# GDL08
# Guideline for the management of In-patients with Parkinson's Disease

## 1.0 Guideline Statement

Parkinson's Disease (PD) is a common neurodegenerative disorder, primarily caused by the degeneration of dopamine producing neurones.

It is characterized by bradykinesia, resting tremor and rigidity with a life-time risk of 2% in men and 1.3% in women.[1] Patients with PD will present to a wide range of hospital specialties, often as emergencies, and may have a range of problems associated with their condition and its treatment.

It is well recognised that patients with PD have increased morbidity, mortality and longer lengths of stay than other patients. This guideline will provide evidence based and best practice recommendations for all doctors and nurses for the management of in-patients with Parkinson's disease.

## 2.0 Accountabilities

Any changes will be agreed with the Parkinson's disease working group, in particular clinical representatives from Neurology, Care of the Elderly, Parkinson's Disease Specialist Nurses and Pharmacy. Final approval by the Medicines Management Group.

## 3.0 Guidelines Detail

### 3. 1 Prescribing and administration of regular medications

Detailed information can be found here: Parkinson's Disease: Management of In-patients

- Medications to avoid
- Patients with poor swallow
- Patients who are Nil by Mouth (NBM) See table 1
- See Table 2 for advice if patient is on a dopamine agonist
- See Table 3 for advice if patient is on levodopa
- Considerations for surgical patients[3,4,5,6]
- Management of the confused/hallucinating PD patient[3]
- Apomorphine subcutaneous injections
- Duodopa (Co-careldopa) infusion

PD medications play a crucial role in managing symptoms. Delays can cause significant exacerbation of symptoms and patient distress.
Medicines **MUST** be administered within **30** minutes of the prescribed time.[2]

If medications are stopped abruptly, the result can be a neuroleptic malignant like syndrome, and even death.

Do not delay prescribing PD medication. Prescribe normal PD medicines as taken at home as soon as possible. Take an accurate drug history- check with patient, carer, GP, SCR or the patient's pharmacist. Check the clinical web portal for a recent Neurology or Geriatric Medicine clinic letter. Include drug names, preparations and formulations e.g: controlled release tablets.

Prescribe at the times that medicines are usually taken at home- these may not be the same as standard nursing drug rounds. Nursing staff must ensure that prescribed times are adhered to.

Do not stop PD medication- If the patient does not have a supply of their own medicines that are suitable for in-patient use, they should be obtained urgently. Contact your ward pharmacy team to arrange an urgent supply. If the pharmacy is closed, medicine locations can be found in the Critical Medicines list or Master Drug stock list. See also Medicines Policy- MMH-01.Note that many common medicines are available in the Mediwell medicine storage units on AMU/SEU.

These medicines are on the list of critical medicines and a Datix report MUST BE COMPLETED if doses are missed.

NICE recommends that adults with Parkinson's disease who are in hospital take levodopa within 30 minutes of their individually prescribed administration time. [2]

Document in the clinical notes when converting medication for those with swallowing difficulties or who are nil by mouth. Note which table has been used from this guideline or if the Optimal on-line calculator has been used.

Consider self-administration - see MMH-008

Information can be found on the Parkinson's UK website: http://www.parkinsons.org.uk/

## 3.2 General advice

PD medication should never be stopped or withdrawn without specialist advice.

Remember that if PD medicines are omitted patients may become stiffer, have difficulty mobilising, develop or experience worsening dysphagia and experience distress. These are avoidable if they receive their medication correctly and on time.

Actively look for, and treat, infections and their source; constipation, urinary retention, electrolyte imbalances and review any recent changes to medications.

Do not change or increase PD medicines without specialist advice. Managing the above factors and allowing time is often sufficient to return a patient to their baseline. For details of their usual baseline check Neurology clinic letters on the clinical web portal.

Monitoring - regularly check for:

- hypotension- record both lying and standing blood pressures, immediately and after 2 minutes of standing.
- symptoms such as sense of presence, illusions, visual hallucinations, psychosis, depression and anxiety.
- urinary retention, constipation, dehydration.

Promptly manage dysphagia and confusion to avoid medications being omitted. This can reduce length of stay and reduce complications. Dopamine blocking drugs should be avoided and drug prescription charts checked. Seek advice from pharmacy as necessary. Refer to Parkinson's Disease: Management of In-patients for further information.

**Useful Contacts:**

Check the clinical web portal for recent neurology review clinic letters.

RWT
Parkinson's Disease specialist nurses: rwh-tr.parkinsons@nhs.net

or: 01543 576042

New Cross: rebecca.whyle@nhs.net
samantha.bothma@nhs.net
s.bateman2@nhs.net

Cannock: lindaprendergast@nhs.net

Shrewsbury and Telford Team
Shawbirch Medical Centre, 01952 800135
marie.haywood@nhs.net

## 4.0 Equipment Required

Patient posters and leaflets provided free of charge by the charity Parkinson's UK for the "Getting it on Time" campaign.

## 5.0 Training

Training to be incorporated into Trust and local inductions.

Parkinson's Disease study day.

The aim is for mandatory training and implementation of Parkinson's Disease nurse champions for ward areas.

## 6.0 Financial Risk Assessment

| | | |
|---|---|---|
| 1 | Does the implementation of this document require any additional Capital resources | No |
| 2 | Does the implementation of this document require additional revenue resources | No |
| 3 | Does the implementation of this document require additional manpower | No |
| 4 | Does the implementation of this document release any manpower costs through a change in practice | No |
| 5 | Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programs or allocated training times for staff. | No |
| | Other comments | |

## 7.0 Equality Impact Assessment

An initial equality analysis has been carried out and it indicates that there is no likely adverse impact in relation to Personal Protected Characteristics as defined by the Equality Act 2010.

## 8.0 Maintenance

RWT Pharmacy with the assistance of the Parkinson's Disease working group will review at least every 3 years or when new national guidance is published.

## 9.0 Communication and Training

Availability of the guideline to be published via Trust bulletins. Training to be incorporated into Trust and local inductions. Parkinson's Disease study day to be repeated. Aim will be for inclusion in mandatory training at a later date.

## 10.0 Audit Process

| Criterion | Lead | Monitoring method | Frequency | Evaluation |
|---|---|---|---|---|
| Monitor prescribing and administration of medicines used in patients with Parkinson's to disease.<br>Ensure that: medicines are prescribed correctly, at the correct times and in a timely manner<br>All medicines are administered within 30 minutes of prescribed time. | Pharmacist lead for Care of the Elderly | Routine audit. | Every 2 years | Neurology/ Care of the Elderly governance team meetings. |
| Review Datix reports. | Pharmacist lead for neurology | Datix monitoring every 3 months. | 3 monthly | |

## 11.0 References –


1. Parkinson's UK. Parkinson's prevalence in the United Kingdom (2009)

2. Brennan et al. Managing Parkinson's disease during surgery. BMJ Nov 1;341:990-993

3. Royal Cornwall Hospitals NHS Trust. Clinical Guideline for the management of inpatients with Parkinson's disease:

4. Parkinson's Disease: Diagnosis and Management in Primary and secondary care https://www.nice.org.uk/guidance/NG71 NICE London (2017)

5. Parkinson's UK. Emergency management of patients with Parkinson's (PK0135) 2019

https://www.parkinsons.org.uk/professionals/resources/emergency-management-patients-parkinsons

6. SWBH. Clinical Guidelines for the management of inpatients with Parkinson's disease 2015

## Document Control

| | | | | |
|---|---|---|---|---|
| Procedure/ Guidelines number and version<br><br>GDL08<br><br>Version 4.0 | **Title of Procedure/ Guidelines**<br>Guideline for the management of In-patients with Parkinson's Disease | **Status:**<br><br>Final | | **Author:**<br>Senior Pharmacist, Neurology<br><br>**For Trust-wide Procedures and Guidelines Director Sponsor:**<br><br>**Chief Medical Officer - BM** |
| Version / Amendment History | Version | Date | Author | Reason |
| | 2.0 | 6.11.19 | Principal Pharmacist, Surgery | 2017 guideline revised and updated; placed into OP01 Trust template |
| | 3.0 | March 2021 | Principal Pharmacist, Division 1 | Revised Guideline |
| | 3.1 | January 2023 | Principal Pharmacist, Division 1 | Extension applied. Sponsor updated. |
| | 3.2 | March 2023 | Principal Pharmacist, Division 1 | Extension applied |
| | 4.0 | July 2023 | Senior pharmacist, Neurology | Revision to ensure advice remains up to date. Addition of links to useful websites including the Optimal dose conversion calculator |
| **Intended Recipients:** All RWT clinical staff who care for patients with Parkinson's Disease | | | | |
| **Consultation Group / Role Titles and Date:**<br>Medicines Management Group – March 2023 | | | | |
| **Name and date of group where reviewed** | Trust Policy Group July 2023<br>Medicines Management Group March 2023<br>Neurology governance December 2022 | | | |

| | |
|---|---|
| **Name and date of final approval committee (if trust-wide document)/ Directorate or other locally approved committee (if local document)** | Trust Management Committee July 2023 |
| **Date of Procedure/Guidelines issue** | July 2023 |
| **Review Date and Frequency** (standard review frequency is 3 yearly unless otherwise indicated) | **July 2026 (every 3 years)** |
| **Training and Dissemination:**<br>Guideline to be accessible on RWT intranet.<br>Training arranged with clinical areas and to be incorporated into routine training sessions.<br>Parkinson's Disease study day.<br>Dissemination via Trust bulletins. | |
| **To be read in conjunction with:** | |
| **Initial Equality Impact Assessment: Completed Yes Full Equality Impact assessment (as required): Completed NA** If you require this document in an alternative format e.g., larger print please contact Policy Administrator 8904 for Trust- wide documents or your line manager or Divisional Management office for Local documents. | |
| **Contact for Review** | Neurology Senior Pharmacist, - TBC |
| **Monitoring arrangements** | |
| **Document summary/key issues covered.** This guideline provides evidence based and best practice recommendations for all doctors and nurses for the management of in-patients with Parkinson's disease. It aims to ensure that all PD patients receive their correct medication at the correct times. When it is not possible to receive their usual medications, the guideline provides advice for alternative treatment options. The guideline provides details of where to obtain expert advice and support when it is needed. | |
| **Key words for intranet searching purposes** | Parkinson's Disease, levodopa, dopamine agonist, rotigotine, critical medication, swallowing difficulties, apomorphine, NBM, |

# Parkinson's Disease: Management of in-patients

## Guideline for the management of in-patients with Parkinson's disease

### Contents

## 1. Introduction

Parkinson's disease (PD) is a common neurodegenerative disorder, primarily caused by the degeneration of dopamine producing neurones.
It is characterized by bradykinesia, resting tremor and rigidity with a life-time risk of 2% in men and 1.3% in women.[1] Patients with PD will present to a wide range of hospital specialities, often as emergencies, and may have a range of problems associated with their condition and its treatment.
It is well recognised that patients with PD have increased morbidity, mortality and longer lengths of stay than other patients. This document will provide evidence based and best practice recommendations for all doctors and nurses for the management of in-patients with Parkinson's disease.

## 2. Prescribing and administration of regular medications

PD medications play a crucial role in managing symptoms. Delays can cause significant exacerbation of symptoms and patient distress.

Medicines **MUST** be administered within **30** minutes of the prescribed time.[2]
**Remember- On Time, Every Time!**

If medications are stopped abruptly, the result can be a neuroleptic malignant like syndrome, and even death.

- Do not delay prescribing PD medication. Prescribe normal PD medicines, as taken at home, as soon as possible. Take an accurate drug history- check with multiple sources utilising the patient, carer, GP, summary care record (SCR) or patient's pharmacist. Check the clinical web portal for a recent neurology clinic letter.

- Remember to include
  - drug names (brand or generic).
  - preparation and formulations e.g., dispersible, controlled release tablets.

- Prescribe at the times that medicines are usually taken at home- these may not be the same as standard nursing drug rounds. Nursing staff must ensure that prescribed times are adhered to.

- Do not stop PD medication- If the patient does not have a supply of their own medicines that are suitable for in-patient use, they should be obtained as soon as possible. Contact your ward pharmacy team to arrange an urgent supply. If the pharmacy is closed, medicine locations can be found here. See also MMH-012 link.

- These medicines are on the list of critical medicines link and a datix report must be completed if doses are missed.

- Consider self-administration - see MMH-008 link

Additional information can be found on the Parkinson's UK website:
http://www.parkinsons.org.uk/

3. Medication to avoid

Certain medicines, particularly dopamine antagonists, should **NOT** be given to patients with PD as they can exacerbate the symptoms of PD/increase confusion and agitation:

- **Haloperidol and other antipsychotics;**
- **Lithium;**
- **Metoclopramide;**
- **Prochlorperazine;**
- **Cyclizine;**
- **Chlorpheniramine and other older generation/ sedating anti-histamines.**

If treatment is required for nausea or vomiting, consider using domperidone https://www.gov.uk/drug-safety-update/domperidone-risks-of-cardiac-side-effects or ondansetron.

Follow the guidance provided here Appendix 1 flow chart if they are unable to take their usual medication.

Document in the clinical notes when converting medication for those with swallowing difficulties or who are nil by mouth. Note which table has been used from this guideline or if the Optimal on-line calculator has been used.

4. Patients with poor swallow

Refer to Speech and Language Therapy (SALT) URGENTLY.
Consider dispersible tablets if patients can manage liquids.
If the patient cannot manage liquids safely, an NG tube should be considered and placed promptly.
see Table 1
Alternatively, consider conversion to rotigotine patches.

5. Patients who are Nil by Mouth (NBM)

See Table 2 for advice if patient is on a dopamine agonist.
See Table 3 for advice if patient is on levodopa.
Consider contacting the Parkinson's disease Team (PDT) for further advice.
Pre-admission medications must be resumed at the earliest opportunity.

6. Considerations for surgical patients[3,4,5,6]

Elective patients should be identified in clinic and again at their pre-operative assessment. Information material should be given to patients as soon as surgery is planned.
The pre-operative assessment team will complete documentation to ensure that appropriate referrals are made.
If the patient is expected to be nil by mouth for a prolonged period (missing more than 1 dose of their regular PD medication), refer to and discuss with the PDT so that a plan is in place for their admission (ideally at pre-op assessment).

For both elective and non-elective surgery, the following points should be considered.

- These patients are at higher risk of aspiration pneumonia and post-operative respiratory failure.
- Consider regional anaesthesia if at all possible.
- Try to plan timing of surgery to minimise missing essential PD medicines while NBM; preferably first on the list.
- Ensure morning doses of all PD medications are prescribed. Clearly mark drug chart to identify that they must be given prior to surgery, even if nil by mouth.
- They can have medication orally or through NG tube as soon as possible following surgery if no functional bowel problems and non-GI surgery.
- If the total duration of surgery or NBM status is going to be 4 hours or longer, then please seek specialist opinion. Rotigotine transdermal patch may need to be considered for this period.
- Avoid contra-indicated medicines. Anti-emetics of choice are domperidone or ondansetron.

**Beware patients treated with Deep Brain Stimulation (DBS)- discuss with the Neurosurgical team first if they require diathermy.**

The patient should carry an ID card with contact details of the neurological department that implanted the DBS system.

7. Management of the confused/hallucinating PD patient[3]

Investigate and treat any underlying causes of confusion or delerium, e.g., infection, pain, constipation, urinary retention, dehydration, hypoxia, metabolic/electrolyte disturbance, etc.

7.1 Exclude delirium (acute confusional state).
Refer to the Trust Delirium Protocol

- Preferred choice for acute agitation (which cannot be managed by non-pharmaceutical measures) is lorazepam (0.5–1 mg prn).
- If an antipsychotic is necessary, the recommended drug of choice is Quetiapine (25mg initially, can be increased to 25mg twice a day).

7.2 If hallucinations are visual and no underlying cause is found:

- Discuss with the PD specialist team;
- All anti PD treatments can worsen hallucinations, so it may be necessary to consider a staged reduction in anti PD medications or the use of rivastigmine.
- Check that medication has been given correctly. Do not stop medication but refer to the specialist PD nurse, or neurology, or care of the elderly team.

8. Apomorphine subcutaneous injections

If the patient is already on apomorphine S/C injection or infusion, continue on the same dose, do not make any adjustments.
Patients and /or carers will be trained in the use and management of these pumps. Where applicable, follow the self administration policy, MMH-008

If unsure about the APO-go® pump **DO NOT CHANGE SETTINGS OR STOP IT!**
Seek advice from **PD specialist nurses (see contact details below) or Apomorphine nurse (Brittania) 0758 467 2551 (during working hours). Apo 24 hour helpline: 0844 880 1327.**

Always monitor blood pressure regularly. Change infusion line every 12 hours. Initiation of a continuous subcutaneous infusion of apomorphine may need to be considered for those PD patients who are NBM with severe motor complications which are uncontrolled with a rotigotine patch.
**Under no circumstances should apomorphine be initiated in a treatment naïve patient, without the involvement of a PD specialist.**

9. Duodopa (Co-careldopa) infusion

Co-careldopa intestinal gel is given by continuous administration via a percutaneous endoscopic gastrostomy (PEG) using a portable pump. This product is not stocked in RWT. Contact the specialist PD nurse, neurology or care of the elderly team for advice if a patient is admitted on this medication. (See contact details below).

10. General advice

- PD medication should never be stopped or withdrawn without specialist advice.
- Remember that if PD medicines are omitted patients may become stiffer, have difficulty mobilising, develop or experience worsening

dysphagia and experience distress. These are avoidable if they receive their medication correctly and on time.

- Actively look for infections and their source: constipation, urinary retention, electrolyte imbalance and recent changes to medications.
- Do not change or increase PD medicines without specialist advice. Managing above factors, and allowing time, is often sufficient to return a patient to their baseline.
- Monitoring during admission should regularly check for:
    - orthostatic hypotension- record both lying and standing blood pressures, immediately and after 2 minutes of standing;
    - neuropsychiatric symptoms such as sense of presence, illusions, visual hallucinations, psychosis, depression and anxiety;
    - constipation;
    - urinary retention;
    - Dehydration.
- Promptly manage dysphagia and confusion such that medication is not omitted. This can reduce length of stay and reduce complications.
- Dopamine blocking drugs should be avoided and drug prescription charts checked- seek advice from pharmacy as necessary.

**Abbreviations:**
DBS Deep Brain Stimulation
NBM Nil by mouth
PD Parkinson's disease
PDT Parkinson's disease team

**References:**

1. Parkinson's UK. Parkinson's prevalence in the United Kingdom (2009)

2. Parkinson's Disease:Diagnosis and Management in Primary and secondary care https://www.nice.org.uk/guidance/NG71 NICE London (2017)

3. Brennan et al. Managing Parkinson's disease during surgery. BMJ Nov 1;341:990-993

4. Royal Cornwall Hospitals NHS Trust. Clinical Guideline for the management of inpatients with Parkinsons disease, v3:

5. Parkinson's UK. Emergency management of patients with Parkinson's PK0135 https://www.parkinsons.org.uk/professionals/resources/emergency-management-patients-parkinsons

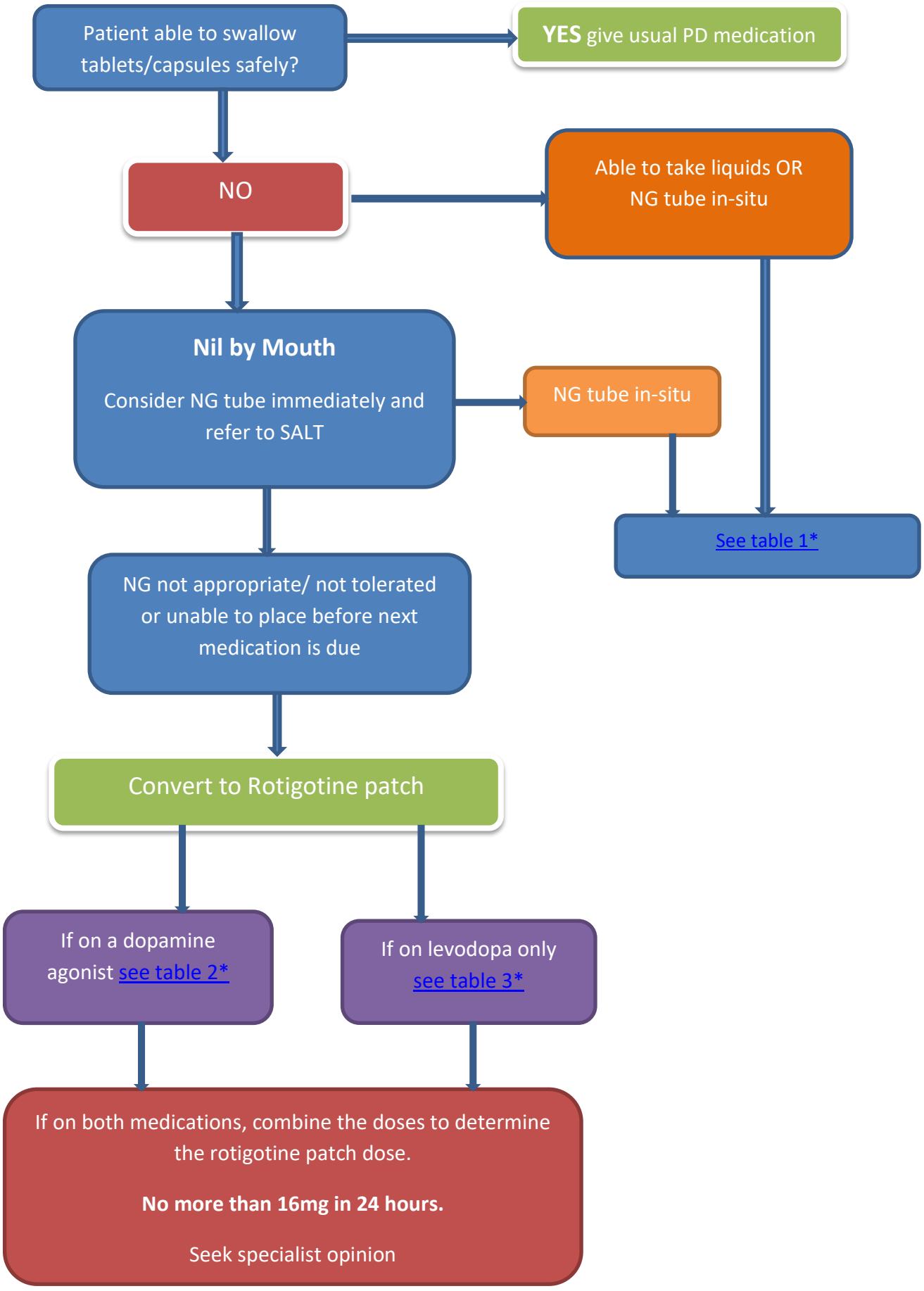
6. SWBH.Clinical Guidelines for the management of inpatients with Parkinson's disease 2015

7. Parkinson's UK. Resources

http://www.parkinsons.org.uk/

8. Smyth, J (2021) The NEWT guidelines for administration of medication to patients with enteral feeding tubes or swallowing difficulties. Betsi Cadwaladr University local health board, Wrexam. Accessed online via www.newtguideline.com (subscription required).

**Appendix 1:**
**Flow chart for the management of medication for in-patients with Parkinson's Disease**




*Tables include links to on-line conversion calculator

**Table 1: Management of Parkinson's disease patients with swallowing difficulties or feeding tubes**[based on 4,6,7,8]

**This table is intended for short term management. Seek advice from the PDT if the long term, non-oral administration of medicines is required.**

| Medication | Formulation | Recommendation |
|---|---|---|
| Co-Beneldopa (Madopar®) | Dispersible Madopar® tablets | Continue - no change required. |
| | Capsule | Convert to dispersible Co-beneldopa (Madopar®) tablets*. |
| | Modified release tablets | Convert to dispersible Co-beneldopa (Madopar®) tablets*.<br><br>MR formulations require a slight dose reduction. * |
| Co-careldopa (Sinemet®) | Tablets (standard release) | Continue no change required as tablets will disperse in water. For NG convert to Co-beneldopa (Madopar)*. |
| | Controlled release tablets | Convert to dispersible Co-beneldopa (Madopar®) tablets*.<br><br>CR formulations require a slight dose reduction*. |
| Entacapone# | Tablets (standard release) | Continue current regime; tablets will disperse in water, but less easily.<br><br>Will go down NG tube; flush well after use.<br><br>Crushed tablets can stain clothing and skin and should be avoided. Therefore, place a tablet in the barrel of a syringe and draw up 10 mL of water to disperse (this may take up to 5 minutes). |
| Levodopa with carbidopa and entacapone | Sastravi®, Stalevo® or Stanek®<br><br>Tablets (standard release) | Consider changing prescription to individual components and refer to guidance above. * |

| | | |
|---|---|---|
| Pramipexole | Tablets (standard release) | Continue current regime, tablets will disperse in water. |
| | Modified release tablets | Convert to standard release and change the total daily dose to a 3 times a day regime. |
| Ropinirole | Tablets (standard release) | Continue current regime, tablets will disperse in water. |
| | Modified release tablets | Convert to standard release and change total daily dose to a 3 times a day regime. |
| Rasagiline | Tablets (standard release) | Continue current regime, tablets can be crushed and mixed in water. |
| Selegiline | Tablets (standard release) | Continue current regime, tablets will disperse in water. |
| | Oro-dispersible (lyophilizate) tablets Note: **1.25 mg = 10 mg standard release tablet** | No change required if the buccal route is safe.<br><br>NOT suitable for feeding tubes. |
| Amantadine | Capsule | No change required, capsule can be opened and content can be dissolved in water. |

It may be appropriate to administer medication with soft foods or thickened fluids. Consult your ward pharmacist for advice. Additional information for patients with swallowing difficulties can be found at: https://www.sps.nhs.uk/articles/parkinsons-disease-medicines-formulations-for-adults-with-swallowing-difficulties/. Absorption may be altered by enteral feeds, particularly those with higher protein concentration.

*For assistance with dose conversion contact your ward pharmacist or use the Optimal http://pdmedcalc.co.uk/conversion calculator. Always document the method of calculation used in the clinical notes.

#entacapone omission will NOT result in neuroleptic malignant like syndrome. It may safely be omitted if levodopa preparations continue to be given.

**See Critical Medicines list or Master Drug stock list for the location of supplies in an emergency**

**Table 2: For patients who are NBM. Conversion of Dopamine agonists to Rotigotine transdermal patch.**[based on 3, 6]

Conversions are for guidance only. Exercise caution in patients with a history of hallucinations or confusion, psychiatric issues or of older age. Refer to product SPC. https://www.medicines.org.uk/emc/product/1996/smpc

**It is advisable to start low and go slow with this group. Recommended doses are available using the on-line Optimal calculator. http://pdmedcalc.co.uk/**

Always document the method of calculation used in the clinical notes.

| **Pramipexole** (*values as salt content) | **Pramipexole MR** (*values as salt content) | **Ropinirole** Standard release (Requip®) | **Ropinirole** Modified Release (Requip® XL) | **Rotigotine** transdermal patch See notes above for dose in compromised patients |
|---|---|---|---|---|
| 0.125 mg TDS | 375mcg | Starter pack | N/A | 2 mg/24 hours |
| 0.25 mg TDS | 750mcg | 1 mg TDS | 4 mg/day | 4 mg/24 hours |
| 0.5mg TDS | 1.5mg | 2 mg TDS | 6 mg/day | 6 mg/24 hours |
| 0.75 mg TDS | 2.25mg | 3 mg TDS | 8 mg/day | 8 mg/24 hours |
| 1 mg TDS | 3mg | 4 mg TDS | 12 mg/day | 10–12 mg/24 hours |
| 1.25 mg TDS | 3.75mg | 6 mg TDS | 16 mg/day | 14 mg/24 hours |
| 1.5 mg TDS | 4.5mg | 8 mg TDS | 24 mg/day | 16 mg/24 hours |
| **Maximum dose of Rotigotine patch is 16mg/24 hours. Patch must be changed every 24 hours. The onset of effect is 24 – 48 hours.** Patches are available in 2mg/4mg/6mg and 8mg strengths. Do not cut patches. Patients may exhibit sensitivity to Rotigotine patches at higher doses. Review your patient each day and refer to the PD specialist team for further advice if necessary. | | | | |

***Be aware that pramipexole dosing can be described as salt or base values.** Ensure that you know the correct strength and dosing before using this table and that this corresponds to the Salt value when converting using the table or on-line calculator. Refer to the BNF for pramipexole dosing conversion.
**https://bnf.nice.org.uk/drugs/pramipexole/#indications-and-dose**

**See Critical Medicines list or Master Drug stock list for the location of supplies in an emergency.**

**Table 3: Rotigotine transdermal patch conversion for patients who are NBM and only on Levodopa (with or without COMT inhibitor).[4, 6]**

Conversions are for guidance only. Exercise caution in patients with a history of hallucinations or confusion, psychiatric issues or of older age. Refer to product SPC.
https://www.medicines.org.uk/emc/product/1996/smpc
**It is advisable to start low and go slow with this group. Recommended doses are available using the on-line Optimal calculator. http://pdmedcalc.co.uk/**
Always document the method of calculation used in the clinical notes.

| **Current levodopa regime**<br>*For CR preparation box below | **Rotigotine patch**<br>**Suggested conversion** |
|---|---|
| Co-beneldopa or Co-careldopa 62.5 mg Twice a day | 2 mg /24 hours |
| Co-beneldopa or Co-careldopa 62.5 mg Three times a day | 4mg /24 hours |
| Co-beneldopa or Co-careldopa 62.5 mg Four times a day | 6 mg /24 hours |
| Co-beneldopa or Co-careldopa 125 mg Three times a day | 8 mg /24 hours |
| Co-beneldopa or Co-careldopa 125 mg Four times a day | 10 mg /24 hours |
| Co-beneldopa or Co-careldopa 187.5 mg Three times a day | 12 mg /24 hours |
| Co-beneldopa or Co-careldopa 187.5 mg Four times a day | 16 mg /24 hours |
| Co-beneldopa or Co-careldopa 250 mg Three times a day | 16 mg /24 hours |
| Co-beneldopa or Co-careldopa 250 mg Four times a day | 16 mg /24 hours |
| Levodopa with carbidopa and entacapone<br>50/12.5/200 mg Three times a day | 6 mg /24 hours |
| Levodopa with carbidopa and entacapone<br>100/25/200 mg Three times a day | 10 mg /24 hours |
| Levodopa with carbidopa and entacapone<br>100/25/200 mg Four times a day | 14 mg /24 hours |
| Levodopa with carbidopa and entacapone<br>150/37.5/200 mg Three times a day | 16 mg /24 hours |
| Levodopa with carbidopa and entacapone<br>200/50/200 mg Three times a day | 16 mg /24 hours |
| **Maximum dose of Rotigotine patch is 16mg/24 hours. Patch must be changed every 24 hours. The onset of effect is 24 – 48 hours.** Patches are available in 2mg/4mg/6mg and 8mg strengths. Do not cut patches. Patients may exhibit sensitivity to Rotigotine patches at higher doses. Review your patient each day and refer to the PD specialist team for further advice if necessary. | |

**See Critical Medicines list or Master Drug stock list for the location of supplies in an emergency.**