

Acute Aortic Dissection Pathway (FPH Only)

Key Points

- Acute aortic dissection is an uncommon, but life threatening condition
- The incidence is around 4.8/100,000 individuals per year,⁽¹⁾ and one study estimated one aortic dissection for every 980 atraumatic chest pain presentations.⁽²⁾
- It can be a challenging diagnosis to elicit and may mimic other pathologies.⁽³⁾
- 15% of patients with thoracic aortic dissection will have a normal chest x-ray.^(4,5)
- 30% of patients with thoracic aortic dissection will have a normal ECG.⁽⁵⁾
- Absence of a pulse deficit or BP discrepancy does not exclude an aortic dissection.
- **Patients presenting with a 'classical' history for aortic dissection with abrupt onset of severe "ripping" or "tearing" pain, especially with signs of cardiovascular compromise, should proceed directly to CT aorta**
- **Aortic dissection is a time critical diagnosis. Untreated patients with type A aortic dissection have an associated mortality rate of 0.5% per hour immediately after symptom onset over the first 48 hours.⁽⁶⁾**

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Abbreviations

ABG	Arterial Blood Gas
ADD-RS	Aortic Dissection Detection Risk Score
AKI	Acute Kidney Injury
ARCC-KSS	Adult Regional Critical Care Transfer Service – Kent, Surrey, Sussex
BP	Blood Pressure
BPM	Beats Per Minute
CRP	C-Reactive Protein

CT	Computed Tomography
CTS	Cardiothoracic Surgery
ECG	Electrocardiogram
ED	Emergency Department
EM	Emergency Medicine
G&S	Group & Save
LFT	Liver Function Tests
ICU	Intensive Care Unit
IV	Intravenous
mg/kg	Milligrams/Kilogram
mg/min	Milligrams/Minute
mmHg	Millimetres Of Mercury
RCEM	Royal College Of Emergency Medicine
RCR	Royal College Of Radiologists
SGH	St George's Hospital
SPOC	Single Point Of Contact
TAD	Thoracic Aortic Dissection
TEVAR	Thoracic Endovascular Aortic Repair
TXA	Tranexamic Acid
U&E's	Urea & Electrolytes

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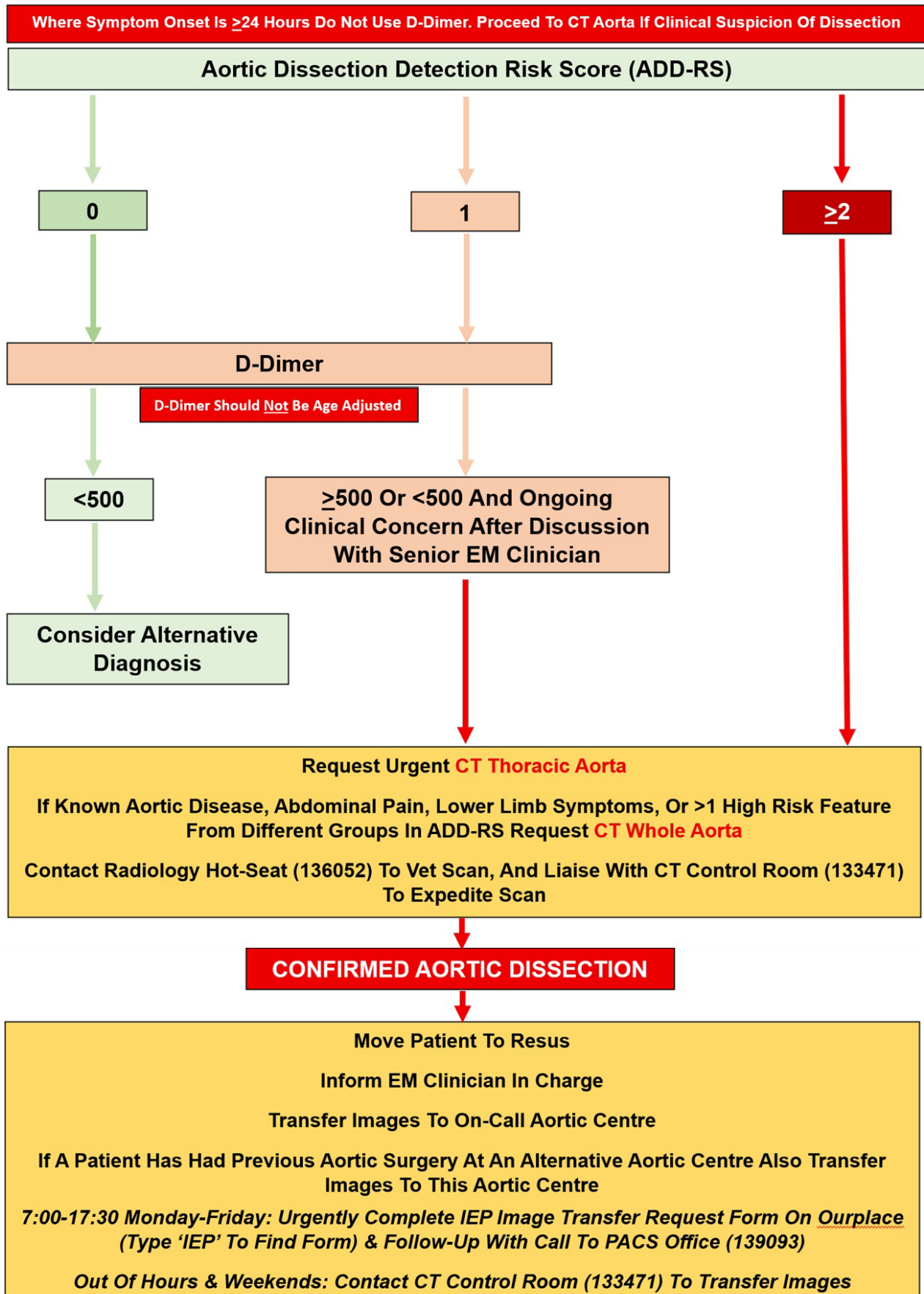
AORTIC DISSECTION DETECTION RISK SCORE (ADD-RS)⁽⁷⁾

Utilisation Of ADD-RS Score

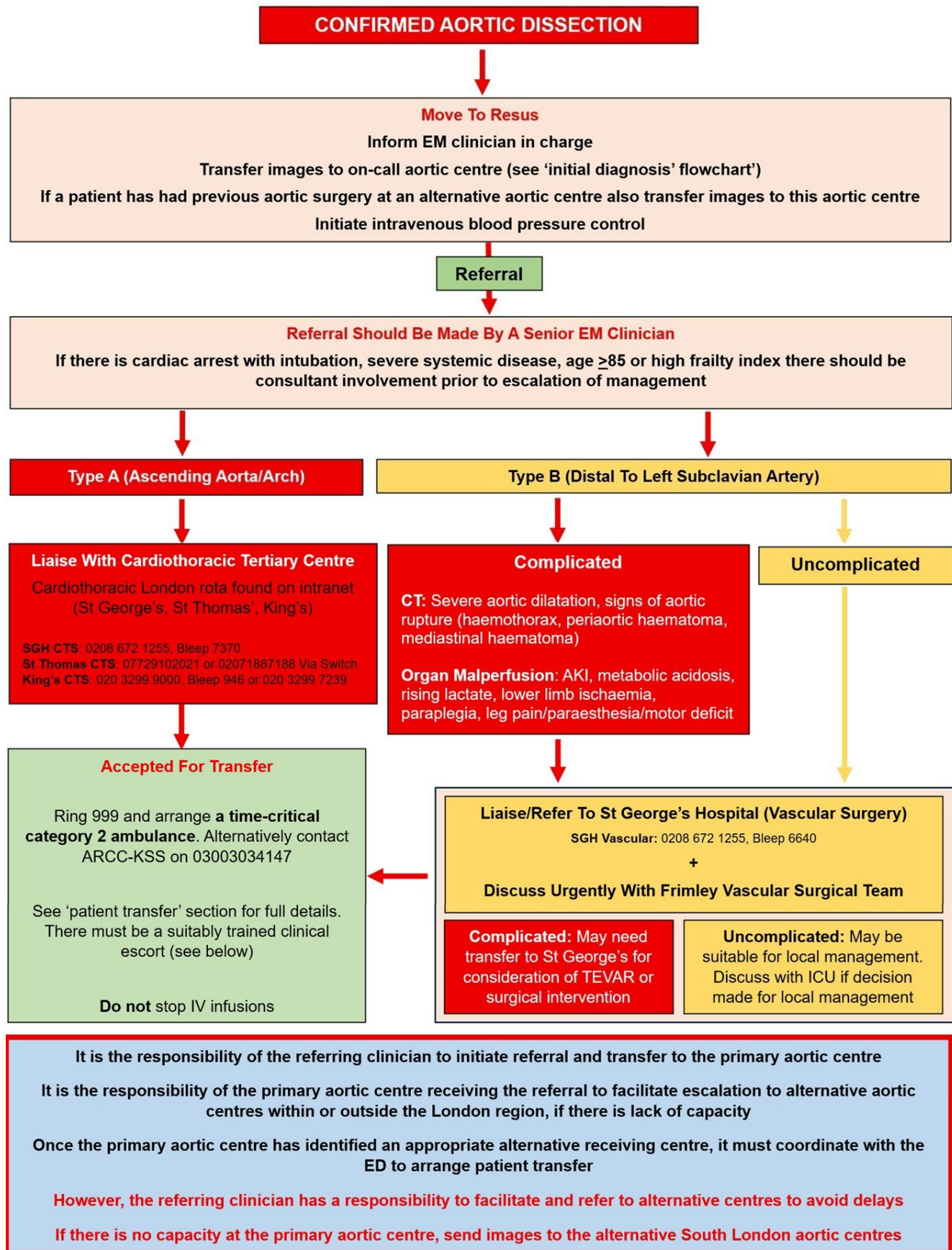
- Where thoracic aortic dissection is felt to be a low-moderate possibility diagnosis, **utilisation of the ADD-RS score can be considered** in line with the 'March 2025 RCEM-RCR Diagnosis Of Thoracic Aortic Dissection In The Emergency Department Best Practice Guideline'.⁽⁵⁾
- The ADD-RS should NOT be applied to all patients with chest pain, only those in whom it is felt TAD is a possible diagnosis. These cases should be discussed with a senior emergency medicine clinician.⁽⁵⁾
- Evidence is emerging that a diagnostic strategy using the 'Aortic Dissection Detection Risk Score' is likely to be safe and cost effective, although prospective studies are still required to fully validate this diagnostic strategy'.^(5,9,10)
- Do not use d-dimer where onset of symptoms is >24h.** False negatives may occur (thrombosed false lumen, small dissections)⁽¹¹⁾ and d-dimer levels decline over time.^(12,13)

High Risk Condition	- Marfan Syndrome - Connective Tissue Disease - Family History of Aortic Disease - Aortic Valve Disease - Recent Aortic Manipulation - Known Thoracic Aortic Aneurysm	1 point if any present
High Risk Pain Feature	- Chest, Back, or Abdominal Pain of: • Abrupt Onset • Severe Intensity • Ripping/Tearing Quality	1 point if any present
High Risk Exam Feature	- Perfusion Deficit • Systolic BP Differential (>20mmHg) • Pulse Deficit • Focal Neurological Deficit In Conjunction With Pain - New/Unknown Aortic Regurgitation Murmur - Hypotension/Shock	1 point if any present

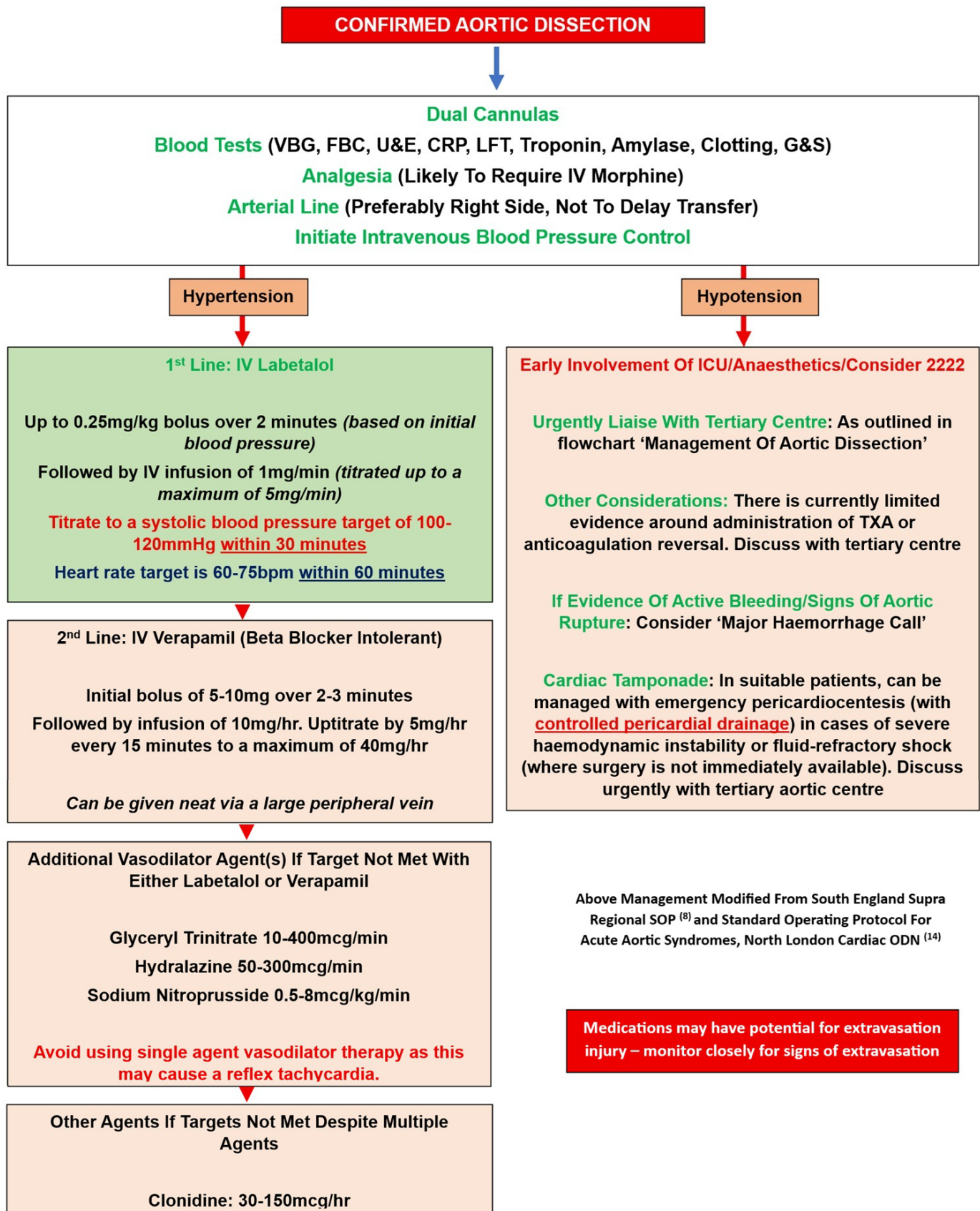
INITIAL DIAGNOSIS



MANAGEMENT OF CONFIRMED ACUTE AORTIC DISSECTION



INITIAL MEDICAL MANAGEMENT OF ACUTE AORTIC DISSECTION



PATIENT TRANSFER

- **If accepted for transfer** ring 999 and arrange a **time-critical category 2** emergency ambulance
 - OR
- Contact ARCC-KSS on 03003034147. SPOC available 24/7.
- Give paramedic crew a printout of the CT report, key blood tests, and medications administered.
- Confirm specific location for patient to arrive on transfer (i.e. ED resus, ICU, theatre) and the name of the accepting clinician.
- There must be a **suitably trained** clinical escort in accordance with our local guidelines 'Emergency Department External Hospital Transfer'.
 - Level 3 (Ventilated): ICU/Anaesthetic Transfer or ARCC-KSS
 - Level 2 (Haemodynamic Support/Vasoactive Infusion): ICU/Anaesthetic Transfer or ARCC-KSS
 - Labetalol Infusion +/- Arterial Line: ED Nurse Escort or ARCC-KSS

ACUTE AORTIC DISSECTION LONDON ROTA CONTACT DETAILS

- **The up to date rota can be found on ourplace by searching 'dissection', or 'AAD'**
- Contact details below correct as of January 2026
- **St George's Cardiothoracics:** 0208 672 1255, Bleep 7370
- **St Thomas' Cardiothoracics:** 07729 102021 or 020 7188 7188, Via Switchboard
- **King's Cardiothoracics:** 020 3299 9000, Bleep 946 or 020 3299 7239
- **St George's Vascular:** 0208 672 1255, Bleep 6640
- **St Thomas' Vascular:** 020 7188 7188, Via Switchboard

REFERENCES

1. Gouveia E Melo R, *et al.* (2022) 'A systematic review and meta-analysis of the incidence of acute aortic dissections in population-based studies', *Journal of Vascular Surgery*, 75(2), pp. 709-720. Available at: <https://doi.org/10.1016/j.jvs.2021.08.080> (Accessed: 16 October 2025).
2. Alter, S. M., Eskin, B. And Allegra, J. R. (2015) 'Diagnosis of aortic dissection in emergency department patients is rare', *West Journal of Emergency Medicine*, 16(5), pp. 629- 631. Available at: <https://doi.org/10.5811/westjem.2015.6.25752> (Accessed: 16 October 2025).
3. Goodacre, S. *et al.* (2024) 'Acute aortic syndrome', *BMJ*, 386, article e080870. Available at: <https://doi.org/10.1136/bmj-2024-080870> (Accessed: 16 October 2025).
4. Hagan, P. G. *et al.* (2000) 'The International Registry of Acute Aortic Dissection (IRAD): new Insights Into an Old Disease', *JAMA*, 283(7), pp. 897-903. Available at: <https://doi.org/10.1001/jama.283.7.897> (Accessed: 16 October 2025).
5. Royal College Of Emergency Medicine & Royal College Of Radiologists (2025) *Diagnosis of Thoracic Aortic Dissection in the Emergency Department*. Available at: <https://www.rcr.ac.uk/our-services/all-our-publications/clinical-radiology-publications/diagnosis-of-thoracic-aortic-dissection-in-the-emergency-department/> (Accessed: 16 October 2025).
6. Harris, K. M. *et al.* (2022) 'Early Mortality in Type A Acute Aortic Dissection: Insights From the International Registry of Acute Aortic Dissection', *JAMA Cardiology*, 7(10), pp. 1009-1015. Available at: <https://doi.org/10.1001/jamacardio.2022.2718> (Accessed: 06 February 2026).
7. Nazerian, P. (no date) *Aortic Dissection Detection Risk Score (ADD-RS)*. Available at: <https://www.mdcalc.com/calc/4060/aortic-dissection-detection-risk-score-add-rs> (Accessed: 06 February 2026).
8. NHS England (2024) *Supra-regional SOP on the Acute Management of Aortic Dissections*. Available at: <https://www.england.nhs.uk/south/wp-content/uploads/sites/6/2024/02/South-England-Supra-regional-SOP-on-the-Acute-Management-of-Aortic-Dissections-v1.0-FINAL-1.pdf> (Accessed: 16 October 2025).
9. Ren, S. *et al.* (2024) 'Diagnostic accuracy of aortic dissection detection risk score alone or with D-dimer for acute aortic syndromes: Systemic review and meta-analysis', *PLoS ONE*, 19(6), article e0304401. Available at: <https://doi.org/10.1371/journal.pone.0304401> (Accessed: 16 October 2025).
10. Thokala, P. *et al.* (2024) 'Decision analytical modelling of strategies for investigating suspected acute aortic syndrome', *Emergency Medicine Journal*, 41(12), pp. 728-735. Available at: <https://doi.org/10.1136/emmermed-2024-214222> (Accessed: 16 October 2025).
11. Hazui, H. *et al.* (2006) 'Young adult patients with short dissection length and thrombosed false lumen without ulcer-Like projections are liable to have false-negative results of D-dimer testing for acute aortic dissection based on a study of 113 cases', *Circulation*

Journal, 70(12), pp. 1598–1601. Available at: <https://doi.org/10.1253/circj.70.1598> (Accessed: 06 February 2026).

12. Chapman, C. S. *et al.* (1990) 'The use of D-Dimer assay by enzyme immunoassay and latex agglutination techniques in the diagnosis of deep vein thrombosis', *Clinical and Laboratory Haematology*, 12(1), pp. 37–42. Available at: <https://doi.org/10.1111/j.1365-2257.1990.tb01108.x> (Accessed: 06 February 2026).
13. Eggebrecht, H. *et al.* (2004) 'Value of plasma fibrin D-dimers for detection of acute aortic dissection', *Journal of the American College of Cardiology*, 44(4), pp. 804–809. Available at: <https://doi.org/10.1016/j.jacc.2004.04.053> (Accessed: 06 February 2026).
14. Smith, T. *et al.* (2025) 'Standard Operating Protocol For Acute Aortic Syndromes'. North London Cardiac ODN South London Cardiovascular Networks. Unpublished.

Full version control record

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Version History

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Related Documents

Document Type	Document Name