

Timeline Definitions and Context

Approximately two-thirds of all patients who seek acute care for stroke arrive at the emergency department by ambulance. Transport by paramedics is safer and enables patients to be triaged to appropriate hospitals that provide stroke services without delays. The current estimated target for transport to hospital by paramedics is in the range of 80% of cases (based on Canadian Stroke 2009 benchmark data).

Two timelines have been established to describe emergency medical services (EMS) in Canada for stroke patients who may be eligible for acute ischemic stroke therapy, including intravenous alteplase and endovascular thrombectomy. These are:

Timeline One: *The pre-hospital phase starts with symptom onset and ends with hospital arrival.**

This includes on-scene management and transport time. Patients with ischemic stroke who can arrive at hospital and be treated as soon as possible within a **4.5 hour** time window from witnessed symptom onset (or when last seen well) may be eligible to receive medical treatment with intravenous thrombolysis; thrombolysis may be offered alone or in combination with endovascular thrombectomy which has a **6 hour** time window for most patients. Highly selected patients may be eligible for endovascular thrombectomy **up to 24 hours** from symptom onset. *Refer to Hyperacute Stroke Care Module, Section 4, for more information on advanced acute stroke therapies including endovascular thrombectomy with mechanical thrombectomy.*

Timeline Two: *The emergency department phase starts with hospital arrival and ends with discharge from the emergency department decision time – either with admission to a stroke unit or hospital ward for inpatient care or discharge to the community. This includes the diagnostic evaluation, consideration of treatment options, and initiation of treatment which should be completed in less than 60 minutes, initiation of treatment. Aim for a target 90th percentile for door-to-needle time of 60 minutes (upper limit); and a target median door-to-needle time of 30 minutes or less [Kamal et al CJNS 2015]. Note, the goal is to transfer admitted stroke patients within four hours of arrival where possible; however, many hospitals operate at full capacity and patients may have to remain in the emergency department after they are admitted to inpatient care while waiting for an inpatient bed.*

It should be noted that the probability of disability-free survival decreases over time within the treatment window and all phases of patient care should aim for the shortest process and treatment times possible.

- ◆ These recommendations cover management of potential stroke patients between the time of first contact with the local emergency medical system to transfer of care to the hospital, as well as care of suspected or confirmed stroke patients who are being transferred between healthcare facilities by paramedics.
- ◆ These recommendations are directed to paramedics and those individuals who support emergency medical systems, including communications officers and dispatchers. It also applies to other first responders such as emergency medical responders and primary care paramedics who have been trained to screen for stroke and manage potential stroke patients during transfer.
- ◆ These recommendations are intended to be translated into practice by the entire breadth of out-of-hospital healthcare providers within the defined scope of practice of each. This includes emergency medical system professionals such as paramedics and emergency medical dispatchers, but also allied emergency medical system providers such as medical first responders and emergency medical responders.

* ***Local variations should be taken into consideration for pre-hospital time (e.g., remote locations with poor road access).***