T. E. Ciuleanu, D. Radosavljevic, et al. 2013. "FOLFOX4 plus cetuximab administered weekly or every second week in the first-line treatment of patients with KRAS wild-type metastatic colorectal cancer: a randomized phase II CECOG study." Ann Oncol 24(7):1769-1777.

2. Tabernero, J., F. Ciardiello, F. Rivera, et al. 2010. "Cetuximab administered once every second week to patients with metastatic colorectal cancer: a two-part pharmacokinetic/pharmacodynamic phase I dose-escalation study." Ann Oncol 21(7):1537-1545.

3. Karapetis, C. S., S. Khambata-Ford, D. J. Jonker, et al. 2008. "K-ras mutations and benefit from cetuximab in advanced colorectal cancer." N Engl J Med 359(17):1757-1765.

4. Nott, L., M. Khattak, T. Price, et al. Molecular pathology and biomarkers – implications for systemic therapy. Available from https://wiki.cancer.org.au/australia/Guidelines:Colorectal_cancer/Systemic_therapy_molecular_pathology. In: Cancer Council Australia Colorectal Cancer Guidelines Working Party.

5. Jonker, D. J., C. J. O'Callaghan, C. S. Karapetis, et al. 2007. "Cetuximab for the treatment of colorectal cancer." N Engl J Med 357(20):2040-2048.

6. Van Cutsem, E., H. J. Lenz, C. H. Kohne, et al. 2015. "Fluorouracil, Leucovorin, and Irinotecan Plus Cetuximab Treatment and RAS Mutations in Colorectal Cancer." J Clin Oncol 33(7):692-700.

7. Heinemann, V., L. F. von Weikersthal, T. Decker, et al. 2014. "FOLFIRI plus cetuximab versus FOLFIRI plus bevacizumab as first-line treatment for patients with metastatic colorectal cancer (FIRE-3): a randomised, open-label, phase 3 trial." Lancet Oncol 15(10):1065-1075.

8 Douillard, J. Y., K. S. Oliner, S. Siena, et al. 2013. "Panitumumab-FOLFOX4 treatment and RAS mutations in colorectal cancer." N Engl J Med 369(11):1023-1034.

9 Hubbard, J. M. and S. R. Alberts. 2013. "Alternate dosing of cetuximab for patients with metastatic colorectal cancer." Gastrointest Cancer Res 6(2):47-55.

History

Version 4

Date	Summary of changes
24/03/2021	Cetuximab infusion rate information in detailed treatment schedule and administration section updated to include maximum infusion rates as per product information. Version number increased to V.4.

Version 3

Date	Summary of changes
04/12/2020	Cetuximab hypersensitivity/infusion related reaction clinical information updated to include risk factors as per Medical Oncology Reference Committee meeting on 23rd October 2020. Version number increased to V.3. Next review in 4 years.

Version 2

Date	Summary of changes
27/03/2015	New protocol taken to Medical Oncology Reference Committee meeting.
27/04/2015	Approved and published on eviQ.
18/02/2016	Discussion with Medical Oncology Reference Committee Chairs and protocol to be reviewed every 5 years. Next review due in 3 years.
07/11/2016	The following changes made post Medical Oncology Reference Committee meeting held on 21 October 2016. Link to AGTIG and ANZCTR added.
31/05/2017	Transferred to new eviQ website. Version number change to V.2. Hepatitis screening changed to not recommended.
04/07/2018	Indications reworded for consistency across all colorectal EGFR monoclonal antibody protocols.
25/09/2020	Protocol reviewed electronically by the Medical Oncology Reference committee. Nil changes. Next review in 4 years.

First approved: 27 April 2015
Last reviewed: 23 October 2020
Review due: 31 December 2024

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/1681
16 Jul 2023

Patient information - Bowel cancer metastatic - Cetuximab (two weekly)

Patient's name:

Your treatment

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

Cetuximab			
This treatment cycle is repeated every 14 days. Your doctor will advise you of the number of treatments you will have.			
Day	**Treatment**	**How it is given**	**How long it takes**
1	**Cetuximab** (*se-TUK-see-mab*)	By a drip into a vein	About 2 hours (cycle 1 may take 3 hours)

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.

IMMEDIATELY go to your nearest hospital Emergency Department, or contact your doctor or nurse if you have any of the following at any time:	**Emergency contact details** Ask your doctor or nurse from your treating team who to contact if you have a problem
• a temperature of 38°C or higher • chills, sweats, shivers or shakes • shortness of breath • uncontrolled vomiting or diarrhoea • pain, tingling or discomfort in your chest or arms • you become unwell.	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

You will need to have a blood test before you start treatment and regularly throughout your treatment. 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.
- **Antidiarrhoeals:** you may be given some medication to treat diarrhoea. Your doctor or nurse will tell you how and when to take your antidiarrhoeal medication.
- **Medication for skin rash:** you may be given some medication (which may include a steroid cream, an antibiotic cream and/or oral antibiotics) to prevent or treat skin rash. Your doctor or nurse will tell you how to take or use these medications.
- **Cetuximab premedication:** before your treatment with cetuximab you will need to take some tablets called a premedication to help prevent you from having a reaction to the cetuximab.

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)	

Allergic reaction	• Allergic reactions are uncommon but can be life threatening.
	• **If you feel unwell during the infusion or shortly after it, or:**
	  ◦ **get a fever, shivers or shakes**
	  ◦ **feel dizzy, faint, confused or anxious**
	  ◦ **start wheezing or have difficulty breathing**
	  ◦ **have a rash, itch or redness of the face**
	
	While you are in hospital: Tell your doctor or nurse immediately.
	After you leave: Contact your doctor or nurse immediately, or go to the nearest hospital Emergency Department.

Nausea and vomiting	• You may feel sick (nausea) or be sick (vomit). • Take your anti-sickness medication as directed even if you don't feel sick. • Drink plenty of fluids (unless you are fluid restricted). • Eat small meals more frequently. • Try food that does not require much preparation. • Try bland foods like dry biscuits or toast. • Gentle exercise may help with nausea. • Ask your doctor or nurse for eviQ patient information - Nausea and vomiting during cancer treatment. • **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.**

Early (onset days to weeks)	
Diarrhoea	• You may get bowel motions (stools, poo) that are more frequent or more liquid. • You may also get bloating, cramping or pain. • Take your antidiarrhoeal medication as directed by your doctor. • Drink plenty of fluids (unless you are fluid restricted). • Eat and drink small amounts more often. • Avoid spicy foods, dairy products, high fibre foods, and coffee. • Ask your doctor or nurse for eviQ patient information - Diarrhoea during cancer treatment. • **Tell your doctor or nurse immediately, or go to your nearest hospital Emergency Department if your diarrhoea is not controlled, you have 4 or more loose bowel motions per day, and if you feel dizzy or light-headed.**
Tiredness and lack of energy (fatigue)	• You may feel very tired, have no energy, sleep a lot, and not be able to do normal activities or things you enjoy. • Do not drive or operate machinery if you are feeling tired. • Nap for short periods (only 1 hour at a time) • Prioritise your tasks to ensure the best use of your energy. • Eat a well balanced diet and drink plenty of fluids (unless you are fluid restricted). • Try some gentle exercise daily. • Allow your friends and family to help. • **Tell your doctor or nurse if you get any of the symptoms listed above.**
Appetite loss (anorexia)	• You may not feel like eating. • Try to avoid drinking fluids at meal times. • Try to eat small meals or snacks regularly throughout the day. • Try to eat food that is high in protein and calories. • If you are worried about how much food you can eat, or if you are losing weight, ask to speak to a dietitian.

Low blood magnesium, potassium and calcium levels (hypomagnesaemia, hypokalaemia, hypocalcaemia)	• This may be found from your routine blood tests and treated by your doctor.
	• If it is severe you may get:
	  ◦ muscle cramps or twitches
	  ◦ numbness or tingling in your fingers, toes or around your mouth
	  ◦ constipation
	  ◦ an irregular heartbeat
	  ◦ sleepy, drowsy or confused
	• **Tell your doctor or nurse as soon as possible if you get any of the signs or symptoms listed above.**

Skin rash (acneiform rash)	• You may get an acne-like skin rash. • Your skin may become red and dry. • Moisturise your skin with a gentle non-perfumed moisturising cream like sorbolene or aqueous cream. • Do not scratch your skin. • Do not use over-the-counter acne treatments as these can make the rash worse. • Protect your skin from the sun by wearing sun-protective clothing, a wide-brimmed hat, sunglasses and sunscreen of SPF 50 or higher. • You may be given medications to prevent the rash. • **Tell your doctor or nurse as soon as possible if you notice any changes to the rash like itching, pain or pus forming**

Late (onset weeks to months)	
Hair changes	• Your hair may become fine or curly and may break easily. • Your eyelashes and eyebrows may grow more than normal. • Use a gentle shampoo and a soft hairbrush. • Take care with hair products like hairspray, hair dye, bleaches and perms. • Ask your doctor or nurse about the Look Good Feel Better program (www.lgfb.org.au).

Lung problems	• Lung problems are rare, but can be serious. They may occur throughout treatment or after the completion of treatment.
	• You may get:
	  ◦ shortness of breath
	  ◦ fever
	  ◦ dry cough
	  ◦ wheezing
	  ◦ fast heartbeat
	  ◦ chest pain.
	• Your doctor will monitor how well your lungs are working during your treatment.
	• **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you have chest pain or become short of breath.**

Swelling and pain around the fingernails or toenails (paronychia)	• The skin around your nails may swell and become painful. • Apply a warm compress or soak your nails for 15 minutes, 3 or 4 times a day, in warm water or a mixture of equal parts vinegar and water. • Keep your nails clean and short. • Avoid things like biting your fingernails, getting a manicure, pedicure or false nails. • Wear gloves when you wash the dishes, work in the garden, or clean the house. • Tell your doctor or nurse if you get any of the symptoms listed above.

General advice for people having cancer treatment

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.

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

Bowel cancer information

- Australian Council of Stoma Associations – australianstoma.com.au
- Australian Government Bladder and Bowel – bladderbowel.gov.au
- Australian Government Department of Health & Ageing Stoma appliance scheme – health.gov.au/internet/main/publishing.nsf/Content/Stoma+Appliance+Scheme-1
- Bowel Cancer Australia – bowelcanceraustralia.org
- National Public Toilet map – toiletmap.gov.au
- Recovering after Pelvic Radiation Therapy: A guide for women – https://www.targetingcancer.com.au/useful-resources/recovering-after-pelvic-radiation-therapy-a-guide-for-women/

General cancer information and support

- Australian Rare Cancer (ARC) Portal – arcportal.org.au/
- Beyondblue – beyondblue.org.au
- Cancer Australia – canceraustralia.gov.au
- Cancer Council Australia – cancer.org.au
- Cancer Voices Australia – cancervoicesaustralia.org
- CanTeen – canteen.org.au
- Carers Australia – carersaustralia.com.au

- CHILL Cancer related hair loss - scalpcooling.org
- eviQ Cancer Treatments Online – eviQ.org.au
- LGBTQI+ People and Cancer - cancercouncil.com.au/cancer-information/lgbtqi
- Look Good Feel Better – lgfb.org.au
- Patient Information – patients.cancer.nsw.gov.au
- Radiation Oncology Targeting Cancer – targetingcancer.com.au
- Redkite – redkite.org.au
- Return Unwanted Medicines – returnmed.com.au
- Staying active during cancer treatment – 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
- Patient Information - patients.cancer.nsw.gov.au/coping-with-cancer/physical-wellbeing/quitting-smoking
- Quitnow – quitnow.gov.au

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https://www.eviq.org.au/pi/1681
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