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## Barriers to Implementation of Point-Of-Care Ultrasound in Primary Care: Interval Change

Joel Feier

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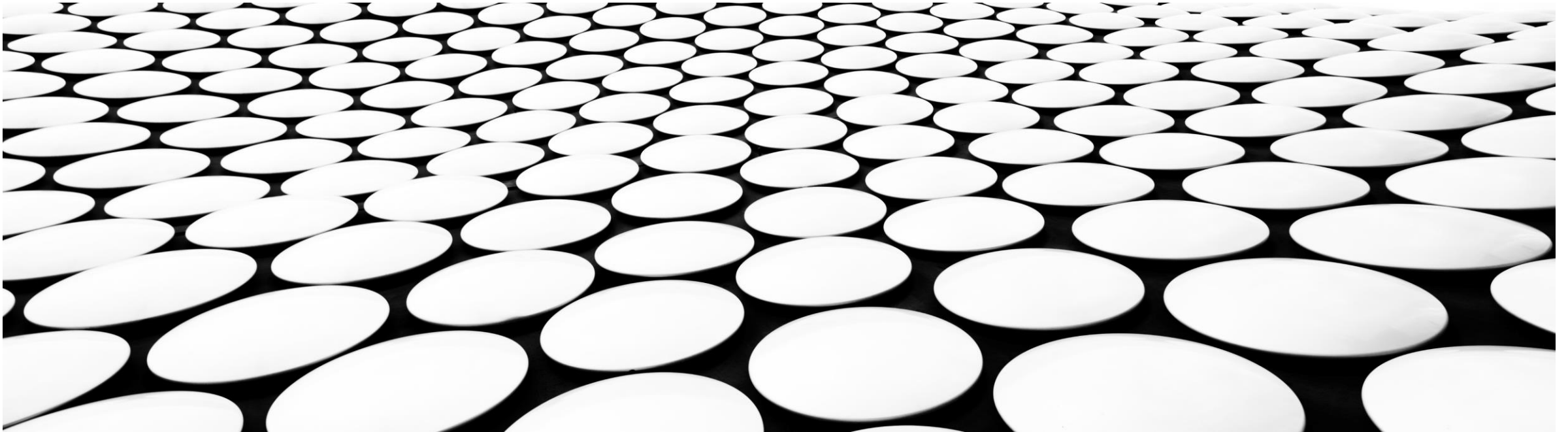
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# **BARRIERS TO IMPLEMENTATION OF POINT-OF-CARE ULTRASOUND IN PRIMARY CARE: INTERVAL CHANGE**

JOEL FEIER, CLASS OF 2023; BERLIN, VT DECEMBER 2021- JANUARY 2022

(BASED ON JACK DUBUQUE'S (CLASS OF 2021) FAMILY MEDICINE CLERKSHIP PROJECT)



# PROBLEM IDENTIFICATION

- Point of Care Ultrasound (POCUS) is a quick, noninvasive, and widely available tool. Its use is rapidly evolving in inpatients settings, and over the past several years its introduction and utility has been explored in outpatient and primary care settings
- POCUS enables providers to rapidly evaluate problems, and may provide objective information aiding the need for urgent vs routine referral to specialists
- POCUS may increase patient satisfaction and access to specialists, the latter being a significant challenge to Vermont's rural patient population during the COVID-19 pandemic
- The use of POCUS for screening and initial workup of various complaints may lead to a cost savings<sup>1</sup>
- Despite the benefits of POCUS in primary care setting, adoption of this modality on a widespread basis has been variable<sup>2</sup>
- This study aims to document the concerns of PCP's about the use and implementation of POCUS and compare the results to a prior survey disseminated by Jack Dubuque in 2019 prior to the COVID-19 pandemic

# PUBLIC HEALTH COST

- Implementing the use of POCUS in primary care settings involves the cost of the POCUS equipment, the cost of training residents/faculty, the cost of support staff needed to maintain the equipment, and the cost of training administrative staff to execute proper process of implementing a new imaging modality with appropriate reimbursement from insurance
- POCUS devices cost anywhere from \$2,000 to \$100,000+ depending on the size of the machine, complexity of capabilities, and purchaser relationship with manufacturer/vendor.
- The cost of properly training clinical staff on POCUS exam technique and interpretation is variable, as is the cost to training supportive and administrative task. This highly depends on the credentialing process of a given institution
- Implementation of POCUS in general practice has led to a measurable reduction in planned referrals<sup>3</sup>
- A systematic review by Andersen et al (2019) suggests that health care costs were lower with ultrasound in general practice vs secondary care, however, there is a paucity of research specifically investigating potential cost savings of POCUS<sup>4</sup>



## COMMUNITY PERSPECTIVE

- “Providing POCUS in a general practice setting for groups associated with the hospital is limited by administrative processes. To simply purchase equipment that costs a certain amount requires an extensive application and review by hospital administration. Therefore, success of newly implementing POCUS would rely on clearly delineated next steps by administration – outlining not only purchasing, but training of all clinical and non-clinical staff that would be involved.” –Anonymous 1, Berlin, VT
- “To develop adequate proficiency, physicians needs education and repetitive use of POCUS technique. This will take time within the visit, so benefit must be significant. If there is a need for more cases...to develop and maintain skills, will [POCUS] be used when not necessary? Will that increase health costs?” We need analyses of false positive and false negatives for various uses.” –Anonymous 2

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## INTERVENTION AND METHODOLOGY

- An electronic survey was developed based on the survey Jack Dubuque disseminated in his 2019 family medicine clerkship project entitled “Barriers to Implementation of Point-of-Care Ultrasound in Primary Care”
- The survey was designed in REDCap and distributed to general practice office managers located in Washington or Chittenden county. The email addresses of practice managers were provided by each county’s AHEC Program Manager. An open link to the survey was emailed to the practice managers with a request to forward the link to primary providers in their specific office.
- The survey did not have a time limit

# Barriers to Implementation of Point of Care Ultrasound in Primary Care

Resize font:  | 

Please complete the survey below.

Thank you!

What is your age group?

<30

31-40

41-50

51-60

>60

reset

What is your gender?

Male

Female

Non-binary

Prefer not to answer

reset

What type of primary care do you practice?

Family Medicine

Internal Medicine

reset

What is your health care provider license?

MD

DO

NP

PA

reset

How many years have you worked in primary care?

<2

2-5

6-10

11-20

>20

reset

How much of your time is dedicated to clinical practice?

<25%

26-50%

51-75%

>75%

reset

Your practice is best described as

Rural

Urban

Mix of Rural and Urban

reset

Do you currently use point of care ultrasound in your practice?

Yes

No

reset

Do you believe point of care ultrasound can be used to increase patient satisfaction?

Yes

No

Unsure

reset

Do you think use of point of care ultrasound in a primary care setting would facilitate your patients' access to specialists?

Yes

No

Unsure

reset

In your opinion, what are the barriers to adopting point of care ultrasound in your primary care practice? (Select all that apply)

+ None

+ Lack of awareness

+ Lack of training

+ Lack of equipment

+ Lack of evidence for any patient benefit

+ Lack of time

+ Lack of respect from other specialties (radiology, emergency medicine, OBGYN, ENT, etc)

+ Lack of administrative support

+ Legal concerns for practice

+ Non-billable service

+ Other

In your opinion, what are the prerequisites to adopt point of care ultrasound in primary care practice? (Select all the apply)

+ None

+ Training Guidelines

+ Credentialing Arrangement

+ Acquisition of equipment

+ Collaboration with other specialties (radiology, emergency medicine, OBGYN, ENT, etc)

+ Approval by risk management

+ Recommendation by a professional body (AAFP, ACP, etc)

+ Clearly delineated next steps according to hospital administration

+ Other

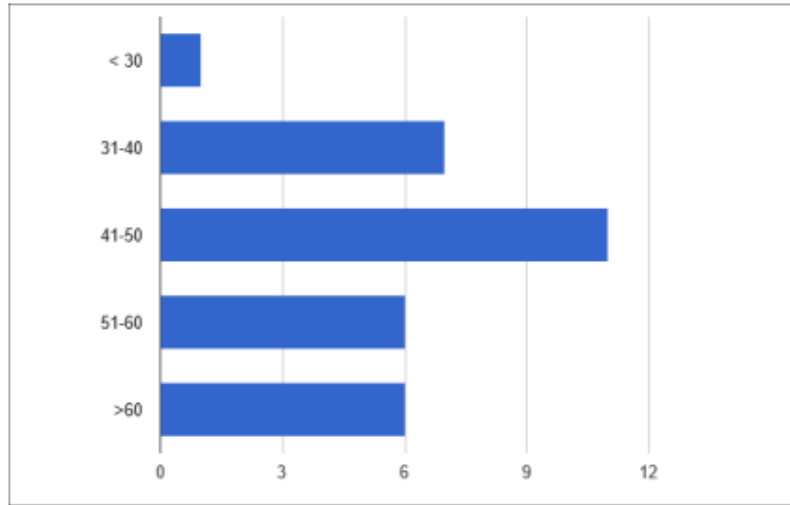
Please provide any additional comments or thoughts on barriers to point of care ultrasound implementation in your office (optional)

Expand

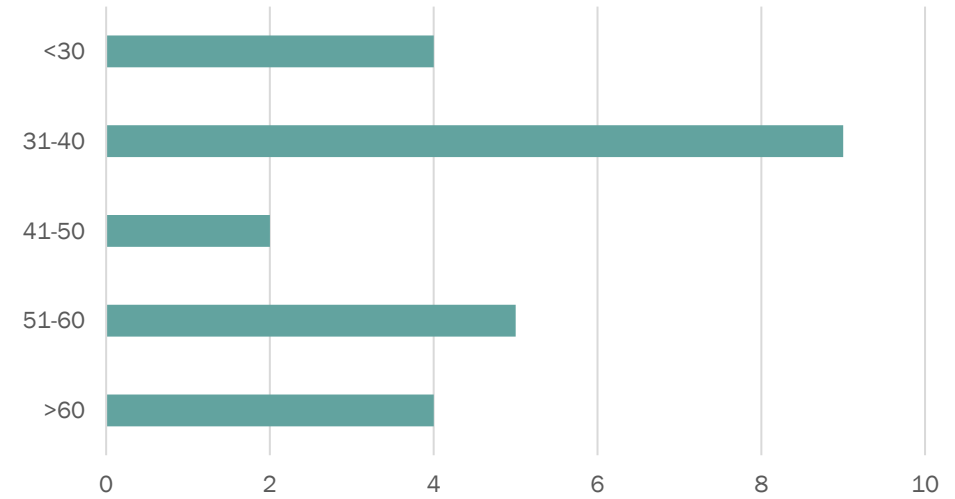
Submit

# RESULTS – DEMOGRAPHICS (2019 VS 2022)

2019

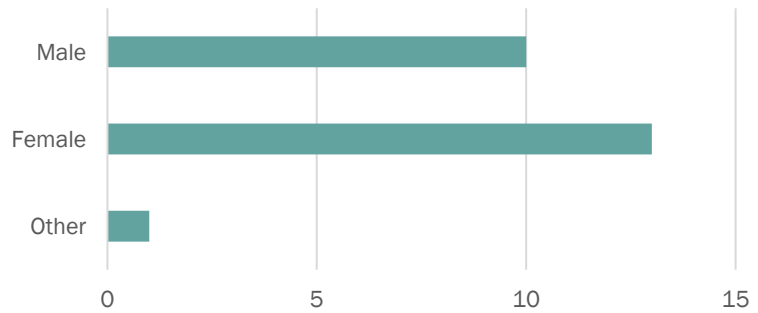
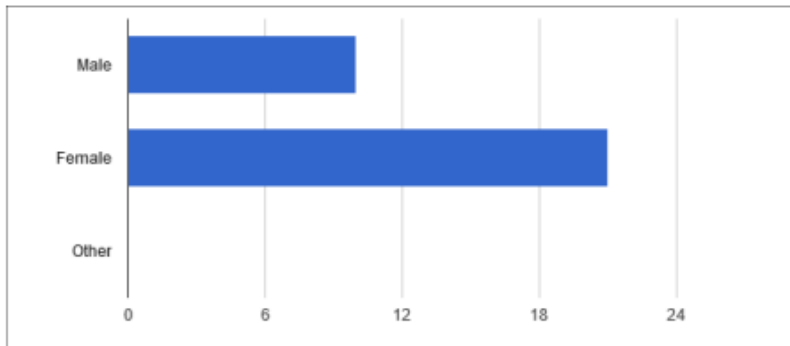


2022



AGE

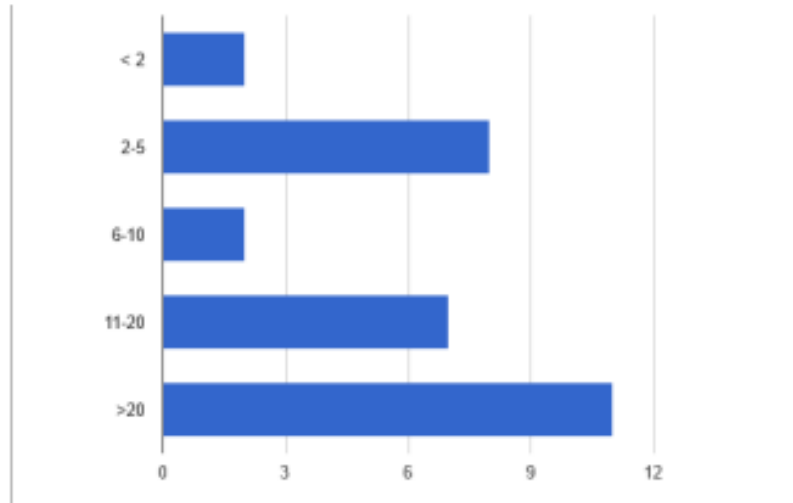
Gender



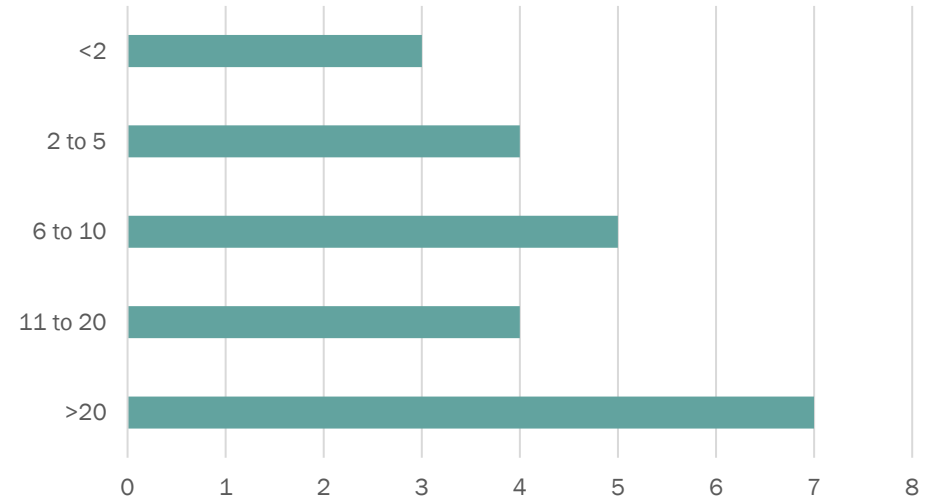


# RESULTS – DEMOGRAPHICS CONTINUED (2019 VS 2022)

2019

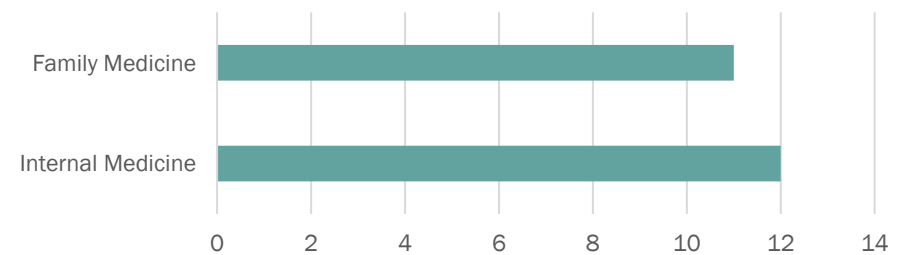
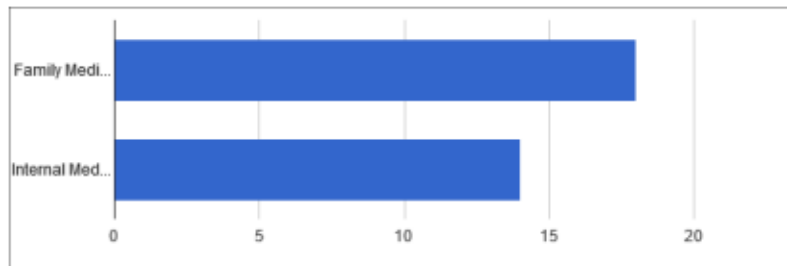


2022



Years in Primary Care

Specialty

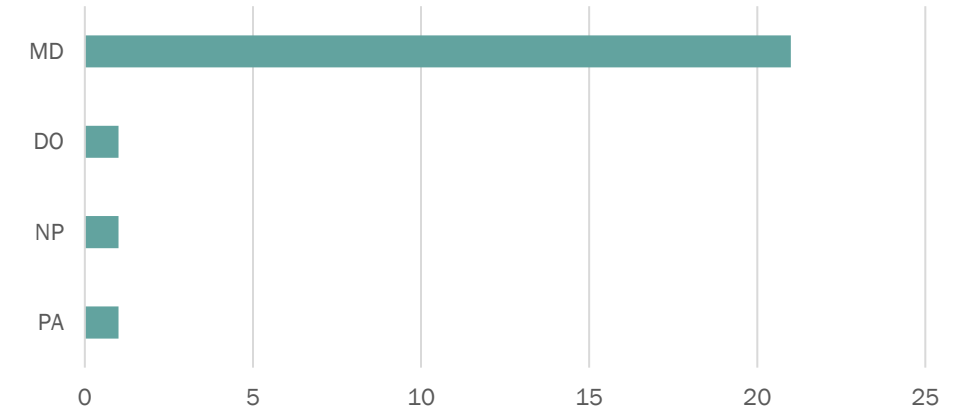
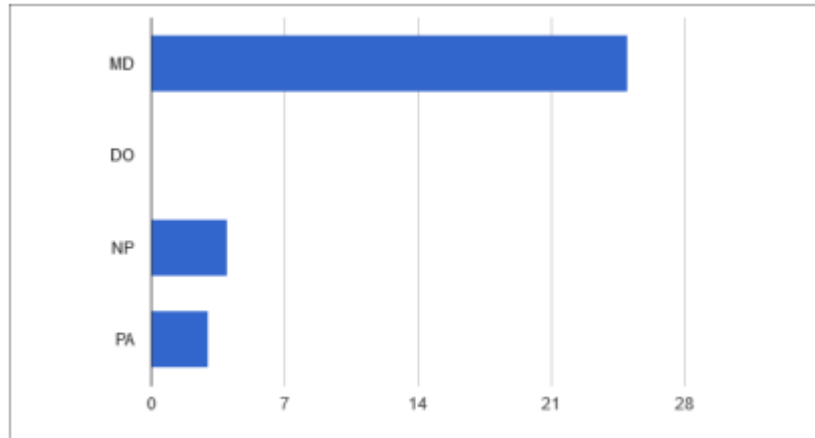


# RESULTS – DEMOGRAPHICS CONTINUED (2019 VS 2022)

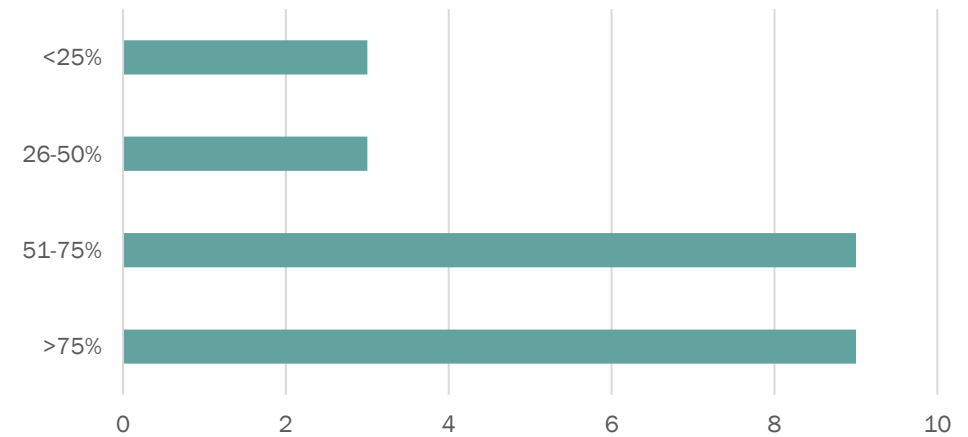
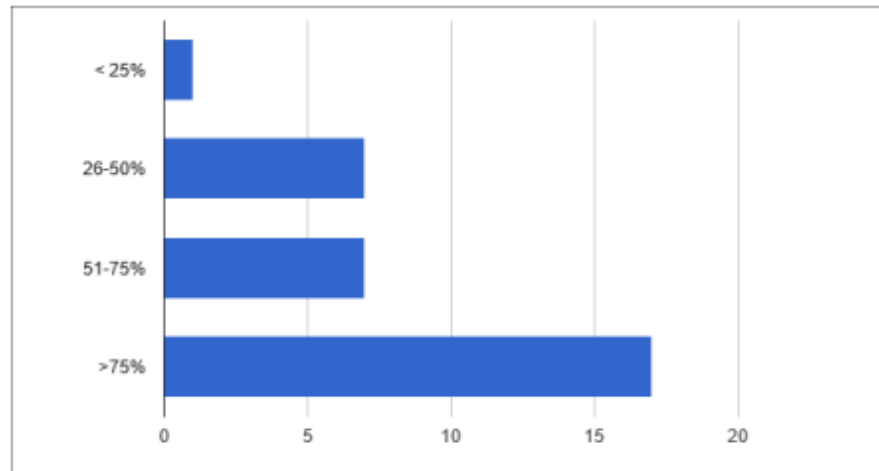
2019

2022

License



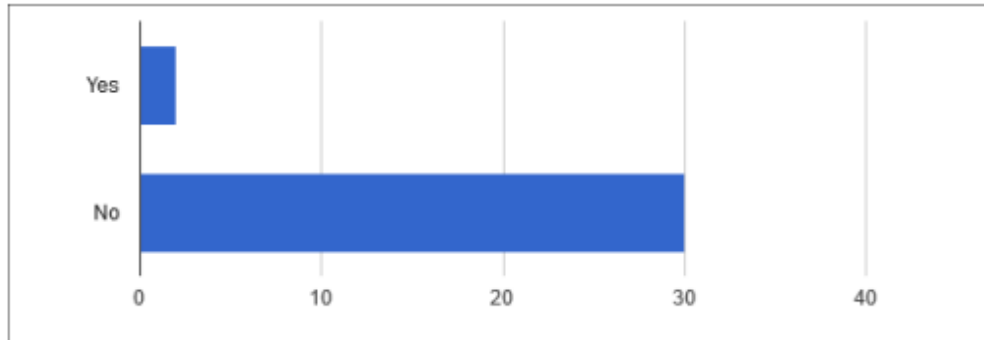
Percent of time Clinical



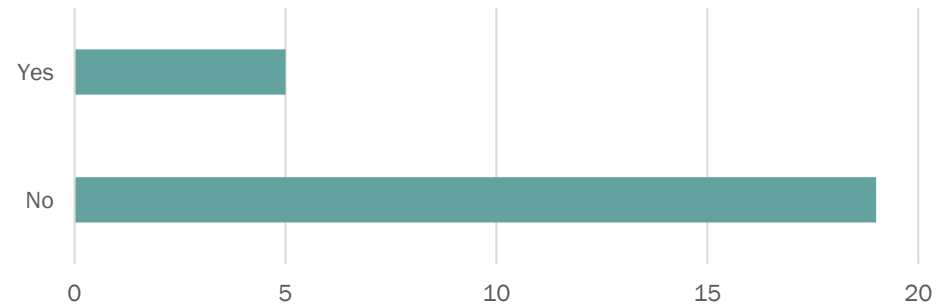
## RESULTS – USE OF POCUS (2019 VS 2022)

Do you use POCUS in your practice?

2019



2022

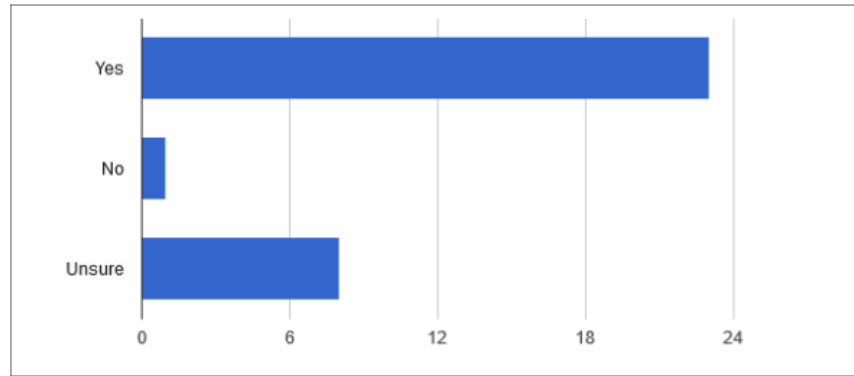


A larger proportion of providers surveyed in 2022 used POCUS in their practice.

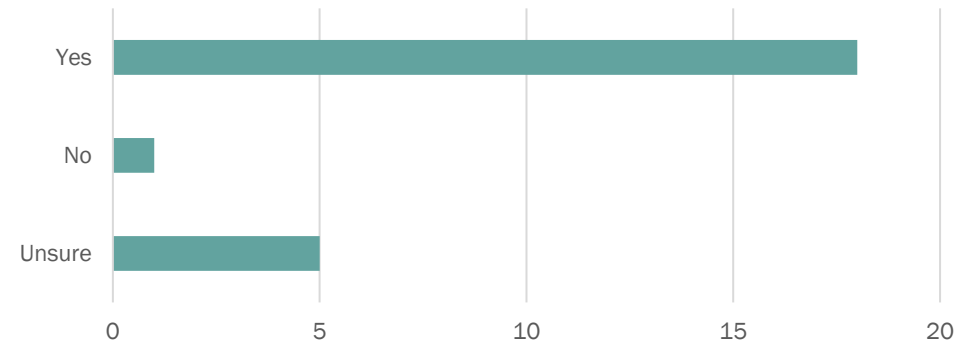
## RESULTS – PERCEPTION (2019 VS 2022)

Do you believe POCUS can be used to increase patient satisfaction?

2019

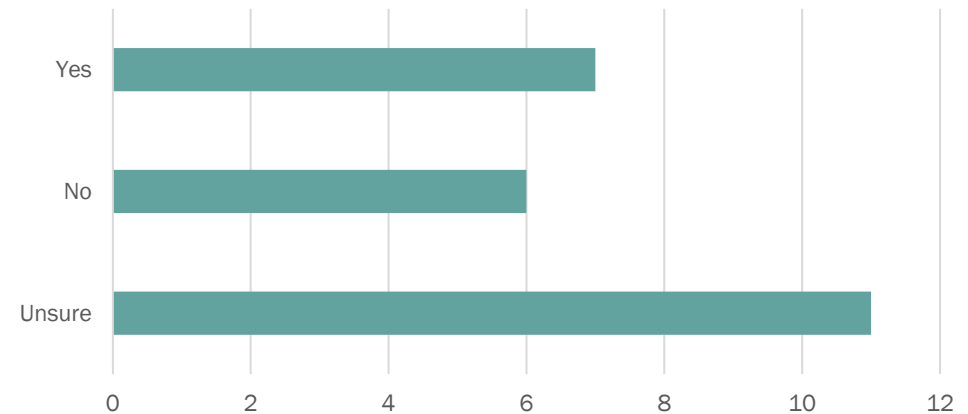


2022



Do you believe POCUS can facilitate access to specialists?

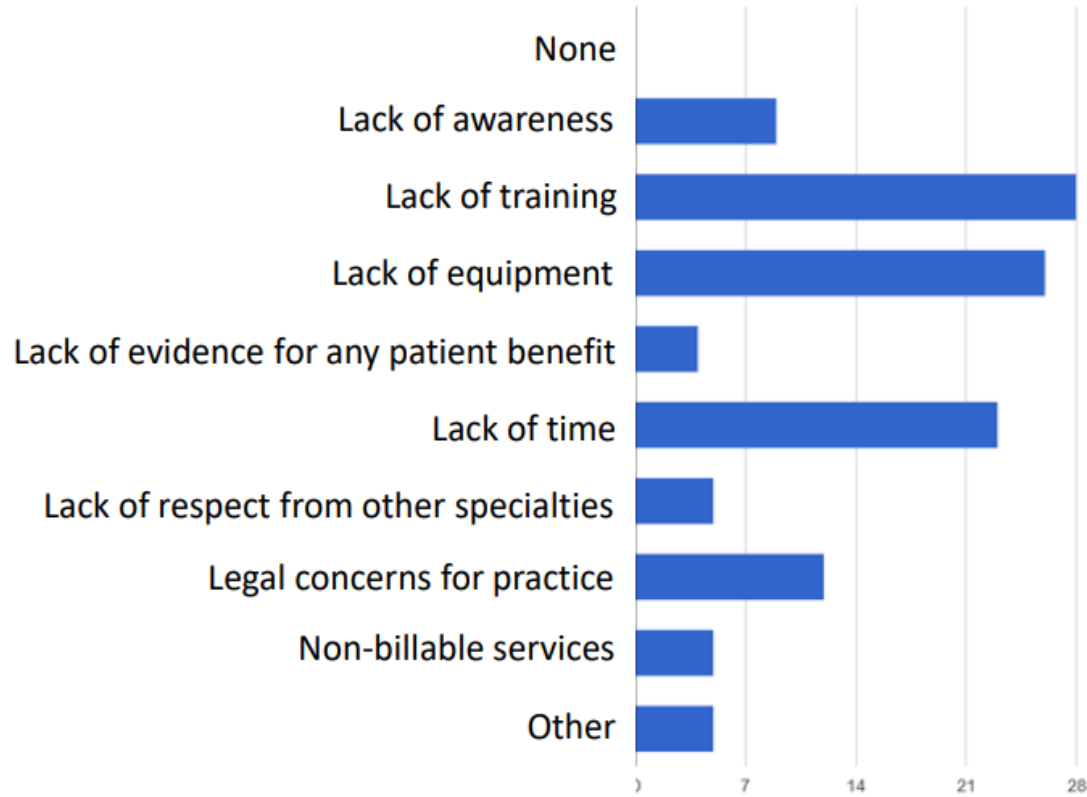
Not assessed in 2019



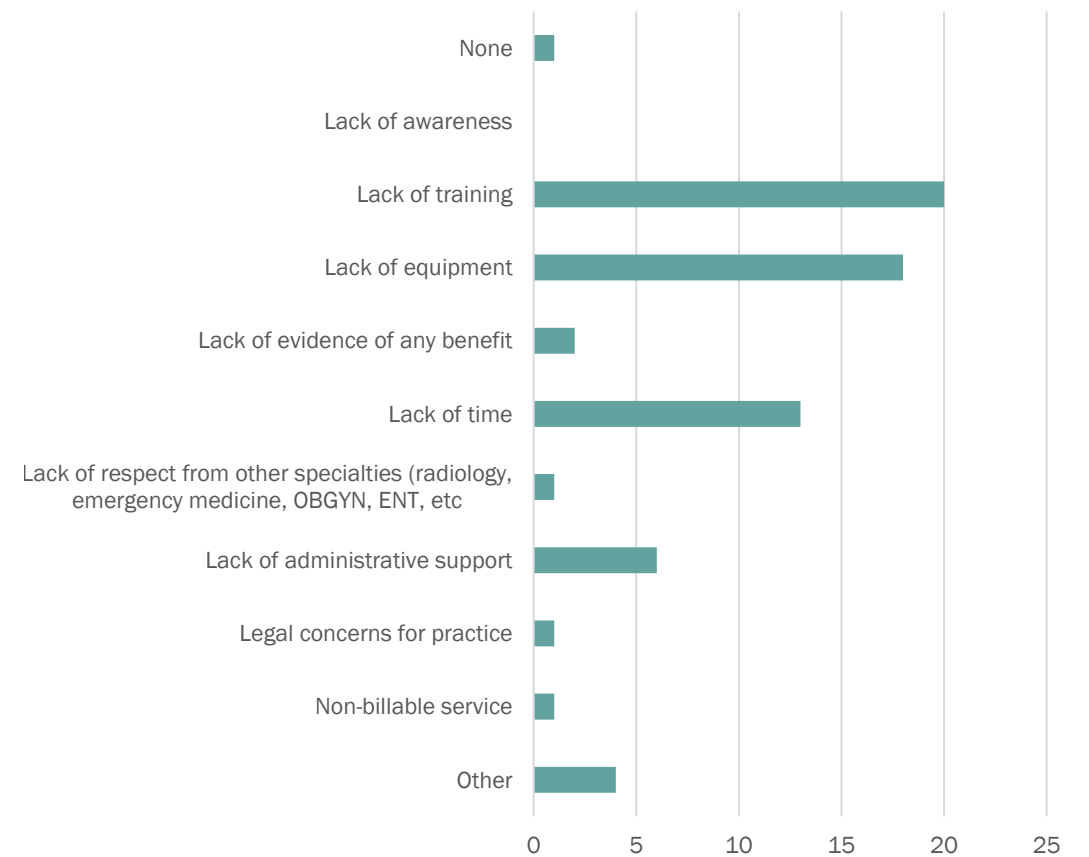
# RESULTS – PERCEPTION (2019 VS 2022)

In your opinion what are the potential issues in adopting POCUS in your primary care office?

2019



2022



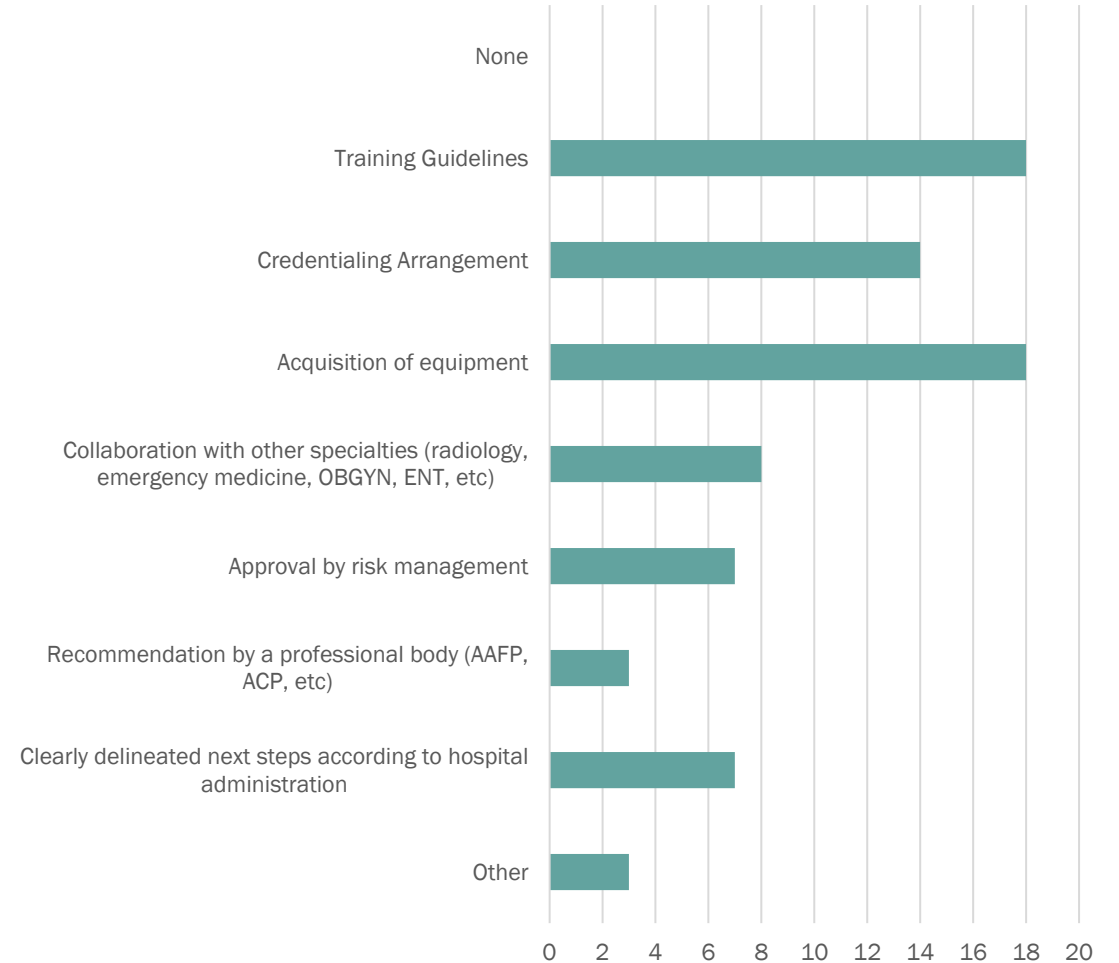
# RESULTS – PERCEPTION (2019 VS 2022)

In your opinion what are the prerequisites to adopt POCUS in primary care practice?

2019



2022



## EFFECTIVENESS

- An interval increase from 5% in 2019 to 20.8% in 2022 of primary care providers surveyed who use POCUS as part of their practice. 75% of surveyed providers in 2022 believe that POCUS will increase patient satisfaction compared to a similar number in 2019.
- However only 29% of providers believe that POCUS will facilitate access to specialists. 45.3% are unsure POCUS will do so
- Training, credentialing, time commitment, and acquisition of equipment remain as the most identified barriers to the adoption of POCUS in a primary care setting.

## LIMITATIONS

- Significantly fewer responses in 2022 compared to 2019 – may be due to survey access via practice managers as opposed to directly emailing providers.
- Unclear if practice managers forwarded survey to providers, and unclear how many providers belong to each practice – survey response rate was not possible to gauge
- Staffing shortage and stressors during the omicron wave of the COVID-19 pandemic likely impacted providers' ability to respond to surveys

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## **FUTURE WORK**

- Evaluate the perceived utility of POCUS among primary care providers for specific indications
- Perform a cost analysis of POCUS use for primary care providers in the state of Vermont
- Quality improvement project to investigate and delineate next steps for primary care offices interested in adopting POCUS as part of the UVM Health Network
- Future interval study (2025) to evaluate the adoption and barriers to POCUS use in primary care settings at that time



## REFERENCES

1. Van Schaik, G.W.W., Van Schaik, K.D. and Murphy, M.C. (2019), Point-of-Care Ultrasonography (POCUS) in a Community Emergency Department: An Analysis of Decision Making and Cost Savings Associated With POCUS. *J Ultrasound Med*, 38: 2133-2140. <https://doi.org/10.1002/jum.14910>
2. Aakjær Andersen C, Brodersen J, Davidsen AS, Graumann O, Jensen MBB. Use and impact of point-of-care ultrasonography in general practice: a prospective observational study. *BMJ Open*. 2020;10(9):e037664. doi:10.1136/bmjopen-2020-037664.
3. Díaz-Gómez JL, Mayo PH, Koenig SJ. Point-of-Care Ultrasonography. *New England Journal of Medicine*. 2021;385(17):1593-1602. doi:10.1056/nejmra1916062.
4. Andersen CA, Holden S, Vela J, Rathleff MS, Jensen MB. Point-of-Care Ultrasound in General Practice: A Systematic Review. *The Annals of Family Medicine*. 2019;17(1):61-69. doi:10.1370/afm.2330.