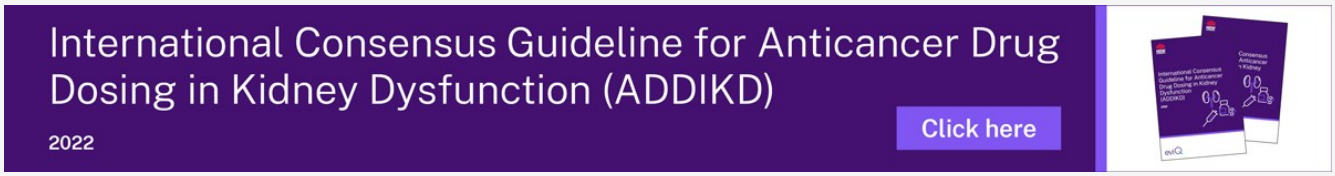
Multiple myeloma PVd (pomalidomide bortezomib and dexamethasone)

ID: 3791 v.2 **Endorsed**

Patients with myeloma should be considered for inclusion into clinical trials. Link to ALLG website and ANZCTR website.

Link to Medical Scientific Advisory Group (MSAG) Clinical Practice Guideline Multiple Myeloma

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.



Treatment schedule - Overview

Cycle 1 to 8

Drug	Dose	Route	Day
Dexamethasone	20 mg ONCE a day *	PO	1 and 2, 4 and 5, 8 and 9, 11 and 12
Pomalidomide	4 mg	PO	1 to 14
Bortezomib	1.3 mg/m^2	Subcut	1, 4, 8, 11

Cycle 9 and further cycles

Drug	Dose	Route	Day
Dexamethasone	20 mg ONCE a day *	PO	1 and 2 and 8 and 9
Pomalidomide	4 mg	PO	1 to 14
Bortezomib	1.3 mg/m^2	Subcut	1 and 8

* Dexamethasone dose was reduced to 10 mg in patients aged > 75 years.

Frequency: 21 days

Cycles: Continuous until disease progression or unacceptable toxicity

Notes:
- Weekly bortezomib may be appropriate as per Paludo et al.[1]

Drug status: **Bortezomib**: PBS restricted benefit

Pomalidomide: (PBS authority)

NB: patient registration into a pregnancy prevention risk management program is required.

Dexamethasone: PBS general schedule

Pomalidomide is available as **1 mg**, **2 mg, 3 mg** and **4 mg** capsules

Dexamethasone is available as **0.5 mg** and **4 mg** tablets

Cost: ~ $7,240 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 to 8

Day 1		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Bortezomib	1.3 mg/m^2 (Subcut)	via subcutaneous injection
Day 2		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 3		
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 4		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Bortezomib	1.3 mg/m^2 (Subcut)	via subcutaneous injection
Day 5		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 6 and 7		
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 8		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.

Day 8		
Bortezomib	1.3 mg/m^2 (Subcut)	via subcutaneous injection
Day 9		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 10		
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 11		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Bortezomib	1.3 mg/m^2 (Subcut)	via subcutaneous injection
Day 12		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 13 and 14		
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.

Cycle 9 and further cycles

Day 1		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Bortezomib	1.3 mg/m^2 (Subcut)	via subcutaneous injection
Day 2		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 3 to 7		
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 8		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole

Day 8		
		with a glass of water.
Bortezomib	1.3 mg/m^2 (Subcut)	via subcutaneous injection
Day 9		
Dexamethasone	20 mg (PO)	ONCE a day on the day of and the day after each bortezomib dose. Take in the morning with food.*
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.
Day 10 to 14		
Pomalidomide	4 mg (PO)	with or without food on days 1 to 14. Swallow whole with a glass of water.

* Dexamethasone dose was reduced to 10 mg in patients aged > 75 years.

Frequency: 21 days

Cycles: Continuous until disease progression or unacceptable toxicity

Indications and patient population

- Treatment of relapsed/refractory multiple myeloma in patients previously treated with lenalidomide

Clinical information

Caution with oral anti-cancer drugs	Select links for information on the safe prescribing, dispensing and administration of orally administered anti-cancer drugs. Read more about the COSA guidelines and oral anti-cancer therapy
Emetogenicity minimal or low	No routine prophylaxis required. If patients experience nausea and/or vomiting, consider using the low emetogenic risk regimen. Read more about preventing anti-cancer therapy induced nausea and vomiting
Peripheral neuropathy	Peripheral neuropathy (PN), including grade 2 and 3 events are reported less frequently with subcutaneous (SC) dosing of bortezomib than with intravenous (IV) administration. All patients should be assessed regularly for symptoms of peripheral neuropathy. Most cases are reversible with dose modifications. Read more about peripheral neuropathy Link to chemotherapy-induced peripheral neuropathy screening tool
Thrombocytopenia	Grade 3 and Grade 4 thrombocytopenia occur frequently. Usually transient and cyclical, recovering towards end of rest period. Platelet nadir occurs at approximately day 11. Dose delays and/or modifications may be required. Platelet support may be required. Read more about thrombocytopenia associated with bortezomib
Thromboembolism	Patients are at an increased risk of venous thrombosis with this treatment. Risk assessment for VTE should be performed prior to and during treatment. It is the consensus opinion of the Haematology Reference Committee that concomitant thromboprophylaxis is recommended: consider using low dose aspirin for patients without pre-existing risk factors, while patients with pre-existing risk factors should receive enoxaparin 40 mg subcut daily for the duration of treatment (unless contraindicated; reduce dose in kidney dysfunction). Read more about the prophylaxis of venous thromboembolism (VTE) in multiple myeloma

Teratogenic effects	Immunomodulatory drugs (IMiDs) include thalidomide, lenalidomide and pomalidomide. They can cause severe congenital disabilities or death to an unborn baby when taken during pregnancy. All patients and partners of patients that can conceive a child must use at least one reliable contraceptive method for at least 4 weeks before starting treatment, during treatment (including dose interruptions), and for 4 weeks after stopping treatment. Male patients should also use a condom when having sexual intercourse with a woman of childbearing potential during treatment (including dose interruptions), and for 4 weeks after stopping treatment. In female patients and female partners of male patients, a pregnancy test should be carried out prior to initiating treatment (after 4 weeks of contraception use), weekly during the first month of treatment and monthly thereafter. Effective contraception methods and adequate contraception timeframes should be discussed with all patients of reproductive potential. Prescription of an IMiD requires patient registration with a pregnancy prevention program. Full prescribing information and Authority Application forms available from the Department of Human Services website
Orthostatic hypotension	Caution in patients with history of syncope or postural hypotension and those taking antihypertensive medications. Ensure patient is well hydrated prior to therapy.
Bone modifying agents	Use of a bone modifying agent (BMA) should be considered in all patients with symptomatic myeloma requiring treatment. For patients with newly diagnosed symptomatic myeloma, zoledronic acid, pamidronate or denosumab should be considered for monthly administration (adjust for kidney dysfunction where appropriate) for up to 2 years. A longer duration of therapy may be appropriate (MRC M IX trial).[2] For more information, please see the following protocols: ID 137 Multiple myeloma zoledronic acid ID 147 Multiple myeloma pamidronate ID 3964 Multiple myeloma denosumab - note denosumab is TGA approved but not PBS reimbursed for this indication.
Bisphosphonates and dental review	Caution should be taken with prolonged use of bisphosphonates due to the risk of osteonecrosis of the jaw (ONJ). A dental review prior to treatment is recommended, and all dental issues treated before the initiation of bisphosphonates. Dental review 6 to 12 monthly during treatment is advisable to minimise risk of ONJ. Concurrent daily oral supplements of calcium 500 mg and vitamin D 400 International Units are recommended. Read more about medication-related osteonecrosis of the jaw (MRONJ)
Corticosteroids	Diabetic patients should monitor their blood glucose levels closely. To minimise gastric irritation, advise patient to take immediately after food. Consider the use of a H2 antagonist or proton pump inhibitor if appropriate. Read more about acute short term effects from corticosteroids
Tumour lysis risk	Assess patient for risk of developing tumour lysis syndrome. Read more about prevention and management of tumour lysis syndrome.
Pneumocystis jirovecii pneumonia (PJP) prophylaxis	PJP prophylaxis is recommended e.g. trimethoprim/sulfamethoxazole 160/800 mg PO one tablet twice daily, twice weekly (e.g. on Mondays and Thursdays) OR one tablet three times weekly (e.g. on Mondays, Wednesdays and Fridays). Read more about prophylaxis of pneumocystis jiroveci (carinii) in cancer patients
Antiviral prophylaxis	Bortezomib is associated with a risk of Herpes Zoster infection (shingles). Antiviral prophylaxis is recommended to protect from HSV and VZV reactivation during active therapy including periods of neutropenia. Read about antiviral prophylaxis drugs and doses
Growth factor support	G-CSF (short or long-acting) is available on the PBS for chemotherapy induced neutropenia depending on clinical indication and/or febrile neutropenia risk. Access the PBS website

Blood tests	FBC, EUC, LFTs and BSL at baseline and weekly for the first cycle then prior to each cycle or as clinically indicated.
Hepatitis B screening and prophylaxis	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 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 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. 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).

Dose reduction steps	Bortezomib	Pomalidomide
	Bortezomib should be withheld at the onset of any Grade 4 haematological toxicity or any Grade 3 non-haematological toxicity, with the exception of neuropathy. Upon resolution of the toxicity, bortezomib should be reinitiated at a 25% reduction of the previous dose as follows:	
Starting dose	1.3 mg/m^2	4 mg
Dose level -1	1 mg/m^2	3 mg
Dose level -2	0.7 mg/m^2	2 mg
Dose level -3	-	1 mg
	If the toxicity is not resolved or if it recurs at the lowest dose, discontinuation of bortezomib must be considered unless the benefit of treatment clearly outweighs the	If recovery from toxicities is prolonged and pomalidomide dose withholding is beyond 14 days, then the dose of pomalidomide should be decreased by

	risk.	one dose level when dosing is resumed in the new cycle. If toxicities occur at 1 mg daily dose, discontinue treatment.

Haematological toxicity	
ANC x 10^9/L (pre-treatment blood test)	
0.5 to less than 1.0	No change in management unless febrile neutropenia occurs.
Less than 0.5 Febrile neutropenia	Withhold pomalidomide treatment for remainder of cycle. Granulocyte colony-stimulating factor G-CSF can be started at the discretion of the treating physician. On Day 1 of next cycle, the dose of pomalidomide may be maintained if ANC > 1 and neutropenia was the only pomalidomide-related toxicity requiring a dose modification and G-CSF treatments are continued. Otherwise decrease pomalidomide dose by one dose level at the start of next cycle. Withhold bortezomib treatment until symptoms of toxicity have resolved. Bortezomib may be reinitiated at reduced bortezomib dosing by one dose level.
Platelets x 10^9/L (pre-treatment blood test)	
25 to less than 50	Continue with treatment
Less than 25	Withhold pomalidomide for remainder of cycle. Dosing may resume at one dose level lower once platelet count has recovered to > 50. Withhold bortezomib until symptoms of toxicity have resolved. Bortezomib may be reinitiated at reduced bortezomib dosing by one dose level.

Hepatic impairment	
Hepatic dysfunction	
Moderate or severe	Reduce bortezomib to 0.7 mg/m^2 per dose for the first cycle, then consider dose escalation to 1 mg/m^2 or further dose reduction to 0.5 mg/m^2 for subsequent cycles depending on patient tolerability.
There is limited data available on pomalidomide treatment in patients with hepatic impairment. Monitoring of hepatic function is advised in all patients with hepatic impairment.	

Non-haematological toxicity	
Rash	
Rare cases of Stevens-Johnson syndrome and toxic epidermal necrolysis have been reported. These may be potentially fatal.	
Grade 2 or 3	Withhold pomalidomide dose for remainder of cycle. Dosing may resume at one dose level lower for next cycle (rash must be resolved or ≤ Grade 1 prior to re-commencement).
Grade 4 or blistering, Stevens-Johnson syndrome or toxic epidermal necrolysis	Permanently discontinue pomalidomide
Constipation	
≥ Grade 3	Withhold pomalidomide dose for remainder of cycle. Initiate aperients. Dosing may resume at one dose level lower for next cycle (constipation must be resolved or ≤ Grade 2 prior to re-commencement).
Venous thromboembolic event	
≥ Grade 3	Withhold pomalidomide dose for remainder of cycle. Initiate anticoagulation treatment. Maintain dose level when dosing resumed at next cycle.

Peripheral neuropathy	

Peripheral neuropathy	
Grade 1	No action
Grade 1 with pain or Grade 2	Reduce bortezomib dosing by one level
Grade 2 with pain or Grade 3	Withhold bortezomib until toxicity resolves. Reinitiate with a reduced dose of bortezomib at 0.7 mg/m^2 and change treatment schedule to once per week. The pros and cons of continuing treatment in the presence of Grade 3 toxicity should be carefully considered.
Grade 4	Discontinue bortezomib

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*

Bortezomib		
	Interaction	**Clinical management**
Antihypertensives	Additive hypotensive effect	Monitor blood pressure. Ensure patient is well hydrated prior to bortezomib dose. Adjust antihypertensive dose as required
Strong CYP3A4 inhibitors (e.g. ketoconazole, ritonavir)	Potentially increased bortezomib toxicity due to reduced clearance	Monitor patients closely for bortezomib toxicity (thrombocytopenia, neutropenia, peripheral neuropathy)
Strong CYP3A4 and P-gp inducers (e.g. rifampin, St John's Wort)	Potentially reduced efficacy of bortezomib due to increased clearance	Monitor patients closely for decreased bortezomib efficacy
Other CYP3A4 inhibitors or inducers (e.g. azoles, grapefruit juice, macrolides, carbamazepine, phenytoin)	Low levels of evidence for interactions, coadministration has not been studied	Monitor patients closely for either toxicities or reduced efficacy
Oral hypoglycaemics	Hypoglycaemia or hyperglycaemia	Monitor blood glucose levels and adjust oral hypoglycaemic dose as required
Green tea	May diminish the anti-cancer effect of bortezomib	Avoid combination

Dexamethasone		
	Interaction	**Clinical management**
CYP3A4 interactions	Dexamethasone is a substrate of CYP3A4 and a weak to moderate inducer of CYP3A4. The clinical relevance of CYP3A4 induction by dexamethasone is unknown as the mechanism has yet to be established	The effects of the concomitant use of dexamethasone with other CYP3A4 inducers, inhibitors or substrates is variable. If used concomitantly, monitor patients closely for adverse drug reactions
Warfarin	Concurrent use may result in increased risk of bleeding or diminished effects of warfarin	Monitor prothrombin time / INR (especially during initiation or discontinuation) and for signs of drug toxicity during concomitant use; adjust warfarin dose as required
Oral hypoglycaemics	Corticosteroids may cause hyperglycaemia and worsen diabetes control	Monitor blood glucose levels and adjust oral hypoglycaemic dose as required

Pomalidomide		
	Interaction	**Clinical management**
CYP1A2 inhibitors (e.g. fluvoxamine, ciprofloxacin etc.)	Increased toxicity of pomalidomide possible due to reduced clearance	Avoid combination or monitor for pomalidomide toxicity
Tobacco	Reduced efficacy of pomalidomide possible due to increased clearance	Avoid combination or monitor for decreased clinical response to pomalidomide

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 Cycle 1 to 8

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

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool.

Any toxicity grade 1 or greater may require dose reduction or delay of treatment and review by medical officer before commencing treatment.

Note: Dialysis patients: administer bortezomib either after the patient has been dialysed or a minimum of 4 hours prior to dialysis.

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Chemotherapy - Time out

Bortezomib

- administer by subcutaneous injection
- rotate the injection site for each injection
- pain, inflammation and thrombophlebitis may occur at injection site
- doses of bortezomib must be at least 72 hours apart.

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

Day 2

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 3

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 4

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool.

Any toxicity grade 1 or greater may require dose reduction or delay of treatment and review by medical officer before commencing treatment.

Note: Dialysis patients: administer bortezomib either after the patient has been dialysed or a minimum of 4 hours prior to dialysis.

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Chemotherapy - Time out

Bortezomib

- administer by subcutaneous injection
- rotate the injection site for each injection
- pain, inflammation and thrombophlebitis may occur at injection site
- doses of bortezomib must be at least 72 hours apart.

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

Day 5

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 6, 7

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

commencing treatment.

Treatment - Time out

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 8

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool.

Any toxicity grade 1 or greater may require dose reduction or delay of treatment and review by medical officer before commencing treatment.

Note: Dialysis patients: administer bortezomib either after the patient has been dialysed or a minimum of 4 hours prior to dialysis.

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Chemotherapy - Time out

Bortezomib

- administer by subcutaneous injection
- rotate the injection site for each injection
- pain, inflammation and thrombophlebitis may occur at injection site
- doses of bortezomib must be at least 72 hours apart.

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

Day 9

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 10

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 11

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool.

Any toxicity grade 1 or greater may require dose reduction or delay of treatment and review by medical officer before commencing treatment.

Note: Dialysis patients: administer bortezomib either after the patient has been dialysed or a minimum of 4 hours prior to dialysis.

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Chemotherapy - Time out

Bortezomib

- administer by subcutaneous injection
- rotate the injection site for each injection
- pain, inflammation and thrombophlebitis may occur at injection site
- doses of bortezomib must be at least 72 hours apart.

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

Day 12

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 4, 5, 8, 9, 11, and 12**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 13, 14

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Discharge information

Dexamethasone tablets and pomalidomide capsules

- Dexamethasone tablets and pomalidomide capsules with written instructions on how to take them.

Antiemetics

- Antiemetics as prescribed.

Prophylaxis medications

- Prophylaxis medications (if prescribed) i.e. tumour lysis prophylaxis, PJP prophylaxis, antivirals.

Patient information

- Ensure patient receives patient information sheet.

Administration Cycle 9 onwards

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

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool.

Any toxicity grade 1 or greater may require dose reduction or delay of treatment and review by medical officer before commencing treatment.

Note: Dialysis patients: administer bortezomib either after the patient has been dialysed or a minimum of 4 hours prior to dialysis.

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 8 and 9**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Chemotherapy - Time out

Bortezomib

- administer by subcutaneous injection
- rotate the injection site for each injection
- pain, inflammation and thrombophlebitis may occur at injection site
- doses of bortezomib must be at least 72 hours apart.

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

Day 2

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 8 and 9**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 3-7

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 8

Safe handling and waste management

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool.

Any toxicity grade 1 or greater may require dose reduction or delay of treatment and review by medical officer before commencing treatment.

Note: Dialysis patients: administer bortezomib either after the patient has been dialysed or a minimum of 4 hours prior to dialysis.

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 8 and 9**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Chemotherapy - Time out

Bortezomib

- administer by subcutaneous injection
- rotate the injection site for each injection
- pain, inflammation and thrombophlebitis may occur at injection site
- doses of bortezomib must be at least 72 hours apart.

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

Day 9

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Dexamethasone

- administer orally ONCE a day in the morning on **days 1, 2, 8 and 9**
- to be taken with or immediately after food.

Note: if a dose is forgotten or vomited, contact treating team.

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Day 10-14

This is an oral treatment

Safe handling and waste management (reproductive risk only)

Safe administration

General patient assessment prior to each day of treatment.

Peripheral neuropathy assessment tool

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

Treatment - Time out

Pomalidomide

- administer orally ONCE a day, on **days 1 to 14** every 21 days
- to be swallowed whole with a glass of water; do not break, crush or chew
- to be taken at the same time every day, with or without food
- if accidental contact with the powder occurs with the eye, skin or mucosa, the area should immediately be thoroughly rinsed with water, and medical attention sought.

Note: missed doses should not be taken if more than 12 hours has elapsed since missing a dose.

Continue safe handling precautions (reproductive risk only) for 7 days after completion of drug(s).

Discharge information

Dexamethasone tablets and pomalidomide capsules

- Dexamethasone tablets and pomalidomide capsules with written instructions on how to take them.

Antiemetics

- Antiemetics as prescribed.

Prophylaxis medications

- Prophylaxis medications (if prescribed) i.e. tumour lysis prophylaxis, PJP prophylaxis, antivirals.

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)	
Hypotension	Low blood pressure is commonly associated with bortezomib treatment.
Nausea and vomiting	Read more about prevention of treatment induced nausea and vomiting

Early (onset days to weeks)	
Neutropenia	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 immediate management of neutropenic fever
Thrombocytopenia	Thrombocytopenia is a reduction in the normal levels of functional platelets. It is associated with bortezomib treatment, particularly in patients who have had a number of prior therapies. However, it is rarely severe enough to postpone subsequent cycles. Read more about thrombocytopenia associated with bortezomib
Arthralgia and myalgia	Generalised joint pain or and/or stiffness and muscle aches, often worse upon waking or after long periods of inactivity. Can improve with movement. May be mild or severe, intermittent or constant and accompanied by inflammation. Read more about arthralgia and myalgia
Constipation	
Diarrhoea	Read more about treatment induced diarrhoea
Dizziness	Feeling faint or lightheaded, weak or unsteady. Advise patients to stand up slowly from sitting down or lying down positions and increase fluid intake if dehydrated.
Fatigue	Read more about fatigue
Fluid retention and oedema	An excess amount of fluid around the cells, tissues or serous cavities of the body, leading to swelling.
Peripheral neuropathy	Typically symmetrical sensory neuropathy, affecting the fingers and toes, sometimes progressing to the hands and feet. It is associated with several classes of anti-cancer drugs. These include taxanes, platinum-based compounds, vinca alkaloids and some drugs used to treat multiple myeloma. Read more about peripheral neuropathy
Skin rash	Anti-cancer drugs can cause a number of changes in the skin with maculo-papular rash the most common type of drug-induced skin reaction. Read more about skin rash
Side effects of corticosteroids	Insomnia, oedema, increased risk of infection e.g. oral thrush, gastric irritation, worsening of peptic ulcer disease, increased blood sugar levels, loss of diabetic control, mood and behavioural changes - including anxiety, euphoria, depression, mood swings, increased appetite and weight gain, osteoporosis and fractures (long term use), bruising and skin fragility are associated with corticosteroid use.
Thromboembolism	Venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE) is significantly increased in multiple myeloma patients treated with thalidomide in combination with other therapies including doxorubicin, melphalan and prednisolone or dexamethasone; and lenalidomide and pomalidomide in combination with dexamethasone. Read more about management of thromboembolism (VTE) in multiple myeloma

Late (onset weeks to months)	
Anaemia	Abnormally low levels of red blood cells (RBCs) or haemoglobin in the blood. Read more about anaemia
Muscle cramps	Cramping in the hands, calves and/or thighs associated with hypomagnesaemia (low magnesium) and/or hypocalcaemia (low calcium).

Delayed (onset months to years)	
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

Evidence

The evidence supporting this protocol is provided by a phase 3 multicentre international randomised trial involving 559 patients comparing pomalidomide/bortezomib/dexamethasone (PVd) with bortezomib/dexamethasone (Vd) alone in patients with multiple myeloma who had received 2-3 previous regimens, including a lenalidomide containing regimen for at least two consecutive cycles (OPTIMISMM).[3]

Between January 7, 2013 and May 15, 2017, 281 patients were randomised to receive pomalidomide (4mg daily days 1 - 14), bortezomib (1.3mg/m^2 intravenously (IV) or subcutaneously (SC) days 1, 4, 8, 11 for the first eight cycles and subsequently on days 1 and 8) and dexamethasone (20 mg or 10 mg if aged ≥ 75 on the same days as bortezomib and the day after). The cycle length was 21 days.[3]

The primary endpoint was progression-free survival (PFS), and secondary endpoints were overall survival (OS), overall response (partial response or better) according to the International Myeloma Working Group (IMWG) criteria, duration of response and safety. PVd significantly improved PFS compared to Vd alone.[3]

Since the availability of lenalidomide maintenance therapy post autologous stem cell transplantation, the treatment landscape of relapsed refractory MM has changed, and consideration of outcomes for patient's refractory to lenalidomide is a more important consideration than previously. To address this question, further analysis from the OPTIMISMM Study[3, 4] has been undertaken and published.

Once-weekly bortezomib (as opposed to twice-weekly) is a practice widely used in the Australian Myeloma landscape. There is data to support this approach in terms of efficacy, safety and convenience. Using the dosing schedule outlined in by Paludo et al.[1], of pomalidomide (4 mg oral (PO) days 1 - 21), bortezomib (1.3 mg/m^2 IV or SC on days 1, 8, 15, and 22), and dexamethasone (40 mg PO on days 1, 8, 15, and 22) given every 28 days, it was concluded from this phase 2 study that once-weekly bortezomib (IV or SC in this paper) offered greater convenience without compromise in efficacy. Safety was improved with mild cytopenias being the major toxicity and no dose-limiting neuropathy from their small study (N = 50).

Efficacy

After a median follow up of 15.9 months, the median PFS was significantly improved in the PVd group compared with Vd alone (median 11.2 months [95% CI 9.66-13.73] vs. 7.0 months [95% CI 5.88-8.48], hazard ratio 0.61, 95% CI 0.49-0.77; p < 0.0001) (Figure A).[3] OS data was not mature at time of data cut-off but no difference in OS was seen between the two groups (HR 0.98, 95% CI 0.73-1.32, p = 0.89).[3]

Figure 1: PFS for intention to treat population

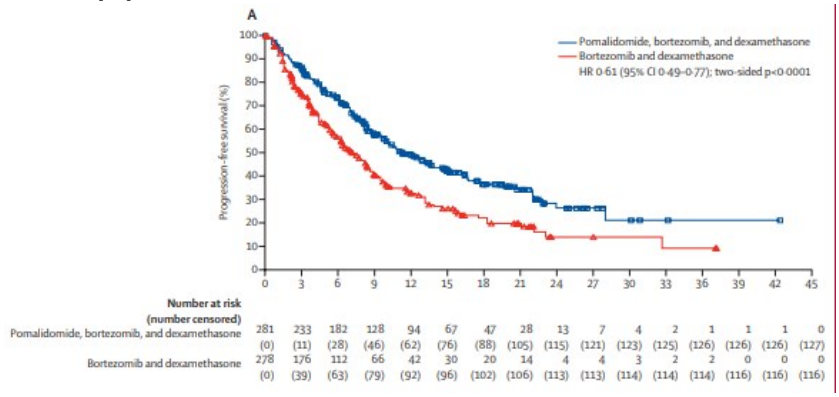


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Figure 2: Response in the intention to treat population according to IMWG criteria

	Pomalidomide, bortezomib, and dexamethasone group (n=281)	Bortezomib and dexamethasone group (n=278)
Overall response*	231 (82·2% [77·2–86·5])	139 (50·0% [44·0–56·0])
Stringent complete response	9 (3·2% [1·5–6·0])	2 (0·7% [0·1–2·6])
Complete response	35 (12·5% [8·8–16·9])	9 (3·2% [1·5–6·1])
Very good partial response	104 (37·0% [31·4–42·9])	40 (14·4% [10·5–19·1])
Partial response	83 (29·5% [24·3–35·2])	88 (31·7% [26·2–37·5])
Stable disease	32 (11·4% [7·9–15·7])	106 (38·1% [32·4–44·1])
Progressive disease	11 (3·9% [2·0–6·9])	16 (5·8% [3·3–9·2])
Not assessable	7 (2·5% [1·0–5·1])	17 (6·1% [3·6–9·6])

Data are n (% [95% CI]). *Defined as patients who achieved either a partial response or a complete response.

Table 2: **Responses in the intention-to-treat population**

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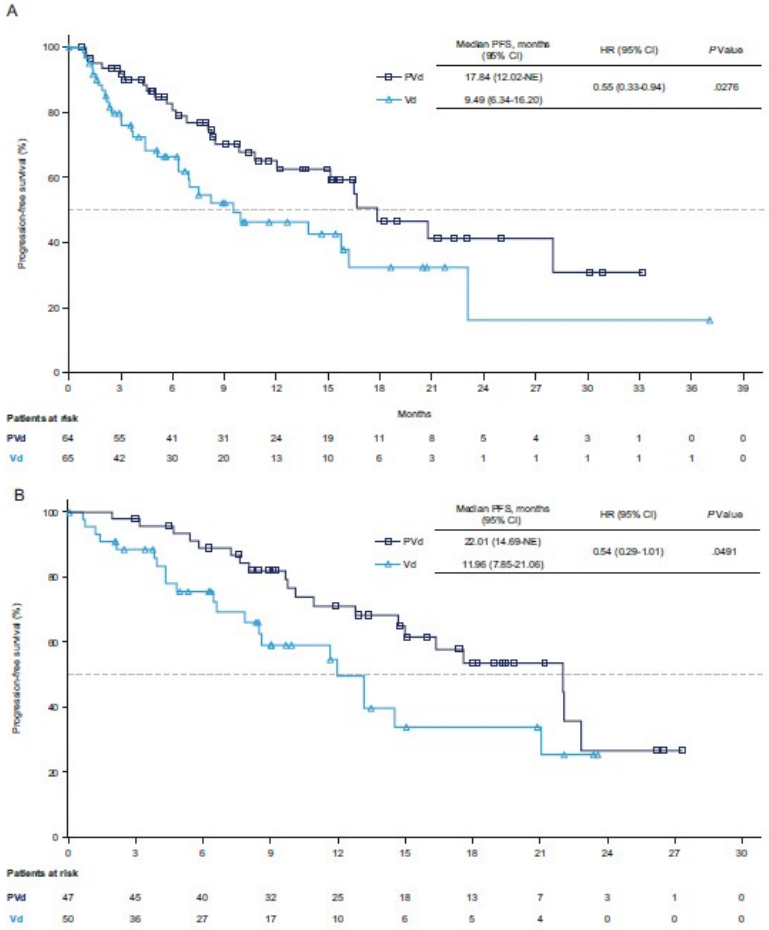
Median age of patients was 67 years. 70% of enrolled patients were lenalidomide refractory, approximately 72% had received previous bortezomib therapy and approximately 10% were refractory to previous bortezomib therapy.[3]

Health related quality of life (HRQOL) was assessed using the global health status/QoL domain of the European Organisation for the Research and Treatment of Cancer (EORTC) QLQ-C30 questionnaire on day 1 of every 21 day cycle before treatment administration and at the end of treatment. HRQOL could be assessed in 85% of patients randomised to PVd and 75% of patients allocated Vd. The study reported no statistically significant or clinically meaningful differences recorded between treatments at any cycle.[3]

Dimopoulos et al.[4], stratified patients according to prior lenalidomide refractoriness versus non-refractory. The results in terms of PFS (primary endpoint) were encouraging in that second-line PVd significantly improved PFS vs Vd in lenalidomide-refractory (17.8 vs 9.5 months; P = 0.0276) (Figure 3, A) and lenalidomide non-refractory patients (22.0 vs 12.0 months; P = 0.0491) (Figure 3, B). PFS advantage was also seen in patients with prior bortezomib exposure as well as patients regardless of prior SCT status. No new safety signals were observed. These data demonstrate the benefit of PVd at first relapse, including after upfront lenalidomide treatment failure.

Figure 3: PFS in patients at first relapse (1 prior line of therapy) by lenalidomide-refractory status. A. Patients who were refractory to lenalidomide at first relapse. B. Patients who were non-refractory to lenalidomide at first relapse.



HR hazard ratio, NE not evaluable, PFS progression-free survival, PVd pomalidomide, bortezomib, and dexamethasone, Vd bortezomib plus dexamethasone.

Toxicity

Adverse events are demonstrated in Figure 3. 86 deaths occurred in each group during the treatment and follow-up periods. Eight treatment related deaths occurred: 6 (2%) in the PVd group (pneumonia, 2; unknown cause, 2; cardiac arrest, 1; cardiorespiratory arrest, 1) and 2 (1%) in the Vd group (pneumonia, 1 and hepatic encephalopathy, 1).[3] Serious adverse events occurred in 57% of the patients in the PVd group and 42% of the Vd group. 30% of patients receiving PVd compared with 15% of patients treated with Vd had at least one drug-related serious adverse event, primarily infections (14% vs 8%); venous thromboembolism (4% vs < 1%); cardiac arrhythmia (3% vs none) and neutropenia (2% vs none).[3]

The most common grade 3 or 4 haematological event was neutropenia (42% in the PVd arm versus 9% in the Vd arm).[3] Grade 3 or 4 febrile neutropenia was seen in 3% of patients receiving PVd compared with no patients receiving Vd. Grade 3 or 4 thrombocytopenia was seen in 27% (PVd) and 29% (Vd) of patients.[3]

With regards to non-haematological grade 3 or 4 toxicities, comparing PVd with Vd: infection was seen in 31% vs. 18%; peripheral sensory neuropathy in 8% vs 4%, DVT in 1% vs < 1% and PE in 4% vs <1%.[3]

Second primary malignancies occurred in 3% of patients receiving PVd versus 1% in those receiving Vd. Invasive secondary primary malignancies were seen in 2 patients with PVd (1%) and 1 patient treated with Vd (>1%).[3]

11% of patients in the PVd arm stopped pomalidomide and 24% stopped bortezomib due to at least one adverse event. 19% of patients in the Vd arm stopped bortezomib. Dose reductions of any study drug were reported in 72% of patients in the PVd arm and 51% of patients in the Vd arm.[3]

Table 1: Adverse Events[3]

	Pomalidomide, bortezomib, and dexamethasone group (n=278)			Bortezomib and dexamethasone group (n=270)		
	Grade 1–2	Grade 3	Grade 4	Grade 1–2	Grade 3	Grade 4
Common haematological adverse events						
Anaemia	40 (14%)	37 (13%)	1 (<1%)	35 (13%)	34 (13%)	4 (1%)
Thrombocytopenia	26 (9%)	27 (10%)	49 (18%)	24 (9%)	49 (18%)	30 (11%)
Neutropenia	14 (5%)	82 (29%)	34 (12%)	6 (2%)	21 (8%)	2 (<1%)
Common non-haematological adverse events						
Peripheral sensory neuropathy	110 (40%)	22 (8%)	1 (<1%)	88 (33%)	12 (4%)	0
Constipation	95 (34%)	7 (3%)	0	64 (24%)	1 (<1%)	0
Peripheral oedema	89 (32%)	5 (2%)	0	52 (19%)	2 (<1%)	0
Fatigue	80 (29%)	23 (8%)	0	61 (23%)	10 (4%)	0
Diarrhoea	74 (27%)	20 (7%)	0	72 (27%)	8 (3%)	1 (<1%)
Pyrexia	58 (21%)	5 (2%)	1 (<1%)	30 (11%)	2 (<1%)	0
Cough	57 (21%)	0	0	40 (15%)	0	0
Upper respiratory tract infection	55 (20%)	3 (1%)	0	45 (17%)	3 (1%)	0
Back pain	49 (18%)	3 (1%)	0	32 (12%)	4 (1%)	0
Nausea	48 (17%)	1 (<1%)	0	53 (20%)	1 (<1%)	0
Dyspnoea	48 (17%)	8 (3%)	0	30 (11%)	3 (1%)	0
Dizziness	47 (17%)	1 (<1%)	0	27 (10%)	1 (<1%)	0
Asthenia	40 (14%)	8 (3%)	0	40 (15%)	7 (3%)	1 (<1%)
Insomnia	40 (14%)	5 (2%)	0	51 (19%)	2 (<1%)	0
Bronchitis	35 (13%)	4 (1%)	0	16 (6%)	3 (1%)	0
Muscular weakness	35 (13%)	3 (1%)	0	12 (4%)	1 (<1%)	0
Viral upper respiratory tract infection	31 (11%)	0	0	14 (5%)	0	0
Pain in extremity	31 (11%)	2 (<1%)	0	34 (13%)	2 (<1%)	0
Headache	30 (11%)	1 (<1%)	0	25 (9%)	0	0
Arthralgia	30 (11%)	2 (<1%)	0	29 (11%)	2 (<1%)	0
Tremor	29 (10%)	1 (<1%)	0	8 (3%)	0	0
Vomiting	29 (10%)	3 (1%)	0	26 (10%)	1 (<1%)	0
Hypokalaemia	26 (9%)	16 (6%)	1 (<1%)	19 (7%)	10 (4%)	1 (<1%)
Pneumonia	21 (8%)	23 (8%)	8 (3%)	20 (7%)	15 (6%)	1 (<1%)
Hyperglycaemia	15 (5%)	24 (9%)	1 (<1%)	16 (6%)	14 (5%)	0
Syncope	3 (1%)	14 (5%)	0	5 (2%)	6 (2%)	0

Data are n (%). Adverse events of grade 1–2 occurring in at least 10% of patients and adverse events of grade 3 or worse occurring in 5% of patients in either group are shown. All grade 3 or higher adverse events not shown here are listed in the appendix (pp 12–19). Eight deaths were reported as related to treatment: six (2%) in the pomalidomide, bortezomib, and dexamethasone group (causes of death were pneumonia [n=2], unknown cause [n=2], cardiac arrest [n=1], and cardiorespiratory arrest [n=1]) and two (1%) in the bortezomib and dexamethasone group (causes of death were pneumonia [n=1] and hepatic encephalopathy [n=1]).

Table 3: **Adverse events in the safety population**

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References

1 Paludo, J., J. R. Mikhael, B. R. LaPlant, et al. 2017. "Pomalidomide, bortezomib, and dexamethasone for patients with relapsed lenalidomide-refractory multiple myeloma." Blood 130(10):1198-1204.

2 Morgan, G. J., J. A. Child, W. M. Gregory, et al. 2011. "Effects of zoledronic acid versus clodronic acid on skeletal morbidity in patients with newly diagnosed multiple myeloma (MRC Myeloma IX): secondary outcomes from a randomised controlled trial." Lancet Oncol 12(8):743-752.

3 Richardson, P.G., A. Oriol, M. Beksac, et al. 2019. "Pomalidomide, bortezomib, and dexamethasone for patients with relapsed or refractory multiple myeloma previously treated with lenalidomide (OPTIMISMM): a randomised, open-label, phase 3 trial". Lancet Oncol 2019; 20: 781–94

4 Dimopoulos, M., K. Weisel, P. Moreau, et al. 2020. "Pomalidomide, bortezomib, and dexamethasone for multiple myeloma previously treated with lenalidomide (OPTIMISMM): outcomes by prior treatment at first relapse." Leukemia.

History

Version 2

Date	Summary of changes
13/04/2023	This protocol has been updated with the following changes: • Bone modifying agents block added to clinical information, related note removed from treatment schedule and linked pages removed • Link to Medical Scientific Advisory Group (MSAG) guidelines updated • Changed all references of 'i-Access™ program' to 'pregnancy prevention risk management program' • Updated available doses of pomalidomide capsules • Dose reduction steps tables reformatted in 'Dose modifications' section • Febrile neutropenia definition removed from 'Dose modifications' section • Specific medications removed from G-CSF note in 'Dose modifications' section • Dose modifications for rash updated to align with product information Changed to Version 2.

Version 1

Date	Summary of changes
27/03/2020	New protocol discussed at Haematology Reference Committee meeting.
14/05/2020	Approved and published on eviQ.
30/04/2021	Reviewed and discussed at Haematology Reference Committee meeting. Note about once weekly dosing of bortezomib added below treatment schedule. For review in 2 years.
29/11/2021	Interactions updated.
21/12/2021	Changed antiemetic clinical information block to minimal or low, to align with new categories. See ID 7: Prevention of anti-cancer therapy induced nausea and vomiting (AINV) v5.
20/01/2022	Interactions updated.
24/01/2022	Pulmonary toxicity added to side effects.

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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/3791
14 Jun 2023

Patient information - Multiple myeloma - PVd (pomalidomide bortezomib and dexamethasone)

Patient's name:

Your treatment

The treatment schedule below explains how the drugs for this treatment are given.

Pomalidomide, bortezomib and dexamethasone			
This treatment cycle is repeated every 21 days. Your doctor will advise you of the number of treatments you will have.			
Cycle 1 to 8			
Day	**Treatment**	**How it is given**	**How long it takes**
1, 2, 4, 5, 8, 9, 11 and 12	**Dexamethasone** (*dex-a-METH-a-sone*)	Take orally ONCE a day in the morning with food on day 1, 2, 4, 5, 8, 9, 11 and 12 only.	
1 to 14	**Pomalidomide** (*POE-ma-LID-oh-mide*)	Take orally ONCE a day on days 1 to 14 only, with or without food , at the same time every day. Swallow whole, do not break, open, chew or crush capsules.	
1, 4, 8 and 11	**Bortezomib** (*bore-TEZ-oh-mib*)	By injection under the skin	About 5 minutes
Cycle 9 onwards			
Day	**Treatment**	**How it is given**	**How long it takes**
1, 2, 8 and 9	**Dexamethasone**	Take orally ONCE a day in the morning with food on day 1, 2, 8 and 9 only.	
1 to 14	**Pomalidomide**	Take orally ONCE a day on days 1 to 14 only, with or without food , at the same time every day. Swallow whole, do not break, open, chew or crush capsules.	
1 and 8	**Bortezomib**	By injection under the skin	About 5 minutes

Missed doses:

- **Dexamethasone**: if you forget to take your tablets or vomit your tablets, contact your treating team.
- **Pomalidomide**: if you forget to take a capsule and it is less than 12 hours since the missed dose, you can take your normal dose. If it is more than 12 hours since the missed dose, skip that dose and take your normal dose at the next time it is due. Do not take an extra dose.

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 38ºC 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:

- pain, stinging, swelling or redness around the injection site
- a skin rash, itching, feeling short of breath, wheezing, fever, shivers, or feeling dizzy or unwell in any way (allergic reaction).

Important information about taking pomalidomide

Pomalidomide is only available under a restricted distribution pregnancy prevention risk management program. You, your doctor and your pharmacist must be registered and comply with conditions of the pregnancy prevention risk management program.

Pomalidomide can cause major birth defects to an unborn baby. Pomalidomide must not be taken if you are pregnant. Contraception **must** be used while you are being treated with pomalidomide.

- **If you are a male patient and your female partner is of child-bearing potential** you **must** use a barrier method of contraception (e.g. condoms) while taking pomalidomide and for one week after finishing pomalidomide treatment.
- **If you are a woman of child-bearing potential (a patient or a partner of a patient)** you **must** use at least one effective method of contraception during treatment with pomalidomide. You should start using contraception four weeks before taking pomalidomide and continue for four weeks after finishing pomalidomide treatment. It is important that you discuss appropriate contraception with your doctor.

If you become pregnant while taking pomalidomide you must stop the treatment and tell your doctor immediately. If you are a male patient and your female partner becomes pregnant during your treatment you must inform your doctor immediately.

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

- **Blood clot prevention medication:** you may be given low dose aspirin or daily injections of a drug called enoxaparin to prevent blood clots. Your doctor will decide if you need this medication.

- **G-CSF:** you may be given injection(s) of a drug called G-CSF (also called filgrastim, lipegfilgrastim or pegfilgrastim) under your skin. This helps to boost your white blood cell count. Your white blood cells help to fight infection. Lipegfilgrastim and pegfilgrastim are given once. Filgrastim is given for several days until your white blood cells recover. Your doctor will decide if you need this medication.

- **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.
- **Prophylaxis medication:** you may need to take some medications to prevent infection and to help prevent or reduce some of the side effects of the chemotherapy. Your doctor or nurse will tell you how and when to take these medications.

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)	
Low blood pressure (hypotension)	• You may get low blood pressure from the drug bortezomib. • You may feel dizzy or light-headed. • Tell your doctor if you are taking blood pressure medication. • Your doctor will monitor your blood pressure regularly while you are on this treatment. • Drink plenty of fluids (unless you are fluid restricted), especially before each dose of bortezomib. • When you want to get up from a sitting or lying down position, get up slowly to let your body adjust to the new position. • Do not drive or operate machinery if you feel dizzy or light-headed. • Tell your doctor or nurse if you get any of the signs or symptoms listed above.
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)	

Infection risk (neutropenia)	• 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. • Wash your hands often. • Keep a thermometer at home and take your temperature regularly, and if you feel unwell. • Do your mouth care regularly. • Inspect your central line site (if you have one) daily for any redness, pus or swelling. • Limit contact with people who are sick. • Learn how to recognise the signs of infection. • Ask your doctor or nurse for eviQ patient information - Infection during cancer treatment. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the following signs or symptoms:** ◦ **a temperature of 38°C or higher** ◦ **chills, shivers, sweats or shakes** ◦ **a sore throat or cough** ◦ **uncontrolled diarrhoea** ◦ **shortness of breath** ◦ **a fast heartbeat** ◦ **become unwell even without a temperature.**
Low platelets (thrombocytopenia)	• This treatment lowers the amount of platelets in your body. Platelets help your blood to clot. When they are low, you are at an increased risk of bleeding and bruising • Try not to bruise or cut yourself. • Avoid contact sport or vigorous exercise. • Clear your nose by blowing gently. • Avoid constipation. • Brush your teeth with a soft toothbrush. • For minor pain take paracetamol. Do not take any medications containing aspirin or ibuprofen without talking to your doctor or nurse. • **Tell your doctor or nurse immediately, or go to your nearest hospital Emergency Department if you have any uncontrolled bleeding.**
Joint and muscle pain and stiffness	• You may get muscle, joint or general body pain and stiffness. • Applying a heat pack to affected areas may help. • Talk to your doctor or nurse about other ways to manage these symptoms. You may need medication to help with any pain.
Constipation	• You may have bowel motions (stools, poo) that are less frequent, harder, smaller, painful or difficult to pass. • You may also get: ◦ bloating, cramping or pain ◦ a loss of appetite ◦ nausea or vomiting. • Drink plenty of fluids (unless you are fluid restricted). • Eat plenty of fibre-containing foods such as fruit, vegetables and bran. • Take laxatives as directed by your doctor. • Try some gentle exercise daily. • **Tell your doctor or nurse if you have not opened your bowels for more than 3 days.**

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.**
Dizziness or feeling light-headed	• You may feel dizzy or light-headed. • These symptoms may be caused by your treatment, or other problems like dehydration. • If you are feeling dehydrated, drink plenty of fluids (unless you are fluid restricted) as this can be a cause of dizziness. • If you are feeling dizzy, try lying down until the dizziness passes. • When you want to get up from a sitting or lying down position, get up slowly to let your body adjust to the new position. • Tell your doctor or nurse if you get any of the symptoms listed above.
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.**
Extra fluid in the body (fluid retention)	• You may gain weight over a short amount of time. • Your hands and feet may become swollen, appear red or feel hot and uncomfortable. • Wear loose clothing and shoes that are not too tight. • Try not to stand up or walk around too much at one time. • If your ankles or legs get swollen, try raising them. • Make sure that any cuts or areas of broken skin are treated as soon as possible. • **Tell your doctor or nurse as soon as possible if you get any of the symptoms listed above or gain 1 to 2 kg in a week.** • **Tell your doctor or nurse immediately or go to the nearest hospital Emergency Department if you become short of breath.**

Nerve damage (peripheral neuropathy)	• You may notice a change in the sensations in your hands and feet, including:
	  ◦ tingling or pins and needles
	  ◦ numbness or loss of feeling
	  ◦ pain.
	• You may find it difficult to do everyday activities, such as doing up buttons or picking up small objects.
	• Test water temperature with your elbow when bathing to avoid burns.
	• Use rubber gloves, pot holders and oven mitts in the kitchen.
	• Wear rubber shoes or boots when working in the garden or garage.
	• Keep rooms well lit and uncluttered.
	• Ask your doctor or nurse for eviQ patient information – Nerve problems during cancer treatment.
	• Tell your doctor or nurse if you get any of the symptoms listed above.

Skin rash	• You may get a red, bumpy rash and dry, itchy skin. • Moisturise your skin with a gentle non-perfumed moisturising cream like sorbolene or aqueous cream. • Do not scratch your skin. • Protect your skin from the sun by wearing sun-protective clothing, a wide-brimmed hat, sunglasses and sunscreen of SPF 50 or higher. • **Talk to your doctor or nurse about other ways to manage your skin rash.**
Side effects from steroid medication	• Steroid medication may cause: ◦ mood swings and behaviour changes ◦ an increased appetite ◦ weight gain ◦ swelling in your hands and feet ◦ stomach upsets ◦ trouble sleeping ◦ fragile skin and bruising ◦ an increase in your blood sugar level ◦ weak and brittle bones (osteoporosis) • Take your steroid medication with food to reduce stomach upset • If you have diabetes, your blood sugar levels may be tested more often. • Tell your doctor or nurse if you get any of the symptoms listed above.
Blood clots (thromboembolism)	• Blood clots can occur with this treatment. • **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the following signs or symptoms:** ◦ **redness, heat or pain in your leg(s)** ◦ **numbness or weakness in your face, arm or leg** ◦ **chest pain** ◦ **sudden shortness of breath** ◦ **dizziness** ◦ **trouble speaking** ◦ **blurred vision** ◦ **severe headache** ◦ **unexplained falls or loss of balance.**

Late (onset weeks to months)	
Low red blood cells (anaemia)	• You may feel dizzy, light-headed, tired and appear more pale than usual. • Tell your doctor or nurse if you have any of these signs or symptoms. You might need a blood transfusion. • **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.**
Muscle cramps	• You may get muscle cramps, usually in the hands, calves and thighs. • Tell your doctor or nurse if you get any of these symptoms. Your doctor may prescribe you medication for this.

Delayed (onset months to years)	

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.**

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.
- You should not take any products containing vitamin C or green tea while you are having this treatment, they may make your treatment less effective.
- 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 and food safety

- While you are receiving this treatment, it is important that you try to maintain a healthy diet.
- Grapefruit and grapefruit juice can interact with your medication and should be avoided while you are on this treatment.
- 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.
- There are some foods that may cause infection in high risk individuals and should be avoided. For further information on foods to avoid and food hygiene please ask for a copy of the Listeria and food brochure.

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

- This treatment can cause major congenital disabilities or death 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. You must use contraception while having this treatment and after stopping treatment, see the "Important information" section above for more information. 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
- Call the Leukaemia Foundation on 1800 620 420 (Mon to Fri 9am – 5pm)
- Call the Lymphoma Nurse Support Line on 1800 953 081 (Mon to Fri 9am - 5pm)

Haematology, transplant and cellular therapy information

- Arrow bone marrow transplant foundation – arrow.org.au
- Australasian Menopause Society – menopause.org.au
- Chris O'Brien Lifehouse - Total Body Irradiation - mylifehouse.org.au/departments/radiation-oncology/total-body-irradiation/
- Healthy Male Andrology Australia – healthymale.org.au/
- International Myeloma Foundation – myeloma.org
- Leukaemia Foundation – leukaemia.org.au
- Lymphoma Australia – lymphoma.org.au
- Myeloma Australia – myeloma.org.au
- NSW Agency for Clinical Innovation, Blood & Marrow Transplant Network – aci.health.nsw.gov.au/resources/blood-and-marrow-transplant
- NSW Agency for Clinical Innovation - aci.health.nsw.gov.au/projects/immune-effector-cell-service
- NCCN Guidelines for Patients Immunotherapy Side Effects: CAR T-Cell Therapy - nccn.org/patientresources/patient-resources/guidelines-for-patients
- Talk Blood Cancer – cmlsupport.org.uk/organisation-type/social-media-groups

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
- eviQ Cancer Treatments Online – eviQ.org.au
- Food Standards Australia New Zealand: Listeria & Food Safety – foodstandards.gov.au/publications/pages/listeriabrochuretext.aspx
- 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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The currency of this information is guaranteed only up until the date of printing, for any updates please check:
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