CEREBROVASCULAR ACCIDENT

Stroke is acute focal neurological dysfunction due to cerebral ischaemia or haemorrhage.
It is a time critical emergency where early ED decisions determine disability and mortality.

ED priorities:

- Rapid recognition
- Exclude mimics
- Differentiate ischaemic vs haemorrhagic stroke (If CT Availabla)
- Preserve cerebral perfusion
- Avoid iatrogenic harm
- Expedite definitive therapy

RECOGNITION

BEFAST

- Balance
- Eyes
- Face droop
- Arm weakness
- Speech disturbance
- Time last known well (LKW)

Additional high risk features:

- Sudden visual loss
- Aphasia
- Hemineglect
- Ataxia or vertigo with focal signs
- Reduced conscious level (worse prognosis)

Always document time last known well, not time of discovery.

IMMEDIATE ED ACTIONS (PARALLEL, NOT SEQUENTIAL)

- ABCs
- Capillary glucose immediately
- Treat hypoglycaemia before further stroke workup
- Rapid focused neurological exam
- Early stroke team / referral activation if available

Do not wait for imaging before correcting physiology.

STROKE MIMICS (RULE OUT EARLY)

- Hypoglycaemia
- Seizure + post ictal paralysis (Todd's)
- Migraine with aura
- Sepsis / encephalopathy
- Drug / toxin effect
- Functional disorder

A mimic given thrombolysis can be catastrophic.

IMAGING STRATEGY (ED RELEVANT)

IF CT AVAILABLE; NON CONTRAST CT HEAD

- **First line**
- Rules out intracranial haemorrhage
- Early ischaemia may appear normal

CT answers **bleed vs no bleed,** not "stroke vs no stroke."

If CT unavailable → manage as **suspected stroke,** support physiology, and arrange urgent transfer TO CT capable facility.

In the absence of CT imaging, **stroke remains a clinical diagnosis,** but **stroke subtype cannot be reliably determined.**

ED management must therefore prioritise:

- Prevention of secondary brain injury
- Avoidance of treatments that could worsen occult haemorrhage
- Rapid transfer to definitive imaging and stroke care

ISCHAEMIC STROKE — ED DECISIONS THAT MATTER

A REPERFUSION THERAPY

- IV thrombolysis if:
  - Within treatment window
  - No contraindications
  - CT excludes haemorrhage
- Early decision and referral are ED responsibilities

B ANTIPLATELETS

- Aspirin if:
  - Ischaemic stroke AND
  - Thrombolysis not given
- Delay aspirin 24 h if thrombolysis administered

HAEMORRHAGIC STROKE — ED PRIORITIES

- Control bleeding and secondary injury
- Reverse anticoagulation urgently
- Prevent haematoma expansion
- Early neurosurgical advice Blood pressure:

Blood pressure:

- Target SBP ~140–160 mmHg
- Avoid rapid or excessive BP drops → risk cerebral hypoperfusion

PHYSIOLOGICAL TARGETS (ALL STROKES)

OXYGENATION

- SpO_2 ≥94%
- Oxygen only if hypoxic

BLOOD PRESSURE

- Ischaemic stroke (no thrombolysis):
  - Allow relative hypertension unless extreme
- After thrombolysis:
  - Strict BP control per protocol
- Haemorrhagic stroke:
  - SBP ~140–160 mmHg

GLUCOSE

- Avoid hypo and hyperglycaemia
- Tight control unnecessary; extremes are harmful

GENERAL NEUROPROTECTIVE CARE

- Head elevated 30°
- Neck midline
- Normothermia
- Treat seizures promptly
- Avoid hypotension, hypoxia, fever

WHAT TO AVOID (COMMON, LETHAL ERRORS)

- Treating before glucose check
- Delaying imaging
- Over aggressive BP reduction
- Giving aspirin before excluding haemorrhage
- Failure to document LKW
- Delayed referral

DEFINITIVE CARE

- Stroke is a systems disease
- ED role is recognition, protection, and rapid handover
- Early specialist input improves outcomes

CHECKLIST
CEREBROVASCULAR ACCIDENT

IMMEDIATE STABILISATION (ABCDE)

Airway

- [ ] Assess airway patency
- [ ] Intubate if GCS ↓ or airway compromised

Breathing

- [ ] Monitor SpO_2
- [ ] Oxygen only if SpO_2 <94%

Circulation

- [ ] IV access ×2
- [ ] BP and HR monitored
- [ ] ECG if available

Disability

- [ ] GCS
- [ ] FAST assessment
- [ ] Pupils
- [ ] Capillary glucose (treat if low)

Exposure

- [ ] Full exam
- [ ] Temperature check

KEY HISTORY (DOCUMENT CLEARLY)

- [ ] Time last known well
- [ ] Symptom onset / progression
- [ ] Anticoagulant or antiplatelet use
- [ ] Recent surgery / bleeding
- [ ] Seizure at onset

IMAGING

- [ ] Non contrast CT head urgently
- [ ] Do not delay stabilisation
- [ ] Arrange transfer if CT unavailable

DIFFERENTIATE STROKE TYPE

- [ ] Ischaemic stroke
- [ ] Haemorrhagic stroke
- [ ] Stroke mimic considered

ISCHAEMIC STROKE MANAGEMENT

- [ ] Assess eligibility for thrombolysis
- [ ] Early referral / activation
- [ ] Aspirin if no thrombolysis
- [ ] BP management per protocol

HAEMORRHAGIC STROKE MANAGEMENT

- [ ] BP target SBP ~140–160 mmHg
- [ ] Reverse anticoagulation
- [ ] Early neurosurgical contact
- [ ] Head elevated 30°

PHYSIOLOGICAL CARE

- [ ] SpO_2 ≥94%
- [ ] Avoid hypotension
- [ ] Normoglycaemia
- [ ] Control fever
- [ ] Treat seizures promptly

WHAT TO AVOID (CRITICAL)

- [ ] Thrombolysis without CT
- [ ] Aspirin before excluding bleed
- [ ] Rapid BP drops
- [ ] Routine oxygen if normoxic
- [ ] Delays to imaging or referral

DISPOSITION

- [ ] Stroke unit or higher level care
- [ ] ICU if unstable or reduced GCS
- [ ] Clear handover:
  - Time LKW
  - Neuro findings
  - Imaging result
  - Medications given
  - BP and glucose trends