

HANDS-ON ULTRASOUND EDUCATION PROGRAM: Improving Patient Care in Rural Communities

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AIM

The Hands-On Ultrasound Education (HOUSE) Program was created to improve patient care in rural British Columbia, by offering customizable, high quality point-of-care ultrasound (POCUS) training to rural physicians in their home communities.

CONTEXT

Physicians delivering care in rural Canada have unique continuing professional development needs due to geographical isolation, lack of resources, and their role as generalists. The *UBC CPD Rural Emergency Medicine Needs Assessment*¹(2015) identified access to high quality, closer-to-home POCUS training as a top learning need for rural physicians. Additionally, due to the varying levels of pre-existing POCUS skill and knowledge among physicians, a customizable program that can adapt to each learner's level is essential.

“After the HOUSE course I used ultrasound to diagnose and treat a cardiac tamponade due to a stab wound that went into the left ventricle. The patient **survived**.”

- Northern BC physician, 2016

INTERVENTION

HOUSE provides rural physicians with the opportunity to tailor POCUS content to meet the specific needs of their medical community.

- Each community develops an agenda by choosing from a **menu of options**, which includes thematic learning modules (e.g., shock, trauma, dyspnea), POCUS applications (e.g., heart, eFAST, IVC, DVT)
- Instructors cater bedside teaching to **individual skill levels**
- In-person learning is **highly interactive and hands-on**, with all theoretical knowledge acquired in advance through an **online module**
- Low instructor to student ratio (1:2)
- Learners practice on **real patients** with pathological findings
- Skills are consolidated by **practice case scenarios**
- Learners have 3 customizable courses to meet their needs:



HOUSE EM: Acute Care
29 courses delivered



HOUSE IM: Internal Medicine
4 courses delivered



HOUSE OB: Obstetrics
19 courses delivered

The HOUSE program was developed and is operated by the UBC Faculty of Medicine's Division of Continuing Professional Development (UBC CPD) in partnership with the Rural Coordination Centre of BC within the UBC Rural CPD program. Funding for the HOUSE program was provided by the Joint Standing Committee on Rural Issues, a joint committee of the Doctors of BC and BC Ministry of Health.

EFFECTS

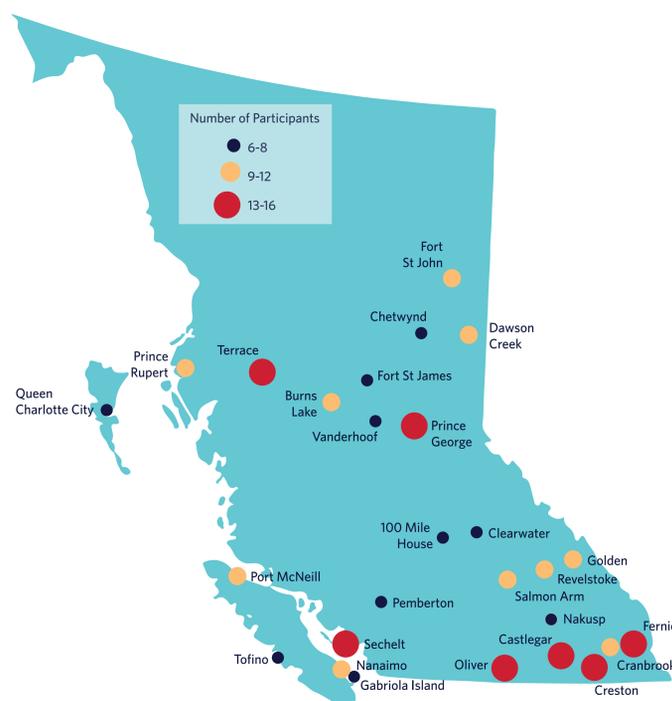
Since 2015, HOUSE has been fully subscribed and booked through word of mouth advertising, with a 6 month waiting list. Participants report increased use of POCUS in all care areas (ER, inpatient, ICU, OR, maternity and clinic) with improved confidence. HOUSE has been shown to improve physicians' confidence in integrating POCUS into patient care.

94%
USED ULTRASOUND
MORE FREQUENTLY*

91%
FELT MORE CONFIDENT
USING POCUS IN
PRACTICE*

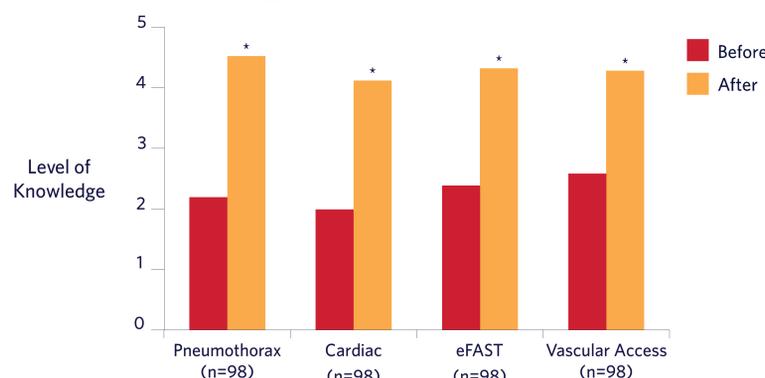
*statistics were reported by participants in a post-course survey with a 77% response rate (n=209)

HOUSE EM Courses in BC



MEASURING IMPROVEMENT

Participants' Knowledge of POCUS Applications



TIPS FOR SUCCESS

- ENGAGE** a local physician lead and on-site support person to help with course planning
- CREATE** an agenda with thematic clusters and case scenarios to assist with skill acquisition
- MAXIMIZE** hands-on time with a low instructor ratio
- INVOLVE** a well-rounded group of instructors, including rural physicians, POCUS fellowship trained physicians and POCUS trained ultrasound techs to provide multiple perspectives
- CONNECT** participants to ongoing educational opportunities to encourage skill uptake and retention, ideally with mentorship opportunities
- SUPPORT** the flexible and scalable nature of the course through administrative coordination that responds to community needs and requests

“I saw a young man who had recurrent presentations for chronic cough, who was treated with a number of courses of antibiotics. When I had a look at his heart on ultrasound I could easily see his **severely impaired cardiac function**, and so I was able to provide appropriate treatment for heart failure.”

-Vancouver Island physician, 2016

SUSTAINABILITY

- Program planners are taking preliminary steps to further support learners with ongoing educational opportunities, including instructor in-person follow up visits to a rural site, online mentorship, and a digital ListServ community
- HOUSE has partnered with BCPoCUS and the Rural Coordination Centre of BC to develop an open-source POCUS resource website, which includes rapid summaries and videos to support point-of-care learning

“POCUS has helped me with several patients, in determining if they need urgent transport to a higher level facility or if they are **stable enough to stay in our rural department**.”

-Interior BC physician, 2017

Reference: 1. <https://ubccpd.ca/rural/research/rural-em-na>

For more information, contact us at cpd.house@ubc.ca