


Management of Invasive Devices

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A TRADITION OF INDEPENDENT THINKING

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Definition of invasive medical device:

"A device which, in whole or in part, penetrates inside the body, either through a body orifice or through the surface of the body".

EU Directive 2007/47/EC

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HIQA Standards

Standard 8.0 Device related infections are reduced or prevented.

- All devices to be managed in line with evidence based practice in relation to:
  - insertion and removal
  - adherence to hand hygiene, asepsis
  - site care and daily inspection ,
  - documentation in relation to management
  - Correct use of equipment -single use
- Training for all involved
- IP&C team are consulted regarding introduction of new devices
- Audit of the use & management of devices is undertaken

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General Principles for all invasive medical devices

- Standard Precautions
- Single use medical devices are not reused
- Adherence to ANTT & hand hygiene before, during and after any invasive procedure.
- Document management of medical device from date of insertion, inspection, care and review the need of the device.
- Staff are competently trained in:
  - Device insertion
  - Maintenance and care
  - Replacement
- Use and management of invasive medical devices is regularly audited

Urinary Catheters

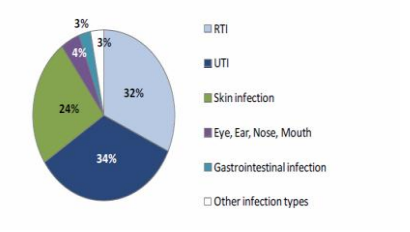
HALT 2013

Resident Characteristic	Total resident population (%)	Residents with an infection (%)	p value	Odd's ratio
Gender/Age				
% male	35	36	0.6791	
% > 85	47	44	0.2613	
Care Load				
Incontinent	62	66	0.1563	
Disoriented	57	67	0.0002	1.6
Immobile	48	54	0.035	1.3
HCAI Risk Factors				
Urinary Catheter	5	9	0.0079	1.8
Vascular Catheter	0	3	0.0000	10.3
Pressure Sores	4	6	0.1257	
Other Wounds	10	24	0.0000	3.0
Recent Surgery	1	1	0.1233	

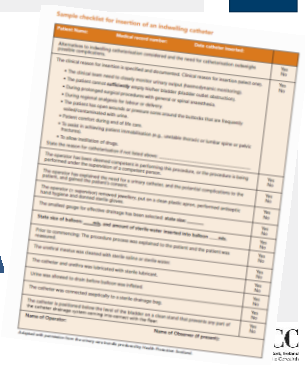
*An odd's ratio was only provided where the p-value reached significance (<0.05).

General Nursing Homes- HIQA 2013

Distribution of HCAI by infection category. (HALT 2013)



National guidelines & resources



Available on www.hpsc.ie

Indications for Catheterisation in LTC

- To relieve acute urinary retention or bladder outlet obstruction.
- To assist healing of an open sacral or perineal wound.
- To assist in achieving patient immobilisation (e.g., required for unstable thoracic, lumbar spine or pelvic fractures).
- To monitor urinary output (e.g., in critically ill patients or when a patient is unable or unwilling to collect urine).
- For patient comfort during end of life care.
- As an exception, at patient request to improve comfort.

Selection of a urinary catheter

- The smallest gauge that meets the needs of the patient should be used.
- Choose a catheter of appropriate length to ensure patient safety and comfort.
- A catheter with a 10ml balloon is routinely used in adults
- Choice of catheter material will depend on clinical experience, patient/resident assessment and anticipated duration of catheterisation

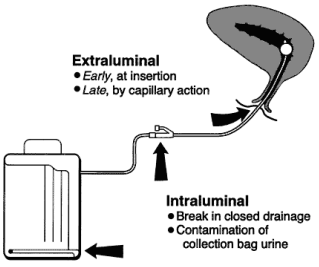
Urinary Catheter Insertion

Available at: www.HPSC.ie

Risk factors for bacteriuria

- longer duration of catheterization
- colonization of the drainage bag
- diarrhoea
- diabetes
- female gender
- renal insufficiency
- errors in catheter care
- immunocompromised
- debilitated states.

CAUTI



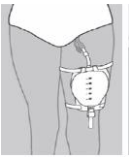
Urinary Catheter Management

- **Maintain a closed system**
- Maintain the bag below the level of the bladder.
- Minimising contamination of the drainage bag outlet
- Empty drainage bag regularly
- Separate clean container when emptying bag.

Urinary Catheter Management

- Encourage fluid intake
- Daily hygiene
- Individual care regime designed to minimise the problems of blockage and encrustation.

Catheter Care
Link drainage system
Leg bag & overnight bag



CAUTI Definition in LTC (SARI 2011)

The resident has an indwelling catheter and has at least two of the following signs or symptoms:

(A) Fever (≥ 38° C) or chills.

(B) New flank or suprapubic pain or tenderness.

(C) Change in character of urine.*

(D) Worsening of mental or functional status.

Specimens from Urinary Catheters (CSU)

- Only be taken when clinically indicated
- Only be taken from the specific sampling port
- Laboratory microscopy should **not** be used to diagnose CAUTI
- Only if the resident has symptoms or signs suggestive of UTI and no other source is identified
- If an indwelling catheter has been in place for >2 weeks at the onset of UTI and is still indicated, the catheter should be replaced and the urine culture should be obtained from the freshly placed catheter (Guidelines For Antimicrobial Prescribing In Primary Care In Ireland www.antibioticprescribing.ie)

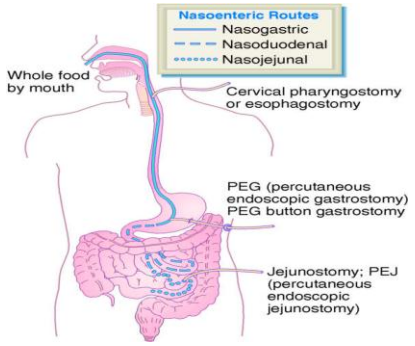
www.antibioticprescribing.ie

Antimicrobial prophylaxis

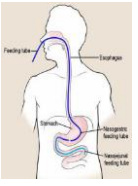
No role for routine antibiotic prophylaxis in patients with urinary catheters.

- Useful Resource- http://www.antibioticprescribing.ie/urinary/uti-in-long-term-care

Enteral Feeding Tubes



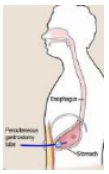
Nasoenteric Tube Complications



- Sinusitis
- Epistaxis
- Dysphasia
- Dislodgement
- Tube occlusion
- Pulmonary aspiration
- Nasopharyngeal discomfort
- Erosion of the nasal septum
- Migration and displacement

Enterostomy Tube Complications

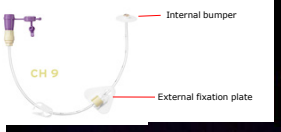
- Infection
- Pressure necrosis/ulcers
- Skin irritation/breakdown
- Excessive granulation tissue
- Peritubular allergic reactions
- Tube deterioration
- Tube occlusion
- Tube displacement
- Buried bumper syndrome

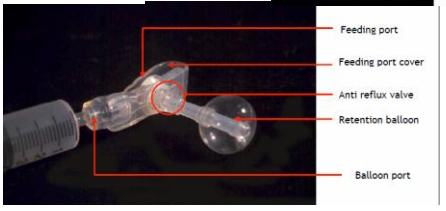


Risk Factors for infection

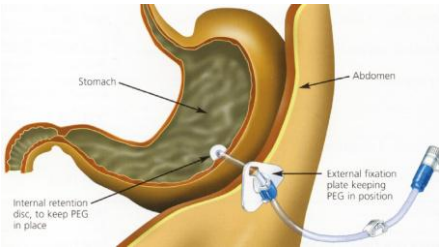
- Diabetes, obesity, poor nutritional status, immunosuppressed
- Technique in placement appears to influence development of infection
- Poor ANTT (feed or tube)

Gastrostomy tubes





Freka PEG



Care of the insertion site immediately after insertion

First 48 Hours:

- Obtain care and management instructions from the person who inserted the tube particularly in relation to release of fixation devices (if any)
- Treat the entry site as a surgical wound
- Keep the site clean and dry. Apply dressing if required to absorb exudate
- Use ANTT for dressings – clean site with sterile normal saline (0.9% Sodium chloride)

Site Care after 48 hrs -3weeks

- ANTT for all interventions until the tract has healed - may take up to 3 weeks
- Keep the site dry and clean
- Avoid the use of dressings
- No plunge baths until tract has healed may be up to 3 weeks
- Follow advice re fixation device and rotation – do not open external fixation device for 1st 3 weeks

Tube Management- Long Term

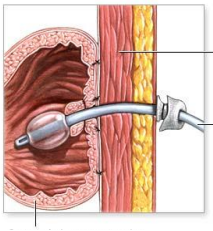
- Minimal handling : ANTT to connect the administration system to the enteral feeding tube.(NICE 2012)
- Daily cleaning of the area with mild soap & water.
- Rotate tube 360°(according to manufacturer's guidance) (PEG only!)
- Avoid the use of dressings.

PEG tubes contd

- Tube may degenerate causing the PEG site to become inflamed and irritated.
- Elective replacement should be arranged before feeding access becomes an emergency

Peg Tube External Fixation Device

- Excessive movement of tube in & out of stoma= Over granualation



PEG too tight, unable to rotate tube= Infection/ BBS

Site Infection

- Potential consequences:
  - Localised site infection
  - peritonitis,
  - deep wound abscess
  - necrotising fasciitis.

Management of Infection at site

- Observe daily for signs of infection including
  - Warmth, redness, inflammation , pain,
- Predisposing factors include excessive moisture at the site , pressure at the site.
- If signs of infection – swab site for culture and sensitivity
- Results interpreted with clinical signs and symptoms.
- Treat infection with the appropriate systemic antibiotic as prescribed
- Clean site at least twice daily
- Dressing maybe appropriate , changed regularly
- Topical antibiotics/ creams should be avoided

Equipment

- Syringes
  - Hospital/ residential care: A new single use enteral feeding syringe must always be used each time the tube is flushed or the patient receives medication.
  - Reusable syringes may only be used by patients who are feeding into the stomach and are living in their own home.

'single patient use'

- Administration sets and feed containers are for single use and must be discarded after each feeding session.
- The system selected should require minimal handling to assemble and connections should be compatible with the patients' PEG feeding tube

Preparation and storage of feeds

- Hand hygiene should be performed before feed assembly or any manipulation of the feeding system or PEG tube site.
- Wherever possible pre-packaged, ready-to-use feeds should be used in preference to feeds requiring decanting, reconstitution or dilution.
- If decanting or diluting feeds is necessary a designated clean area should be used to prepare the feed. Equipment dedicated for PEG feeding should be used.
- Where ready-to-use feeds are not available, feeds may be prepared in advance, stored in a refrigerator, and used within 24 hours.(NICE 2012)

Administration of Feed

- Refrigerated formula : stand at room temp for 30 minutes before administration
- Minimal handling and a non-touch technique
- The set should be discarded if it is inadvertently contaminated or if it has to be disconnected for a period of time.
- Ready-to-use feeds may be given for a whole administration session up to a maximum of 24 hours if sterile
- Reconstituted feeds should be given over a maximum of 4 hours. (NICE 2012)

Quality of water in PEG feeding

- Sterile water is preferable for the purposes of flushing the feeding tube, hydration or for making up feed.
- In the hospital setting
  - For infants under 12 months of age
  - For all immunocompromised patients
- For all patients fed via the jejunum

At Home

- In the clients home cooled boiled water can be used unless the client is deemed to be immunocompromised in which case sterile water should be used

Other Infections associated with enteral feeding:

- Chest infections/aspiration pneumonia
- Poor oral health.

Key Messages

- Assess the need for the device
- Minimal handling
- Standard Precautions & ANTT
- Staff & Resident Education

References

- CREST 2004: Guidelines for the management of enteral tube feeding in adults : http://www.gain-ni.org/library/guidelines/tube-feeding-guidelines.pdf
- Epic3 (2014) National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England
- Health Protection Surveillance Centre (2011) SARI Guidelines for the Prevention of Catheter associated Urinary Tract Infection
- National Institute for clinical excellence. NICE (2012), Prevention and control of healthcare-associated infections in primary and community care
- Pellowe CM, Pratt RJ, Harper PJ, Loveday HP, Robinson N, Jones, S, MacRae ED and the guideline development group. (2003) Infection Control. Prevention of healthcare associated infection in primary and community care. Journal of Hospital Infection. Vol: 55 (Supplement 2) S1-127.