

Institute For
Addressing
Strangulation

Guidelines for clinical management of non-fatal strangulation in acute and emergency care services

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The Faculty of Forensic & Legal Medicine



Introduction

Strangulation is defined as asphyxia by closure of the blood vessels and/or air passages of the neck as a result of external pressure on the neck. There are three main categories: hanging, ligature strangulation and manual strangulation¹. Non-fatal strangulation (NFS) is where the patient has not died.

It is estimated that more than 20,000 victims in the UK experience strangulation each year and one in eleven adult sexual assault victims were strangled during the assault². Patients may also have self-harmed by strangulation. In England & Wales, strangulation (including hanging) and suffocation are the most common methods of suicide³.

These guidelines on the clinical management of NFS have been developed by an Intercollegiate Group in response to the increased understanding of its dangers and prevalence and in the absence of existing UK guidelines.

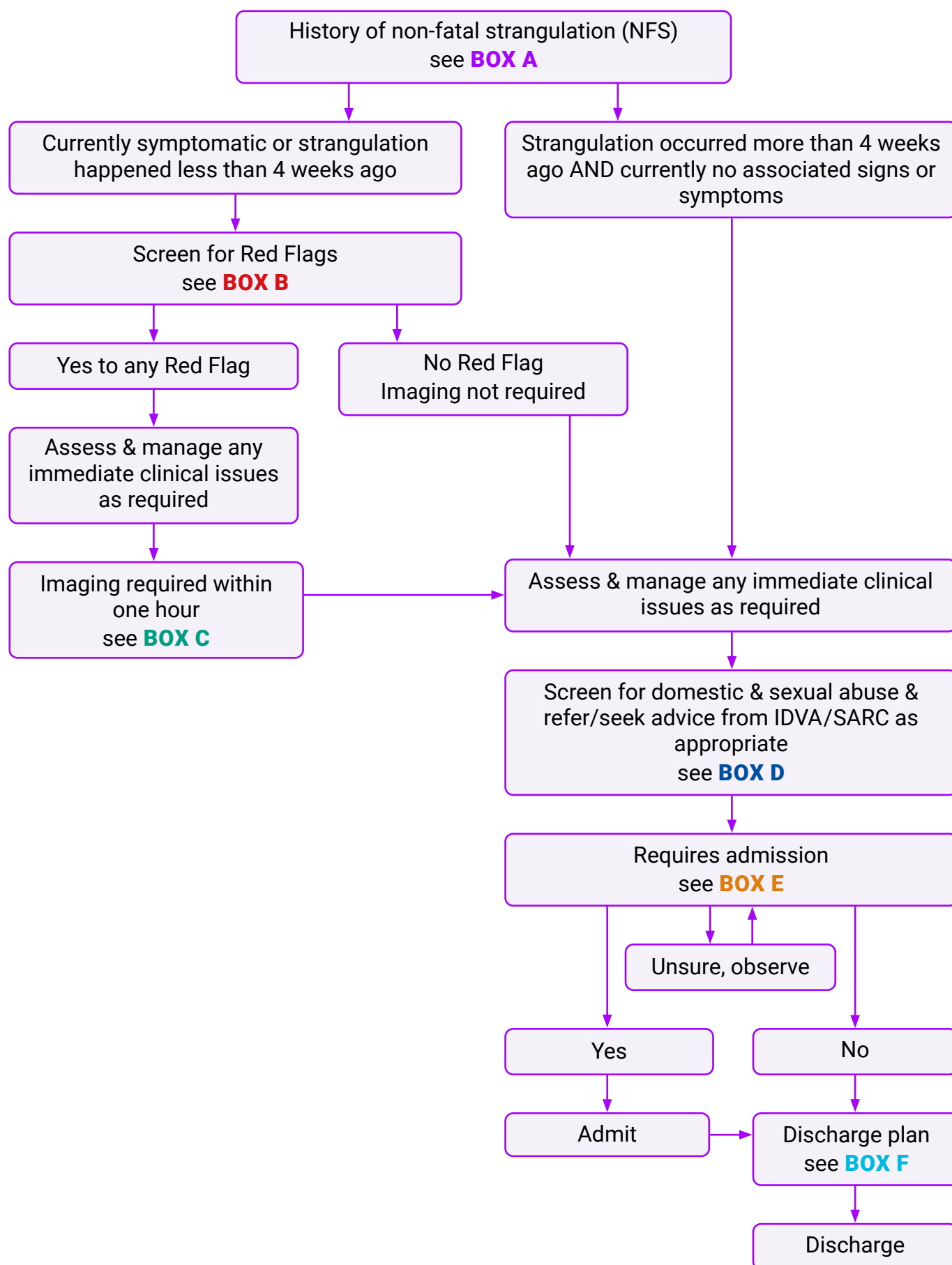
The four-week timescale for non-symptomatic patients that has been chosen is a balance of the current evidence base regarding risk of significant vascular injury, with its life changing potential, versus pragmatism⁴. The Red Flags in Box B are to guide clinicians in identifying those patients most likely to benefit from imaging. As more evidence becomes available this list will be reviewed.

Complementary guidelines for the clinical management of non-fatal strangulation presenting in other settings are planned, as are paediatric guidelines.

We would welcome feedback on the guidelines via contact@ifas.org.uk

Aims of the guidelines

- The guidance is aimed at clinicians in acute and emergency care services.
- It has been developed to guide the investigation and management, including appropriate imaging requests, of adult and adolescent patients who have experienced non-fatal strangulation within the last 4 weeks, or are presenting beyond 4 weeks but are symptomatic.
- As for any patient, it is necessary from the outset to ensure urgent assessment +/- resuscitative treatment as required. Remember, patients may have other injuries and/or medical conditions alongside the strangulation.





BOX A

- Non-fatal strangulation (NFS) is common, especially in domestic and sexual abuse/rape² and suicide attempts³
 - NFS can have serious consequences such as carotid artery dissection, stroke, acquired brain injury^{5,6}.
 - A trauma informed approach is required, including seeing the patient alone when taking history to ensure safety and privacy.
 - Patients are unlikely to spontaneously give a history of strangulation.
 - Consider NFS:
 - In domestic abuse and sexual violence cases.
 - Patients who appear confused with possible memory gaps. Intoxication, in addition to oxygen deprivation, may add to any confusion.
 - Some may be reluctant to disclose strangulation as it may have been part of consensual activity, including self-inflicted with a ligature.
 - May use language such as “grabbed, held by neck/throat, choked, pinned me down” May use the term “breath play”.
 - 50% of victims will have no visible external injury to their neck/head as a result of the strangulation⁷
 - **A lack of visible injury MUST NOT influence decision-making around proceeding with radiological investigation.**
- Given the potential seriousness, (clinically, legally, psychosocial, safeguarding etc.) SENIOR clinical decision maker input is required with NFS patients.
- *The law in England & Wales⁸ and separately in Northern Ireland⁹, is that one cannot consent to something that causes serious harm

BOX B: Red flags related to the strangulation

A Airway compromise

- History of significant pressure applied to the neck
- Dyspnoea (objective signs/symptoms¹⁰)/ voice changes
- Dysphagia or odynophagia (difficulty or pain on swallowing)
- Neck swelling or tenderness of larynx/trachea

(C) Cervical Spine

- Mechanism concerning for, or radiological evidence identified of, cervical spine injury

B Dyspnoea (objective signs/symptoms¹⁰)

Subcutaneous emphysema

C Petechial haemorrhages on face/neck/oral/conjunctival

Any degree of bruising to neck or ligature marks (Note 50% have no mark so absence is not reassuring)

Carotid bruits (absence is not reassuring)

Carotid tenderness

D Loss or near loss of consciousness

Amnesia or altered mental state (dizzy, confused, loss of memory or awareness)

Incontinence (bladder and/or bowels)

Neurological symptoms or signs

- Seizure
- Stroke like symptoms
- Severe headache
- Tinnitus
- Hearing loss
- Parasthesia

Visual symptoms

- Flashing lights, spots, stars, tunnel vision

Previous head injury/stroke



BOX C

Imaging (should be done within 1 hour)

- CT angiography of the neck and intracranial vessels^a
- +/- CT head^b
- +/- CT chest^c

- a. Arterial phase study with bone reconstructions of the cervical spine recommended.
- b. Initial non-contrast CT head scan if clinical indicators present (GCS <14, witnessed seizure, history of incontinence, focal neurology, concerning blunt trauma to head evident clinically).
- c. CT chest scan if clinical indications of subcutaneous emphysema, dyspnoea or concerning blunt trauma to the chest evident clinically

Ultrasound/carotid doppler ultrasound and plain X-rays are NOT RECOMMENDED for evaluation of the vascular or soft tissue structures in this setting.

BOX D: All cases

- Safeguarding assessment including any children or vulnerable adults that may be at risk.
- Discuss with patient options of reporting to police taking into consideration capacity, confidentiality & best interest¹¹.
- Undertake suicide risk/ self-harm assessment. Self-harm by hanging/strangulation often indicates a very high suicide intent¹².

Domestic abuse with no report of sexual violence

- All of the above plus:
- Complete DASH assessment (note NFS in itself would warrant a MARAC referral, regardless of overall DASH score) Dash risk checklist quick start guidance FINAL. pdf (safelives.org.uk)
- Independent Domestic Violence Advisor (IDVA) referral

Sexual assault/rape cases (including sexual assault/rape in the context of domestic abuse)

- All of the above plus:
- Consider referral / seek advice from local Sexual Assault Referral Centre (SARC) as a self or police referral.
England: www.nhs.uk
Wales: executive.nhs.wales
Scotland: www.nhsinform.scot
Northern Ireland: www.nidirect.gov.uk
 - For forensic medical examination
 - Independent Sexual Violence Advisor (ISVA) support
 - Counselling
- Assess for
 - Emergency contraception
 - HIV & Hep B post exposure prophylaxis.
 - Signpost for window period for STI screening

BOX E: Requires admission

Admission may be required either for the management of injury, or for social/safeguarding reasons or both. Involve senior decision maker as required. Local pathways to appropriate clinical specialty for admission should be followed.

Considerations for admission:

- Concern about airway
- Clinical condition
- History of significant blunt force/pressure to neck or head¹³
- Significant findings on imaging

- Unsafe discharge setting
- Vulnerable population (e.g., children, elderly, pregnant, homeless) and/or safeguarding requirement including self-harm risk.

Consider observation if very acute presentation. Delayed airway difficulties are rare and likely to occur within the first 6 hours post assault, dependent on factors such as type/extent of injury etc.

(NOTE: 'Observation only' has NO role in a suspected vascular injury and appropriate imaging is required)



BOX F: Discharge planning

1. Safeguarding

- Is the patient safe to go home?
- Have all relevant safeguarding referrals been made?

2. Safety netting

- Provide patient/carer with information regarding strangulation including signs and symptoms to watch out for that would need urgent medical assessment: [Patient-Information.pdf](#)

3. Imaging

- For those not seen within 4 weeks of the strangulation and who were not currently symptomatic and have therefore not been scanned, they may still be at risk of vascular problems such as carotid artery dissection due to the blunt neck trauma for up to 12 months post event. Those who screen positive for any Red Flag (see Box B) may require outpatient imaging. Local arrangements will be required to cover such referrals and follow-up etc.
- Consider antiplatelet treatment for those being referred for outpatient imaging.

4. Acquired brain injury assessment

Strangulation may result in acquired brain injury¹⁴ (hypoxic-ischaemic), and this may lead to neuropsychological difficulties such as:

- Cognitive deficits (attention, memory, executive dysfunction etc)
- Speech and language difficulties
- Emotional dysregulation, personality changes and behaviour disturbance including aggression.

An assessment by a clinical neuropsychologist, or similar, should be undertaken 3 months post the strangulation, with the referral organized by the GP or direct referral dependent upon local arrangement.

5. GP letter

Following standard local consent to share information processes, include details of strangulation and requested GP actions such as any required referrals in a clear timely fashion, remembering that victims of strangulation are likely to require psychological support. Consider confidentiality/risk issues regarding access to information in patient records.

Glossary of terms

CT	Computerised tomography
DASH	The domestic abuse, stalking and honour based violence risk identification tool
GCS	Glasgow Coma Scale
GP	General Practice/General Practitioner
Hep B	Hepatitis B
HIV	Human Immunodeficiency Virus
IDVA	Independent Domestic Violence Advisor/Advocate

ISVA	Independent Sexual Violence Advisor/Advocate
MARAC	Multi Agency Risk Assessment Conference
NFS	Non-fatal strangulation
SARC	Sexual Assault Referral Centre
STI	Sexually Transmitted Infection
UK	United Kingdom



References

1. Sauvageau A, Boghossian E. Classification of asphyxia: The need for standardization. *J Forensic Sci.* 2010;55:1259–67.
2. [UK Prevalence of strangulation and suffocation](#) Institute for Addressing Strangulation, March 2023.
3. [Suicides in England and Wales: 2021 registrations](#) Office for National Statistics, September 2022
4. Black, Jonathan A. MD; Abraham, Peter J. MD; Abraham, Mackenzie N. MD; Cox, Daniel B. MD; Griffin, Russell L. PhD; Holcomb, John B. MD; Hu, Parker J. MD; Kerby, Jeffrey D. MD, PhD; Liptrap, Elizabeth J. MD; Thaci, Bart MD; Harrigan, Mark R. MD; Jansen, Jan O. MBBS, PhD.
Universal screening for blunt cerebrovascular injury. *Journal of Trauma and Acute Care Surgery* 90(2):p 224-231, February 2021. | DOI: 10.1097/TA.0000000000003010
5. [Carotid Artery Dissections: Time from Strangulation to Stroke](#) Dr Bill Smock, 2018
6. Zuberi OS et al.
CT angiograms of the neck in strangulation victims: incidence of positive findings at a level one trauma center over a 7-year period. *Emerg Radiol.* 2019 Oct;26(5):485-492. doi: 10.1007/s10140-019-01690-3. Epub 2019 May.
7. White C, Martin G, Schofield AM, Majeed-Ariss R. (2021) "I thought he was going to kill me": Analysis of 204 case files of adults reporting non-fatal strangulation as part of a sexual assault over a 3-year period. *Journal of Forensic and Legal Medicine* 79 (2021) 102128 DOI: [org/10.1016/j.jflm.2021.102128](https://doi.org/10.1016/j.jflm.2021.102128)
8. [Domestic Abuse Act 2021 Section 71 Consent to serious harm for sexual gratification not a defence.](#)
9. [Justice \(Sexual Offences and Trafficking Victims\) Act \(Northern Ireland\) 2022, Section 28 Offence of non-fatal strangulation or asphyxiation.](#)
10. [BMJ Best Practice Assessment of dyspnoea](#) Last updated 26.10.2023
11. [Confidentiality. Disclosures for the protection of patients and others.](#) GMC 2018
12. Biddle, L., Donovan, J., Owen-Smith, A., Potokar, J., Longson, D., Hawton, K., ...Gunnell, D. (2010).
Factors influencing the decision to use hanging as a method of suicide: Qualitative study. *The British Journal of Psychiatry*, 197(4), 320-325. doi:10.1192/bjp.bp.109.076349
13. NICE Guideline, [Head injury: assessment and early management.](#) May 2023
14. Helen Bichard, Christopher Byrne, Christopher W. N. Saville & Rudi Coetzer (2022)
The neuropsychological outcomes of non-fatal strangulation in domestic and sexual violence: A systematic review, *Neuropsychological Rehabilitation*, 32:6, 1164-1192, DOI: 10.1080/09602011.2020.1868537

Further reading

- [Non-fatal strangulation: in physical and sexual assault.](#) July 2023.
- [Managing non-fatal strangulation in the emergency department.](#) Emergency Care Institute New South Wales, Australia, October 2022.
- [Management of Domestic Abuse, RCEM Best Practice Guideline,](#) 2015.
- [Recommendations for the Medical/Radiographic Evaluation of Acute Adult Non/Near Fatal Strangulation,](#) Training Institute on Strangulation Prevention, October 2022.

Audit standards

There should be a documentation and audit system in place within a system of clinical governance. It is recommended that there should be longitudinal data collection at the local level, including engagement with radiology services, to assess the number of scans and their diagnostic yield.

Research recommendations

A prospective study looking at clinical presentations and subsequent imaging results with an aim to identify more sensitive/specific red flags.

Organisations represented on the Guidelines for the Clinical Management of Non-Fatal Strangulation Development Group

- Association of Police Crime Commissioners
- British Psychological Society
- College of Paramedics
- ENT UK
- Faculty of Forensic and Legal Medicine
- Institute for Addressing Strangulation
- NHS England
- The Royal College of Emergency Medicine
- The Royal College of General Practitioners
- Royal College of Nursing Emergency Care Forum
- The Royal College of Paediatrics and Child Health
- The Royal College of Radiologists
- The Royal College of Surgeons
- UK Association of Forensic Nurses and Paramedics

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