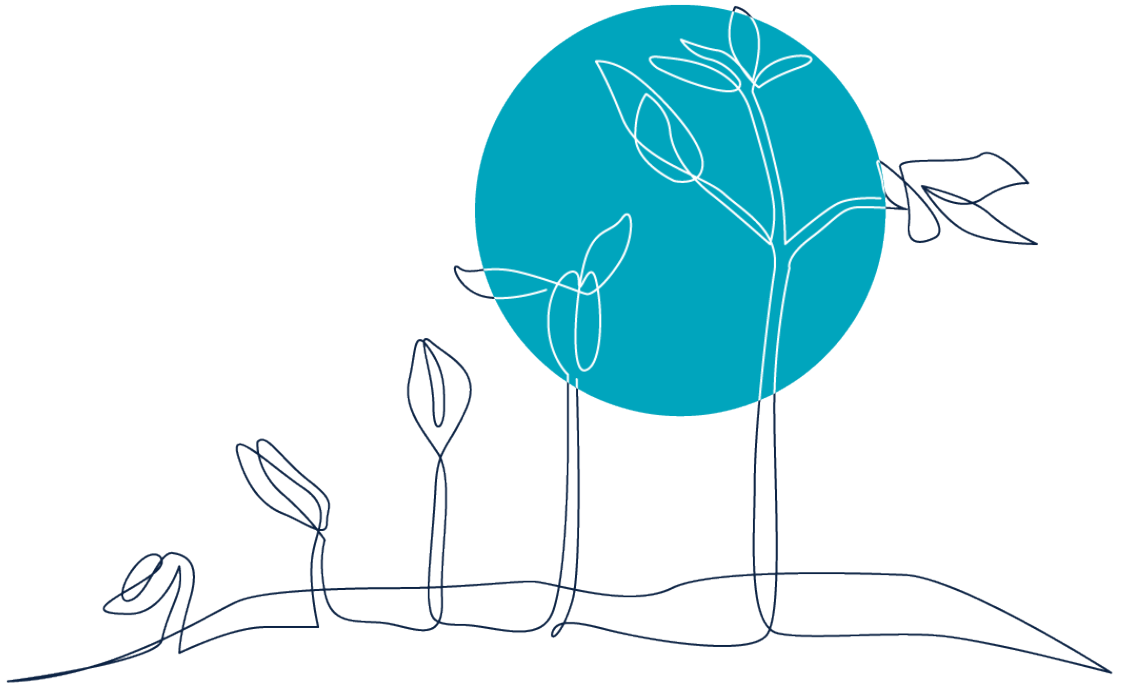
Virtual Health Grand Rounds

Using Drone Technology to Enhance Rural and Remote First Nations Healthcare Access

Dr. John Pawlovich and Sandy Lee

October 14, 2026| 0800-0900



THE UNIVERSITY OF BRITISH COLUMBIA
Continuing Professional Development
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Land Acknowledgement

We acknowledge that we work on the traditional, ancestral and unceded territory of the Skwxwú7mesh (Squamish), xʷməθkwəy̓əm (Musqueam), Sə̓lílwətaʔ/Selilwitulh (Tsleil-Waututh) First Nations.

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PRESENTER DISCLOSURES

Dr. John Pawlovich & Sandy Lee

Relationships with commercial interests:

The presenters have no conflicts of interest to declare. Any examples, case studies, or experiences discussed are presented for educational purposes. The views expressed are those of the presenter and do not necessarily reflect those of affiliated organizations.

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Drone Transport Initiative (DTI) Funded by

Fraser Lake
INDRO ROBOTICS
THE UNIVERSITY OF BRITISH COLUMBIA Faculty of Applied Science
THE UNIVERSITY OF BRITISH COLUMBIA Faculty of Medicine
Rural Coordination Centre OF BRITISH COLUMBIA
First Nations Health Authority Health through wellness
Supported by : Pacific Economic Development Canada | Canada

LEARNING OBJECTIVES

1. Describe the unique healthcare challenges faced by rural and First Nation communities, and explain how targeted rural health programs can improve access to care, health outcomes, and health equity.
2. Examine how supply-chain logistics planning supports healthcare delivery in rural and remote settings and in rural First Nation settings, including the reliable distribution of medicines, medical supplies, diagnostics, and time-sensitive healthcare resources.
3. Assess how integrated rural health programs and resilient supply chains strengthen community preparedness and response capacity during public health emergencies, natural disasters, and service disruptions.

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GEOGRAPHIC INEQUITY

- **Roughly 98% of BC landmass is rural**
- **22% of BC's population live rurally**

Problem: Canada's vast geography, centralized services, and limited transportation infrastructure create significant barriers to rural patients accessing healthcare and healthcare's capacity to respond to emergencies.
This problem is amplified in Indigenous communities who face a myriad of historical, geographic, social and systemic factors that create barriers to accessing high-quality healthcare.

What does this look like?

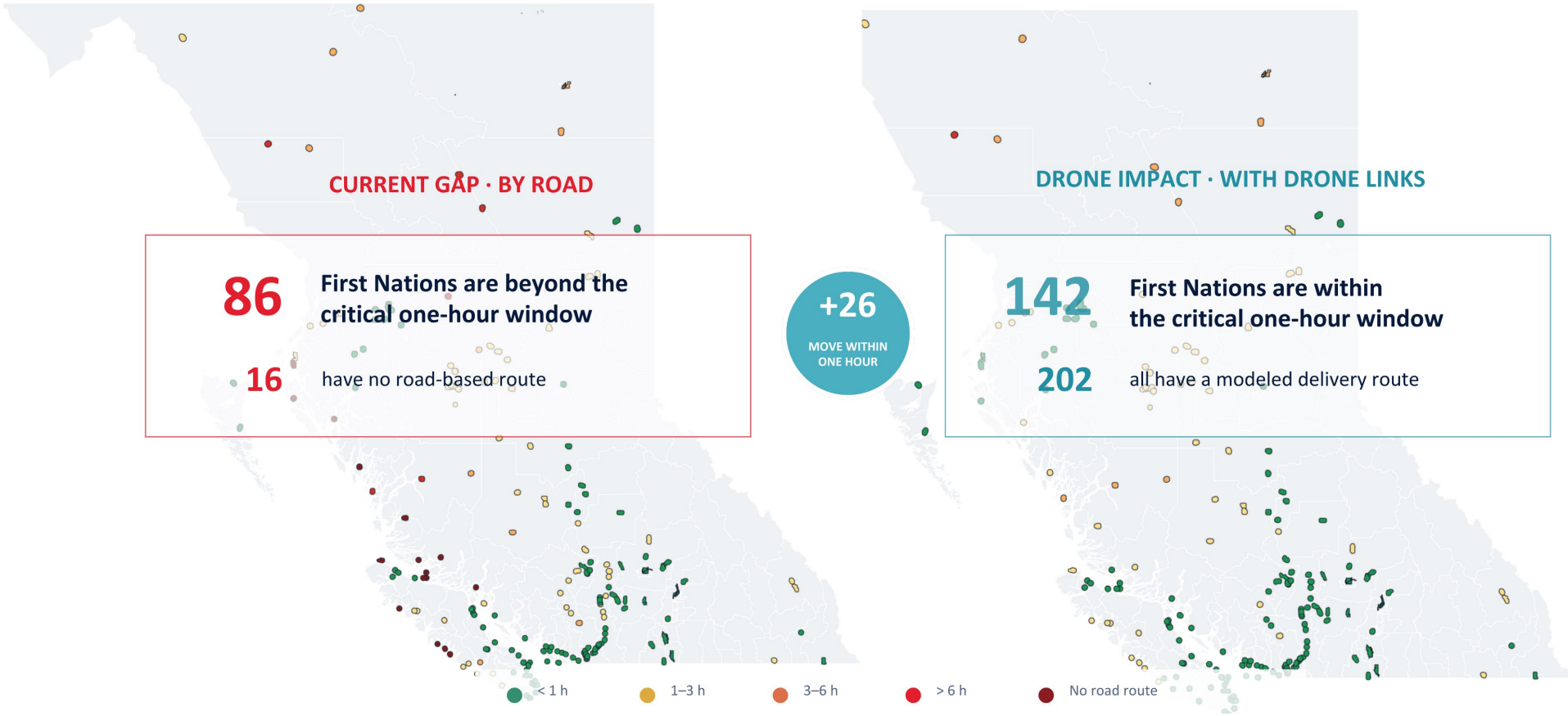
- **Rural and remote communities experience reduced access to healthcare providers.**
- **Increasing pharmacy closures and workforce shortages create service gaps.**
- **Long transportation distances delay care and increase patient out of pocket costs.**
- **Supply chain interruptions can affect access to medications, blood products, diagnostics, and medical supplies.**

Opportunity: Potential capacity to bring healthcare closer to home with hybrid healthcare initiatives and with the support of drone logistics closing access gaps for individuals and health providers.

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EXAMPLE: BLOOD DESERT IN BC

CANADIAN BLOOD SERVICES 2025 DATA



Golden Standard of one-hour access expands from 116 First Nations to 142 First nations across 202 First Nations in BC

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Real-Time Virtual Support (RTVS) & the Drone Transport Initiative (DTI)

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VIRTUAL HEALTH TIMELINE IN BC

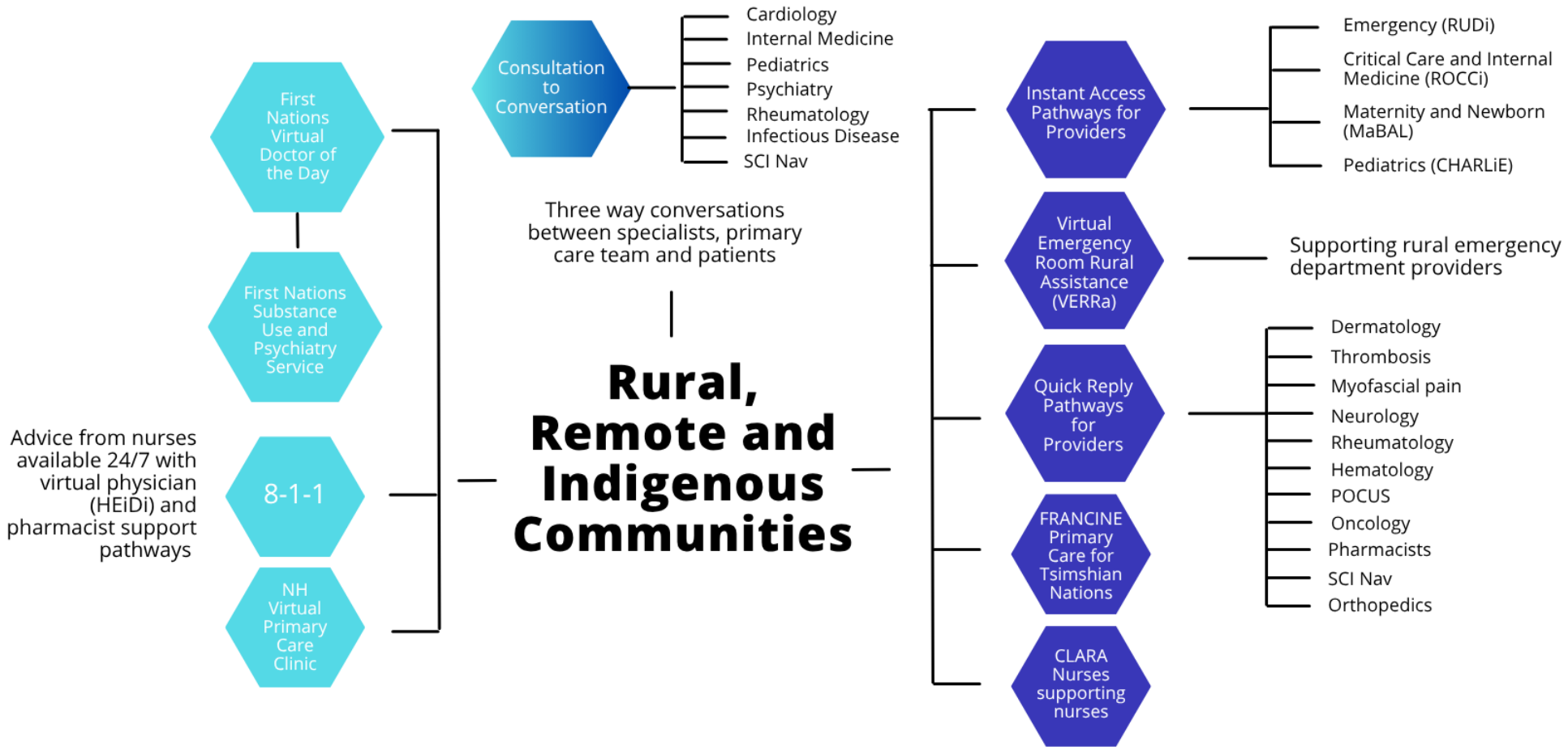


Image courtesy of Dr. John Pawlovich

- Pre-COVID: Local small-scale pilots & initiatives
- March 202 – RTVS rapid implementation
  - Emergency response to COVID-19 pandemic
  - Province-wide initiative designed to support First Nation, and Rural and Remote communities
- Post-COVID: Long-term integration into healthcare system

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RTVS Overview



For more information: https://rccbc.ca/initiatives/rtvs/

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DRONE TRANSPORT INITIATIVE (DTI)



Source: https://dronetransport.med.ubc.ca/about-2/

The Drone Transport Initiative is a partnership project launched in 2020 to address medical supply chain disruptions during the COVID-19 pandemic, the Drone Transport Initiative has grown into one of Canada's longest-running healthcare initiatives involving drone technology.

Today, it continues to focus on enhancing access to essential medical supplies, and supporting community- and First Nations-led development in rural and remote areas of British Columbia. Focus has expanded from in-community access to supply-chain logistics support across health system

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DTI PHASE 1 (2021-2022)

- Completed 1200+ flights
- Operated for 12 months, implemented project in 5 months upon project kick-off
- Successfully engaged Colleges to implement pharmacy transport & planned lab specimen transport
- Hired & trained local staff

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DTI GROWING PARTNERSHIP

PARTNERSHIP TEAM



Chief Robert Michell
Stellat'en First Nation
(Community Champion)



Mayor Sarrah Storey
Village of Fraser Lake
(Municipal Champion)



Sandy Lee
Senior Project Manager, Faculty of Medicine
(Project Operations & Partnership Lead)



Robert Pammett
Associate Professor, Faculty of Pharm Sci
(Northern Health, Primary Care)



Dr. Travis Holyk
Executive Director of Health Services
(Carrier Sekani Family Services)



Kevin Samra
Executive Director, Ministry of Health
(Innovation & Research)



Greg Marr
Senior Operating Officer, Northern Health
(NH exec sponsor)



Dr. Michael Law
Academic Director, Centre for Health Policy
(Evaluation)

HEALTH TEAM



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Vice-Dean, Health Engagement, Faculty of Medicine
(Health System Partnership)



Dr. Terri Aldred
Executive Medical Director First Nation Health Authority
(First Nation Governance)



Dr. John Pawlovich
Rural Chair, Faculty of Medicine
(Rural Health Vision & Collaboration)



Dr. Anurag Singh
Director, Northern Centre for Clinical Research
(Northern Research Partnership)



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(Infectious Disease, BCCDC)



Dr. Lucy Perrone
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Dr. Larry Lynd
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(Evaluation)



Dr. Eric Li
Associate Dean, Faculty of Management
(Social Innovation)

TECHNOLOGY TEAM



Dr. Dominic Liao-McPherson
Assistant Professor, Faculty of Applied Sciences
(Aerospace flight control)



Dr. Mohamed Shehata
Associate Professor, Computer Science,
(Computer sensing)

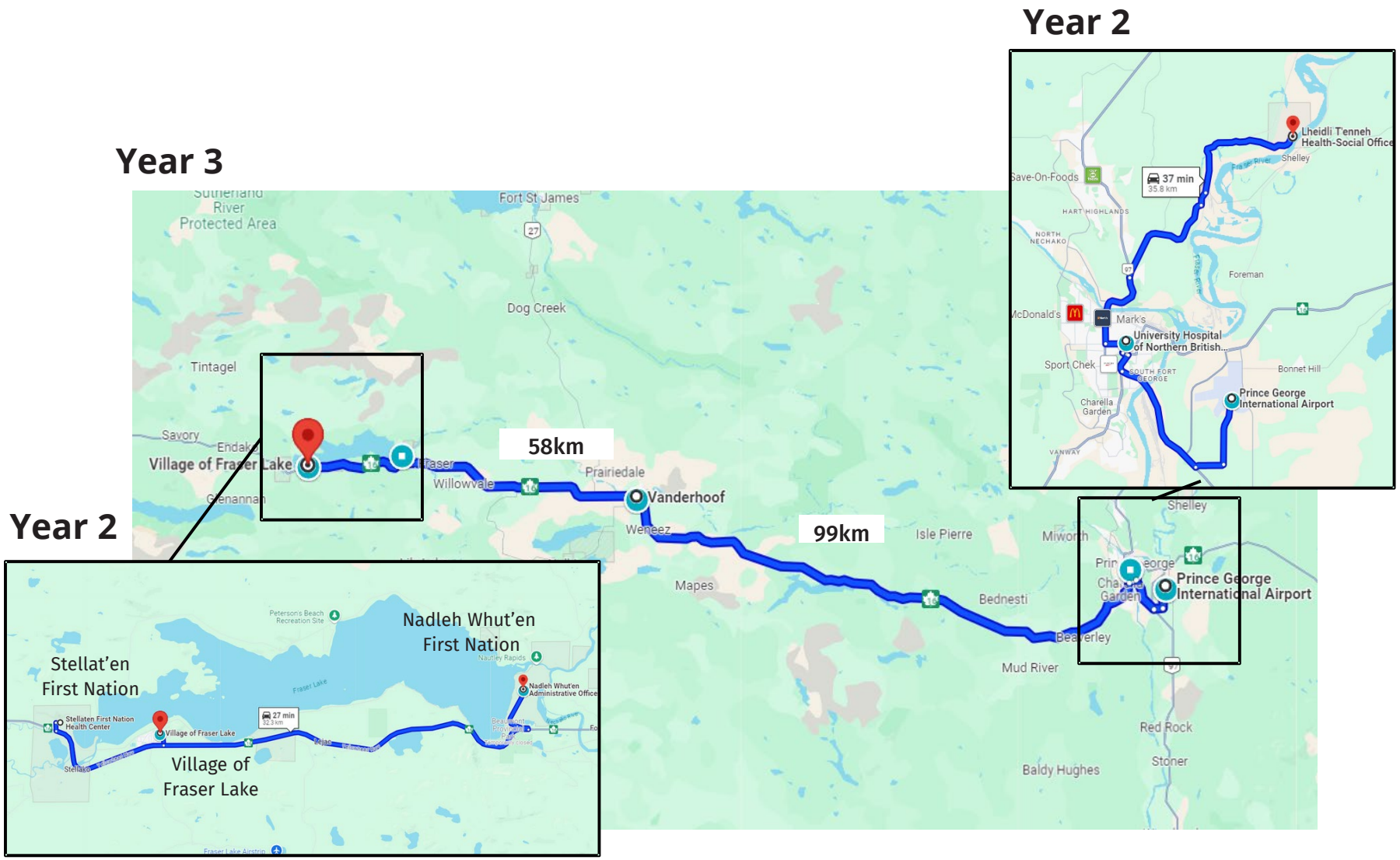


Philip Reece
CEO of InDRO Robotics

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Source: https://dronetransport.med.ubc.ca/phase-ii/phase-ii-project-team-partners/

PHASE 2 (2026-2029)



Source: Google Maps

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PURCHASED TECHNOLOGY



Pelican Autonomy
Wingspan: 2m
Range: up to 300km (electric)
Payload bay: up to 4kg

Source: https://pelican-autonomy.com/



Skylane 350
Wingspan: 3.5m
Range: up to 100km
Operating Temperature: -20C to +45C
Payload: 167cm x 54cm x 59cm, up to 7kg
Max speed: 130km/h
Source: https://sky-drones.com/skylane



Skylane 480
Wingspan: 4.8 m
Range: up to 400km (hybrid gas-electric)
Operating temperature: -30C to +60C
Payload bay: up to 15kg
Max speed: 173km/h
Source: https://sky-drones.com/skylane

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Case # 1

Rural Penetrating Neck Trauma



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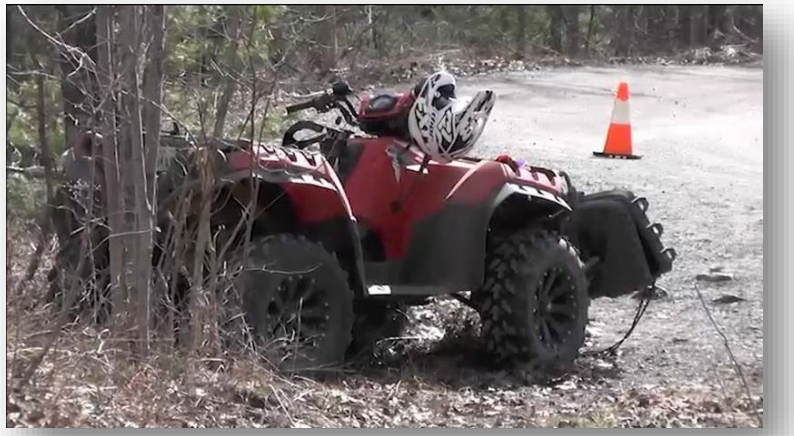
Case # 1 – Rural Penetrating Neck Trauma

A. Patient Chart

Name: John Doe	Age: 40		Gender: Male		Weight: 85 kg
Presenting complaint: Penetrating neck injury with significant bleeding after ATV accident					
Temp: 36.1	HR: 112	BP: 108/68	RR: 22	O2Sat: 97%	FiO2: RA
Cap glucose: 7.2			GCS: 15 (4,5,6)		
Triage note: Brought to nursing station after an ATV accident approximately 20 minutes ago. Individual was riding an ATV at moderate speed when a branch entered the left side of his neck. He did not lose consciousness and has no other major pain. He feels light-headed and thirsty. No chest pain or abdominal pain. He can initially speak normally and denies shortness of breath. Bleeding increases if pressure is released. Branch was not stuck in neck, as it came out when he fell off ATV. Was wearing a helmet. Last meal 3 hours ago					

Three i-STAT result cards:

- **Arrival -** Hgb 90 g/L,
- **Ongoing Hemorrhage** – Hgb 60 g/L,
- **Deterioration/Transfer Activation –** Hgb 40 g/L.



Source: https://globalnews.ca/video/4175855/atv-accident-north-of-havelock-injures-2

B. Physical Exam

Cardio: Tachycardic, regular, peripheral pulses present	Neuro: GCS 15, no focal deficit
Resp: Air entry equal bilaterally, no initial stridor	Head & Neck: Left lateral neck puncture wound with active bleeding and surrounding hematoma
Abdo: Soft, non-tender	MSK/skin: Pale, cool; no other major injury identified
Other: Patient becomes increasingly anxious/light-headed as blood loss progresses.	

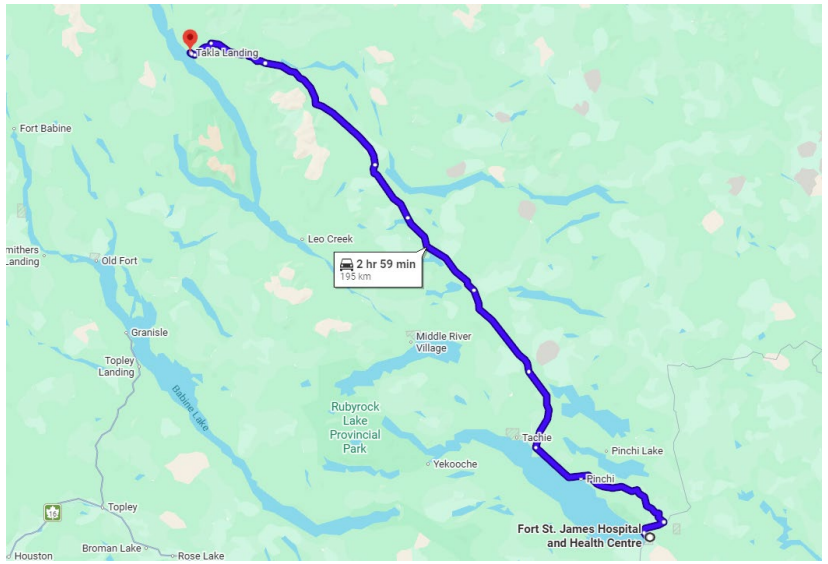
Emergency Medicine (RUDI) & Critical Care and Internal Medicine (ROCCI) virtual peer to peer pathways activated to nursing station

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Case # 1 – Discussion

- What are the most immediate risks to this patient?
- What resources are missing at the point of care?
- What support would help local providers make critical decisions?
- What healthcare supplies could be delivered by drone to improve patient care?

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Source: Google Maps

POST YOUR THOUGHTS IN THE CHAT



Case # 2

Pharmacy Access in Community

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Case 2 – Pharmacy Access in Rural Community

Nearest community pharmacy (15 minute drive away) has permanently closed, nearest pharmacy is 90 km away, 1h drive down a logging road not safe for winter driving

84 year old Elder Annie has cataract, diabetes, hypertension and heart disease

Lives alone and is not confident to drive out of the community

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Case 2 – Discussion

- How might reduced access to a pharmacy affect Elder Annie's clinical care?
- How might hybrid-care with drone-enabled pharmacy delivery support care closer to home

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POST YOUR THOUGHTS IN THE CHAT



Case 2 – Hybrid-Care and Drone-enabled Support

- Physician office sends script to nearest pharmacy
- Drone delivers to community & driven to Elder Annie's home
- Virtual consultation opportunity with pharmacist to provide instructions on medication changes and interaction

Benefits:

- Home care aides no longer need to drive and pick-up medications
- Pharmacist can track chain of custody of medication and know Elder Annie received the medical information she needed for her new medication
- Elder Annie no longer needs to wait for her next home care aide visit for medication or pay her neighbor $30 to drive her to town

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Q&A

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