Drug Therapy Protocols: Tenecteplase

Policy code	DTP_TEN_0924
Date	September, 2024
Purpose	To ensure a consistent procedural approach to tenecteplase administration.
Scope	Applies to all Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless specifically mentioned.
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Author	Clinical Quality & Patient Safety Unit, QAS
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Tenecteplase

September, 2024

Drug class

Fibrinolytic [1,2]

Pharmacology

Tenecteplase is a thrombolytic agent which combines with the fibrin component of the thrombus and converts thrombus-bound plasminogen to plasmin. This degrades the fibrin matrix of the thrombus.[1,2]

Metabolism

Hepatic [1]

Indications

- **Patient with STEMI who meet the criteria for pre-hospital thrombolysis** administration (as defined by the relevant QAS CPP)

Contraindications

Absolute

- Allergy AND/OR Adverse Drug Reaction
- Patients aged less than 18 years
- Modified Rankin Scale equal to or greater than 4
- Ischaemic chest pain greater than 6 hours
- History of terminal illness, or under the care of a palliative care service
- Symptoms suggestive of an acute aortic dissection

Contraindications *(cont.)*

- Active bleeding (excluding menstruation) or history of bleeding/clotting disorders
- Significant closed head injury, or facial trauma within the past 3 months
- Prior intracranial haemorrhage
- Ischaemic stroke within last 3 months
- Known cerebral vascular lesion, shunt or malformation
- Known malignant intracranial neoplasm (e.g. brain tumour)

Relative

- Currently on anticoagulants (e.g. apixaban, dabigatran, rivaroxaban, warfarin)
- Non-compressible vascular puncture (e.g. liver biopsy, lumbar puncture)
- Major surgery in the past 3 weeks (e.g. surgery requiring general anaesthesia)
- CPR for greater than 10 minutes
- Internal bleeding within the past 4 weeks, or active peptic ulcer
- Suspected pericarditis
- Advanced liver disease
- Hypertension identified at any stage during care (systolic > 180 mmHg or diastollic > 110 mmHg)
- Previous ischaemic stroke, or known intracranial abnormality
- Currently pregnant, or within 1 week postpartum
- Patients aged 75 years or older
- Acute myocardial infarction in the setting of trauma

Tenecteplase

Precautions

- Nil

Side effects

- Haemorrhage
- Post-administration dysrhythmias

Presentation

- Injection, (powder and solvent) 50 mg (10,000 IU) graduated syringe *tenecteplase*

Onset (IV)	Duration (IV)	Half-life
(IV) 15 minutes	Several hours	≈ 2 hours

Schedule

- S4 (Restricted drugs)

Routes of administration

Intravenous injection (IV)

ACP2 CCP

Special notes [4–5]

- Ambulance officers must only administer medications for the listed indications and dosing range. Any consideration for treatment outside the listed scope of practice requires mandatory approval via the *QAS Clinical Consultation and Advice Line*.
- Increased scrutiny and threshold must be applied to patients < 35 years due to the increased likelihood of STEMI mimics such as pericarditis. Paramedics should exercise **extreme** caution and demonstrate a low threshold for waiting to gain a second opinion at the receiving emergency department.
- If doubt exists regarding the diagnosis of STEMI the QAS paramedic **MUST NOT** administer reperfusion therapy.
- Tenecteplase must be reconstituted by adding the complete volume of water for injection from the pre-filled syringe to the vial containing the powder for injection. This should be done slowly to avoid foaming. The powder should be reconstituted by swirling gently. The appropriate amount should be withdrawn from the vial for injection.
- Tenecteplase is only to be reconstituted and prepared by officers with current QAS tenecteplase administration authority.
- The routine administration of thrombolysis for the treatment of out-of-hospital cardiac arrest is **not** recommended.

Adult dosages [1–5]

Patients with STEMI who meet the criteria for pre-hospital thrombolysis administration (as defined by the relevant QAS CPP)

ACP2 CCP

IV

Weight calculated dose (as listed below) administered into a pre-existing IV line containing sodium chloride 0.9% over 10 seconds.

Patient weight (kg)	Tenecteplase dose to be administered (mg)	Corresponding volume of reconstituted solution (mL)
< 60	30	6
≥ 60 – < 70	35	7
≥ 70 – < 80	40	8
≥ 80 – < 90	45	9
≥ 90	50	10

Paediatric dosages

Note: QAS officers are **NOT** authorised to administer tenecteplase to paediatric patients.

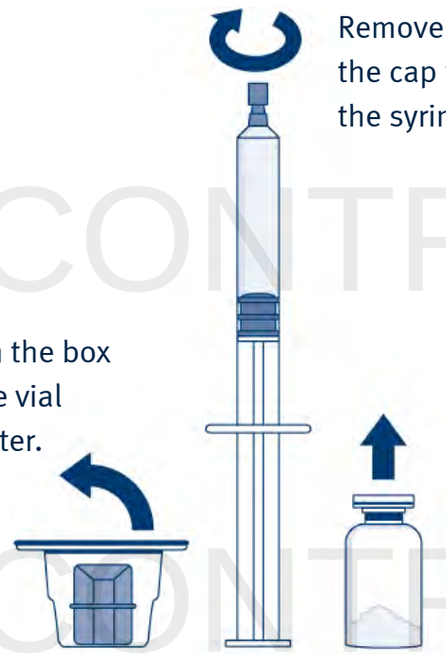
Metalyse® Preparation / Administration Instructions

1

Remove the cap from the syringe.

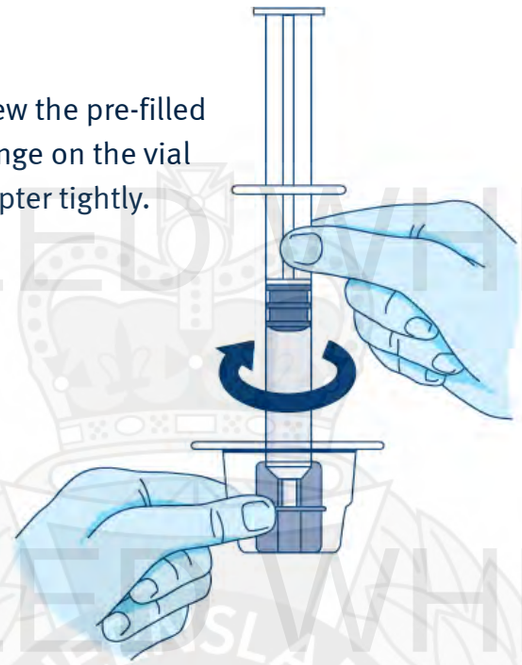
Open the box of the vial adapter.

Remove the flip off cap from the vial.



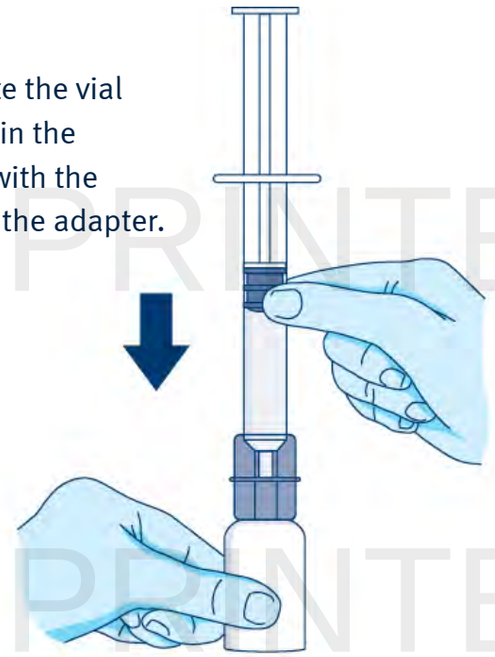
2

Screw the pre-filled syringe on the vial adapter tightly.



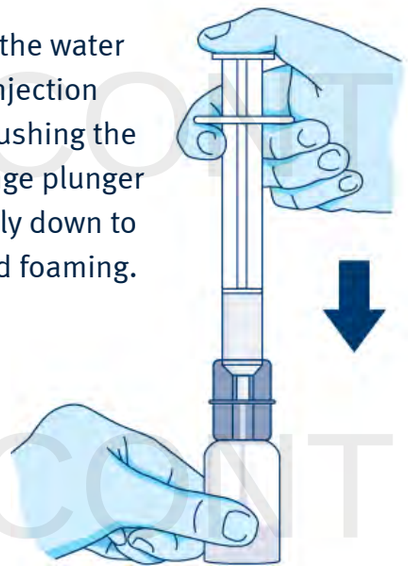
3

Penetrate the vial stopper in the middle with the spike of the adapter.



4

Add the water for injection by pushing the syringe plunger slowly down to avoid foaming.

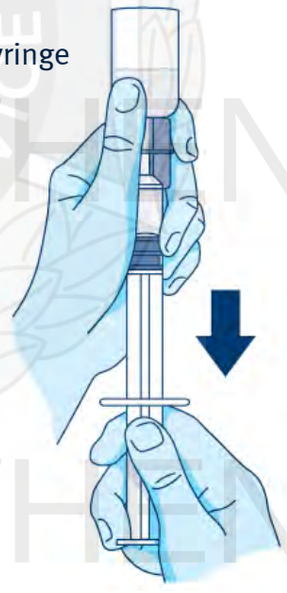


5

Reconstitute by swirling gently.

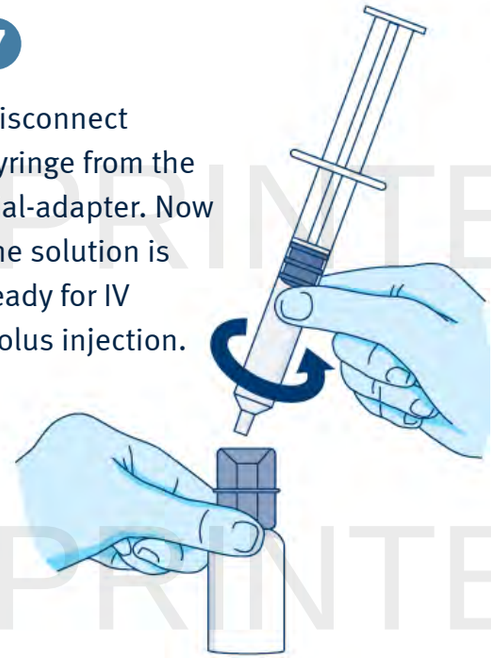
6

Invert vial/syringe and transfer appropriate volume of solution into syringe according to dosing instructions.



7

Disconnect syringe from the vial-adapter. Now the solution is ready for IV bolus injection.



Tenecteplase preparation video