

Prevalence of Point-of-Care Ultrasonography in NL

Objective

To determine the prevalence of point-of-care ultrasonography (POCUS) devices in NL and to characterize the patterns of POCUS use among physicians in NL.

Practice Points

1. Physicians describe POCUS as essential for patient care, especially for procedural guidance, with rural physicians highlighting its utility in making a timely and correct diagnosis.
2. Barriers to POCUS training include rural worksites, travel costs, difficulty getting time off work, lack of institutional support, and availability of POCUS machines.
3. Implementing POCUS training by engaging both rural clinics and urban centers using competency-based frameworks can provide an excellent learning experience for residents and nurse practitioners in NL.

Methods (PI: Dr. G. Sheppard)

1. Data were collected in two phases with a combination of quantitative and qualitative methods.
2. In the first phase, the prevalence of POCUS devices in NL was estimated using purchase orders obtained under the Access to Information and Protection of Privacy Act (ATIPPA) from the four provincial Regional Health Authorities (RHA). The total number of POCUS devices within the geographic limits of the four RHAs were cross-verified through email or telephone with respective administrative officers.
3. In the second phase, the patterns of POCUS use among ten physicians practicing in NL were assessed through a standardized questionnaire to determine the level of confidence in using POCUS and a semi-structured theme-based interview to characterize the patterns of POCUS use in their clinical practice.

Results

Table 1. Prevalence of Point-of-Care Ultrasonography Devices in NL

Location	Population Census 2016	Devices per Region	Devices per 100,000
Labrador-Grenfell	36,072	14	38.8
Western	77,687	12	15.4
Central	92,690	4	4.3
Eastern	313,267	35	11.2
Total	519,716	65	12.5

- The overall prevalence of POCUS devices in NL was 12.5 per 100,000 population.
- The highest prevalence of POCUS devices was in Labrador-Grenfell Health.

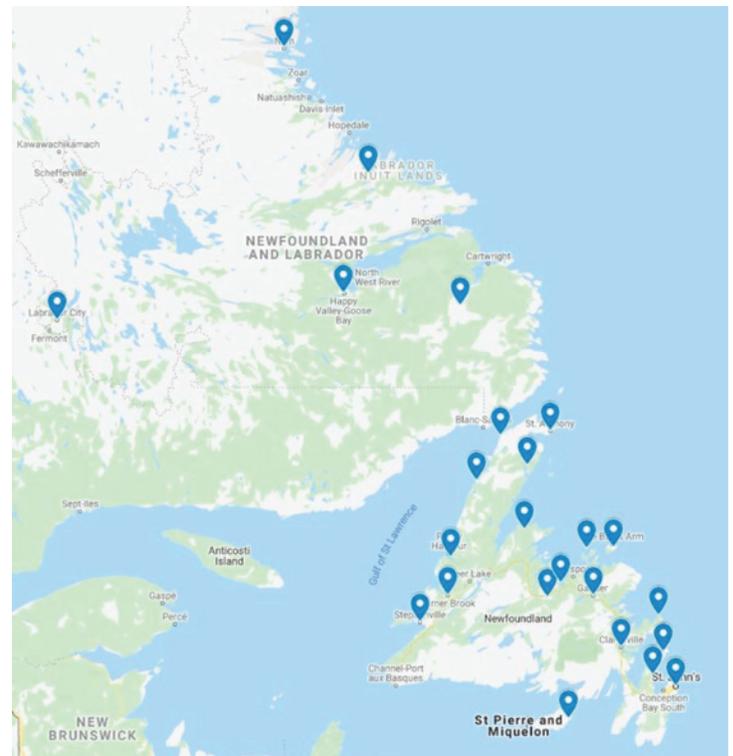


Figure 1. Location of Point-of-Care Ultrasonography Devices in NL

- The prevalence of POCUS devices in urban centers in NL was 20.0 versus 12.6 per 100,000 population in rural NL.

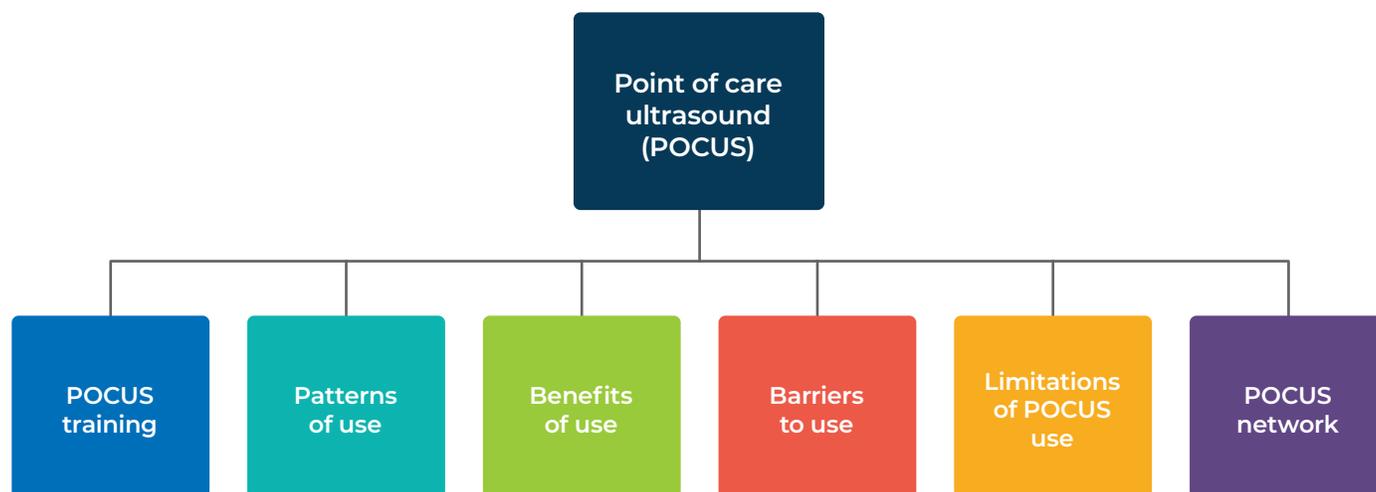


Figure 2. Common Themes Identified From the Interviews

- Participants reported that there were significant barriers in training and acquiring competence in POCUS, especially for rural physicians.
- The majority of physicians in NL described the importance of continuing medical education and support for POCUS and endorsed the idea of developing a province-wide POCUS network.
- There were significant concerns amongst physicians about privacy, documentation, and legal accountability of POCUS findings that need further research and assessment.

Table 2. Degree of Comfort With Using POCUS

Most Comfortable	Least Comfortable
<ul style="list-style-type: none"> • Trauma • Early pregnancy • Pneumothorax • Aortic aneurysm • Ascites 	<ul style="list-style-type: none"> • Testicular torsion • Pneumonia • Deep vein thrombosis

Table 3. Degree of Confidence in Doing Procedures Using POCUS

Most Confident	Least Confident
<ul style="list-style-type: none"> • Central lines • Arterial lines • Peripheral intravenous lines • Paracentesis • Thoracocentesis • Abscess drainage • Jugular venous pressure assessment 	<ul style="list-style-type: none"> • Pericardiocentesis • Peripheral nerve blocks • Peritonsillar abscess drainage • Lumbar puncture • Peripherally inserted central catheter (PICC)

Conclusions

1. The prevalence of POCUS devices in NL was 12.5 per 100,000 population. The majority of the POCUS equipment is located in urban locations.
2. All participants were confident in their overall ability to acquire and interpret images and operate the portable ultrasound device.
3. The analysis of 10 interviews showed that there were barriers to training in POCUS for rural physicians, suggesting a need for a province-wide POCUS training network.