Safer Care Victoria

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Opioid conversion ratios

Guidance document

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Contents

Background

Opioid conversion is a specialist skill used by palliative care clinicians to ensure appropriate use of palliative medicines and that the patient receives optimal pain management. This document is intended for use by specialist palliative care clinicians. It also serves as an educational and clinical support resource for specialist clinicians when they are training other healthcare professionals who may be part of the extended multidisciplinary care team.

DEVELOPMENT AND ENDORSEMENT

This guidance was originally developed by a group of clinical experts supported by the Eastern Metropolitan Palliative Care Consortia.

The document was reviewed numerous times to reflect current evidence and was transitioned to Safer Care Victoria (SCV) to review and maintain the guidance.

REVIEW METHODOLOGY

This review was undertaken using a consensus approach using a working group of expert clinicians. The guidance was reviewed for practice changes and reformatted for enhanced usability.

A scan of the literature was completed to locate and reference new evidence. This built upon previous versions of the guidance available at https://www.emrpcc.org.au/clinical-guidelines.

A small-scale test with two health services already involved in the expert working group was completed to understand useability and clinician confidence in the guidance. See **Appendix 1** for further detail.

Following the review, the guidance was endorsed by SCV.

PALLIATIVE CARE IN VICTORIA

Specialist palliative care in Victoria comprises community and inpatient palliative care, consultancy teams, outpatient clinics and day hospices. A statewide advice service is also available.

There are three ways for health professionals, especially nurses, doctors, and paramedics, to obtain specialist advice.

1. **Community palliative care services**
   - Call your local palliative care service. The Department of Health's Victorian palliative care service directory can be used to find your local service providers.
   - Consider referral to the service.
2. **Palliative care consultancy services**
   - Complementing the community palliative care services there are palliative care consultancy services in each rural region.

- In metropolitan Melbourne, there are palliative care consultancy services in every metropolitan health service except for Royal Victorian Eye and Ear Hospital. The Royal Women's Hospital links with Melbourne Health.

3. Statewide specialist palliative care advice service

- Healthcare professionals and the general public can call the Palliative Care Advice Service on 1800 360 000 (7am–10pm).
- This service is operated by The Royal Melbourne Hospital through the Parkville Integrated Palliative Care Service.

RELATED DOCUMENTS

Syringe driver compatibility guidance: www.bettersafercare.vic.gov.au/clinical-guidance/palliative/syringe-driver-compatibility

Anticipatory medicines guidance: www.bettersafercare.vic.gov.au/resources/tools/anticipatory-medicines

Palliative sedation therapy guidance: www.bettersafercare.vic.gov.au/resources/tools/palliative-sedation-therapy

Guiding clinical principles

The information in this document is to be used as a guide for practice. It is the responsibility of the user to ensure the information is used correctly. This guide reflects current palliative care practice in Victoria and published evidence at the time of the review.

- All medication doses derived from this guide should be checked and prescribed by a medical doctor or nurse practitioner with appropriate experience in opioid prescribing. Calculations used for opioid switching should be documented in the patient file.
- Adhere to all legislative and professional requirements including organisational policies and procedures regarding opioid medications and their administration.
- Conversion ratios are an approximate guide. Opioid potencies vary according to an individual's pharmacokinetics. Opioid doses should be modified in response to the patient's clinical status, previous exposure to opioids and concurrent medications.
- All patients should be closely monitored for efficacy, toxicity and adverse effects when commencing, adjusting dose or switching opioid medications.
- Opioids may be administered via many different routes. This guide includes oral, subcutaneous and transdermal routes because these are the most commonly used routes of administration in palliative care.
- Opioids should only be changed after appropriate clinical assessment of opioid responsiveness and risks. This guidance document may not be applicable in certain situations such as chronic non-cancer pain and chronic neuropathic pain.
- Changing between opioids can be referred to as opioid conversion, opioid switching and opioid rotation. For consistency this guideline will use the term opioid conversion.

STEPS FOR OPIOID CONVERSION

1. Calculate the patient's current background 24-hour opioid requirement.
2. Convert this to oral morphine to generate the 24-hour oral morphine equivalent (OME) dose (except when converting from the same drug to the same drug, e.g. oral to subcutaneous).
3. Use the tables to calculate the 24-hour dose of the new opioid, using the 24-hour OME dose if converting to a new opioid.
4. Apply a dose reduction of 25 to 50 per cent to allow for incomplete cross-tolerance. A dose reduction closer to 50 per cent is appropriate if the patient is elderly or frail.
5. Finally, convert this 24-hour dose of the new opioid to the desired daily regimen and consider rounding numbers for practical convenience. For example, oral hydromorphone 15 mg may be more conveniently dosed at 16 mg.

Example

1. Long-acting oral oxycodone 80 mg BD= oral oxycodone 160 mg per 24 hours
   - = oral morphine 240 mg per 24 hours (1.5:1)
   - = oral hydromorphone 48 mg per 24 hours (5:1)
2. Apply 25 to 50 percent dose reduction = 24-36 mg oral hydromorphone per 24 hours
   - Clinician chooses 24 mg per 24 hours
3. Final dose = long-acting oral hydromorphone 24 mg daily

Also consider

- The patient's (or their substitute decision maker's) informed consent, goals of care and treatment preferences.
- Dose and duration of previous opioid treatment.
- Current pain severity.
- Whether breakthrough medications have been used to alleviate unrelieved background pain or incident pain.
- Patient's ethnicity, for example, oxycodone may be metabolised differently by Caucasian, Asian and North African groups due to genetic polymorphism.
- Renal impairment:
  - Use hydromorphone, morphine and oxycodone with caution in mild to moderate renal impairment.
  - Consensus guidelines suggest fentanyl or buprenorphine are the opioids of choice in severe renal impairment.
- Hepatic impairment:
  - Fentanyl is preferred in moderate to severe liver failure or cirrhosis.
  - Plasma concentrations of oral naloxone (e.g. Targin®) become elevated with hepatic impairment. These formulations are contraindicated with moderate to severe hepatic impairment. Further dose reduction should be considered when switching from formulations containing oral naloxone to other opioid formulations in hepatic impairment, even if the opioid component has not been changed (e.g. switching from Targin® to OxyContin®), due to the systemic effects of naloxone.
  - Avoid oxycodone in severe cirrhosis.
  - Decrease the dose and frequency of administration of morphine in hepatic impairment.
- Occurrence of adverse effects.
- Direction of switch of opioid, e.g. methadone to morphine.
- Prescribe prn breakthrough opioid during the titration process at 1/12th to 1/6th of the total daily opioid dose.

Conversion tables

When reading these tables, please refer to the Guiding clinical principles.

Included tables

1. Oral morphine to other oral opioids
2. Oral opioids to subcutaneous opioids– Same drug to same drug
3. Oral morphine to transdermal fentanyl
4. Oral methadone to subcutaneous methadone – Same drug to same drug
5. Determining oral morphine breakthrough dose when on transdermal fentanyl
6. Subcutaneous fentanyl to transdermal fentanyl – Same drug to same drug
7. Determining transmucosal fentanyl breakthrough pain dose
8. Subcutaneous morphine to other subcutaneous opioids
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10. Transdermal buprenorphine to oral morphine
11. Transdermal buprenorphine to subcutaneous morphine or oxycodone infusions
12. Sublingual buprenorphine to oral morphine
13. Timing initial application of transdermal fentanyl patch
14. Timing a change of opioid formulation and/or route of administration

1. ORAL MORPHINE TO OTHER ORAL OPIOIDS

Oral to oral	Conversion ratio	Example	Comments
Morphine to codeine	1:10	Oral morphine 6 mg = oral codeine 60 mg	Avoid conversion and treat as opioid naive Codeine has a limited role in managing moderate-severe pain in palliative care
Morphine to hydromorphone	5:1	Oral morphine 5 mg = oral hydromorphone 1 mg	
Morphine to methadone	Palliative care specialist input required		
Morphine to oxycodone	1.5:1	Oral morphine 15 mg = oral oxycodone 10 mg	The oxycodone component of Targin ® should be considered in conversions
Morphine to tapentadol	1:3	Oral morphine 100 mg = oral tapentadol 300 mg	Tapentadol has a limited role in managing moderate to severe pain in palliative care
Morphine to tramadol	1:5	Oral morphine 10 mg = oral tramadol 50–100 mg	Tramadol has a limited role in managing moderate to severe pain in palliative care

2. ORAL OPIOIDS TO SUBCUTANEOUS OPIOIDS – SAME DRUG TO SAME DRUG

Oral	Subcutaneous	Conversion ratio	Example
Morphine	Morphine	2:1 to 3:1	Oral morphine 30 mg = subcutaneous morphine 10 to 15 mg
Oxycodone	Oxycodone	1.5:1 to 2:1	Oral oxycodone 30 mg = subcutaneous oxycodone 15 to 20 mg
Hydromorphone	Hydromorphone	2:1 to 3:1	Oral hydromorphone 24mg = subcutaneous hydromorphone 8 to 12 mg

3. ORAL MORPHINE TO TRANSDERMAL FENTANYL

Oral morphine (mg/24 hours)	Transdermal fentanyl (microgram/24 hours) (Dose ratio from oral morphine 100:1)	Transdermal fentanyl (microgram/hour) patch size
30	300	12
60	600	25
120	1200	50
180	1800	75
240	2400	100

Seek specialist palliative care advice when converting at high doses – See Table 13 below 'Timing initial application of transdermal fentanyl patch' – Timing of TTS applications.

4. ORAL METHADONE TO SUBCUTANEOUS METHADONE – SAME DRUG TO SAME DRUG

Conversion to methadone from other opioids is complex and should not be attempted without consultation with a specialist experienced in the use of methadone. Palliative care consultation is of particular importance for the higher doses of opioid and the frail or elderly patient. It is strongly recommended that methadone therapy be initiated in the inpatient setting where patients can be closely monitored for signs of cumulative toxicity (commonly sedation or confusion).

The required methadone dose is generally 5 to 10 times smaller than the morphine dose but may be 20 to 30 times smaller.

Methadone is indicated for use in:

- neuropathic or mixed nociceptive-neuropathic pain, not responding to other agents e.g. NSAID + opioid +antidepressant/antiepileptic
- neurotoxicity with morphine (myoclonus, allodynia, hyperalgesia, delirium) where conversion to another opioid is not possible
- end stage renal failure.

There is variation in Australian clinical practice when converting to methadone, with a systematic review in cancer pain, concluding there is low evidence for methods used.

Methadone has a complex pharmacodynamic (PD) and pharmacokinetic (PK) profile, with significant individual patient variation in metabolism. While minimal renal excretion makes methadone a suitable opioid for uraemic patients, obstructive hepatic failure and other drug interactions in hepatic metabolic pathways, as well as individual variation can lead to a widely variable plasma half-life (range 5 to 130 hours), resulting in between 4 to 7 days to reach steady state and has a risk of accumulation so dose adjustments should not be undertaken less than weekly. Due to this complex PD and PK profile, using methadone for breakthrough dosing should only be prescribed under specialist supervision.[10]

Other opioids can be prescribed for breakthrough dosing if there are concerns about accumulation and toxicity due to frequent breakthrough dosing.

Methadone is known to interact with those medications that contribute to QT prolongation and those which are metabolised by CYP450 hepatic enzyme pathways. Caution and diligent interaction checking is required when initiating methadone or new medications for patients already on methadone.

Specialist advice is recommended for methadone conversion to other opioids as it is infrequently undertaken, with a wide variation in ratios reported.

Oral	Subcutaneous	Conversion ratio	Example
Methadone	Methadone	1:1 to 2:1	Oral Methadone 20 mg = subcutaneous methadone 10 to 20 mg

Methadone, predominantly the syrup, is also used in opioid replacement and maintenance programs. Appropriate patient information should be provided to differentiate when using methadone for pain management.

5. DETERMINING ORAL MORPHINE BREAKTHROUGH DOSE WHEN ON TRANSDERMAL FENTANYL

Transdermal fentanyl (microgram/hour) patch size	Transdermal fentanyl (microgram/24 hours) (Dose ratio from oral morphine 100:1)	Subcutaneous morphine (mg/24 hours)	Oral morphine (mg/24 hours)	Oral morphine suggested breakthrough pain immediate release (mg)* dose
12	300	10–20	30–60	2.5–7.5
25	600	20–30	60–90	7.5–10
37 (12 + 25)	900	30–40	90–120	10–15
50	1200	40–60	120–180	15–30
75	1800	80–100	240–300	30–45
100	2400	120	360	45–60

* The breakthrough pain dose estimated at 1/6 to 1/12 of 24/hour oral morphine dose. The onset of action has wide patient inter-variability and it may take 18 to 48hours to reach steady state after first patch application.

6. SUBCUTANEOUS FENTANYL TO TRANSDERMAL FENTANYL – SAME DRUG TO SAME DRUG

Subcutaneous	Transdermal	Conversion ratio	Example
Fentanyl **Delivered as a continuous subcutaneous infusion at a rate of microgram per 24 hours**	**Fentanyl** Delivered from a topical patch at a rate of microgram per 1 hour	1:1	Fentanyl 600 microgram/24 hours = fentanyl patch 25 microgram/hour

7. DETERMINING TRANSMUCOSAL FENTANYL BREAKTHROUGH PAIN DOSE

Transmucosal fentanyl products are available for breakthrough cancer pain that is not adequately managed by other short-acting opioids. They can be considered in patients who are opioid tolerant, i.e. are already taking the equivalent or higher dose of oral morphine 60 mg daily or an equianalgesic dose of another opioid for at least a week.

There are three formulations currently available in Australia (sublingual tablet (Abstral®), orally disintegrating tablet (Fentora®) and lozenges (Actiq®). These products have considerable differences in pharmacokinetics, and therefore cannot be used interchangeably on a microgram-per-microgram basis. A titration from baseline (de novo) is required when switching products or change in background pain management. There is no direct conversion ratio between morphine and transmucosal fentanyl.

8. SUBCUTANEOUS MORPHINE TO OTHER SUBCUTANEOUS OPIOIDS

Subcutaneous	Subcutaneous	Conversion ratio	Example	Comments
Morphine	Hydromorphone	5:1	Subcutaneous morphine 10 mg = subcutaneous hydromorphone 2 mg	
Morphine	Oxycodone	1:1	Subcutaneous morphine 10 mg = subcutaneous oxycodone 10 mg	
Morphine	Fentanyl	75:1	Subcutaneous morphine 7,500 microgram (7.5 mg) = subcutaneous fentanyl 100 microgram	The 75:1 conversion ratio is conservative

9. SUBCUTANEOUS FENTANYL TO OTHER SUBCUTANEOUS FENTANYL ANALOGUES

Subcutaneous	Subcutaneous	Conversion ratio	Example	Comments
Fentanyl	Sufentanil	10:1	Subcutaneous fentanyl 100 microgram = subcutaneous sufentanil 10 microgram	Alfentanil and remifentanil Not used in palliative care settings

10. TRANSDERMAL BUPRENORPHINE TO ORAL MORPHINE

Patch strength	Delivery rate	Conversion ratio	Calculation	Comments
Buprenorphine 5 mg /7 days (120 microgram /24 hours)	5 microgram /hour	1:75–1:100	5 mg patch = 5 microgram buprenorphine per hour 5 microgram x 24 = 120 microgram over 24 hours 120 microgram buprenorphine x 75 = 9,000 microgram (9 mg) or x 100 = 12,000 microgram (12 mg) of oral morphine	PLEASE NOTE: Calculations are given to show daily oral morphine equivalency when converting from a 7-day patch to 24 hours of oral morphine. The actual 24-hour oral morphine dose may need to be rounded to fit with available slow-release morphine tablet doses Oral morphine dose 9 to 12 mg/24 hours
Buprenorphine 10 mg /7 days (240 microgram /24 hours)	10 microgram /hour	1:75–1:100	10 mg patch = 10 microgram buprenorphine per hour 10 microgram x 24 = 240 microgram over 24 hours 240 microgram buprenorphine x 75 = 18,000 microgram (18 mg) or x 100 = 24,000 microgram (24 mg) of oral morphine	Oral morphine dose 18 to 24 mg/24 hours

Patch strength	Delivery rate	Conversion ratio	Calculation	Comments
Buprenorphine 15 mg /7 days (360 microgram /24 hours)	15 microgram /hour	1:75–1:100	15 mg patch = 15 microgram buprenorphine per hour 150 microgram x 24 = 360 microgram over 24 hours 360 microgram buprenorphine x 75 = 27,000 microgram (27 mg) or x 100 = 36,000 microgram (36 mg) of oral morphine	Oral morphine dose 27 to 36 mg/24 hours.
Buprenorphine 20 mg /7 days (480 microgram /24 hours)	20 microgram /hour	1:75–1:100	20 mg patch = 20 microgram buprenorphine per hour 20 microgram x 24 = 480 microgram over 24 hours 480 microgram buprenorphine x 75 = 36,000 microgram (36mg) or x 100 = 48,000 microgram (48 mg) of oral morphine	Oral morphine dose 36 to 48 mg/24 hours Maximum transdermal dose recommended is 40 microgram/hour (2 x 20 mg/7-day patches)
Buprenorphine 25 mg /7 days (600 microgram /24 hours)	25 microgram /hour	1:75–1:100	25 mg patch = 25 microgram buprenorphine per hour 25 microgram x 24 = 600 microgram over 24 hours 600 microgram buprenorphine x 75 = 45,000 microgram (45 mg) or x 100 = 60,000 microgram (60 mg) of oral morphine	Oral morphine dose 45 to 60 mg/24 hours
Buprenorphine 30 mg /7 days (720 microgram /24 hours)	30 microgram /hour	1:75–1:100	30 mg patch = 30 microgram buprenorphine per hour 30 microgram x 24 = 720 microgram over 24 hours 720 microgram buprenorphine x 75 = 54,000 microgram (54 mg) or x 100 = 72,000 microgram (72 mg) of oral morphine	Oral morphine dose 54 to 72 mg/24 hours
Buprenorphine 40 mg /7 days (960 microgram /24 hours)	40 microgram /hour	1:75–1:100	40 mg patch = 40 microgram buprenorphine per hour 40 microgram x 24 = 960 microgram over 24 hours 960 microgram buprenorphine x 75 = 72,000 microgram (72 mg) or x 100 = 96,000 microgram (96 mg) of oral morphine	Oral morphine dose 72 to 96 mg/24 hours

- Breakthrough pain is treated with an immediate release opioid, e.g. morphine or oxycodone.
- Respiratory depression is rare in the doses of buprenorphine used in palliative care practice in Australia.
- On removal of the buprenorphine patch, a short-acting opioid should be prescribed for the initial 24 hours and a long-acting opioid commenced after 24 hours.

11. TRANSDERMAL BUPRENORPHINE TO SUBCUTANEOUS MORPHINE OR OXYCODONE INFUSIONS

Patch strength	Delivery rate	Oral morphine (mg/24hours)	Oral oxycodone (mg/24hours)
Refer to table 2 'Oral opioids to subcutaneous opioids – same drug to same drug' **, using 3:1 oral: subcutaneous oxycodone (mg/24 hours)**	Morphine mg/ 24 hours		
Buprenorphine 5 mg (120 microgram/24 hours)	5 microgram/hour	Oral equivalent 10–15 Subcutaneous equivalent 3–5	Oral equivalent 5–10 Subcutaneous equivalent 3–5
Buprenorphine 10 mg (240 microgram/24 hours)	10 microgram/hour	Oral equivalent 15–25 Subcutaneous equivalent 5–8	Oral equivalent 10–20 Subcutaneous equivalent 5–10
Buprenorphine 20 mg (480 microgram/24 hours)	20 microgram/hour	Oral equivalent 35–50 Subcutaneous equivalent 12–16	Oral equivalent 25–40 Subcutaneous equivalent 12–20

Buprenorphine is increasingly used for the management of opioid dependence, acute and chronic pain. Available preparations of buprenorphine include transdermal, sublingual (SL), individual or in combination with naloxone, injectable and more recently subcutaneous depot formulation. The use of transdermal buprenorphine is more established in cancer and palliative care than the SL or injectable preparations.

The below table provides equivalence of buprenorphine SL or injection to oral morphine to assist palliative care clinicians in caring for patients using these preparations. Management of patients on SL buprenorphine (Subuxone®/Subutex®) or buprenorphine depot (Buvidal®/Sublocade®) requires liaison with a clinician experienced in the use of high dose buprenorphine.

12. SUBLINGUAL BUPRENORPHINE TO ORAL MORPHINE

Preparation	Conversion ratio	Calculation	Comments
Buprenorphine 200 microgram tablet (Temgesic®)	1:40	200 microgram x 40 = 8,000 microgram (8 mg) of oral morphine	Licensed for pain management Shorter half-life (5 hours) than high dose formulations (e.g. Suboxone/Subutex/depot)
Buprenorphine with naloxone 2 mg–0.5 mg filmtab (Suboxone®)	1:40	2 mg x 40 = 80 mg of oral morphine	As part of opiate dependence program or for chronic pain

Preparation	Conversion ratio	Calculation	Comments
Buprenorphine with naloxone 8 mg–2 mg filmtab (Suboxone®)	1:40	8 mg x 40 = 320 mg of oral morphine	As part of opiate dependence program or for chronic pain
Buprenorphine 0.4 mg, 2 mg and 8 mg tablets (Subutex®)	1:40	0.4 mg x 40 = 16 mg of oral morphine 2 mg x 40 = 80 mg or oral morphine 8 mg x 40 = 320 mg of oral morphine	As part of opiate dependence program or for chronic pain Less commonly used given greater diversion risk than Suboxone®

13. TIMING INITIAL APPLICATION OF TRANSDERMAL FENTANYL PATCH

From	To transdermal fentanyl
4-hour immediate-release (IR) oral opioid	Give regular doses IR oral opioid for the first 12 hours after applying patch
12-hour controlled-release (CR) long acting oral opioid	Apply the patch at the same time as administering the final 12-hour (CR) dose
24-hour controlled-release (CR) long acting oral opioid	Apply the patch 12 hours after administering the final 24-hour (CR) dose
Continuous subcutaneous infusion morphine (syringe driver)	Continue the syringe driver unchanged for 8 to 12 hours after applying the patch, then cease
Continuous subcutaneous infusion fentanyl (syringe driver)	Continue the syringe driver at the same rate for 6 hours after applying the patch, then cease

Effective systemic analgesic concentrations are generally reached in less than 12 hours for fentanyl after applying patch.

14. TIMING A CHANGE OF OPIOID FORMULATION AND/OR ROUTE OF ADMINISTRATION

Note: The advice in this table is guidance only. Individuals vary markedly in their response to different opioids, and different routes of administration have different bioavailability; frequent review is necessary.

- Seek specialist advice for rotating to or from methadone.
- Fentanyl patch elimination half-life is 13 to 22 hours.
- Buprenorphine patch apparent terminal half-life is ~26 hours on patch removal without replacement and takes up to 72 hours to reach steady state – recommendations dependent on clinical situation.
- Ensure adequate breakthrough pain medications are available for administration during conversion.

Change to ▶ **Change from ▼**	**Transdermal therapeutic system buprenorphine**	**Transdermal therapeutic system fentanyl**	**Twice-daily modified-release opioid**	**Once-daily modified-release opioid**	**Opioid continuous subcutaneous infusion**
TTS buprenorphine	-	Apply 24 hours after removing patch	Give first dose 24 hours after removing patch	Give first dose 24 hours after removing patch	Start infusion 12 to 18 hours after removing patch
TTS fentanyl	-	N/A	Give first dose 8 to 12 hours after removing patch	Give first dose 4 to 8 hours after removing patch	Start infusion 6 to 8 hours after removing patch
Twice-daily modified release opioid	-	Apply patch at the same time as last dose	Give first dose 12 hours after last dose	Give first dose 12 hours after last dose	If pain is well controlled, start infusion 2 to 4 hours before next opioid dose would have been given
Once-daily modified-release opioid	-	Apply patch 18 hours after last dose	Give first dose 24 hours after last dose	Give first dose 24 hours after last dose	Seek specialist advice – dependent on pain control
CSCI	Stop infusion 12 to 18 hours after applying patch	Stop infusion 6 to 8 hours after applying patch	Stop infusion 2 to 4 hours after first oral dose	Stop infusion 4 to 6 hours after first oral dose	N/A

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Acknowledgements

We wish to acknowledge the previous work in developing earlier versions of this guidance including Victorian Palliative Medicine Specialists and representatives from Eastern Metropolitan Region Palliative Care Consortium.

The following clinical experts formed an expert working group to review and develop this version of the guidance in 2020.

Name	Organisation	Role
A/Prof Mark Boughey	St Vincent's Health/ Safer Care Victoria	Director of Palliative Care/ Clinical Lead, Palliative Care
John Coutsouvelis	Alfred Health	Lead Clinical Pharmacist Cancer Services and Medical Specialties
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Appendix 1: Testing the guidance

This guidance was tested with two health services that were already involved in the expert working group to understand if the document was easy to use, efficient and accurate. This test was conducted over around four weeks with services asking staff a series of questions after they used the guidance to support clinical care. Questions asked were:

- Is the document easy to use? (rate 1–7)
- Is the formatting (including layout, colours) intuitive/easy to follow? (rate 1–7)
- Did the document provide you with the information you need? (yes/no)
- Does there need to be a summary section and the general tables?
- Open comments/suggestions/feedback

Across the two health services, feedback reported that:

- The document was easy to use – average 5.6
- The formatting was rated a 6/7
- All clinicians agreed it provided the information they needed and agreed that there did not need to be duplicate summary and main content tables as was in the previous iteration of the guidance.

This feedback, along with additional advice for our expert working group and endorsement from Safer Care Victoria has resulted in this finalised guidance document.

Services who are introducing this updated version or using the guidance or the first time are encouraged to use a standardised improvement framework to plan the change and ensure measures of improvement are collected and evaluated.