The Provision of Oral Health Care under General Anaesthesia in Special Care Dentistry

A Professional Consensus Statement

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British Society for Disability and Oral Health
UNLOCKING BARRIERS TO CARE

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Contents

Introduction

Special Care Dentistry is concerned with providing and enabling the delivery of oral care for people with an impairment or disability, where this terminology is defined in the broadest of terms. Thus, Special Care Dentistry is concerned with the improvement of oral health of individuals and groups in society who have a physical, sensory, intellectual, mental, medical, emotional or social impairment or disability or, more often, a combination of a number of these factors[1]. Individuals presenting with such impairment or disability will often have additional needs which health care professionals should endeavour to meet in order that they have equitable oral health outcomes in terms of self-esteem, appearance, social interaction, function, and comfort[2].

It has now been over 10 years since the British Society for Disability and Oral Health (BSDH) published 'Standards in Sedation and Day Case General Anaesthesia for Patients with Special Needs'[3]. Since this time there have been considerable changes in the provision of dental surgery carried out under general anaesthesia[4;5]. In addition, the proposal for a Speciality of Special Care Dentistry has now been supported by the General Dental Council[6;7] and a transition period where those interested will have the opportunity to apply to join the specialist list on the basis of their specialist training, qualifications and experience is currently under way. BSDH therefore decided to assemble a working group of experienced clinicians practising in Special Care Dentistry to draw up this Professional Consensus Statement based on current evidence, as a guide to clinicians, for Primary Care Trusts and Local Health Boards commissioning specialised services as well as a standard for the purposes of audit. Nevertheless it is important to note that any national as well as local standards will still apply and it is hoped that the current document will assist in their application.

The guidance given in this document is specifically for the provision of dental treatment under general anaesthesia. The details of anaesthetic techniques when providing general anaesthesia for dental treatment therefore fall outside the scope of this document. The reader is referred elsewhere for guidance on the provision of dental treatment under conscious sedation[4;8-12]

The guidance also relates, in general, to dental treatment for adults since the working party is aware that guidance for the Use of General Anaesthesia in Paediatric Dentistry has recently been published[13].

Although many guidelines already exist in the field of anaesthesia, there is a shortage of evidence based at the level of that obtained from meta-analysis or randomised control trials for the provision of dental care under general anaesthesia in Special Care Dentistry. Much of the guidance is therefore based on material from other well-established guidelines and legislation as well as from lower levels of evidence and from the personal experiences of the members of the working group over many years of practice within the field of Special Care Dentistry.

1. Pre-operative Assessment

1.1 Waiting lists for pre-operative assessment must be:

- Within nationally and locally agreed standards for waiting times for assessment for surgery.

- Sensitive to any additional needs of the patient.

1.2 Systematic assessment of patients with additional needs reduces the indiscriminate use of general anaesthesia and minimizes complications as well as the need for further interventions[14].

1.3 Pre-operative dental assessment for patients with additional needs should, where at all possible, be undertaken by the dental surgeon carrying out the treatment. The surgeon should have had training and experience in the assessment of patients with disabilities requiring dental surgery under general anaesthesia. Second opinions should be readily obtainable, as should other specialist dental and medical opinions. Further assistance in patient assessment and management should also be arranged where required from paramedical (e.g. physiotherapy) and nursing staff.

1.4 All patients should be seen by an anaesthetist before undergoing an operation that requires the service of an anaesthetist[15]. The anaesthetist must be a medically qualified anaesthetist on the specialist register held by the General Medical Council, or be a trainee working under supervision as part of a Royal College of Anaesthetists' approved training program, or be a non-consultant NHS career grade doctor working under the supervision of a named consultant anaesthetist[4;5]. In addition the anaesthetist should have an understanding of Special Care Dentistry[1] and be empathic towards any additional needs of the patient. It would be beneficial if each anaesthetic department appointed a lead consultant anaesthetist who fulfilled these recommendations and who can act as a point of liaison.

1.5 An anaesthetist should be available for consultation at the time of the pre-assessment clinic since many of the cases have complex needs[16], the length of the procedure/anaesthetic is likely to be prolonged[17] and the surgeon is often not medically qualified. Where this is not possible, details of cases should be available to

the anaesthetist and in addition, where there are likely to be problems, discussed with the anaesthetist, prior to admission for surgery.

1.6 The likely requirement for any special anaesthetic equipment, for example that required for endoscopic intubation, should be determined and recorded by the anaesthetist at the pre-assessment.

1.7 Patient enquiries regarding, for example, admission dates and venues are best dealt with by a clinical coordinator/administrator.

1.8 When establishing a service, due consideration should be given to the fact that the cancellation rate for special care dental general anaesthetic lists is often elevated. A dedicated service coordinator is therefore critical to ensure that a list of patients who can attend at short notice is generated. This will allow a more efficient and productive delivery of service.

1.9 The venue and style of the pre-assessment must be sensitive to any additional needs of the patient [18;19].

1.10 A full dental, medical (including anaesthetic), social and, when available, family history should be recorded as well as, if possible, an oral and physical examination where indicated.

1.11 There should be systems in place to implement the local obesity strategy so that the dental team, in liaison with other health professionals, including health promotion specialists, can manage obesity as part of a multidisciplinary team[20].

1.12 The patient's medical and dental records must be accessible at the pre-operative assessment in order to obtain further details of any previous medical and surgical history[16]. This is important in the assessment for the dental surgery, appropriate pain and anxiety control including anaesthesia, as well as for the planning of any necessary peri-operative medical care.

1.13 There should be access to radiographic and laboratory services for any radiographs and special tests required prior to anaesthesia and surgery. Such facilities should be locally available to reduce the need for the patient to attend an alternative venue for such tests. The results of tests should be accessible to the surgeon and anaesthetist

for interpretation with minimal delay in order to expedite patient care [16;21;22].

1.14 Where such investigations are not possible as a result of the patient's disability there must be a facility for tests to be carried out in theatre including provision for intra- and extra-oral radiographs. Where the results of investigations are likely to influence the treatment plan, they must be available to the surgeon and anaesthetist as soon as possible and while the patient is still anaesthetised.

1.15 Both the surgeon and the anaesthetist must be involved in the consent process. Patients who are not competent to give or withhold consent should be accompanied by a next of kin and/or an immediate carer (preferably a care manager or key worker) who knows them well and who has knowledge of the patient's medical history and any current medication and with whom treatment options can be discussed. In addition there may be occasions where special arrangements have to be made as part of the consent process in accordance with current UK legislation and guidance on consent[23-25].

1.16 There should be a discussion of possible need for pre-medication and physical intervention (clinical holding) during induction of anaesthesia as well as advice about the pre- and post-operative administration of any regular medication taken by the patient.

1.17 The need for any additional requirements for example a hoist and sling for patient transfer should be discussed and recorded.

1.18 Issues of transport, the need for the patient to be escorted, and the possibility of post-operative admission as well as aftercare at home will need to be addressed.

1.19 Many patients and their carers will be able to make their own arrangements for transport to and from appointments. However it is important, especially where additional severe physical disabilities are present, to ensure that local reliable and efficient patient transport is available that takes account of the needs of the patient in causing the minimum of distress to and from the appointment. Accessibility is enhanced by:

- the presence of affordable and available transport services to and from hospitals.
- clear guidelines on eligibility for these services.

- clear information for patients and their escorts on these services[26-30].

1.20 Any cultural requirements and communication problems should be managed appropriately [21].

1.21 The opportunity should be taken to discuss the long-term care plan with the relatives and carers. It is important to be clear about the oral health objectives and future dental treatment for patients who have additional needs. This is of particular relevance to preventive measures and exploring ways of improving compliance with diet and oral hygiene instruction where this is difficult. Emphasis must be placed on practical solutions to avoid the need for repeated general anaesthetics.

1.22 The potential for and degree of failure of the dental treatment proposed must be weighed against the need for further treatment if it would require a repeat general anaesthetic to correct the failure. If the risk of failure is high then provision of such treatment under general anaesthesia may not be warranted.

1.23 Simultaneous, non-dental investigations/interventions may be possible under anaesthesia provided the anaesthetist and surgeons are in agreement and any non-dental investigation/intervention has been subject to an appropriate consent procedure. This approach is to be encouraged in the best interests of the patient.

1.24 Verbal and printed instructions should be given to include the following:

- Pre-operative fasting advice.
- Any medication that should/should not be administered prior to admission.
- Details about escorts and transport[26-30].
- Time and venue for admission for treatment.
- Items that should be brought along with the patient (loose clothing, medicines etc).
- Advice about analgesia.
- Post-operative care.
- Contact numbers for advice about surgery and anaesthesia as well as post-operative complications.

1.25 The urgency of treatment should be assessed to help with prioritisation.

1.26 A letter should be written to the referring practitioner explaining the proposed treatment plan.

2 Admission

2.1 Waiting lists from pre-operative assessment to admission for treatment must be:

- Within nationally and locally agreed standards for waiting times for admission for surgery.
- Sensitive to any additional needs of the patient.

2.2 Appropriate accommodation and facilities should be made available for day care and, where required, inpatient surgery and must be based within a hospital setting. By hospital setting is meant any institution for the reception and treatment of persons suffering illness or any injury or disability requiring medical or dental treatment, which has critical care facilities on the same site and includes clinics and outpatient departments maintained in connection with any such institution[4].

Units may all be designed slightly differently but there will be a number of elements common to all[31] as follows:

- The ideal is a self-contained day surgery unit, with its own admission suite, theatre, recovery area and administrative facility.
- Alternatively a day case ward with patients going to a main theatre area may be utilised.
- For some patients elective in-patient peri-operative care is essential for surgical, medical or social reasons and arrangements for this must be available when required.
- If day cases and inpatient cases have to be mixed, the day case should be scheduled first to expedite an earlier recovery for discharge later the same day.

2.3 A unit that can provide side rooms for individual patients is desirable but in any case

the accommodation must:

- be sensitive to the needs of patients with disabilities
- be consistent with patient confidentiality
- be able to accommodate a carer
- be as far as possible non-anxiety provoking for the patient
- ensure that patients with behavioural problems do not disturb other patients

2.4 Facilities for admission must include consideration of the following:

- Car parking and access for people with disabilities

- A reception area that includes adequate accommodation for patients and their escorts while waiting for admission and discharge. This may be in the form of a separate seating area or side room.

- A separate area for administration

- Equipment for pre-operative patient assessment must be available including:
  - Blood pressure measuring equipment.
  - Pulse Oximeter.
  - Equipment for taking blood samples.
  - Glucometers and devices for measuring the International Normalised Ratio (INR).
  - Scales for weighing.
  - Height gauges.

- Additional facilities, where required, for more complex pre-operative investigations, e.g. electrocardiography (ECG), should also be locally available.

- Lifting and handling equipment including:
  - Trolley to transport patient.
  - Wheelchair to transport patient.
  - Patient slide for transferring from trolley to bed.
  - Slide Sheet.
  - Hoist and sling.

2.5 Staff must be appropriately trained, and training documented, in the use of all equipment in accordance with national and local manual handling regulations[32;33].

2.6 The admission team should be developed to provide a multi-skilled workforce who are well trained, efficient and effective and should include the following:

- A dental surgeon who has had training and experience in the assessment of patients with disabilities for dental surgery under general anaesthesia.
- An anaesthetist who fulfils the requirements as delineated under paragraph 1.4 above.
- Registered General Nurse.
- Registered dental nurse with post-qualification experience in and, preferably, a further qualification in Special Care Dentistry. Support should be given to dental nurses wishing to obtain a qualification in Special Care Dentistry.
- Administrative personnel.
- Porters where required.

2.7 In addition there may be occasions when the patient is admitted under the care of a medical and/or mental health team in view of significant systemic and/or mental health disorder. In this case there will be a shared responsibility for the admission and peri-operative care between the physician and/or psychiatrist with those members of the team outlined in 2.6 above. In such a case it must be clear to all staff, patients, carers and relatives that the dental surgeons are only responsible for the oral health care and the medical/mental health management of the patient is the responsibility of the medical/mental health team in liaison with the anaesthetist.

2.8 It is essential to have flexibility within the team to enable appropriate cover for sickness and absence. The benefits of multi-skilling are[31]:

- Staff appreciate and understand each other's roles and responsibilities which leads to a cohesive and motivated team.

- Staff are better able to inform and educate patients and carers if they are familiar with the entire patient experience.

2.9 The patient's medical and dental records must be present at admission and be available until the patient has been discharged.

2.10 On admission the patient should be clerked into the ward or unit. Although responsibility for admission lies with the dental surgeon some checks and procedures may be delegated to the nursing staff. It is considered good practice to use a formalised checklist for admission. The following should be checked and recorded:

- The patient's escort is present and transport home has been arranged[26-30].
- Fasting instructions have been followed.
- Jewellery is removed or covered; nail varnish, dentures and any loose oral appliances are removed.
- Medical history and medication list is checked and any changes noted.
- All medication has been taken as recommended at the assessment visit.
- All radiographs and reports are available.
- Pre-operative investigations have been carried out and reports are available.
- Appropriate thromboembolic prophylaxis is arranged if indicated by the patient's medical history[34].
- The patient and/or carer have the opportunity to ask questions and clarify details.

- The following patient observations (as far as possible taking into account the patient's disability):
  - Height.
  - Weight.
  - Blood pressure.
  - Pulse rate.
  - Arterial oxygen saturation.
  - More specific tests where indicated e.g. blood glucose, INR, ECG.

- A record of a valid, signed consent procedure is available for the dental treatment and the general anaesthetic.

2.11 The patient should be seen by:

- The dental surgeon to check the dental treatment plan, the results of any special tests appropriate to the surgery, ensure the patient's fitness for surgery and answer any questions regarding the surgery.

- The anaesthetist to ensure the patient's fitness for the anaesthetic and answer any questions regarding the anaesthetic.

2.12 Where premedication has been prescribed this should be given at an appropriate time to co-ordinate with the scheduling of the general anaesthetic.

3 Induction of Anaesthesia

3.1 The accommodation/environment for induction of anaesthesia must be sensitive to any additional needs of the patient. It is often helpful for an escort or person the patient recognises to be present during the induction period and so the accommodation should be large enough to allow for this. The anaesthetic team and carers should pay special attention to anxiolysis, for example playing music for a

visually impaired patient or bringing favourite personal articles into the anaesthetic room.

3.2 The anaesthetic equipment available must be serviced and checked in accordance with the manufacturer's instructions and national guidelines[35;36].

3.3 A range of monitoring equipment as well as the equipment and drugs needed for resuscitation must be available and there must be immediate access to spare apparatus in the event of failure[37].

3.4 Special equipment for example that for endoscopic intubation must be immediately available if required.

3.5 The anaesthetist inducing anaesthesia must fulfil the requirements as delineated under paragraph 1.4 above.

3.6 It is essential that when a general anaesthetic is given the anaesthetist has appropriately trained and competent, dedicated assistance so that routine and unexpected events can be dealt with in a safe, efficient and effective manner[4]. All members of the anaesthetic team must be trained to nationally agreed standards[38].

3.7 The means of induction of anaesthesia should be sensitive to any additional needs of the patient and as far as possible be flexible to take into account the wishes of the patient. Nevertheless, it should be understood that safety or even what is possible may sometimes override the patient wishes.

3.8 Any intervention (clinical holding) used during the induction of anaesthesia should be in accordance with current legislation and guidance on consent and intervention[23-25;39-41].

4 Surgery/Treatment

4.1 The accommodation and equipment for the surgery/treatment should meet the following recommendations:

- The operating room is large enough to accommodate the patient and all necessary staff[42].

- Anaesthetic drugs and equipment, a range of monitoring equipment as well as the equipment and drugs needed for resuscitation must be available and there must be immediate access to standby apparatus in the event of failure[37].

- Facilities for the storage and supply of medical gases must meet relevant regulations[37;43].

- Anaesthetic gas scavenging is provided and the ventilation complies with the Control of Substances Hazardous to Health Regulations 1999[42].

- Zoning of areas to provide clean and dirty utilities[44].

- Full lighting[31].

- Dental radiography equipment should be available and used in accordance with local and national guidelines[45].

- A viewing screen for radiographs visible to the surgeon while operating.

- A warm, ambient environment is provided where possible, especially for older patients, to maintain body temperature[46].

- Patients are treated on a theatre table in a supine position or on a trolley[42] with appropriate support for any physical impairments.

- Following treatment, patients are either transferred to a trolley whilst in theatre and moved to the recovery area, or the patient and trolley on which they had their treatment are moved to the recovery area[42].

4.2 A minimum of four people is required for any dental procedure under general anaesthesia[37].

4.3 The dental team must comprise of the following:

- A dental surgeon with appropriate training and experience in Special Care Dentistry, liaising and working in association with the referring dental surgeon on a 'shared care' arrangement if this is not the dentist providing treatment. Second opinions are advisable where examination and treatment planning is not possible pre-operatively[23;25]. This can be achieved by the presence of two experienced operators.

- Appropriately trained and competent, dedicated assistance so that routine and unexpected events can be dealt with in a safe, efficient and effective manner[4] . During surgical treatment carried out under sterile conditions it may be necessary to have an additional member of staff who is not scrubbed to supply the scrubbed team with materials etc. The team should include a registered dental nurse with post-qualification experience in, and preferably, a further qualification in Special Care Dentistry.

There should also ideally be local access to specialist opinion/assistance for example maxillo-facial surgery and restorative dentistry if required.

4.4 The Anaesthetic team must comprise the following:

- An anaesthetist who fulfils the requirements as delineated under paragraph 1.4 above.

- A dedicated anaesthetic assistant trained to nationally agreed standards[38]

4.5 The anaesthetic equipment available must be serviced and checked in accordance with the manufacturer's instructions and national guidelines[35;36].

4.6 The dental and other equipment should be checked using a checklist and the following ensured:

- Body supports to ensure the comfort of patients are provided to help with positioning and protection of the patient especially those with physical disability.

- Use of drapes for hygiene, protection and maintenance of body temperature of the patient and anaesthetic tube stabilisation.

- Suitable eye protection must be provided for the patient.

- All necessary sterile instruments and equipment for surgical, restorative and preventive treatment are thoroughly checked and prepared, including disposables, before the patient is anaesthetised. Instrument sets should be assembled for the relevant procedures. See table 1.

- Suction is checked and prepared for use.

- Radiographic equipment is checked and necessary films and cassettes are prepared.

- All needed materials are available and prepared. See table 2.

- The following are counted and recorded before being used:

    - Swabs, packs, pledgets and cotton wool rolls.

    - Sharps and needles.

    - Instruments.

- All equipment, instrument sets and materials are accessible if the treatment plan is modified.

4.7 Infection control must be in accordance with current national and local guidelines and include the following[44]:

- Protective clothing must be worn and include as a minimum: theatre ‘scrubs’, suitable footwear (e.g. clogs), eye, face and hair protection and gloves.

- Rings, jewellery and watches should be removed and all cuts and abrasions covered with a waterproof adhesive dressing. Methodical hand washing using a good quality liquid soap preferably containing a disinfectant followed by thorough drying must be carried out before donning gloves. It is advisable to use an emollient hand cream to prevent the skin from drying especially after every clinical session.

- In addition a sterile technique should be used for dento-alveolar and soft tissue surgery including[47-50]:

    - Effective surgical scrub technique for the surgeon and assistant.
    - Sterile gowns and gloves for the surgeon and assistant.
    - Covering the patient's body and hair with sterile drapes.
    - Sterile instruments.
    - Cleaning of the operating site with an antiseptic solution (e.g. 0.2% chlorhexidine solution).
    - Avoiding contamination during surgery.

- Single use items including endodontic reamers and files must be treated as single use only[51].

- There must be effective recording, tracking and tracing of instruments matched to patients[52].

- All surgical instruments that are used in the clinical environment should be decontaminated without exception. For example, it is unacceptable to process only those instruments that come into direct patient contact. Therefore, all instruments and instrument trays opened in the clinical environment should be decontaminated between use.

- Decontamination and sterilisation of instruments should be completed outside of the clinical area and preferably in central processing units i.e. a Hospital Sterilization and Decontamination Unit (HSDU) or similar department[53].

4.8 Screening for Methicillin-Resistant *Staphylococcus aureus* (MRSA) should be carried out, if not already done, in accordance with current national and local guidelines. Many patients cared for in Special Care Dentistry have a history which places them at increased risk for carriage and infection of MRSA[54-56].

4.9 Treatment planning should be in accordance with the following recommendations:

- A treatment plan should have been formulated whenever possible by a pre-anaesthetic oral examination.

- Where it has not been possible for a patient to cooperate with a pre-anaesthetic examination an extra-oral and intra-oral examination and full charting and radiographs as necessary are completed under general anaesthesia to formulate an initial treatment plan.

- Antimicrobial prophylaxis is used according to current national guidelines.

- Where possible consult and discuss with carers and/or family any proposed treatment plan.

- The treatment plan takes into consideration aftercare and maintenance and the patient/carers' ability to maintain oral hygiene and future preventive and restorative treatment. Plans must be made to maintain and preserve oral health with daily homecare regimens and regular dental examinations[57].

- All dental treatment found to be necessary during the scheduled general anaesthetic appointment should be completed[57], unless contra-indicated, in the best interests of the patient.

- All carious teeth are either restored or extracted during a single episode of general anaesthetic[13].

- At follow up appointments, to maintain oral health, it may be possible to provide examination and treatment under conscious sedation[57] and this should be borne in mind when planning treatment.

- The treatment plan considers patients' dietary needs and diet consistency, as well as use of teeth for other functions and additional tasks e.g. using a mouth stick for a computer mouse, typing, painting etc.

- Every opportunity to give preventive messages to carers and family should be utilised[13]. Digital photographs may be useful in this respect.

- If the treatment required differs from the original treatment plan, discuss with the referring clinician, if possible, or the assisting clinician and carers/family and fully document this in the patient's records.

4.10 The Surgery/Treatment should include the following recommendations:

- Once the treatment plan has been established, the appropriate treatment is commenced. Local policy may modify the range of treatment provided e.g. root canal treatment, advanced restorative work, fissure sealants etc. This should be audited for success of outcome and the need for repeat general anaesthetics. The most predictably successful restoration in the given circumstances should be provided for each tooth[13].

- All un-restorable, asymptomatic teeth should be removed in addition to those causing pain or sepsis[13;58;59].

- When teeth are extracted it is advisable to save these teeth as evidence of the need for extraction. However, this must be done in accordance with national and local guidelines regarding handling and storage of human tissues[60].

- Where not contra-indicated and following discussion with the anaesthetist, local anaesthetic is used prior to extractions and surgical procedures to reduce pain and so aid recovery and, if vasoconstrictor is included, to help control post-operative bleeding. Careful note needs to be made where this is used since the recovery and, where appropriate, ward staff, will need to be informed of any anaesthetised areas.

- Sutures and haemostatic agents are used where appropriate. Resorbable materials should be used unless contra-indicated.

4.11 Intubation:

- The method of intra-operative airway management (nasal or oral endotracheal tubes or laryngeal mask airway) should be decided following a detailed discussion between the anaesthetist and the operating dental surgeon.

- Nasal endotracheal intubation would allow maximum possible access to the mouth for examination and treatment and should normally be used unless contra-indicated.

- Where endotracheal intubation is used a throat pack must be in place to prevent aspiration. This would usually be inserted by the anaesthetist during induction. In any case, communication between the anaesthetist and dental surgeon on insertion and removal of the throat pack is essential. Insertion and removal of the throat pack should be recorded.

- Where a laryngeal mask airway is used care must be taken to ensure an airtight seal around the laryngeal inlet at all times during surgery.

4.12 Multi-professional care:

- Simultaneous, non-dental investigations/interventions may be possible under anaesthesia provided the anaesthetist and surgeons are in agreement and any non-dental investigations/interventions have been subject to an appropriate consent procedure. These may include:

    - Blood tests/surgical investigations/treatment.
    - Other procedures such as a haircut or toenail cutting by a suitably trained member of staff or other professional.

- If the patient is having a general anaesthetic for other reasons than dental care, it may be necessary for the dental team to provide treatment at another site which is unfamiliar. This may require portable, mobile equipment designed for operating theatre use. Checklists are very useful for these eventualities[61]. Liaison with staff at the facility as well as arrangements for staff contracts may also be necessary.

4.13 Communication throughout the procedure with the anaesthetist regarding change of treatment plan and timing is required.

4.14 At the end of surgery/treatment it is essential that the following procedures are performed and recorded:

- Swab, pack, pledget and cotton wool roll count.

- Sharps and needles count.

- Instrument count.

- Removal of the throat pack after checking with the anaesthetist. Following removal, the airway should be cleared and checked before concluding the procedure and handing back responsibility to the anaesthetist.

- Liaison with the recovery nurse so that he/she is aware of the treatment provided and any other necessary information e.g. a newly fitted denture, anaesthetised areas.

- The treatment provided is documented.

5 Post-operative care

5.1 Post-operative recovery after general anaesthesia occurs in 3 phases.

5.2 **First stage recovery** lasts until protective reflexes have returned with control of the airway, cardiovascular stability, the patient is awake, comfortable, without continuing haemorrhage or other complications and pain is controlled.

5.3 This should be undertaken in a recovery area which should conform to Department of Health (DH) and Association of Anaesthetists of Great Britain and Ireland (AAGBI) guidelines[62-64] in respect of:

- Staffing requirements.
- Equipment, support services and facilities.
- Training and education.
- Research and audit.

5.4 Patients must be observed on a one-to-one basis by an anaesthetist, recovery nurse or other appropriately trained member of staff until they have regained airway control and cardiovascular stability.

5.5 The anaesthetist must formally hand over care of the patient to a recovery room nurse or other appropriately trained member of staff[62]. Additional information provided should include any special care required including:

- Communication difficulties.
- Positional limitations.
- Moving and handling precautions.
- The potential for significant challenging behaviour on recovery.

5.6 The dental surgeon should provide recovery staff with information regarding the dental procedures undertaken and any precautions required, including:

- Site and type of local anaesthetics used, including anticipated duration of action.

- Site and types of fillings placed, especially those which may not have fully set.

- Site and type of dental extractions (surgery, sutures etc) and of any dental/surgical packs.

- Instructions for further pain relief.

5.7 An effective emergency call system must be in place in every recovery room.

5.8 A proportion of patients report symptoms post-operatively, especially patients who are very anxious about dental care. These relate usually to symptoms of persistent nausea and/or vomiting and unanticipated prolonged drowsiness[65]. Patients who have had short procedures undertaken under general anaesthesia delivered via a laryngeal mask are reported to experience fewer signs and symptoms post-operatively compared with patients who have had treatment under general anaesthesia delivered by endotracheal intubation[66]. Local guidelines should be available for the treatment of acute pain and post-operative nausea and vomiting (PONV)[67]. No patient should be discharged from first stage recovery until control of vomiting and postoperative pain is satisfactory[62]. It may be necessary to liaise with the anaesthetist who provided care if there is intractable nausea/vomiting or little

response to standard pain relief therapy.

5.9 An appropriate standard of monitoring should be maintained and good records made to support effective 'hand-over' to second stage recovery staff[62;68].

5.10 Agreed criteria for discharge of patients from first stage recovery to second stage recovery should be in place[62], although systems based on standard clinical parameters[69] may need to be adapted for individuals with additional needs[70].

5.11 **Second stage recovery** will normally be undertaken in a unit that may be adjacent/associated with the operating theatre or a ward. It ends when the patient is ready for discharge from the hospital or unit.

5.12 The second stage recovery unit or ward should be equipped and staffed to deal with the common postoperative problems such as post-operative nausea and vomiting, inadequate analgesia, haemorrhage, as well as less common postoperative emergencies such as cardiovascular and respiratory events.

5.13 **Unforeseen Overnight Admission**

All centres must have arrangements for unforeseen post operative overnight admission. Post operative admission should be uncommon but may be needed for the following reasons:

- Surgical.
- Anaesthetic.
- Medical.
- Mental health.
- Social.

Arrangements must be in place for:

- Medical/mental health cover
- Dental/oral surgical cover

Where overnight admission is due to the complexity of an individual's medical and/or mental health condition(s), it is essential that the dental surgeon liaises with the responsible physician(s)/mental health team.

Whatever the need for overnight admission, cover will need to be established by the dental surgeon or by arrangement with the maxillo-facial team for any dental/surgical complications during the period of admission.

5.14 **Elective In-patient Care**

If a patient has been judged unsuitable for day-case surgery at the pre-assessment clinic, the patient may only be able to undergo oral healthcare under general anaesthesia as an in-patient. This includes patients who have complex medical disorders or severe mental health problems and occasionally due to social circumstances.

An admission protocol must be present in order to demonstrate a formal care pathway for such patients. Local protocols may vary throughout the UK based on available resources. Nevertheless, patient safety should be the overriding consideration.

Ideally such patients should be admitted under the physician or psychiatrist who is currently dealing with their most significant medical/mental health problem. This avoids a repetition of invasive tests pre-operatively and allows for an expert team that is familiar with the patient's current medical/mental health status to manage any medical/mental health problems that may arise peri-operatively.

Medical/mental health and dental staff should liaise directly with the anaesthetist pre-operatively to alert him/her to the patient's history. Arrangements can also be made for the anaesthetist to see the patient. At this stage any pre-operative investigations can be agreed and peri-operative management discussed including any pre-operative medication/sedation and post-operative pain control. The dental, medical/mental health teams and the anaesthetist will also need to liaise regarding consent for the dental treatment, anaesthetic and peri-operative care.

Patients should then be admitted under a named physician (or psychiatrist) by their respective junior medical/mental health staff in liaison with the dental team.

Arrangements will also need to be in place in the event of any post-operative dental/surgical problems while in hospital. Dental/surgical cover will need to be established by the dental surgeon or by arrangement with the maxillo-facial team. A clear pathway of clinical responsibility needs to be in place in the event of medical/mental health and/or dental complications.

The patient should not be discharged without the agreement of the physician/psychiatrist under whom the patient is admitted and so discharge protocols will need to be agreed by both medical/mental health and dental teams involved with the patient's care. Such protocols should also include the patient being seen by the dental team prior to discharge.

5.15 During recovery, there must be locally agreed protocols for the provision of advanced life support and transfer to critical care facilities[4] should this be required.

5.16 **Late Recovery**. This phase may last several weeks and ends when the patient has made a full physiological and psychological recovery from the procedure undertaken. The patient and/or carer should be given an indication of when this is likely to be, and what support may be required.

6 Discharge

6.1 Regardless of how patient discharge is organised within individual units, the actual discharge process should create a climate in which patients and/or their carers understand their roles and responsibilities in ongoing care and therefore feel confident to go home.

6.2 As a direct or indirect result of the patient's disability and/or additional needs, standard criteria for discharge may not apply[70]. Careful observation of the patient

pre-operatively will indicate normal parameters for that patient, against which recovery can be assessed and discharge agreed. Patients with severe disabilities are likely to be dependent on their escorts and can be discharged provided the patient has control of their airway and adequate cardiovascular stability.

6.3 The following criteria should be considered before the discharge of the patient[71]:

- Patient should be at a pre-operative level of consciousness and mobility.
- All physiological monitoring should indicate a stable state.
- Pain, nausea and vomiting should be minimal and controlled.
- There should be no haemorrhage from the operative site.

Nevertheless, it has been shown that both voiding and/or requiring patients to drink fluids before leaving the unit are not always necessary, and may delay time to discharge[72]. Hence protocols should be adapted to allow low risk patients to be discharged without fulfilling the traditional criteria.

6.4 Every patient should be seen following surgery prior to discharge by the dental surgeon and anaesthetist involved in his/her care. Responsibility for the discharge process is shared between the dental surgeon, the anaesthetist, and the recovery nursing staff, in conjunction with the admitting clinician where this is not the dental surgeon.

6.5 When patients are ready for discharge they must be accompanied by a responsible, competent adult who has been given clear written instructions regarding the implications of the surgery and anaesthetic undergone.

6.6 It may be appropriate to give pre-discharge refreshment for the well-being of the patient and/or carer before the return journey.

6.7 Information about any follow-up treatment should be given.

6.8 Verbal and written post operative instructions, including a 24 hour emergency contact telephone number, should be given along with any prescriptions and information on future appointments.

6.9 Patients should have at least one escort and be taken home by an additional person using appropriate hospital or private transport[26-30].

6.10 **Discharge summary.** Providing appropriate data protection and consent procedures have been carried out regarding the inclusion of personal information in discharge letters, a discharge summary should be handed to the patient, or carer. Patient's care may be adversely affected if there is a delay in receipt of the discharge information by the primary care team and this may lead to inappropriate re-admission. Discharge information can be informal, handwritten letters accompanying the patient home, followed up by a formal discharge letter.

6.11 It is good practice for patients/family/carers to have a copy of all correspondence. The discharge summary should include[73]:

- Patient's personal demographic details.
- Summary of patient's complaint on referral.
- Medical/dental and relevant social histories.
- Investigations undertaken.
- Clinical findings.
- Diagnosis.
- Treatment plan.
- Procedure(s) undertaken.
- Outcomes and prognosis.
- Discharge medication.
- Post-operative instructions.
- Information given to patient.
- Follow up care required.
- Recall arrangements.

6.12 Additionally the usual formal discharge letter will be sent to the referring practitioner.

6.13 **Postoperative Instructions**

- All patients should receive verbal and written instructions on discharge.
- These instructions should be given in the presence of the responsible person who is to escort and care for the patient.
- They should be warned of any symptoms that they might experience during the first 24 post-operative hours.

- Suitable post-operative medication (e.g. analgesics, antibiotics, mouthwash) may be prescribed if thought necessary and clear instructions given on its administration.
- Specific instructions regarding mouth care after surgery should be given by a dental surgeon.
- If sutures have been placed, guidance should be given as to the type of suture material used and how, if necessary, they will be removed together with any specific instructions relating to the surgical procedure.
- Instruction should be given on the insertion, removal and cleaning of any appliances fitted during surgery.
- The patient should be advised not to drink alcohol, operate machinery or cook until at least the following day.
- Although it is generally recommended that no one should drive for 48 hours[74], recent research suggests that, from an anaesthetic point of view, avoiding driving for 24 hours is often sufficient[75]. It is however important to seek the anaesthetist's advice since post-operative recovery of driving and other skills can vary due to a number of factors including anaesthetic and analgesic drugs administered peri-operatively.
- In the event of a problem, the patient must know where help or advice can be found. A list of contact telephone numbers should be supplied.
- If a review appointment is required, information regarding this is given prior to discharge.

6.14 **Local development of guidelines.** Guidelines for patient discharge within individual units should be developed as a consensus between the surgeons, anaesthetists, ward/day unit nurses and, where appropriate, the physicians in charge of the peri-operative medical care of the patient. The document should address generic criteria for discharge as suggested here but should also consider discharge criteria for patients with additional needs.

7 Post-operative Review

7.1 This may be carried out by the team who have provided the operative care or by the referring dental team.

7.2 If not already carried out, a formal discharge letter should be sent to the referring team with copies to other relevant professionals (e.g. GMP, medical consultants) as well as to the carers and patient as appropriate.

7.3 **Short Term** follow up for patients who have had their dental care provided under general anaesthesia should ideally be carried out by a dental surgeon, if possible within 24-48 hours after discharge.

7.4 If it is not possible or appropriate to see the patient within 24-48 hours post discharge, the following should be checked by telephone with the patient/carer by the clinician undertaking the operative procedure or by a suitably trained nurse:

- Patient comfort
- Any post-operative bleeding if extractions or other surgery have been carried out.
- Any pain that is not being adequately managed by the carer.
- Any other signs or symptoms that give rise to concern on the part of the patient or carer.
- Arrangements for contact if any untoward signs and/or symptoms persist.
- Arrangements for a follow-up appointment with the dental team:
    - 3-7 days post-operatively for suture removal if non-resorbable sutures have been placed.
    - 2-3 months for standard review. If possible, the dental surgeon who originally referred the patient could carry this out.

7.4 **Medium/Long Term** follow-up (2-3 months post-operatively) should ascertain:

- Any changes to medical history and care arrangements.
- Healing after surgical procedures.
- Restoration of normal daily activities like eating and oral hygiene measures.
- Compliance with post-operative advice.

- Reinforcement of pre- and post-operative preventive instructions and assessment of compliance.

7.5 There is evidence in the literature that in addition to effective planning at the pre-operative stage it is imperative to rigorously supervise preventive aspects of the treatment plan postoperatively, in order to reduce the need for repeat episodes of dental care, particularly if this requires further general anaesthesia[76-78].

7.6 The standard 2-3 month recall visit should also include a re-evaluation of the oral health risk status based on guidelines issued by the National Institute for Health and Clinical Excellence (NICE) for dental recall[79], and the following considerations incorporated into the care plan[80;81]:

- Changes to reported dietary practices, in comparison with previously collected 3-7-day dietary records and further goals to be achieved. Dietary advice should include information about the systemic effects[20] as well as messages about the oral health implications of a poor diet[82].

- A demonstration by the patient/carer of daily oral hygiene practices and any necessary modifications required. Practical approaches to mouth cleaning endorse the use of modified toothbrushes and the use of fluoride mouthwashes containing 0.05% (250ppm F^-) or 0.2% (1000ppm F^-) sodium fluoride as a substitute for toothpastes where the latter are not tolerated[83]. Other evidence supports the use of electrically operated toothbrushes or modified manual toothbrushes [84;85].

- Planning with family, carers and others, the most appropriate strategies for behaviour management during oral health procedures taking into account current guidance[41].

- Identifying the most appropriate recall interval based on the risk analysis[79]. For prevention of periodontal problems, a small study of Down syndrome patients has indicated that a recall interval of between 3-5 months was more successful in reducing clinical indications of periodontal disease, than an interval in excess of one year[86].

Regarding the most appropriate adjuncts to oral health care in terms of fluorides and chlorhexidine[87;87], when looking at the effectiveness in preventing caries and acceptability by users, toothpaste is as effective as other topical fluoride agents, in children at least. However, other agents used in combination with fluoride toothpastes produce a slightly greater reduction in caries increment[88]. Fluorides used in combination with chlorhexidine varnishes produce a measurable gain in terms of slowing down growth of lesion size, and presumably progression, in vulnerable adults[89].

8 Records

8.1 As part of the clinical care of a patient it is assumed that information relating to the patient and their care is recorded in an appropriate manner. Clinical governance requires that clinical teams conform to a number of standards when capturing and recording patient information:

- Data Protection Act 1998[90]
- ISO 17799/BS7799 – Security of Patient Information[91]
- Computer Misuse Act 1990[92]
- Access to Medical Records Act 1988[93]

8.2 All clinical records should be kept together and conform to a structure since there is evidence that structure improves patient outcomes and doctors' performance as well as patient satisfaction[94].

8.3 Each patient should have the following unique identification (preferably an address label):

- Unique identification number.
- Name in full.
- Address, postcode and telephone number (including mobile number if available).
- Date of birth.
- Gender.
- Person to contact in an emergency.

- Clinician responsible for the care episode.

8.4 The clinical record should be structured as follows[95]:

- Pre-assessment details.
- Admission details.
- Follow up entries.
- Discharge entry.
- Special entries including consent.

Every entry should contain:

- Identity and location of the patient.
- Patients name and date of birth on each new page (or address label).
- Date.
- Time.
- Signature of the author.
- Name of the author printed adjacent to the signature (or clearly associated with the signature in a key at the beginning or end of the records).
- Deletions/alterations countersigned.
- Abbreviations conforming to local protocols.

8.5 On admission, either to a day unit or as an in-patient, the following information should be recorded for each patient:

- Referring practitioner.
- Admission administrative details.
- Presenting problems.
- History of presenting complaint(s).
- Previous illnesses (by system)/dates and outcomes/name and contact details for general medical practitioner (GMP).
- Medication/allergies/diet.
- Past procedures and investigations/dates and outcomes.
- Functional status.
- Social circumstances/home care/employment.
- Relevant family history.
- Clinical examination/special tests.
- Results of investigations.
- Diagnoses.
- Potential problems and risks list.
- Overall summary.
- Treatment plan.
- Intended outcomes/prognosis.
- Reason for admission.

- Information given to the patient.

8.6 The consent procedure must be recorded in writing and be obtained for all investigations or treatment carried out under and including the general anaesthesic[4]. This will include any proposed use of physical intervention (clinical holding) deemed to be necessary to expedite care[41]. For adults who lack capacity to consent the legal framework will vary in form between jurisdictions. Currently in England and Wales, the Mental Capacity Act 2005[23] and in Scotland, the Adults with Incapacity (Scotland) Act 2000[24] lay down guidance for the consent procedure for adults who lack capacity. The approach in Northern Ireland is currently governed by common law[96]. At no time can another adult presume to give consent on behalf of an adult who apparently lacks capacity. Alternative 'consent' forms exist in circumstances where it is not possible because of a lack of capacity on the part of the patient, to record the involvement of those who have an interest in the patient's well-being and would share a sense of duty of care towards the patient[25]. All parties should be acting in the patient's best interests in the decision-making process. Clinicians obtaining consent need to be aware of the existence of any advance directives and statements of wishes and feelings by the patient[23]. The consent process should include if possible:

- Diagnosis.
- Information about the disease or condition.
- Prognosis.
- Treatment options, including no treatment.
- Likely outcomes.
- Usual or serious consequences/side effects of treatment and alternatives/non-treatment.
- Time frame, including post operative recovery.
- Costs where relevant.

in addition to details of the anaesthetic and any peri-operative analgesia.

8.7 Confidential information should only be passed on to other clinicians on a need to know basis, for example on a laboratory form when requesting investigations in haematology or on a radiographic request form. Patients should have an understanding of this and should also be informed of the way in which their clinical case details and records may be used for the purposes of teaching, audit or research, when obtaining their permission.

8.8 Following the admission, entries into the patient's record must include (often in separate sheets within the patient's record):

- Any peri-operative medication administered including the patient's routine medication, pre-medication, antibiotics, corticosteroids, analgesia (local and systemic).
- The anaesthetic record.
- Intra-operative examination, investigations and findings.
- Operative treatment/surgery.
- Post-operative care.
- Information given to patient/family/carers.
- Post-operative instructions, verbal and written.
- Arrangements for follow-up.
- Discharge information.

8.9 All records should be accessible for the purposes of clinical audit. Conforming to these guidelines facilitates the audit process.

9 Resuscitation

9.1 All dental practice staff who have contact with patients must be trained in basic life support and use of an automatic external defibrillator (AED) to the current recommendations of the Resuscitation Council 2006[97;98].

9.2 Where general anaesthesia is administered, all clinical staff and their assistants must be up to date to the required standard of resuscitation skills set by their hospital for their professional position and in line with the current recommendations of the Resuscitation Council and the General Dental Council [4;5].

9.3 All members of the team must practice resuscitation together at regular intervals. Health authorities such as Primary Care Trusts and Local Health Boards should monitor that the required training has been undertaken[4].

9.4 Agreed written protocols must be in place for patients who experience an adverse event while under general anaesthesia and during the peri-operative period for the immediate transfer of a patient to a critical care facility[4].

10 Clinical Governance

10.1 The NHS defines 'Clinical Governance' as *"A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care can flourish"*[99].

10.2 Clinical governance (CG) has been a contractual requirement since 2001. The quality of a service is measured against standards. Standards are assessed through audit. Service providers need to reach these provision standards by initial training. They maintain these standards by continued training and retraining as change occurs. Training should be recorded.

10.3 The provision of oral health care treatments under general anaesthesia should conform to the same standards for clinical dentistry as if they were performed under other methods of pain and anxiety control[100].

10.4 If a treatment cannot be provided under general anaesthesia to a nationally/locally recognised standard of quality then it should not be provided in this way. Certain complex restorative treatments may not be appropriate under general anaesthesia. For example, those that require multiple repeat anaesthetics to complete.

10.5 **Audit**. Clinical audit should be undertaken at regular intervals as recommended by the Clinical Standards Advisory Group[101]. Audit should include service user feedback and include:

- Assessment of effectiveness of clinical techniques provided under general anaesthesia.
- Levels of activity.
- Assessment of any recorded untoward events or complications arising from

such treatments.

As part of the audit process there should be regular team meetings which include the whole team involved in operative and peri-operative care. Patients and their representatives should be invited to contribute to such meetings.

10.6 **Health and Safety**. Local Trust and departmental health and safety policies should be in place and conformed to. These policies will cover such areas as:

- Manual handling[32;33]
- Patient transport[26-30]
- Control of substances hazardous to health (COSHH)[102]
- Infection control and body fluid exposure incidents[44;103]

Risk assessments should be completed where required and regulations for reporting dangerous incidents and accidents should be complied with in accordance with The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)[103].

10.7 **Body Fluid Exposures and General Anaesthesia in Patients who lack capacity to consent.** Workplace percutaneous or mucocutaneous body fluid exposures do occur to health care staff. Standard protocols exist for preventing and managing such incidents[104]. In order for occupational health departments to advise the recipient health care worker regarding the risk of infection and possible post exposure prophylaxis following such an incident it is usual to request source patient testing for blood borne viruses (BBV). The situation is complicated when the source patient is anaesthetised or otherwise temporarily or permanently lacks capacity to consent. The Mental Capacity Act 2005[23] and the Adults with Incapacity (Scotland) Act 2000[24] allow for investigations and treatment of a patient assessed as lacking capacity to consent, but provided that those acts are in the best interests of the patient.

If the patient's lack of capacity to consent is likely to be temporary as a result of being anaesthetised then any consent procedure for taking blood from the patient for the purposes of advising and providing treatment for an occupationally exposed health care worker should be delayed until the patient regains capacity. If the patient permanently lacks capacity then taking blood in the context of occupational

exposure would be unlawful and so should not be carried out.

A protocol must be in place for such incidents which should include possible discussion of any particular concerns prior to surgery with all concerned and urgent contact details for advice from occupational health departments and specialists in medical ethics.

The duties of confidentiality, obligations under the Data Protection Act 1998[90], the Human Tissue Act 2004[60], the prohibition on disclosure contained in the NHS (Venereal Disease) Regulations 1974[105] and the NHS Trusts and Primary Care Trusts (Sexually Transmitted Diseases) Directions 2000[106] would also need to be considered.

10.8 **Staff appraisal and development**. This should be carried out at regular intervals and forms an important part of not only improving the quality of care but also maintaining a high level of staff motivation and moral.

10.9 **Research** of good quality provides the evidence on which to base practice and improve quality of care. Any research carried out should follow academic national and local protocols and ethical guidance[23;24]

10.10 **Complaints** whether derived from an internal or external source following an anaesthetic procedure for dental treatment should follow the standard complaints procedure within the Trust in which the procedure took place in addition to national guidance[107].

Addendum

Just prior to publication of this document the National Patient Safety Agency published a Patient Safety Alert Update[108] with a draft of Support Information[109] for implementation in the UK of the WHO Surgical Safety Checklist. Many of the proposals in these documents have already been included in this Professional Consensus Statement. Nevertheless, readers are strongly advised to follow developments in the implementation of the WHO Surgical Safety Checklist in addition to any other local and national guidelines in this field with appropriate application in their surgical practice.

Table 1

Equipment and instruments required for dental treatment under general anaesthesia

General equipment
Cushions
Head ring
Towels
Throat pack
Access to emergency equipment
Diagnostic equipment
X-ray machine
X-ray films/cassettes
X-ray processing facilities
Biopsy specimen bottles and forms
Digital intra-oral camera
Dental equipment
Dental unit
Handpieces (preferably with fibre-optic illumination)
Low speed
High speed
Surgical
Ultrasonic scaler
Steel burs
Diamond/tungsten burs
Instruments
Mouth prop
Instruments for scaling, root planing and prophylaxis
Restorative instruments
Matrix bands
Amalgamator
Curing light/shield
Instruments for extraction/alveolar surgery
Endodontic instruments
Periodontal surgery instruments

Prosthodontic equipment
Additional surgical equipment
Dental anaesthesia syringes and needles
Hypodermic needles (blunt ended)
Resorbable sutures
Haemostatic agents
Electrocautery

Table 2

Materials required for dental treatment under general anaesthesia

Materials
Local anaesthetic
Swabs
Cotton wool rolls
Restorative materials
Impression materials
Endodontic materials
Chlorhexidine mouthwash
Sterile water

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