Local Guideline

Health
Hunter New England
Local Health District

Document number: JHH_0xxx

Perioperative Management of Patients with Parkinson's Disease

Sites where Local Guideline applies	**John Hunter Hospital**
Target audience	Nurses, doctors, anaesthetists, surgeons, neurologists, Movement Disorders Team members
This Local Guideline applies to:	
1. Adults	Yes
2. Children up to 16 years	No
3. Neonates – less than 29 days	No
Description	This document provides guidance for nurses and doctors in the perioperative setting on how to assess and safely manage patients with Parkinson's Disease who are undergoing elective surgery.
Keywords	Parkinson's Disease, PD, DBS, unipolar diathermy, bipolar diathermy, surgery, theatre, perioperative, anaesthetics

Go to Guideline

Replaces existing document?	No

Relevant or related Documents, Australian Standards, Guidelines etc:

- NSW Health Policy Directive PD2017_032 Clinical Procedure Safety
- HNELHD Policy Compliance Procedure PPM Consent:PCP 3 Consent for Clinical Treatment and Care
- NSW Health Policy Directive PD 2017_013 Infection Prevention and Control Policy
- Work Health and Safety Act 2011 no. 10
- NSW Health Policy Directive PD2012_069 Health Care Records – Documentation and Management
- HNE Health Policy Compliance Procedure PD2009_060: PCP1 Clinical Handover – ISBAR
- HNELHD Policy Pol 18_03 Aseptic Technique for Level 1 to Level 2 Procedures Conducted in Clinical Settings
- Local procedure JHH_JHCH_BH_0193 Standard Aseptic Technique
- NSW Health Policy Directive 2013_049 Recognition and management of Patients who are Clinically Deteriorating
- HNE LHD Policy Compliance Procedure Recognition and Management of Patients who are Clinically Deteriorating PD2013_049:PCP 1
- HNE LHD PD2013_049 PCP2 Vital Sign Observations & Monitoring Frequency 16 Years and Over
- See Reference Section on page 7

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Prerequisites (if required)	Patients with Parkinson's Disease undergoing elective surgery should be reviewed by a doctor in the perioperative clinic to determine if medication management, Parkinson's Disease optimisation, or management of advanced therapies are required.
Local Guideline note	This document reflects what is currently regarded as safe and appropriate practice. This guideline does not replace the need for the application of clinical judgment in respect to each individual patient. If staff believe that the guideline should not apply in a particular clinical situation they must seek advice from their unit manager/delegate and document the variance in the patient's health record. If this document needs to be utilised outside of the John Hunter Hospital please liaise with the local Neurology Service to ensure the appropriateness of the information contained within the Guideline and Procedure.
Date initial authorisation:	March 2022
Authorised by:	JHH Perioperative Service Co-Director
This document contains advice on therapeutics	Yes Approval gained from Local Quality Use of Medicines Committee April 2022
Contact Person:	Dr Paul Healey
Contact Details:	Paul.Healey@health.nsw.gov.au
Date Reviewed:	March 2022
Review due date:	March 2025
Position responsible for review:	JHH Perioperative Service Co-Director
Version:	1

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PURPOSE AND RISKS

Parkinson's Disease (PD) is a relatively common neurodegenerative disorder that affects dopaminergic neurons in the substantia nigra. PD is a progressive disorder that may lead to resting tremor, muscle rigidity, and bradykinesia.

PD patients often have complex and highly individualised drug regimens, due to a fine balance between disease symptoms and treatment side effects. When patients with Parkinson's Disease are admitted to hospital for surgery, they are at risk of:

- Exacerbation of their PD symptoms due to missed or delayed medication doses
- Rare but severe, or even life-threatening, withdrawal syndromes
- Adverse drug reactions between PD medications and those used commonly in the perioperative period
- Perioperative complications e.g. of the respiratory and neurologic systems

The purpose of this guideline is to reduce the risk of adverse outcomes for all patients with PD undergoing elective surgery at the John Hunter Hospital.

Risk Category*:* Clinical Care & Patient Safety

GLOSSARY

Acronym or Term	Definition
CNC	Clinical Nurse Consultant
CVS	Cardiovascular system
DBS	Deep brain stimulator
ECG	Electrocardiogram
GORD	Gastro-oesophageal reflux disease
MAO-B	Mono-amine oxidase-B
MRI	Magnetic resonance imaging
MRN	Medical record number
NBM	Nil by mouth
NGT	Nasogastric tube
NJT	Nasojejunal tube
OSA	Obstructive sleep apnoea
OT	Operating theatre
PD	Parkinson's Disease
PO	Per oral
TCI	To come in

John Hunter Hospital / Service Manager Responsibility

- Ensure that the principles and requirements of this procedure are applied, achieved and sustained
- Ensure effective response to, and investigation, of alleged breaches of this procedure.
- Ensure all staff have completed My Health Learning online module Introduction to Safety and Quality (course number 42189807)
- Notify staff of all new and revised local procedures and guidelines through the JHH Newsletter

Line management responsibility

- Notify staff of new and revised policies, procedures and guidelines relevant to the workplace / unit / clinical specialty.
- Post the JHH newsletter (with policy, procedure and guideline updates) in staff rooms
- Identify high clinical risks relevant to patient population of unit/specialty and undertake audits of compliance with relevant policies, procedures or guidelines.

Employee responsibility

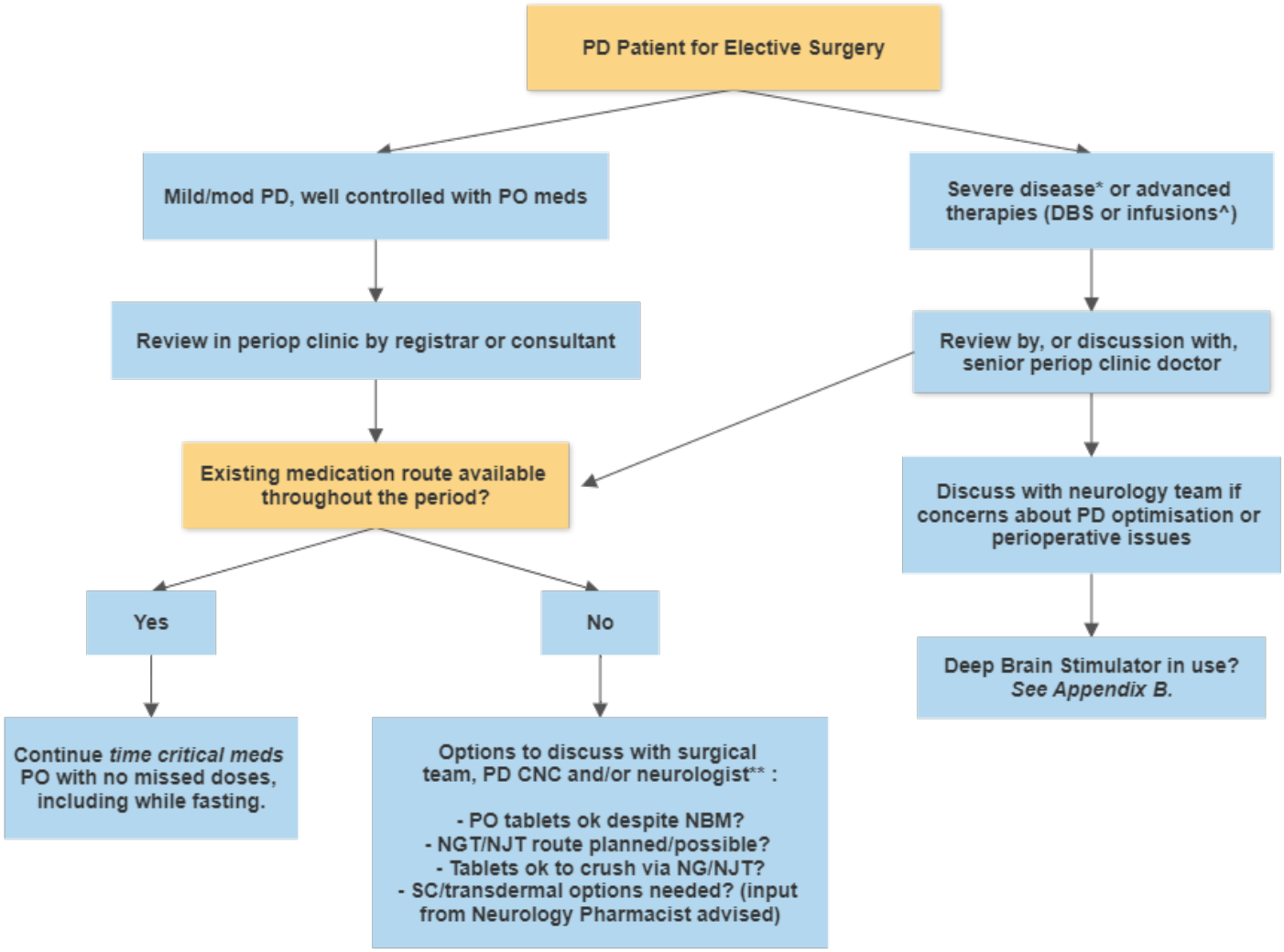
Staff must:

- Comply with policies, procedures and guidelines applying to their workplace / unit / specialty
- Report unsafe practices, equipment or environment to line manager
- Escalate any patient safety concerns to line manager, including if it is assessed that policies, procedures or guidelines do not reflect contemporary practice

GUIDELINE

This Guideline does not replace the need for the application of clinical judgment in respect to each individual patient. If you have concerns about the suitability of this advice for an individual patient, contact the PD CNC, Movement Disorders Team or the patient's neurologist.

Perioperative Clinic Doctor Roles:



* Severe disease shown by need for substantial assistance with all ADLs, Hoehn and Yahr classes 4-5 (Appendix A)
^ Infusions via PEG/PEJ are small volume and able to continue while fasting.
** Nb. Alternative routes need to be arranged well in advance of hospital admission as the patient may require a drug challenge.

Key Features of Perioperative Anaesthetic Review:

- *Document medication names, dosages, specific times (confirmed with two sources).*
- *Advanced therapies (e.g. infusions), can usually be continued throughout the perioperative period. Guidance for their use can be documented based on information provided by the patient. If concerns, contact the PD CNC.*
- See Deep Brain Stimulator guideline in Appendix B, if relevant.
- Document all discussions with neurologist, PD CNC or surgeon.
- Identify key features, and severity of, the patient's PD symptoms including GORD/dysphagia, upper airway dysfunction, respiratory impairment, fixed flexion neck deformity, OSA, CVS autonomic dysfunction, falls, movement features, malnutrition, and cognitive decline.
- Add a Warning Note for Severe Comorbidity
- Discuss risks with the patient including, where appropriate, delirium, aspiration, respiratory failure, exacerbation of PD symptoms, veno-thromboembolism, and increased length of stay.
- Patients taking MAO-B inhibitors (eg rasagiline or safinamide)
    - Continue these perioperatively.
    - Highlight their use on the anaesthetic chart as there are multiple anaesthetic implications
    - https://www.ukcpa-periophandbook.co.uk/medicine-monographs/monoamine-oxidase-b-mao-b-inhibitors

- **Adverse drug reactions for *all* PD patients:**
    - Phenothiazines (e.g. prochlorperazine)
    - Benzamides (e.g. metoclopramide)
    - Butyrophenones (e.g. haloperidol, droperidol)

Additional patient information and support:

- Consider referring the patient to handouts from Parkinson's Australia
    - Parkinson's and Hospitalisation https://www.parkinsonsnsw.org.au/wp-content/uploads/2020/04/Parkinsons-Hospitalisation-Guidelines.pdf
    - Medication Safety https://www.parkinsonswa.org.au/wp-content/uploads/2017/03/Parkinsons-WA-Medications-to-be-Used-with-Caution-April-2017.pdf

- The patient may wish to contact the PD CNC Evelyn Collins on (02) 49855442 or Evelyn.Collins@health.nsw.gov.au

Nursing roles for *all* PD patients:

Notify PD CNC	List Management
•Email the PD CNC who will triage movement team involvement: Evelyn.Collins@health.nsw.gov.au •Specify: Patient name, MRN, surgery, surgeon, TCI date, name of neurologist, medications details and DBS make/model (if present)	•1st on list where possible •Add a Perioperative Warning Note (Severe Comorbidity) •Add an iPMS alert

APPENDICES

Appendix A – Hoehn and Yahr Scale

Appendix B – Perioperative Implications of DBS

REFERENCES

- Management of medication for patients with Parkinson disease. NSW Ministry of Health Safety Alert Broadcast System. SN:002/20
- JHH_JHCH_BH_0257: Perioperative medication management
- Chambers D, Sebastian J, Ahearn D. Parkinson's Disease. *BJA Ed*. 2017;17(4):145–149 (2017) doi: 10.1093/bjaed/mkw050
- Nicholson G, Pereira A, Hall G. *Parkinson's Disease and Anaesthesia. Br J of Anaesth* 2002; 89: 904-16
- Uptodate - Anaesthesia for deep brain stimulator implantation. (Accessed September 2021)
- Poon C, Irwin M. Anaesthesia for deep brain stimulation and in patients with implanted neurostimulator devices. *Br J of Anaesth.* 2009;102(2):152-165 DOI:https://doi.org/10.1093/bja/aep179
- Dobbs P, Hoyle J, Rowe J. Anaesthesia and deep brain stimulation. *CEACCP* 2009;9(5):157–161, https://doi.org/10.1093/bjaceaccp/mkp027
- Yeoh T et al. Anaesthesia considerations for patients with an implanted deep brain stimulator undergoing surgery: a review and update. *Can J Anaesth.* 2017; 64(3): 308-319

Appendix A – Hoehn and Yahr Scale

Appendix B – Perioperative Implications of DBS

General considerations:

- *A plan for the DBS should be formulated and documented in the Perioperative Clinic, where possible.*
- It *may* not be necessary to turn the DBS off for surgery. Review the requirement for diathermy, in particular.
- Perioperative recommendations should be sought from the manufacturer (Medtronic, Boston Scientific etc), as this technology continues to evolve and recommendations may vary over time.

- **Switching the DBS off and on again:**

    - Discuss preoperatively with the patient's neurologist or the Parkinson's CNC to determine if alternative medication coverage will be needed while DBS is off, based on patient's symptoms and surgery length. Alternate medication usually needs to be initiated *before* switching off the DBS.
    - For patient comfort, the device is usually switched off after induction of anaesthesia and back on before emergence.
    - Device is switched off/on by the anaesthetist using the Patient Programmer, based on the patient's instructions, device booklet, or the web-based instruction manual.
    - The device does not need to be interrogated after switching back on, unless it becomes apparent that it is not functioning correctly.

- Identify by palpation the anatomic course of the entire device (usually subclavicular space with leads up the neck, posterior to ear and to the crown of the head). Occasionally the IPG (battery/stimulator) is in the abdomen and not in the chest.

- **If any concerns or questions, contact:**
    - Within hours: PD CNC (Evelyn Collins 4985 5442) or the device rep.
    - After hours: Device rep/helpline (preferred) or the Neurology AT.

Safety Considerations for patients with a DBS:

MRI
- Compatibility depends on the device type, scan duration and MRI machine type/capabilities.
- Consultation of the manufacturer's guidelines *must* occur.

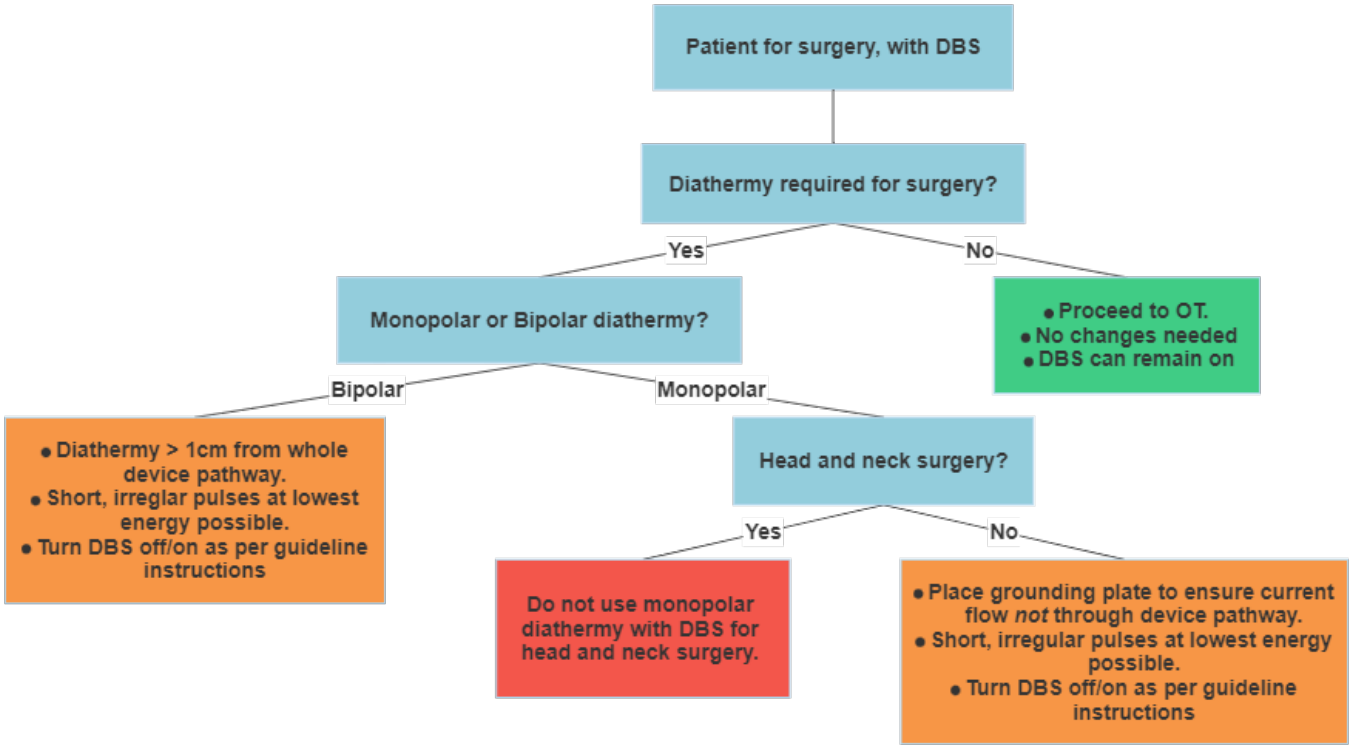
ECT, radiofrequency neuroablation and peripheral nerve stimulation
- May be used with the device off and the stimulation as far from the device as possible (based on case studies).

ECG
- DBS may cause interference.
- Note if the DBS is turned off in an un-anaesthetised patient, tremor may also cause interference.

Cardiac defibrillators
- Should be used far from the device, perpendicular to the leads, and at the lowest energy possible.
- The device should be interrogated afterwards.

Diathermy

- Risk of damage to surrounding neural tissue, and the device.



Short wave diathermy

- Used as a musculoskeletal therapy.
- Should *not* be used over/near the device site.

<u>Perioperative Nursing roles with DBS:</u>

- Add alert to iPMS including the brand and technical support line phone number
- Add a Perioperative Warning Note (Other)
- Email the make/model of DBS to the PD nurse, as per the nursing instructions for all PD patients.
- Include a photocopy of the patient's device card in Perioperative Clinic notes.
- Advise patient to bring labelled Patient Programmer with them to hospital and instruction booklet.
- If the DBS is a rechargeable unit ask the patient to bring the charger for their hospital stay.