

**NATIONAL GUIDELINES ON NURSING MANAGEMENT OF NASOGASTRIC
TUBE (NGT) IN ADULT PATIENTS**
FREQUENTLY ASKED QUESTIONS

General

1. What is the definition of an “adult”?

As there are differing age limits for different legislations, for the purpose of this national guidelines, adults are defined as those who are 18 years old and above according to the Penal Code.

2. Are there any recommended brands of nasogastric tubes or tapes that institutions should use?

As institutions may have their brand preferences and varying contracted vendors, the guidelines will not specify certain brands of NGT or tapes that institutions should use. It is up to individual institution’s discretion.

However, certain brands of NGT or tapes do come with marked indications to better assist nurses with their measurements. Institutions may want to consider such factors when purchasing their equipment.

pH Testing

3. The recommended pH value for safe feeding in the guidelines is ≤ 5.5 ; however, my institution has a different pH level for safe feeding.

4. My institution uses pH strips that can only measure pH 5 or 6 and not at values of 0.5.

Institutions should continue with their own workflow i.e. to use the pH value of 5 (if equal or less than pH 5.5) and to use the pH value of 6 (if more than pH 5.5).

It would also be useful for institutions to source for pH strips with 0.5 gradation intervals and standardise Group Purchase Orders with partners to use the same type and brand of pH strips.

For reference, the following brands of pH strips with intervals of 0.5 are being used locally:

1. MQuant®
2. Johnson®

5. Is 1ml of aspirate sufficient for pH testing?

As the required volume for pH testing was not mentioned in the previous MOH CPG, the Workgroup has included the recommendation that **at least 1ml** of aspirate would be required for pH testing.

Institutions are reminded that a **holistic assessment** of the patient should be carried out prior to obtaining aspirate for pH testing and **exercise discretion** on the total volume of aspirate required before pH testing, where necessary.

However, in cases whereby the pH is ≥ 5.5 , it is recommended that the aspirate should be more than 10ml and resembles gastric content (in Chapter 3 of the Guidelines).

Decision Criteria

6. For the decision criteria, why is the criteria on “aspirate to be more than 10ml and resembles gastric content” considered one criterion instead of two?

It is essential that at the same point of testing, more than 10ml of aspirate can be obtained and the aspirate must also resemble gastric content. This is because some aspirate may still be obtained even if the NGT is in the wrong placement, hence it is important to ensure that the aspirate also resembles gastric content.

Monitoring of SpO2

7. Is the monitoring of SpO2 a new measure included in the guidelines, and will this be made mandatory?

The monitoring of SpO2 is a new monitoring measure that has been introduced in the national guidelines. It is a highly recommended practice that can be easily administered to detect any sudden desaturation in oxygen levels when practiced in conjunction with the instillation of water. This would be useful for patients who are unable to express or demonstrate any signs of distress.

8. What is the recommended SpO2 acceptable range for patients with NGT and what constitutes a drop in SpO2 that will be considered sudden desaturation?

The SpO2 range has not been stipulated in the guidelines as nurses need to exercise critical thinking in contextualising the individual patient's condition in the provision of nursing care. For example, the baseline of a patient with chronic obstructive pulmonary disease (COPD) will be different from another patient without. The reading of SpO2 needs to be read in conjunction with overall patient's condition and other parameters, the presence of any signs or symptoms of a patient in distress and the deviation or change from the usual baseline of SpO2.

9. How many percentages drop in oxygen saturation is consider abnormal?

Any changes in oxygen saturation should be reviewed and assessed accordingly, especially if it defers from a patient's baseline. Rapid decline in SpO₂ along with signs and symptoms of respiratory distress should prompt the reassessment of the patient's clinical status and the position of the NGT.

10. Should SpO₂ monitoring be carried out before and throughout NGT insertion?

In general, SpO₂ monitoring may be done prior to NGT insertion to obtain a baseline for comparison when water instillation is done. SpO₂ monitoring during NGT insertion is for monitoring for signs of desaturation and distress to allow the nurse to pace the insertion, especially if patient is coughing.

The use of SpO₂ monitoring should be contextualised and adopted where appropriate. For example, SpO₂ monitoring can be carried out in conjunction with the instillation of water for the confirmation of existing tube placement. This would be useful for patients who are unable to express or demonstrate any signs of distress. However, in cases where patients are actively moving or not cooperative, it may not be appropriate as the readings will be in fluctuation.

Auscultation

11. Should Auscultation be recommended as a confirmatory method for establishing NGT placement?

While some guidelines or institutions do not recommend the use of auscultation as the sole confirmatory method for NGT placement, it has been included in the guidelines as one of the confirmatory methods in tandem with other criteria that can be used by trained nurses. Again, clinical staff **should not use this as a sole method or consider using it as a first step**. It should be used only in addition after deploying the first approach of pH testing, or in community settings where other manoeuvres to obtain NGT aspirate from a patient have failed.

12. Can auscultation be considered in the acute care setting as well, before proceeding with chest X-ray?

Institutions should still follow their own practices, using the national guidelines as an additional reference which sets the minimum standards to obtain. Institution may wish to adopt the practice of auscultation as an adjunct method of tube placement with appropriate workflow to ensure the safety of practice, for example, the procedure should only be carried out correctly and cautiously by **trained nurses** in conjunction with SpO₂ monitoring and no other indications for tube migration.

Additionally, if the burden of obtaining a chest X-ray is assessed to be low, institutions may choose to proceed directly for chest X-ray ahead of auscultation as a modality of establishing the position of the NGT.

Instillation of Water

13. What is meant by “instillation” of water? How can water be instilled?

The use of the word “instillation” is to emphasise for a small amount of water to be given slowly under watchful action of SpO₂ monitoring or for any respiratory distress.

It is important to assess the option that is more suitable for the patient that care is provided for e.g. gravity flow or assisted flow. One recommendation for gravity flow is to ensure that the column of water in the NGT has completely flowed in before capping. This is to avoid testing for aspirate as water may still be within the NGT versus aspirate from the stomach. For assisted flow, institutions may consider facilitating the flow in small amounts of 2ml each time (maximum of 10ml).

14. Is the instillation of water a safe procedure that can be carried out?

The instillation of water was developed based on institutions’ experience and born out of patients’ clinical care needs based on considerations such as availability of chest X-ray and feasibility and safety of patients with repeated X-ray exposures, especially for those with frequent difficulties in obtaining aspirates. The risk of harm to patients is assessed to be low when practiced correctly and cautiously by trained nurses.

15. What kind of water should be instilled?

Drinking water or cooled boiled water.

16. How can we address the safety concerns regarding the instillation of water?

The instillation of water should be done progressively and slow in intervals of 5 minutes up to 10 ml of water. The water for instillation can be either drinking water or sterile water that both are clean and safe. In this new set of guidelines, instillation of water is only recommended in two scenarios. The first scenario is when nil aspirate could be obtained from the existing tube after proper manoeuvres. The second scenario to instill a small amount of water is when pH is above 5.5 and two other tube placement confirmation criteria were fulfilled. Both scenarios are considered low risk using either an existing tube or when the tube placement has been confirmed with two or more criteria.

During the instillation of water, nurses should continue to monitor for any signs of respiratory distress such as cough, increased respiratory rate, drop in SpO₂ below baseline, throat secretions and breathlessness.

17. Why is there a need to wait another 30 mins after instillation of water before aspirating again?

There are multiple factors to be considered and it is left to the clinical staff’ discretion on the waiting duration from 0 minutes to 30 minutes.

For example, when a clinical staff attempts to aspirate at 5 minutes with no aspiration, it is advisable to wait and aspirate again within 30 minutes' timeframe to allow the gastric fluids to flow to the tip of the tube. The additional wait can also allow for time before deciding to abort the procedure.

18. Can the instillation of water be considered another method of verification in addition to the decision criteria?

The instillation of water is an additional check for existing NGT and should not be considered as a verification method.

19. If the tube placement is confirmed through CXR, is there still a need to carry out the instillation of water as an additional check before proceeding to feed?

The instillation of water is recommended as an additional check where appropriate for greater assurance. If the tube placement has been confirmed or verified, it is safe to proceed with feeding without having to carry out this additional check.

Positioning of Patients / NGTs

20. Can the guidelines specify the duration to position the patient during and after NGT feeding?

Patients should be positioned with a Head of Bed (HOB) elevation of at least 30° during and after NGT feeding unless contraindicated to prevent complications such as silent aspiration. However, the duration to position the patient is dependent on the patient's health condition. While the average recommended duration is 45 minutes to one hour, some patients might be unable to be at HOB of 30° for prolonged periods of time due to reasons such as frailty or pressure injury wounds. Nurses should monitor and adjust the patient's position as needed.

21. Is there a recommended or preferred way to anchor NGTs?

In general, there is not recommended or preferred way to anchor NGTs as long as the NGT is secured with tape or micropore that prevents tube dislodgement. Avoid pressure on the nostrils and ensure that skin integrity is intact.

Attempts at NGT Insertion

22. My institution protocol does not allow up to 5 maximum attempts on NGT insertion. How many attempts should I follow?

Institutions may set a stricter requirement with a lower number of maximum attempts if preferred. Nurses should follow their institutional protocols as long as it does not exceed the maximum number of 5 attempts as recommended in the national guidelines.

23. In cases where multiple attempts at NGT insertion can be traumatic and stressful especially for elderly patients, how do we ensure safe and dignified care can be provided for the patients?

Nurses should take into consideration a patient's condition such as nutritional status, blood sugar level, diabetes and other critical medications when attempting multiple NGT insertions and review the patient's care plan with the medical team and caregivers if needed. In situations where NGT insertions are difficult for a patient, or where a patient refuses the insertion of NGT, suggest for staff to refer to their institutional policy/protocol to decide on alternative methods that could be more suited for the patient.

24. What is the recommendation if nil aspirate is obtained even after the usual actions (inserting air and turning to left lateral position)?

For new NGT:

If no aspirate is obtained, remove and re-attempt NGT insertion if needed.

For existing NGT:

If no aspirate is obtained even after positioning the patient to left lateral side, reposition the patient in an upright position and instil up to a maximum of 10 ml of cool boiled / distilled water progressively and slowly in intervals of 5 minutes through the NGT.

Assess if the flow of water is smooth and monitor for any drop in patient's oxygen saturation level. Stop immediately if there is any presence of difficulties in water flow or a drop in patient's oxygen saturation level or if patient is showing any signs of respiratory distress.

Wait for up to 30 minutes before trying to obtain aspirate again.

If there is still no aspirate obtained, a trained staff member should perform the auscultation to hear the first "whoosh" sound (sound should be loud and clear).

When in doubt, more senior or experienced nursing staff should be asked to perform the auscultation.

Should all the above steps fail and nil aspirate could be obtained, nurses should consider CXR or to remove and re-insert the new NGT.

Please refer to Chapter 3, Table 3.2 (page 15) of the NGT guidelines for more details.

NGT Feeding

25. Is there a need to measure the external length of the NGT before each feed, even if the length has been checked and used for first feeding?

Yes, external length of the NGT should be checked before each feed as tube migration can happen in between feeds. A visual check should be carried out to ensure the NGT is not misplaced at the nostril and that it has not shifted from any previous markings. Nurses should also check that there is no coiling of the tube at the back of the mouth and the patient is not showing any signs of respiratory distress.

Ethical / Social Considerations

26. How can institutions avoid restraining patients when they receive patients who are prone to struggles etc?

Patient assessment is important to calm and assure patients. For patients with underlying medical conditions that may cause behavioural issues e.g. dementia patients with behavioural and psychological symptoms of dementia (BPSD), it may be good to discuss with physicians how the behaviours can be better managed.

If required, family conferences or discussions on Advanced Care Planning (ACP) should be carried out between the caregiver and healthcare team to make a joint decision on the indications for tube feeding and whether alternative methods of feeding delivery would be more appropriate to support the patient's nutrition such as careful hand feeding or using a Percutaneous Endoscopic Gastrostomy (PEG) tube.

If restraints are still necessary despite best efforts to use non-pharmacological methods to calm the patient (such as using mittens, mechanisms should be put in place to ensure that patient's skin is checked regularly.

Please refer to Chapter 4, Section 5 (page 23) of the NGT guidelines for more details.

Staff / Caregiver Training

27. What is the recommended staff training for settings / institutions which have fewer opportunities to practice or be assessed in NGT related procedures?

Staff training should be carried out according to each institution's own training policies, but some considerations include training using a mannequin to aid in NGT insertion and simulating case scenarios to discuss the management of patients requiring NGT.

28. Should caregiver training include respiratory monitoring with an SpO2 probe?

It is strongly encouraged if caregivers do not have financial concerns in obtaining an SpO2 probe.

Provision of caregiver training would also depend on several considerations such as the caregiver's level of understanding, capability and readiness to perform the procedure/s. Institutions should consider the risk factors and put in place safety measures to mitigate these risks.

It is recommended for institutions to incorporate the assessment of caregiver readiness into their own policies and practices for caregiver training.

29. Should caregivers be trained to perform instillation of water to patients at home?

In addition to the points mentioned in Qn 28 regarding caregiver readiness, it is also important for caregivers to have a good understanding of how and why the instillation of water is carried out, the precautions of this procedure and the monitoring of patients.

30. Should caregivers be trained in obtaining aspirate? What should caregivers do if no aspirate was obtained?

Please refer to the principles mentioned in Qns 28 and 29 on caregiver readiness and training.

For cases in the community where no aspirate was obtained, please refer to the flowchart in Annex B (pages 32-33). When in doubt, caregivers should also be advised to contact their healthcare provider who has been supporting them with the patient's NGT care management.

31. Should caregivers be trained in auscultation?

No, auscultation should only be carried out by trained healthcare professionals.