CLINICAL GUIDELINE

Apomorphine subcutaneous infusion treatment in patients admitted to hospital (Monograph for maintaining pre-existing)

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Lead Authors:	Romi Bissland & Kate Morgan
Approval Group:	Medicines Utilisation Subcommittee of ADTC
Guideline ID:	035

Important Note:

The Intranet version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

SUB-CUTANEOUS APOMORPHINE (FOR INFUSION)

Monograph for maintaining pre-existing apomorphine subcutaneous infusion treatment in patients admitted to hospital

This monograph describes how to continue pre-existing apomorphine treatment during hospital admission. It does not discuss initiation of apomorphine in new patients. Initiation of apomorphine should only be done under the guidance of a movement disorder specialist.

All patients admitted to hospital on apomorphine should be referred to the Parkinson's disease nurse specialist (PDNS), movement disorder team or a pharmacist for advice as soon as possible. See contact details on page 6

Key Facts

- Don't delay administering apomorphine treatment. A delay of a few hours can have potentially very serious effects on the patient's condition, and can result in Parkinsonism hyperpyrexia syndrome (similar to neuroleptic malignant syndrome).
- Apomorphine is a dopamine agonist. It is not related to morphine and is not a controlled drug.
- Apomorphine should **ONLY** be given subcutaneously. It must **NOT** be administered using other routes.
- Apomorphine is usually given at a fixed hourly rate (mg/hour) during waking hours only. The fixed hourly rate and the number of hours it is administered for can vary between patients. The maximum daily dose of apomorphine should not normally exceed 100mg.
- Patients in the community receive apomorphine APO-go® POD via the CHRONO® PAR4 20 PUMP. Once opened, APO-go® POD should be used immediately. Any unused solution should be discarded after 48 hours and a new cartridge used.
- Do not store above 30° C
- Only clear, colourless and particle free solutions should be used.
- Infusion sites should be rotated daily to prevent nodule formation.
- See BNF or SPC at www.medicines.org.uk for a full list of side-effects, contraindications and monitoring.

Supply of apomorphine

- **The recommended formulation for use is the APO-go® POD (Apomorphine hydrochloride hemihydrate) 100mg/20ml solution for infusion cartridges.** Due to the additional risk of dilution, the use of APO-go® ampoules 50mg/5ml is not recommended for routine use and its use is outside the scope of this guidance.
- A supply of apomorphine can be obtained from GGC Parkinson's disease (PD) medicines holding areas at each hospital site. See 'NHS GGC Parkinson's Disease Medication Stocklist, Acute Hospital' guideline which can be accessed via the Clinical Guideline Platform (Right Decision Service). If apomorphine is unavailable within the PD medicines holding area contact pharmacy/on call pharmacist for a supply.

Continuation of apomorphine subcutaneous infusion during a patient's hospital admission – THREE STEPS

STEP ONE: Check the prescription is accurate.

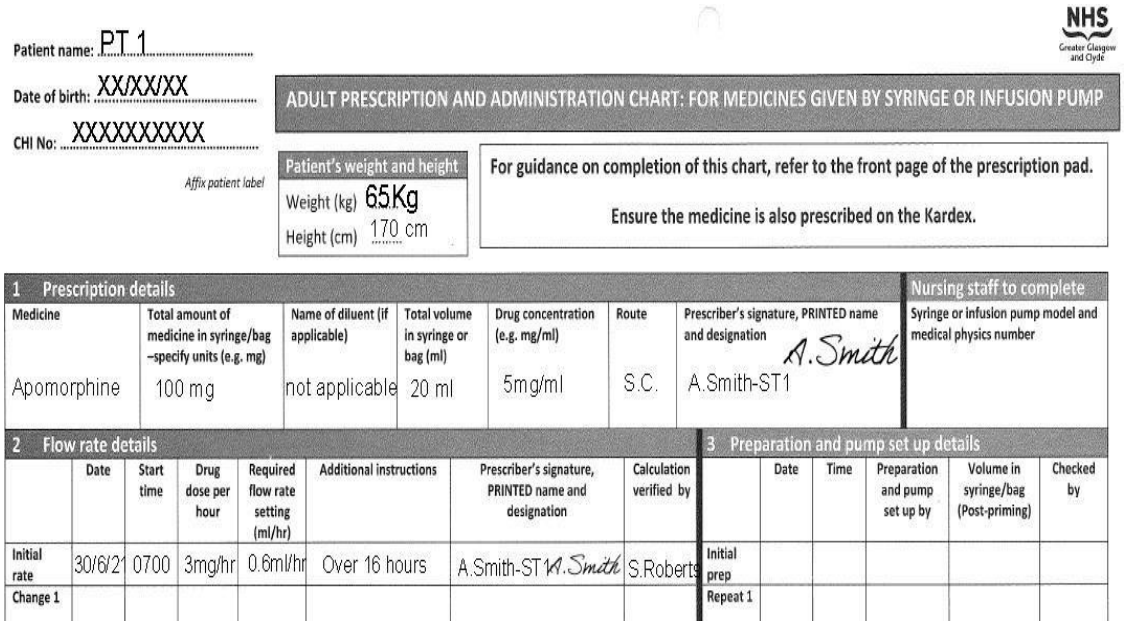
- Information from the patient, carers, medical or prescription records can be used to confirm current dose rate.
- Confirm the hourly rate (mg/hour), **NOT** the total daily dose.
    - The fixed hourly rate can vary between patients-usually between 1mg/hour and 4mg/hour. Rates of up to 8mg/hour may be used but this exceeds BNF dose recommendations and is considered off-label use.
    - The current syringe driver setting on the patient's home CHRONO® PAR4 20 pump can also be used to confirm the hourly rate (mg/hour). ***Note:*** The flow rate on the patient's home CHRONO® PAR4 20 infusion pump is shown in ml/hour but the in- patient prescription must also include the dose in mg/hour e.g. 0.6ml/hour of 5mg/ml apomorphine infusion=3mg/hour.
- Confirm the patient's usual apomorphine start and finish times.
    - Apomorphine is usually given over waking hours only. The number of hours apomorphine is administered for depends on the patient's individual circumstances, usually up to 16 hours/day.
- Apomorphine must be prescribed on a patient Kardex (paper or electronic). Additionally, the dose and flow rate must be prescribed on an 'adult prescription and administration chart: for medicines given by syringe or infusion pump'. Please see the following examples (1-3):

Example 1: Prescribing electronically on a HEPMA prescription form:

Example 2: Prescribing manually on a paper prescription form:

Example 3: For a patient on 3mg/hour over 16 hours using a ward syringe driver

The flow rate (ml/hour) of apomorphine is: 0.6 ml/hour. See “Page 5, Table 1” to deduce flow rate (ml/hour) which corresponds to the patient’s prescribed apomorphine hourly rate (mg/hour) i.e. for this example 3mg/hour



Patient name: PT 1
Date of birth: XX/XX/XX
CHI No: XXXXXXXXXX
Affix patient label

NHS Greater Glasgow and Clyde

ADULT PRESCRIPTION AND ADMINISTRATION CHART: FOR MEDICINES GIVEN BY SYRINGE OR INFUSION PUMP

Patient’s weight and height: Weight (kg) 65Kg; Height (cm) 170 cm

For guidance on completion of this chart, refer to the front page of the prescription pad.
Ensure the medicine is also prescribed on the Kardex.

1 Prescription details

Medicine	Total amount of medicine in syringe/bag –specify units (e.g. mg)	Name of diluent (if applicable)	Total volume in syringe or bag (ml)	Drug concentration (e.g. mg/ml)	Route	Prescriber’s signature, PRINTED name and designation	Nursing staff to complete: Syringe or infusion pump model and medical physics number
Apomorphine	100 mg	not applicable	20 ml	5mg/ml	S.C.	A.Smith A.Smith-ST1	

2 Flow rate details

	Date	Start time	Drug dose per hour	Required flow rate setting (ml/hr)	Additional instructions	Prescriber’s signature, PRINTED name and designation	Calculation verified by
Initial rate	30/6/21	0700	3mg/hr	0.6ml/hr	Over 16 hours	A.Smith-ST1 A.Smith	S.Roberts
Change 1							

3 Preparation and pump set up details

	Date	Time	Preparation and pump set up by	Volume in syringe/bag (Post-priming)	Checked by
Initial prep					
Repeat 1					

STEP TWO: Prepare and administer apomorphine using appropriate infusion device.

A specially designed pump (CHRONO® PAR4 20) is usually used to administer apomorphine at home and this could be continued during hospital admission if staff or patient are familiar and competent in using the CHRONO® PAR4 20 pump (see option A). If staff, however, are unfamiliar with the CHRONO® PAR4 20 pump convert the patient to the ward syringe driver (see option B).

A. If staff or patient are familiar and competent in using CHRONO® PAR4 20 pump: maintain patient on the CHRONO® PAR4 20 pump

- Use APO-go® POD (Apomorphine hydrochloride hemihydrate) 100mg/20ml solution for infusion cartridges
- For further information contact PDNS (see contact details page 6). If a PD specialist is unavailable contact APO-go® helpline 08081964242 (open 24hours).
- See **www.apo-go.com**

B. If staff are NOT familiar with CHRONO® PAR4 20 pump: convert the patient to the ward syringe driver

1. Select a suitable size luer lock syringe (e.g. 30ml or 50ml).

2. Empty the contents of one 20ml APO-go® POD 100mg/20ml solution for infusion cartridges to the luer lock syringe. This gives a final concentration of 100mg/20ml (5mg/ml).

3. The syringe driver should be set to the correct infusion rate (ml/hour) corresponding to the patient's prescribed apomorphine hourly rate (mg/hour) as per table 1 below:

Apomorphine hourly rate (mg per hour)	Infusion rate of apomorphine prediluted solution (ml per hour)
1.0	0.2ml/hour
1.5	0.3ml/hour
2.0	0.4ml/hour
2.5	0.5ml/hour
3.0	0.6ml/hour
3.5	0.7ml/hour
4.0	0.8ml/hour
4.5	0.9ml/hour
5.0	1.0ml/hour
5.5	1.1ml/hour
6.0	1.2ml/hour

Table 1: Apomorphine infusion rate (ml/hour) corresponding to apomorphine hourly rate (mg/hour)

4. Ensure all calculations and preparation details are checked independently by a second trained practitioner.

5. Monitor the infusion site and volume of fluid infused hourly.

    a. This must be recorded using appropriate documentation (i.e. *ADULT PRESCRIPTION AND ADMINISTRATION CHART: FOR MEDICINES GIVEN BY SYRINGE OR INFUSION PUMP)*

    b. Ensure **ONLY** the required volume of pre-diluted apomorphine is infused.
    [For example: if a patient is prescribed 3mg/hour over 16 hours of pre-diluted apomorphine, the total volume to be infused over 16 hours is 9.6mls (0.6ml/hr x16)]

6. Ensure there is a system in place to stop the syringe driver at the end of the required infusion period.

7. Any infusion fluid remaining in the syringe driver should be discarded.

In preparation for discharge, contact PDNS to arrange conversion back to the CHRONO® PAR4 20 pump

STEP THREE: Double check

1. Ensure the syringe driver is set to a **flow rate as ml/hour.** The usual flow rate is 0.2 – 0.8ml/

hour. Check calculations. Think how many 'mL' the patient should receive per day. (E.g. 3mg/hour x16 hours=48mg per day. So only approximately 9.6ml of the pre-diluted apomorphine would run through in 16 hours).

2. The syringe should not normally run out in less than 16 hours, as the patient should not require more than 100mg during a 16 hour period.

3. Check the volume left in the syringe at regular intervals. This is an opportunity to identify if the rate is set correctly.

4. Ensure there is a system in place to stop the syringe driver at the required time.

Contact Details for Further Advice

Parkinson's Disease Nurse Specialists (PDNS)	
Queen Elizabeth University Hospital	0141 201 2440 or 07958 702 902 or 07855 102 326
Queen Elizabeth Institute of Neurological Sciences	0141 201 2590 / 2747
Glasgow Royal Infirmary and Lightburn	0141 211 1522 or 07949 982 628 or page 13992
Stobhill	0141 355 1480 or page 11072
Gartnavel General Hospital	0141 211 3166 or 07855 102 326
New Victoria Hospital	0141 347 8146 / 8144
Royal Alexandra Hospital	0141 314 6833 or page 56617
Inverclyde Royal Hospital	01475 525 389 or page 51196
Vale of Leven	01475 525 389 or page 51196

PLEASE NOTE: If PDNS are unavailable for advice, contact PD consultant specialist at your site for advice via secretary details below:

Hospital site	**Contact number**
Queen Elizabeth University Hospital	0141 347 8777
Queen Elizabeth Institute of Neurological Sciences	0141 201 2478
Glasgow Royal Infirmary and Lightburn	0141 451 5351/5351
Stobhill	0141 211 1927
Gartnavel General Hospital	0141 211 3166
New Victoria Hospital	0141 347 8144
Royal Alexandra Hospital	0141 314 6678
Inverclyde Royal Hospital	01475 505 078
Vale of Leven	01389 817 586