Pancreas advanced fluorouracil chemoradiation

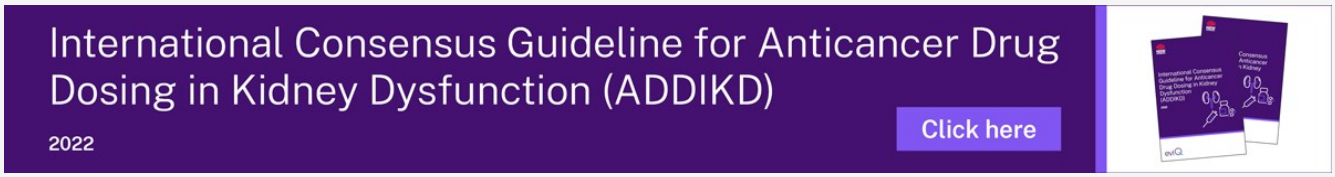
ID: 718 v.5 **Endorsed** Essential Medicine List

⚠ Fluoropyrimidine overdose or overexposure:
Fluoropyrimidine overdose or overexposure may result in severe or life-threatening toxicity. An antidote is available and is highly effective if given within 96 hours. Read more about fluoropyrimidine overdose or overexposure.

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:

- Pancreas definitive/neoadjuvant EBRT chemoradiation

Treatment schedule - Overview

Cycle 1 and further cycles

Drug	Dose	Route	Day
Fluorouracil	1,575 mg/m^2 (equivalent to 225 mg/m^2/day) *	CIV over 7 days	1

* The evidence supporting this protocol used differing schedules and doses of fluorouracil. Earlier studies using fluorouracil with radiation therapy used predominantly bolus dosing.[1, 2, 3, 4] More contemporary studies in locally advanced pancreatic cancer have investigated the combination of gemcitabine with radiation.[5, 6] However, this combination is associated with significant treatment-related toxicities, often necessitating a reduction in either the chemotherapy and/or the radiation therapy dose. This has prevented the definition of one standard regimen.

It is the consensus of the reference committee that infusional fluorouracil is more appropriate for this patient population, better tolerated, and best reflects clinical practice. The schedule and dose used in this protocol is similar to that used in other cancers. Capecitabine may also be an alternative chemotherapy used in this setting.[6]

Frequency: 7 days

Cycles: with concurrent radiation therapy (usually 5 to 6 weeks)

Drug status: Fluorouracil is on the PBS general schedule

Cost: ~ $60 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		
Metoclopramide	10 mg (PO)	one tablet when necessary (maximum of 30 mg/24 hours, up to 5 days)
Fluorouracil	1,575 mg/m^2 (CIV)	via ambulatory infusion pump over 7 days (equivalent to 225 mg/m^2/day)

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Frequency: 7 days

Cycles: with concurrent radiation therapy (usually 5 to 6 weeks)

Indications and patient population

- Adenocarcinoma of the pancreas
  - ECOG performance status 0 to 2.

Clinical information

Safety alert fluoropyrimidines	Fluoropyrimidines can be administered by different routes and schedules with each method having associated increased risk of certain side effects. Fluoropyrimidine overdose or overexposure is a rare but potentially life threatening side effect of this drug class and can occur by any route of administration. An antidote is available and highly effective if given within 96 hours. Read more about the medication safety alert for infusional fluorouracil and fluoropyrimidine overdose or overexposure
Venous access	Central venous access device (CVAD) is required to administer this treatment. Read more about central venous access device line selection
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

Cardiac toxicity	Cardiac toxicity is a serious complication that can occur during treatment with fluorouracil. Patients treated with fluorouracil, especially those with a prior history of cardiac disease or other risk factors, should be carefully monitored during therapy. Read more about cardiac toxicity associated with anti-cancer drugs
Dihydropyrimidine dehydrogenase (DPD) enzyme deficiency	Rare, life-threatening toxicities such as mucositis, neutropenia, neurotoxicity and diarrhoea have been reported following administration of fluoropyrimidines (e.g. fluorouracil and capecitabine). Severe unexplained toxicities require investigation prior to continuing with treatment. Testing for DPD enzyme deficiency is available in Australia but not currently reimbursed. Read more about dihydropyrimidine dehydrogenase (DPD) enzyme deficiency
Diarrhoea	Antidiarrhoeals (e.g. loperamide) are usually prescribed with this treatment. Read more about treatment induced diarrhoea
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 and LFTs at baseline and prior to each cycle. INR 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, 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.

Haematological toxicity	
ANC x 10^9/L (pre-treatment blood test)	
0.5 to less than 1.0	Delay treatment until recovery
less than 0.5	Delay treatment until recovery and consider reducing fluorouracil by 25%
Febrile neutropenia	Delay treatment until recovery and consider reducing fluorouracil by 25%
Platelets x 10^9/L (pre-treatment blood test)	
75 to less than 100	Refer to local institutional guidelines; it is the view of the expert clinicians that treatment should continue if patient is clinically well.
50 to less than 75	Delay treatment until recovery
less than 50	Delay treatment until recovery and consider reducing fluorouracil by 25%

Renal impairment	
Creatinine clearance (mL/min)	
30 to 50	Reduce fluorouracil by 25%
less than 30	Reduce fluorouracil by 50%

Hepatic impairment	
Hepatic dysfunction	
Mild	No dose modification necessary
Moderate	Reduce fluorouracil by 25%
Severe	Reduce fluorouracil by 50%

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

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

Hand foot syndrome (link to Hand foot syndrome (Palmar-plantar erythrodysaesthesia))	
Grade 2	Delay treatment until toxicity has resolved to Grade 1 or less and reduce the dose as follows: 1st occurrence: No dose reduction 2nd occurrence: Reduce fluorouracil 25% 3rd occurrence: Reduce fluorouracil by 50% 4th occurrence: Omit fluorouracil
Grade 3	Delay treatment until toxicity has resolved to Grade 1 or less and reduce the dose as follows: 1st occurrence: Reduce fluorouracil by 50% 2nd occurrence: Omit fluorouracil

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*

Fluorouracil		
	Interaction	**Clinical management**
Folic acid	Increased toxicity of fluorouracil due to stabilisation of its bond to thymidylate synthetase (folic acid is a precursor of folinic acid/leucovorin)	Advise patients not to take folic acid supplements (inc. multivitamins) around the time of receiving treatment with fluorouracil
Metronidazole, tinidazole	Increased toxicity of fluorouracil due to reduced clearance	Avoid combination or monitor for fluorouracil toxicity
Warfarin and other drugs metabolised by CYP2C9 (e.g. warfarin, phenytoin etc.)	Increased effect/toxicity of these drugs due to inhibition of CYP2C9 by fluorouracil resulting in reduced clearance	Avoid combination or monitor for increased effect/toxicity of these drugs (e.g. for bleeding/elevated INR with warfarin, elevated phenytoin serum levels or signs of toxicity such as ataxia, tremor etc.)
Allopurinol	Reduced efficacy of fluorouracil possible due to reduced conversion to the active metabolites	Avoid combination or monitor for reduced fluorouracil efficacy

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: 30 minutes

Administer concurrently during radiation therapy

Safe handling 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.

Access TIVAD or CVAD.

Pre treatment medication

Verify antiemetics taken or administer as prescribed.

Chemotherapy - Time out

Fluorouracil continuous infusion (irritant)

Connect pump containing fluorouracil and administer over the correct time for the amount of drug in the pump:

- safety alert issued for administration of infusional fluorouracil
- verify the correct rate of infusion via the ambulatory infusion pump
- read more information about the different ambulatory infusion pumps.

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

Changing or disconnection of ambulatory infusion pump/infusor

Approximate treatment time: 30 minutes

Safe handling and waste management

Safe administration

Verify the ambulatory infusion pump/infusor is complete.

Disconnect infusion pump/infusor as per recommended procedure for type of pump/infusor.

Disconnect TIVAD or CICC.

If a new pump is required:

- prime IV line(s) (if required)
- access TIVAD or CICC.

Chemotherapy - Time out

Fluorouracil continuous infusion

Connect new pump containing fluorouracil (irritant) and administer over the correct time for the amount of drug in the pump:

- safety alert issued for administration of infusional fluorouracil
- verify the correct rate of infusion via the ambulatory infusion pump
- read more information about the different ambulatory infusion pumps.

Instruct patient to return for disconnection when completed.

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

Discharge information

Antiemetics

- Antiemetics as prescribed.

Antidiarrhoeals

- Antidiarrhoeals as prescribed.

Patient information

- Ensure patient receives patient information sheet.

Infusion pumps

- CADD-Legacy® 1 ambulatory infusion pump patient information sheet.
- CADD-Legacy® Plus ambulatory infusion pump patient information sheet.
- CADD® Solis VIP ambulatory infusion pump patient information sheet.
- Elastomeric infusion system 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)	
Nausea and vomiting	Read more about prevention of treatment induced nausea and vomiting
Taste and smell alteration	Read more about taste and smell changes
Cardiotoxicity	Coronary artery spasm is a temporary, sudden narrowing of one of the coronary arteries that may present at any time during treatment with fluoropyrimidines. It most commonly manifests as angina.

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	A reduction in the normal levels of functional platelets, increasing the risk of abnormal bleeding. Read more about thrombocytopenia
Diarrhoea	Read more about treatment induced diarrhoea
Ocular changes	Symptoms may include eye pain, blurred vision, blepharitis, uveitis, optic neuritis, tear duct stenosis, conjunctivitis, hyperlacrimation, watery or dry eyes and photophobia.
Oral mucositis	Erythematous and ulcerative lesions of the gastrointestinal tract (GIT). It commonly develops following chemotherapy, radiation therapy to the head, neck or oesophagus, and high dose chemotherapy followed by a blood and marrow transplant (BMT). Read more about oral mucositis
Photosensitivity	Increased sensitivity to ultraviolet (UV) light resulting in an exaggerated sunburn-like reaction accompanied by stinging sensations and urticaria.
Palmar-plantar erythrodysaesthesia (PPE) - hand-foot syndrome (HFS)	Bilateral erythema, tenderness, pain, swelling, tingling, numbness, pruritus, dry rash, or moist desquamation and ulceration of the palms and soles. It is also known as hand-foot syndrome (HFS). Symptoms appear to be dose dependent and palms are affected more than soles. Read more about hand-foot syndrome associated with chemotherapy
Fatigue	Read more about fatigue
Actinic keratoses flare	Pre-existing actinic keratoses (AKs) can become more inflamed and scaly as a result of immunosuppression. Read more about actinic keratoses flare

Late (onset weeks to months)	
Anaemia	Abnormally low levels of red blood cells (RBCs) or haemoglobin in the blood. Read more about anaemia
Alopecia - partial	Hair thinning and/or patchy hair loss. Patients can also experience mild to moderate discomfort of the hair follicles, and rarely pain as the hair is falling out. Read more about alopecia and scalp cooling
Hyperpigmentation	Darkening of an area of skin caused by the overproduction of melanin.
Nail changes	Hyperpigmentation, paronychia, onycholysis, splinter haemorrhage, pyogenic granuloma formation, subungal haematoma and subungal hyperkeratosis are some of the nail changes associated with anti-cancer drugs. Read more about nail toxicities

Evidence

There is conflicting evidence for the role of chemoradiation therapy in unresectable locally advanced pancreatic cancer. Chemoradiation therapy increases overall survival when compared with best supportive care or compared with radiation therapy alone. Chemoradiation therapy is not superior to chemotherapy in terms of survival.[7, 8]

The concept of sequential chemotherapy followed by chemo-radiation is founded on the hypothesis that a period of initial disease control with chemotherapy alone might allow the selection of patients without occult micro-metastatic disease, who might benefit from radiation therapy in terms of local control and survival.

The evidence for chemoradiation therapy after initial chemotherapy is largely based on retrospective data[9, 10] and the Phase II SCALOP study.[11] The role of CRT in LAPC continues to evolve given the uncertain benefit in the LAP-07 trial.[6] In this study, at a median follow-up of 36 months, there was no statistically significant difference in overall survival between chemotherapy alone

versus chemotherapy followed by chemoradiation therapy (OS 16.5 vs 13.3 months, p=0.83). This study has been criticised for having several radiation therapy deviations and that a subset of patients randomly assigned to receive chemoradiation therapy did not receive treatment. The formal publication of this trial is awaited.

A search of the literature did not find strong evidence to support the use of continuous fluorouracil as the chemotherapy backbone with radiation therapy. However, fluorouracil remains a reference chemotherapy in association with radiation therapy in many studies. The optimal mode and delivery of fluorouracil chemotherapy is unclear.

The expert reference panel supported publication of the protocol on the basis of the information summarised below.

Source	Study & year published	Supports use	Is the dose and regimen consistent with the protocol?	Comments
Phase III studies	Hammel et al. (LAP-07) abstract 2013[6]	**No**	No	See comments above
Phase II studies	Mukherjee et al. (SCALOP), 2013[11]	**Yes**	No	See comments above
Observational studies	Huguet et al. 2007[9]	**Yes**	No	See comments above
	Krishnan et al. 2007[10]	**Yes**	No	See comments above
Guidelines	**Date published/revised**	**Supports use**	**Is the dose and regimen consistent with the protocol?**	**Comments**
NCCN	v.1 2015	**Yes**	Yes	-
BCCA	Feb 2014	**N/A**	-	Supports use with capecitabine
CCO	Oct 2013	**Yes**	Yes	-

Efficacy

A summary of the evidence supporting the effect of this protocol is below:

References	Radiation (Gy)	Chemotherapy regimen	No. of patients randomised (Evaluable)	Median survival (Months-unless specified)	p-value
CRT vs RT alone					
Moertel et al. 1969[1]	35-40	5FU (bolus 45 mg/kg)	NR (32)	10.4	NA
	35-40	-	NR (32)	6.3	
Moertel et al. GITSG 9273), 1981[2]	60	5FU (500 mg/m^2 bolus D1-3) then weekly bolus 500 mg/m^2	111 (86)	9.3	NS
	40	5FU (500 mg/m^2 bolus D1-3) then weekly bolus 500 mg/m^2	117 (83)	9.7	
	60	-	25 (25)	5.3	
Cohen et al. 2005[12]	59.4	5FU 1000 mg/m^2/day CI D2-5 and D28-31 of RT + MMC 10 mg/m^2 on D2	59	8.4	NS
	59.4	-	49	7.1	
CRT vs CT alone					
Klasassen et al. (ECOG-8232), 1985[3]	40	5FU (600 mg/m^2 D1-3 only) Post CRT: 5FU weekly bolus (600 mg/m^2/wk)	NR (47)	8.3	N/A

References	Radiation (Gy)	Chemotherapy regimen	No. of patients randomised (Evaluable)	Median survival (Months-unless specified)	p-value
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	59.4	-	49	7.1	
CRT vs CT alone					
	-	5FU weekly bolus (600 mg/m^2/wk)	NR (44)	8.2	
GITSG, 1988[4]	54	5FU (350 mg/m^2 per day, 1st 3 and last 3 days of RT) Post CRT: 5FU + streptozocin + MMC (doses as per other arm)	NR (22)	9.7	N/A
	-	5FU (600 mg/m^2 bolus D1, 8, 29, 36 + streptozocin 1 g/m^2/8wk + MMC 10 mg/m^2/8wk)	NR (21)	7.4	
Chauffert et al. 2006[13]	60	5FU CI (300 mg/m^2/d CI 5d/wk + cisplatin 20 mg/m^2/d on D1-5 and 29-33). Post CRT: Gemcitabine (1000 mg/m^2 wk)	59	8.6	0.03
	-	Gemcitabine (1000 mg/m^2 wk)	60	13	
Loehrer et al. ECOG-4201 2011[5]	50.4	Gemcitabine (600 mg/m^2/wk + maintenance gemcitabine 1000 mg/m^2/wk on D1, 8, 15; 5 cycles)	34	11.1	0.017
	-	Gemcitabine (1000 mg/m^2 wk D1, 8, 15; 7 cycles)	37	9.2	
Hammel et al. (LAP-07), 2014 (abstract)[6]	54	Gemcitabine +/- erlotinib -> Capecitabine CRT (1600 mg/m^2/day)	136	15.3	NS

References	Radiation (Gy)	Chemotherapy regimen	No. of patients randomised (Evaluable)	Median survival (Months-unless specified)	p-value
CRT vs RT alone					
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	59.4	-	49	7.1	
CRT vs CT alone					
	-	Gemcitabine +/- erlotinib -> same CT	133	16.5	
CRT vs observation alone					
Shinchi et al. 2002[14]	50.4	5FU CI (200 mg/m^2/day) + maintenance 5FU bolus (500 mg/m^2) weekly until PD or toxicity	16	13.2	<0.01
	-	-	15	6.4	
CRT vs CRT					
Li et al. 2003[15]	50.4-61.2	Gemcitabine 600 mg/m^{2}wk + maintenance gemcitabine 1000 mg/m^2/wk	18	14.5	0.027
	50.4-61.2	5FU (500 mg/m^2 bolus on D1-3, 15-17, 29-31) + maintenance gemcitabine (1000 mg/m^2/wk)	16	6.7	
Mukherjee et al. (SCALOP), 2013[11]	50.4	Gemcitabine 1000 mg/m^2 D1, 8, 15 q28 d/ capecitabine 830 mg/m^2 D1-21 q28d x 3 cycles -> gemcitabine (300 mg/m^2/wk) with RT	38	10.4	NS
	50.4	Gemcitabine 1000 mg/m^2 D1, 8, 15 q28 d/ capecitabine 830 mg/m^2 BC D1-21 q28d x 3 cycles -> capecitabine 830 mg/m^2 BD, Monday to Friday with	36	12	

References	Radiation (Gy)	Chemotherapy regimen	No. of patients randomised (Evaluable)	Median survival (Months-unless specified)	p-value
CRT vs RT alone					
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	59.4	-	49	7.1	
CRT vs CT alone					
		RT			

Abbreviations: CRT, chemoradiation therapy; RT, radiation therapy; 5FU, fluorouracil; CI, continuous infusion; CT, chemotherapy, NA, not available; MMC, mitomycin C; NS, not significant; q, every; d, day; wk, week; PD, progressive disease

Toxicity

In the study by Shinchi et al, chemoradiation-related complications occurred in 4 (25%) of the 16 patients. There was one case of Grade 3 anorexia and nausea, with two cases of Grade 2 nausea. One patient had Grade 2 leukopenia. The study reported that none of the remaining patients suffered any other serious complications due to radiation therapy or fluorouracil chemotherapy.[14]

References

1 Moertel, C. G., D. S. Childs, Jr., R. J. Reitemeier, et al. 1969. "Combined 5-fluorouracil and supervoltage radiation therapy of locally unresectable gastrointestinal cancer." Lancet 2(7626):865-867.

2 Moertel, C. G., S. Frytak, R. G. Hahn, et al. 1981. "Therapy of locally unresectable pancreatic carcinoma: a randomized comparison of high dose (6000 rads) radiation alone, moderate dose radiation (4000 rads + 5-fluorouracil), and high dose radiation + 5-fluorouracil: The Gastrointestinal Tumor Study Group." Cancer 48(8):1705-1710.

3 Klaassen, D. J., J. M. MacIntyre, G. E. Catton, et al. 1985. "Treatment of locally unresectable cancer of the stomach and pancreas: a randomized comparison of 5-fluorouracil alone with radiation plus concurrent and maintenance 5-fluorouracil--an Eastern Cooperative Oncology Group study." J Clin Oncol 3(3):373-378.

4 1988. "Treatment of locally unresectable carcinoma of the pancreas: comparison of combined-modality therapy (chemotherapy plus radiotherapy) to chemotherapy alone. Gastrointestinal Tumor Study Group." J Natl Cancer Inst 80(10):751-755.

5 Loehrer, P. J., Sr., Y. Feng, H. Cardenes, et al. 2011. "Gemcitabine alone versus gemcitabine plus radiotherapy in patients with locally advanced pancreatic cancer: an Eastern Cooperative Oncology Group trial." J Clin Oncol 29(31):4105-4112.

6 Hammel, P., F. Huguet, J. Van Laethem, et al. 2013. "Comparison of chemoradiotherapy (CRT) and chemotherapy (CT) in

patients with a locally advanced pancreatic cancer (LAPC) controlled after 4 months of gemcitabine with or without erlotinib: Final results of the international phase III LAP 07 study." In ASCO Annual Meeting Proceedings.

7 Yip, D., C. Karapetis, A. Strickland, et al. 2006. "Chemotherapy and radiotherapy for inoperable advanced pancreatic cancer." Cochrane Database Syst Rev(3):CD002093.

8 Sultana, A., C. Tudur Smith, D. Cunningham, et al. 2007. "Systematic review, including meta-analyses, on the management of locally advanced pancreatic cancer using radiation/combined modality therapy." Br J Cancer 96(8):1183-1190.

9 Huguet, F., T. Andre, P. Hammel, et al. 2007. "Impact of chemoradiotherapy after disease control with chemotherapy in locally advanced pancreatic adenocarcinoma in GERCOR phase II and III studies." J Clin Oncol 25(3):326-331.

10 Krishnan, S., V. Rana, N. A. Janjan, et al. 2007. "Induction chemotherapy selects patients with locally advanced, unresectable pancreatic cancer for optimal benefit from consolidative chemoradiation therapy." Cancer 110(1):47-55.

11 Mukherjee, S., C. N. Hurt, J. Bridgewater, et al. 2013. "Gemcitabine-based or capecitabine-based chemoradiotherapy for locally advanced pancreatic cancer (SCALOP): a multicentre, randomised, phase 2 trial." Lancet Oncol 14(4):317-326.

12 Cohen, S. J., R. Dobelbower, Jr., S. Lipsitz, et al. 2005. "A randomized phase III study of radiotherapy alone or with 5-fluorouracil and mitomycin-C in patients with locally advanced adenocarcinoma of the pancreas: Eastern Cooperative Oncology Group study E8282." Int J Radiat Oncol Biol Phys 62(5):1345-1350.

13 Chauffert, B., F. Mornex, F. Bonnetain, et al. 2008. "Phase III trial comparing intensive induction chemoradiotherapy (60 Gy, infusional 5-FU and intermittent cisplatin) followed by maintenance gemcitabine with gemcitabine alone for locally advanced unresectable pancreatic cancer. Definitive results of the 2000-01 FFCD/SFRO study." Ann Oncol 19(9):1592-1599.

14 Shinchi, H., S. Takao, H. Noma, et al. 2002. "Length and quality of survival after external-beam radiotherapy with concurrent continuous 5-fluorouracil infusion for locally unresectable pancreatic cancer." Int J Radiat Oncol Biol Phys 53(1):146-150.

15 Li, C. P., Y. Chao, K. H. Chi, et al. 2003. "Concurrent chemoradiotherapy treatment of locally advanced pancreatic cancer: gemcitabine versus 5-fluorouracil, a randomized controlled study." Int J Radiat Oncol Biol Phys 57(1):98-104.

History

Version 5

Date	Summary of changes
10/09/2020	Protocol and patient information title updated- 'advanced' added. Version number changed to V.5.
25/09/2020	Protocol reviewed electronically by the Medical Oncology Reference committee. Nil changes. Next review in 2 years.
20/10/2022	Protocol reviewed electronically by Medical Oncology Reference Committee. No changes. Next review 2 years.

Version 4

Date	Summary of changes
08/10/2019	Clinical information updated with PBS expanded indications for GCSF.
18/12/2019	ID 3581 Pancreas adenocarcinoma definitive/neoadjuvant EBRT chemoradiation added as a related page.

Version 3

Date	Summary of changes
27/03/2015	New protocol taken to Medical Oncology Reference Committee meeting.
23/04/2015	Approved and published on eviQ.
16/10/2016	Patient information sheet updated to include more fluorouracil toxicity symptom warnings.

Date	Summary of changes
10/11/2016	The following changes made post Medical Oncology Reference Committee meeting held on 21 October 2016: link to AGITG and ANZCTR added.
31/05/2017	Transferred to new eviQ website. Version number changed to V.2.
16/02/2018	Protocol reviewed at Medical Oncology Reference Committee Meeting. Fluoropyrimidine overdose or overexposure warning added. Review in 2 years.
10/05/2018	Haematological dose modifications updated as per consensus of the expert clinician group. DPD enzyme deficiency wording in clinical information updated. Fluoropyrimidine safety alert wording in clinical information updated. Version number changed to V.3.

First approved: 23 April 2015
Last reviewed: 20 October 2022
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/718
15 Jul 2023

Patient information - Pancreas cancer advanced - Fluorouracil with radiation therapy

Patient's name:

Your treatment

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

Fluorouracil with radiation therapy		
This treatment is continous whilst you are receiving radiation therapy (usually 5 to 6 weeks).		
Day	**Treatment**	**How it is given**
Continuous during radiation therapy	**Fluorouracil** *(Flure-oh-YOOR-a-sill)*	Given slowly through a pump

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 • leaking from your pump • 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

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. Tell your doctor if you are on an anticoagulant (medication used to treat or prevent blood clots) e.g. warfarin. You may need to have additional blood tests.

Pumps and central venous access devices (CVADs)

This treatment involves having chemotherapy through a pump. To have this, you will also need a central venous access device (CVAD). Your doctor or nurse will explain this to you. For more information see the eviQ patient information sheets on pumps and CVADs. At home you will need to look at your pump 3 to 4 times a day to check it is working. Your nurse will teach you how to do this.

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.

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)	
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.**
Taste and smell changes	• You may find that food loses its taste or tastes different. • These changes are likely to go away with time. • Do your mouth care regularly. • Chew on sugar-free gum or eat sugar-free mints. • Add flavour to your food with sauces and herbs. • Ask your doctor or nurse for eviQ patient information - Taste and smell changes during cancer treatment.

Heart problems	• You may get:
	  ◦ chest pain or tightness
	  ◦ shortness of breath
	  ◦ an abnormal heartbeat
	• Tell your doctor if you have a history of heart problems or high blood pressure.
	• **Tell your doctor or nurse immediately, or go to the nearest hospital Emergency Department if you get any of the symptoms listed above.**

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 blood. 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. • Don't take aspirin, ibuprofen or other similar anti-inflammatory medications unless your doctor tells you to. • Tell your doctor or nurse if you have any bruising or bleeding. • **Tell your doctor or nurse immediately, or go to your nearest hospital Emergency Department if you have any uncontrolled bleeding.**
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.**
Eye problems	• You may get: ◦ eye pain ◦ red, sore or swollen eyes ◦ blurred vision ◦ watery or gritty eyes ◦ changes in your eyesight ◦ sensitivity to sunlight. • Protect your eyes from the weather (sun and wind) by wearing sunglasses, especially if you have lost your eyelashes. • **Tell your doctor or nurse if you get any of the symptoms listed above. Eye drops may help with your symptoms.**
Mouth pain and soreness (mucositis)	• You may have: ◦ bleeding gums ◦ mouth ulcers ◦ a white coating on your tongue ◦ pain in the mouth or throat ◦ difficulty eating or swallowing. • Avoid spicy, acidic or crunchy foods and very hot or cold food and drinks. • Try bland and soft foods. • Brush your teeth gently with a soft toothbrush after each meal and at bedtime. If you normally floss continue to do so. • Rinse your mouth after you eat and brush your teeth, using either: ◦ 1/4 teaspoon of salt in 1 cup of warm water, or ◦ 1/4 teaspoon of bicarbonate of soda in 1 cup of warm water • Ask your doctor or nurse for eviQ patient information - Mouth problems during cancer treatment. • **Tell your doctor or nurse if you get any of the symptoms listed above.**
Skin that is more sensitive to the sun (photosensitivity)	• After being out in the sun you may develop a rash like a bad sunburn. • Your skin may become red, swollen and blistered. • Avoid direct sunlight. • Protect your skin from the sun by wearing sun-protective clothing, a wide-brimmed hat, sunglasses and a sunscreen of SPF 50 or higher. • **Tell your doctor or nurse if you get any of the symptoms listed above.**

Hand-foot syndrome (palmar-plantar erythrodysaesthesia)	• The palms of your hands and soles of your feet may become:
	  ◦ red and hot
	  ◦ swollen
	  ◦ painful and tender
	  ◦ blistered.
	• The skin in the area may also peel.
	• Moisturise your hands and feet daily with sorbolene or aqueous cream.
	• Keep your hands and feet clean and dry.
	• Avoid hot water, instead use lukewarm water to bathe.
	• Avoid direct sunlight.
	• Avoid unnecessary walking, jogging or exercise.
	• Wear cotton socks and avoid tight-fitting shoes.
	• **Tell your doctor or nurse as soon as possible if you notice any skin changes on your hands or feet.**

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.**
Skin changes	• Your skin may become dry, and you may notice changes to areas of your skin that have been exposed to the sun. • Keep your skin moisturised with a cream such as sorbolene or aqueous cream. • Avoid direct sunlight. • Protect your skin from the sun by wearing a wide-brimmed hat, sun-protective clothing, sunglasses and sunscreen of SPF 50 or higher. • **Tell your doctor or nurse if you notice any skin changes.**

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.**
Hair thinning	• Your hair may become dry and may break easily. • You may lose some of your hair. • Use a gentle shampoo and a soft hairbrush. • Take care with hair products like hairspray, hair dye, bleaches and perms. • Protect your scalp from the cold with a hat or scarf. • Protect your scalp from the sun with a hat and sunscreen of SPF 50 or higher. • Ask your doctor or nurse about the Look Good Feel Better program (www.lgfb.org.au)
Skin colour changes	• You may have darkening of your skin, especially in areas that are exposed to the sun. • You may also notice darkening of your tongue, gums and over your finger joints. • These skin changes may fade over time. • Protect your skin from the sun by wearing sun-protective clothing, a wide-brimmed hat, sunglasses and a sunscreen of SPF 50 or higher.
Nail changes	• Your nails may: ◦ grow more slowly ◦ become darker ◦ develop ridges or white lines ◦ become brittle and flaky • In some cases, you may lose your nails completely. • 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.

General advice for people having cancer treatment

Chemotherapy safety

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

Blood clot risk

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

Medications and vaccinations

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

Other medical and dental treatment

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

Diet

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

Fertility

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

Pregnancy and breastfeeding

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

Sex life and sexuality

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

Risk of developing a second cancer

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

Quitting smoking

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

Staying active

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

For more information about cancer treatment, side effects and side effect management see our Patient and carers section.

Where to get more information

Telephone support

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

Pancreatic cancer information

- Australian Pancreatic Cancer Genome Initiative – pancreaticcancer.net.au
- Pancare foundation – pancare.org.au

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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