
HEALTHCARE PRACTICE GUIDELINES

**CARE AND MONITORING
OF ENTERAL ACCESS
FOR ENTERAL NUTRITION
IN ADULTS IN HOSPITAL
AND AT HOME**

May 2000

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159, rue Nationale - 75640 Paris cedex 13 - Tél. : 01 42 16 72 72 - Fax: 01 42 16 73 73

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INTRODUCTION

Variations in practice - whether with regard to diagnostic, treatment or care strategies - rapid advances in knowledge, and constant improvement in medical technologies, all of these factors highlight the need for evaluation and quality improvement in the area of health. Properly designed practice guidelines must be available if practitioners are to choose the best strategies and the most appropriate ways of implementing them.

As part of its mission of developing practice guidelines, ANAES has produced guidelines concerning the care and monitoring of enteral accesses for enteral nutrition. They are based on a critical review of the literature, identification of the level of scientific evidence of the research, the opinion of experts and analysis of professional practice including professional documents. They define, in general terms, the chronological sequence of actions recommended for the practice of care, with the level of evidence and type of justification given for each action.

These guidelines need to be appropriated by professionals. This means that they have to be converted into protocols for care which can then act as standard procedures for the quality initiatives professionals carry out in their practice, such as clinical audit and quality improvement programmes.

The production and application of practice guidelines contributes to improving the quality of care given to patients and to better use of resources. ANAES' goal is to respond to the concerns of professionals who seek to base their care practice on the most rigorous and objective foundation possible.

Professeur Yves Matillon
Executive Director, ANAES

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- *Association de Recherche en Soins Infirmiers,*
- *Association des Diététiciens de Langue Française,*
- *Association Nationale Française des Infirmières et Infirmiers diplômés ou étudiants,*
- *Association pour la Promotion de l'Expertise et de la Recherche en Soins Infirmiers,*
- *Société Française d'Anesthésie et de Réanimation,*
- *Société Française de Gériatrie,*
- *Société Française des Infirmiers de Soins Intensifs,*
- *Société Francophone de Nutrition Entérale et Parentérale,*
- *Société Nationale Française de Gastro-Entérologie,*
- *Société de Réanimation de Langue Française.*

Anne-Françoise Pauchet-Traversat coordinated the work under the responsibility of Professor Alain Durocher, Head of the Guidelines Department.

Documentary research was carried out by Emmanuelle Blondet assisted by Sylvie Lascols, under the responsibility of Hélène Cordier, Head of the Documentation Department.

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MANAGEMENT COMMITTEE

Maryse DALMASSE, nursing manager, Versailles

Catherine DUBOYS-FRESNEY, director of nursing, Paris

Dr. Monique FERRY, geriatrician, Valence

Chantal GABA-LEROY, senior nursing manager, Clichy

Marie-Claude LEFORT, director of nursing, La Roche-sur-Yon

Professor Éric LEREBOURS, hepatologist and gastroenterologist, Rouen

Professor Xavier LEVERVE, nutritionist, Grenoble

Michèle MAITRE, dietician, Charenton-le-Pont

Professor Pierre MAURETTE, anaesthetist and intensivist, Bordeaux

Professor Fabienne SAULNIER, medical intensivist, Lille

WORKING GROUP

Professor Xavier LEVERVE, nutritionist, Grenoble, coordinator

Chantal JEANMOUGIN, senior nursing manager, Besançon, project manager

Dr. Patrick BACHMANN, anaesthetist and intensivist, Lyon

Christiane BENEDETTI, nurse, Marseille

Dr. Gérard BLEICHNER, medical intensivist, Argenteuil

Ginette ERICHER, nurse, Ivry-sur-Seine

Dr. Monique FERRY, geriatrician, Valence

Anne LEFEVRE, nurse, Montreuil

Sylviane PASDELOUP, nurse, Clamart

Dr. Françoise RIAUD, pharmacist, La Roche-sur-Yon

Dr. Stéphane SCHNEIDER, gastroenterologist, Nice

Nadine SIMON, nurse, Lyon

Mireille SIMON, dietician, Vandœuvre-lès-Nancy

Loïc TURBEL, nurse, Rennes

READING GROUP

Dr. Emmanuel ALIX, geriatrician, Le Mans
Agathe ANTOLINI, nursing manager, Ivry-sur-Seine
Dr. Jean-Michel BADET, ENT specialist, Besançon
Dr. Philippe BEAU, gastroenterologist, Poitiers
Paule BIROT, director of nursing, Arles
Dr. Michèle BONCOMPAIN-GÉRARD, medical intensivist, Lyon
Dr. Monique BRET, intensivist, Lyon
Dr. Jean-Félix BROUSSARD, gastroenterologist, Antibes
Pascale CANI, nurse, Argenteuil
Geneviève CHIRON, nursing manager, La Roche-sur-Yon
Dominique COMBRET, dietician, Lyon
Dr. Thierry CONSTANS, geriatrician, Tours
Maryse DALMASSE, nursing manager, Le Chesnay
Monique DE PRADOS, nursing manager, Caluire
Dr. Béatrice DERYCKE, geriatrician, Draveil
Professor Bertrand DUREUIL, member of ANAES' Scientific Council,
intensivist, Rouen
Roger FAROUX, gastroenterologist, La Roche-sur-Yon
Danielle FEILLEL, nursing manager, Paris
Dr. Albert FHIMA, general practitioner, Lyon
Chantal GABA-LEROY, senior nursing manager, Clichy
Brigitte GARD-VALETTE, nursing manager, Paris
Madeleine GAUVRIT, nursing manager, La Roche-sur-Yon
Dr. Patrick GELAS, intensivist, Lyon
Annie GLORIOD, nursing manager, Besançon
Dr. Claire GUEDON, gastroenterologist, Rouen
Brigitte GUERRIN, nursing manager and educator, Pontoise
Murielle GUILLOT, nursing manager, Lyon
Gérard GUINGOUIN, nurse, Bonnetable
Myriane IDZIK, nursing manager, Lille

Guy ISAMBART, director of nursing, Clermont
Laurence JAMMES-VEAUX, nurse, Saint-Jouan-des-Guerets
Ljiljana JOVIC, senior nursing manager, Courbevoie
Dr. Jean-Pierre LAFARGUE, gastroenterologist, La Roche sur Yon
Marie-Claude LEFORT, director of nursing, La Roche-sur-Yon
Professor Éric LEREBOURS, gastroenterologist, Rouen
Dr. Bruno LESOURD, geriatrician, Ivry-sur-Seine
Pierrette LHEZ, member of ANAES' Scientific Council, director of the health management school, Bordeaux
Nicole MAIRESSE, director, Institute of training in nursing care, Rueil-Malmaison
Michèle MAITRE, dietician, Paris
Annie MAUPPIN, nursing manager, Cholet
Professor Pierre MAURETTE, intensivist, Bordeaux
Dr. Hervé MENTEC, intensivist, Argenteuil
Christiane OSTERMAN, nurse, Marseille
Dr. Pierre PFITZENMEYER, geriatrician, Dijon
Dr. Marie-Astrid PIQUET, nutritionist, Caen
Geneviève POIRIER-COUTANSAIS, director of nursing, Les Essarts
Isabelle POUGET, dietician, Nice
Sylvaine RIVOLA, nurse, Paris
Geneviève ROBERTON, nursing manager and educator, Villerest
Dr. François SAUDIN, anaesthetist and intensivist, Honfleur
Professor Fabienne SAULNIER, intensivist, Lille
Dr. Matthieu SCHNEE, gastroenterologist, La Roche-sur-Yon
Dr. Carole SZEKHELY, geriatrician, Sevran
Dr. Catherine TESSIER, Clichy
Dr. Olivier TUEUX, anaesthetist and intensivist, Bordeaux
Odile VIENNOIS-MARION, nurse, Caluire
Sylvia WEHRLLEN-PUGLIESE, pharmacist, Nice

PILOT TESTING (Coordinators)

Richard AGNETTI, dietician, manager, Colombes

Dr. Hervé AUBE, medical intensivist, Dijon

Dr. Georges BOACHON, ENT specialist, Morance

Dr. Noël CANO, hepatologist, gastroenterologist and nutritionist, Marseille

Geneviève CHIRON, nursing manager, La Roche-sur-Yon

Rita COLOMBO, senior nursing manager, Thann

Dominique COMBARNOUS, nursing manager, Pierre-Bénite

Dr. Maryvonne DEMASURE, hygienist, Orléans

Mireille FOUCHERE, nursing manager, Lyon

Michèle FRUTOSO, senior nursing manager, stoma nurse, Avignon

Dr. Frédérique GIRARDOT, geriatrician and nutritionist, Mulhouse

Mireille MALPELI, senior nursing manager, Paris

René PAPON, nursing manager, Tours

Catherine RENAULT, nursing manager, Lille

Sylvaine SEVEIGNE, nursing manager, Caluire

Jocelyne UHL, senior nursing manager, Charleville-Mézières

Lydie WINTZ, nursing manager, Villejuif

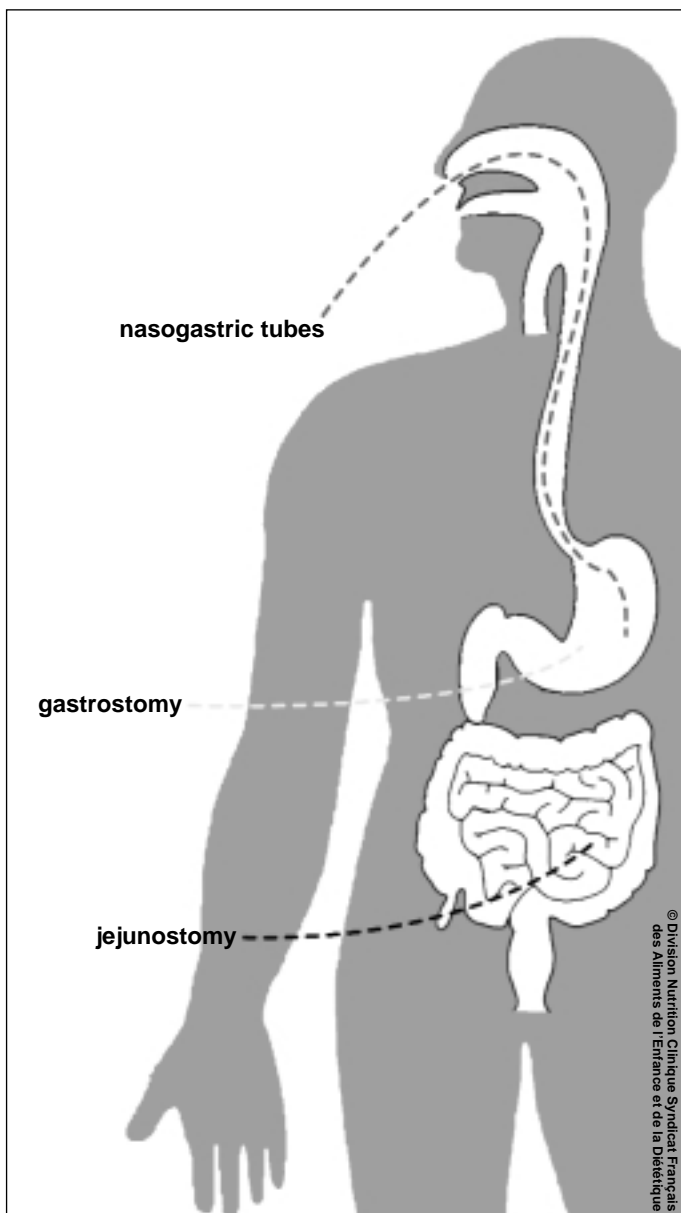


Figure 1. Enteral accesses for enteral nutrition.

PREAMBLE

I. Scope of the guidelines

Enteral accesses for enteral nutrition involve nasogastric, nasoduodenal and nasojejunal tubes, and gastrostomy and jejunostomy tubes in adults (Fig. 1).

These guidelines do not cover indications for enteral nutrition, insertion of gastrostomy and jejunostomy tubes or procedures for administering or monitoring nutrition products. They describe the sequence of recommended actions for inserting a nasogastric tube, and also for monitoring, daily care, and informing and educating the patients about the three possible enteral accesses.

II. Health professionals concerned

A doctor prescribes the insertion of an enteral access and any medicines to be administered. The choice of the most appropriate pharmaceutical forms is made with a pharmacist.

Nurses are qualified to insert a nasogastric tube for enteral nutrition once a medical prescription has been obtained. A doctor inserts the tube if it is to be located below the pylorus (duodenal or jejunal).

The role of the nurse includes the care and monitoring of patients receiving enteral nutrition, administration of drugs and monitoring of their effects, contributing to the education of patients, their family and close friends, involvement in the clinical monitoring of patients, changing the nasogastric feeding tube, communicating to the doctor any information which will improve treatment in relation to the patient's state of health and progress, and recording their actions and the results in the care dossier. The nursing auxiliary helps with nursing care related to maintenance and continuity of life, under the responsibility of the nurse.

III. Methods

The text of the guidelines was produced by a working group from a critical review of the scientific literature and available professional documentation.

The review was carried out by the project manager in cooperation with the group coordinator. A formal expert consensus method was used for the guidelines based on professional agreement. The text of the guidelines was submitted to a reading group before finalisation. The reading group assessed the readability, acceptability, applicability and feasibility of the proposed guidelines. The opinions and comments of the reading group were sent to the working group, who modified the text in the light of these, and validated the final text.

The guidelines were pilot tested in health care establishments and home care structures. The following specialties were involved in this testing: hepatology and gastroenterology, digestive, head and neck and ENT surgery, intensive care units, geriatrics, internal medicine, nephrology, and home care. The objective was to verify that the proposed guidelines described professional practice in the form of a care protocol. The test results helped improve the final text.

The guidelines were classified as follows: a grade A guideline is based on scientific evidence established by studies with a high level of evidence. A grade B guideline is based on scientific assumption provided by studies with an intermediate level of evidence. A grade C guideline is based on studies with a lower level of evidence. If no details are given, the proposed guidelines are based on professional agreement. The purpose of the classification is to explain the foundations for the guidelines. The absence of a level of evidence does not mean that the guidelines produced are not relevant and useful.

Most of the guidelines proposed here are based on professional agreement. The lack of evidence should encourage authors to undertake further studies when this is possible. It is important that research be undertaken, particularly in the following areas: initial verification that the nasogastric tube is in the right position after insertion, methods used to secure the tubes, ways of preventing tubes from becoming obstructed, and ways of removing such obstructions, and education of the patient and the patient's family and close friends.

GUIDELINES

The key stages in the care and monitoring of enteral accesses for enteral nutrition are summarised in Figure 2. Stages 1 to 6 are chronological. Subsequent stages concern management of the patient and maintenance care of the enteral access. The education of the patient and of the patient's family and close friends, as well as identification and prevention of complications, are a concern of carers throughout all stages of the procedure.

Each of the stages described here will require specific information to be entered on the patient's record.

♦ **Stage 1: Inform the patient**

The medical information will cover the need to insert an enteral nutrition device, the benefits and risks which can normally be anticipated in the current state of scientific knowledge, and the consequences they might entail.

The patient's preferences should be taken into account as far as possible (choice of enteral access, preservation of quality of life).

Within his or her area of competence, the nurse should check that the information received by the patient has been understood and provide further information if necessary.

♦ **Stage 2: Check that a complete medical prescription has been issued**

The prescription should provide both qualitative and quantitative information, and should be dated and signed. It should specify the material from which the tube is made, its gauge and its length. These depend on the foreseeable duration of nutrition and the location of the feeding tube and should be chosen with a concern for the patient's comfort. A local anaesthetic may be prescribed. Depending on the circumstances, the tube may be weighted with a tungsten stylet and/or may have a double lumen. Polyurethane and silicone are the materials recommended for enteral nutrition because of their flexibility and because they are well tolerated.

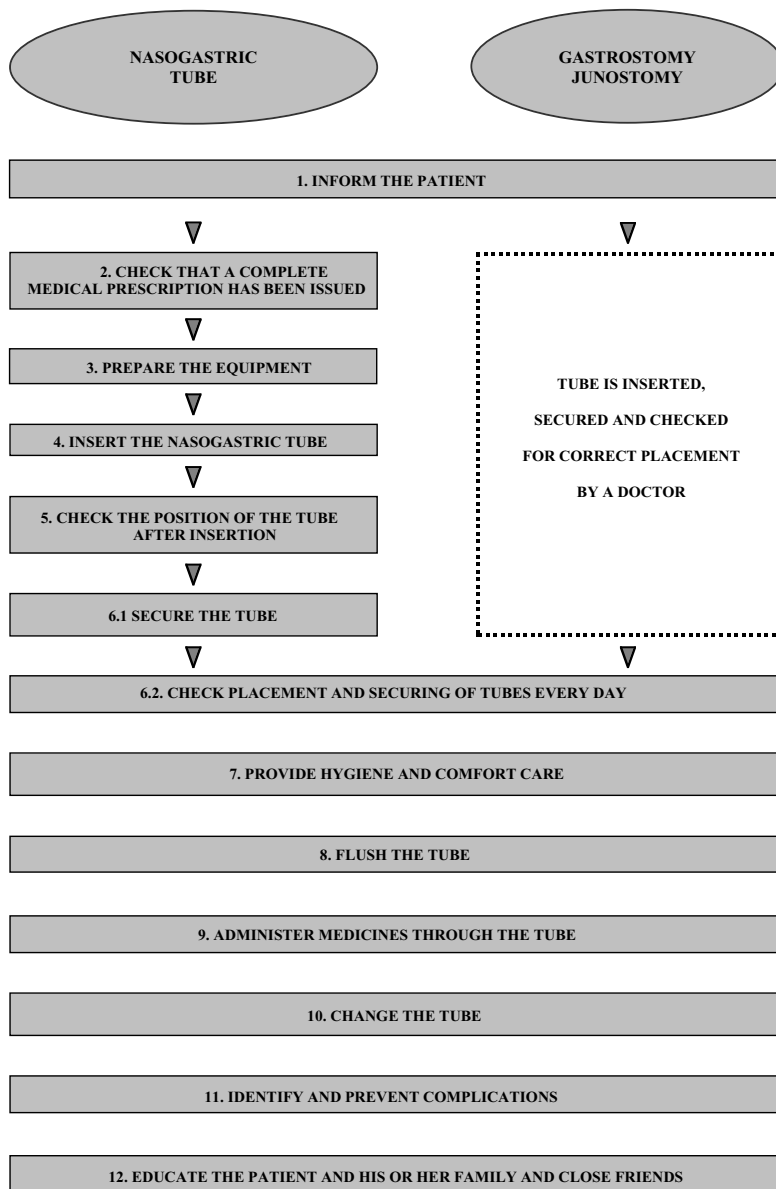


Figure 2. Key stages in the procedure “Care and monitoring of enteral accesses for enteral nutrition in adults in hospital and at home”.

♦ **Stage 3: Prepare the equipment**

The equipment needed for care of the nose, disposable nonsterile gloves, tube, and material to secure the tube are prepared. If lubricant is used, it should be compatible with the material from which the tube is made. The use of a silicone-based lubricant is not recommended if the tube is made of silicone.

♦ **Stage 4: Insert the nasogastric tube**

A nasogastric tube is inserted by a nurse or a doctor. A nasoduodenal or nasojejunal tube and a tube weighted with a tungsten stylet are inserted by a doctor.

Insertion of a nasogastric tube is a simple procedure, which may lead to complications in any patient and particularly in those with problems swallowing or who may not be fully conscious.

The rules of hygiene should be complied with at all stages of tube placement. When the tube is passed, the patient should be fasting, conscious and placed in a sitting position. The nostril may be anaesthetised if the doctor feels this is appropriate. The patient is asked to participate in the procedure, particularly when the tube is being swallowed. The tube is secured before checking that the tip is in the correct position. When correct placement has been confirmed, an indelible mark is put on the tube about 2 or 3 cm from the nose and the external length of the tube is measured.

Because of the potential risk of complications, appropriate technical equipment should be near at hand during insertion of a nasogastric tube in a person who has difficulty swallowing or who may not be fully conscious.

♦ **Stage 5: Check placement of the tube after insertion**

For a nasogastric tube, absence of cough or lack of resistance during insertion do not form an adequate basis for assuming that the nasogastric tube is correctly positioned. For gastric tubes, the best way of checking immediately after insertion that the tube is in the right position is to do a control radiograph. Epigastric auscultation after injecting air into the nasogastric tube (risk of false positive) is only appropriate if there is no possibility of obtaining a control radiograph.

◆ **Stage 6: Secure the nasogastric tube and check placement and fixing every day**

The nasogastric tube should be secured immediately it has been inserted. The method used to secure it should be effective, comfortable, aesthetically acceptable and safe (Fig. 3). It consists of preparing the skin (washing, drying), placing a plastic-based waterproof adhesive strip rolled around the tube at the base of the nose (as a landmark to verify the position of the tube) and applying half an elastic adhesive strip approximately 4 cm long to the nose; the lower part is split up to the tip of the nose and each half of the adhesive strip is then rolled round the catheter (grade C). Securing the tube to the cheek should be limited to the minimum necessary; no large loop should intrude into the patient's visual field and increase the risk of the tube being dislodged. A thread is used to secure the tube in specific indications, particularly in ENT medicine.

A gastrostomy tube is anchored by an internal collar and an external retaining disk which should be pushed back against the abdominal wall (Fig. 4). The position of the tube and absence of tension against the gastric wall are verified by pulling gently on the tube.

A jejunostomy tube is secured by stitches or adhesive strips.

The position of an enteral nutrition feeding tube is monitored daily, using the indelible mark made on the tube, together with measuring the external length of the tube, injecting air into the tube and epigastric auscultation. The position of the tube is checked at least once a day, and routinely before each use.

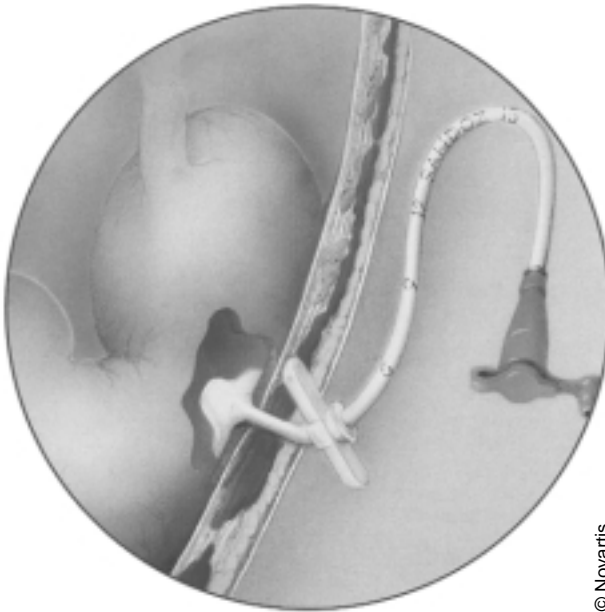
Whatever type of tube is used, it is important to check from time to time that it is still secure, in order to avoid secondary displacement of the tube. In the event of agitation, it is necessary to look out for situations which are likely to lead to the tube being dislodged and to find a solution to the problem with the doctor.

◆ **Stage 7: Provide hygiene and comfort care**

Whichever type of enteral access is used, it is important to provide good mouth hygiene and to maintain water intake by mouth whenever possible in order to avoid the mucosa becoming dry.



Figure 3. Securing a nasogastric tube.



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Figure 4. Securing a gastrostomy tube.

Care also includes helping the person express their feelings about their altered or disturbed body image and helping them maintain their daily living activities as much as possible.

1. Nasogastric tube

Care consists of checking for sores on the side of the nose; any risk of gastro-oesophageal reflux should be avoided by always placing the patient in a semi-sitting position for feeding and for two hours after feeding has been completed.

2. Gastrostomy tube

Any risk of gastro-oesophageal reflux should be avoided by always placing the patient in a semi-sitting position during feeding and for two hours after feeding has been completed.

3. Gastrostomy and jejunostomy tube

General hygiene care should be encouraged: the patient should start taking showers as soon as they can. Due attention should be given to any problems arising when the patient is getting dressed.

The purpose of local care is to provide local hygiene and/or antiseptic measures, avoid soaking and monitor the insertion site.

◆ Stage 8: Flush the tube

The purpose of flushing is to prevent the tube from becoming obstructed. It also removes any obstruction from the tube. The fluid used for flushing is usually water, unless indicated otherwise.

In all cases, instructions should be obtained about the quantity of fluid to be used every day, as well as the type of fluid to use for flushing. Account should be taken of the volume of water required for administration of medicines. It may be necessary to quantify these volumes in relation to the patient's clinical condition.

To prevent the tube from becoming obstructed, it may be helpful to flush the tube every time it is used, after checking that it is correctly placed. If the tube should become blocked, the stylet should not be used. A large calibre syringe must be used for manoeuvres to remove an obstruction. Various products can be used, though none of them has been shown to be better than any other.

♦ **Stage 9: Administer medicines through the tube**

If medicines are introduced through the feeding tube, due regard must be given to their pharmaceutical form. The choice of pharmaceutical form must take account of: (i) the problems relating to the administration method in order to avoid obstructing the tube, (ii) any side effects that might arise from damage to the pharmaceutical form, (iii) any interactions between the medicines and the feeding solution. A pharmacist's advice is required. The choice of pharmaceutical form should also take account of the site where the active ingredient is absorbed and the site where the feeding solution is instilled. If available, a liquid formulation is to be preferred. If not, medicines should be crushed, diluted and administered separately.

Tube placement should be verified before medicines are administered. The tube should be flushed before and after administration of medicines and between medicines with 5 to 10 ml of liquid depending on the gauge and length of the tube, in order to avoid interactions between medicines and obstructing the feeding tube.

♦ **Stage 10: Change the tube**

Nurses are qualified to change nasogastric tubes.

There are no guidelines in the literature to support a specific pattern for changing tubes, irrespective of whether they are nasogastric, gastrostomy or jejunostomy tubes. In the current state of the literature and professional practice, it is not possible to recommend any frequency for changing tubes.

♦ **Stage 11: Identify and prevent complications**

Tables 1 to 3 summarise complications for which preventive action and remedial procedures are possible. No studies classify all incidents or complications in order of frequency or severity. Table 1 lists in alphabetical order those complications which occur immediately. Tables 2 and 3 list, for each enteral access, the incidents and/or accidents which appear over a longer period, together with mechanical and infectious complications.

Table 1. Immediate complications related to insertion of a nasogastric tube: prevention and remedial procedures.

Incident	Prevention	What to do
Lack of cooperation	Explain the care process	Have two people present during tube placement
Pain	Introduce the tube gently without forcing it	Monitor the resolution of pain related to tube placement
Tube rolled up	Place silicone tubes in the refrigerator before insertion - Look in the mouth	Take the tube out and reinsert it
Nosebleed coming out of the patient's mouth	Depending on the clinical circumstances, check the patient's haemostasis status, lubricate the tube, and introduce the tube gently	Take the tube out, apply pressure to the nostril, call a doctor
Tube openings obstructed	Clean the nostril with isotonic saline	Take the tube out, clear the obstruction and reinsert it
Regurgitation	Insert the tube 4 to 6 hours after the last meal	Place the patient on their side in the recovery position
Coughing, tearing	Use a semi-sitting position, have the patient swallow a little water, if possible	Take the tube out, reinsert it, check systematically that the tube is in the right position

Accidents

Faulty intubation under the pharyngeal mucosa	Introduce the tube gently	
Faulty intubation (intracranial)	Tubes should not be inserted if there is facial or cranial trauma	
Tube positioned in the tracheobronchial tree	If there are any problems with passing the tube or using a stylet, the tube should be inserted by a doctor	
	Take a control radiograph to check that the tube has been correctly placed, before starting nutrition	

Table 2. Secondary complications related to insertion of a nasogastric tube.

Secondary complication	Prevention	What to do
Tube dislodged accidentally or deliberately	Explain, listen, provide help, secure the tube effectively Check the tube is secured in the correct position	Reinsert the tube 4 to 6 hours after the last meal has gone through
Secondary displacement of the tube	Secure effectively Check securing, mark an identification point; check the position of the tube, if the patient is agitated or vomiting	Depending on the extent of displacement, put the tube back in place without removing it, and reinsert it 4 to 6 hours after the meal has gone through
Obstruction of the tube	Flush the tube	Remove the obstruction. Never use the stylet
Pain	Check the condition of the nostril Perform nose care and resecure the tube, with gentle movements	Report the onset of pain to the doctor, administer prescribed analgesics
Gastro-oesophageal reflux	Put the patient in a semi-sitting position during nutrition	Inform the doctor
Infection	Observe local condition, perform local care	Call the doctor Apply prescribed treatment
Ulceration (nasal, pharyngeal)	Observe the nostril regularly, modify the position of the tube in order to move zones of pressure between the nostril and the tube	If there is redness or pain, insert the tube through the other nostril

Table 3. Secondary complications related to insertion of gastrostomy and jejunostomy tubes.

Secondary complication	Gastrostomy		Jejunostomy	
	Prevention	What to do	Prevention	What to do
Tube dislodged accidentally or deliberately	Check the tube is secured effectively, listen, provide help	EMERGENCY: call a doctor (the stoma closes rapidly)	Check the tube is secured effectively, listen, provide help	EMERGENCY: call a doctor (the stoma closes very rapidly)
Secondary displacement of the tube	Check the external landmark and the length of external tubing	Call a doctor	Check the external landmark and the length of external tubing	Call a doctor
Obstruction of the tube	Flush the tube	Remove the obstruction from the tube	Flush the tube	Remove the obstruction from the tube
Pain	Check local conditions, ensure the collar is not too tight	Secure the tube in such a way as to avoid any pulling on the tube	Avoid any pulling on the tube	Perform local care to avoid any pulling, particularly on stitches
Gastro-oesophageal reflux	Put the patient in a semi-sitting position during feeding	Inform the doctor	–	–
Infection	Check local conditions Perform local care	Call a doctor Apply treatment prescribed	Check local conditions Perform local care	Call a doctor Apply treatment prescribed
Peristomal ulceration (e.g. loss of gastric or intestinal fluid)	Check the position of the tube against the stomach wall	Report to doctor Perform local care Verify absence of tension in the stomach wall	Avoid pulling on securing stitches	Report to doctor Perform local care Verify absence of pulling on the tube

♦ Stage 12: Educate the patient, the patient's family and close friends

It is important to look ahead to when a patient with a feeding tube will return home.

Education of the patient is an essential part of the procedure; education is a gradual process which continues throughout the patient's time in hospital. It should be followed by an evaluation of the person's capabilities and of the capabilities of their family and close friends to manage care and deal with certain technical problems.

A patient with an enteral access or their family and close friends should be able to carry out the following procedures with or without the help of a nurse:

- prepare equipment needed for care thoroughly,
- comply with basic hygiene rules before care and during any manipulation of an enteral access,
- be able to check that the tube is in the correct position,
- monitor the securing of the tube and replace the materials used to secure it if necessary,
- provide hygiene care.

They should know about products which may be administered through the tube and should be able to:

- flush the tube,
- administer prescribed medicines through the tube,
- monitor the state of the skin around the tube,
- report any change to the doctor and/or to the nurse.

It is useful to prepare a document for liaison between hospital and home.

Education should be completed by providing supporting written material. The return home should be organised to ensure follow-up and to allow the patient easy access to a carer in case of need.

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