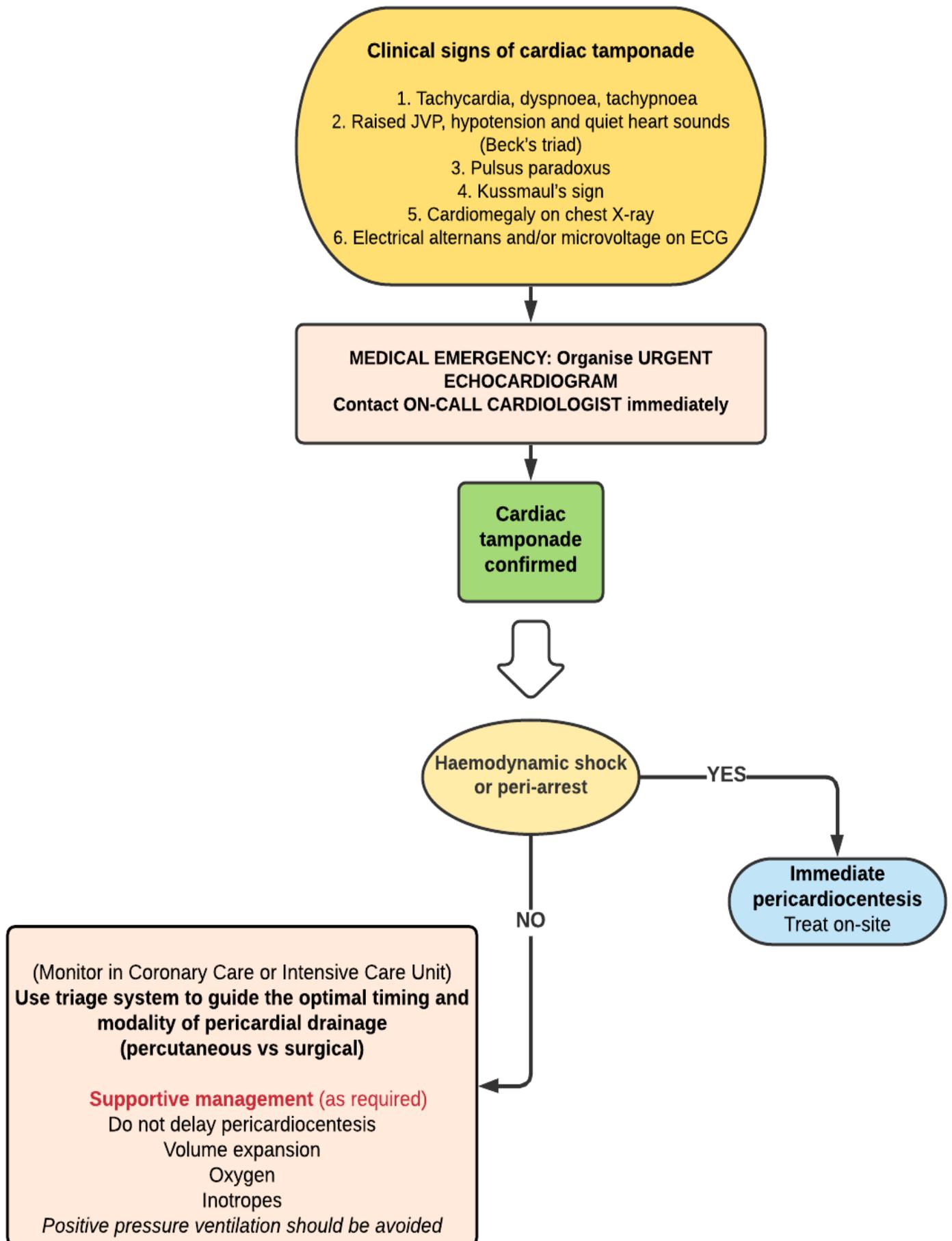


# **Cardiac Tamponade Management Clinical Guideline**

**V2.0**

**October 2023**

## Summary



## 1. Aim/Purpose of this Guideline

- 1.1. Cardiac tamponade is a clinical syndrome caused by the accumulation of fluid, blood, pus, clots, or gas in the pericardial space, resulting in reduced ventricular filling and subsequent haemodynamic compromise. This includes a haemodynamic spectrum ranging from incipient or preclinical tamponade (when pericardial pressure equals right atrial pressure, but it is lower than left atrial pressure) to haemodynamic shock with significant reduction of stroke volume and blood pressure, the latter representing a life-threatening medical emergency.
- 1.2. The diagnosis of cardiac tamponade is essentially a clinical diagnosis requiring echocardiographic confirmation of the initial diagnostic suspicion. In most patients, cardiac tamponade should be diagnosed by clinical examination that typically shows elevated systemic venous pressure, tachycardia, muffled heart sounds and paradoxical arterial pulse. Systemic blood pressure may be normal, decreased, or even elevated. Clinical signs may also include decreased electrocardiographic voltage with electrical alternans and an enlarged cardiac silhouette on chest X-ray with slow-accumulating effusions.
- 1.3. Once a clinical diagnosis of tamponade is suspected, an echocardiogram should be performed without delay. The diagnosis is then confirmed by echocardiographic demonstration of several 2D and Doppler-based findings (i.e. evidence of pericardial effusion with variable cardiac chambers' compression, abnormal respiratory variation in tricuspid and mitral valve flow velocities, inferior vena cava plethora).
- 1.4. This should immediately trigger On-call Consultant Cardiologist review to stratify the patient risk, identify specific supportive and monitoring requirements and guide the optimal timing and modality of pericardial drainage. Treatment should be individualised, and thoughtful clinical judgement is essential for the optimal outcome.
- 1.5. The overall mortality risk depends on the speed of diagnosis, the treatment provided, and the underlying cause of the tamponade. Untreated, the condition is rapidly and universally fatal.
- 1.6. The following pathway should be implemented for patients with suspected cardiac tamponade.
- 1.7. This version supersedes any previous versions of this document.

## **Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation**

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team

Royal Cornwall Hospital Trust      [rch-tr.infogov@nhs.net](mailto:rch-tr.infogov@nhs.net)

## **2. The Guidance**

### **2.1. Clinical Presentation**

- 2.1.1. The clinical presentation of pericardial tamponade is varied according to the speed of pericardial fluid accumulation, the distensibility of the pericardium, the filling pressures and compliance of the cardiac chambers, and the aetiology of the effusion with possible symptoms that may be related to the causative disease.
- 2.1.2. Pericardial diseases of any aetiology may cause cardiac tamponade, with highly variable incidence reflecting the local epidemiological background, which is well beyond the scope of this document. However, open cardiac surgery and interventional procedures (i.e. percutaneous coronary intervention, transcatheter aortic valve implantation, pacemaker/implantable cardioverter defibrillator implantation, arrhythmias ablation, endomyocardial biopsy) are emerging causes of cardiac tamponade and should raise the suspicion in appropriate clinical setting.
- 2.1.3. The rate of pericardial fluid accumulation is critical for the clinical presentation. If pericardial fluid is quickly accumulating such as for iatrogenic perforations, the evolution is dramatic and only small amounts of blood are responsible for a quick rise of intrapericardial pressure and overt cardiac tamponade in minutes. This is due to a J-shaped pressure– volume curve of the normal pericardium: after an initial short shallow portion that allows the pericardium to stretch slightly in response to physiological events, such as changes in posture or volume status, with minimal pressure increase, the pericardium does not allow further sudden increase of the volume without a marked increases of the volume without a marked increase in the intrapericardial pressure.

Thus, a sudden increase of pericardial volume of 100-200 mL, as in hemopericardium, may elevate pericardial pressure till 20 –30 mmHg resulting in acute or “surgical” cardiac tamponade. This steep rise makes tamponade a “last-drop” phenomenon - the final increment produces critical cardiac compression. On the contrary, a slowly accumulating pericardial fluid allows the collection of a large effusion (up to 1-2 L) in days to weeks before a significant increase in pericardial pressure becomes responsible of symptoms and signs (chronic or “medical” cardiac tamponade).

## **2.2. Symptoms**

2.2.1. Classical symptoms include:

- Dyspnoea on exertion Dyspnoea on exertion progressing to orthopnoea.
- Chest pain, and/or fullness.

2.2.2. Additional occasional symptoms due to local compression may include:

- Nausea (diaphragm).
- Dysphagia (oesophagus).
- Hoarseness (recurrent laryngeal nerve) and,
- Hiccups (phrenic nerve).

2.2.3. Non-specific symptoms include also:

- Cough.
- Weakness.
- Fatigue.
- Anorexia and palpitations and reflect the compressive effect of the pericardial fluid on contiguous anatomic structures or,
- Reduced blood pressure and secondary sinus tachycardia.
- Decreased urine output, confusion and dysphoria may be seen as well.

## **2.3. Signs**

2.3.1. On physical examination classical signs include neck vein distention with elevated jugular venous pressure at bedside examination, pulsus paradoxus, and diminished heart sounds on cardiac auscultation. Pericardial friction rubs are rarely heard; they can usually be detected in patients with concomitant pericarditis.

- 2.3.2. Hypotension can be absolute or relative. Acute cardiac tamponade is usually associated with low blood pressure (<90 mmHg) but may be only slightly reduced in subacute, chronic tamponade. Hypertensive patients may have normal to mildly elevated blood pressure concomitant to cardiac tamponade.
- 2.3.3. Pulsus paradoxus has been classically defined as an exaggerated inspiratory reduction of the systolic blood pressure in patients with cardiac tamponade. The so-called paradox relates to the “waxing and waning” of the peripheral pulse, in contrast to the unvarying strength of the apical cardiac impulse. This is due to exaggerated ventricular interdependence occurring in cardiac tamponade when overall volume of cardiac chambers becomes fixed and any change in the volume of one side of the heart causes the opposite changes in the other side (i.e. inspiratory increase of venous return and right chambers with decreased left chambers volume and reduced systemic blood pressure). To measure pulsus paradoxus, patients lie semi-recumbent breathing quietly. A blood pressure cuff is inflated > 20 mm Hg above systolic pressure and deflated until the first Korotkoff sound is heard only during expiration. At this pressure reading, if the cuff is not further deflated and a pulsus paradoxus is present, the first Korotkoff sound is not audible during inspiration. As the cuff is further deflated, the point at which the first Korotkoff sound is audible during both inspiration and expiration is recorded. If the difference between the first and second measurement is greater than 10 mmHg, a pulsus paradoxus is present.
- 2.3.4. Beck’s triad is a complex of physical findings: raised jugular venous pressure (JVP), hypotension, and quiet heart sounds due to a rapid accumulation of pericardial fluid. This triad was classically identified in “surgical” tamponade due to intrapericardial haemorrhage because of trauma, myocardial or aortic rupture. The Beck’s triad may be lacking in patients with “medical” tamponade’ with slowly accumulating pericardial fluid.
- 2.3.5. Kussmaul’s sign is a paradoxical increase in venous distention and pressure during inspiration. It is usually observed in patients with constrictive pericarditis but can also be seen in cardiac tamponade.
- 2.3.6. The physical signs of pulsus paradoxus and Kussmaul’s sign may be easier to interpret in patients with intra-arterial lines, central venous pressure monitoring and pulse oximetry. Respiratory variability in pulse- oximetry waveform is noted in patients with pulsus paradoxus. This can be particularly useful.

## 2.4. Diagnostic tools

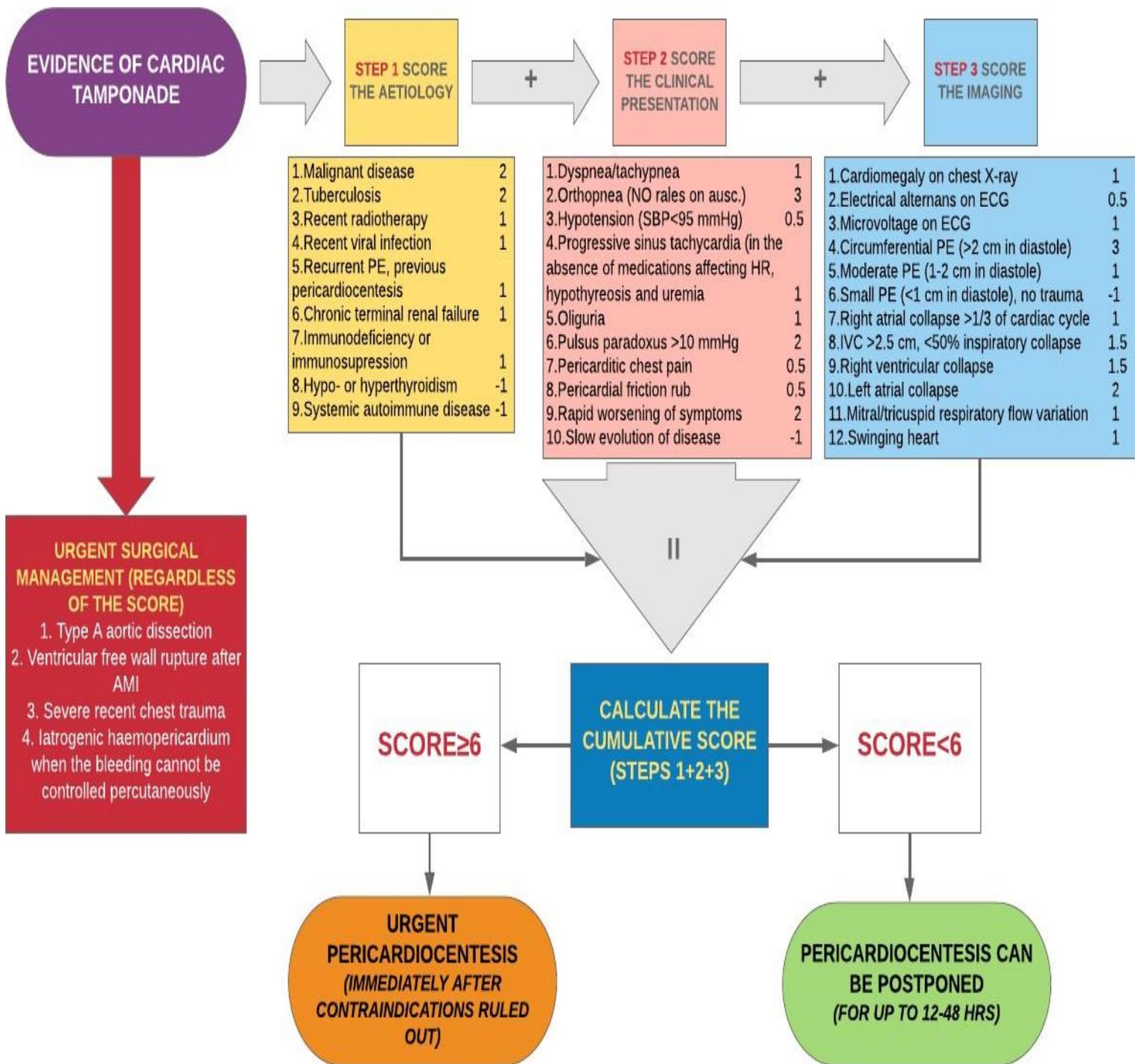
- 2.4.1. In a patient with clinical suspicion of cardiac tamponade, several diagnostic tools are required.
- 2.4.2. ECG may show signs of pericarditis, with especially low QRS voltages and electrical alternans. Both ECG signs are generally considered to be an expression of the damping effect of pericardial fluid and swinging heart.
- 2.4.3. Echocardiography is the single most useful diagnostic tool to identify pericardial effusion and estimate its size, location and degree of haemodynamic impact. Also, echocardiography is used to guide pericardiocentesis with excellent safety and efficacy. Signs of tamponade can be identified by echocardiography: swinging of the heart, early diastolic collapse of the right ventricle, late diastolic collapse of the right atrium, abnormal ventricular septal motion, exaggerated respiratory variability in mitral (>25%) and tricuspid (>40%) inflow velocities, inspiratory decrease and expiratory increase in pulmonary vein diastolic forward flow, respiratory variation in ventricular chamber size and aortic outflow velocity (echocardiographic pulsus paradoxus) and inferior vena cava plethora (dilatation >20 mm and <50% reduction in the diameter of IVC with respiratory phases).
- 2.4.4. Both transthoracic and transoesophageal echocardiography (TOE) have high sensitivity in determining the various abnormalities seen with tamponade. Transoesophageal echocardiography is also useful in patients where transthoracic echocardiography is non-diagnostic. It is typically used in post-cardiac surgery patients suspected of having loculated effusions containing clots.
- 2.4.5. Chest X-ray findings may show cardiomegaly, a water bottle-shaped heart, pericardial calcifications, or evidence of chest wall trauma. However, the effusion has to reach at least 250 ml before it can be seen on chest X-ray.
- 2.4.6. CT and CMR are generally unnecessary unless Doppler echocardiography is not feasible.
- 2.4.7. Cardiac catheterization is rarely used to diagnose cardiac tamponade. It will show equilibration of average diastolic pressure and characteristic respiratory reciprocation of cardiac pressures, i.e., an inspiratory increase on the right and a concomitant decrease on the left - the proximate cause of pulsus paradoxus. Except in low-pressure tamponade diastolic pressure throughout the heart are usually in the range of 15-30 mmHg.

## **2.5. Triage**

- 2.5.1. The definitive treatment of cardiac tamponade involves drainage of the pericardial fluid, preferably by needle pericardiocentesis, with the use of echocardiographic or fluoroscopic guidance, and should be performed without delay in unstable patients. Alternatively, drainage is performed by a surgical approach, especially in some situations such as purulent pericarditis or in urgent situations with bleeding into the pericardium.
- 2.5.2. However, management of cardiac tamponade can be challenging because of the lack of the validated criteria for the risk stratification that should guide clinicians in the decision-making process.

## **2.6. Which patients need immediate drainage of the pericardial effusion?**

- 2.6.1. The decision to drain an effusion and to do it immediately, urgently, or schedule the procedure electively must consider the clinical presentation, changes in the haemodynamic status over time (in the range of several minutes to several hours depending on the aetiology), the risk–benefit ratio of the procedure, and the echocardiographic findings.
- 2.6.2. A triage system has been proposed by the ESC Working Group on Myocardial and Pericardial Diseases to guide the timing of the intervention and the possibility of transferring the patient to a referral centre. Since cardiac tamponade can develop slowly, and the symptoms and signs are neither highly sensitive nor specific, a scoring index was introduced to guide the decision for pericardial drainage, based on effusion size, echocardiographic assessment of haemodynamic, and clinical factors.
- 2.6.3. This scoring system (figure 1.) is essentially based on expert consensus and requires additional validation but may be useful as an adjunctive tool to aid in decision making when applied for the triage of cardiac tamponade without haemodynamic shock (where immediate pericardiocentesis is mandatory and lifesaving).



**Figure 1.** A three-step scoring system for the triage of patients requiring urgent percutaneous or surgical drainage of pericardial effusion. Diagnosis of cardiac tamponade is based on the integration of clinical symptoms, signs, and echo findings. Total score  $\geq 6$  indicates urgent pericardiocentesis in the absence of contraindications. Contraindications include uncorrected coagulopathy, anticoagulant therapy with INR  $> 1.5$ , thrombocytopenia  $< 50,000/\text{mm}^3$ , small, posterior, and loculated effusions, or effusions resolving under anti-inflammatory treatment.

## 2.7. Recommendations:

- 2.7.1. Pericardial drainage is indicated for each case with established diagnosis of cardiac tamponade. If the patient is haemodynamically stable, the procedure should be performed within 12–24 h from diagnosis, after obtaining laboratory results including the blood counts.

2.7.2. Indications for urgent surgical treatment of cardiac tamponade include hemopericardium due to type A aortic dissection, ventricular free wall rupture in acute myocardial infarction, trauma, or purulent effusion in unstable septic patients, and loculated effusions that cannot be managed percutaneously.

2.7.3. Aortic dissection and post-infarction rupture of the free wall are contraindications to needle pericardiocentesis due to the potential risk of aggravating the dissection or myocardial rupture via rapid pericardial decompression and restoration of systemic arterial pressure. However, if surgical management is not immediately available, or if the patient is too unstable, pericardiocentesis and drainage of very small amounts of haemopericardium can be attempted in order to maintain blood pressure at around 90 mmHg as a bridge to emergency surgery.

2.7.4. In patients with cardiac tamponade, a stepwise scoring system may be useful for the triage of patients. A total score  $\geq 6$  warrants immediate pericardiocentesis in the absence of contraindications. In rapidly deteriorating patients with iatrogenic hemopericardium or any other very unstable patient, pericardial drainage should be performed without any delay for laboratory tests but treating anticoagulation and prolonged INR (as per the Trust Guidelines), and/or anaemia (plasma-free blood transfusion) simultaneously with the drainage of the pericardium.

## **2.8. Is echocardiography sufficient for guidance of pericardiocentesis or should patient be taken to the cardiac catheterization laboratory?**

2.8.1. Echocardiography is mandatory to guide pericardiocentesis and select the approach (intercostal vs. subxiphoid), except in case of life-threatening tamponade.

2.8.2. Fluoroscopy can be considered for early diagnosis and rescue pericardiocentesis especially for iatrogenic effusions after specific interventional techniques (i.e., pacemaker implantation, percutaneous coronary interventions), although echocardiography should be immediately available as well.

## **2.9. Who should be transferred to specialized/tertiary institution or surgical service?**

2.9.1. If the pericardial effusion cannot be reached by a needle or a catheter, surgical drainage is required, usually through a subcostal incision. Furthermore, surgical drainage is desirable in patients with purulent pericardial fluid, intrapericardial bleeding, and in those with clotted hemopericardium or thoracic conditions that make pericardiocentesis difficult or ineffective.

2.9.2. Open surgical drainage has the additional benefit of resecting a portion of the pericardium for histological examination, breaking up loculations, evacuation of haematoma, and placing a large drainage tube, which is especially important in purulent pericarditis.

## **2.10. What type of medical support is necessary during transportation?**

If the patient is clinically stable to allow pericardial drainage to be delayed, they should be promptly transferred to a specialized institution accompanied by a physician. During the transportation, the patient should be protected from heat and dehydration, and spared from any unnecessary stress. ECG and blood pressure monitoring should be performed throughout the transfer time.

## **2.11. Management**

Immediate pericardiocentesis in peri-arrest patients and those with haemodynamic shock secondary to cardiac tamponade is mandatory and should be performed on site as a life-saving intervention. All other patients should be transferred to Coronary Care Unit (or Intensive Care Unit, subject to bed availability) for monitoring and definitive treatment.

## **2.12. Supportive measures**

- 2.12.1. Medical management is only a temporary measure for tamponade patients while waiting for pericardiocentesis and should not be allowed to substitute for or delay the definitive treatment.
- 2.12.2. Hypotensive patients (systolic arterial pressure <100 mmHg) with hypovolaemia can be treated with a low volume (250-500 ml) of normal saline as it has been demonstrated to improve haemodynamic parameters. However, the infusion of higher volumes may increase wedge pressure and intrapericardial pressure and reduce cardiac output.
- 2.12.3. Intravenous administration of diuretics is contraindicated and could be fatal in patients on the edge of their compensatory mechanism in tamponade.
- 2.12.4. Both dopamine and dobutamine improve haemodynamic: dobutamine has greater beta activity and, therefore, it may be preferable. However, the usefulness of inotropes is generally limited because endogenous adrenergic stimulation is already enhanced under tamponade conditions.
- 2.12.5. Antibiotic prophylaxis is not indicated unless the procedure has been carried out in an emergency setting without adequate asepsis.

## **2.13. Monitoring requirements and nursing interventions:**

- 2.13.1. Nurses have a primary role in monitoring patients for any deterioration in clinical status.
- 2.13.2. Keep patient with cardiac tamponade who are hypotensive on bed rest with their legs elevated above heart level to increase venous blood return to the heart. Patients who aren't hypotensive should be maintained on bed rest in semi-Fowler's position or leaning forward.

- 2.13.3. Assess. for respiratory distress and prepare to administer supplemental Assess for respiratory distress and prepare to administer supplemental oxygen to maintain the patient's SpO<sub>2</sub> above 92%.
- 2.13.4. Place the patient on continuous cardiac monitoring.
- 2.13.5. Monitor the ECG and BP for arrhythmias, hypotension, and electrical alternans.
- 2.13.6. Allay the patient's anxiety and pain. If the patient is anxious, a mild anxiolytic may help. Pain management is a primary treatment goal but give pain medications with caution; opioids such as morphine can contribute to hypotension.
- 2.13.7. Anticipate preparing the patient for emergent pericardiocentesis with echocardiographic guidance.
- 2.13.8. Secure two large-bore intravenous lines for fluid administration.
- 2.13.9. Prepare for volume repletion with isotonic solutions such as 0.9% sodium chloride solution, or inotropic support with agents such as IV dobutamine, depending on the patient's hemodynamic status.
- 2.13.10. Monitor intake and output closely, especially hourly urine outputs.
- 2.13.11. oxygen to maintain the patient's SpO<sub>2</sub> above 92%.

#### **2.14. Patient monitoring and assessment:**

- 2.14.1. Continuously monitor ECG for dysrhythmia formation, which may result from myocardial ischaemia secondary to epicardial coronary artery compression.
- 2.14.2. Monitor the BP every 15 minutes during the acute phase (for 2-3 hours), then every 30 minutes if stable.
- 2.14.3. Monitor for pulsus paradoxus during manual BP reading (or via arterial tracing).
- 2.14.4. Monitor urine output hourly a drop in urine may indicate decreased renal perfusion as a result of decreased stroke volume secondary to cardiac compression.
- 2.14.5. Assess cardiovascular status: monitor for jugular vein distention and presence of Kussmaul's sign.
- 2.14.6. Note skin temperature, colour, and capillary refill.
- 2.14.7. Assess level of consciousness for changes that may indicate decreased cerebral perfusion.
- 2.14.8. Check blood lactate level, U&E and liver transaminases every 8 hours.

## 2.15. Outcome criteria

- Patient alert and oriented.
- Skin warm and dry.
- Pulses strong and equal bilaterally.
- Capillary refill <3 sec.
- HR 60 to 100 beats/min.
- BP 90 to 120 mm Hg.
- Pulse pressure 30 to 40 mm Hg.

## 2.16. Pericardiocentesis

- 2.16.1. Pericardiocentesis was performed for decades as a “blind” procedure, almost exclusively from the subxiphoid area. Currently however, echocardiography is widely available and except in very rare urgent cases with clear diagnosis (e.g. complications of interventional procedures) or in case of a cardiac arrest, pericardiocentesis should not be attempted without echocardiographic guidance.
- 2.16.2. Echocardiography should identify distribution and size of the effusion. The most useful location for pericardiocentesis is the one closest to the largest amount of the effusion, and therefore echocardiography identifies the most suitable approach for pericardiocentesis (in most patients subxiphoid or apical).
- 2.16.3. Urgent pericardiocentesis can be safely and successfully performed as a simple echo-guided procedure or the patient can be taken to the catheterization laboratory and fluoroscopy (real-time) guidance be added to the orientation initially obtained by echocardiography.
- 2.16.4. Prior preparation is essential for the safe performance of pericardiocentesis. It should only be performed by trained staff, unless the patient is in pulseless electrical activity cardiac arrest.
- 2.16.5. The platelet count and coagulation profile should be checked. Packed red cell units should be readily available before starting non-emergency procedures. Patient electrocardiographic monitoring is required in an appropriate environment with resuscitation equipment. A central venous catheter is not essential but can be useful for monitoring right atrial pressure and permitting rapid infusion of fluids and drugs if indicated.

- 2.16.6. A preliminary echocardiographic evaluation is recommended with different views to assess the size and distribution of the effusion, to select the proper entry site and also to monitor the procedure. The patient should be placed in a semi-reclining position at an angle of about 30° and slightly rotated leftwards to enhance fluid collection in the inferior-anterior part of the chest.
- 2.16.7. Any percutaneous site that is selected should avoid the internal mammary artery (3-5 cm from the parasternal border) and the vascular bundle at the inferior margin of each rib. After appropriate disinfection of the operative field, a local anaesthetic is administered at the puncture site.
- 2.16.8. The trajectory of the needle is defined by the angle between the probe and the chest wall. The optimal needle trajectory should be visualised in the operator's mind, and then a 16-18 gauge, Teflon-sheathed needle with an attached saline-filled syringe advanced in the direction of the fluid-filled space.
- 2.16.9. When fluid is aspirated, the needle should be advanced approximately 2 mm further. The sheath should be advanced over the needle and the steel core withdrawn, maintaining only the sheath in the pericardial space. A guidewire should be advanced through the sheath, which can then be removed. A bloody aspirate may indicate myocardial puncture or haemorrhagic pericardial effusion.
- 2.16.10. The extracardiac position of the tip can be confirmed by injecting 5 ml of agitated saline infusion: the bubbles can be visualised through echocardiography in the pericardial space. A small incision should be made at the entry site followed by the introduction of a sheathed dilator (6 Fr to 8 Fr) over the guide.
- 2.16.11. The dilator should be removed, and a pigtail catheter inserted directly into the sheath. The pericardial effusion is aspirated by syringe suction and the catheter is closed after flushing with 5 ml of heparinised saline.

## **2.17. Complications**

- 2.17.1. The rate of major complications for echo-guided or fluoroscopic pericardiocentesis is 0.3-3.9%, and the rate of minor complications is 0.4-20%. The most serious complications include death, injury of the cardiac chambers, laceration of the coronary arteries or intercostal vessels, puncture of the abdominal viscera or peritoneal cavity, pneumothorax requiring chest tube placement, pneumopericardium, ventricular arrhythmias and pericardial decompression syndrome. Myocardial and coronary puncture may initially be silent and present with delayed hemopericardium or intrapericardial thrombus.

2.17.2. Pericardial decompression is a rare, potentially life-threatening syndrome characterised by wide clinical scenarios (from pulmonary oedema to cardiogenic shock). It generally develops after a successful pericardial drainage, from a few hours to days later. The mechanism of this situation is not yet well understood. However, the simplest explanation is an acute left ventricular overload due to an increased right-sided preload associated with a persistent catecholaminergic peripheral vasoconstriction. To date, there are no effective recommendations to prevent this syndrome except to remove enough fluid to normalise the central venous and systemic blood pressure (not >1 L) and to complete the removal in the subsequent few hours.

2.17.3. Minor complications include transient vasovagal hypotension and bradycardia, supraventricular arrhythmias, pneumothorax without haemodynamic instability, and pneumopericardium fistulas.

## **2.18. Post-procedure management**

Aspiration is repeated every four to six hours, and the catheter can be removed once the drainage has decreased to less than 25 to 30 ml in 24 hours. Pericardial catheter care is the same as central venous catheter care. After the procedure, all patients undergo chest radiography to exclude the presence of pneumothorax.

## **2.19. Pearls and pitfalls**

### **2.19.1. Respiratory management**

Increased intrathoracic pressures during the inspiratory phase of mechanical ventilation can decrease cardiac output by up to 25% in patients with tamponade. Patients with suspected cardiac tamponade, therefore, should not receive positive-pressure ventilation unless necessary to avoid further haemodynamic compromise.

### **2.19.2. Prevention of recurrence**

Pericardial drainage for 24 to 72 hours is sufficient to avoid recurrence of cardiac tamponade in most cases. The recurrence rate after the initial procedure is 27-55% for patients who undergo simple pericardiocentesis, and 12-24% for those who have extended drainage. The omission of extended catheter drainage is an important independent predictor of recurrence. It is important to empty the pericardial sac as completely as possible, leaving the catheter in place up to 72 hours or more if the fluid has a rate of accumulation greater than 30 mL in 24 hours, knowing that complications associated with the use of a pericardial catheter are rare.

### 3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Guidelines outlined in this document.
Lead	Clinical Lead.
Tool	Audit of care delivered including Euro score usage, blood monitoring, and cessation of anticoagulation, timing of procedure since diagnosis and patient outcomes recorded on.
Frequency	For every patient who present with diagnosis requiring.
Reporting arrangements	Outcome will be reported via Cardiology Mortality and Morbidity meeting.
Acting on recommendations and Lead(s)	Any concerns identified during audit will be acted upon Clinical Lead.
Change in practice and lessons to be shared	Via Cardiology Mortality and Morbidity meeting.

### 4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the [Equality Diversity And Inclusion Policy](#) or the [Equality and Diversity website](#).

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

## Appendix 1. Governance Information

Information Category	Detailed Information
<b>Document Title:</b>	Cardiac Tamponade Management Clinical Guideline V2.0
<b>This document replaces (exact title of previous version):</b>	Cardiac Tamponade Management Clinical Guideline V1.0
<b>Date Issued/Approved:</b>	September 2023
<b>Date Valid From:</b>	October 2023
<b>Date Valid To:</b>	October 2026
<b>Directorate / Department responsible (author/owner):</b>	Dr Zeljko Baricevic, Consultant Cardiologist
<b>Contact details:</b>	01872 252536
<b>Brief summary of contents:</b>	This document provides guidance for any professional involved in the clinical management of patients presenting with suspected or proven cardiac tamponade.
<b>Suggested Keywords:</b>	Cardiology, Cardiac tamponade Pericardiocentesis.
<b>Target Audience:</b>	<b>RCHT:</b> Yes <b>CFT:</b> No <b>CIOS ICB:</b> No
<b>Executive Director responsible for Policy:</b>	Chief Medical Officer
<b>Approval route for consultation and ratification:</b>	Consultant Cardiologists. Members Of The Cardiology Speciality Governance Group. Medical Services Governance and Quality.
<b>Manager confirming approval processes:</b>	Rachael Pearce
<b>Name of Governance Lead confirming consultation and ratification:</b>	Siobhan Hunter
<b>Links to key external standards:</b>	<a href="http://academic.oup.com/eurheartj/article/36/42/2921/2293375">http://academic.oup.com/eurheartj/article/36/42/2921/2293375</a>

Information Category	Detailed Information
<b>Related Documents:</b>	<p>Massimo Imazio, Yehuda Adler. Management of pericardial effusion, European Heart Journal, Volume 34, Issue 16, 21 April 2013, Pages 1186–1197.</p> <p>Ristic AD, Imazio M, Adler Y, et al. Triage strategy for urgent management of cardiac tamponade: a position statement of the European Society of Cardiology Working Group on Myocardial and Pericardial Diseases. Eur Heart J. 2014 Sep 7:35(34):2279-84.</p> <p>Yehuda Adler, Philippe Charron, Massimo Imazio, et al. ESC Scientific Document Group, 2015 ESC Guidelines for the diagnosis and management of pericardial diseases: The Task Force for the Diagnosis and Management of Pericardial Diseases of the European Society of Cardiology (ESC)</p> <p>Endorsed by: The European Association for Cardio- Thoracic Surgery (EACTS), European Heart Journal, Volume 36, Issue 42, 7 November 2015, Pages 2921–2964.</p>
<b>Training Need Identified?</b>	No.
<b>Publication Location (refer to Policy on Policies – Approvals and Ratification):</b>	Internet and Intranet
<b>Document Library Folder/Sub Folder:</b>	Clinical / Cardiology

#### Version Control Table.

Date	Version Number	Summary of Changes	Changes Made by
June 2020	V1.0	Initial version	Dr Zeljko Baricevic, Consultant Cardiologist
May 2023	V2.0	Full Update. – Transposed to latest Trust template.	Dr Zeljko Baricevic, Consultant Cardiologist

**All or part of this document can be released under the Freedom of Information Act 2000**

**All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.**

**This document is only valid on the day of printing.**

## **Controlled Document**

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies ([Development and Management of Knowledge Procedural and Web Documents Policy](#)). It should not be altered in any way without the express permission of the author or their Line Manager

## Appendix 2. Equality Impact Assessment

### Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance, please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team  
[rcht.inclusion@nhs.net](mailto:rcht.inclusion@nhs.net)

Information Category	Detailed Information
<b>Name of the strategy / policy / proposal / service function to be assessed:</b>	Cardiac Tamponade Management Clinical Guideline V2.0
<b>Directorate and service area:</b>	Specialist Medicine, Cardiology
<b>Is this a new or existing Policy?</b>	Existing
<b>Name of individual completing EIA</b> (Should be completed by an individual with a good understanding of the Service/Policy):	Dr Zeljko Baricevic, Consultant Cardiologist

Information Category	Detailed Information
<b>1. Policy Aim - Who is the Policy aimed at?</b>  (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	To improve the outcome of patients presenting with cardiac tamponade  Aimed at any health care professional involved in the clinical management of RCHT facing patients who present with suspected or proven cardiac tamponade.
<b>2. Policy Objectives</b>	To provide clear speciality agreed guidelines and pathways for the diagnosis and clinical management of patients with cardiac tamponade presenting to Royal Cornwall Hospitals NHS Trust
<b>3. Policy Intended Outcomes</b>	All clinical staff working in cardiology are knowledgeable and confident in their understanding of cardiac tamponade management.  Standardised care, provision of appropriate and timely interventions, better education, reduction in morbidity and mortality of patients with cardiac tamponade.
<b>4. How will you measure each outcome?</b>	Outlined in section 4 of this document.

Information Category	Detailed Information
<b>5. Who is intended to benefit from the policy?</b>	Patients presenting with cardiac tamponade and health care professionals involved in their care.
<b>6a. Who did you consult with?</b> (Please select Yes or No for each category)	<ul style="list-style-type: none"> <li>• Workforce: Yes</li> <li>• Patients/ visitors: No</li> <li>• Local groups/ system partners: No</li> <li>• External organisations: No</li> <li>• Other: No</li> </ul>
<b>6b. Please list the individuals/groups who have been consulted about this policy.</b>	<b>Please record specific names of individuals/ groups:</b> Consultant Cardiologists Cardiology. Governance Meeting.
<b>6c. What was the outcome of the consultation?</b>	Agreed.
<b>6d. Have you used any of the following to assist your assessment?</b>	<b>National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:</b> No.

### 7 The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
<b>Age</b>	No	
<b>Sex</b> (male or female)	No	
<b>Gender reassignment</b> (Transgender, non-binary, gender fluid etc.)	No	
<b>Race</b>	No	
<b>Disability</b> (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
<b>Religion or belief</b>	No	

Protected Characteristic	(Yes or No)	Rationale
<b>Marriage and civil partnership</b>	No	
<b>Pregnancy and maternity</b>	No	
<b>Sexual orientation</b> (e.g. gay, straight, bisexual, lesbian etc.)	No	

**A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.**

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Dr Zeljko Baricevic, Consultant Cardiologist

**If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:**  
[Section 2. Full Equality Analysis](#)