Airdrie Case Study - Healthcare Access and System Analysis

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Research conducted by the ASU Healthcare Team for Integrated Travel Research and Development

Problem and Context

With a population of about 100,000, Airdrie, Alberta, does not yet have a general hospital. The nearly 29-kilometer journey for severely ill or injured patients to get to Calgary's Peter Lougheed Health Centre from Airdrie causes major travel delays and unequal access for patients from Airdrie.

This study looks at:

- How ambulance travel times between Airdrie Urgent Care and Peter Lougheed Centre are affected by snowfall and rush-hour traffic.
- The accessibility, effectiveness, and financial structures of local hospitals, especially those that are run by the government vs. nonprofit organizations.
- The opportunity to develop a hospital model in Airdrie that is financed by community bonds similar to successful charity-based healthcare systems across Canada.

Comparative and Quantitative Analysis

1. **The Effect of Transportation and Weather**

Preliminary modeling based on Environment Canada's hourly snowfall logs and Alberta Transportation data (2015–2024):

- Baseline travel time: 17-18 minutes (off-peak, clear weather).
- 1–5 cm of light snow: 5–10% delay.
- 15–20% delay for moderate snow (6-15 cm).
- Up to 50% delay (37-40 minutes total) in heavy snow (≥ 20 cm).

- Even without snow, rush-hour traffic causes a +30% delay.
- In the worst situation, the ambulance would take twice as long to arrive (45 minutes or more).

These delays place patients traveling from Airdrie to the closest emergency department at risk and subject them to worse outcomes as they get closer to crucial thresholds for PCI procedures (90 minutes) and stroke thrombolysis (60 minutes).

2. **Hospital Performance Comparison (Charity vs. Public)**

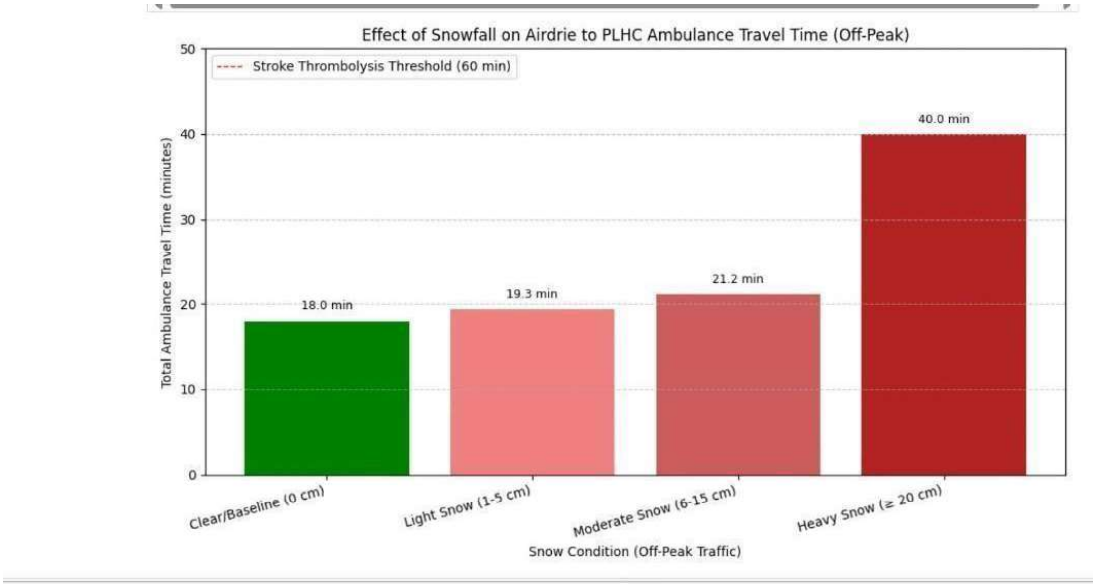
Derived from recent research on hospital models across Canada:

Metric	Charity Hospitals	Public Hospitals
Patient Satisfaction (1–5)	4.3	4.1
Average Wait Time (hrs)	2.1	3.2
Readmission Rate (%)	5.4	6.0
Staff-to-Patient Ratio	1:5	1:6
Community Engagememt (1–5)	4.7	4.3

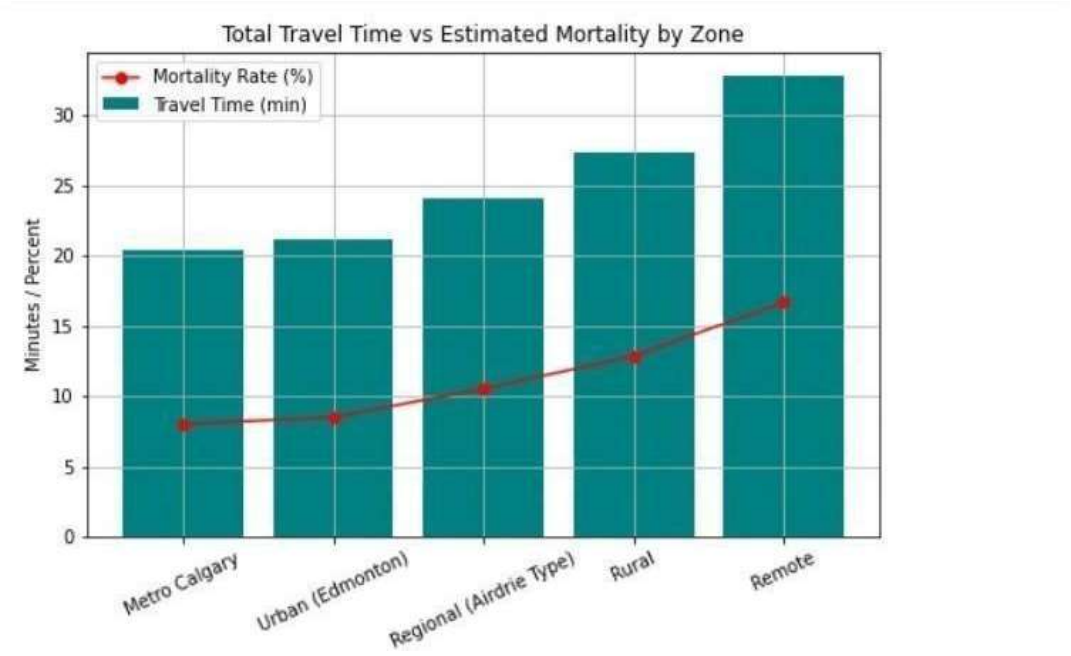
Visualizations

To make the analysis actionable, the team has built the following visualizations showcasing a vast range of metrics.

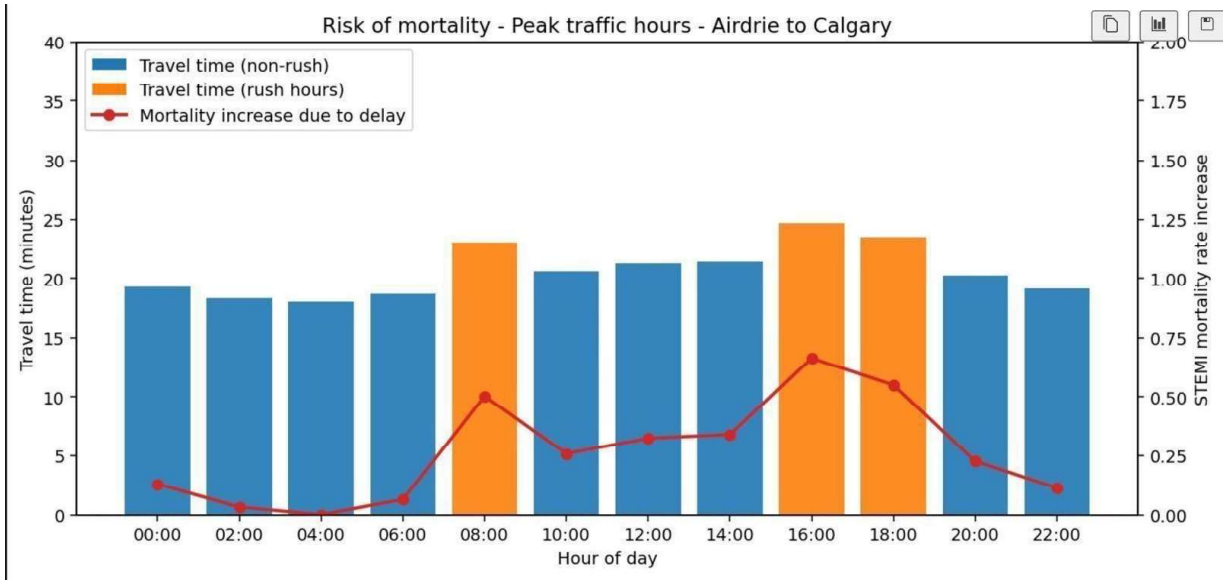
Visualization 1: The impact of snowfall during off-peak hours on ambulance travel time from Airdrie to Peter Lougheed.



Visualization 2: The impact of total travel time on mortality percentage grouped by different regions in Alberta, including Metro Calgary, Urban Edmonton vs. Airdrie, and other rural and remote regions.



Visualization 3: The rate of increase in risk of mortality during peak and non-peak hours in a typical day while transferring patients from Airdrie to Calgary.



Insights on Alberta Healthcare and Local Leadership

1. Alberta's Healthcare Crisis with Dr. Paul Parks (Episode 7.34)

Dr. Paul Parks, former president of the Alberta Medical Association and emergency room physician, discusses the current healthcare challenges in Alberta. He highlights the following:

- Strain on emergency rooms and healthcare facilities.
- Impact of privatization on access to care.
- Challenges in reproductive and gender-affirming healthcare services.
- Need for systemic reform and accountability to ensure patient safety and accessibility.

Citation:
- Podcast Episode 7.34 – Alberta's Healthcare Crisis with Dr. Paul Parks. Spotify: https://creators.spotify.com/pod/profile/thebreakdownab/episodes/Episode-7-34---Albertas-Healthcare-Crisis-with-Dr-Paul-Parks-e394pnb?utm_source=chatgpt.com

2. Airdrie Health Foundation "Airdrie - Inside" podcast with Michelle Bates, co-founder of Airdrie Health Foundation

Michelle Bates, representing the Airdrie Health Foundation, highlights ongoing efforts to improve healthcare access and services in Airdrie. Key points include:

-Advocacy for expanded urgent care hours and increased local healthcare staffing.

-Fundraising initiatives supporting diagnostic equipment and mental health programs.

-Collaboration with Alberta Health Services to address growing community healthcare demands.

-Emphasis on community-driven healthcare improvements through public engagement and donor support.

Citation:

Bates, Michelle. Airdrie Health Foundation Interview. YouTube:

https://youtu.be/85fA91m0x3s

3. Airdrie mayoral and councillor candidates unanimously identify the lack of a hospital in Airdrie as the top priority of the new administration following the municipal election on October 20th.
Airdrie's mayoral and councillor candidates unanimously identified the absence of a local hospital as the city's most urgent healthcare issue following the October 20 municipal election. Key insights include:

- Shared agreement among candidates that healthcare infrastructure must be prioritized.
- Recognition of the strain on existing urgent care services and need for expanded facilities.

- Commitment to advocating with provincial authorities for a full-service hospital in Airdrie.
- Focus on collaborative efforts to improve long-term healthcare accessibility and emergency response capacity.

Citation:

- City of Airdrie. *Mayoral and Councillor Candidates Prioritize Hospital Development.* Airdrie.ca, https://www.airdrie.ca/index.cfm?serviceID=2668

Summary Insight

Collectively, these statements highlight the current healthcare challenges in Alberta, the importance of holistic wellness, and the role of local leadership in improving healthcare access. Dr. Parks stresses systemic reform at the provincial level, Michelle Bates offers an update on Urgent care health services in Airdrie, and the 2025 mayoral and councillor candidates unanimously support a hospital in Airdrie.

Key Insights

1. **Equity Gap:** Fair access to emergency care is significantly hampered by Airdrie's lack of a main hospital.
2. **Environmental Sensitivity:** During winter peaks, traffic and snow combined quadruple ambulance response times.
3. **Community Solution:** Long-term substitutes with demonstrated patient satisfaction and reduced wait times may be provided by charity-based or community-bond-funded models.

Next Actions

- To conclude a survey of nearby hospitals (Peter Lougheed, Foothills, Rockyview, etc.) to catalog available services and patient flow.
- Determine whether the Urgent Care health center model improves access and wait times to health services in Airdrie.
- Determine whether community-based emergency departments improve outcomes for patients.
- Gather real-time traffic and weather API data to calibrate the model in real time.
- Create dynamic visual dashboards to predict potential health services delays in Alberta.
- A policy brief supporting community-driven hospital finance in Airdrie should be proposed.

References

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