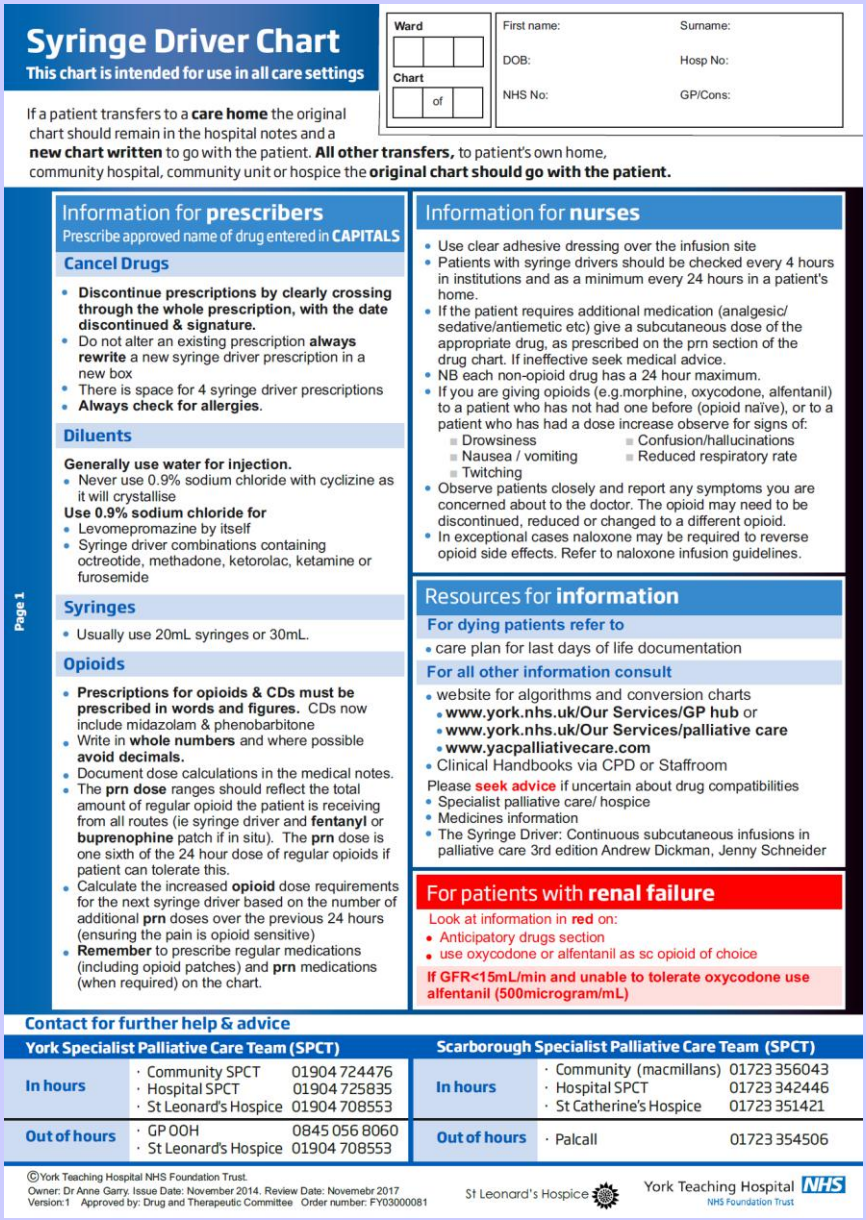
Medicines Matters

December 2014 ISSUE: 59

NEW SYRINGE DRIVER DRUG CHART

For use across care settings - York Teaching Hospital NHS Foundation Trust (YTHNHSFT) Hospital and Community



Syringe Driver Chart
This chart is intended for use in all care settings

Ward / Chart / of

First name: Surname:
DOB: Hosp No:
NHS No: GP/Cons:

If a patient transfers to a **care home** the original chart should remain in the hospital notes and a **new chart written** to go with the patient. **All other transfers,** to patient's own home, community hospital, community unit or hospice the **original chart should go with the patient.**

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Information for prescribers
Prescribe approved name of drug entered in **CAPITALS**

Cancel Drugs
- **Discontinue prescriptions by clearly crossing through the whole prescription, with the date discontinued & signature.**
- Do not alter an existing prescription **always rewrite** a new syringe driver prescription in a new box
- There is space for 4 syringe driver prescriptions
- **Always check for allergies.**

Diluents
Generally use water for injection.
- Never use 0.9% sodium chloride with cyclizine as it will crystallise

Use 0.9% sodium chloride for
- Levomepromazine by itself
- Syringe driver combinations containing octreotide, methadone, ketorolac, ketamine or furosemide

Syringes
- Usually use 20mL syringes or 30mL.

Opioids
- **Prescriptions for opioids & CDs must be prescribed in words and figures.** CDs now include midazolam & phenobarbitone
- Write in **whole numbers** and where possible **avoid decimals.**
- Document dose calculations in the medical notes.
- The **prn dose** ranges should reflect the total amount of regular opioid the patient is receiving from all routes (ie syringe driver and **fentanyl** or **buprenophine** patch if in situ). The **prn** dose is one sixth of the 24 hour dose of regular opioids if patient can tolerate this.
- Calculate the increased **opioid** dose requirements for the next syringe driver based on the number of additional **prn** doses over the previous 24 hours (ensuring the pain is opioid sensitive)
- **Remember** to prescribe regular medications (including opioid patches) and **prn** medications (when required) on the chart.

Information for nurses
- Use clear adhesive dressing over the infusion site
- Patients with syringe drivers should be checked every 4 hours in institutions and as a minimum every 24 hours in a patient's home.
- If the patient requires additional medication (analgesic/ sedative/antiemetic etc) give a subcutaneous dose of the appropriate drug, as prescribed on the prn section of the drug chart. If ineffective seek medical advice.
- NB each non-opioid drug has a 24 hour maximum.
- If you are giving opioids (e.g.morphine, oxycodone, alfentanil) to a patient who has not had one before (opioid naïve), or to a patient who has had a dose increase observe for signs of:
  - Drowsiness
  - Confusion/hallucinations
  - Nausea / vomiting
  - Reduced respiratory rate
  - Twitching
- Observe patients closely and report any symptoms you are concerned about to the doctor. The opioid may need to be discontinued, reduced or changed to a different opioid.
- In exceptional cases naloxone may be required to reverse opioid side effects. Refer to naloxone infusion guidelines.

Resources for information

For dying patients refer to
- care plan for last days of life documentation

For all other information consult
- website for algorithms and conversion charts
  - **www.york.nhs.uk/Our Services/GP hub** or
  - **www.york.nhs.uk/Our Services/palliative care**
  - **www.yacpalliativecare.com**
- Clinical Handbooks via CPD or Staffroom

Please **seek advice** if uncertain about drug compatibilities
- Specialist palliative care/ hospice
- Medicines information
- The Syringe Driver: Continuous subcutaneous infusions in palliative care 3rd edition Andrew Dickman, Jenny Schneider

For patients with renal failure
Look at information in **red** on:
- Anticipatory drugs section
- use oxycodone or alfentanil as sc opioid of choice

If GFR<15mL/min and unable to tolerate oxycodone use alfentanil (500microgram/mL)

Contact for further help & advice

York Specialist Palliative Care Team (SPCT)			Scarborough Specialist Palliative Care Team (SPCT)		
In hours	· Community SPCT · Hospital SPCT · St Leonard's Hospice	01904 724476 01904 725835 01904 708553	In hours	· Community (macmillans) · Hospital SPCT · St Catherine's Hospice	01723 356043 01723 342446 01723 351421
Out of hours	· GP OOH · St Leonard's Hospice	0845 056 8060 01904 708553	Out of hours	· Palcall	01723 354506

Owner: Dr Anne Garry. Issue Date: November 2014. Review Date: Novemebr 2017
Version:1 Approved by: Drug and Therapeutic Committee Order number: FY03000081

St Leonard's Hospice

York Teaching Hospital NHS Foundation Trust

The main changes are:

- The same syringe driver drug chart for use in Primary and Secondary care
- The chart now incorporates a pre-printed prn section with the anticipatory drugs commonly used in palliative care e.g. antiemetics, midazolam and hyoscine butyl bromide. It also gives dosing advice for both non-renal and renal patients.
- Opioid conversion chart gives advice on switching from one opioid to another.

How to use the chart

To avoid multiple charts, if possible this chart should be used for prescribing all the patient's regular medication as well as their syringe driver prescription and prn (as required) drugs.

In hospital if the patient still has a main drug chart the syringe driver chart is classed as a "supplementary" chart and should be referenced on the main drug chart. If the patient has more than one syringe driver chart in use complete the box beside the patient identification box.

	Of	

In hospital if the patient also has a main drug chart ensure there is no duplication of drugs on different charts.

When the patient leaves the hospital the chart should transfer with the patient to their home, community hospital or hospice. This is to avoid missed doses whilst waiting for the GP to re prescribe medication. **The exception is patients transferring to any nursing home or a setting which is not part of YTHNHSFT community (eg Pocklington area, Hull, Bridlington). These patients need to have a NEW chart written by the ward doctor which then transfers with the patient.**

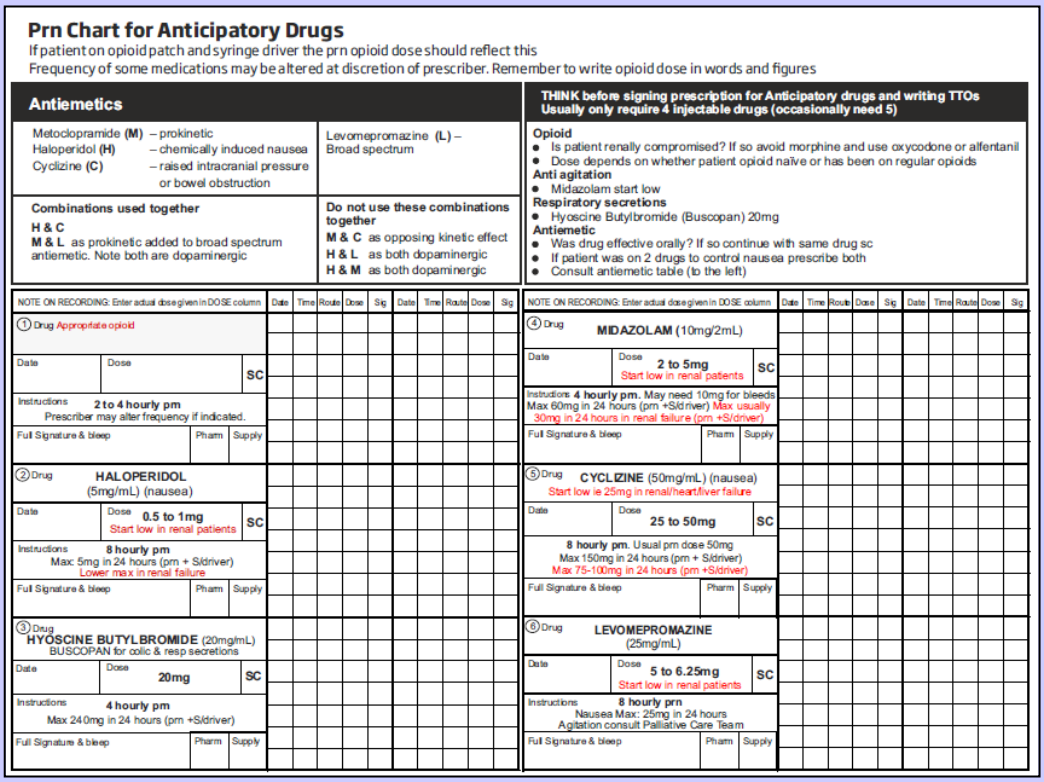
PRN section – includes anticipatory drugs

DOCTORS/NON MEDICAL PRESCRIBERS

Write prescriptions for opioids in words and figures. Prescribe in whole numbers without decimal points e.g. morphine sulphate 2mg (two).

Remember to sign for the anticipatory drugs, but use your clinical judgement to decide which antiemetic may be best for the patient. The chart gives advice.

Take extra care in renal patients. Read the advice on the prn section in red on recommended doses. Use oxycodone or alfentanil as the sc opioid of choice



Prn Chart for Anticipatory Drugs

If patient on opioid patch and syringe driver the prn opioid dose should reflect this
Frequency of some medications may be altered at discretion of prescriber. Remember to write opioid dose in words and figures

Antiemetics

Metoclopramide **(M)** – prokinetic
Haloperidol **(H)** – chemically induced nausea
Cyclizine **(C)** – raised intracranial pressure or bowel obstruction
Levomepromazine **(L)** – Broad spectrum

Combinations used together
H & C
M & L as prokinetic added to broad spectrum antiemetic. Note both are dopaminergic

Do not use these combinations together
M & C as opposing kinetic effect
H & L as both dopaminergic
H & M as both dopaminergic

THINK before signing prescription for Anticipatory drugs and writing TTOs
Usually only require 4 injectable drugs (occasionally need 5)

Opioid
- Is patient renally compromised? If so avoid morphine and use oxycodone or alfentanil
- Dose depends on whether patient opioid naïve or has been on regular opioids

Anti agitation
- Midazolam start low

Respiratory secretions
- Hyoscine Butylbromide (Buscopan) 20mg

Antiemetic
- Was drug effective orally? If so continue with same drug sc
- If patient was on 2 drugs to control nausea prescribe both
- Consult antiemetic table (to the left)

NOTE ON RECORDING: Enter actual dose given in DOSE column | Date | Time | Route | Dose | Sig | Date | Time | Route | Dose | Sig

① Drug Appropriate opioid
Date | Dose | SC
Instructions **2 to 4 hourly pm**
Prescriber may alter frequency if indicated.
Full Signature & bleep | Pharm | Supply

② Drug **HALOPERIDOL** (5mg/mL) (nausea)
Date | Dose **0.5 to 1mg** Start low in renal patients | SC
Instructions **8 hourly pm**
Max: 5mg in 24 hours (pm + S/driver)
Lower max in renal failure
Full Signature & bleep | Pharm | Supply

③ Drug **HYOSCINE BUTYLBROMIDE** (20mg/mL) BUSCOPAN for colic & resp secretions
Date | Dose **20mg** | SC
Instructions **4 hourly pm**
Max 240mg in 24 hours (pm +S/driver)
Full Signature & bleep | Pharm | Supply

④ Drug **MIDAZOLAM** (10mg/2mL)
Date | Dose **2 to 5mg** Start low in renal patients | SC
Instructions **4 hourly pm.** May need 10mg for bleeds
Max 60mg in 24 hours (pm +S/driver) Max usually 30mg in 24 hours in renal failure (pm +S/driver)
Full Signature & bleep | Pharm | Supply

⑤ Drug **CYCLIZINE** (50mg/mL) (nausea)
Start low ie 25mg in renal/heart/liver failure
Date | Dose **25 to 50mg** | SC
8 hourly pm. Usual prn dose 50mg
Max 150mg in 24 hours (prn + S/driver)
Max 75-100mg in 24 hours (pm +S/driver)
Full Signature & bleep | Pharm | Supply

⑥ Drug **LEVOMEPROMAZINE** (25mg/mL)
Date | Dose **5 to 6.25mg** Start low in renal patients | SC
Instructions **8 hourly prn**
Nausea Max: 25mg in 24 hours
Agitation consult Palliative Care Team
Full Signature & bleep | Pharm | Supply

NURSES

When administering prn drugs always check what the patient is receiving in their syringe driver and ensure the maximum 24 hour dose is not being exceeded. Advice for renal patients is in RED.

Syringe driver section

Syringe Driver Prescription Chart

If Patient on opioid patch - leave patch on and refer to opioid conversion chart

Has patient consented to syringe driver? Yes / No
If unable to consent has family agreed? Yes / No

❶ Syringe driver drug(s)	Dose (CDs to be prescribed in words and figures)	
1.		
2.		
3.		
4. If advised by specialist palliative care team		
Diluent (For advice read front sheet)	Route **SC**	Duration **24 hours**
Date	Prescriber Signature	

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1.		
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Diluent (For advice read front sheet)	Route **SC**	Duration **24 hours**
Date	Prescriber Signature	

DOCTORS/ NON MEDICAL PRESCRIBERS

Complete the section on consent to start a syringe driver

Set up and Monitoring (for nursing staff)

T34 set up - Complete both shaded and white area checklist **T34 Monitoring** - Complete white area checklist

4 hourly checks in Hospital/ Community Hospital/ Care Home/ Hospice. Minimum daily check in Community.

Time	0200	0600	1000	1400	1800	2200	0200	0600	1000	1400	1800	2200
Date & time of S/D set up / check												
Asset No												
Prescription used e.g. No. 1 to 4												
Site changed Yes or No												
Location of site used												
Line changed Yes or No												
Battery % * at set up												
Rate in mL												
Volume to be infused (VTBI) mL												
Volume infused in mL												
Site Ok Yes or No												
Syringe and line clear Yes or No												
Battery % *												
Key pad lock on												
Signature / Initials												

4 hourly checks in Hospital/ Community Hospital/ Care Home/ Hospice. Minimum daily check in Community.

Time	0200	0600	1000	1400	1800	2200	0200	0600	1000	1400	18
Date & time of S/D set up / check											
Asset No											
Prescription used e.g. No. 1 to 4											
Site changed Yes or No											
Location of site used											
Line changed Yes or No											
Battery % * at set up											
Rate in mL											
Volume to be infused (VTBI) mL											
Volume infused in mL											
Site Ok Yes or No											
Syringe and line clear Yes or No											
Battery % *											
Key pad lock on											
Signature / Initials											

Battery	• Check battery * • Change if 40% in patients home • Change 15% in hospital/hospice	**Syringe contents**	• Check drugs in syringe or line are clear with no crystallisation	**Is the syringe driver working ?**	• Check set up • Check battery

NURSES IN HOSPITAL

Complete the shaded and white sections at set up and then the white sections at the 4 hourly monitoring

NURSES IN COMMUNITY

Complete the shaded and white sections at set up and then the white sections at visits. Minimum check should be every 24 hours and the exact time should be written below the pre-printed time box that is the nearest match

Dose conversion chart

(for advice on switching between opioids and routes and calculating syringe driver and prn doses)

If more information is required please seek help from specialist palliative care

Opioid dose conversion chart, syringe driver doses, rescue/prn doses and opioid patches

Use the conversion chart to work out the equivalent doses of different opioid drugs by different routes.
The formula to work out the dose is under each drug name. Examples are given as a guide

Oral opioid mg /24 hour (Divide 24 hour dose by six for 4 hourly prn oral dose)		Subcutaneous infusion of opioid Syringe driver (SD) dose in mg per 24 hours (or micrograms for alfentanil where stated)				Subcutaneous prn opioid Dose in mg every 4 hours injected as required prn NB Alfentanil in lower doses in micrograms				Opioid by patch Dose microgram/hour	
Morphine 24 hour	**Oxycodone 24 hour**	**Diamorphine sc 24 hour**	**Morphine sc 24 hour**	**Oxycodone sc 24 hour**	**Alfentanil sc 24 hour** (500microgram/mL)	**Diamorphine 4 hour**	**Morphine 4 hour**	**Oxycodone 4 hour**	**Alfentanil 2 to 4 hour** (500microgram/mL)	**Fentanyl** normally change every 72 hours	**Buprenorphine** B=Butrans change 7 days T =Transtec change 96 hrs (4 days)
	Calculated by dividing 24hr oral morphine dose by 2	Calculated by dividing oral morphine dose by 3	Calculated by dividing oral morphine dose by 2	Calculated by dividing oral oxycodone dose by 2	Calculated by dividing 24 hour oral morphine dose by 30	Prn dose is one sixth (1/6th) of 24 hour subcutaneous (sc) syringe driver dose plus opioid patches if in situ. *NB **Alfentanil injection is short acting**. Maximum 6 prn doses in 24 hours. If require more seek help*				Conversions use UK SPC	
20	10	5	10	5	500mcg	1	2	1	100mcg	(6)	B 10
45	20	15	20	10	1500mcg	2	3	2	250mcg	12	B 20
90	45	30	45	20	3mg	5	7	3	500mcg	25	T 35
140	70	45	70	35	4500mcg	8	10	5	750mcg	37	T 52.5
180	90	60	90	45	6mg	10	15	8	1mg	50	T 70
230	115	75	115	60	7500mcg	12	20	10	1.25mg	62	T 70 + 35
270	140	90	140	70	9mg	15	25	10	1.5mg	75	T70 + 52.5
360	180	120	180	90	12mg	20	30	15	2mg	100	T 140
450	225	150	225	110	15mg	25	35	20	2.5mg	125	-
540	270	180	270	135	18mg	30	45	20	3mg	150	-
630	315	210	315	160	21mg	35	50	25	3.5mg	175	-
720	360	240	360	180	24mg	40	60	30	4mg	200	-

Equivalent doses if converting from oral to sc opioid

Calculation of breakthrough/ rescue / prn doses

Oral prn doses:

- Morphine or Oxycodone: 1/6th of 24 hour oral dose

Subcutaneous:

- Morphine & Oxycodone: 1/6th of 24 hour sc syringe driver (SD) dose
- Alfentanil: 1/6th of 24 hour sc SD dose
  - Short action of up to 2 hours
  - Seek help If reach Maximum of 6 prn doses in 24 hours

(For ease of administration, opioid doses over 10mg, prescribe to nearest 5mg)

Renal failure/impairment GFR<30mL/min: Morphine/Diamorphine metabolites accumulate and should be avoided.

- **Fentanyl patch** if pain is stable.
- **Oxycodone** orally or by infusion if mild renal impairment
- If patient is dying & on a fentanyl or buprenorphine patch top up with appropriate sc **oxycodone** or **alfentanil** dose & if necessary, add into syringe driver as per renal guidance
- **If GFR<15mL/min and unable to tolerate oxycodone** use **alfentanil** sc

If unsure please seek help from palliative care

Fentanyl and buprenorphine patches in the dying/moribund patient

- **Continue fentanyl and buprenorphine patches in these patients.**
  - Remember to change the patch(es) as occasionally this is forgotten!
  - Fentanyl patches are more potent than you may think

If pain occurs whilst patch in situ

- Prescribe 4 hourly prn doses of subcutaneous(sc) morphine unless contraindicated.
- Use an alternative sc opioid e.g. **alfentanil** or **oxycodone** in patients with
  - **poor renal function,**
  - morphine intolerance
  - where morphine is contraindicated
- **Consult pink table when prescribing 4 hourly prn subcutaneous opioids**

Adding a syringe driver (SD) to a fentanyl or buprenorphine patch

If 2 or more rescue/ prn doses are needed in 24 hours, start a syringe driver with appropriate opioid and continue patch(es). The opioid dose in the SD should equal the total prn doses given in the previous 24 hours up to a maximum of 50% of the existing regular opioid dose. Providing the pain is opioid sensitive continue to give prn sc opioid dose & review SD dose daily.

*E.g. Patient on 50 micrograms/hour fentanyl patch, unable to take prn oral opioid and in last days of life. Keep patch on. **Use appropriate opioid for situation or care setting.** If 2 extra doses of 15 mg sc morphine are required over the previous 24 hours, the initial syringe driver prescription will be morphine 30mg/24 hour. **Remember** to look at the **dose of the patch and the dose in the syringe driver** to work out the **new** opioid breakthrough dose **each time a change is made.***

Always use the chart above to help calculate the correct doses.

Summary

The new drug chart will available from the end of November 2014. In hospital the palliative care team will try and remove any old versions of the syringe driver chart from clinical areas and replace with the new chart. **Ward clerks - please help remove any old charts.**

Copies of the new chart can be obtained through purchasing using the order number FY03000081 (available in batches of 10).

Please send any feedback for the syringe driver chart to Anne Garry via the Palliative Care Team (contact numbers on front of chart) or email anne.c.garry@york.nhs.uk. With your help we will use your comments and feedback on the layout and content and if necessary alter the chart.

IF YOU HAVE ANY QUESTIONS OR COMMENTS REGARDING THIS ISSUE OF MEDICINES MATTERS OR THE NEW PRESCRIPTION CHART, PLEASE CONTACT LYNN RIDLEY (EXT 5963) OR VIA EMAIL TO JANE.CREWE@YORK.NHS.UK.

Issue: 59 - New Syringe driver Chart | Author: Jane Crewe, Pharmacist, York Hospital
Authorised by: Pharmacy Management Team | Owner: Emma Sellwood, Senior Secretary, York Hospital