

The Rural Virtual Echocardiology Project



Dr. Robert Moss
Dr. Virginia Robinson

Faculty of Medicine *Virtual Health Grand Rounds*
June 30, 2023

We are joining you today from the traditional, unceded territories of the x^wməθk^wəy̓əm (Musqueam), Sk̓wx̓wú7mesh (Squamish), and Sel̓ílwítulh (Tsleil-Waututh) Nations (Vancouver, BC).





Disclosures:

- Advisory Board Member of Phillips Consult Edwards Lifesciences
- Received payments from Abbott Laboratories Edwards Lifesciences Bracco

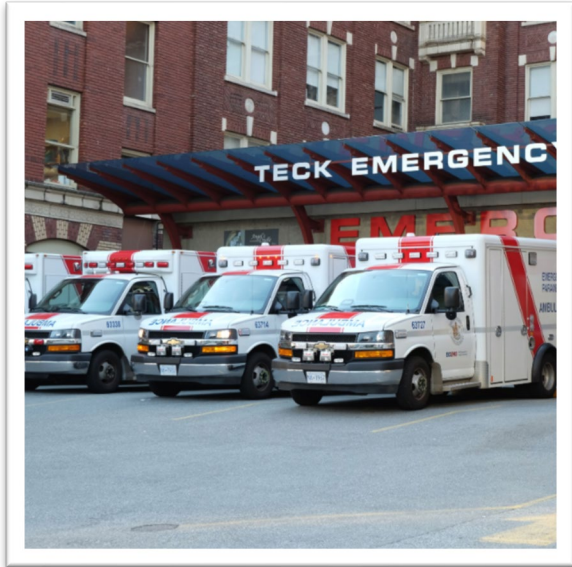
Disclosures are not relevant to this education



Learning Objectives

- Understand the concept of the potential value of remote HHUS in cardiac patients
- Have a brief understanding of the workflow of the project
- Understand how relationships and technical issues are both critical to the success of the project

Rural health looks different



St. Paul's Hospital, Vancouver, BC



Takla Landing, BC



Takla Landing Health Centre,
Takla Landing, BC

Rural Virtual Echocardiography Project



- Collaborative project
- **Hypothesis:** That a limited set of HHUS images acquired by a remote FP and with interpretation by an offsite cardiologist can facilitate triaging of patients in remote settings to allow timely access to advanced cardiac care and potentially reduce unnecessary travel.
- Ultimate goal to advance equity in access to healthcare for rural BC citizens
- Research evaluation study has been embedded to examine the training process and implementation of the project.



What is a Cardiac Focused Handheld Ultrasound? (CF-HHUS)



- Simplified study protocol conducted by rural physicians in remote communities for non-urgent cardiac cases
- Less extensive and time consuming than a traditional echocardiogram study and can be conducted in-community as opposed to exclusively in urban centres.
- Borrows from PoCUS principles, but extended to include some elements of cardiac ultrasound (color Doppler)



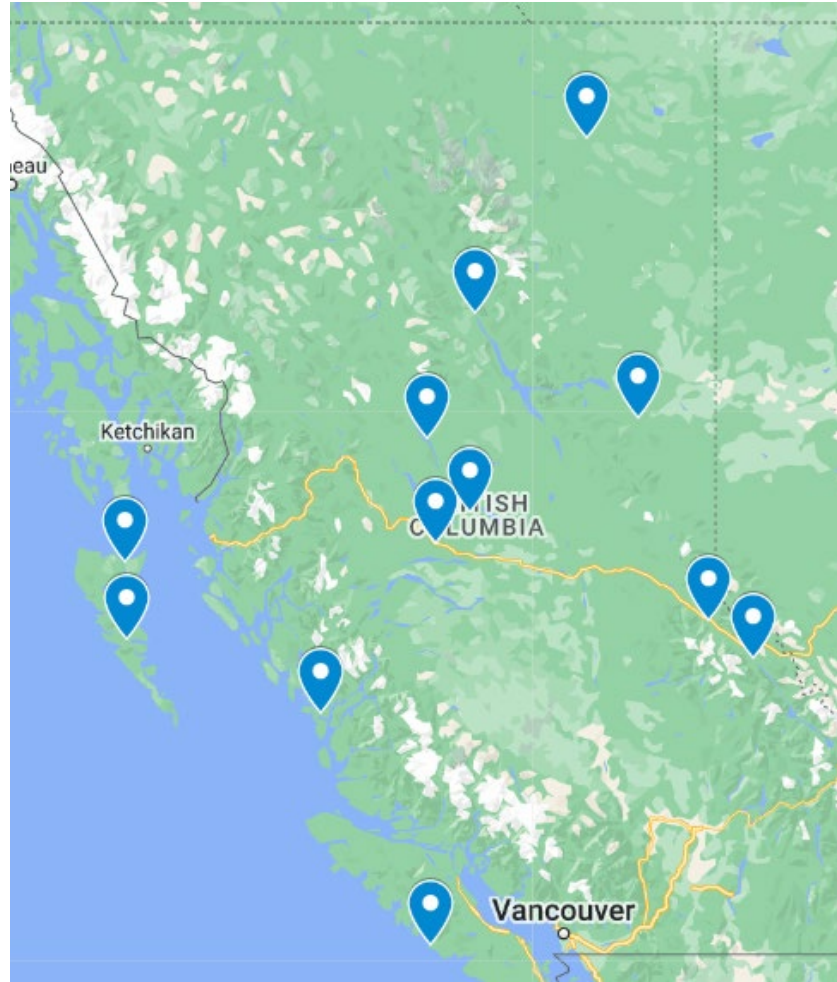
Project Overview

- 12 rural physicians trained
- Newly developed curriculum
 - Online pre-course training materials
 - 2-day in-person training: Oct 2022 at St. Paul's Hospital
- Nine Clarius ultrasound probes distributed to rural communities for duration of project
- Go-live date: Nov 15th, 2022

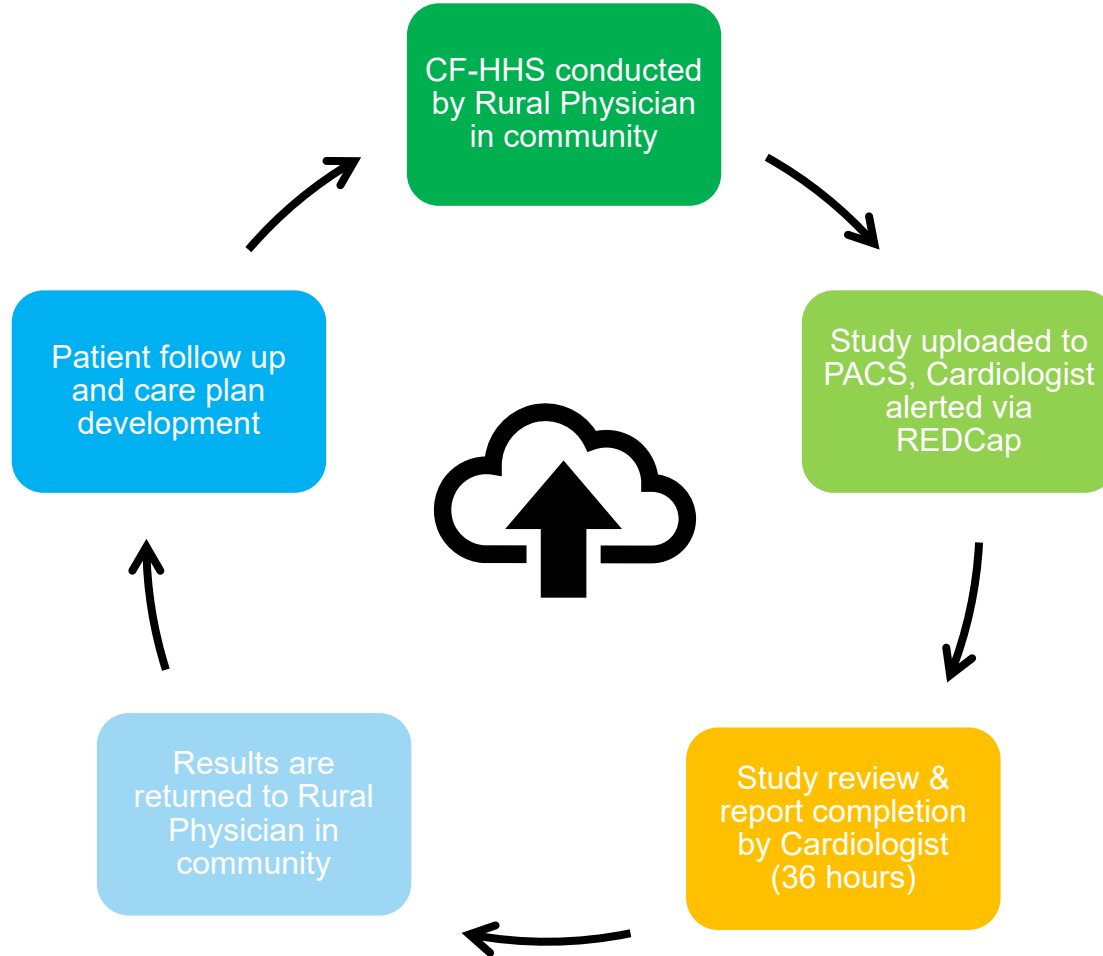


Communities

- Bella Bella
- Burns Lake
- Chetwynd
- Daajing Giids/Haida Gwai
- Fort Nelson
- Kwadacha and Tsay Keh Dene FN
- McBride
- Masset
- Takla Landing (CSFS)
- Tofino
- Valemount
- Yekooche (CSFS)



Workflow



Sample Limited Echo Report



1. Patient demographics
2. Indication for study
3. Name of sonographer, name of reporting cardiologist.
4. Echo findings/diagnoses: 3 line, free text
5. Comments: free text
6. Poor image quality, non-contributory, manage clinically
7. Recommendations:
 - a. No major cardiac pathology manage clinically according to guidelines
 - b. Cardiac diagnosis: Recommend non-urgent comprehensive echo exam (0-6 months)
 - c. Cardiac diagnosis: Recommend urgent echo exam (within 4 weeks)
 - d. Cardiac diagnosis, recommend cardiac consult (non-urgent)
 - e. Recommend cardiac consult (urgent<4 weeks)
 - f. Major cardiac diagnosis, recommend urgent in-hospital transfer

Progress



February ~50 studies have been successfully uploaded and reports issued.

1. **Patients:** The mean age was 65, 31% female.
2. **Findings:**
 - Quality was good in 50%, fair in 36% and poor in 14%.
 - A cardiac diagnosis was identified in 41%. Cardiac diagnoses included aortic stenosis/sclerosis, left atrial enlargement, increased wall thickness and LV dysfunction.
3. **Recommendations:**
 - In 45% continuing guidelines directed management was recommended.
 - In 45% formal echo study within 6 months was recommended.
 - In one study image quality was insufficient or recommendation.
 - 9% of studies resulted in urgent cardiac referral (<6/12).

Key Takeaways at 6 Months

1. With relationships at the forefront, the program was built bottom up to meet the needs of rural providers and patients.
2. Cultivation of new and leveraging existing relationships were critical in engaging trainers and trainees to participate in the program.
3. The training curriculum was engaging and robust to learn the CF-HHUS echo protocol.
4. **Work in progress:** More attention to the clinical workflows (clinical information), and bullet proof uploading to the in-pocus cloud. Fine tuning research protocols.
5. Training environment was supportive, collegial and positively received.
6. Uptake is dependent of belief, confidence, and motivation



Partnership and Funding

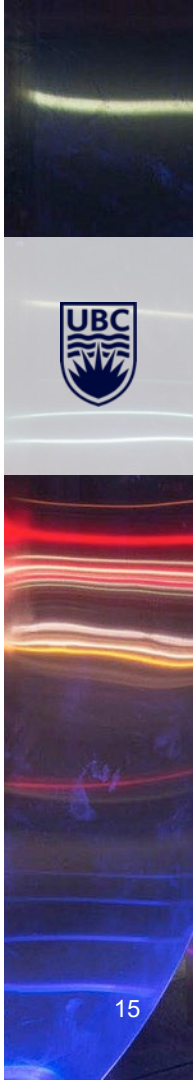


Dr. John Pawlovich
Dr. Rob Moss
Dr. James Liu
Dr. Allan Noordvyk
Dr. Dee Taylor, Lauren Currie, Alison James
Arianna Hogan

Rural Primary Care Physician
Cardiologist
Emergency Physician
Technology/Cloud System Consultant
Research Team
Project Coordinator

A special thank you to all our participating physicians and trainers!

PoCUS & CF HHUS Demo



Thank you



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