

COVID-19: Care of the dying patient when **ABLE** to obtain a syringe driver

At the end of life when the oral route is lost **effective management of symptoms is best achieved using a syringe driver** to deliver a continuous low dose of medication that can be easily titrated. This guidance provides options for care of a patient dying with COVID-19 **when a syringe driver is available for use**. Please see the Kirkwood Toolkit for management of end of life symptoms when a syringe driver is unavailable.

Anecdotal evidence from Europe and from our respiratory colleagues locally suggests that the main symptoms experienced by COVID patients at end of life are breathlessness and panic/agitation/restlessness. The ideal medication for the dying COVID-19 patient should be one which is parenteral and treats all of these symptoms.

The information below is for clinicians to use for the care of patients with COVID-19 symptoms **where the aim is for a comfortable death**. Common syringe driver combinations are given at the end of this document.

Breathlessness and cough at end of life

First line: SC OPIOID

- If opioid naïve with normal renal function: morphine sulphate 2.5-5mg SC PRN
- If opioid naïve with eGFR <40: oxycodone 1.25-2.5mg SC PRN
- If effective, add to syringe driver based on predicted need over a 24 hour period (e.g. if morphine sulphate 2.5mg PRN controls symptoms for a period of 4 hours before repeat dose needed, starting syringe driver dose would be in the region of morphine sulphate 15mg/24hrs, dependant on clinical judgement)
- If taking regular oral opioid: convert to appropriate syringe driver and PRN doses (see Opioid conversion chart in the Kirkwood toolkit)
- Can be used in combination with midazolam in a syringe driver

Second line: MIDAZOLAM 2.5-10mg SC PRN

- Frequently used to treat breathlessness and distress at end of life, often in conjunction with opioids
- Some initial reports suggest is less effective when managing respiratory distress due to COVID-19, therefore alternatives may need to be administered either alone or in combination with midazolam
- If effective PRN, start syringe driver based on predicted need over a 24 hour period (e.g. if midazolam 5mg PRN controls symptoms for a period of 4 hours before repeat dose needed, starting syringe driver dose would be in the region of midazolam 30mg/24hrs, dependant on clinical judgement)
- Can be used in combination with morphine sulphate, diamorphine or oxycodone in a syringe driver

IF ONGOING SYMPTOMS DESPITE RAPID TITRATION OF ABOVE (AND SYRINGE DRIVER ESTABLISHED):

- Consider use of **phenobarbitone (phenobarbital) 120-200mg IM/IV** (please see MD172 COVID-19:Care of the dying patient when unable to obtain a syringe driver in the Kirkwood Toolkit for more information)
- **Please contact Kirkwood Hospice for further information if required**

Non-pharmacological techniques for managing breathlessness may be less practical at the end of life (e.g. breathing exercises), but please consider environmental factors such as room temperature and positioning.

Avoid aerosol generating procedures – please see PHE guidance

<https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-infection-prevention-and-control-guidance-aerosol-generating-procedures>

Restlessness and agitation at end of life

First line: MIDAZOLAM 5-10mg SC PRN (2.5mg if very frail or renal failure)

- Some initial reports suggest is less effective when managing respiratory distress due to COVID-19, therefore alternatives may need to be administered either alone or in combination with midazolam
- If effective PRN, start syringe driver based on predicted need over a 24 hour (e.g. if midazolam 5mg PRN controls symptoms for a period of 4 hours before repeat dose needed, starting syringe driver dose would be in the region of midazolam 30mg/24hrs, dependant on clinical judgement)
- Compatible syringe driver combinations are found at the end of this document

Second line: ADD AN ANTIPSYCHOTIC – Levomepromazine or haloperidol

LEVOMEPRMAZINE 25-50mg SC PRN (Consider lower starting doses in renal failure)

- If PRN dose is effective, consider adding to syringe driver based on predicted need in a 24 hour period. Note, has longer half-life than midazolam and a PRN dose may last 12-24 hours (OD/BD dosing is an option)
- Maximum dose 300mg/24hrs
- May be irritant - consider increasing syringe driver dilution if this occurs
- Compatible syringe driver combinations are found at the end of this document

HALOPERIDOL 3-5mg SC PRN

- If effective, consider addition to syringe driver (typical dose 3-5mg/24hrs). Note, has longer half-life than midazolam and a PRN dose may last 24 hours
- Maximum dose 10mg/24hrs
- Use lower doses in renal failure as likely to accumulate
- Compatible syringe driver combinations are found at the end of this document

IF ONGOING SYMPTOMS DESPITE RAPID TITRATION OF ABOVE (AND SYRINGE DRIVER ESTABLISHED):

- Consider use of **phenobarbitone (phenobarbital) 120-200mg IM/IV** (please see “COVID-19:Care of the dying patient when unable to obtain a syringe driver” in the Kirkwood Toolkit for more information)
- Please contact Kirkwood Hospice for further information if required.

Secretions at end of life

Please see Kirkwood Toolkit guidance MD165 End of life management of secretions for further guidance.

Pain management

At the end of life when the oral route is lost, SC opioids are often a first line option for treating pain. Initial titration and PRN dosing information is as described for breathlessness on page 1.

Should a person be already established on opioids, there are a number of documents available on the Kirkwood Toolkit page to assist with conversions and switching opioids. These documents are as follows:

- MD159 Alternatives to common palliative care drugs – strong opioids (oral/transdermal)
- MD160 Alternatives to common palliative care drugs – strong opioids via syringe driver
- MD161 Opioid conversion chart

Please speak to Kirkwood Hospice should further advice be required.

Syringe driver combinations

This is by no means an exhaustive list, but details some common syringe driver combinations based on symptoms and drug compatibility data.

The following combinations can generally be safely mixed in a single syringe driver under the right conditions, but prescribers should check the SDSD link provided at the end of this document or contact Kirkwood Hospice in the case of any doubt.

The diluent is listed as either water for injection (WFI) or 0.9% saline in brackets following each combination. Dosing depends on PRN requirements and clinical response. Please seek further advice if in doubt.

Given their long half-lives and duration of action, levomepromazine and haloperidol can be administered as single OD/BD SC doses if necessary, without the need for a syringe driver.

Please note the maximum volume that can be added to a standard syringe driver using a 20ml syringe is 17ml. The maximum volume that can be added to a syringe driver using a 30ml syringe is 22ml

Unless otherwise specified "SC opioid" refers to either of oxycodone, morphine sulphate or diamorphine.

Syringe driver combinations involving 2 drugs:

SC opioids, midazolam, haloperidol, hyoscine butylbromide and levomepromazine are all compatible in 2 drug combinations with WFI. Morphine sulphate and glycopyrronium are never compatible. For all 2 drug combinations featuring either hyoscine hydrobromide or glycopyrronium – please check the SDSD reference at the end of this document or contact Kirkwood Hospice for advice.

Syringe driver combinations involving 3 drugs:

- SC opioid + midazolam + hyoscine butylbromide (WFI or 0.9% saline)
- SC opioid + midazolam + haloperidol (WFI or 0.9% saline)
- SC opioid + midazolam + levomepromazine (WFI or 0.9% saline)
- SC opioid + hyoscine butylbromide + haloperidol (WFI or 0.9% saline)
- SC opioid + hyoscine butylbromide + levomepromazine (WFI or 0.9% saline)
- SC opioid + hyoscine hydrobromide + midazolam (WFI)
- Diamorphine + hyoscine hydrobromide + haloperidol (WFI)
- Diamorphine + hyoscine hydrobromide + levomepromazine (WFI)
- Diamorphine + midazolam + glycopyrronium (WFI) *
- Oxycodone + midazolam + glycopyrronium (WFI)*
- Diamorphine + haloperidol + glycopyrronium (WFI)*
- Diamorphine + levomepromazine + glycopyrronium (WFI) *

Syringe driver combinations involving 4 drugs:

- SC opioid + midazolam + hyoscine butylbromide + haloperidol (WFI or 0.9% saline)
- SC opioid + midazolam + hyoscine butylbromide + levomepromazine (WFI or 0.9% saline)
- SC opioid + midazolam + hyoscine hydrobromide + haloperidol (WFI)
- SC opioid + midazolam + hyoscine hydrobromide + levomepromazine (WFI)
- Diamorphine or oxycodone (NOT Morphine sulphate) + midazolam + glycopyrronium + haloperidol (WFI)*
- Diamorphine or oxycodone (NOT Morphine sulphate) + midazolam + glycopyrronium + levomepromazine (WFI) *

*There is limited data for combinations including glycopyrronium – please observe for any incompatibility issues/precipitation/reactions.

This information is taken from the SDSD calculations on www.palliativedrugs.com and PCF 6 (<https://www.palliativedrugs.com/syringe-driver-database-introduction.html>)

IN THE CASE OF ANY DOUBT, PLEASE CONTACT KIRKWOOD HOSPICE FOR ADVICE