

Chapter 26

Health—Coordinating the Appropriate Provision of Helicopter Ambulance Services

1.0 MAIN POINTS

The Ministry of Health is responsible for providing air ambulance services in the province. It contracts Shock Trauma Air Rescue Service (STARS), a non-profit organization, to provide 24-hour air medical transportation for critically ill and injured patients by helicopter. Helicopter ambulance services typically offer faster transport than ground ambulance services for patients located far from trauma centres.¹ In 2020–21, STARS flew 902 missions and transported 701 patients.

By June 2021, the Ministry strengthened its processes to coordinate the appropriate provision of timely and quality helicopter ambulance services. It implemented five of eight recommendations we made in 2019.

Key improvements include:

- Formalizing the process for selecting and prioritizing heliport and landing zones for helicopter ambulance use.² This increases the likelihood of giving residents fair and equitable access to air ambulance services.
- Actively overseeing air ambulance services by creating terms of reference for its key committees with the Ministry leading those committees. Being accountable for, and leading key committees, ensures the Ministry fulfills its responsibilities, as set out by law, for air ambulance services.
- Receiving regular reporting on timeliness indicators for STARS' ambulance services, qualifications of medical staff who provide those services, and periodic helicopter maintenance help the Ministry assess STARS' compliance with its agreements, in addition to the quality and timeliness of provided services.

However, the Ministry still needs to know whether STARS uses appropriately trained staff on all missions. The Ministry receives STARS' reports on medical staff qualifications, but has not yet received adequate reporting on training, even though STARS maintains detailed training records for its staff. Without this information, the Ministry does not know whether STARS meets the terms of its agreement, as well as whether it uses only appropriately trained medical staff to provide air ambulance services to Saskatchewan patients.

Although STARS monitors the quality of patient medical care provided during helicopter transport, the Ministry does not receive sufficient reporting to allow the Ministry to take timely action in addressing issues with quality of care, if any.

¹ The Saskatchewan Health Authority is responsible for providing ground ambulance services.

² Heliports are certified sites, whereas helipads (landing zones) may or not be certified and may exist on a heliport or uncertified sites; these are available for use for every aircraft.



In addition, the Ministry requires reporting on the quantity of, and reasons for, declined or cancelled missions. Receiving and periodically analyzing declined or cancelled service requests and missions would give the Ministry a better understanding of the barriers affecting STARS' ability to respond. Doing such analysis would increase the Ministry's awareness of potential risks or barriers for STARS to provide timely and appropriate air ambulance services in the province.

2.0 INTRODUCTION

The Ministry of Health is responsible for coordinating the appropriate provision of helicopter ambulance services under *The Ambulance Act*.

In January 2021, the Ministry renewed its 10-year agreement with STARS. It budgeted to pay STARS \$11.9 million in 2021–22 to deliver helicopter air ambulance service in Saskatchewan.^{3,4} This was an increase of \$1.4 million (\$840,000 to fund a new helicopter and \$500,000 to meet increased operating expenses) compared to previous annual payments. This cost includes aircraft maintenance, as well as services provided by transport physicians (e.g., for consultations), education for STARS medical staff, STARS dispatch centre, and administration.

As shown in **Figure 1**, the number of missions flown and the number of patients transported fluctuates from year to year. In 2020–21, STARS flew 902 missions and transported 701 patients.

Figure 1—Number of STARS Missions and Patients Transported

	2018–19	2019–20	2020–21
Number of missions flown	825	888	902
Number of patients transported	677	708	701

Source: Adapted from information provided in STARS' Saskatchewan Quarterly Reports on Operations.

Deciding which type of ambulance service (e.g., ground ambulance, helicopter, fixed-wing) to use requires coordination among physicians, facilities, ground ambulance, and air ambulance providers.⁵ Choosing inappropriate ambulance services increases the risk of not providing Saskatchewan residents with fair and equitable ambulance services. In addition, costs substantially increase if using STARS unnecessarily when alternative ambulance services are available.

2.1 Focus of Follow-Up Audit

This audit assessed the status of eight recommendations made in our *2019 Report – Volume 2*, Chapter 22, about the Ministry of Health's processes to coordinate the appropriate provision of timely and quality helicopter ambulance services in Saskatchewan. We concluded for the 12-month period ended June 30, 2019, the Ministry had, other than the areas identified in our eight recommendations, effective processes.

³ The Government of Saskatchewan released its 2021–22 budget on April 6, 2021, which included additional funding of \$1.4 million (\$840,000 to fund a new STARS helicopter and \$500,000 for increased operating expenses).

⁴ STARS also receives donations from several public and private industry donors, including a commitment from Saskatchewan Crown Corporations (i.e., SaskPower, SaskEnergy, SaskTel, SGI, and Crown Investments Corporation of Saskatchewan) to contribute \$20 million from 2012 to 2021.

⁵ The Saskatchewan Health Authority operates Saskatchewan Air Ambulance and contracts Rise Air (a private operator formerly known as Transwest Air) to provide fixed-wing (e.g., airplane) services.

To conduct this audit engagement, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Ministry's progress toward meeting our recommendations, we used the relevant criteria from the original audit. Ministry's management agreed with the criteria in the original audit.

To complete this follow-up audit, we interviewed key Ministry and STARS staff, and examined key committee minutes, STARS' quarterly reports, and other records relating to coordinating helicopter ambulance services. We also conducted data analytics on STARS' data relating to the number of declined or cancelled service requests and missions.

3.0 STATUS OF RECOMMENDATIONS

This section sets out each recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at June 30, 2021, and the Ministry's actions up to that date.

3.1 Prioritization Process Formalized

We recommended the Ministry of Health formalize the prioritization process for selecting heliports and landing zone locations for helicopter ambulance use. (2019 Report – Volume 2, p. 162, Recommendation 1; Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Implemented

The Ministry of Health, through the Saskatchewan Health Authority's Heliport/Landing Zone Oversight Group, formalized the criteria used to prioritize decisions about developing new heliports and landing zone locations for helicopter ambulance services.⁶

The Authority continued to use its Heliport/Landing Zone Oversight Group with the primary purpose of working collaboratively with STARS, the Ministry, and communities in overseeing safe and appropriate landing areas and/or certified heliports in Saskatchewan. In addition, the Group assists in gathering information regarding community needs and expectations about landing areas and heliport development. Nine individuals comprise the Group with representation from the Authority, STARS, and the Ministry; it meets monthly.⁷

In 2019–20, the Group developed the Heliport Prioritization Guide. The Guide sets out the criteria to be used for prioritizing future heliport and landing zone locations (see **Figure 2**). In January 2021, the Group approved and implemented this Guide.

Figure 2—Prioritization Criteria for Heliport and Landing Zone Locations

- Number of patients transported from the community. Priority given to communities transporting equal to or greater than 10 patients/year based on four years of data. Scene calls are excluded as they would not utilize a heliport
- Ground ambulance transfer is needed between the current landing zone and the hospital
- The community has a regional hospital

⁶ A heliport is a landing place for helicopters, often on the roof of a building or in some other limited (e.g., access, security) area. Landing zones are safe landing areas often located near a community airport where there is no certified heliport by a hospital.

⁷ Due to the Covid-19 pandemic, the Group did not meet from March to June 2020.



- The community does not have access to advanced life support ambulance services
- Other factors potentially influencing prioritization:
 - Development of obstacles on flight approach to current landing zone (e.g., new construction)
 - Ability to safely land adjacent to a facility (e.g., temporary landing zone(s) serving a community's needs)
 - Financial considerations (e.g., rooftop vs ground)

Source: Adapted from the Heliport/Landing Zone Oversight Group's *Heliport Prioritization Guide*.

The Guide also outlines the scoring system used for selecting, and approving, priority locations.

Having a formalized prioritization process helps the Heliport/Landing Zone Oversight Group make consistent decisions about locations for future heliports and landing zones. Maintaining consistency helps in treating communities equitably and providing access to timely helicopter ambulance services.

3.2 Terms of Reference Developed and Finalized

We recommended the Ministry of Health, working with others involved in the coordination of transporting patients, develop terms of reference for the consultation committee responsible for overseeing patient transports using helicopter ambulance services. (2019 Report – Volume 2, p. 165, Recommendation 2;

Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Implemented

The Ministry of Health, working with others involved in the coordination of transporting patients, developed and finalized the terms of reference for the Saskatchewan Critical Care Patient Services Committee. The Committee approved the terms of reference in May 2021.

The Saskatchewan Critical Care Patient Services Committee, previously known as the Red Patient Referral Committee, provides guidance and evaluation on how to optimize critical care patient transport in the province.

In May 2021, the Ministry finalized, and the Committee approved, the terms of reference for the Committee, which clearly sets out the Committee's responsibilities (as shown in **Figure 3**), its membership, and the reporting structure (i.e., accountable to the Ministry).⁸ The Committee meets quarterly.⁹

Figure 3—Responsibilities of the Saskatchewan Critical Care Patient Services Committee

- Review critical care transports, dispatches and related incidents or concerns, as well as incorporate lessons learned from the responses into strategies to mitigate risks and improve future critical care transports
- Update committee members on critical care transport matters associated with their areas of work
- Consider research, discuss and review trends and changes in emergency and critical care transport medicine, and advise accordingly
- Provide leadership and expertise for the development and improvement of critical care transport

Source: Adapted from the Saskatchewan Critical Care Patient Services Committee Terms of Reference.

⁸ Membership consists of the Ministry, STARS, Saskatchewan Air Ambulance, Saskatchewan Health Authority, Paramedic Services Chiefs of Saskatchewan, and ad hoc members as needed (i.e., experts).

⁹ Due to the Covid-19 pandemic, the Committee did not meet during the fourth quarter of 2019–20.

Written terms of reference ensures all members know their roles and responsibilities. It also decreases the risk of misunderstandings, particularly with personnel changes at participating agencies.

3.3 Proper Oversight of Air Ambulance Services In Place

We recommended the Ministry of Health actively oversee air ambulance services (e.g., chair committee(s) responsible for helicopter ambulance services oversight). (2019 Report – Volume 2, p. 168, Recommendation 3; Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Implemented

The Ministry of Health actively oversees air ambulance services through an advisory committee.

The Ministry's Advisory Committee for air ambulances determines strategic priorities for air medical services and collaboratively plans for the provision of critical care air medical services in Saskatchewan.¹⁰

At the time of our original audit, the Advisory Committee had not met since November 2018. In October 2019, the Advisory Committee resumed its quarterly meetings.¹¹ In November 2020, the Advisory Committee revised its terms of reference to have the Ministry chair (lead) its meetings. We found the Advisory Committee discussed current issues and developed operational efficiencies (e.g., developed procedures for handling 911 calls from northern parts of the province).

As noted in **Section 3.2**, the Ministry also finalized the terms of reference for the Saskatchewan Critical Care Patient Services Committee; this Committee is accountable to the Ministry. We found this Committee discussed operational issues related to transporting patients (e.g., missions taking longer with increased personal protective equipment, increased volume of calls).

Being accountable for, and leading Committees, ensures the Ministry fulfills its responsibilities, as set out by law, for air ambulance services.

3.4 Medical Staff Qualifications Verified, But Appropriate Training Verifications Not Yet In Place

We recommended the Ministry of Health periodically verify medical staff qualifications and training for those providing helicopter ambulance services. (2019 Report – Volume 2, p. 169, Recommendation 4; Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Partially Implemented

¹⁰ Ministry of Health, Air Medevac Advisory Committee, *Terms of Reference*. Membership consists of the Ministry of Health, STARS, Saskatchewan Air Ambulance, Ministry of SaskBuilds and Procurement, Saskatchewan Health Authority, Indigenous Services Canada, and Athabasca Health Authority.

¹¹ Due to the Covid-19 pandemic, the Advisory Committee did not meet in quarters one and two of 2020–21.



The Ministry of Health received STARS' report on medical staff qualifications, but has not yet received adequate reporting on staff training. A more detailed report on staff training is expected in 2021–22.

The Ministry, in its agreement with STARS, requires all STARS staff to be registered or licensed by a professional regulatory body, and for STARS to provide them with ongoing training. STARS provides mandatory monthly, quarterly, and annual training.

In March 2021, STARS provided the Ministry with a listing of medical staff in each of its locations (i.e., Regina and Saskatoon). It set out the registration status (i.e., critical care paramedic or registered nurse), along with each individual's licence expiration date. The Ministry expects to receive this listing on an annual basis.

For the two nurses and two paramedics we tested, we confirmed each held current licences and registration with their respective regulatory bodies (e.g., Saskatchewan Registered Nurses Association for registered nurses).

In its quarterly reports to the Ministry, STARS outlined the dates educational sessions (e.g., human patient simulator) were held in Regina and Saskatoon. However, the reports do not indicate the number of staff who took the training.

At our request, STARS provided us a report for all training attended by staff during the fourth quarter of 2020–21 (i.e., January to March 2021). It also noted any outstanding training still required by staff. The report indicated, as at April 29, 2021, all staff completed the required training other than two staff members needing to complete the required airway skills course (i.e., iGel intubations). STARS specified it plans to provide the Ministry with annual reports on detailed training starting in 2021–22.

Although it is STARS' responsibility to employ and train qualified medical staff, the Ministry needs to know whether STARS uses appropriately trained staff on all missions. Without this information, the Ministry does not know whether STARS meets the terms of its agreement, as well as whether it uses only appropriately trained medical staff to provide air ambulance services to Saskatchewan patients.

3.5 Reports on Timeliness Indicators Include Documented Reasons for Delays

We recommended the Ministry of Health obtain written reasons where timeliness indicators for helicopter ambulance services are not met.

(2019 Report – Volume 2, p. 171, Recommendation 5; Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Implemented

The Ministry of Health receives regular reports on two timeliness indicators for STARS' ambulance services. The reports explain instances where STARS did not achieve the targets.

STARS tracks two indicators for the timeliness of ambulance services for each base location (i.e., Regina and Saskatoon):

- The time from dispatch to lift-off. STARS aims to lift-off within 12 minutes in Regina and 14 minutes in Saskatoon
- The time between the initial 911 call and the call arrival time at STARS dispatch (dispatch time); STARS aims for its dispatch to receive the requests within five minutes of the 911 call 90% of the time

Each quarter, STARS provides the Ministry reports on its timeliness indicators. When STARS has not met the target, the report outlines the reasons why or the Ministry discusses the issue with STARS.

For example, in November and December 2019, STARS did not meet the 14-minute dispatch to lift-off target (actual time was between 15 and 16 minutes) in Saskatoon. STARS reported the use of a new aircraft caused the delay. Again, in November 2020, STARS did not meet the target in Saskatoon (actual time was just over 14 minutes) and did not provide an explanation in the report. However, the Ministry discussed the report with STARS and noted weather caused the delay. Management indicated STARS will provide written reasons for all delays in meeting its targets in future reports starting in quarter one of 2021–22.

Moreover, STARS did not always meet the dispatch time of 90% within five minutes of a 911 call. Actual results in meeting the five-minute target ranged between 60% (Regina) and 75% (Saskatoon). STARS reported it did not meet this target because on-scene EMS typically requesting STARS almost always takes longer than five minutes to assess the patient after the initial 911 call, which is out of STARS control.

Receiving adequate reporting from STARS about the timeliness of air ambulance services allows the Ministry to understand the delays and take action, if required, to better coordinate the provision of helicopter ambulance services.

3.6 Key Information on Quality of Patient Care Not Routinely Received

We recommended the Ministry of Health routinely receive and analyze key information about the quality of patient care provided during helicopter ambulance services. (2019 Report – Volume 2, p. 172, Recommendation 6; Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Not Implemented

The Ministry of Health does not routinely receive and analyze key information about the quality of patient care provided during helicopter ambulance services.

STARS tracks six quality care indicators related to medical procedures completed during a mission (see **Figure 4**). The Ministry did not receive this information from STARS during



2020–21, although it expects to receive this information beginning in quarter one of 2021–22.

Figure 4—Quality of Care Indicators STARS Tracks

1. Advanced airway placement
2. Ventilator placement
3. Blood glucose check for altered mental status
4. Waveform capnography ventilated patients (measurement of the partial pressure of CO₂ in each exhalation)
5. First attempt tracheal tube success
6. Verification of tracheal tube placement

Source: Information provided by STARS.

For example, STARS tracks the number of successfully placed tracheal tubes and compares it to the first attempted tracheal tube intubation success. If it takes more than one attempt, STARS tracks the number of attempts and the reasons why a first attempt was unsuccessful (e.g., cuff leak, difficulty bagging).

The lack of regular, timely reporting on key quality of care indicators limits the Ministry's ability to analyze performance information for helicopter ambulance services and to take timely action to address issues with quality of care.

3.7 Periodic Reporting on the Quantity of, and Reasons for, Cancelling or Declining Requests Not Received

We recommended the Ministry of Health receive periodic and detailed reporting on the number and reasons for cancelling or declining requests for helicopter ambulance services. (2019 Report – Volume 2, p. 174, Recommendation 7;

Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Not Implemented

The Ministry of Health does not receive adequate information from STARS about the number and reasons for cancelling or declining requests for helicopter ambulance services.

Each quarter, the Ministry receives reports from STARS on its operations and activities. This includes the number of calls received, the number of missions, and the number of patients transported. The reports do not explain why STARS declined service requests or why missions were cancelled. Ministry management indicated they expect to receive this information quarterly from STARS beginning in summer 2021.

We obtained STARS' service requests and mission data for the period from July 2019 to March 2021. During this period, 5,374 service requests and missions were either declined by STARS or cancelled by a requester. We analyzed the reasons why. As shown in **Figure 5**, we found 89% of uncompleted missions resulted from STARS being asked to stand down, and 15% of missions not accepted or declined resulted from STARS being on another mission.¹²

¹² Uncompleted missions include the helicopter lifting off and then grounded.

Figure 5—STARS’ Reasons for Cancelling or Declining Service Requests and Missions from July 2019 to March 2021

Missions not completed (i.e., helicopter lifted off and then grounded)

- 34 times (11%) STARS reasons: 11 times helicopter diverted to another call, 2 times due to mechanical issues, and 21 times due to weather
- 275 times (89%) requester cancelled STARS (stood down): either transport not needed at all or another transport used (e.g., ground ambulance)

Requests for potential missions not accepted or declined

- 788 times (15%) STARS declined request due to already being on a mission
- 1,404 times (26%) STARS declined request due to weather
- 89 times (2%) STARS declined due to scheduled or unscheduled maintenance
- 113 times (2%) other reasons for declining transport (e.g., patient weight over helicopter limit, aircraft required decontamination)
- 2,980 times (55%) STARS notified of a possible mission but a different mode of transport (e.g., ground ambulance) was chosen by the Transport Physician or a transport was not required.

Source: Adapted from information provided by STARS.

Periodically analyzing declined or cancelled service requests and missions would give the Ministry a better understanding of the barriers affecting STARS’ ability to respond. Doing such analysis increases the Ministry’s awareness of potential risks or barriers for STARS to provide timely and appropriate air ambulance services in the province.

3.8 Periodic Reports on Helicopter Maintenance Received

We recommended the Ministry of Health receive periodic reports on the maintenance of helicopters used to provide air ambulance services.

(2019 Report – Volume 2, p. 175, Recommendation 8; Public Accounts Committee has not yet considered this recommendation as of October 29, 2021)

Status—Implemented

The Ministry of Health receives quarterly reports on STARS’ maintenance for the four helicopters used to provide air ambulance services in the province. It also receives results from Transport Canada’s inspections of STARS’ operations, which includes helicopter maintenance.

Within its quarterly reports to the Ministry, STARS reports on the availability of each helicopter and breaks down the percentage of non-availability due to unscheduled and scheduled maintenance.

For example, in its 2020–21 fourth quarter report, it noted availability for three of four helicopters at more than 90% (ranging from 91.9% to 99.3%), and the unavailability of the helicopters were 10% or less due to unscheduled maintenance.

Unscheduled maintenance caused one helicopter’s availability to be 81.7%. Management indicated that with the launch of a new helicopter in Regina in 2021–22, less unscheduled maintenance should occur.



With the expected enhanced reporting on the number of declined or cancelled service requests and missions as noted in **Section 3.7**, the Ministry will also gain further insight on the impact unscheduled maintenance causes.

STARS is required to maintain its helicopters according to federal regulations with Transport Canada overseeing Canadian aircrafts' compliance with the regulations. Transport Canada can inspect STARS operations at any time, including helicopter maintenance.

In January 2021, Transport Canada inspected STARS and found that STARS did not have any significant non-compliance issues with federal legislation as it relates to helicopter maintenance. The Ministry received and reviewed the final report in July 2021.

With STARS' quarterly reports on helicopter availability due to maintenance and the results from Transport Canada's inspections, the Ministry knows whether STARS sufficiently maintains helicopters used to provide air ambulance services in Saskatchewan. Having properly maintained helicopters increases availability, and keeps staff and patients safe.