

# New Zealand Out-of-Hospital Acute Stroke Destination Policy

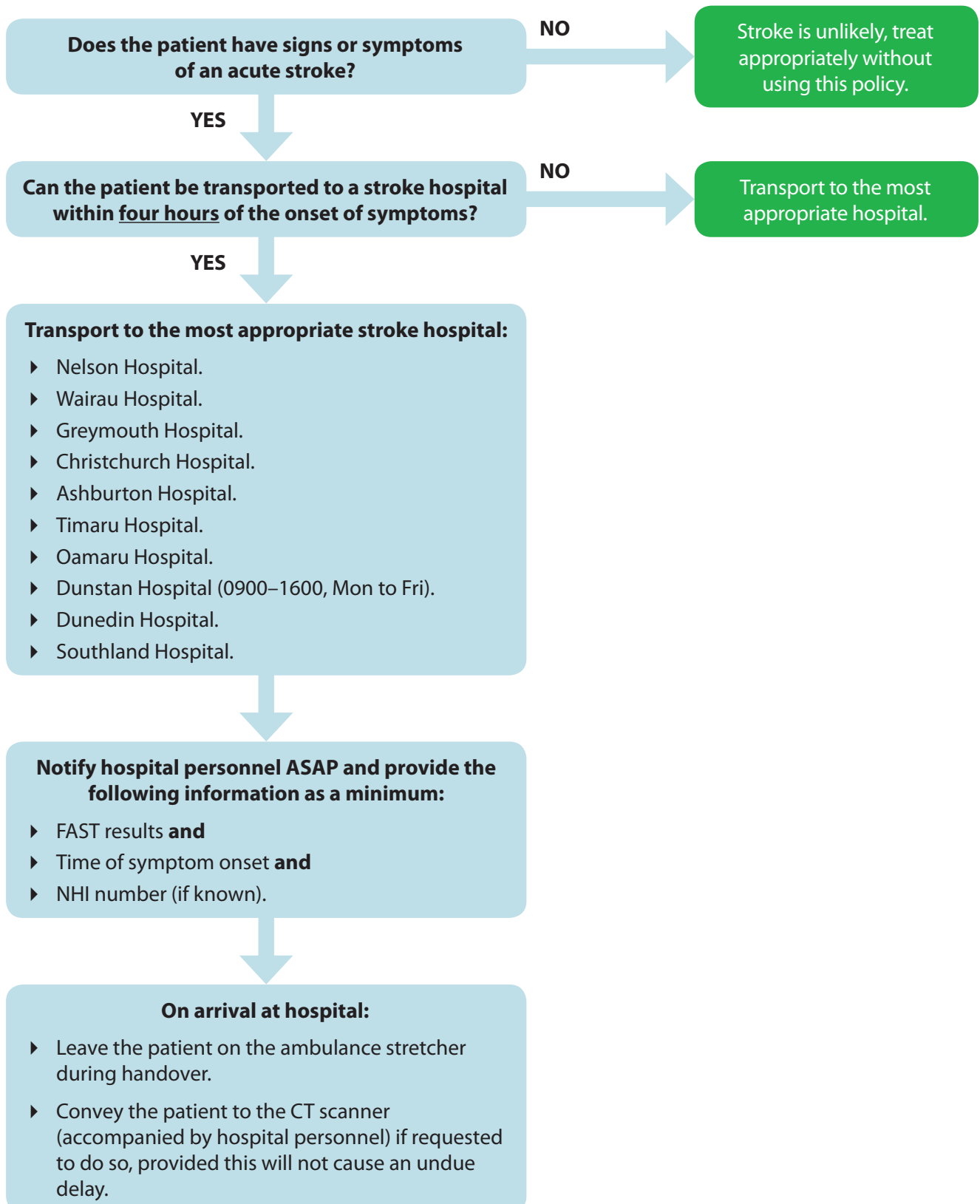
South Island

This policy is for the use of clinical personnel when determining the destination hospital for patients with an acute stroke in the out-of-hospital setting in the South Island of New Zealand. It has been developed by the South Island Stroke Workstream in conjunction with the National Stroke Network and the Ambulance Sector.

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# Acute Stroke Destination Flowchart: South Island



# Acute Stroke Destination Policy: South Island



## Additional information

### Introduction

- ▶ This policy is for the use of personnel in the out-of-hospital setting (for example ambulance and primary care personnel), when determining the transport destination for patients with an acute stroke and should be read in conjunction with the New Zealand Ambulance Sector Clinical Procedures and Guidelines.
- ▶ The goal of this policy is to optimise outcomes for patients with acute ischaemic stroke by minimising the time to administration of fibrinolytic therapy if this is indicated.
- ▶ All patients with signs or symptoms of stroke who can reach a stroke hospital within four hours of the onset of symptoms may be eligible for fibrinolytic therapy and should be transported directly to a stroke hospital without delay, whenever it is feasible and safe to do so.
- ▶ Although this policy has primarily been designed for the out-of-hospital setting, the principles within it could be used by personnel in the in-hospital setting.
- ▶ This policy does not apply to patients with trauma. Patients with acute trauma and signs or symptoms of an acute stroke should be treated using the New Zealand Major Trauma Policy.

### Stroke hospitals

- ▶ The term 'stroke hospital' is used to describe a hospital that has the appropriate facilities and personnel to assess patients with an acute stroke and provide fibrinolytic therapy.
- ▶ The role of receiving personnel in stroke hospitals is to rapidly assess patients for their suitability to receive fibrinolytic therapy and to initiate fibrinolytic therapy without delay when it is indicated.
- ▶ The following hospitals are designated as stroke hospitals:
  - Nelson Hospital.
  - Wairau Hospital.
  - Greymouth Hospital.
  - Christchurch Hospital.
  - Ashburton Hospital.
  - Timaru Hospital.
  - Oamaru Hospital.
  - <sup>1</sup>Dunstan Hospital (0900–1600, Mon to Fri).
  - Dunedin Hospital.
  - Southland Hospital.
- ▶ The following hospitals are tertiary stroke hospitals:
  - Christchurch Hospital.
  - Dunedin Hospital.
- ▶ <sup>1</sup>Note: Dunstan Hospital only has personnel to provide fibrinolytic therapy if the patient arrives in hospital between the hours of 0900–1600, Monday to Friday (including public holidays). If the patient is going to arrive outside these hours:
  - Consideration should be given to flying the patient to Dunedin Hospital if the patient is previously independent, without severe comorbidities, has signs of severe weakness and will clearly arrive in Dunedin Hospital within four hours of the onset of symptoms.
  - If the patient does not meet the criteria for helicopter transport, the patient should be transported to the most appropriate hospital.

## Determining the most appropriate stroke hospital

- ▶ A patient with an acute stroke who can be transported to a stroke hospital within four hours of the onset of symptoms should usually be transported to the nearest stroke hospital.
- ▶ However, clinical judgement should be used and if a patient is located an approximately equal transport time between Christchurch Hospital or Dunedin Hospital and another stroke hospital, the patient should usually be transported to Christchurch Hospital or Dunedin Hospital which are tertiary stroke hospitals. This is because tertiary stroke hospitals have additional personnel and facilities to manage patients with an acute stroke.
- ▶ A patient with signs or symptoms of an acute stroke who cannot be transported to a stroke hospital within four hours of the onset of symptoms is unlikely to be eligible to receive fibrinolytic therapy and should be transported to the most appropriate hospital (which may not be a stroke hospital), taking into account:
  - The patient's anticipated clinical needs **and**
  - The location of the incident **and**
  - Where the patient lives.

## Patient assessment and treatment

- ▶ Ambulance personnel will use the Ambulance Sector Clinical Procedures and Guidelines.
- ▶ Clinical assessment of the patient must include an assessment for new onset of unilateral weakness and new onset of impaired speech. The FAST test is recommended:
  - Face: ask the patient to smile and look for unilateral facial weakness.
  - Arm: ask the patient to raise both arms and close their eyes. Look for unilateral arm weakness or unilateral drift.
  - Speech: ask the patient to repeat a sentence and listen for slurring of words. Ask the patient to name several common objects and observe for difficulty naming objects.
  - Time: note the time of the onset of symptoms.
- ▶ The time of the onset of symptoms is the time at which the patient was last known to be symptom free. If the patient has woken with the signs or symptoms, then the time of the onset of symptoms is the time the patient was last known to be awake and symptom free.
- ▶ Examination for leg weakness is not part of the FAST assessment, however observing the patient walking (provided this is feasible and safe) may detect leg weakness or poor coordination. Poor coordination may result from a stroke within the cerebellum.
- ▶ Hypoglycaemia can cause signs and symptoms that mimic a stroke and these may persist for many hours following treatment. If the patient is hypoglycaemic or has received treatment for hypoglycaemia, the patient should not be treated using this policy.
- ▶ Seizures can cause signs and symptoms that mimic a stroke, particularly during the postictal phase and these may persist for many hours following the seizure. If the patient has had a seizure the patient should not be treated using this policy.
- ▶ IV access should be obtained, noting that:
  - Bilateral IV access is preferred provided this does not cause a significant delay **and**
  - 18 and 20 gauge cannulae are sufficient **and**
  - Multiple IV attempts should be avoided.
- ▶ Hospital personnel must be notified by ambulance personnel as soon as possible and preferably before leaving the scene so that appropriate personnel can be notified of the patient's impending arrival. The following information should be provided as a minimum:
  - FAST results **and**
  - Time of symptom onset **and**
  - NHI number (if known).
- ▶ Transport under lights should occur if doing so will result in a clinically significant time saving.

## Transport timeframes

- ▶ Four hours from the onset of symptoms has been chosen as the 'cut off' time for transport to a stroke hospital. This is because evidence suggests there is no benefit (and possibly harm) from administering fibrinolytic therapy after four and a half hours from the onset of symptoms.
- ▶ Utilising a four hour time window from the onset of symptoms to arrival in a stroke hospital allows an additional thirty minutes for hospital personnel to assess the patient and commence fibrinolytic therapy if indicated.

## Transport modes

- ▶ Transport to hospital should usually be by road ambulance.
- ▶ Transport to hospital by helicopter should be reserved for patients with the greatest potential to benefit from fibrinolytic therapy, utilising the following criteria:
  - The patient is previously independent and without severe comorbidities **and**
  - The diagnosis is clear **and**
  - The patient has severe weakness **and**
  - The patient will clearly reach a stroke hospital within four hours of the onset of symptoms **and**
  - Helicopter transport will clearly save more than thirty minutes compared with road transport.
- ▶ Personnel requiring advice on helicopter transport should phone personnel on the Clinical Desk within the Ambulance Communications Centre on **0800 111 HELP (0800 111 4357)**.

## On arrival at a stroke hospital

- ▶ On arrival at a stroke hospital, ambulance personnel should leave the patient on the ambulance stretcher during handover and convey the patient to the CT scanner (accompanied by hospital personnel) if requested to do so. If an undue delay occurs or is anticipated prior to conveying the patient to the CT scanner, the patient should be transferred to a hospital bed.
- ▶ Once the patient has been transferred to the CT scanner, the ambulance stretcher should be removed and ambulance personnel are not required to remain with the patient.
- ▶ Exact arrangements at each stroke hospital will vary depending on locally agreed processes between stroke hospital personnel and the ambulance service. The goal of conveying the patient to the CT scanner on the ambulance stretcher is to reduce the time to fibrinolytic therapy when indicated.

## Transport post fibrinolytic therapy

- ▶ In the event that ambulance personnel are required to transport a patient with an acute stroke following fibrinolytic therapy, personnel must:
  - Record the patient's GCS, blood pressure, heart rate and capillary refill time every 10 minutes.
  - Monitor the patient closely for signs of bleeding.
  - Seek clinical advice if there is any significant change in the patient's condition.

