Management of haematoma following thyroid surgery

Supporting resources to aid implementing guidance
Editors

Helen Aoife Iliff
Kariem El-Boghdadly
Jeremy Davis
Valerie Lan-Pak-Kee
Lewis Powell

Contributors

Imran Ahmad
Jeremy Davis
Kariem El-Boghdadly
Alison Harris
Helen Aoife Iliff
Shahab (Shad) Kahn
Valerie Lan-Pak-Kee
Jo O’Connor
Lewis Powell
Geraint Rees
Taranjit Tatla

Acknowledgements

We thank and acknowledge the members of the 2021 Guidelines Working Group who have contributed to these supporting resources.

We thank the Difficult Airway Society (DAS), British Association of Endocrine and Thyroid Surgeons (BAETS) and British Association of Otorhinolaryngology (ENT-UK) for their support and engagement in this work.

We offer particular thanks to Mr. Greg Sadler and Oxford University Hospitals NHS Foundation Trust for sharing their original SCOOP algorithm and a number of their teaching/learning resources.
## CONTENTS

**Guideline recommendations and visuals**

- Guideline recommendations: 5
- DESATS visual: 9
- Management of suspected haematoma following thyroid surgery visual: 10
- SCOOP visual: 11

**Logistics**

- How have services implemented systems to manage acute postoperative haemorrhage following thyroidectomy?: 12
- Teaching and training: 13
  - Background: 13
  - Clinical scenario - themes from a true story: 13
  - OxStar SCOOP Course - an ever adapting teaching model: 14
- Video: 17
  - Simulation neck models: 17
  - Simulation scenario: 18
- Easy audit sheets: 19
  - Organisational: 19
  - Training: 20
  - Postoperative care: 21
  - Event analysis/review: 23

**Other considerations**

- Communication with patients: 25
- Debriefing/supporting staff: 25
FORWARD

| On behalf of DAS, BAETS and ENT-UK |

The guidelines on management of suspected haematoma following thyroid surgery have been produced in partnership to improve the safety of peri-operative care of patients having thyroid surgery. This document has been created to support implementation of the recommendations in the manuscript text.

Here we share examples of how some centres have already adopted aspects of the recommendations. We demonstrate how services have implemented systems to support management of suspected haematoma following thyroid surgery and provide logistical insights we hope will help others. We also share a number of teaching and training resources to support local educational initiatives.

Whilst the scope of these guidelines is specific, it is hoped that the principles presented may apply to other types of neck surgery e.g. parathyroid, cervical spine or vascular surgery, and offer a basis to support future work in this area. These guidelines and recommendations are the first in this area and it is hoped they will support multidisciplinary team working, improving care and outcomes for patients having thyroid surgery.
The 46 recommendations made in the management of suspected haematoma following thyroid surgery guidelines are seen below for reference. The full context of these recommendations and their evidence base is seen in the manuscript text.

Organisational

- All organisations offering thyroid surgery should support members of the multidisciplinary team, including but not exclusive to anaesthetists, nursing staff, members of the arrest team, surgeons, to attain and maintain competencies and skills required to manage acute complications specifically related to thyroid surgery.
- Institutions offering thyroid surgery should have a nominated local risk lead to co-ordinate MDT staff training, implementation of recommendations and review of any critical incidents. This could be the local Airway Lead or another nominated senior member of the multidisciplinary team.
- When appropriate, surgical teams should include in the pre-operative consent process, including in leaflets or written consent, the possibility of postoperative haematoma which may require a return to the operating theatre or emergency treatment on the ward.
- The decision to undertake day-case surgery should include discussion with the patient about the possibility of haematoma at home and the subsequent actions required.

Training

- Staff potentially interacting with patients having thyroid surgery should be trained to recognise and manage haematoma following thyroid surgery.
- Local training should reference the post-thyroid surgery emergency box used and enable individuals to familiarise themselves with its exact contents.
- Teaching should ideally prioritise simulation, enable familiarisation with anatomy and encourage appreciation of the multidisciplinary team dynamics.
- Frequency of local training should reflect staff change-overs, ensuring education opportunities for new members of the team.
- Individual training should be repeated every three years, as a minimum.
Postoperative care

- Patients who have had a thyroidectomy with an open anterior approach should have a post-thyroid surgery emergency box available at the bedside containing emergency equipment required to opening the neck wound in the event of haematoma during the postoperative period, including during transfers.

- Any concerns for postoperative complications, including the potential risk of haematoma, are highlighted during the sign out, and should be cascaded through explicit handovers which must take place when transferring to the PACU and thereafter the ward. This should include communication of postoperative risks and specific concerns of bleeding.

- Surgical transfer and/or review of patients in recovery in addition to handover by the anaesthetist and the operating theatre nursing team to the recovery staff should be considered.

- Patients should be nursed on a ward where staff have had training in recognition and management of haematoma following thyroid surgery.

- Patients should be preferentially nursed in a bed where they easily attract the attention of nursing staff. This may be in an open ward or bed located near to the nursing station.

- Routine patient observations should be carried out at least hourly for first 6 hours postoperatively.

- Following the initial 6-hour period, the frequency of observations may be tailored according to individual patient risk and local policies.

- Minimum monitoring should include wound inspection, early warning score (respiratory rate; heart rate; blood pressure; temperature; peripheral oxygen saturations; Glasgow Coma Scale) and pain score as well as awareness for more subtle signs (anxiety; agitation; discomfort; difficulty in breathing).

- Staff should be aware of signs that may suggest a need for an increase in the required frequency of observations.

- Staff should be aware of signs that may indicate an at-risk patient requiring urgent clinical review (any of DESATS).

- Cognitive aids should be available to support early recognition and management of haematoma following thyroid surgery.

- Emergency front-of-neck airway equipment, including a scalpel (number 10 blade), bougie and tracheal tube (cuffed 6.0-mm internal diameter) must be immediately available on wards with patients who have had thyroid surgery.

- Availability of portable lighting in ward settings may be advantageous.

- Where day-case surgery is performed:
  - Patients should stay in hospital and be monitored for a minimum of 6 hours postoperatively.
  - Patients should only be discharged if there are no concerns following review after 6 hours.
Haematoma management

• Concern about haematoma following thyroid surgery should prompt:
  ✦ Immediate administration of supplemental oxygen, and patients should be nursed in a head up position before further assessment.

• If no immediate airway compromise is identified but where concerns have been raised:
  ✦ Immediate on-site senior surgical review (e.g. registrar or consultant) must be arranged. If senior surgical review is not immediately available, arrange on-site senior anaesthetic review.
  ✦ Flexible scope laryngeal assessment by an experienced operator should be considered if immediately available.
  ✦ Intravenous dexamethasone and tranexamic acid should be considered.
  ✦ The frequency of observations should be increased.
  ✦ If the patient is stable but there are ongoing concerns of potential haemorrhage and/or haematoma, transfer to the operating theatre, post-anaesthetic care unit (PACU) or ICU for close observation may be considered.

• If the patient shows signs of airway compromise due to haematoma following thyroid surgery:
  ✦ A senior anaesthetist should be informed immediately.
  ✦ A systematic approach should be taken to open the wound at the bedside, ensuring the superficial and deep layers (strap muscles) are opened to prevent ongoing haematoma formation. For this we recommend using the following “SCOOP” approach: Skin exposure; Cut sutures; Open skin; Open muscles; Pack wound.
  ✦ Local anaesthetic infiltration is not required when opening the wound.
  ✦ Operating theatre staff should be made aware of the patient in order to arrange a timely return to theatre if required.

• Following haematoma evacuation, in the event of further deterioration and no resolution of airway compromise, emergency tracheal intubation must be considered, regardless of patient location.

• If indicated, trained and experienced anaesthetists should attempt tracheal intubation as per the DAS guidelines. This includes consideration of videolaryngoscopy at the first attempt of tracheal intubation and limiting the number of attempts at tracheal intubation.

• If the clinical presentation is appropriate, awake tracheal intubation (ATI) should be considered in line with the DAS ATI guidelines and performed by anaesthetists with appropriate expertise.

• In time-critical settings where life-threatening airway compromise is imminent, tracheal intubation should be attempted after opening of the wound and evacuation of the haematoma.

• Early progression to front-of-neck airway should be considered.
• Success of tracheal intubation should be confirmed with capnography.

• In a cannot intubate cannot oxygenate situation, scalpel cricothyroidotomy or emergency tracheostomy are preferred to cannula cricothyroidotomy.

• Following emergency evacuation and definitive surgical management, transfer to an area with level 2 or 3 care should be considered.

• Following a postoperative haematoma event, debriefing by those involved should be encouraged.

• Psychological support should be available to those involved in events should they require it.

• When emergency haematoma evacuation has taken place, it is important for the surgical team, usually the consultant, to communicate with the patient including after discharge. This should include offering referral for clinical psychology support or similar.

• When haematoma has occurred, especially if there has been an airway issue, a duty of candour letter should be sent to the patient describing what has happened and offering ongoing support, when appropriate.
Post-thyroid surgery regular review

This patient requires close postoperative observation. This tool aims to highlight signs that require an urgent senior clinical review. As well as standard NEWS observations, aim to:

Closely monitor for DESATS

D - Difficulty swallowing/discomfort
E - EWS/NEWS
S - Swelling
A - Anxiety
T - Tachypnoea/difficulty breathing
S - Stridor

This DESATS acronym is to help pick up early signs which need urgent senior clinical review. We stress that desaturation and increasing oxygen requirements are a late sign of airway compromise. Act early to avoid subsequent deterioration.

If your review reveals any one or more of the above:

1. OXYGENATE: Give 15 l.min⁻¹ O₂
2. Nurse at 45° head-up
3. See management of suspected haematoma following thyroid surgery guideline: EVALUATE
4. Arrange for immediate senior surgical review (registrar or consultant) – if not immediately available senior anaesthetic review should be arranged.
5. If there are any signs of airway compromise EVACUATE haematoma and request immediate senior anaesthetic review.
Management of suspected haematoma following thyroid surgery

Initial intervention
- 15 l.min⁻¹ O₂
- Nurse at 45° head-up
- Call for immediate senior surgical review
- Increase frequency of observations

OXYGENATE
EVALUATE
Assess DESATS

Are there signs of airway compromise?

Yes

CALL FOR HELP

CALL FOR HELP

EVACUATE
haematoma

Clinical improvement and patient stable

Yes

No

STOP AND THINK
Senior anaesthetist and surgeon aware
Plan/consider return to operating theatre

OXYGENATE

Consider
- Dexamethasone
- Tranexamic acid
- Flexible endoscopic laryngeal assessment if immediately available by an experienced operator

Signs of airway compromise
- Stridor
- Difficulty breathing
- Desaturation

Important
- Ensure both superficial and deep layers (strap muscles) are opened
- SCOOP approach

Consider
- Patient factors: level of consciousness; ability to maintain own airway; anatomy
- Observational trends
- Skill availability: anaesthetic or surgical competence
- Requesting more senior/extra help
- Equipment availability
- Operating theatre status

Anaesthetists only
- Use DAS Tracheal Intubation Guidelines

Consider
- Using videolaryngoscopy
- Most experienced operator for first attempt
- Limiting attempts beyond 3+1

INTUBATE

Successful tracheal intubation?

Yes

No

Prepare for emergency FONA
If cannot intubate cannot oxygenate at any time, proceed to emergency FONA
Management of acute haematoma following thyroid surgery: EVACUATE

*Signs of airway compromise:
  Stridor; difficulty breathing; desaturation

1. CONTACT CRASH TEAM + DUTY SURGEON
2. SKIN EXPOSURE
3. CUT SUBCUTICULAR SUTURES
4. PUSH FINGERS INTO WOUND
5. OPEN SKIN TO EXPOSE STRAP MUSCLES
6. OPEN STRAP MUSCLES TO EXPOSE TRACHEA
7. PACK WOUND
8. COVER WOUND WITH A PACK
Implementing a box - an example

There are a number of hospitals who have already implemented SCOOP. A SCOOP box was introduced into the thyroid surgical pathway at Prince Charles Hospital, a district general hospital in Merthyr Tydfil. The pathway ensures that all patients are highlighted as requiring a SCOOP box during the pre-operative brief. This ensures that the box is ready and available at the patient’s bedside in recovery immediately postoperatively. It is signed out of recovery when the patient returns to the ward and remains with the patient for the duration of their inpatient stay. On discharge the SCOOP box is returned to recovery and signed back in. The contents are checked on return to recovery ready for reissue. This not only ensures that the patient had the appropriate equipment at their bedside but ensured a traceable pathway for locating SCOOP boxes in use. This pathway is summarised in the figure below.
Background

Risk of haemorrhage following thyroid surgery is noted in the literature as 1-5%, 1-1.5% in more experienced units, but never 0%.

As haematoma develops pressure in the neck builds up. The trachea is rarely obstructed, but can be deviated. This increased pressure leads to impaired venous return from the head precipitating progressive laryngeal oedema.

By opening the neck wound in the first instance there is immediate release of pressure and congestion. This should prevent worsening laryngeal oedema secondary to the haematoma and help optimise intubation conditions, increasing the likelihood of successful intubation.

Clinical Scenario - themes from a true story

*While a true clinical experience and lessons learnt are incorporated as part of SCOOP teaching in Oxford, to prevent the sharing of patient identifiable information the below scenario is fictitious. It does however incorporate some key learning from their experience.*

Patient X had a thyroidectomy performed by the senior consultant surgeon. The operation started late in the day and finished at approximately 17:00. As a result Patient X returned to the ward late evening. Drains were in situ with reasonable outputs noted and no other concerns noted.

Overnight, a nurse attended to find the patient very distressed and her neck very swollen. An arrest call was put out - with attendance from the on call anaesthetic and medical teams. On arrival Patient X had acutely deteriorated and intubation was attempted but failed. An LMA was inserted which managed some oxygenation however the patient subsequently arrested. CPR was commenced as per ALS guidelines.

When the surgeon arrived they opened the neck wound and a large haematoma was evacuated. Despite best attempts ROSC was not established and Patient X died.

Cause of death was respiratory arrest secondary to haematoma following thyroid surgery. Root cause analysis found that an attempt to open the neck wound did not occur until the surgical team arrived which was a significant amount of time following the start of CPR.
**OxStar SCOOP Course – An ever adapting teaching model**

Following a serious event that occurred in Oxford in 2018, the service has set up a “SCOOP Course” for their staff. This has been well received successful and Oxford now run a “SCOOP Train the Trainer Course” also. The Oxford team have kindly shared relevant learning and feedback from their experience of the course with us to help inform others who may wish to adopt a similar model.

**First Course Summary - OxSTaR Centre 9:00-12:45**

**Attendees:** 9 candidates (Recovery nurses, Ward nurses, Resuscitation team, CICU doctor)

**Aims:**

1. Appreciate the anatomy and basic surgical method of thyroid/parathyroid surgery including wound closure and indications for drains.
2. Recognise the signs and symptoms of a postoperative thyroid bleed
3. Recognise when these signs and symptoms require emergency treatment
4. Understand the management of the airway in this emergency
5. Know the key steps in opening the surgical neck wound
6. Understand the post emergency plan once the neck has been opened
**Course Structure: 09.00 – 12.45**

| Lecture 1:                                                                 | Teaching on the anatomy, surgical background and post-operative course including potential for bleed. How to assess a patient’s neck wound post op |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Discussion:                                                               | Case discussion: anatomy of an incident Deal with expectations of the nurses in this situation: open the neck, don’t wait How to recognise when a patient is at risk and what to do. How to examine a neck. The SCOOP technique. |
| Break                                                                     |                                                                                                                                     |
| Practical Session:                                                        | Using the bespoke neck wound simulator to practice opening a wound                                                                 |
| Simulation Session:                                                       | 1. Recovery Scenario                                                                                                               |
| Potentially 2 or 3 scenarios depending on numbers and skill mix.          | 2. Ward scenario concentrating on escalation                                                                                        |
|                                                                           | 3. Ward scenario that challenges the candidate’s decision-making process                                                           |

**Immediate learning points:**

What has been clear during the design and delivery of this first course is the complicated issues surrounding ward cover, what to look for and who to contact for help. Simply getting the MDT team together to discuss the issues has been the most useful step.

It may be useful to involve other teams who are involved. We have contacted Hospital at Night lead to try to understand if that team should be aware/involved in this.

Change in suture colour to improve visualisation of deep sutures when opening the wound.
Future courses:

Based on candidate feedback and discussions at ward, departmental and divisional levels the consensus is that this teaching session would be best run at least 3-4 times per year. The roll out of this course in the next few months is crucial to ensure education of the entire MDT, who may come across this fairly rare complication. This training must include personnel who hold the resus bleep as it is likely they will be called to assist in these events. After 2-3 further courses the number of trained team members may be sufficient to be able to run “espresso or tea trolley” sessions. These sessions potentially could be run by appropriately trained candidates and would involve a mobile teaching station that visits the ward, recovery and theatres to train in situ those team members who may come across this rare but potentially fatal complication of neck surgery. These sessions would not replace the half day course but rather ensure skill fade did not occur.

Candidate feedback:

Has the course helped you to understand your required actions, should you be looking after a patient who has a neck bleed?

100%

Was the use of simulation helpful in your learning experience?

100%

Feedback: most useful learning outcome for candidates

“Be exposed to situations and have a debrief about ways to approach a patient having a neck bleed”

“Having different members of the multi-disciplinary team was great to re-ensure about best approach and to increment teamwork and improve communication”

“Really nice MDT approach, great to focus on decision making and good practical skills

Simple SCOOP poster”

“Incredibly useful course and importantly gives us the confidence to make that crucial decision to SCOOP”

“Being able to practice opening the neck and cutting the stitches”

“Learning the anatomy is really useful”

“Everything. The scenarios, the tea trolley scenario seems like a very good idea”

“MDT approach was brilliant, safe space to ask any questions, suturing really useful practice, simulation really good”
Video

https://www.youtube.com/watch?v=uCM9FuutGbY

Simulation neck models

Simulation models can be used to help participants become familiar with the layers of sutures requiring opening. These do not have to be overly complex and are relatively low fidelity and easy to reuse.
Simulation scenario

Scenario overview - neck haematoma following thyroid surgery

Key stages of the scenario:
1. Recognise deteriorating patient and call for help
2. Arrival of help: MDT discussion and decision making, consideration of endoscopic investigation
3. Stop and think: environment, personnel, equipment
4. Open neck

Patient details:
Initial presentation:
Anxious, sweaty and pale, eventually progressing to stridor
Large non-transparent dressing over neck with empty drain

PMH:
Fit and well

Pt Name: Daniel/Deirdre Craig

Set-up:
Post-operative ward/recovery
SCOOP box with patient

Patient voice:
Anxious > stridor > silence

Senior nurse on ward:
First responder to call for help
Generally knowledgeable, can find equipment and contact people

Extra resources:
Endoscopy view

Initial Observations:
BP 158/96
Pulse 111
SpO2 91% room air
RR 25
Temp 36.2
ECG/trace Sinus tachy
BM 5.3

Learning Outcomes:
Clinical:
Visualising neck wound
Neck wound opened and haematoma evacuated
Recognition of ideal team to call for help (parent + emergency team simultaneously)

CRM:
Recognition of impending airway disaster
Seeking help early
Empowering all staff to work through decision making
Communication within MDT

Scenario overview - neck haematoma following thyroid surgery

Patient’s Role

Name: Daniel/Deirdre Craig Age: 54

Presenting Complaint:
Feeling anxious, initially vague, becomes stridulous as scenario progresses, may fall silent with evolving airway obstruction.

PMH:
Post-thyroidectomy today
Normall fit and well

Dx:
Paracetamol, ibuprofen, codeine

Allergies:
Penicillin

On Examination:
Pale, clammy, anxious. Large, non-transparent dressing overlying surgical site with empty drain.

Initial Observations:
BP 158/96
HR 111
SpO2 91% room air
RR 25
ECG sinus tachycardia

Trend:
Increasing RR, HR and BP initially.
SpO2 falls as stridor worsens.
If airway obstruction is not addressed, SpO2 continues to fall and may cause cardiovascular collapse.

Driver Direction
## Organisational

| Recommendation                                                                                                                                                                                                 | Compliance | Comments |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|
| **Organisational**                                                                                                                                                                                            |            |          |
| As an organisation offering thyroid surgery members of the multidisciplinary team, including but not exclusive to anaesthetists, nursing staff, members of the arrest team and surgeons, are supported to attain and maintain competences and skills required to manage acute complications specifically related to thyroid surgery. | Yes        | No       |
| Institutions offering thyroid surgery have a nominated local risk lead to co-ordinate MDT staff training, implementation of recommendations and review of any critical incidents. This could be the local Airway Lead or another nominated senior member of the multidisciplinary team. | Yes        | No       |
| Surgical teams include in the pre-operative consent process, including in leaflets or written consent, the possibility of postoperative haematoma which may require a return to the operating theatre or emergency treatment on the ward. | Yes        | No       |
| Decisions to undertake day-case surgery include discussion with the patient about the possibility of haematoma at home and the subsequent actions required                                                                 | Yes        | No       |
### Training

| Recommendation                                                                 | Compliance | Comments |
|-------------------------------------------------------------------------------|------------|----------|
| Staff potentially interacting with patients having thyroid surgery are trained to recognise and manage haematoma following thyroid surgery. | Yes        |          |
| Local training references the post-thyroid surgery emergency box used and enables individuals to familiarise themselves with its exact contents. | Yes        |          |
| Teaching has a simulation focus, enables familiarisation with anatomy and encourages appreciation of the multidisciplinary team dynamics. | Yes        |          |
| Frequency of training reflects staff changeovers ensuring education opportunities for new members of the team. | Yes        |          |
| Individual training is repeated every 3 years, as a minimum                   | Yes        | N/A      |
| Recommendation                                                                 | Compliance | Comments |
|------------------------------------------------------------------------------|------------|----------|
| **Postoperative care**                                                       |            |          |
| Thyroidectomy patients (open anterior approach) have a post-thyroid surgery  | Yes        | No       |
| emergency box containing equipment required for opening the neck wound in the | Partial    | N/A      |
| event of haematoma during the postoperative period.                          |            |          |
| Contents include:                                                            |            |          |
| Artery clip                                                                  | Yes        | No       |
| Copy of “Management of suspected haematoma following thyroid surgery” guideline | Partial    | N/A      |
| Copy of “SCOOP” guideline                                                    | Yes        | No       |
| Scissors                                                                     | Yes        | No       |
| Sterile gauze or medium wound pack                                           | Yes        | No       |
| Staple remover (if use staples)                                              | Yes        | No       |
| Post-thyroid surgery emergency box is present during transfers              | Yes        | No       |
| Explicit handoverstake place. This includes communication of perceived postoperative risks and greater than usual concerns of bleeding. | Partial    | N/A      |
| Surgical transfer and/or review of patients in recovery takes place in addition to handover by the anaesthetist to the recovery staff. | Partial    | N/A      |
| Patients are nursed on a ward where nurses have had training in recognition and management of haematoma following thyroid surgery. | Partial    | N/A      |
| Patients are preferentially nursed in a bed where they can easily attract the attention of nursing staff. Example: an open ward or bed located near to the nursing station. |            |          |
## Postoperative care (Part 2)

| Recommendation                                                                 | Compliance | Comments |
|--------------------------------------------------------------------------------|------------|----------|
| **Postoperative care (ctd.)**                                                 |            |          |
| Observations are carried out at least hourly for first 6 hours postoperatively.| Yes        | No       | Partial | N/A |
| Following the initial 6 hour period frequency of observations are tailored according to the individual patient risk and local standards. | Yes        | No       | Partial | N/A |
| Minimum monitoring includes:                                                  |            |          |
| Wound Inspection                                                              | Yes        | No       | Partial | N/A |
| Early Warning Scoring                                                        | Yes        | No       | Partial | N/A |
| Pain Scoring                                                                  | Yes        | No       | Partial | N/A |
| Awareness for hidden signs (anxiety; agitation; discomfort; difficulty in breathing) | Yes        | No       | Partial | N/A |
| Staff are aware of signs that may suggest a need for an increase in the required frequency of observations. | Yes        | No       | Partial | N/A |
| Staff are aware of signs that may indicate an at-risk patient requiring urgent clinical review (any of DESATS). | Yes        | No       | Partial | N/A |
| Cognitive aids are available to support early recognition and management of haematoma following thyroid surgery. | Yes        | No       | Partial | N/A |
| Emergency front-of-neck airway equipment (number 10 scalpel, Bougie, 6.0 ETT) is readily available on wards caring for patients after thyroid surgery. | Yes        | No       | Partial | N/A |
| Portable lighting is available in ward settings.                             | Yes        | No       | Partial | N/A |
| Where day-case surgery is performed:                                          |            |          |
| Patients stay in hospital and are monitored for a minimum of 6 hours postoperatively | Yes        | No       | Partial | N/A |
| Patients are only discharged if there are no concerns following review after 6 hours | Yes        | No       | Partial | N/A |
| Event analysis/review (Part 1) |  |

| Recommendation | Compliance | Comments |
|----------------|------------|----------|
| When concerned about haematoma following thyroid surgery: | Yes No Partial N/A |
| Supplemental Oxygen was given | | |
| The patient was nursed in the head up position | | |
| Frequency of observations increased | | |
| If no immediate airway compromise was identified but where concerns were raised: | Yes No Partial N/A |
| Immediate on-site senior surgical review (e.g. registrar or consultant) was arranged | | |
| If senior surgical review was not immediately available an on-site senior anaesthetic review was arranged | | |
| Intravenous dexamethasone and tranexamic acid was considered | | |
| Flexible endoscopic laryngeal assessment was considered if immediately available with an experienced operator | | |
| If the patient was stable but there were ongoing concerns of haemorrhage and/or haematoma, transfer to operating theatres or post-anaesthetic care unit (PACU) or ICU for close observation was considered. | Yes No Partial N/A |
| If the patient showed signs of airway compromise: | Yes No Partial N/A |
| A systematic approach was taken to open the wound at the bedside, ensuring the superficial and deep layers (strap muscles) are opened. (For this we recommend using a SCOOP approach) | | |
| A senior anaesthetist was informed immediately. | | |
| Theatres were made aware of the patient in order to arrange a timely return to theatre. | | |
### EASY AUDIT SHEETS

#### | event analysis/review (Part 2) |

| Recommendation | Compliance | Comments |
|-----------------|------------|----------|
| **If indicated:** | **Yes** | | |
| In the event of further deterioration and no resolution of airway compromise, emergency tracheal intubation was considered, regardless of patient location. | **Yes** | | |
| A trained anaesthetist attempted tracheal intubation as per the DAS guidelines. | **Yes** | | |
| If the clinical presentation is appropriate, awake tracheal intubation (ATI) was considered in line with the DAS ATI guidelines and performed by an anaesthetist with appropriate expertise | **Yes** | | |
| In time critical settings where life-threatening airway compromise was imminent, tracheal intubation was attempted after opening of the wound and evacuation of the haematoma | **Yes** | | |
| Videolaryngoscopy was considered at the first attempt of tracheal intubation | **Yes** | | |
| Limiting the number of attempts at tracheal intubation was considered | **Yes** | | |
| Early progression to front-of-neck airway was considered | **Yes** | | |
| In a cannot intubate cannot oxygenate situation, scalpel cricothyroidotomy or emergency tracheostomy was performed | **Yes** | | |
| Following emergency evacuation management transfer to an area with level 2 or 3 care was considered | **Yes** | | |
| Where emergency haematoma evacuation has took place the surgical team (usually the consultant) communicated with the patient, including after discharge. This included offering referral for clinical psychology support or similar. | **Yes** | | |
| Where haematoma occurred, especially if there has been an airway issue, a duty of candour letter was sent to the patient describing what happened and offering ongoing support, where appropriate. | **Yes** | | |
| A debrief took place by those staff involved | **Yes** | | |
| Staff were signposted to psychological support should they require it | **Yes** | | |
COMMUNICATION WITH PATIENTS

Pre-operative communication: surgical teams should include in the pre-operative consent process, including in leaflets or written consent, words similar to:

“Bleeding, which may require a return to the operating theatre or emergency treatment on the ward”

Postoperative communication: where haematoma has occurred

a) It is important for the surgical team, usually the consultant personally, to communicate with the patient regularly including post discharge.

b) If the patient has gone to HDU or ITU then look to offer clinical psychology assessment or similar support (depending on local availability).

c) Especially if there has been a potential airway problem, a duty of candour letter should be sent to the patient describing what has happened and offering ongoing support where appropriate.

DEBRIEFING STAFF

| Following an incident |

Recommendations:

• Where possible, allow staff a short break away from clinical areas immediately following an incident and prior to formal debrief

• Available to all staff involved

• Timing: before end of shift, to capture as many people as possible

• Chaired by senior clinician (medical or nursing) involved in the incident, who is experienced in debriefing

• Should allow staff to discuss their experience and any anxieties arising from this

• Identify training requirements in a blame-free way and highlight these to the clinical/audit lead

• Signpost staff to further psychological support
