Emergency Telemedicine Services

Emergency care delivered through telemedicine can support patients who require immediate assessment and treatment (as soon as a remote consultant is available) or patients who have a life threatening condition. Telemedicine-enabled emergency services provide an opportunity for more timely access to acute care and specialist health care providers, reduction or elimination of risk of permanent disability or death, improvement in patient outcomes, and contribution to an overall improvement in emergency system effectiveness.

Benefits to the Patient, Provider, and Health Care System

- Facilitates achievement of health care priorities that focus on access to appropriate care, improved access to services, and appropriate / efficient use of emergency services.
- Improves access to experienced emergency medicine providers for patients living in small and rural communities.
- Provides immediate response to care needs in order to improve health outcomes and better optimize scarce emergency care resources.
- Provides specialized care currently unavailable to rural hospitals – fills gaps created by absence of specialist emergency care providers.
- Avoids unnecessary transfers AND ensures necessary transfers occur in a timely fashion.
- Decreases the demands on Emergency Medical Services for patient transfers.
- Supports patient stabilization and management until transport team arrives.
- Enables access to telementoring and real-time distance learning for those in isolated or rural facilities, and can increase the sense of confidence and satisfaction among inexperienced community hospital practitioners.
- Facilitates enhanced inter-professional communication and collaboration.
- Increases the health system's capacity to respond to emergent or complex care situations and to treat a greater range of patients with complex clinical needs in their own community.

Potential Drivers for Emergency Telemedicine

- Underserved rural and remote hospitals and nursing stations.
- Higher rates for many diseases in rural communities.
- Higher death rates in rural areas from injury than in urban areas.
- Greater chances of survival if surgery or advanced trauma life support can be provided within the first 60 minutes following trauma.
- Concentration of subspecialty care is found in urban centers.

- Challenges in recruitment and retention of health care workers to meet health needs of local communities.
- The current availability of technology that can bring the specialists to the patient regardless of location.

Emergency Telemedicine Services in Ontario

- **Ontario Telestroke Program:** Closed referral source. The focus is on specialist access for stroke patients who are candidates for t-PA. Hospitals interested in becoming a Telestroke referral site must go through an application process that is facilitated by the OTN Emergency Services Program. Neurologists interested in participating in the Telestroke neurologist consultant pool must be approved by the Telestroke Medical Director.
- **Teletrauma:** Closed referral source. The participating trauma consultants, in collaboration with the OTN Emergency Services Program, identify potential referral hospitals for this service. Service provision is regional or LHIN-based.
- **Teleburn:** Open referral source. This consultative service is currently provided by Sunnybrook Health Sciences Centre and is open to any referring telemedicine-enabled hospital in Ontario. Service provision is provincial. A Teleburn Program poster and Information Sheet are available from OTN for interested referral sites.
- **Virtual Critical Care (adult, paediatric, neonatal):** Closed referral source. These are typically regional or LHIN-wide initiatives. Referring hospitals are identified by the consulting critical care clinicians.

Characteristics of Emergency Telemedicine Services and Environments

- Services are available on a 24 x 7 basis.
- Services are not scheduled ahead of time.
- Services must be provided within a tight timeframe for optimal clinical treatment.
- Imaging and data-sharing solutions may be required in addition to videoconferencing.
- Greater independence required for front line clinicians to know how to operate the technology (usually there is little to no Telemedicine Coordinator involvement or support).
- Typically the telemedicine equipment needs to be mobile – taken to the patient's bedside.
- The need for telemedicine knowledge transfer is heightened due to a high turnover rate or transient medical clinician population in rural hospitals.
- There may be challenges with integration of telemedicine processes given the nature of emergency care workflow.
- Technical solutions are needed for not only the hospital but also the clinician home/office and in between.

- Technology or network downtime is unacceptable.
- Protocols for technology failure are required.
- Technology and/or clinical support redundancy is important.
- The focus is truly on the patient, not the technology, during an emergency telemedicine event.
- There may be a need to collaborate with third parties, for example CritiCall and Emergency Medical Services (EMS).

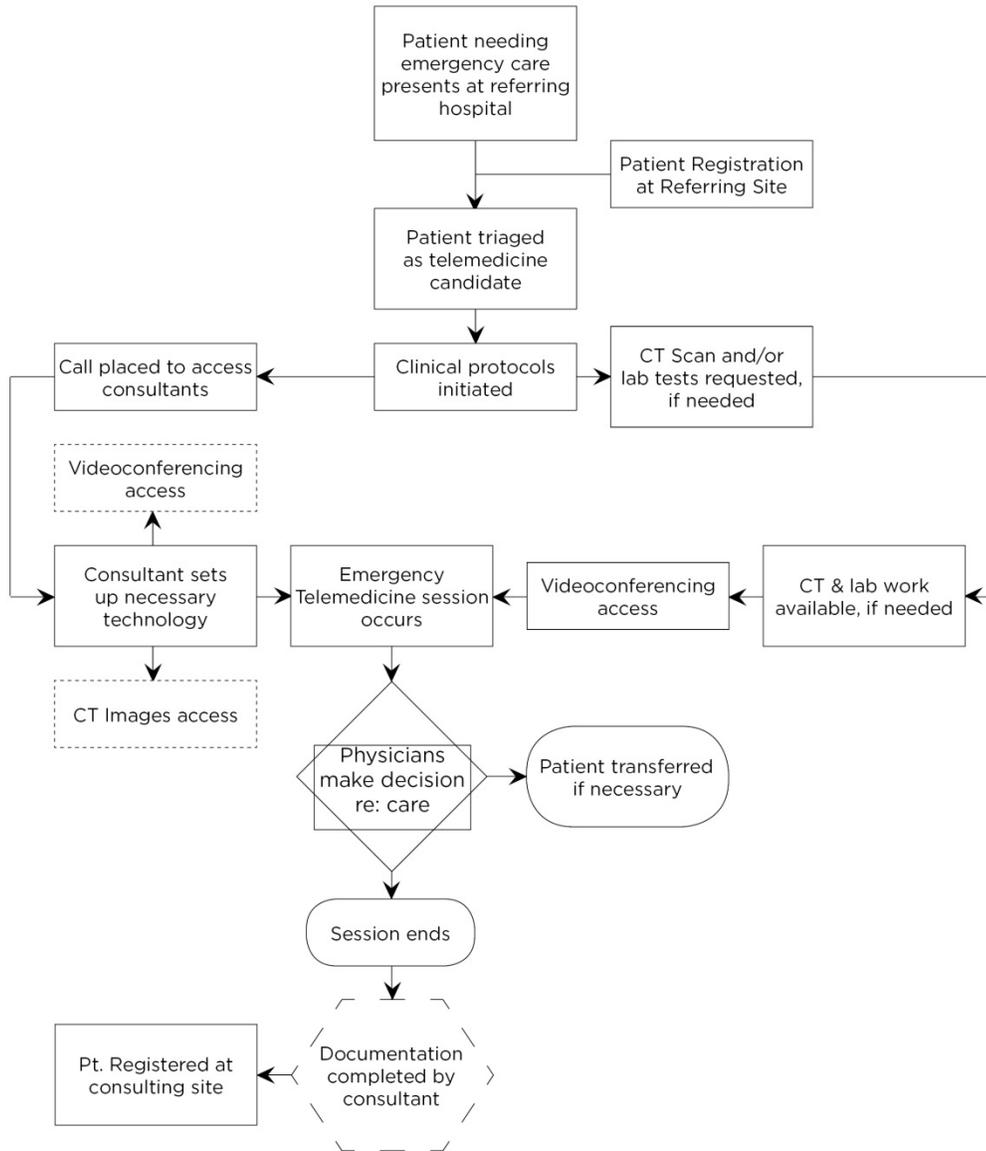## OTN Readiness for Emergency Telemedicine Services

Readiness assessments enable service providers and OTN to review various processes and ensure that all components for implementing emergency telemedicine solutions and services are present and appropriate. Facilitated by the OTN Emergency Services Program, readiness assessment review and discussions start early in the process - ideally at the service opportunity/investigation stage.

Creating a state of readiness helps to launch a successful emergency telemedicine program but a review and consideration of readiness does not need to end there. Service providers are encouraged to conduct readiness reviews as required, when they contemplate new emergency telemedicine services and/or face anticipated future challenges as an organization expands their telemedicine portfolio.

Key OTN readiness elements for emergency telemedicine services include but are not limited to:
- Endorsement by senior organizational administration / management.
- Consulting site and referring site(s) clinician, team, department commitment.
- Designated clinical champion at the consulting site and referring site(s) – usually a physician.
- Designated leadership champion especially at the consulting site.
- Designated technical contact.
- On-site technical support available 24 x 7.
- Agreement to partake in data collection / utilization reporting as required by OTN.
- Funding available for telemedicine network drop installation as required.
- Funding available for technology solutions as required.
- Clinician commitment to participate in OTN technical training.
- Funding available to allow local hospital staff to participate in OTN training as required.
- Agreement with OTN Membership Emergency Services Schedule.
- Agreement to develop clinical service description, protocol, and workflow integration.
- Participation agreement between consulting site and referring site(s).
- Physician remuneration requirements are covered.

Generic Workflow for Emergency Telemedicine Services and Programs

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┌──────────────────┐
│ Patient needing  │
│ emergency care   │
│ presents at      │        ┌──────────────────┐
│ referring        │        │ Patient          │
│ hospital         │───────▶│ Registration     │
└──────────────────┘        │ at Referring Site│
         │                  └──────────────────┘
         ▼
┌──────────────────┐
│ Patient triaged  │
│ as telemedicine  │
│ candidate        │
└──────────────────┘
         │
         ▼
┌──────────────┐   ┌──────────────┐   ┌──────────────────┐
│ Call placed  │◀──│ Clinical     │──▶│ CT Scan and/or   │
│ to access    │   │ protocols    │   │ lab tests        │
│ consultants  │   │ initiated    │   │ requested,       │
└──────────────┘   └──────────────┘   │ if needed        │
                                       └──────────────────┘

┌──────────────────┐
┊ Videoconferencing┊
┊ access           ┊
└──────────────────┘

┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────────┐
│ Consultant   │──▶│ Emergency    │◀──│ Video-       │◀──│ CT & lab work    │
│ sets up      │   │ Telemedicine │   │ conferencing │   │ available,       │
│ necessary    │   │ session      │   │ access       │   │ if needed        │
│ technology   │   │ occurs       │   └──────────────┘   └──────────────────┘
└──────────────┘   └──────────────┘

┌──────────────────┐
┊ CT Images access ┊
└──────────────────┘

              ◇ Physicians ◇       ╭──────────────────╮
              ◇ make       ◇──────▶│ Patient          │
              ◇ decision   ◇       │ transferred      │
              ◇ re: care   ◇       │ if necessary     │
                                   ╰──────────────────╯
                   │
                   ▼
              ╭──────────────╮
              │ Session ends │
              ╰──────────────╯
                   │
                   ▼
┌──────────────┐   ⬡
│ Pt.          │◀──⬡ Documentation
│ Registered at│   ⬡ completed by
│ consulting   │   ⬡ consultant
│ site         │
└──────────────┘
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OTN.
Telemedicine's Leader

Planning Considerations

The OTN Emergency Services Program offers the following list of tips for developing an idea. Contact the Program for more information or to discuss an emergency telemedicine service opportunity.

- Ask how telemedicine can help to address recommendations in regional delivery plans to provide equitable access to health care services in a timely and appropriate manner.
- Think about the emergency services that patients in Ontario are not getting now and should be getting. Identify to which patient population telemedicine would make a difference.
- Ask if access to emergency care specialists through telemedicine could impact the quality of care provided to patients.
- Secure a physician champion.
- Form a Steering Committee or project team.
- Build a detailed plan.
- When considering referral sites, determine from where most referrals come. Determine which of these sites, if any, currently do emergency telemedicine.
- Develop a recruitment strategy for potential referring sites. This might include identifying local champions, road trips to deliver meaningful presentations, understanding the local environment, review of case studies from previous patient transfers with demonstration of how telemedicine could have improved a situation.
- Develop the business case and demonstrate the value.
- Identify funding requirements and secure funds.