Report to City of Edmonton

Medevac Transport

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Appendices

Introduction

The purpose of this report is to summarize the findings from stakeholder's discussions and other information sources related to air ambulance transport of patients to Edmonton City Centre Airport (ECCA).

The City of Edmonton is reviewing options for the ECCA Land, and requested additional information on the operations of air ambulance or medevacs* should they decide to close ECCA to air traffic and repurpose the land.

The report outlines the current air ambulance operations, the impacts of potential changes to the current operations and the options for air ambulance operations related to fixed wing medevac trips coming to Edmonton to access specialized health services.

medevac - *the removal of injured people from the scene of their injury to the nearest hospital or place of treatment by helicopter or airplane*

Executive Summary

Interviews were conducted with numerous stakeholders including clinical leaders from Emergency Medical Services (EMS), Trauma, Adult ICU, Pediatric ICU, Neonatal ICU and Administrative leaders from EMS, University of Alberta Hospital (UAH), Royal Alexandra Hospital (RAH), and Alberta Health Services (AHS) Capital Projects. Discussions occurred with Alberta Health and Wellness (AH and W) Provincial Flight Coordination and STARS. A meeting was held with Edmonton Airport Authority to discuss emergency medical services in relation to EIA. The previous work by City of Edmonton EMS was referenced as background information and for data; and additional data sought from Parkland EMS related to transfer times from EIA to trauma sites. The consultant also sought information on how air transport of patients is managed in Ontario through ORNGE.

The clinicians all agree that there is a subset of patients arriving in Edmonton through fixed wing transport to Edmonton City Centre Airport (ECCA) that are time sensitive. Of the 3993 fixed wing patient arrivals to ECCA, it is thought that about 350 of these are time critical (or red as they are referred to) adults; some time critical PICU and NICU transports also occur, but the majority of these patients are usually stabilized prior to transport and moved with a full transport team providing care throughout all phases of transport.

The remaining patients are stable, arriving for planned procedures and diagnostics, or yellow (urgent) patients requiring tertiary services that are not as time sensitive therefore able to be transferred by ground to the respective sites in Edmonton for treatment. The 350 fixed wing adult patients that are unstable and potentially time sensitive will need to be managed to minimize additional transport time from EIA. Additionally a small percentage of the 291 PICU and NICU fixed wing transports will be time sensitive and will also need strategies to minimize additional transport time. Some of the organ transplant flights carrying donor hearts are extremely time sensitive and will need actions to minimize transport time.

Clinician suggestions to mitigate the time in transport include coordinating all traffic lights from EIA to UAH to speed transport of these patients by ground as well as the potential to ‘helishuttle’ patients/donor organs from the EIA to trauma sites depending on patient type and condition. Patient stratification guidelines are currently in place that direct all burn patients to UAH, all pediatric patients to the Stollery, all high risk obstetrics to the RAH and adult trauma is split between the UAH and RAH sites. Donor organs for transplant all go to UAH. Cardiac patients are managed at both the Mazankowski and the RAH.

There are approximately 600 patients transported by STARS that are delivered directly to the hospital sites by landing on the existing heliports. The majority of these patients are trauma patients that are delivered to one of the 2 trauma sites in Edmonton – the UAH/Stollery and the Royal Alexandra Hospital (RAH) site. STARS also sometimes transport the PICU and NICU teams and returning patients. Currently 60% of adult trauma patients are directed to the UAH and 40% to the RAH. All pediatric trauma patients go to the UAH/Stollery. Of concern is the fact that the existing RAH helipad does not meet guidelines established by Transport Canada and will be closed to rotary wing aircraft landings in the near future until upgraded. This will necessitate alternate plans for rotary aircraft with RAH patients for a period of time until the helipad deficiencies are addressed. The concept of a heliport remaining at CCA is welcomed by the clinical community for this reason - to serve as the site for helishuttle patients destined for the RAH as it would be a short distance to move patients to the RAH (10 minutes).

Stakeholders consulted agree that opportunity exists to redesign the current system of fixed wing transport. Historically ground ambulance services were under the governance of municipalities, fixed wing transports were managed by contracts held by Alberta Health and Wellness, and STARS or rotary wing contracts were managed jointly by Capital Health (Edmonton) and Calgary Health Region. With the recent amalgamation of the regions and Boards, and the transfer of ground ambulance services to Alberta Health Services effective April 1, 2009, significant opportunity exists to improve the coordination for patients incoming by fixed wing from rural Alberta to Edmonton tertiary services. Potential exists to transfer the current fixed wing contracts from AH and W to Alberta Heath Services either in 2010 or 2011. This would ensure all modes of patient transfer will be under the oversight of Alberta Health Services which will allow further integration of service delivery.

Historically rural hospitals placed patients in either ground or air ambulance and sent very unstable patients to Edmonton; patients sometimes arrived at the wrong site for services required. Capital Health (CH) addressed this by implementing the Critical Care Line (CCL) – a one number to call for physicians in rural central and northern Alberta – to access urban specialists for stabilization advice and to arrange transfer to the correct site the first time. CCL was successful in ensuring patients were stabilized before transport; approximately 10% of patients were able to be stabilized and treated in their rural hospitals thereby avoiding transport to Edmonton. Once the health system knew what patients were arriving, and which site they were being directed to, the system was able to begin to put returning patients in the planes that brought patients to Edmonton. A list of patients in all acute hospitals in Edmonton that needed flight transport back to their home region assisted in patient return. This significantly reduced the number of flights required to be chartered to return patients home which in turn, resulted in cost

savings to the health system. There remains significant opportunity with the planned consolidation of ambulance to 3 dispatch centers in the province to significantly impact patient returns using incoming planes and ground transport, thereby increasing efficiency (use of empty planes) and use of a scarce resource (acute beds at UAH/ Stollery and RAH) .

Edmonton Airport Authority oversees the Edmonton International Airport (EIA) and is willing to work with stakeholders to relocate air ambulance traffic (fixed and rotary wing) to appropriate space at EIA. Approximately 600 ambulance calls are received annually from EIA currently, some of which are treated and released and some of which require transport to Edmonton facilities. The combination of the current EMS calls, and the potential air ambulance traffic, creates a significant volume that could be managed by stationing ambulance crews 24/7 at the airport to manage patients. An appropriate staging area could be constructed to ensure patients are appropriately staged for transfer from air crew to ground crew rather than this occurring on the tarmac.

With the transfer of EMS to AHS, there is now a single provincial medical oversight model in place for all EMS services (air and ground). One provincial medical director and 5 regional medical directors oversee quality standards for patient transport. Clinicians expressed concern with the current services where the plane and flight crew are contracted thru A H and W and separate medical crews to manage patients in fixed wing aircraft are also contracted by A H and W. Sometimes patients arriving in Edmonton have not been appropriately managed clinically in transport; the new system means that feedback, training and quality improvement will be easier given a single medical oversight structure. (Clinicians were previously unsure where to report concerns given the multiple governance structures in place)

In summary, AH and W, AHS – EMS services, and clinicians all note that opportunities exist to improve the coordination and timeliness of patient transfers to the right place the first time. Closure of ECCA and relocation of air ambulance volumes to the EIA presents an opportunity for stakeholders to work collaboratively to design a service able to meet the needs of rural Albertans transferred to Edmonton for tertiary care, and subsequently returned home for appropriate care in their local facility.

Current Status

In Alberta, the air ambulance program consists of fixed wing ambulances under contract to Alberta Health and Wellness and dispatched through the Provincial Flight Coordination Centre (PFCC); and rotary wing aircraft under contract to Alberta Health Services. Shock Trauma Air Rescue (STARS) holds the rotary wing contract and provides 4 helicopters from 3 bases; currently 2 of those bases are funded by AHS and one is funded by private industry; one helicopter is used for back up and moved to where needed. 7 providers hold contracts for fixed wing services and provide 12 airplanes from 10 base locations. These providers are under contract for planes and pilots as well as for the provision of air medical crews which consist of paramedic/Emergency Medical Technicians (EMT) A minimum of one paramedic is in each aircraft accompanied by another paramedic, an EMT or a nurse.

ECCA houses ground ambulances for use for the medical crews to transfer patients from the fixed wing aircraft to ground ambulances which are used to move patients to their destinations which could be any of the hospitals, or other diagnostic and rehabilitation facilities in Edmonton.

The PFCC (funded and operated by AH and W) decides which air craft will be used to transport patients based on chart of call (which aircraft is most suitable for the flight). This could be rotary wing (helicopter) or fixed wing aircraft.

Approximately 3993 fixed wing flights use the ECCA and approximately 600 rotary wing flights depart from the ECCA. The rotary aircraft deliver the patient directly to the hospital site and do not currently bring patients into ECCA.

Unfortunately data is not available that identifies what type of patients are brought to ECCA (trauma, obstetrics, pediatrics, medical) but discussions with the clinicians interviewed indicates that about 350 adult trauma patients that are time critical (defined as red) currently arrive by fixed wing aircraft to ECCA. The remaining patients are stable trauma or medical (defined as yellow), booked procedures at Edmonton sites, scheduled diagnostics at Edmonton sites, etc.

Some patients are also transferred by specialty transport teams (Pediatric and Neonatal) where the Edmonton based teams are transported to another hospital to bring back a patient. In this case the team stabilizes the patient at site of pick up and transports the patient, accompanied by the specialty team, back to either the Stollery Children's Hospital (PICU) or the one of four sites for NICU, for further management.

Current Operations

When central and northern Alberta rural health services determine they cannot meet the needs of the patient in the local facility, and the patient is in critical condition (life or limb threatening), the facility initiates a call to the Critical Care Line in Alberta Health Services, Edmonton area. The Critical Care Line operates 24/7 and provides rural physicians with a direct link to trauma, critical care, pediatric, neonatal, cardiology and other specialists. The rural physician receives advice on how to stabilize the patient and concurrently the Provincial Flight Coordination Centre is brought in on the call to assist with determination of mode of transport. The patient may be moved to Edmonton sites by ground, rotary wing aircraft if within 250 km, or fixed wing aircraft. If by either air ambulance mode, the flight is dispatched by PFCC. The sending and receiving physicians determine the best site in Edmonton to treat the patient depending on condition and the PFCC and CCL ensure transport is booked and launched. Should the patient status change in flight, the medical crew can again link to the specialist physician for further treatment advice. If the call from the rural facility goes directly to STARS then STARS links in through the Critical Care Line to ensure Edmonton sites are aware of incoming patients and STARS will be directed to the appropriate site for landing.

If the patient is located in a rural site where there is a fixed wing base, the patient is transported from the local hospital by ground ambulance, then flown to Edmonton, transferred again to ground ambulance and moved to the site where care will be provided. (4 transfers – originating site to ground, ground to air, air to ground and ground to Edmonton site)

If the patient is located in a rural site where there is no base, the fixed wing aircraft must fly to the nearest airport and the patient is transferred by ground to the air ambulance, brought to ECCA, transferred to ground ambulance and moved to site where care will be provided. (4 transfers as above and additional wait time for fixed wing ambulance to arrive).

If the patient is transferred by rotary wing aircraft, STARS can land at scene (in the case of accident) or local hospital and the patient is transferred to the aircraft. The aircraft lands on the receiving site helipad and STARS transfers the patient to the hospital staff. (2 or 3 transfers depending on where patient is picked up).

Time to transport is impacted by the location of the patient, the location of the aircraft, the time to stabilize patient ready for transport, destination site in Edmonton, and other factors such as weather.

Most of the adult trauma patients go to the UAH (60%) with the remainder being sent to the RAH. Pediatric patients go to the UAH/Stollery and neonatal patients to the RAH, Stollery, Grey Nun’s and Misericordia Hospitals.

Potential Future Operations

Should the ECCA be closed – air ambulance flights would be relocated to the EIA. For rotary wing aircraft, the relocation would not add significant time to reach the patient. The rotary aircraft deliver the patient directly to the receiving site. Currently there are approved helipads at the UAH site and the RAH site. However the RAH site does not meet Transport Canada guidelines and will be potentially shut down in the near future and would remain closed pending upgrades planned by AHS.

This poses significant concern for rotary wing air ambulance patients destined for the RAH. The concept that a heliport may be maintained at ECCA is welcomed by the clinical community. Patients transported by STARS could land at ECCA and be moved by ground ambulance to the RAH site which is a short distance away. It should be noted that this will be an additional cost to the health system; this cost should be alleviated with the planned upgrade to the heliport on the RAH site.

For the fixed wing ambulances, relocating the flights to EIA does not pose a concern for patients with scheduled procedures and diagnostics, or for stable incoming patients. This is the majority of patients arriving by fixed wing according to PFCC verbal information received. For the patients that are unstable, the additional transport time from the EIA could potentially impact the patient status. However, what is crucial is the total transport time– from when the call is received from rural Alberta, to when the patient receives trauma care from the specialists in the tertiary sites. Stakeholders consulted all agree that significant opportunity exists to further integrate and improve the current transport system for these patients.

With the consolidation of all health regions under Alberta Health Services as of April 1, 2009, and with the transfer of ground ambulance services from the municipalities to AHS effective the same date the system can now work ‘as one’ to move patients between sites in Alberta. Rotary wing air ambulance is also under contract to AHS. Fixed wing air ambulance contracts remain under Alberta Health and Wellness but consideration is being given to transfer those contracts to AHS in the future.

With the new EMS model effective April 1, there exists a single medical oversight model for the first time in Alberta. One provincial Medical Director and 5 area Medical Directors oversee the care provided in the fixed wing and rotary wing system, as well as the ground ambulance. Clinicians interviewed are pleased with this development as they observed in the past that patients were not always well managed clinically during fixed wing transport. Now those observations can be directly communicated to the local EMS Medical Director who can ensure training and quality improvement initiatives are actioned to improve patient care.

Additional time for patient transport from ECCA and EIA

Many different numbers have been quoted with respect to the time for transport from EIA in comparison to the current time to transport from ECCA. No good data exists that gives definitive times to move critical patients by lights and sirens ground transport to the 2 Edmonton trauma/ PICU/NICU sites that take the majority of the critical patients.

Data was requested from Parkland Ambulance which was the municipal system that responded to the 911 calls received at the EIA for 2008. Data was also obtained from Interhospital Ambulance Services, a private provider of ground ambulance services that moved air ambulance patients from both ECCA and EIA. The majority of patient movement included in this table is not lights and sirens so **future transport time of critical patients from EIA would be less than the figures noted below.**

Transports from EIA	Average Parkland transport time	Transports from EIA	Average IHAS transport time
Parkland Ambulance to UAH - 17	27:26 (2 lights and siren transports included in this group at 19:52 and 21:48 respectively)	IHAS Ambulance to UAH - 28	25:62 (no lights and sirens)
Parkland Ambulance to RAH - 9	44:33 (no lights and siren transports)	IHAS Ambulance to RAH - 2	37:84 (no lights and sirens)

Edmonton EMS from ECCA	Average Transport time	
ECCA to UAH – 258	17:51	
ECCA to RAH – 86	8:38	

Ground ambulance transport from EIA is approximately 10 minutes longer to the UAH/ Stollery site and transport to RAH approximately 30-35 minutes longer using the limited data available.

There are a number of suggested ways to mitigate additional transport time. The additional transport time could be reduced by using ambulance s with lights and sirens from EIA and using technology to coordinate the lights at all intersections to accommodate incoming ambulances.

Some large metropolis areas with high population density and trauma centers in the city core, rather than distributed in urban areas, use helicopters to move patients from airports direct to trauma sites thereby reducing transport time encountered with ground movement. This would require a similar number of patient transfers from one form of transport to another– local hospital to ground to fixed wing to helishuttle to hospital and would serve to reduce transport times. The cost of helishuttle operations would need to be developed by AHS.

Travel time from EIA to	Helishuttle	Ground ambulance
UAH/Stollery	12 minutes	26 minutes
RAH	13 minutes	42 minutes

The travel time is substantively reduced using the helishuttle. Whether ground or rotary transport is used, the fixed wing crew needs to transfer care to the next phase. The estimated time for this is approximately 10 minutes. Therefore total transfer time for the UAH would be 22 minutes for the helishuttle and 36 minutes for ground ambulance; the total transfer time for the RAH would be 23 minutes for helishuttle and 52 minutes for ground ambulance.

Please refer to Timelines for Transfer in Appendix VII for visual representation of full transport times using various modes of transport.

With coordinated dispatch soon to be available in Alberta, EIA would be made aware of incoming medevac flights requiring immediate transfer to a tertiary centre. Ground or helishuttle crews under the single direction of AHS could be waiting at EIA in a purpose built facility to house 24/7 ground ambulances, provide crew rest areas for fixed wing aircraft medical crews and or helishuttle crews, and facilitate patient transfer in appropriate facilities . Patients would be immediately transferred to the ground or helishuttle crew which would release the transport paramedics, and the fixed wing aircraft, for immediate deployment. These resources could be available for another patient pickup, or could be used for patients waiting for transport back to hospital locations in northern Alberta.

Specialty Transport Teams

There are two specialty transport teams in Edmonton that use fixed wing aircraft and rotary wing aircraft to take teams to rural sites in central and northern Alberta to stabilize critical infants and children prior to transport to specialty hospitals in Edmonton. The specialty teams provide care at the local hospital, and during the return flight and subsequent ground transport to the Edmonton hospitals.

Currently the teams assemble at the Stollery Children's Hospital (on the UAH site) for the Pediatric Transport team and some of the Neonatal Transport team flights, or the Royal Alexandra Hospital for some of the Neonatal Transport flights. Once the teams are assembled on site, they are transported, along with their specialized equipment, by ground ambulance to the ECCA where they currently depart from. Both teams use fixed wing and rotary transport.

The fixed wing flights for the PICU team are 120 per year; 30 flights are by rotary wing. These 150 trips account for 75% of the team volume; the remaining trips are by ground. The air transports for NICU team are 193 in total; 171 by fixed wing and 22 by rotary wing (2008 data). Approximately 5% of the specialty team fixed wing transports would be time critical on the incoming flight (15 patients).

For the neonatal patients, the calls come through the Critical Care Line, the acuity of the patients is determined which determines method of transport along with the travel distance, the ground ambulance picks up the team at either the UAH or RAH depending on where the transport nurse Is located for that shift and proceeds to the ECCA.

If the fixed wing flights relocate to the EIA there will be a longer transport time to get the outbound team to the airport. Stakeholders interviewed note that communication, team preparation, etc (day to day delays) occur now and the additional transport time would probably not adversely affect the quality of care. The outbound delay would be evident for the approximately 290 fixed wing flights. Both teams indicated the need for timely ground transport to and from the airport as a key consideration in total transport time, and suggested the need for dedicated or immediately available ambulances.

If the EAA maintains a heliport at the ECCA, the approximately 50 team transports by rotary wing could still be picked up at the ECCA.

On the return flights, where the NICU team returns with the infants, the patients are currently sent to a variety of hospitals in Edmonton. Very small premature and sick infants go to the RAH, less ill and babies that are premature but with a greater birthweight go to the Grey Nun's and Misericordia Intermediate care units, and infants with significant complications requiring treatment and surgery (example – cardiac or heart) go to the Stollery Children's Hospital.

Data related to mode of transport and site of treatment are not available. Data is available that reflects the patient distribution for total transports (ground and air). Currently the distribution is 51.5% to the Stollery, 27.9% to the RAH, and 20.6% other sites. Thus the majority of patients are transported to hospital sites readily accessible by ground transport from EIA (Stollery, Grey Nun's and Misericordia)

The critical infants are stabilized at the originating site by the team before transport; therefore additional time for ground transport upon arrival to EIA (versus ECCA) would probably not adversely affect the quality of care according to sources interviewed. The concept of an available heli-shuttle noted earlier would by beneficial as back up to the potential occurrence of a critical incoming patient.

For the Pediatric Team the process is similar with incoming calls through the Critical Care Line, acuity is determined which determines mode of transport and team composition. The team is taken by ground ambulance to the ECCA for departure by either rotary wing or fixed wing. The Transport team stabilizes the patient at the originating site and then returns to Edmonton.

All of the PICU patients are taken to the Stollery Children's Hospital. Those by rotary wing would be delivered directly to the helipad on the UAH site; those by fixed wing are currently taken to ECCA and transported by ground to the Stollery.

With the potential relocation of the fixed wing flights to the EIA, and the additional ground transport time of 10 minutes, there is concern that for some pediatric patients (example head injury), the longer the patient is in the transport environment, or the more frequently the patient is transferred from one mode of transport to another (air to ground) - the greater the risk to the patient. This risk is difficult to quantify.

Organ Transplant

Organ transplants are currently performed at the UAH/Stollery Hospitals. Incoming flights with donor organs are time sensitive and may be impacted by longer transport times. The additional estimated 10 minutes to UAH Stollery from ECCA may not affect some organs such as liver and pancreas which can withstand longer time in transport. Of concern are the donor hearts which are time critical.

Flights arriving with donor organs currently arrive at both the EIA and ECCA; if the ECCA is closed and incoming flights are directed to EIA – donor hearts would need to be moved using the helishuttle concept noted earlier. This would mitigate the longer transport time as the heart could be delivered directly to the UAH/ Stollery site. This would result in extra cost to AHS so would need to be evaluated vis a vis lights and sirens ground ambulance transport. The helishuttle transport time from EIA would be 12 minutes air travel compared to the 17 – 18 minutes travel time by ground currently from ECCA , or 26 minutes by ground from EIA.

Date	Total Flights	EIA	ECCA
April 06 - March 07	**102**	**26**	**76**
April 07 – March 08	**107**	**40**	**67**
April 08 – June 2008	**20**	**6**	**14**

Queries by stakeholders re EIA/response by EIA

A number of stakeholders interviewed had queries related to how the Edmonton International Airport would manage medevac flights. These questions were posed to EIA and the responses are noted below:

Medevac and Airport Infrastructure Information

Recognizing that Medevac concerns have been raised specific to airport infrastructure, Edmonton Airports provides the following information to describe how expanded Medevac services at EIA would be facilitated.

Operating Costs

Q Will Medevac Operating Costs be more expensive at EIA?

A. Overall operating costs for Medevacs operating out of EIA vs. ECCA for landing, hangarage, and other fees will be the same or lower at EIA than ECCA (both fixed wing and helicopter).

1. Landing Fees (per landing) based on MTOW of 6,000kg (King Air):

   ECCA - $30.00 (5.00/1000kg) + Landed Seat Fee ($12/seat) ($120.00) = $150.00 (30.00 minimum fee at ECCA)

   EIA – $50.00 (minimum fee) would apply to this aircraft. Landing Fees are assessed at the greater of $4.29/1000kg or a minimum of $ 50.00.

2. Hangar costs:

   Inquiries to develop a dedicated facility: EIA has received several serious inquiries from developers interested in building a new dedicated Medevac facility at EIA. EIA would work closely with the developer to enable the design and development of an operationally efficient, state of the art facility that is fully integrated into regular airport operations and allows excellent ground vehicle (including ambulance) access from the facility to and from the QE2 Highway.

   Operating Costs: Operating costs for new buildings are typically lower than older buildings found at the ECCA site. One would expect that unit operating costs at this facility will be less, dependent on the type and size, and amenities of the new facility that is ultimately built.

   Overnighting aircraft: The home base for Medevac operators is generally in the origin community (versus Edmonton), and therefore the need for hangar space is only for those limited times when the aircraft must overnight or when unplanned repairs are required. In these cases, and even in advance of a dedicated facility development, there is some capacity immediately available at the new Executive Flight Center hangar at EIA.

Priority

Q. Will helicopters get priority at EIA, like they do at ECCA and selectively, from Calgary?

A. Yes. Medical flights are provided priority at all airports in Canada through communication with NAV Canada. NAV Canada's own internal Operations Manual provides national direction regarding medical flights and how to deal with these flights as follows:

Departures and arrivals are conducted on a first come, first served basis, however exceptions are based upon a priority system:

- Aircraft who have declared an emergency
- Aircraft in a state of emergency but are unable to communicate with NAV Canada
- Medical flights

Q. Will the additional scheduled traffic and increased activity at EIA slow down helicopter (and/or fixed wing) access as compared to ECCA?

A. No. Since medical flights are provided priority landing, the increased activity at EIA would not affect arrival times for fixed wing aircraft. Helicopters do not use the same approach procedures as fixed wing and can be brought in perpendicular to the runway to land on an apron area, with no impact from scheduled traffic.

Rotary Facilities

Q. How would a helipad at ECCA be maintained?

A. Maintenance of a helipad would be similar to how the helipad is operated and maintained at airports today. The required refueling capabilities and other ground handling and maintenance would be provided by the operator or through an agreement with a Fixed Base Operator (FBO).

Helipad vs. Heliport

Q. What is the difference between "helipad" and "heliport"?

A. Helipads and heliports are operated differently. Operations of both are regulated by Transport Canada through a separate Transport Canada standard. Heliports have terminal buildings, scheduled services and normally run through a Fixed Based Operator. A helipad would have a similar infrastructure but without the scheduled service.

Fuel would be provided by the users of the facility as well as ground services. Hangars could be provided by a developer but more likely by the users of the facility. For example, STARS currently owns a hangar at ECCA and would continue to supply their own fuel and ground services if they operated from a helipad at ECCA. They could also partner with other users to cost share these services.

Alternate locations

Q. Would Medevac flights from Yellowknife have sufficient fuel capacity to fly to EIA, using Calgary International Airport as their alternate, without having a fuel stop enroute?

A. Information provided from Medevac operators confirms that there are some aircraft used for Medevac operations that would not require a fuel stop enroute. Where heavier aircraft are used, and when wind and weather conditions are poor, a fuel stop could be required.

Q. Could Villeneuve Airport be a destination or an alternate (instead of Calgary International Airport) for Medevac flights?

A. Yes, with investment in additional infrastructure.

Villeneuve Airport is located just west of the City of Edmonton, and has good ground access via the Yellowhead Highway (Hwy 16). This airport has 2 runways, both 3500 feet in length and is served by a NavCanada control tower, operated currently for 13 hours per day. The scale of airport use does not currently require, and therefore is not served, by equipment that enables operations during poor visibility.

A GPS approach has been developed, and is scheduled to be available for use later in 2009 once NavCanada reviews and publishes the availability. A full Instrument Landing System is not currently scheduled for this airport by NavCanada; however, if lands at ECCA were redeveloped and scale of airport use expanded at Villeneuve Airport, it is expected that NavCanada would review the need and adjust future capital programs.

For Villeneuve Airport to be a designated alternate airport for Medevac flights destined to Edmonton International Airport, investment would be required to replicate the equipment and services in place at ECCA – most notably onsite weather reporting and an Instrument Landing System.

Medevac Operations at EIA

Q. What facilities currently exist?

A. The following describes how current Medevacs are handled now and how expanded Medevacs would be handled with facilities currently available. Expanded Medevac operations would be located off Apron II/ taxi lane Sierra under the current infrastructure (as they are now). They would operate either from Executive Flight Centre or Shell Aerocentre depending upon which Fixed Base Operator (FBO) the Medevac selects. Ground ambulance would access airside by the FBO's gate or Guardhouse 2 and be escorted in via the FBO ground crew. Ambulance crews do not require security passes as they are deemed emergency services and respond directly to the aircraft. Medical crews on board or boarding aircraft are under the care and control of the pilot and

therefore do not require security passes. Pilots are cleared under their pilot license so no further security restrictions are applicable to them.

All other operations would be as it is at ECCA -- the aircraft would taxi in and park by the ambulance, the patient would be off loaded and transported by ground ambulance to the designated hospital.

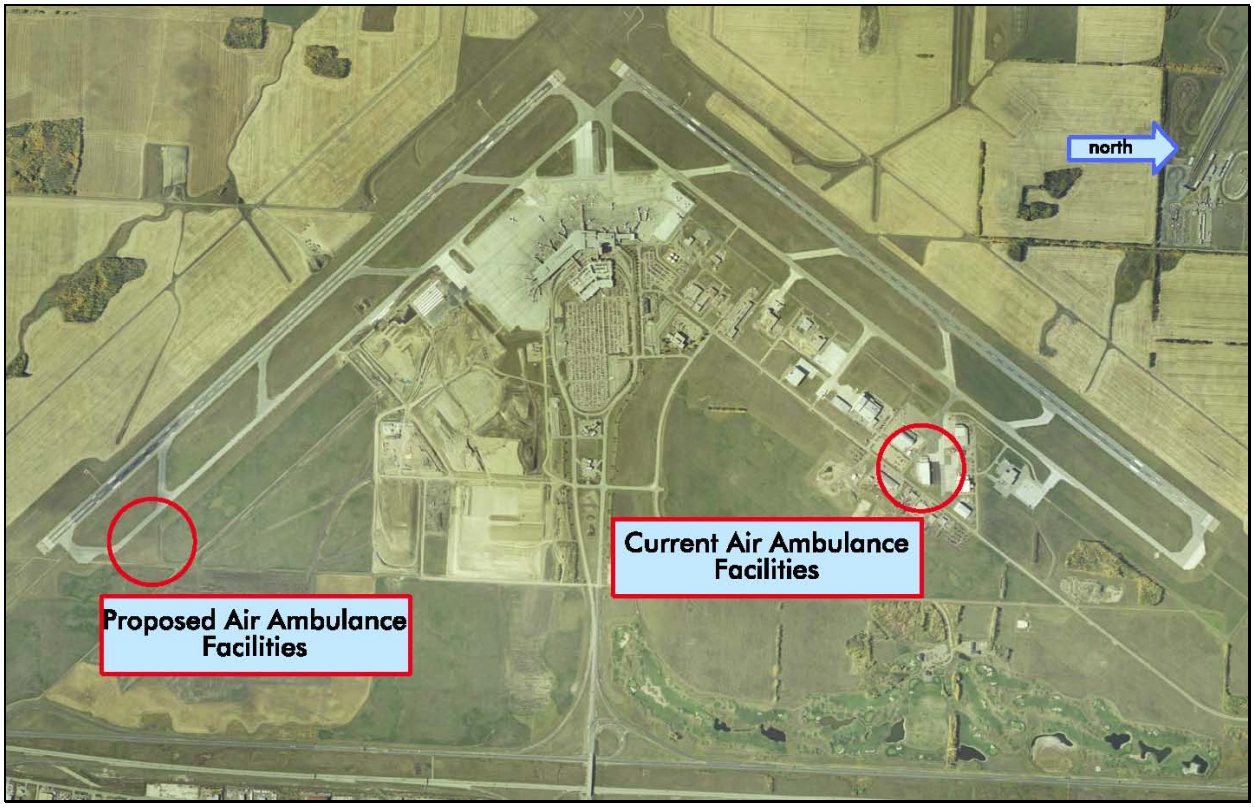
Q. Are there plans for future facilities and where would they be located?

A. As indicated above, there have been serious inquiries by developers to build a new dedicated Medevac facility at EIA. EIA would work with FBOs or Medevac providers to design and develop a facility that would be efficient in patient transfer, meeting all aerodrome standards. With a new dedicated facility, Medevacs would be co-located. Fixed wing, rotary, and ground ambulance infrastructure would be integrated and operated in a dedicated area of the airport through a dedicated facility. The design would also co-locate the gate and apron to enable an ambulance to enter without escort as long as it is under the care and control of the FBO. The location of the dedicated facility would be selected to enable premium efficient access to ground transportation (ground ambulance). Specifically, the operation of a new facility would accommodate ground ambulance via a gate allowing the vehicle and crew easy access to the aircraft. This could be completed in various ways such as allowing the gate operation to be adjacent to a staffed location so the ambulance is always under care and control to the aircraft, or by the FBO ground handling the flight escorting the ambulance. Regular ambulance attendants could be provided security access through Restricted Airport Identification Cards. In other airport locations there are restrictions with driving on airside. At a new planned facility, EIA would develop a location and system to ensure airside access is restricted to minimal traffic areas on an apron. A clear vehicle path could be provided to reduce any vehicle/aircraft interaction on the apron for ambulance attendants.

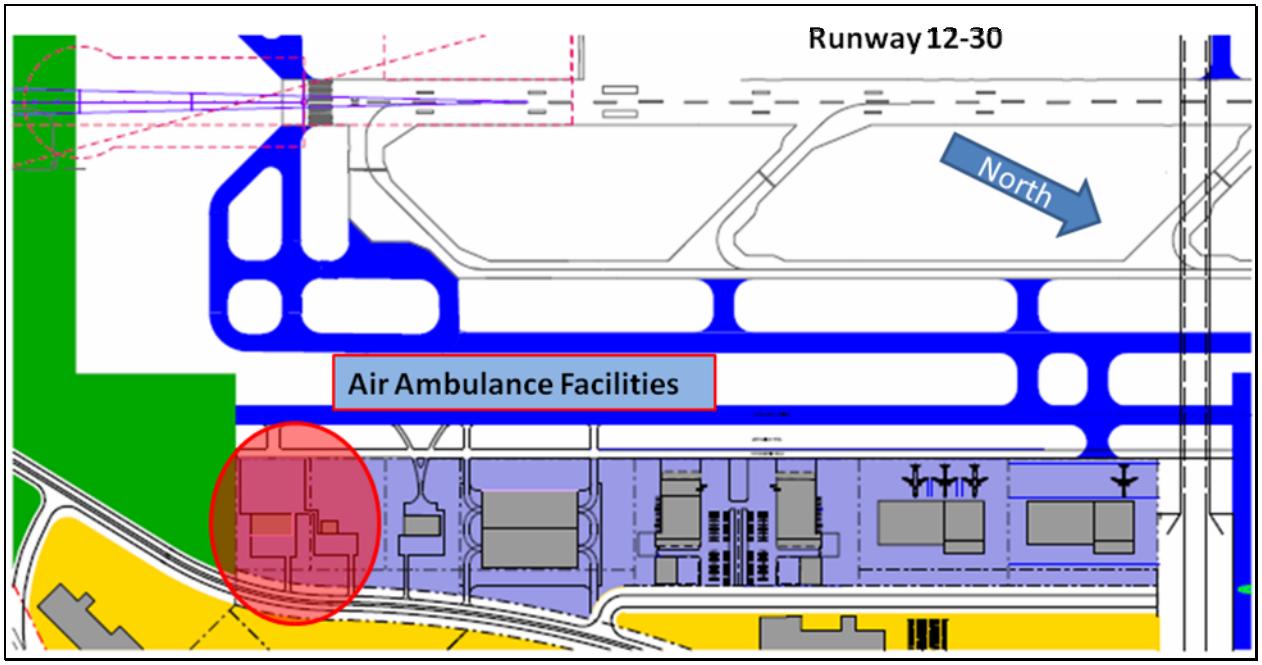
Security requirements would be consistent with those currently in place.

The maps below outline where Medevac facilities would operate.

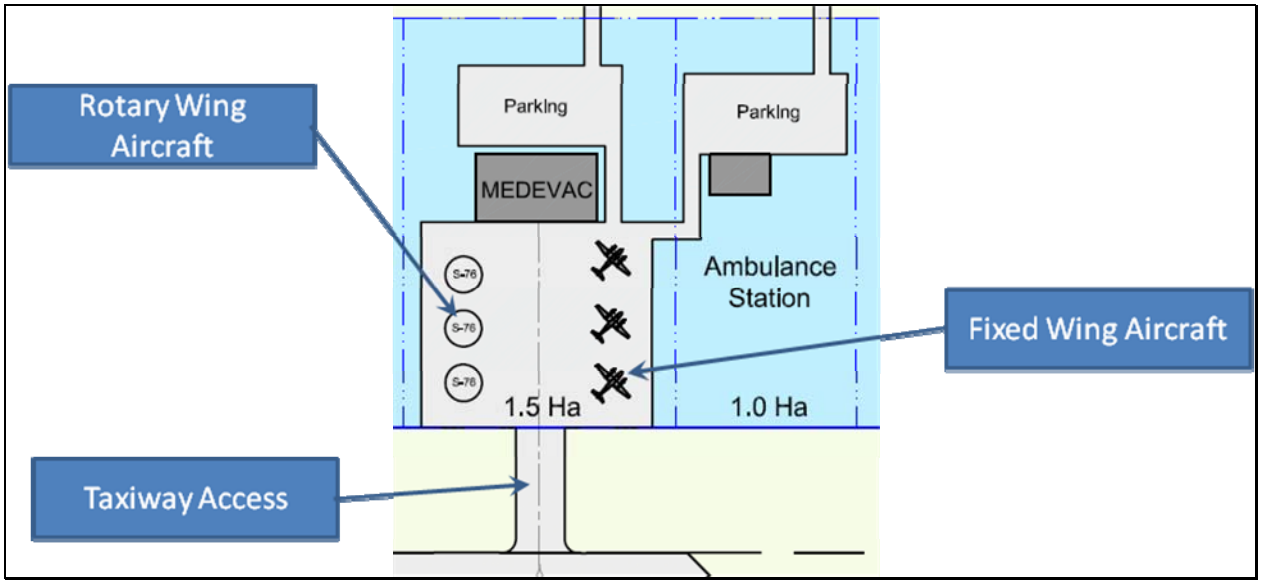
Map Showing Location of Current Facilities and Location of New Integrated Facility



New Facility



Layout of New Facility



Security

Q. Will there be additional security measures for staff, patients and medical equipment at EIA compared to ECCA?

A. The level of safety and security requirements for private, general aviation and medevac aircraft at EIA and ECCA are consistent.

Security is not an issue at EIA since security clearances are not required for emergency personnel (EMS), and medevac crew (pilots) are cleared under their pilot's license. Medical crew who may join the aircraft either on departure or arrival are considered under the care and control of the pilot and therefore do not require security clearance. For those medical personnel who frequent the airport on a regular basis, Restricted Area Identification Cards could be provided allowing independent access to any airside area required to perform their duties.

Rotary wing aircraft would continue to go directly to the hospital so no additional security regulations would apply.

Safety would be ensured with both the current infrastructure and with the development of a new dedicated facility. Under the current design, ambulances would be escorted onto Apron 2 by the Fixed Base Operator handling the Air Ambulance either through Guard House 2 or their own gate. In a new design the gate and apron would be co-located so an ambulance could enter without escort as long as it was under the care and control of the Fixed Base Operator.

Other Jurisdictions

Information is included on some other jurisdictions with integrated air and ground ambulance systems for critical care patient transport for information.

Ontario - Ornge air operations are coordinated with both rotary wing and fixed wing aircraft enabling Ornge to serve the 12.5 million residents of the province of Ontario dispersed throughout a geographic area of 1M Km2. Through a satellite-based radio system, the organization's advanced care flight paramedics and pediatric nurses have access to physicians on the ground for consultation and to receive medical orders. Ornge provides access to comprehensive, door-to-door aero medical transport. The program has 11 helicopters, 76 fixed wing aircraft operated under various service providers and 22 bases around the province, nine of which are staffed 24/7. Originally known as the Ontario Air Ambulance Service Company it began operations in January 2006. .In June of 2007, the province proclaimed the Health System Improvements Act, 2007 (Bill 171) which designated Ornge to create an integrated land and air system. Through this system, Ornge can provide inter-facility transport for patients. The dispatch of Ornge services is the responsibility of the Ornge Communications Centre (OCC). The OCC also provides medical transfer (MT) authorization numbers to each patient requiring transfer, from one healthcare facility to another within the province of Ontario. This process helps prevent the spread of infectious diseases by ensuring that facilities are advised and notified when they need to take precautions. Ornge has created the Ornge Academy of Transport Medicine. The Ornge academy offers unique opportunities including the only Canadian Medical Association (CMA) accredited Critical Care Flight Paramedic program in Canada. It also offers a CMA accredited Advanced Care Flight Paramedic program, which is designed for primary care paramedics who want to expand their scope of practice. This intensive program bridges the knowledge and skills gap between the air and land environments, enabling successful students the opportunity to work in both situations.

British Columbia – BC Air Ambulance Service provides transport of patients requiring a higher level of care. They have 3 operations centers in Vancouver, Kelowna and Prince George; they have 9 fixed wing aircraft and 3 rotary wing aircraft. They move patients to the airports and ground transport to major trauma centers in B.C. Transport times from Victoria airport to tertiary hospitals (2) are 32 minutes and 33 minutes. Transport times from Vancouver airport to tertiary hospitals (2) are 36 minutes and 22 minutes.

Calgary – transport time from Esso Avitat to Foothills Hospital (tertiary center) have averaged 29 minutes with the longest time being 51 minutes and the shortest being 21 minutes.

Denver – AirLife Denver is the medical transport system for HealthONE system of hospitals and clinics. They provide 2400 critical care transport for adult and pediatric patients and transport in an 8 state region. They have 3 helicopters, 2 Lear jets and 2 Critical Care Teams. AirLife operates their own critical care transport ambulance for the ground movement of patients. In some critical cases they use dedicated rotary wing aircraft to helishuttle patients to the tertiary hospitals to mitigate long ground ambulance transport times.

Conclusions

The current system of air ambulance transport using the ECCA would be impacted by the closure of the ECCA resulting in the need to relocate medevac flights to EIA. The purpose of this report was to present findings from stakeholder discussions and other sources about the potential system to manage the relocation of medevac flights.

The majority of the 3993 fixed wing medical flights could be relocated to EIA without much risk to the patient as they are not time sensitive patients.

However, a number of time sensitive flights into Edmonton may be impacted by a decision to relocate fixed wing and rotary wing air ambulance flights to EIA. These include approximately 350 adult critical trauma patients; approximately 15 of the 290 PICU and NICU transport team patients; as well as a subset of the 107 organ transplant flights.

A number of other jurisdictions have fully integrated ground and air ambulance systems to expedite patient transport to the facilities needed by the critically ill adult, child and infant. A number of suggestions to mitigate the additional transport time from EIA to the Edmonton tertiary flights have been suggested by stakeholders and some are included in this report such as helishuttle, dedicated ground transport for the specialty teams, appropriately built and staffed 24/7 facilities at EIA, coordinated and integrated ambulance system inclusive of dispatch, etc. These opportunities would need to be assessed and operational costs and plans developed to ensure the options discussed by clinicians would reduce transport time and improve quality of the air transport system in central and northern Alberta.

Many stakeholders note that significant opportunities exist to improve the coordination, quality and timeliness of fixed wing air ambulance patient transfers to the right place the first time. With all ground and rotary EMS services now within AHS, with a single medical oversight model for the province now in place, and the plans to coordinate all EMS dispatch (air and ground), there is an opportunity to begin planning for a fully integrated critical care transport system for patients in central and northern Alberta, and the other provinces and territories that send patients to Edmonton tertiary facilities.

Closure of ECCA and relocation of air ambulance volumes to the EIA may present an opportunity for stakeholders to work collaboratively to design a service able to meet the needs of rural Albertans transferred to Edmonton for tertiary care, and subsequently returned home for appropriate care in their local facility.

Appendix I - Institute of Health Economics – Report on Air Ambulance with Advanced Life Support

A recent report (February 2008) completed by the Institute of Health Economics in Alberta provides some valuable insight into the use of air ambulance. The Executive Summary is reproduced here and the full report is available on the IHE website - www.ihe.ca

Background
Transport of patients from the scene or between healthcare facilities maybe accomplished either by air ambulance (helicopter or fixed-wing aircraft) or by ground ambulance. All modes of transport are useful and have a role in the healthcare system. Each mode has capabilities and limitations that make it suitable for certain categories of patients and environmental and geographic conditions.

Objectives
To present and synthesize the available published research evidence on the efficacy/effectiveness, safety, and efficiency of air ambulance transportation(helicopters) with on-board capabilities of advanced life support (ALS).The intent is to use this evidence to inform provincial policy on different modalities of organization, provision, and public funding of air ambulance services for Albertans.

Results
Sixteen comparative studies, all but one retrospective, published between 2001 and 2007 compared ALS services provided by medical teams on board helicopter or ground transports for patients with trauma or medical injuries who were transported from the scene or between facilities. In general, these studies were characterized by variability in methodological details and weak design; the results were therefore highly subject to bias. The main results summarized from the primary studies are as follows.

1. **On-scene transportation**
   Trauma and injury patients: Helicopter transport response appears to improve the survival at discharge in severely injured patients (two studies)and the survival at 30 days for patients transported directly to a Level I trauma centre (tertiary trauma centre) compared with transfer to a regional hospital by ground (statistically significant results, one study), but showed no statistically significant difference in mortality rates for patients transported from the immediate vicinity of a trauma centre (city) (one study).Helicopter transport indicated no benefit for trauma patients in cardiac arrest (one study) or patients with severe cranial injuries combined with any other severely injured body region (one study). Medical patients: Helicopter transport provided earlier access to interventions and treatment at the destination for medical patients transported from distant areas within 50 kilometers from hospital (two studies) and should be used when ground ambulance cannot transport a patient with a severe cardiovascular disease within 20 minutes (one study).When the distance was greater than 16kilometers to the hospital, helicopter transport had a shorter arrival time when compared with simultaneously dispatched ground ambulance. At distances of less than

72 kilometers, ground transport was faster than or equal to non-simultaneously dispatched helicopter transport (one study).

2. Interfacility transport

Trauma and injury patients: The time interval between patients' arrival at the primary hospital and the decision to transfer the patient was approximately 2 hours irrespective of mode of transport in one study; helicopter transport did not result in faster transfer times overall when a helipad was not available at the destination centre. Secondary inter-hospital transfer by helicopter leads to favorable results in patients with intermediate injury severity but should be avoided in patients with extremely severe injuries (one study). Medical patients: Helicopter transport improved access to treatment in coronary care units for cardiac patients in one study. In another study, transport time from hospitals within a radius of 32 to 113 kilometers to one trauma centre was statistically significantly shorter by helicopter. Stable trauma and medical patients for whom the only issue is time to critical procedure may be transported by ground if it is immediately available.

Overall, patients transported by helicopter showed a benefit in terms of survival, time interval to reach the healthcare facility, time interval to definitive treatment, better results, or a benefit in general. These benefits may be more attributable to a combination of factors such as additional expertise and therapeutic options brought to the scene by the helicopter crew and a more aggressive on-site approach, or a better triage at the scene, rather than to the mode of transport. Costing information was gathered from two cost-effectiveness analyses, one cost-benefit analysis, two comparative studies, and three case series studies. One study published in Alberta found that direct transport to the tertiary care trauma centre by ground was the least expensive mode of transport for patients following trauma in rural areas, with a median cost of Cdn $494 compared with a median cost of Cdn $1,254 for transport by helicopter. Median costs increased substantially when interfacility transport was used to transfer patients to the tertiary care trauma centre from a rural healthcare facility (Cdn $2,118by helicopter versus Cdn $1,157 by ground transport). Inference of results from economic analyses to the local context may not be appropriate because of variations in factors such as case mix, relative price level, clinical practice, and distribution and availability of healthcare resources. These studies may provide useful information, however, about the models that might be adapted and applicable to local data.

Conclusions

Decisions about the appropriate mode of transport are complex, and parameters that have to be considered when transporting patients are various. These parameters involve access to the scene, the patient's condition and healthcare needs, accessibility to the most appropriate form of transport, availability of experienced crews, logistics and equipment needed during transport, safety of transport of patients and personnel, location of airstrips and helipad, environmental conditions (geographic and weather), time to nearest healthcare facility, and availability of financial resources. The planning of ambulance services is dependent on many local factors such as availability of

resources, both financial and personnel; regional density of populations; road conditions and geographic variations; and so forth. Clinically, outcomes for trauma and medical patients are mainly impacted by the services available rather than by type of transport. Generalizing research from other studies may therefore not be appropriate.

Alberta has unique political, geographical, and medical characteristics that need to be considered when deciding on the continued planning and improvement of its transportation system.

No comparative study was found on helicopter versus fixed-wing ambulance transport. One reason might be the difficulty in designing and conducting such a study, knowing that substantial differences exist between these two modes of transport. They target a different population, operate in specific environments, and have a different impact on factors such as response time or safety profile.

Another reason might be a reluctance to tie up significant resources, both in manpower and costs. In addition to this absence of studies, no study was found that compared fixed-wing with ground ambulance transport.

Based on the research evidence (and the reviewed guidelines and position papers presented in this report), the way forward for Alberta would be to implement a standardized database or registry for both trauma and medical patients. Currently, Alberta has implemented a Trauma Registry, operational since April 1995, which has a data set consisting of information on patients admitted to hospital by air or ground ambulance transport for major trauma (Injury Severity Scores equal to or greater than 12). Expansion to include medical patients would provide a more detailed picture of the provincial ambulance services. Overall planning for evidence-informed ambulance services needs to be system based, and should include staff at the receiving trauma centers, hospital emergency departments, and emergency transport dispatch centers.

Appendix II - Letters Received related to the ECCA Potential Closure

Letters previously sent to the City of Edmonton are included as an appendix to the report. Many of the authors of these letters were consulted as stakeholders in the preparation of this document.

DR. SUNIL SOOKRAM
MD, FRCPC
Associate Clinical Professor
Dept. of Emergency Medicine,
University of Alberta
Medical Director Edmonton EMS
& Fire Rescue
Alberta Provincial Air Ambulance
Medical Director

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February 4, 2009

Harvey Crone
Executive Director
Program Management
Deputy City Manager's Office
3rd Floor, City Hall
1 Sir Winston Churchill Square
Edmonton, AB
T5J 2C3

Dear Mr. Crone,

RE: Assessment by Edmonton EMS Medical Director On Impacts to Air Ambulance/ Medivac Service by Closure of Edmonton City Centre Airport

Thank you for meeting with me on Feb 4, 2009 and outlining the Edmonton City Council's request for my assessment of potential impacts upon Air Ambulance service if the Edmonton City Centre Airport (ECCA) is closed. After hearing about your request, I sought out the opinions of several medical stakeholders within Capital Region to get their perspective on this potential change in patient management.

I was able to interview and ask several medical leaders in the region their opinion. All are identified in Appendix A and all were in the process of writing letters describing their positions to Mayor Mandel. All stakeholders universally identified that in patients with time dependent injuries or illness, the longer prehospital transport time may have an adverse effect upon outcome. The majority of air ambulance/medivac transports into the region are fairly stable patients. They are patients coming into region for specialist consultation, diagnostic testing or admission to hospital as their local hospital does not have the resources or expertise to manage their medical conditions within their own respective region. However, a significant number are brought into the Edmonton region with illnesses or injuries that need timely management by specialist services only available in the two tertiary care sites in the province - Edmonton and Calgary. It must be acknowledged that Capital Health resources provide tertiary level care to a large catchment area. Capital Region, which will be called Edmonton Zone under the new incoming Alberta Health Services structure, provides support to: northern British Columbia; the North West Territories; the Yukon Territory; northern Saskatchewan; northern Alberta; and southern Alberta extending down to Red Deer. The population supported is well over 2 million people. With such a population served, a number of these patients will have illness or injuries where timely care will make a difference (Appendix B) in their outcomes.

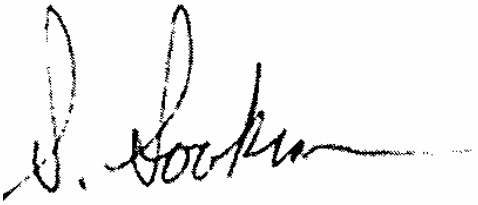
Migration of air transport of critically unwell patients with time dependent illness to the Edmonton International Airport (EIA) may lead to prolonged out of hospital times. Continued regionalization of health care resources in Edmonton Zone, had led to subspecialty services being focussed and located at only certain hospital sites within the zone and nonexistent elsewhere. For example, high risk obstetrics is located only at the Royal Alexandra Hospital. This site is furthest away from the International Airport and could compromise optimum care for an EMS crew with a labouring mother close to delivery. The ground transport leg from the EIA to hospitals can be quite lengthy and may lead to increased patient morbidity or mortality if there is delay in definitive medical care. In addition, the prolonged ambulance trip with unstable patients with units going "Lights and Sirens" does contribute towards increased incidence of accidental collision with the emergency vehicle based upon existing medical literature. If a longer distance is required to be travelled, there will be an increased risk of injury to EMS personnel; to patients and families being transported; and to community members in cars and pedestrians trying to get out of the way or unaware of the emergency vehicle. Many steps have been employed to reduce distance and incidences of needing to travel "lights and sirens". However, it continues to be a large source of injury among EMS personnel and litigation against EMS systems as a result of accidental collision with other vehicles. Recently, in Parkland County in late 2008, patients and EMS crew members were injured in an accident involving emergency vehicles transporting patients "lights and sirens" to Edmonton. As a result of this tragedy, Edmonton Zone EMS administration is working on creating policy mitigating and reducing "Lights and Sirens" transport. This will reduce the risk to EMS personnel and the community at large. However, this may prolong the out of hospital time for patients with time dependent issues even more with extended travel from the EIA.

There may be ways to mitigate the delay in transport to definitive care if the decision is made to close the ECCA. First of all, promotion and advocacy for high quality, well trained critical care transport teams as the standard of care will ensure a high level of out of hospital care is delivered to these patients. Furthermore, if the roadway from the International Airport to the University Hospital was configured with technology to ensure the lights were green for ambulance traffic driving "lights and sirens" transport, this would facilitate rapid ground transport the longer distance. For ambulances having to travel to the Royal Alexandra Hospital, an agreed to route with the same technology employed could reduce out of hospital times. When available, the use of rotary wing transport (STARS) to transfer patients from the International Airport to the rooftop of the University Hospital or alternate hospital would help alleviate lengthy ground transport times especially at peak rush hour time periods. With the new, larger STARS helicopter, the rooftop of the Royal Alexandra Hospital would no longer be a designated landing zone, so availability of a landing zone/heliport close to the Royal Alexandra will mitigate transfer times to this site. Currently, the American Federal Aviation Association is investigating the increased rate of aviation accidents involving rotary wing air medical transport in the US. With potential increased rotary wing transport from the International Airport to the hospitals within region, there may be a higher risk of an aviation incident happening here in Edmonton. The Canadian Air Ambulance record has never been as comparable to that of the United States. To date STARS nor ORNGE in Ontario (the largest rotary wing air medical systems in Canada) have had no incidents.

In summary, the potential closure of the ECCA may adversely affect morbidity and mortality in the smaller subset of patients transported by Air Ambulance/Medivac that have time dependent illness or injury. There are ways to mitigate the increased risk of adverse outcomes

that have been identified, but with the increased out of hospital travel by ground EMS units there may be potential risks of accidental collision with the emergency vehicle. The written opinion of several medical leaders within Edmonton Zone will be sent directly to the Mayor's Office for review.

Sincerely yours,



Dr. Sunil Sookram

Appendix A

Medical Stakeholders Within Capital Region

Dr. Noel Gibney, MD, FRCPC, Head of Division of Critical Care Medicine, Capital Health
Dr. Mary Stephens, MD, FRCS, University of Alberta, Regional Trauma Program Director
Dr. Ruben Hansen, MD, FRCPC, Department Head Emergency Medicine, Royal Alexandra Hospital
Dr. Allan DeCaen, MD, FRCPC, Medical Director, PICU Transport Team, Stollery Children's Hospital
Dr. Greg Powell, MD, FRCPC, CEO STARS Air Ambulance
Dr. Blair O'Neill, MD, FRCPC, Head of Division of Cardiology, University of Alberta

Appendix B

Examples of Time Dependent Conditions, Illnesses or Injuries Where Early Medical Management May Reduce Morbidity and Mortality

Trauma

1. Intrabdominal hemorrhage from penetrating or blunt trauma to abdomen
2. Intracerebral hemorrhage from traumatic head injury
3. Intrathoracic hemorrhage from penetrating or blunt trauma to chest
4. Open fractures to the long bones of the body

Medical/Surgical Illness

1. Sepsis (early goal directed therapy improves morbidity and mortality)
2. Acute ST Elevation Myocardial Infarction (early Primary Percutaneous Coronary Interventions evolving into standard of care)
3. Perforation of intrabdominal viscus
4. Massive gastrointestinal hemorrhage
5. Rupture of abdominal aortic aneurysm
6. Acute stroke (< 3 hrs) will be eligible for administration of TPA
7. Acute ischemic limb
8. Harvesting organs for transplant (Heart, Lung, Liver - out of body time must be kept to a minimum to maintain the organ)
9. Ectopic pregnancy with hemorrhage

Medical Conditions

1. HIgh risk obstetrical

February 3, 2009

Mayor Stephen Mandel
2nd Floor, City Hall
1 Sir Winston Churchill Square
Edmonton, Alberta
T5J 2R7

Dear Mayor Mandel:

Re: Proposed closure of the Edmonton Municipal Airport and its impact on the transport of critically ill and injured children into Edmonton

Each year the Stollery Children's Hospital Pediatric Intensive Care Transport Team transports 150 critically ill and injured children to Edmonton via helicopter (STARS) or plane for on-going care at the Stollery Children's Hospital. These children are suffering from life-threatening conditions where the timely access to Stollery's tertiary care services is crucial. The majority of these children are transported by plane from other Central and Northern Alberta communities, and the proximity of the Municipal airport to central Edmonton hospitals such as Stollery allows for these children to receive emergent medical and surgical intervention without delays that might worsen outcome, including the chance of survival itself.

The movement of fixed wing services away from the Municipal airport site will necessitate the added transport of children from outside of Edmonton proper (ie. The International Airport at Leduc) by either ground ambulance, or the use of additional aeromedical transport (ie, STARS) of children from the International Airport to the Stollery site. This will add an additional 30 minutes (minimum) to the pre-hospital care of these children.

The point to be made is that even in the hands of aeromedical transport experts, longer inter-hospital transport times are associated with increased risk to the patient. This translates to an increased rate of complications to patients, or at worst an increased likelihood of a child's death due to delayed access to the tertiary care services of our Children's Hospital.

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Mayor Stephen Mandel February 3, 2009

I would strongly encourage City Council to consider the implications of their decision on this matter when it comes to the health of the most vulnerable members of our society; critically ill and injured children.

Sincerely

Allan de Caen MD FRCP(C)
Medical Director, PICU Transport Team
Stollery Children's Hospital
Clinical Associate Professor, Dept of Pediatrics, University of Alberta

UNIVERSITY OF ALBERTA

January 17, 2009

Mayor Stephen Mandel
Office of the Mayor
2nd Floor, City Hall
1 Sir Winston Churchill Square
Edmonton, Alberta T5J 2R7

Dear Mayor Mandel,

I am writing to you as Professor and Division Director for Cardiology at the University of Alberta Hospital, Mazankowski Alberta Heart Institute. We are very much concerned about the potential closure of the Municipal airport. This ideally located central airport is closest to the tertiary care centres in Edmonton and is an important resource for critically ill northern Albertans requiring the services only offered here in Edmonton. We are the Cardiac Transplant Centre for Western Canada. Donor organ retrieval is done through the Municipal airport since minimizing transport time is essential to the best outcomes. Frequently, critically ill patients are flown to this airport which is closer to the University of Alberta Hospital for life saving cardiac treatments. Virtually daily, many patients presenting with heart attacks in northern Alberta are routinely flown to this airport to undergo lifesaving cardiac catheterization at either the Royal Alexander Hospital or the University of Alberta Hospital. The very short transport times and less traffic to contend with make this airport extremely important to these critically ill patients.

Because of Alberta's vast geography and harsh weather, it is necessary to fly patients with fixed wing aircraft rather than by helicopter which can land on the Mazankowski itself. The Edmonton International Airport is a long transport time to either University of Alberta Hospital or the Royal Alexander Hospital. In a condition where time is of the essence, it does not make sense to lose the Edmonton Municipal airport.

I urge you to work with your provincial colleagues to maintain the viability of the Edmonton Municipal airport.

Many thanks for your urgent attention to this matter.

Respectfully,

Blair J. O'Neill MD FRCPC FACC
Professor of Medicine
Director, Division of Cardiology

cc: Honourable Ed Stelmach
Honourable Ron Liepert
Mayor Cathy Olesen
Mayor Ken Lemke
Mayor Nolan Crouse
Mayor Greg Krischke
Mayor Stuart Houston
Dr. Kerry Pawluski
Dr. Raj Sherman

Blair J. O'Neill, MD, FRCPC FACC
Professor of Medicine
Director, Division of Cardiology, Department of Medicine
University of Alberta Hospital
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Telephone (780) 407-6353 Fax (780) 407-6032 email: blair.oneill@capitalhealth.ca

September 12, 2008

Honorable Stephen Mandel
Office of the Mayor
2nd Floor, City Hall
1 Sir Winston Churchill Square
Edmonton, AB T5J 2R7

Dear Mr. Mandel:

Re: Closure Edmonton Municipal Airport

It is with concern that I write regarding the considered closure of the Edmonton Municipal Airport. As *Medical Director of Trauma, University of Alberta Hospital*, I know that this airport has been vital in expediting transfer of injured Albertans to the higher level of care available in Edmonton. Some injuries cannot be managed in smaller centres as the necessary expertise and resources are not available.

Injury unfortunately is a huge problem in this province. Many injuries are minor and can be managed at smaller centres. Unfortunately many severe injuries in Northern Alberta are time-sensitive in nature, meaning surgical expertise available only in Edmonton is required in a timely manner (within hours). If this does not occur death or life-long disability (lost limb, severe head injury, etc) may result. Because of Alberta's geography, these patients must be transferred by air ambulance. Should these air ambulance transfers go through the International Airport, an extra 45 min delay in treatment will occur.

Over the past years the Edmonton Municipal airport has allowed transfer of 330-360 injured patients per year (of which 75% are severely injured). These are patients who clearly would have been compromised (i.e. potential deaths or increased long term disability) had there been further time delay in arrival to the City trauma centres.

With the implementation of a **Provincial Trauma System**, the importance of the municipal airport in facilitating timely transfer from peripheral trauma centres for those patients needing the expertise available only in Edmonton is increasingly vital. Although we all hope to never need the use of our provincial trauma system, it must work efficiently if we or our loved ones ever do need it. We should not accept death or disability that can be prevented.

The cost of lost Albertan lives and severe avoidable disability must be factored in to the decision to close the municipal airport. I would be happy to discuss this further with you, or indeed to present our case further.

Sincerely,

Mary vanWijngaarden-Stephens, MD
Director Trauma, UAH
Chair, Alberta Committee on Trauma ACS

ms
cc: Debbie Gordon
Mary Lou McKenzie
Kim Kostiuk
Dr. Sunil Sookram
Gordon Clanachan, Chair, Board of Directors,
Edmonton Airport Authority

Dr. Ruben Hansen
Site Chief, Emergency Medicine

Royal Alexandra Hospital
10240 Kingsway Avenue
CSC, 5th floor, #567
Edmonton, AB T5H 3V9

Office: 780-735-5871
E-mail: ruben.hansen@capitalhealth.ca

February 12, 2009

Mayor Stephen Mandel
2nd Floor, City Hall
1 Sir Winston Churchill Square
Edmonton, Alberta
T5J 2R7

Dear Mayor Mandel:

I have been made aware of a motion by Edmonton City Council asking the City Manager's Office to seek out a medical opinion from Dr Sunil Sookraam, Medical Director, Edmonton EMS zone, on whether the closure of the city center airport poses any medical issues. He has asked me to provide my opinion.

The Royal Alexandra Hospital and its Emergency Department has had a long and dedicated history of providing medical care to the citizens of Alberta, northern BC and the Far North. In many cases these patients are transported to our City of Edmonton via fixed wing medical transport landing at the City Center Airport. These patients, in many cases, are critically ill, and their outcomes are dependent on the provision of timely medical care provided at the Royal Alexandra Hospital. This care is frequently initiated in the Emergency Department by our staff immediately upon arrival of the patient in our facility.

The closure of the City Center Airport will significantly increase patient transport times to our facility. This will, without question, negatively impact our ability to provide prompt, necessary medical care to these critically ill patients. Delays in the provision of life and limb saving interventions in this patient population will have a detrimental effect on long-term outcomes including survival rate and quality of life.

I strongly oppose the closure of the City Center Airport based on these views.

Sincerely,

Ruben Hansen

UNIVERSITY OF ALBERTA

Faculty of Medicine & Dentistry
Division of Critical Care Medicine
Critical Care Research

Demetrios James Kutsogiannis
MD, MHS, FRCPC

Royal Alexandra Hospital
616 CSC, 10240 Kingsway Ave
Edmonton, Alberta, Canada T5H 3V9

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Tel: 780.735.4096
Fax: 780.735.4032

July 30, 2008

Office of the Mayor
City Hall
2nd Floor, 1Sir Winston Churchill Square
Edmonton, AB T5J 2R7

Dear Mayor Mandel:

As Medical Director for the Human Organ Procurement Exchange (HOPE) Committee, I would like to address my concerns regarding the possibility of the Edmonton Municipal Airport closure.

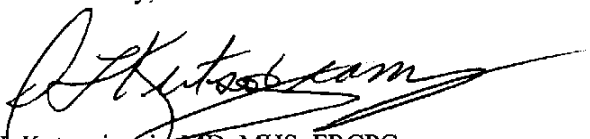
The table below shows the number of flights over the past 2 years that HOPE was involved in with either transporting or receiving organs.

DATE	TOTAL FLIGHTS	INTERNATIONAL AIRPORT	MUNICIPAL AIRPORT
April 1, 2006 – March 31, 2007	102	26	76
April 1, 2007 - March 31, 2008	107	40	67
April 1, 2008 - June 2008	20	6	14

Timelines of transporting organs necessitates close proximity of an airport to the Regional Transplant Hospital (University of Alberta Hospital). In the capacity of HOPE director, I feel that the maintenance of the Municipal Airport remains the best option for the timely transport of human organs to and from Edmonton at this time. If the public is serious about closing the Municipal Airport, what measures will be taken to facilitate the rapid transport of organs and tissues from the International Airport to the University of Alberta Hospital? Can we expect the use of a helicopter or some other form of rapid ambulance transport? It is important to ask what the value to society of organ procurement is, as demands for organs greatly outnumber the supply.

Please do not hesitate to contact me as I look forward to discuss this in further detail.

Yours Sincerely,



D.J. Kutsogiannis, MD, MHS, FRCPC
Associate Professor, Faculty of Medicine & Dentistry
Division of Critical Care
University of Alberta
Royal Alexandra Hospital
10240 Kingsway Avenue
Edmonton, AB T5H 3V9

DJK/ck

Appendix III - Definitions

**__medevac__ - the removal of injured people from the scene of their injury to the nearest hospital or place of treatment by helicopter or airplane*

Appendix IV - Abbreviations

AHS – Alberta Health Services

AH and W – Alberta Health and Wellness

CCL – Critical Care Line

EAA – Edmonton Airport Authority

ECCA – Edmonton City Centre Airport

EIA – Edmonton International Airport

EMS – Emergency Medical Service

NICU – Neonatal Intensive Care Unit

PFCC – Provincial Flight Coordination Centre

PICU – Pediatric Intensive Care Unit

RAH – Royal Alexandra Hospital

STARS – Shock Trauma Air Rescue

UAH – University of Alberta Hospital

Stollery – Stollery Children's Hospital

Appendix V - Edmonton International Airport Data

The airport operations section of the Edmonton International Airport was consulted regarding the frequently of use of the ECCA by aircraft identified as medevacs. The data provided by the EIA used the following criteria in their data search:

- All data collected from YXD Tower (ECCA) that included the following:
  - Where the tower comments field contains the string “med” (for medevac).
  - Where an aircraft tail number has been identified by AH and W as medevac.
  - When non-Alberta commenced scheduled service, an aircraft identified as medevac was changed to scheduled service – the flight was removed from the count.
  - Where a non-identified medevac aircraft was substituted for a designated medevac and not otherwise identified by the tower in the comments – the flight was removed from the count.

The following represents the results of the EIA data inquiry:

Total Medevac Traffic Using ECCA

Year	Total
2006	3377
2007	4232
2008	3993

2008 Fixed-Wing and Rotary Totals

Originating in Province	3686
Originating out of Province	161
Unknown	146
Total	3993

Appendix VI – Stakeholders interviewed in preparation of this report

Brenda Fischer – Senior VP, EMS, AHS

Trevor Maslyk - Manager of Suburban/Rural Operations - Edmonton Zone, AHS

Jim Garland – Director of Dispatch, AHS

Joanna Pawlyshyn - VP, RAH

Glenda Coleman Miller – VP, UAH, Stollery and Mazankowski Heart Institute

Deanna Paulsen – Organ Transplant, UAH

Nick Zouravlioff - Senior VP, Capital Projects, AHS

Tyler James and Len Stelmaschuk - AH and W, Emergency Health Services

Dr. Ken Gardener - former VP Medical Affairs, Capital Health

Dr. Sunil Sookram – Medical Director, Edmonton EMS Zone, AHS

Dr. Paul Byrne - NICU

Dr. Greg Powell– CEO, STARS

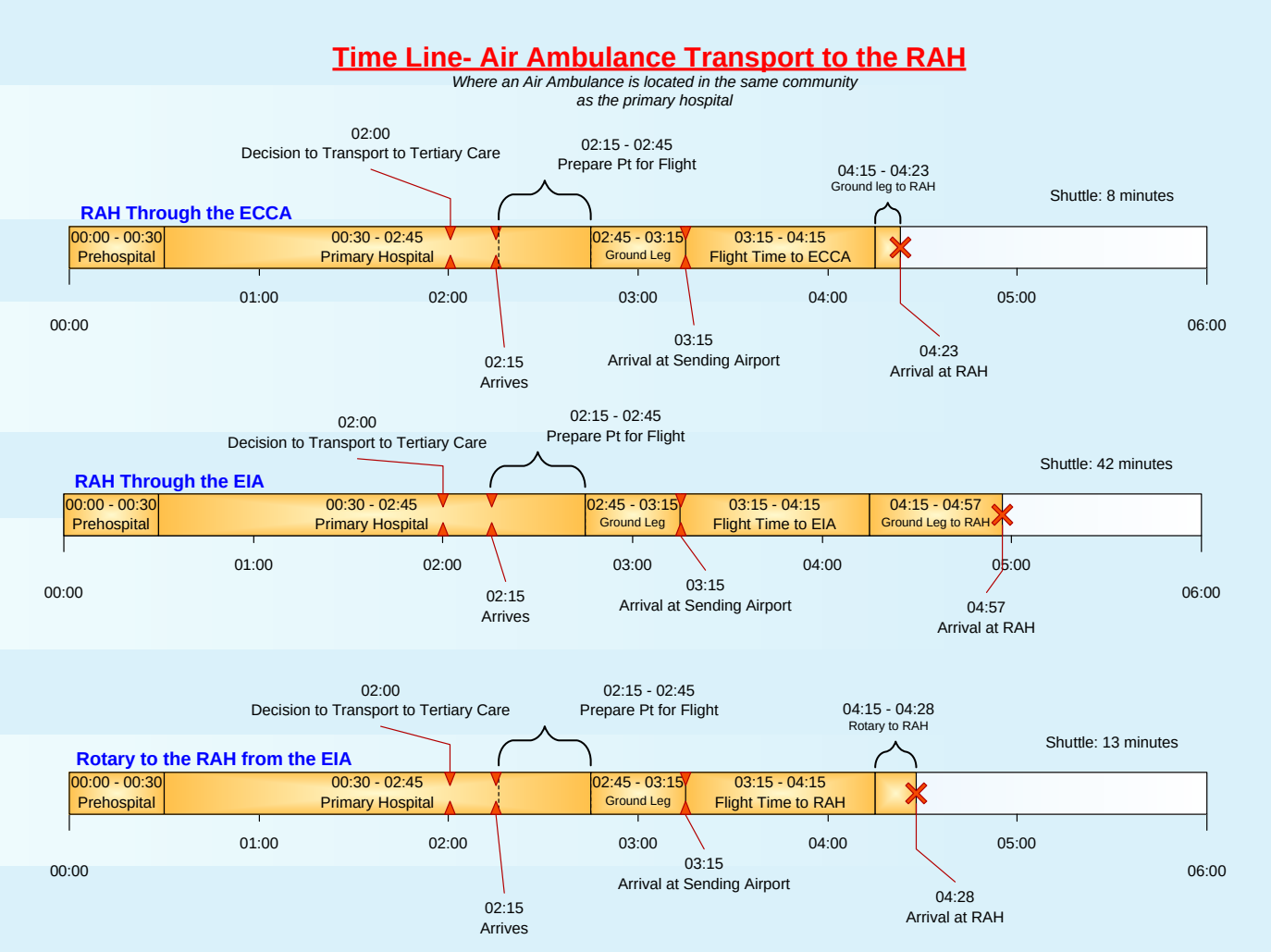
Dr. Mary vanWijngaarden- Stephens - Trauma

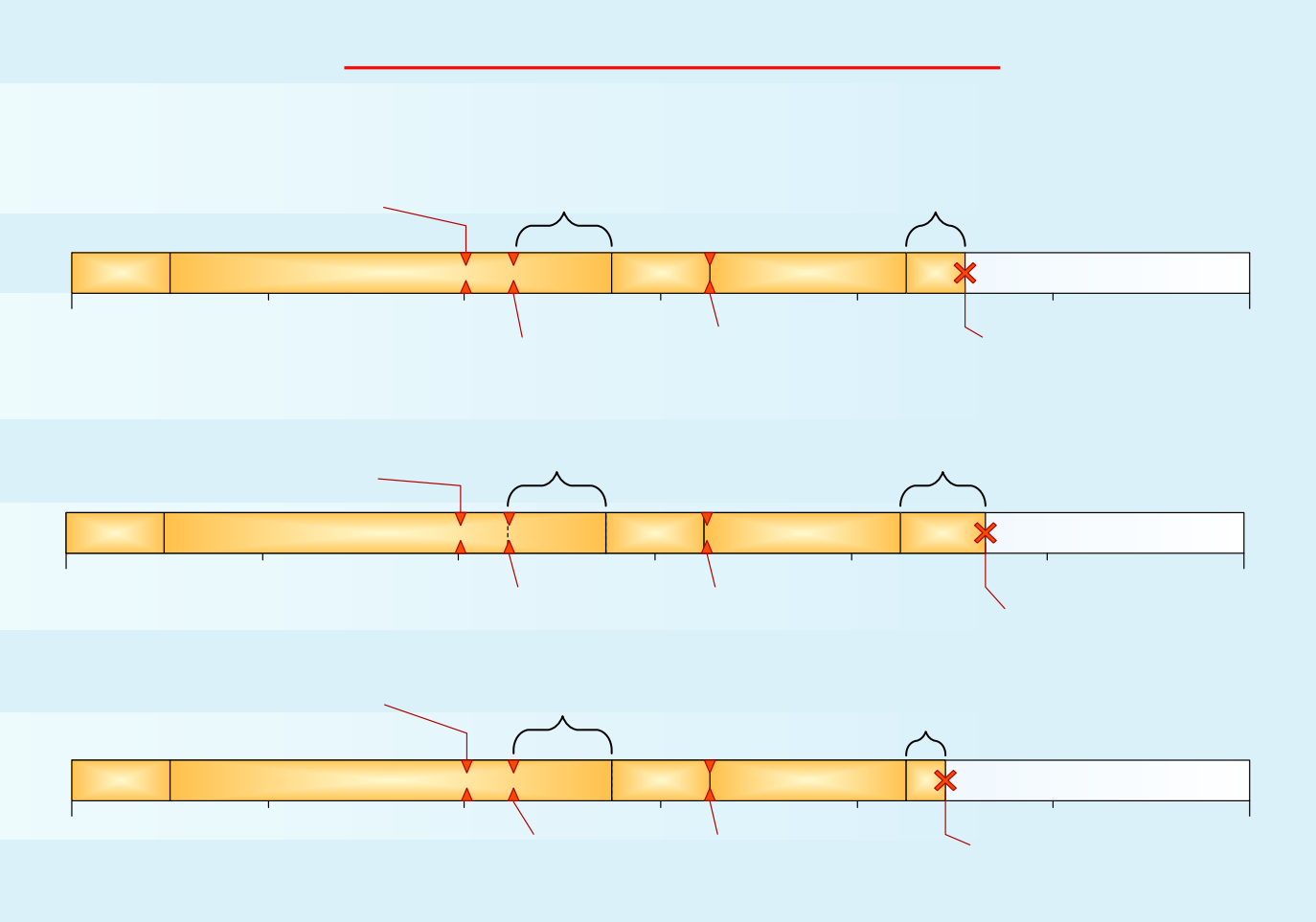
Dr. Alan DeCaen - PICU

Dr. Noel Gibney - ICU

Interview with ORNGE (Ontario)

Appendix VII – Timelines to Transfer for Air Ambulance to UAH and RAH





Decision to

UAH Through the ECCA

00:00 - 00:30

Prehospital

01:00

00:00

Decision to T