Document Type:	Guideline	
Reference Number : **1612**	Version Number: **3**	Next Review Date: **XX/01/2022**
Title:	Prescribing at the end of life for patients with renal impairment (estimated glomerular filtration rate <30)	
Document Author:	Consultant in Palliative Medicine	
Applicability:	All Patients as indicated	

Background

Impairment of renal function (estimated glomerular filtration rate <30) can change the pharmacokinetic and/or pharmacodynamic effects of a drug. One of the most important consequences of this is increased toxicity as a result of accumulation of a renally excreted drug, leading to undesirable and distressing symptoms for patients . This is particularly relevant when prescribing for patients with impaired renal function in the last hours or days of life in whom optimising symptom control is of paramount importance.

General Principles

- For the purpose of this document, patients fall into two groups:
    - those dying from Chronic Kidney Disease (CKD)
    - those dying from a life limiting illness such as cancer who develop renal impairment

- Patients dying from end stage CKD often only require low doses of opioids.

- Patients dying from cancer who develop renal impairment are more likely to have pre-existing opioid analgesic regimes.

- In renal impairment, due to impaired metabolism and excretion, medications are often required in lower doses and with prolonged dose intervals.

- There is increased susceptibility to central effects of drugs due to increased blood brain barrier permeability in uraemia.

- Excretion of some opioids, particularly Morphine and Diamorphine, is impaired, which can lead to signs of toxicity including myoclonic jerks, agitation, drowsiness, confusion and respiratory depression.

- If an opioid is necessary it is important to:

    - Start at lower doses than usual
    - Consider increasing the intervals between doses

- Monitor closely for opioid toxicity

Estimated glomerular filtration rate (eGFR)

- Prescribers often over-estimate eGFR in the elderly and in patients with cachexia and low muscle bulk (many palliative care patients).

- Ideally, a renal friendly opioid should be commenced in an opioid naive patient with a low eGFR.

- Extra care should be taken in prescribing for patients with an eGFR <30, but it is **not** a rigid cut off.

- In patients with a low eGFR it is not imperative to immediately switch opioid if symptoms are well controlled on their current regime and they do not exhibit symptoms of opioid toxicity: such patients do require increased vigilance and a low threshold to switch to a renal friendly opioid if opioid toxicity is suspected.

- Symptoms as a result of uraemia may be difficult to distinguish from symptoms of opioid toxicity.

- Concern about low eGFR should not stop or delay the use of opioid analgesia for symptom control.

These guidelines are based on best practise and evidence based.

References:

1 A systematic review of the use of opioid medication for those with moderate to severe cancer pain and renal impairment: A European Palliative Care Research Collaborative opioid guidelines project. S King, K Forbes, GW Hanks, CJ Ferro & EJ Chambers. *Palliative Medicine 2011; 25(5): 525-552*

2 Symptom management for the adult patient dying with advanced chronic kidney disease: A review of the literature and development of evidence-based guidelines by a United Kingdom Expert Consensus Group. C Douglas, FEM Murtagh, EJ chambers, M Howse & J Ellershaw. *Palliative Medicine 2009; 23: 103-110*

3 Chambers EJ, Brown E, Germain M. *Supportive Care for the Renal Patient*, 2nd edition. Oxford: Oxford University Press, 2010.

4 Ashley C, Currie A; *The Renal Drug Handbook.* Radcliffe Publishing Ltd; 3rd revised edition 2008

For advice on prescribing and symptom management contact the Specialist Palliative Care Team

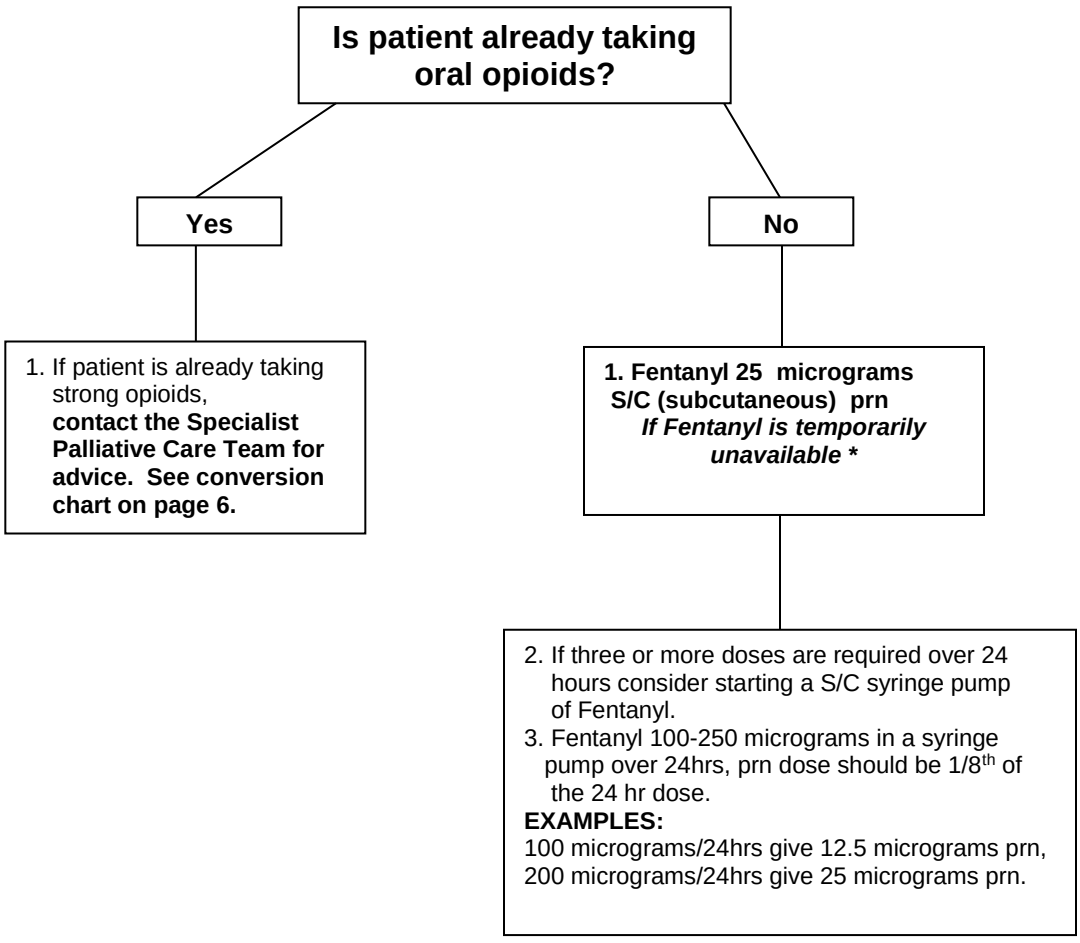
Hospital Specialist Palliative Care Team:

- **Secretary 01803 655056**
- **Answer phone 01803 655042**
- **Bleep individual team members via switchboard**

Rowcroft Specialist Palliative Care Team:

- **Medical Secretary 01803 210810 (Monday to Friday, 9-5)**
- **24 hour line 01803 210800 (Calls go through to the hospice. The senior nurse will be able to ask the doctor to call you back)**

Pain



SUPPORTIVE INFORMATION:

1. **For advice on prescribing and symptom management contact the Specialist Palliative Care Team**

2. Many of the opioid analgesics and their metabolites may accumulate in renal impairment causing toxicity with myoclonic jerks, profound narcosis and respiratory depression. Morphine and Diamorphine and their metabolites are most likely to cause toxicity. Fentanyl and Alfentanil are less likely to cause these problems, as their metabolites are not active. The duration of effect from Morphine, Diamorphine and Oxycodone may last longer than in a patient with normal renal function.

3. *If Fentanyl is temporarily unavailable give:

a. Oxycodone 1-2 milligrams S/C (subcutaneous) prn

or

b. Diamorphine 1-2 milligrams S/C prn

4. Fentanyl and Alfentanil are short acting when given S/C prn. As an alternative breakthrough medication, Oxycodone may be more renal friendly than Morphine and Diamorphine and is longer acting than Fentanyl and Alfentanil. In some patients, it may be more appropriate to provide Oxycodone S/C prn (at reduced dose e.g. 50% and increased dose interval e.g. 6-8 hourly).This may be necessary for patients with cancer pain who develop renal impairment.

5. If Fentanyl dose exceeds 500 micrograms per 24 hours there may be problems with volumes of prescribed medication fitting into the syringe pump. This is relevant for those patients on higher doses of opioids e.g. cancer patients on pre-existing analgesic regimes who develop renal impairment. In these situations Alfentanil is a more appropriate opioid to use. See conversion table on page 6.

6. For patients already on Fentanyl or Buprenorphine patches it is usually recommended that the patch is not removed. Continue to change the patch at prescribed intervals. Additional opioid is given, as appropriate, via the syringe pump. Do not forget to calculate the prn opioid dose based on the total 24 hours opioid dose (i.e. patch and syringe pump doses added together).

7. Anticipatory prescribing in this manner will ensure that in the last hours/days of life there is no delay responding to a symptom if it occurs.

PRESCRIBING IN PALLIATIVE CARE: A GUIDE TO EQUIVALENT DOSES FOR OPIOID DRUGS

This is to be used as **a guide** rather than a set of definitive equivalences. It is crucial to appreciate that conversion ratios are never more than an approximate guide (comprehensive data are lacking, inter-individual variation). The advice is always to calculate doses using morphine as standard and to adjust them to suit the patient and the situation. Some of these doses have by necessity been rounded up or down to fit in with the preparations available, including adjustment of doses for liquid and injectable medications in order to optimise ability to dispense accurately.

PLEASE SEEK SPECIALIST ADVICE IF YOU ARE UNCERTAIN ABOUT WHAT TO PRESCRIBE AND/OR PATIENT NEEDING ESCALATNG OPIOID DOSES

Oral Morphine			Subcutaneous Morphine		Subcutaneous Diamorphine		Oral Oxycodone			Subcutaneous Oxycodone		Approximate TD Fentanyl patch micrograms/hr	Subcutaneous Alfentanil		Subcutaneous Fentanyl	
4 hr dose (mg)	12hr SR dose (mg)	24hr Total dose (mg)	4 hr dose (mg)	24 hr total dose (mg)	4 hr dose (mg)	24 hr total dose (mg)	4hr dose (mg)	12hr SR dose (mg)	24hr total dose (mg)	4 hr dose (mg)	24 hr total dose (mg)	Please see additional chart below for dose conversion ranges	4 hr dose (mg)	24hr total dose (mg)	4 hr dose (mcg)	24hr total dose (mcg)
5	15	30	2.5	15	1	10	2.5	7.5	15	1	7.5	12mcg	0.1	1	25	200-250
10	30	60	5	30	2.5-5	20	5	15	30	2.5	15	25mcg	0.2	2	50	400-500
15	45	90	7.5	45	5	30	7.5	25	50	4	25	25-37mcg	0.5	3	100	600-750
20	60	120	10	60	7.5	40	10	30	60	5	30	37-50mcg	0.7	4	Syringe pump volume issues likely above 500mcg/24hours because fentanyl injection available as 50micrograms/ml	
30	90	180	15	90	10	60	15	45	90	7.5	45	50-75mcg	1	6		
40	120	240	20	120	12.5	80	20	60	120	10	60	75-100mcg	1	8		
50	150	300	25	150	15	100	25	75	150	12.5	75	100-150mcg	1.5	10		
60	180	360	30	180	20	120	30	90	180	15	90	100-150mcg	2	12		
70	210	420	35	210	25	140	35	105	210	17.5	100	125-175mcg	2.5	14		
80	240	480	40	240	27.5	160	40	120	240	20	120	125-200mcg	2.5	16		

- Two thirds of palliative care patients need <180mg/24hrs of oral morphine
- The dose conversion ratio of morphine to oxycodone is approximately 1.5-2:1.For the purposes of this guidance we have adopted a 2:1 ratio
- The dose conversion ratio of SC diamorphine: SC alfentanil is from 6-10:1. It is prudent to use the more conservative ratio when switching from one to the other e.g. if switching from diamorphine to alfentanil, use dose conversion ratio 10:1 so that 10mg diamorphine = 1mg alfentanil. If switching from alfentanil to diamorphine use dose conversion ratio 6:1 so that 1mg alfentanil = 6mg diamorphine.
- The dose conversion ratio of SC Alfentanil: SC fentanyl is approximately 4-5:1

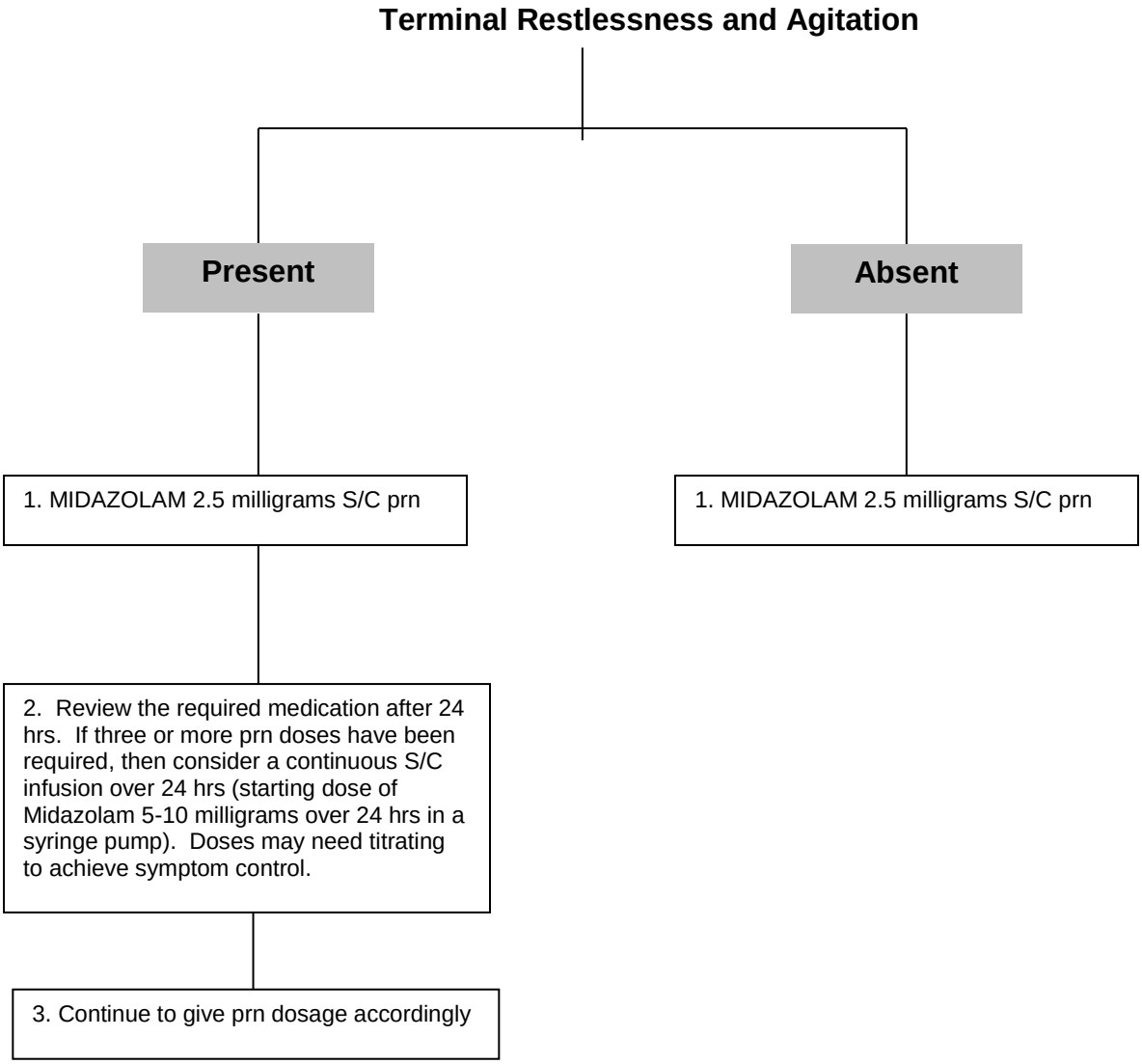
TRANSDERMAL (TD) OPIOID PATCHES

Fentanyl TD patch micrograms/hr	Approximate oral Morphine mg/24hours
12	30-45
25	60-90
37	90-135
50	120-180
62	150-225
75	180-270
100	240-360
125	300-450
150	360-540
175	420-630
200	480-720

Buprenorphine TD micrograms/hr	Approximate oral Morphine mg/24hrs
5	10-20
10	20-30
15	30-40
20	40-50
35.5	80-90
52.5	120-130
70	160-180
Maximum authorised dose is two 70micrograms/hr patches	

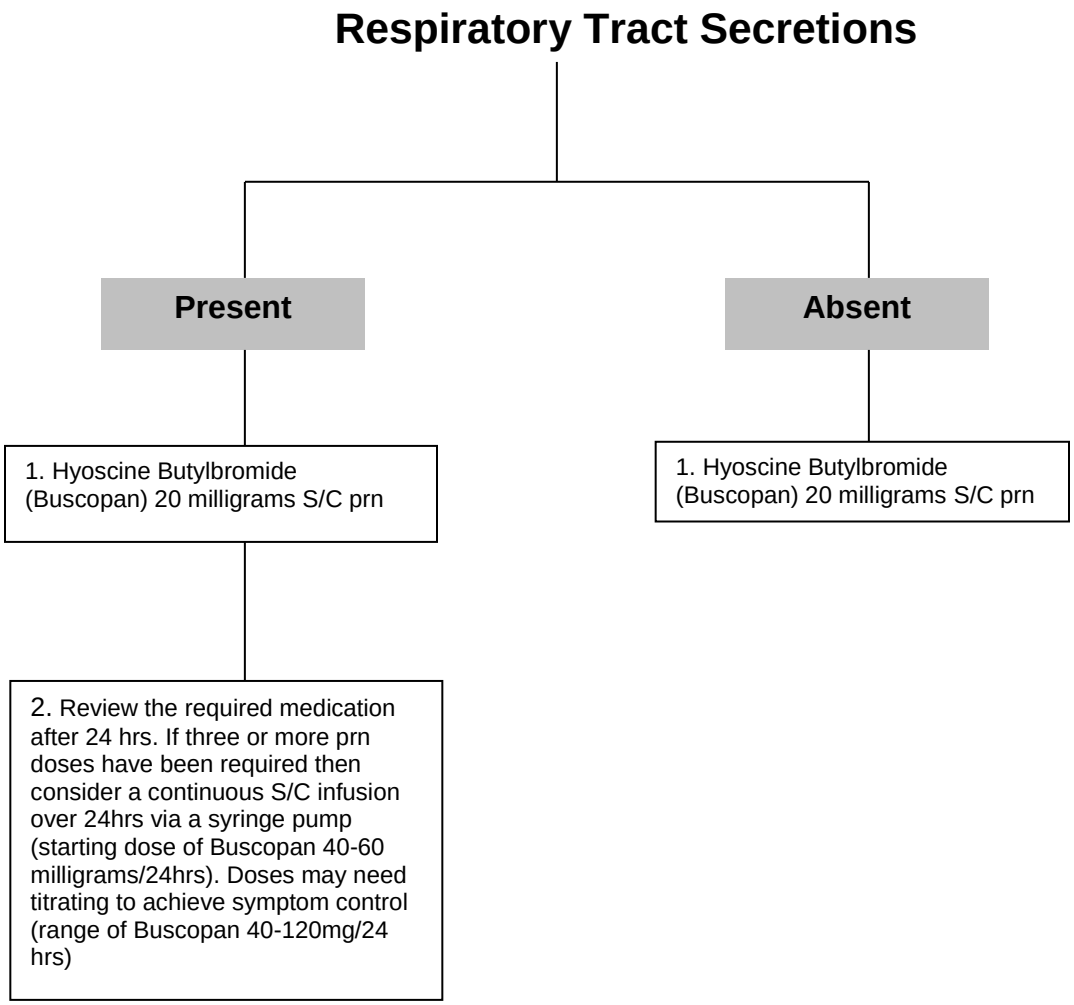
- A PO (oral) morphine:transdermal fentanyl dose conversion ratio of 100-150:1 is used (Palliative Care Formulary 6th edition & British National Formulary 100:1, Public Health Education Opioids Aware Resource 150:1) resulting in a dose range of oral morphine per patch strength e.g. Fentanyl TD 25mcg/hr patch approximately= 60-90mg oral morphine/24hrs
- It is suggested that for conversions from oral morphine to fentanyl patches, the lower doses of fentanyl should be used for patients who have been on oral opioids for just weeks and the higher doses for people who have been on a stable and well tolerated oral opioid regimen for a longer period.
- Transdermal fentanyl patches are changed every 3 days (72 hours)
- A PO morphine: transdermal buprenorphine dose conversion of 100:1 is used (Palliative Care Formulary 6th edition)
- A variety of transdermal buprenorphine patches are available, changed either every 3, 4 days or 7 days. Check carefully before prescribing & instructing the patient.

Resources: Palliative Care Formulary 6th Edition (PCF6)
British National Formulary
UK Medicines Information: How should conversion from oral morphine to fentanyl patches be carried out?
https://www.sps.nhs.uk/wp-content/uploads/2017/12/UKMI_QA_Conversion-from-oral-morphine-to-fentanyl-patches_November-2017_Final.docx.
Updated November 2018 / Review November 2021
Dr Sarah Human, Dr Jo Sykes and Dr George Walker, Consultants in Palliative Medicine, Rowcroft Hospice, South Devon in collaboration with Hospiscare, Exeter, St Luke's Hospice, Plymouth and North Devon Hospice, Barnstaple.



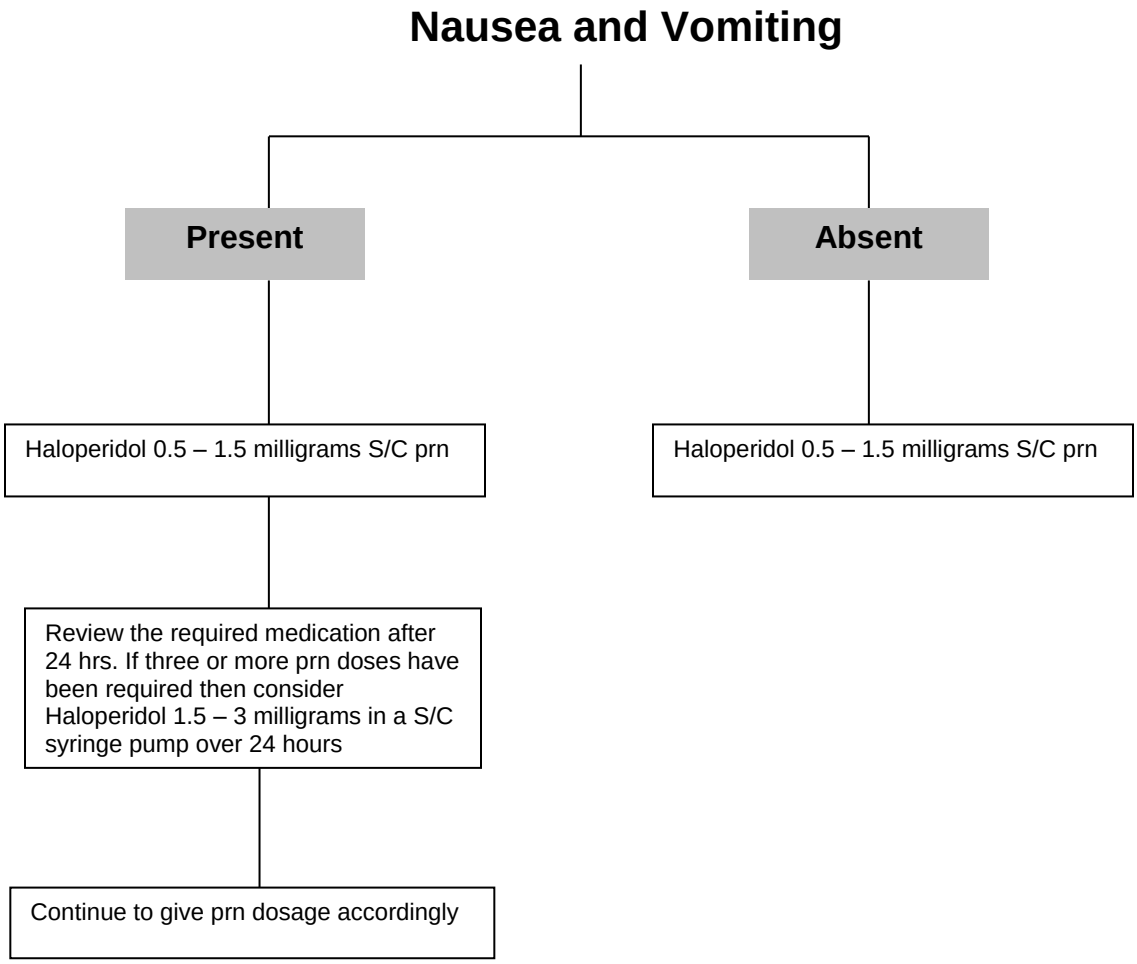
SUPPORTIVE INFORMATION:

- **If symptoms persist contact the Specialist Palliative Care Team.**
- Anticipatory prescribing in this manner will ensure that in the last hours / days of life there is no delay responding to a symptom if it occurs.



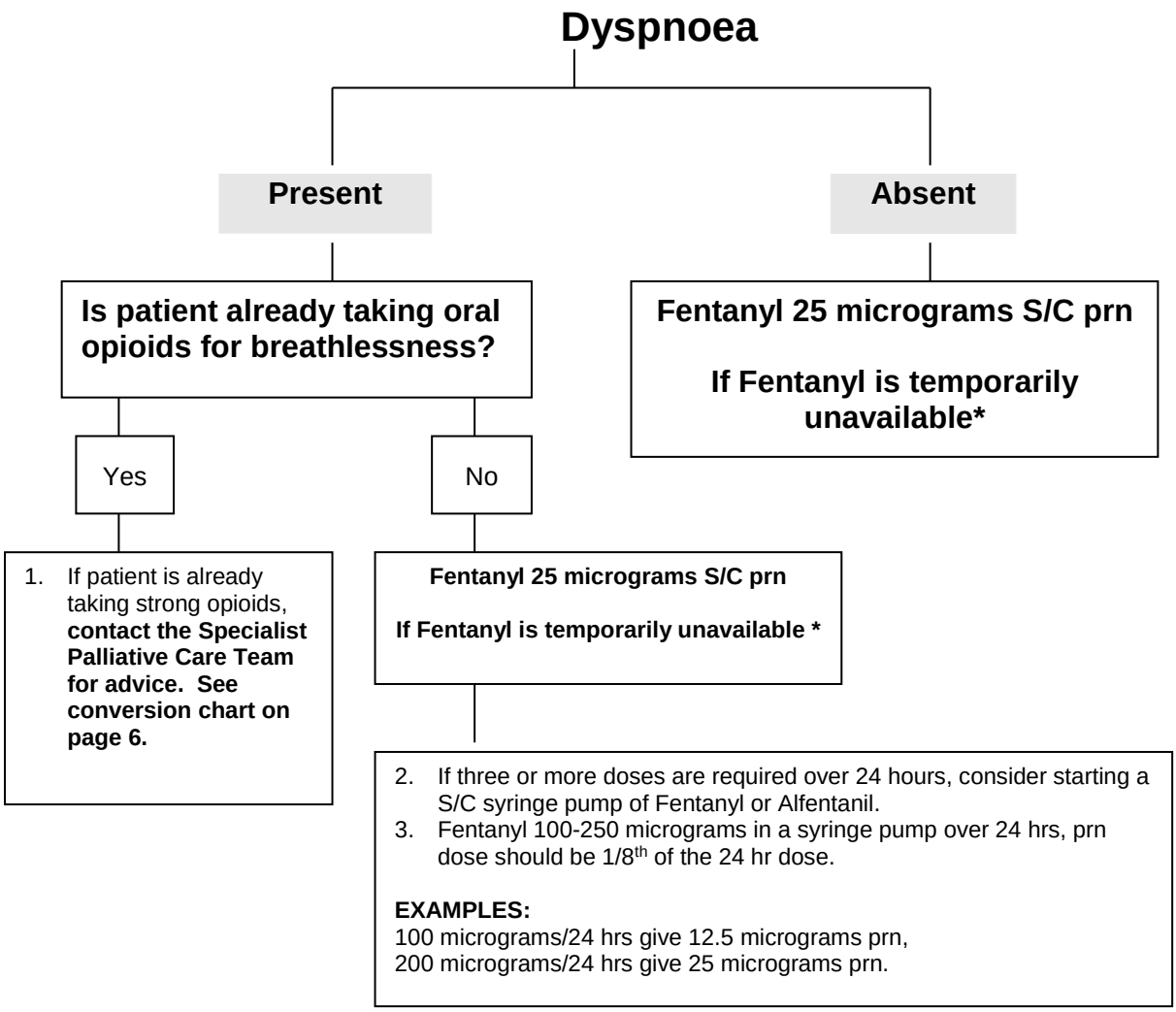
SUPPORTIVE INFORMATION:

- **If symptoms persist contact the Specialist Palliative Care Team.**
- Glycopyrronium 200 micrograms S/C prn may be used as an alternative. (If a S/C syringe pump is required then consider glycopyrronium S/C 600 – 1200 micrograms over 24 hours.)
- Hyoscine Hydrobromide is not usually recommended because of increased risk of central side effects such as paradoxical agitation.
- Anticipatory prescribing in this manner will ensure that in the last hours / days of life there is no delay responding to a symptom if it occurs.



SUPPORTIVE INFORMATION:

- **If symptoms persist contact the Specialist Palliative Care Team.**
- **Levomepromazine 6.25 milligrams S/C prn – *suitable alternative second line*** (if a continuous S/C infusion is required then consider 6.25 milligrams S/C in a syringe pump over 24 hours).
- Metoclopramide accumulates in renal impairment leading to an increased risk of extrapyramidal side effects; if used, limit to a maximum dose of 30mg/24hours via syringe pump.
- Cyclizine may induce hypotension and tachyarrhythmias in patients with cardiac disease (often a co-morbidity in patients with advanced CKD).
- Anticipatory prescribing in this manner will ensure that in the last hours / days of life there is no delay responding to a symptom if it occurs.



SUPPORTIVE INFORMATION

- **If symptoms persist contact the Specialist Palliative Care Team.**
- * If Fentanyl is temporarily unavailable give:

  Oxycodone 1-2 milligrams S/C prn
  or
  Diamorphine 1-2 milligrams S/C prn

- If the patient is breathless and anxious, consider Midazolam 2.5 milligrams S/C prn.
- Review the required Midazolam medication after 24 hours. If three or more prn doses have been required, then consider adding Midazolam to continuous S/C infusion over 24 hours (starting dose of Midazolam 5-10mg over 24 hours in a syringe pump). Doses may need titrating to achieve symptom control.

Document Control Information

This is a controlled document and should not be altered in any way without the express permission of the author or their representative.

Please note this document is only valid from the date approved below, and checks should be made that it is the most up to date version available.

If printed, this document is only valid for the day of printing.

This guidance has been registered with the Trust. The interpretation and application of guidance will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using clinical guidance after the review date, or outside of the Trust.

Ref No:	1612		
Document title:	Prescribing at the end of life for patients with renal impairment (estimated glomerular filtration rate <30)		
Purpose of document:			
Date of issue:	XX January 2019	**Next review date:**	XX January 2022
Version:	3	**Last review date:**	21 September 2017
Author:	Consultant in Palliative Care		
Directorate:	Palliative Care		
Equality Impact:	The guidance contained in this document is intended to be inclusive for all patients within the clinical group specified, regardless of age, disability, gender, gender identity, sexual orientation, race and ethnicity & religion or belief		
Committee(s) approving the document:	Care and Clinical Policies Group		
Date approved:			
Links or overlaps with other policies:			

Have you identified any issues on the Rapid (E)quality Impact Assessment. If so please detail on Rapid (E)QIA form.	Yes ☐	
	Please select *Yes*	*No*
Does this document have implications regarding the Care Act? *If yes please state:*	☐	☐
Does this document have training implications? *If yes please state:*	☐	☐
Does this document have financial implications? *If yes please state:*	☐	☐
Is this document a direct replacement for another? *If yes please state which documents are being replaced:*	☐	☐

Document Amendment History

Date	Version no.	Amendment summary	Ratified by:
16 January 2014	1	New	Consultant in Palliative Care Consultant in Palliative Care Consultant in Palliative Care Clinical Director of Pharmacy
08 January 2016	2	Revised	Consultant in Palliative Medicine Consultant in Palliative Medicine Clinical Director in Palliative Care Clinical Director of Pharmacy
21 September 2017	2	Date Change	Consultant in Palliative Care
XX January 2019	3	Revised	Care and Clinical Policies Group

The Mental Capacity Act 2005

The Mental Capacity Act provides a statutory framework for people who lack capacity to make decisions for themselves, or who have capacity and want to make preparations for a time when they lack capacity in the future. It sets out who can take decisions, in which situations, and how they should go about this. It covers a wide range of decision making from health and welfare decisions to finance and property decisions

Enshrined in the Mental Capacity Act is the principle that people must be assumed to have capacity unless it is established that they do not. This is an important aspect of law that all health and social care practitioners must implement when proposing to undertake any act in connection with care and treatment that requires consent. In circumstances where there is an element of doubt about a person's ability to make a decision due to 'an impairment of or disturbance in the functioning of the mind or brain' the practitioner must implement the Mental Capacity Act.

The legal framework provided by the Mental Capacity Act 2005 is supported by a Code of Practice, which provides guidance and information about how the Act works in practice. The Code of Practice has statutory force which means that health and social care practitioners have a legal duty to have regard to it when working with or caring for adults who may lack capacity to make decisions for themselves.

"The Act is intended to assist and support people who may lack capacity and to discourage anyone who is involved in caring for someone who lacks capacity from being overly restrictive or controlling. It aims to balance an individual's right to make decisions for themselves with their right to be protected from harm if they lack the capacity to make decisions to protect themselves". (3)

All Trust workers can access the Code of Practice, Mental Capacity Act 2005 Policy, Mental Capacity Act 2005 Practice Guidance, information booklets and all assessment, checklists and Independent Mental Capacity Advocate referral forms on iCare

http://icare/Operations/mental_capacity_act/Pages/default.aspx

Infection Control

All staff will have access to Infection Control Policies and comply with the standards within them in the work place. All staff will attend Infection Control Training annually as part of their mandatory training programme.

Rapid (E)quality Impact Assessment (EqIA) *(for use when writing policies)*

Policy Title (and number)		**Version and Date**	
Policy Author			

An (e)quality impact assessment is a process designed to ensure that policies do not discriminate or disadvantage people whilst advancing equality. Consider the nature and extent of the impact, not the number of people affected.

Who may be affected by this document?

Patients/ Service Users ☐	Staff ☐	Other, please state… ☐

Could the policy treat people from protected groups less favourably than the general population?
PLEASE NOTE: Any 'Yes' answers may trigger a full EIA and must be referred to the equality leads below

Age	Yes ☐ No☐	Gender Reassignment	Yes ☐ No☐	Sexual Orientation	Yes ☐ No☐
Race	Yes ☐ No☐	Disability	Yes ☐ No☐	Religion/Belief (non)	Yes ☐ No☐
Gender	Yes ☐ No☐	Pregnancy/Maternity	Yes ☐ No☐	Marriage/ Civil Partnership	Yes ☐ No☐

Is it likely that the policy could affect particular 'Inclusion Health' groups less favourably than the general population? (substance misuse; teenage mums; carers[1]; travellers[2]; homeless[3]; convictions; social isolation[4]; refugees)	Yes ☐ No☐

Please provide details for each protected group where you have indicated 'Yes'.

VISION AND VALUES: Policies must aim to remove unintentional barriers and promote inclusion

Is inclusive language[5] used throughout?	Yes ☐ No☐ NA ☐
Are the services outlined in the policy fully accessible[6]?	Yes ☐ No☐ NA ☐
Does the policy encourage individualised and person-centred care?	Yes ☐ No☐ NA ☐
Could there be an adverse impact on an individual's independence or autonomy[7]?	Yes ☐ No☐ NA ☐

EXTERNAL FACTORS

Is the policy a result of national legislation which cannot be modified in any way?	Yes ☐ No☐

What is the reason for writing this policy? (Is it a result in a change of legislation/ national research?)

Who was consulted when drafting this policy?

Patients/ Service Users ☐	Trade Unions ☐	Protected Groups (including Trust Equality Groups) ☐
Staff ☐	General Public ☐	Other, please state… ☐

What were the recommendations/suggestions?

Does this document require a service redesign or substantial amendments to an existing process? ***PLEASE NOTE: 'Yes' may trigger a full EIA, please refer to the equality leads below***	Yes ☐ No☐

ACTION PLAN: Please list all actions identified to address any impacts

Action	Person responsible	Completion date

AUTHORISATION:
By signing below, I confirm that the named person responsible above is aware of the actions assigned to them

Name of person completing the form		**Signature**	
Validated by (line manager)		**Signature**	

Please contact the Equalities team for guidance:
For South Devon & Torbay CCG, please call 01803 652476 or email marisa.cockfield@nhs.net
For Torbay and South Devon NHS Trusts, please call 01803 656676 or email pfd.sdhct@nhs.net
This form should be published with the policy and a signed copy sent to your relevant organisation.

Clinical and Non-Clinical Policies – Data Protection

Torbay and South Devon NHS Foundation Trust (TSDFT) has a commitment to ensure that all policies and procedures developed act in accordance with all relevant data protection regulations and guidance. This policy has been designed with the EU General Data Protection Regulation (GDPR) and Data Protection Act 2018 (DPA 18) in mind, and therefore provides the reader with assurance of effective information governance practice.

The UK data protection regime intends to strengthen and unify data protection for all persons; consequently, the rights of individuals have changed. It is assured that these rights have been considered throughout the development of this policy. Furthermore, data protection legislation requires that the Trust is open and transparent with its personal identifiable processing activities and this has a considerable effect on the way TSDFT holds, uses, and shares personal identifiable data.

Does this policy impact on how personal data is used, stored, shared or processed in your department? Yes ☐ No ☐

If yes has been ticked above it is assured that you must complete a data mapping exercise and possibly a Data Protection Impact Assessment (DPIA). You can find more information on our GDPR page on ICON (intranet)

For more information:

- Contact the Data Access and Disclosure Office on dataprotection.tsdft@nhs.net,
- See TSDFT's Data Protection & Access Policy,
- Visit our Data Protection site on the public internet.

Torbay and South Devon NHS
NHS Foundation Trust

Ratification sheet for

Protocol and Guideline Ratification

Ref No: **1612** *(n.b. for new documents, this number will be allocated after ratification, prior to publication on the intranet)*

Title: **Prescribing at the end of life for patients with renal impairment (estimated glomerular filtration rate <30)**

Responsible for review	Designation	Approval of policy	Date
Dr S Human	**Consultant in Palliative Medicine**	**Email**	**09/01/2019**

*Ratified By Name	Designation	Signature	Date Approved
Care and Clinical Policies Group			

***Please note:**

- **Your new/revised document will not be published on the intranet until a fully signed off Ratification Sheet is received by the Clinical Effectiveness Department.**
- Please ensure that your document is approved by your peer group, and ratified by your Clinical Lead.
- If your document contains references to any form of drug, ratification from the Clinical Director of Pharmacy is required **in addition** to your Clinical Lead ratification.

Links or overlaps with other policies:
