G36	Standard	Endoscopy moving & handling (M&H)

Systems are in place to minimise the risk exposure to postural hazards and also the risks when manual handling patients during endoscopy.

Justification

Rationale

The main areas of concern are staff working postures and repetitive manual handling tasks. The same series of investigations and decontamination procedures are repeated many times a day.

Authorising Evidence

HSWA (1974); MHOR (2004); MHSWR (2000); HSE (2005); PPE (2005); PUWER (1998)

Links to other published standards & guidance

Brooks A & Orchard S HOP 6 (2011); Joint Advisory Group on GI Endoscopy (2008, 2009); NICE (2007); NPSA (2008); National Endoscopy Programme (2009); Rush A & Cookson K HOP6 (2011); Ruszala et al (2010)

Cross reference to other standards in this document

B12, 13; C2; D1, 2, 5, 15, 18; G3, 15, 34, 40; H

Appendices

13, 21

Verification Evidence

- requirements for compliance to achieve and maintain this standard

Generic assessments are carried out and developed into protocols that include: -

- Movements of beds/ trolleys
- Lateral transfers
- Repositioning during procedures
- Decontamination of scopes

Department specific induction checklist that includes awareness of;

- Postural hazards
- Sustained static postures
- Moving & handling scopes
- Reporting of musculoskeletal discomfort

Observational evidence;

- Task rotation
- Postural change during procedures
- Conduct of tasks specified in protocols

Systems to share concerns and promote problem solving;

- Endoscopy specific M&H training records
- Team meeting notes

G36 Protocol – Endoscopy M&H

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1. Introduction and background

Endoscopic examination is a diagnostic tool in evaluating the upper and lower gastrointestinal (GI) tract. The endoscopy rate for examining the upper gastro-intestinal (GI) tract is 0.75% or 750 per 100,000 population, per year (NICE, 2007).

The multidisciplinary team (MDT) in this field are exposed to various work related strain injuries. Risk factors will include: - repetition, prolonged awkward postures, high forces, contact stress and vibration (Rempel et al, 1992). Basic ergonomics principles should be incorporated into the practice of endoscopying a patient to reduce risk of injury to staff. The extent of the risk will relate to the overall duration of the posture and the pattern of exposure and recovery (Johnson, 2011).

To achieve neutral postures the workplace should be designed with enough flexibility to accommodate a diverse staff population. This could be achieved through the application of anthropometry, which is the study of human dimensions, to the design of the endoscopy suite.

2. Management, organisation, supervision and support

Referral criteria for the upper GI endoscopy service include categories of immediate, urgent or non-urgent (NICE, 2007). Patients attend as day cases or as inpatients. Patients are given prior information and instructions for their appointment. They are seen on the day of their investigation and given clear and accurate information prior to the procedure, including how to contact the service to obtain assistance if required and any information to take home.

3. Staffing levels

Sufficient numbers of suitably qualified staff must be employed and rostered (CQC, 2010). These must be sufficient to deal with the workload, which will be related, amongst other things, to the dependency levels of the patients.

Adequate staffing levels with a good skill mix would help ensure a patient-centred service and safe endoscopy. The recommended skill mix for one room would be one unit manager, four registered nurses, and two health care assistants. An allowance for professionals leave entitlement needs to be built into the figures at 15-22% of the original numbers (Joint Advisory Group on GI endoscopy (JAG), 2008).

4. Staffing competencies (after Benner, as cited in Ruszala et al, 2010)

- Novice - New staff (trained or untrained) and student nurses in an observation role.

- Advanced beginner - A staff member with limited experience of M&H in the endoscopy unit would be with a mentor.

- Competent - Staff that have worked on the endoscopy unit who have received relevant M&H training and been assessed as competent. They can manage their own work plan.

- Proficient – A staff member that has additional skills and training in complex procedures, including M&H.

5. Environment

Endoscopy procedures vary in complexity. Planning of the endoscopy room to optimize workflow efficiency is recommended. Rectangular rooms are often more effective in design than square ones (Cotton & Williams, 1996), ensuring enough space to turn a trolley on its axis, whilst incorporating enough work surfaces, storage space and power points. All equipment, such as video cameras, light sources, monitors relevant to the sterile field should be mounted on ceiling booms on a central point (Gerrans, 2011) to give maximum floor space and eliminate the need for electric cables across the floor. This will reduce slips, trips and falls injuries. Consideration should be given to positioning additional monitors on booms to reduce risk exposure of the neck (Murty, 2012), because often more than one person is required to view the patient's vital signs or other displays.

Scopes are moved from the patient to the decontamination unit and between "clean" and "dirty" areas on large trays. It can be difficult to move these through doorways without the appropriate trolley, so the design of doorways and provision of trolleys must take these factors into account.

The scope must be fully submerged in water for cleaning. Deep sinks can provoke excessive stooping and shallower versions are available. Standards state that "Sinks should be positioned to minimise the risk of occupational injury" (National Endoscopy Programme, 2009). The height of storage hangers and racks for supporting the scopes can be outwith the reach of smaller handlers so positioning and access must be considered.

6. Communication and information systems regarding initial referral and entry to the system

Patient referral to the endoscopy unit would be through the general practitioner (GP), an outpatient department/ clinic or via the 'inpatient system' in a general or community hospital. Advance notification should be given regarding any patient with a mobility problem or a bariatric issue that is likely to need M&H assistance and/or specialist equipment.

7. Treatment planning

This would take into account, amongst other things, the patient's mobility status.

8. Moving & handling tasks

These can be divided into patient handling and inanimate load handling tasks, as follows: -

Patient handling
- On/off trolley
- Turning & positioning
- Applying pressure to the abdomen

Inanimate load handling
- Moving trolley & scope
- Decontamination of scopes
- Pushing patient trolleys and beds

In considering the issues related to M&H the patient's rights and wishes should be respected. Consent, privacy, beliefs, and dignity are important. The professional should discuss with the patient the role and responsibilities of the service and practitioners, and the individual's needs in relation to mobility through the assessment process. Accurate, legible, and complete records need to be kept which comply with all the relevant legal, professional, and organisational requirements and guidelines.

Patients attending endoscopy are mainly independent and able to move themselves onto and off the trolley. For those patients who need assistance with mobility, appropriate equipment for transferring will be required. This may include a transfer board for seated transfers, an inflatable transfer mattress (Baptiste et al, 2006) or a lateral transfer sheet /slide sheet in conjunction with a full-length slide board. In other situations where the patient is very immobile a hoist and sling may be needed.

During the procedure the patient may or may not be sedated. The positioning of the patient on his/her side is required and often professional staff have to provide abdominal pressure as part of the procedure. To reduce the risk of injury, staff must be mindful of their posture by reducing any reaching involved and working as close to the patient as possible. For example, by positioning the patient closer to the side of bed/ trolley where abdominal pressure is applied, the forward reach and bending by staff will be decreased (Prechel et al, 2005). Edgelow (2007) and Prechel et al (2005) outline other ergonomics advice on posture and positioning. Suggestions such as altering the height of the table may be ineffective as this is generally determined by the endoscopist, not those assisting (Murty, 2010). There are some indications that it may be nearly twice as effective to change patient position than apply sustained abdominal pressure (Heigh et al, 2009).

In the decontamination unit, risk exposure is different to scoping rooms. Murty (2010) measured the neck to be exposed to the highest level of risk during scoping procedures, but the wrist and hand in decontamination areas. This is related to sustained repetitive movements. One hand grasps a scope, while the other cleans or

polishes. There is equipment available to assist further cleaning, but infection control guidelines insist upon initial manual decontamination.

The team must work together by rotating tasks if appropriate and taking breaks to maintain their wellbeing. Considerations for the team would be the table height, which must be adjustable to allow for neutral elbows, shoulders and back postures.

Optimally the endoscope insertion tube should be held in the right hand between elbow height and 10cm below the elbow height (Shergill, 2009). The monitor should be adjustable and at a level and position that minimizes strain on the neck of the nurse or technician and medical practitioner. The optimal viewing angle is 15^0 - 25^0 below the horizon of the eyes (Shergill, 2009).

Adequate space needs to be provided to care for the patient at the head end of the trolley. If sedation is to be used an extension piece should be considered on the intravenous access point to minimize the professional's reach when administering drugs.

9. Moving & handling assessment

A task based assessment will be required using TILE (MHOR, 2004). The assessment should follow the 'TILE' format to include the assessment of each of the handler's individual ability as well as the frequency of activities in the task element.

A patient individual assessment for M&H may be required in situations where handling activities are more complex due to the level of consciousness, physical and behaviour aspects of the patient. The amount of handlers required is important and which handling aids are appropriate for various tasks. The number of handlers required for each task will depend on the risk assessment and appropriate handling aids should be available.

Inanimate load handling must also be assessed.

10. Methods and techniques

Training, where possible, should be based in the unit itself. Staff find it beneficial to problem-solve or practise in their own environment (Murty, 2010).

Turning and positioning: sliding devices can be used for repositioning patients during procedures. Care must be taken to ensure these are not left beneath the patient who may slide from the trolley. A minimum of two handlers is recommended when sliding or rolling. Handlers should be at least of an advanced beginner competency (Brooks & Orchard, 2011).

For larger patients: slide sheets or transfer sheets placed laterally under the patient can be passed across the top to provide handholds. This prevents over-reaching and stooping across larger girths. A mechanical advantage is given by being able to take a hold close to the body.

Space on trolleys is restricted and sliding sheets must be used to ensure the patient rolls "on the spot". This must be carried out slowly and a dynamic assessment is required as the move progresses. Three or more handlers of a competent level are required depending upon the patient size, shape and weight. There must be a designated leader and the move must be practised in bespoke training sessions.

If a patient is obese (BMI >30) or heavy, a hoist with a turning/repositioning sheet will be needed for positional change (Rush & Cookson, 2011). Detailed assessment must be undertaken prior to the procedure as bariatric patients (BMI >40) may have poor tolerance for the sustained positions required.

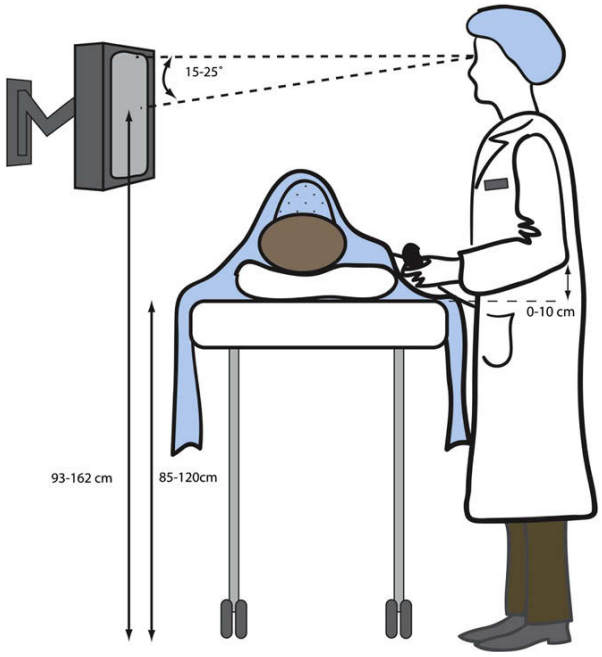

Figure 1. To show the relationship of the various elements during endoscopy. and the recommended configuration (adjustable height patient bed and adjustable monitor) for an endoscopy suite (Shergill, 2009).

The monitor is positioned directly in front of the endoscopist. Monitor height should be just below eye level, with an optimal viewing angle of 15-25^0 below the horizon from the eyes to the center of the monitor and an optimal viewing distance between 52 and 182 cm the examination table height should be adjustable from 85-120 cm (Shergill, 2009).

11. Handling equipment

Adequate provision of the correct equipment must be available in the unit (PUWER, 1998). The patient normally travels on a trolley throughout their endoscopy journey. A powered trolley that converts easily into a chair position, and with head down tilt function for recovery, with a safe working load of 318kg (50stone) is required for obese patients. The trolley's surface should be compatible with tissue viability and patient experience needs, bearing in mind the length of the procedure. A lateral

transfer aid may be required in the event of the patient needing to be transferred to a bed or ambulance trolley.

A useful aid for applying abdominal pressure is the 'Octupus' supplied by Hospital Direct.

12. Other equipment and furniture

Correct use of personal protective equipment (PPE, 2005) such as gloves, goggles, gown and protective x-ray aprons are required. These come in different styles and weights, the light weight two-piece x-ray aprons transfer half the weight to the user's hips, decreasing the strain on the shoulders and back. Neck collars for thyroid protection are available. Lead aprons should be hung vertically to prevent cracks and should be on mobile racks.

Where treatment is to be given by seated operators, suitable seating should be provided.

13. Risk rating for each task

To carry out a 'suitable and sufficient' assessment, each task should be evaluated as part of the assessment process, so that the level of risk is quantified. Such assessments should be used, wherever possible, in the design of a safe system of work, and in highlighting any residual risks.

Various systems exist, but it is suggested that the NHS risk management 5x5 matrix, with 0-25 scale, is used for an overall evaluation of risk (NPSA, 2008) (see CD1, appendix 9 in folder 5). It is in common use, simple to use with 5 levels of risk, determined by a calculation of the likelihood or probability of an adverse event occurring multiplied by the severity of consequences or impact should it occur.

Likelihood/Probability (0-5) x Severity of Consequences or Impact (0-5) = 0-25

The values below are based on this system. Calculations lead to the following possible scores or ratings: -

1 – 6 = Low; **8 – 12 = Medium**; **15 – 16 = High**; **20 = Very High**; **25 = Extreme**

These ratings can then be used to alert staff, to prioritise action and justify any necessary expenditure to make the situation safer, on the basis of reasonable practicability. Options can be evaluated by considering risks, costs, and actions planned or taken, to reduce the level of risk to the lowest level that is reasonably practicable, which can thus be demonstrated.

The risk level for handling tasks within endoscopy varies. The severity of a musculoskeletal disorder usually rates 3-4, with the likelihood increasing for handling patients rather than equipment, to give ratings (that combine these two factors) mostly in the range of 6-12.

The examples below include task rotation as an existing control measure:

- Washing and buffing scopes 3x2 = 6 (low)
- Moving patient around the unit on a trolley 3x3 = 9 (medium)
- Application of abdominal pressure 3x4 =12 (medium)
- Repositioning a very heavy patient on trolley 4x4 = 16 (high)

A range of assessment systems are available for more detailed assessments. These are more sophisticated and are applicable in certain circumstances, for determining risks to handlers and clinicians from the postures they (are obliged to) adopt in the course of their work.

Systems include: -

- REBA and RULA (Hignett & McAtamney, 2000 & 2006)
- OWAS (Karhu et al, 1977)

14. Alerting the Moving & handling team

The M&H team should be involved during planning of an endoscopy suite.

If any problems were to arise with mobility or there are bariatric considerations then the M&H team should be contacted as soon as possible for guidance and support.

Although the M&H team will be monitoring accidents/ incidents they will not be involved routinely unless a problem occurs.

15. Referral to and involvement of other specialists

Tissue viability advice may be sought.

16. Transport (internal and external)

Within the unit the trolley will be moved many times throughout the patient journey. Correct core stability and neutral posture is needed for staff to reduce their risk of injury when pushing a trolley, bed or wheelchair; this should be included in training.

17. Discharge and transfer planning

This will follow organisational policy.

18. References

Health and Safety at Work etc Act (1974) www.hse.gov.uk/legislation/hswa.htm Retrieved 17.08.11

Baptiste A, Boda SV, Nelson AL, Lloyd JD, & Lee WE (2006) *Friction-reducing devices for lateral Person Transfers :A clinical evaluation* AAOHN journal April, 54,4;p.173

Benner P (1984) *From novice to expert .Excellence and power in clinical nursing practice* Menlo Park: Addison-Wesley pp 13-34 as cited in Ruszala S, Hall J and Alexander P (2010) 3rd ed Standards in Manual Handling Towcester: NBE

Brooks A & Orchard S (2011) *Core person handling skills* in Smith, J (ed) The guide to The Handling of People a systems approach Teddington: Backcare p133-135

Cotton P & Williams C 1996 *Practical Gastrointestinal Endoscopy* (4th Edition) Oxford: Blackwell Science

CQC (2010) Care Quality Commission (2010) *Essential Standards of Quality and Safety* Std 11 & 13
www.cqc.org.uk/_db/_downloads/Essential_standards_of_quality_and_safety_March_2010 Retrieved 18.09.11 Outcome 11 & 13

Edgelow C, Hucke R, Prechel J (2007) *the importance of positioning during colonoscopy* EndoNurse The Authority of the continuing Advancement of Endoscopic Nursing Aug 1 www.endonurse.com/articles/2007/08/the-importance-of-positioning-during-colonoscopy.aspx-49k Retrieved 17.08.11 pp 33-37

Gerrans L (2011) *The Endoscopy Operating Room of the Future* EndoNurse The Authority of the continuing Advancement of Endoscopic Nursing July 2011
www.endonurse.com/articles/2011/the-endoscopy-operating-room-of-the-future.aspx Retrieved 01.09.11

Heigh RI, DiBaise JK, Preche JA, Horn BJ, San Miguel S, Heigh EJ, Leighton JA, Edgelow CJ, Fleischer DE (2009) *Use of an electromagnetic colonoscope to assess maneuvers associated with cecal intubation* BMC Gastroenterology 9:24
http://www.biomedcentral.com/1471-230X/9/24
Retrieved 13.11.12

Hignett S & McAtamney L (2000) *Rapid Entire Body Assessment (REBA)* in Applied Ergonomics 31 Pages 201-205

Hignett S & McAtamney L (2006) *REBA and RULA Whole body and Upper Limb rapid assessment tools* in Karwowski W & Marras WS (Eds) the Occupational Ergonomics Handbook (2nd ed) Boca Raton FI CRC Press 42-1-42-12

HSC (1998) *L22 Safe use of work equipment Provision and Use of Work Equipment Regulations 1998 Approved Code of Practice and Guidance* Sudbury: HSE Books

HSE (2000) *L21 Management of health and safety at work Management of Health and Safety at Work Regulations 1999 Approve Code of Practice and Guidance* www.hse.gov.uk/pubns/books/l21 Retrieved 17.08.11

HSE (2004) *L23 Manual handling Manual Handling Operations Regulations 1992 (as amended) Guidance on Regulations* Sudbury: HSE Books

HSE (2005) *L25 Personal protective equipment at work Personal Protective Equipment at work Regulations 1992 (as amended) Guidance on Regulations*

www.hseni.gov.uk/l25_personal_protective_equipment_at_work_second_edition_.pdf Retrieved 17.08.11

Johnson C (2011) *Manual handling risk assessment*: in Smith, J (ed) The guide to The Handling of People a systems approach Teddington: Backcare pp17-38

Joint Advisory Group on GI Endoscopy (2008) *A high performing unit* http://www.grs.nhs.uk/DownloadFile.aspx?FileName=How+to+pass+your+JAG+visits+London+without+Pictures+2.ppt&FileId=134 Retrieved 17.08.11

Joint Advisory Group on GI Endoscopy (2009) *Quality and Safety Indicators for Endoscopy* www.thejag.org.uk/downloads%5CUnit%20Resources%5CBSG%20Quality%20and%Safety%20Indicators.pdf Retrieved 14.11.12

Karhu O, Kansi P, Kuorinka I (1977) *Ovako Working–posture Analysis System* [OWAS] in Applied Ergonomics Volume 8 Issue 4 Pages 199-201

Murty M (2010) *Musculoskeletal Disorders in Endoscopy Nursing* Gasroeterology Nursing 33.5, pp354-361

Murty M (2012) *Scope for Change in Nursing Practice* The Ergonomist 508 pp12-13

NICE National Institute for Clinical Effectiveness (2007) *Guidelines Upper GI Endoscopy Service* www.nice.org.uk/.../uppergiendoscopyservices/uppergiendoscopyservices.jsp Retrieved 17.08.11

NPSA National Patient Safety Agency (2008) *A Risk Matrix for Risk Managers* www.npsa.nhs.uk Retrieved 17.08.11

National Endoscopy Programme (2009) *Decontamination Standards for Flexible Endoscopes* www.thejag.org.uk/downloads%5CUnit%20Resources%5CDecontamination%20Standards%20for%20Flexible%20Endoscopy.pdf Retrieved 14.12.12

Prechel JA, Young CJ, Huckle R, Young-Fadok TM, Fleischer DE (2005) *The Importance of Abdominal Pressure During Colonoscopy: Techniques to Assist the Physician and to Minimise Injury to the Patient and Assistant* Gastroenterology Nursing 28(3), p 232-236

Rempel DM, Harrison RJ, Barnhart S (1992) *Work related cumulative trauma disorders of the upper extremities* Journal of the American Medical Association 267 [6]: p 838-842

Rush A & Cookson K (2011) *People handling for bariatrics, a systems approach* in Smith, J (ed) The guide to The Handling of People a systems approach Teddington: Backcare 193-213

Shergill AK, McQuaid KR, Rempel D (2009) *Ergonomics and GI endoscopy* Gastrointest Endoscopy 70 [1]: p145-153

Further reading

HOP (2011) Smith, J (ed) *The guide to The Handling of People a systems approach* Teddington: Backcare

Smith J (2011) *Health and wellbeing*: in Smith, J (ed) The guide to The Handling of People a systems approach Teddington: Backcare p110

Summary/ Key Messages

- **The intention of the entire strategy and standards document is to contribute to the improvement of: -**
  - The quality of care - 'patient experience' (dignity, privacy and choice)
    - clinical outcomes
  - Patient/ person safety
  - Staff health, safety and wellbeing
  - Organisational performance – cost effectiveness and reputation, etc.

- **The standard for G36 is:**

Systems are in place to minimise the risk exposure to postural hazards and also the risks when manual handling patients during endoscopy.

- **Skilful M&H is key**

- **Special points for G36 are: -**
  - **Sub-optimal working postures**
  - **The pressure that has to be sustained by those who assist the endoscopist to keep the abdomen in the optimal position**
  - **Patient M&H transfers**
  - **Equipment handling – as in decontamination, etc.**