ENTERAL FEED ADMINISTRATION POLICY HOSPITAL

(see glossary)

Policy Statement

This enteral feeding document, written by the Clinical Nutrition Nurses as part of a multidisciplinary team, is underpinned by sound research and endorsed by strategic leads from the Portsmouth Health Economy. The action plan provides a rationale for current thinking and states how to achieve best enteral feeding practice.

Protocol

Purpose To provide clear instructions for the administration of enteral feed in hospital.

Scope All persons directly or indirectly responsible for the administration of enteral feed must adhere to this policy.

Responsibility The person responsible for administering the feed will have received the appropriate training and demonstrated competency.

Definition Enteral feeding refers to tube feeding via the gut – Naso-gastric, Naso-jejunal, Gastrostomy, Gastro Jejunostomy, Jejunostomy.
Feed regimens, administration rates and delivery methods i.e. pump/gravity/bolus may vary, although renewal of the consumables for feed delivery and drug administration is not open to interpretation.

Aim To provide nutrition via the enteral route in a safe environment to minimise risk to the patient.

Main source of contamination:-

- Poor hand hygiene.
- Feed interruption – handling without observing hand hygiene.
- Feeding set in situ for over 24 hours.
- Decanting.

Standard Statement

The disposable items used in Enteral feeding are classified as:

A.	**single use**
B. (i)	**single patient use not for reprocessing**
B. (ii)	**single patient use for reprocessing.**

A number of manufacturers will not guarantee the functioning of an enteral product if the items condition does not correspond to the original state. It is important to note that if two identical items are packaged differently they should be treated differently. **The packaging instructions are the key and need to be read thoroughly.**

A common sense interpretation has been adopted for patients in this service area excluding items classified as B(ii), all feed administration sets must not be used beyond 24 hours due to the accelerating growth of potentially harmful bacteria.

Definition:-

This policy has taken its lead from the Medical Devices Agency (MDA) DB2000(04) and MDA SN2000(27) and primarily interprets the use of "disposable items" labelled:-

A. "Single Use"

A sterile item, used for a single period, on one patient.

Sterile item, not for re-use or reprocessing. (See Definition)

B. "Single Patient Use"

(i) A sterile item used for 24 hrs, but not for reprocessing.

(ii) A clinically clean item used more than once on the same patient which can be reprocessed.

Definition of Reprocessing see glossary

Standards/Competencies

1. The person directly responsible for administering the feed has received formal training and is competent.

2. Ensure that all equipment is clean – this includes pumps and drip stands.

3. Wash hands thoroughly – apply non sterile gloves when manipulating open ends which includes changing feed bottle/bag.(1)

4. Do not decant feed unless advised to by Dietitian/Nutrition Nurses/Paediatric Nurses.

5. In exceptional circumstances when decanting is required use bottles of feed/made up feed and pour into an integral reservoir. Label the reservoir with name of feed and change 12 hourly. (2)

6. Decanting rationale for paediatric feed see appendix a and b.

7. Do not dilute feed unless specifically authorised by the Consultant/Dietitian/Nutrition Nurse.

8. Feed administration sets must not be reprocessed or used beyond 24 hours.

9. Clearly label administration set with date/time.

10. Cover the distal end of the feed administration set when not in use with end supplied with administration set.

11. A separate water container must be used to administer water. These are available and are compatible with the feed administration set, therefore one set can be used for feed/water in a 24 hour period. When not in use the neck of the water bottle needs to be covered (blue cap supplied with water container). If an integral reservoir is in use for a special feed a separate water container is not required, simply decant into the integral reservoir.

12. Water containers should be changed every 24 hours – clearly label with date/time of change. When not in use the blue cap should be stored in the small enteral box (see glossary) and discarded after 24 hours.

13. "Single use" syringes discard after each use.

14. Every patient receiving enteral feed will have a small enteral box dated and labelled with patients name. This item is single patient use.

15. The enteral box will be used to store "single patient use" items which can be reprocessed i.e. connectors, adapters and extension sets. These items should be discarded after one week.

16. Reprocessing should be carried out as defined (see glossary).

(1) The wearing of non sterile gloves is optional for patient and family members.
(2) Integral reservoirs must be changed 12 hourly unless a 24 hour hanging time can be justified. See appendix b.

Procedure 1 Feed Pack Administration

Guideline for feed delivery via a pump

Requirements:

Dripstand
Enteral pump
Administration Set
Syringe
Water
Non Sterile Gloves (optional for patient and family)
Feeding Pack
Water Pack (Container)
Instructions for priming the pump
Procedure for passing a Fine Bore Nasogastric Tube (NGT), available for reference if required (see references)

Aim of Care

1. To administer the feed as prescribed with minimal discomfort to the patient.
2. To reduce the risk of infection by adhering to the attached enteral protocols and standards.
3. To provide individual choice, based on physiological, psychological and social need.

Principles of Safe Practice

1. The feeding regimen is tailored to meet the physiological requirements of each patient.

Further considerations:-

* The location of the enteral access
* The patients clinical status.
* How long Nil by Mouth
* Patient position
* The starter feed - always give Isotonic feed initially unless specifically instructed to do otherwise

Procedure - Feed Pack

ACTION	RATIONALE
1. Explain procedure to patient. Gain consent where appropriate.	To reduce anxiety and enable therapy acceptance.
2. Select an appropriate area where feed can be given safely. Protect at all times the individual's right to privacy and dignity.	Promoting dignity and self-respect.
3. Wash hands prior to handling feed and feeding system.	Prevention of infection. Follow Infection Control guidelines.
4. Prepare and check equipment. Prepacked feed should be stored at room temperature. Label feed pack/water container.	Cold feeds can cause gastric spasm. Follow enteral standards document.
5. Apply gloves. (1) Close roller clamp on administration set.	Prevention of infection universal precautions for coming into contact with body fluids.
6. Feed:- Screw administration set into feed pack. Water:- pre fill water container with tap water or cooled boiled water, screw administration set into water container.	The exception to tap water are young children or the immunocompromised patient, when cooled boiled water or sterile water should be used.
7. Prime pump as per instructions. Cover distal end of administration set. (refer to Standards)	To reduce contamination.
8. If NGT insitu check enteral feeding tube position if required.	Follow instructions for passing NGT to ensure safe feed delivery.
9. Using syringe flush tube with water (usually tap water). The amount of water will be dependent on individual patient requirements i.e. flush v's hydration.	To ensure patency and hydrate. The exception to tap water are young children or the immunocompromised patient, when cooled boiled water or sterile water should be used.
10. Position patient in semi-upright position prior to commencement of feed unless this is contraindicated.	Risk of aspiration if patient fed in flat position.
11. Attach administration set to tube and start pump. Place distal cover in enteral box.	Follow enteral administration standards.
12. Support administration set.	To prevent enteral tube displacement or discomfort.
13. At end of feed disconnect administration set from tube. Flush tube with water as in 9 above and cover distal end of set. Discard administration set after 24 hours.	To avoid blockage of tube and reduce contamination.

(1) The wearing of non sterile gloves is optional for patient and family members.

Procedure 2 Integral Reservoir Administration

Guideline for feed delivery via a pump

Requirements:

Dripstand
Enteral pump
Integral Reservoir
Syringe
Water
Non Sterile Gloves (optional for patient and family)
Bottle of Feed (Not Packs)
Instructions for priming the pump
Procedure for passing a Fine Bore Nasogastric Tube (NGT), available for reference if required (see references)

Procedure - Integral Reservoir

ACTION	RATIONALE
1. Explain procedure to patient. Gain consent where appropriate.	To reduce anxiety and enable therapy acceptance.
2. Select an appropriate area where feed can be given safely. Protect at all times the individual's right to privacy and dignity.	Promoting dignity and self-respect.
3. Wash hands prior to handling feed and feeding system.	Prevention of infection. Follow Infection Control guidelines.
4. Prepare and check equipment. Feed should be stored at room temperature. Label feed pack/water container.	Cold feeds can cause gastric spasm. Follow enteral standards document.
5. Apply gloves. (1) Close roller clamp on administration set.	Prevention of infection universal precautions for coming into contact with body fluids.
6. Feed: pour feed into reservoir. Water: fill reservoir with tap water or cooled boiled water. – See competencies No 11.	The exception to tap water are young children or the immunocompromised patient, when cooled boiled water or sterile water should be used.
7. Prime pump as per instructions. Cover distal end of administration set. (refer to Standards)	To reduce contamination.
8. If NGT insitu check enteral feeding tube position if required.	Follow instructions for passing NGT to ensure safe feed delivery.
9. Using syringe flush tube with water (usually tap water). The amount of water will be dependent on individual patient requirements i.e. flush v's hydration.	To ensure patency and hydrate. The exception to tap water are young children or the immunocompromised patient, when cooled boiled water or sterile water should be used.
10. Position patient in semi-upright position prior to commencement of feed unless this is contraindicated.	Risk of aspiration if patient fed in flat position.
11. Attach administration set to tube and start pump. Place distal cover in enteral box.	Follow enteral administration standards.
12. Support administration set.	To prevent enteral tube displacement or discomfort.
13. At end of feed disconnect administration set from tube. Flush tube with water as in 9 above and cover distal end of set. Discard reservoir after 12 hours.(2)	To avoid blockage of tube and reduce contamination.

(1) The wearing on non sterile gloves is option for patient and family members.
(2) Integral reservoirs must be changed 12 hourly unless a 24hr hanging time can be justified. See appendix b.

Procedure 3 Bolus Administration

A. Gravity method

B. Syringe pressure

Requirements:

30/50ml syringe
Water
Non Sterile Gloves (optional for patient and family)
Bottle of Feed (Not packs)
Jug or suitable container
Procedure for passing a Fine Bore Nasogastric Tube (NGT), available for reference if required (see references)
Adaptors/extension sets (optional)

Procedure
A. Gravity method

ACTION	RATIONALE
1. Explain procedure to patient. Gain consent where appropriate.	To reduce anxiety and enable therapy acceptance.
2. Select an appropriate area where feed can be given safely. Protect at all times the individual's right to privacy and dignity.	Promoting dignity and self-respect.
3. Wash hands prior to handling feed and feeding system.	Prevention of infection. Follow Infection Control guidelines.
4. Position patient in semi-upright position prior to commencement of feed unless this is contra-indicated.	Risk of aspiration if patient fed in flat position.
5. Prepare and check equipment. Feed should be stored at room temperature.	Cold feeds can cause gastric spasm. Follow enteral standards document.
6. Apply gloves. (1)	Prevention of infection universal precautions for coming into contact with body fluids.
7. If NGT insitu check enteral feeding tube position if required.	Follow instructions for passing NGT to ensure safe feed delivery.
8. Flush tube with tap water and prime extension set if used. Clamp to retain fluid in extension set.	The exception to tap water are young children or the immunocompromised patient, when cooled boiled water or sterile water should be used.
9. Remove plunger from syringe and attach syringe/extension set to tube.	
10. Holding syringe in a vertical position pour feed into syringe, unclamp extension set and observe feed flowing into patient.	Regulate the flow by elevating or lowering syringe.
11. Repeat as necessary for required amount of feed.	Speed of delivery and volume of feed is tailored to meet individual needs and levels of tolerance.
12. Disconnect syringe and flush tube with tap water.	To avoid blockage of tube and reduce contamination.
13. Cover any unused feed and place in refrigerator. Discard after 24 hours.	To reduce contamination see standards.
14. Discard syringe and reprocess other equipment as per standards.	To reduce contamination. Immunocompromised and young children should use sterile equipment.

(1) The wearing of non sterile gloves is optional for patient and family members.

N.B. If gravity feed is administered via a feeding administration set, minus a pump. Follow pack/integral reservoir feeding instructions but ignore pump reference.

Procedure
B. Syringe pressure

ACTION	RATIONALE
1. Explain procedure to patient. Gain consent where appropriate.	To reduce anxiety and enable therapy acceptance.
2. Select an appropriate area where feed can be given safely. Protect at all times the individual's right to privacy and dignity.	Promoting dignity and self-respect.
3. Wash hands prior to handling feed and feeding system.	Prevention of infection. Follow Infection Control guidelines.
4. Position patient in semi-upright position prior to commencement of feed unless this is contra-indicated.	Risk of aspiration if patient fed in flat position.
5. Prepare and check equipment. Feed should be stored at room temperature.	Cold feeds can cause gastric spasm. Follow enteral standards document.
6. Apply gloves. (1)	Prevention of infection universal precautions for coming into contact with body fluids.
7. If NGT insitu check enteral feeding tube position if required.	Follow instructions for passing NGT to ensure safe feed delivery.
8. Flush tube with tap water and prime extension set if used. Clamp to retain fluid in extension set.	The exception to tap water are young children or the immunocompromised patient, when cooled boiled water or sterile water should be used.
9. Pour feed into jug or container.	Immunocompromised or young children should use sterile equipment.
10. Draw up a syringe full of feed. Attach to tube and press plunger to administer feed.	Do not exert undue pressure on plunger.
11. Repeat for required amount of feed.	Speed of delivery and volume of feed is tailored to meet individual needs and levels of tolerance. This can vary greatly.
12. Flush tube with tap water.	To avoid blockage of tube and reduce contamination.
13. Cover any unused feed and place in refrigerator. Discard after 24 hours.	To reduce contamination see standards.
14. Discard syringe and reprocess other equipment as per standards.	To reduce contamination. Immunocompromised and young children should use sterile equipment.

(1) The wearing on non sterile gloves is optional for patient and family members.

Audit

Compliance to this policy will be audited every six months by the Department of Clinical Nutrition using a Yes/No questionnaire completed by the registered nurse using the standards as an audit tool.

This policy will be reviewed yearly following the date of distribution by the Nutrition Nurses.

Key accountable persons: Ward Manager, Nutrition Nurses.

References:-

Anderton A (1999) Micro-biological contamination in enteral tube feeds. How can we reduce the risk? Nutrition Ltd.

Childrens Community Nurses, 2000. Procedure for passing Fine Bore Feeding Tube with Guide Wire.

Collett J., 2000. Procedure for passing Fine Bore Feeding Tube with Guide Wire, featured in Handbook of Nutritional Support in Adults, Portsmouth Hospitals NHS Trust.

Enteral Feed Administration Policy Group 4th February 2002

Guenter P., Silkroski M., 2001. Tube Feeding, Practical Guidelines and Nursing Protocols, An Aspen publication.

HSU, T.C. 2000. Effect of High Ambient Temperature on contamination and physical stability of One- Liter Ready to Hang Enteral Delivery systems. Nutrition 16: 165 – 167. Elsevier Science Inc.,

Infection Control Guidelines 2002 - Hand washing protocol. Portsmouth Hospital NHS Trust Infection Control Team

MDA – Medical Devices Agency. An executive agency of the Department of Health. Hannibal House, Elephant & Castle, London SE1 6TQ Tel: 020 797 28080

PHT 2002 Policy for the Prevention and Management of Malnutrition in Portsmouth Hospitals.

Glossary

17. Reprocessing – Clean in washing up liquid and warm water. Rinse with cold tap water. Allow to dry in air. As a general rule sterilisation of equipment is confined to the immuno compromised and the under 2's only.

18. Small enteral box - Ref No .....

19. Hospital – Queen Alexandra., St Mary's, Royal Hospital Haslar, St Christopher's, Petersfield, St James, Coldeast, Emsworth Cottage, Havant War Memorial, Gosport War Memorial.

20. Multi Disciplinary Team:

Department of Clinical Nutrition	Jackie Collett
	Joanne Pratt
	Laura Smith
Department of Nutrition & Dietetics	Joan Munro
	Sue Wright
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	Karen Jeffereys
Childrens Community Nurses	Sandy Picton
	Angela Jones
Infection Control	Steve Harding
	Mike Cowan
Risk Management Team	Alison Stainer
Governance	Sarah Balchin
Nurse Consultant Elderly Medicine	Jane Williams
Consultant ITU	Pete McQuillan

21. Portsmouth Health Economy:

Portsmouth Hospital NHS Trust
Portsmouth Health Care Trust
PCT – Portsmouth & South East Hants
PCT – Portsmouth City Prime Care Trust
PCG – Fareham Primary Care Group *
PCG – Gosport Primary Care Group *

* To combine to form PCT in April 2002

APPENDIX

Appendix a Decanting and Hanging Time of Paediatric Feeds - Extract from Minutes 04.02.02

Appendix b Anderton Reference re Hanging Times

Appendix a

Extract from Committee Minutes 4th February 2002

The Community Childrens Nurse raised the issue of Decanted Feeds and Feed Hanging Times.

Unfortunately the rule of thumb "Do not decant" is impossible to implement due to the fact that the vast majority of children require "special feeds" which interpret as odd volumes plus or minus additives i.e. 700 mls/24hrs with extra calories, protein and thickeners. (Packaging sizes = 500ml pack, 100ml 200ml bottle).

The committee considered a balance between best practice and cost effectiveness. A common sense approach was however complicated by the fact that the cost of feed to the PCT's via prescription is more than to the hospital via the contract. In both cases the practice had to be justified. With this in mind the following Action/Recommendations were made:-

Approach Nutricia regarding changing the packaging sizes, thus eliminated the need to decant. Any advances in this are possible but unlikely and would exclude feeds requiring additives.

Due to the cost issues, provision for the Community and Hospital are considered separately although there is a strong need for continuity to prevent practice confusion.

COMMUNITY

Pack feeds should always be considered as the first option, but for the reasons given above this is not always possible in which case decanting into an integral feeding reservoir is required. Based on Andertons work integral reservoirs should be changed every 12 hrs. The recommended hanging time is dependent on the preparation area and the decanting situation, and ranges from 4 - 24 hrs (see Appendix B). It would however be unreasonable to expect parents to get up in the night to change a feed reservoir but equally inappropriate to allow the same reservoir to be constantly disconnected/reconnected, refilled and taken from home to school etc.

HOSPITAL

The above decanting principles still apply when feed is required to be decanted i.e. contains additives(made up kitchen feeds), but due to the price differences between the hospital feed contract and GP prescription, best practice and cost effectiveness are weighted differently, as the following text demonstrates. When ever possible pack feeds that require no decanting should be used and feed surplus to requirements, discarded at the end of 24 hr period i.e.:-
Requirement:- 700 mls/24 hrs = x 2 500 ml packs feed
= 300 mls unused and discarded.

This may appear wasteful but is in fact best practice for the hospital, with only limited extra cost, whereas for the community it may also be best practice but the prescription cost is prohibitive.

Appendix b

REFERENCE - ANDERTON

Hanging Times

It is neither possible nor appropriate to give definitive hanging times for feeds that will apply to all situations where feeds are administered.

From the evidence presented in this document it is obvious that many factors affect the microbial quality of feed received by the patient including:-

- type of feed
- feeding system design
- handling procedures
- environment of feed preparation and administration
- retrograde contamination

It is therefore important that personnel from each unit (individual ward, home) assess the risks of microbial contamination in the light of local circumstances. For example, if we take the use of 'decanted' feeds as an example we may find that in one unit the feeds may have their hanging time limited to 4 hours because although the feeds are supplied sterile they are decanted at the patient's bedside and, despite recommendations to do so, it has been observed that staff neither wash their hands nor wear sterile gloves when decanting the feeds*. Conversely, in another unit where sterile feeds are decanted aseptically in the pharmacy, the hanging times may be extended to <24 hours.

It is also essential that all the time that the feed is held at ward/room temperature (i.e. holding time) is taken into account when recommending hanging times including:-

- any time that opened feeds is stored at ward/room temperature prior to decanting
- any time that decanted feed is stored in the nutrient container prior to administration.

Plus,

- any time the feed is hanging at the patient's bedside even if it is not flowing into the patient (e.g. patient sent for x-ray)

* It is hoped that in this unit the results of microbiological screening would be discussed with the staff involved in order to encourage them to improve their practices, as a result of which the hanging times of the feeds in that unit could be reviewed and extended once practices have improved.

Reference - Anderton Continued

In the light of published information, the following recommendations can be made to assist in the development of local guidelines:-

- **sterile feeds** – these feeds may be hung for a maximum of 24 hours provided that no micro-organisms are introducted when the feeding system is assembled (Anderton etal. 1986)

viz. - the feed in the nutrient container should remain free from contamination at the end of administration

- pre-filled nutrient containers are used or sterile feed is decanted into a sterile nutrient container under aseptic conditions in the pharmacy.
- System design eliminates the risk of bacteria being introduced during attachment of the giving set to the nutrient container
- The giving/pump set has a drip chamber incorporated to reduce the risk of retrograde growth of the patient's gut flora

* non-sterile feeds (including modular feeds, diluted and modified sterile feeds) – avoid hanging times of more than 4 hours in order to ensure that levels of micro-organisms at the end of feeding are not $\geq 10^3$ cfu ml^{-1} (Anderton et al. 1986)

N.B. Do not re-fill or 'top up' nutrient containers as this increases the risk of microbial contamination being introduced (Kohn 1991, Patchell et al. 1998)

18/02/02

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Code A