Joint Trust Clinical Guideline for Monitoring of patients with Guillain–Barré Syndrome (GBS)

A Clinical Guideline

For Use in:	Neurology and Medicine
By:	All staff treating patients with Guillain–Barré Syndrome (GBS)
For:	All Medical Staff
Division responsible for document:	Medical Division
Key words:	Guillain–Barré
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Assessed and approved by the:	Clinical Guidelines Assessment Panel (CGAP) If approved by committee or Governance Lead Chair's Action; tick here ☑
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To be reviewed by:	Dr Godwin Mamutse, NNUH
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Compliance links: *(is there any NICE related to guidance)*	None
If Yes - does the strategy/policy deviate from the recommendations of NICE? If so why?	N/A

This joint guideline has been approved by the Trust's Clinical Guidelines Assessment Panel as an aid to the diagnosis and management of relevant patients and clinical circumstances. Not every patient or situation fits neatly into a standard guideline scenario and the guideline must be interpreted and applied in practice in the light of prevailing clinical circumstances, the diagnostic and treatment options available and the professional judgement, knowledge and expertise of relevant clinicians. It is advised that the rationale for any departure from relevant guidance should be documented in the patient's case notes.

The Trust's guidelines are made publicly available as part of the collective endeavour to continuously improve the quality of healthcare through sharing medical experience and knowledge. The Trust accepts no responsibility for any misunderstanding or misapplication of this document.

(Title of document needed on every page)

Version and Document Control:

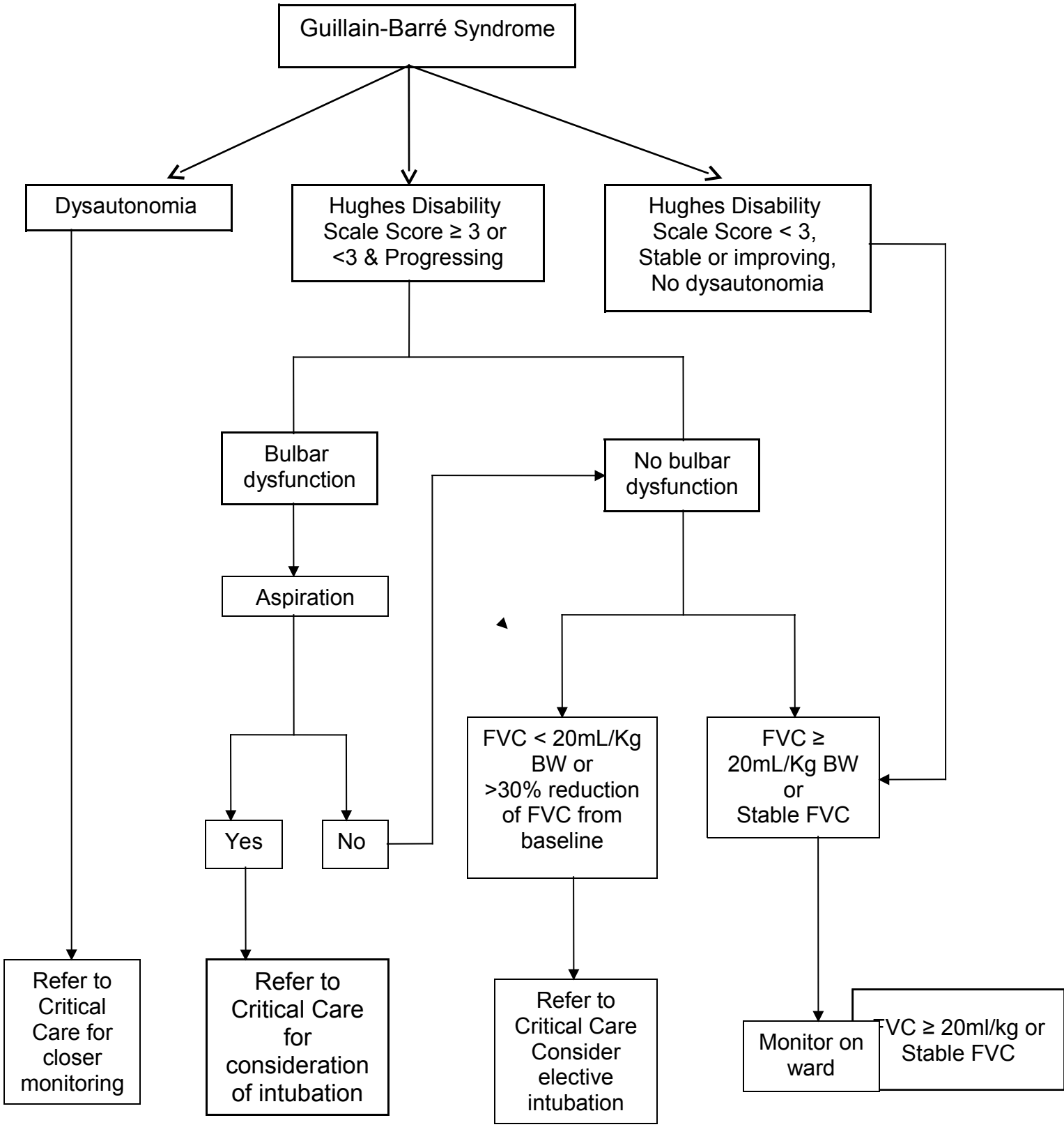
Version Number	Date of Update	Change Description	Author
3	03/02/2022	Minor changes only to key people	Dr Godwin Mamutse

This is a Controlled Document

Printed copies of this document may not be up to date. Please check the hospital intranet for the latest version and destroy all previous versions.

Quick reference guideline/s

Monitoring of adult patients with acute Guillain–Barré Syndrome (GBS)



Refer to Critical Care Consider elective intubation
Monitor on ward

Objective and Rationale

40% of patients with Guillain-Barré Syndrome (GBS) have respiratory muscle involvement and up to 25% develop neuromuscular respiratory failure. It is thus essential to establish the extent of respiratory muscle involvement, especially in patients with rapid onset weakness involving the bulbar or shoulder girdle muscles, in order to anticipate the need for mechanical ventilation. The decision to intubate should be semi-elective because emergency intubation is associated with a higher complication rate.

Bedside pulmonary function tests should be used to monitor respiratory muscle function and are useful in guiding decisions to consult Critical Care specialists for consideration of intubation and respiratory support. Additional factors to guide intubation include patient age and comorbidities.

Autonomic disturbances represent other cardinal features of GBS. Manifestations of autonomic dysregulation include postural hypotension, diaphoresis, ileus, bladder retention, hypertension and potentially life-threatening cardiac arrhythmias. Signs of autonomic dysfunction may dangerously worsen as the patient rapidly evolves into respiratory failure.

Assessment and monitoring of ward patients with GBS for clinical and laboratory evidence of impending respiratory failure should inform the timing of consultation for Critical Care Unit admission and management.

An audit of monitoring of patients with neuromuscular weakness revealed room for improvement and highlighted the necessity for a guideline for monitoring patients with acute neuromuscular weakness. Although this guideline focuses on monitoring of patients with GBS, the recommendations may be broadly applied to other causes of acute neuromuscular weakness.

Definitions of Terms Used / Glossary

Forced vital capacity (FVC) - maximum volume of air expired from the lungs after a maximum inspiration.

Broad recommendations

Assessment of the patient with acute neuromuscular weakness should include an enquiry into symptoms and examination for clinical signs of respiratory muscle weakness. In patients with GBS, the Hughes Disability Scale Score (see appendix) provides as easy guide to the degree of clinical disability.

As the signs of respiratory muscle weakness may occur too late to guide management, FVC should be monitored in patients with neuromuscular weakness. FVC is a simple, widely available measure of the strength of respiratory muscles. As the validity of FVC is dependent on technique, the best of 3 readings should be recorded.

In patients with facial weakness, the lip grip of the spirometry mouthpiece may be weak, causing leakages and inaccurate FVC readings. An oro-nasal mask may be more reliable in patients with facial weakness to reduce leakages. FVC readings should be interpreted in the context of the clinical symptoms and signs, as well as the trend in the readings.

Recognising respiratory failure

Clinical markers of failing respiration include:

1. One or more of a triad of:
    - Rapid and substantial weakness, occurring over a few days with inability to lift elbows or head off the bed (which correlates well with the degree of diaphragmatic weakness).
    - Facial weakness (flattening of naso-labial fold, inability to smile).
    - Bulbar palsy, indicated by difficulty swallowing with choking, cough after swallowing or drooling, absent gag reflex or slurred speech / weak cough.
2. Shallow or rapid breathing with reduced breath sounds in the bases of the lungs.
3. Staccato speech, with only a few words spoken with each breath. Inability to count to over 10 with one breath provides a quick bedside marker of an FVC down to 1 litre, signalling impending failure. A normal FVC allows counting to 20 in one breath.
4. Autonomic instability (dysautonomia) as indicated by fluctuating blood pressure and/or heart rate.
5. Tachycardia and/or brow sweating, from stress- induced adrenergic drive.
6. Paradoxical breathing, i.e., inward movement of abdominal muscles during inspiration, reflecting diaphragm fatigue and/or episodic use of accessory muscles of respiration.
7. Mental clouding or somnolence.

Laboratory markers of failing respiration include:

1. Oxygen saturation less than 92%; pO_2 < 8kPa; CO2 > 6kPa (in patients without chronic lung disease) on arterial blood gases.
2. FVC <20 mL/Kg body weight (BW).
3. > 30% of FVC from baseline within 24 hours.
4. Inconsistent or falling values of FVC at a single test session.

Suggested monitoring of patients with acute GBS

- 4 hourly FVC; 1-2 hourly if FVC < 20mL/Kg BW.
- 4 hourly Pulse, BP, RR, SO_2; 1-2 hourly if FVC < 20mL/Kg BW.
- Check arterial blood gases if clinical or laboratory signs of failing respiration are present.

FVC values should be entered on the designated FVC chart (see appendix 1) to allow easy visualisation of the trend of recordings. The accompanying recommendations should guide actions to be taken in light of FVC readings/trends and clinical findings.

Indications for Critical Care consultation (in liaison with Consultant Neurologist)

1. Clinical and laboratory markers of failing respiration, as above. The laboratory markers of failing respiration precede clinical markers and provide an early guide to Critical Care consultation before clinical markers develop.
2. Complicating medical conditions such as sepsis, pulmonary embolism, or aspiration pneumonia.

Indications for intubation

1. FVC < 15mL/ Kg BW. In the fatigued patient, an FVC fall to 18 mL/Kg BW may suffice to ventilate.
2. Hypoxia or hypercapnia.
3. Consider intubation in patients with bulbar weakness, diminished cough and signs of dysautonomia.

Clinical audit standards

To ensure that this document is compliant with the above standards, the following monitoring processes will be undertaken:

It is proposed to re-audit the monitoring of patients with acute neuromuscular weakness once the guideline has been in place for 1 year.

The audit results will be sent to the Service Director for Neurology who will ensure that these are discussed at relevant governance meetings to review the results and make recommendations for further action.

Summary of development and consultation process undertaken before registration and dissemination

Comments on the first document were sought from Neurology Directorate consultants, Dr Manu Naik, Critical Care consultant, and Andree Glaysher, then Neurology ward sister-in-charge. This version has been endorsed by the Clinical Guidelines Assessment Panel.

Distribution list / dissemination method

The guideline will be incorporated into Trust management guidelines.

The monitoring chart will be used in acute medical wards, including neurology.

References

Cramer CL, Wijdicks EFM, Rabinstein AA. Acute neuromuscular disorders. 2013 Neurocritical Care Society Practice

Mangera Z, Panesar G, Makker H. Practical approach to the management of respiratory complications in patients with neuromuscular disorders. International Journal of General Medicine 2012; 5: 255- 263

Guillain-Barré Syndrome: An Acute Care Guide for Medical Professionals. GBS/CIDP Foundation International 2012 Edition

Hughes RA, Newsom-Davis JM, Perkin GD, Pierce JM. Controlled trial prednisolone in acute polyneuropathy. Lancet 1978;2(8093):750-753

Appendix 1 (downloadable in Trust Docs)

Forced Vital Capacity (FVC) Guillain–Barré Syndrome (GBS) Monitoring Chart [please click here]

Large Patient ID Label

Date *(dd/mm/yy)*															
Time *(24 hour clock)*															
Initial of recording clinician															
Enter FVC levels in litres using a decimal point e.g. 0.7. Also indicate with a "x" next to the 0-4 litre range below.															
FVC value															
4															
3															
2															
1															
0															

Example

Hughes Disability (HD) Scale Score (mark with a "x" in the section below) *(for GBS; from Hughes et al, Lancet 1978)*			
HD Score 0	Healthy	HD Score 1	Minor symptoms and signs, able to run
HD Score 2	Able to walk 5 m independently	HD Score 3	Able to walk 5 m with a walker or support
HD Score 4	Bed- or chair-bound	HD Score 5	Requiring assisted ventilation

HD score 0															
HD score 1															
HD score 2															
HD score 3															
HD score 4															
HD score 5															