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Bedside ultrasonography performed by family physicians in outpatient medical offices in Whitehorse, Yukon

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Introduction: We sought to determine the current practices and opinions of family physicians in Whitehorse, YT, regarding bedside ultrasonography performed by family physicians in outpatient medical offices.
Methods: A paper survey was administered to Whitehorse family physicians. Only those who had worked for longer than 6 months in a community outpatient clinic in Whitehorse were invited to participate.
Results: The response rate of our survey was 44%. None of the respondents reported currently using bedside ultrasonography in their outpatient medical offices; however, 78% reported having training in ultrasonography and using it in another setting. Of the respondents, 94% stated they would consider using bedside ultrasonography in their outpatient medical office. Economics was the biggest reported barrier in the use of bedside ultrasonography in outpatient medical offices.
Conclusion: A wealth of experience in bedside ultrasonography already exists among family physicians in Whitehorse, and an overwhelming majority of physicians are ready to embrace its use in outpatient offices. However, the skills and willingness of family physicians have not translated into the use of bedside ultrasonography in outpatient medical offices.

Introduction : Nous avons voulu connaître les pratiques et les opinions courantes des médecins de famille de Whitehorse, au Yukon, en ce qui concerne leur utilisation de l'échographie dans des cliniques médicales ambulatoires.
Méthodes : Un questionnaire sur papier a été administré à des médecins de famille de Whitehorse. Seulement ceux qui avaient travaillé pendant plus de 6 mois dans une clinique ambulatoire communautaire de Whitehorse ont été invités à y répondre.
Résultats : Le taux de réponse à notre sondage a été de 44 %. Aucun des répondants n'a dit utiliser actuellement l'échographie à la clinique ambulatoire où il exerce. Toutefois, 78 % ont dit avoir suivi une formation en échographie et l'utiliser dans d'autres contextes. Parmi les répondants, 94 % ont affirmé qu'ils envisageraient utiliser l'échographie dans leur clinique médicale ambulatoire. Le facteur économique a été le plus important obstacle mentionné en ce qui concerne l'utilisation de l'échographie dans les cliniques médicales ambulatoires.
Conclusion : Les médecins de famille de Whitehorse ont une très bonne expérience de l'échographie et la grande majorité d'entre eux sont prêts à l'utiliser dans leurs cliniques ambulatoires. Toutefois, ces compétences et cette volonté ne se sont pas traduites par une utilisation concrète de l'échographie chez les patients des cliniques médicales ambulatoires.

INTRODUCTION

Bedside ultrasonography has been described as the "stethoscope of the future."[1] Many rural family physicians have been using ultrasonography in emergency departments and hospital obstetric wards for years, and the use of bedside ultrasonography has long been a topic of discussion among family physicians.[2,3] However, the practice of bedside ultrasonography by family

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physicians in outpatient medical offices has been less common,[4,5] and, to our knowledge, there are currently no published data examining this practice in Canada.

This article presents the results of a survey of family physicians in Whitehorse, YT. Our goal was to determine the current practices and opinions of family physicians regarding the performance of bedside ultrasonography in outpatient medical offices.

METHODS

Background

Whitehorse (population 26 304) is the capital and the medical referral centre for the Yukon Territory (population 34 667). Although Whitehorse is not a rural location, it shares many characteristics with other Canadian rural locations because of its distance from major tertiary medical centres such as Vancouver, BC, and Calgary, Alta. At present, Whitehorse does not have a radiologist on site. All ultrasonography studies are performed by local ultrasound technicians and are interpreted remotely by a radiologist in Vancouver or Calgary. There is no established hospitalist program, and most family physicians provide care for their own patients who are admitted to the hospital. The emergency department is predominantly staffed by physicians who also work in the community outpatient medical offices.

The survey

A paper survey consisting of 8 questions (Appendix 1) was distributed to Whitehorse family physicians at 2 Yukon Medical Association events where most of the family physicians practising in Whitehorse were expected to attend. Only family physicians who had worked for longer than 6 months in a community outpatient clinic in Whitehorse were invited to participate. The physicians were asked to complete the survey only once. The University of Calgary Conjoint Health Research Ethics Board, with the consultation of the Yukon Medical Association, approved the survey.

RESULTS

At the time of the survey's distribution, 41 family physicians were practising in Whitehorse. We collected 21 completed surveys from the 2 events. Three surveys were excluded because respondents did not meet the inclusion criteria. The response rate of our survey was 44% (18/41).

Ten (56%) of the respondents had practised family medicine for longer than 15 years, 4 (22%) for less than 5 years and 4 (22%) for between 5 and 15 years. None of the respondents used bedside ultrasonography in their outpatient medical setting at the time of the survey. However, 1 respondent had used bedside ultrasonography in an outpatient medical office in the past. Fourteen respondents (78%) had previous training in ultrasonography, with most having received the training through a continuing medical education course such as the Emergency Department Echo course. Although no respondent used bedside ultrasonography in their outpatient medical offices, they did use it in other settings. The specific areas in which bedside ultrasonography was being used are summarized in Figure 1. Fourteen (78%) of the respondents thought the results of bedside ultrasonography would change their clinical decision, whereas 3 (17%) respondents were not sure. One respondent stated "not applicable" for the question. Thirteen (72%) respondents thought the use of bedside ultrasonography in an outpatient medical office would improve patient care, and 5 (28%) respondents were not sure. Seventeen (94%) respondents would consider using bedside ultrasonography in the outpatient medical office if training and equipment opportunities arose. The respondents rated economics (i.e., equipment cost and remuneration) as the biggest barrier to the use of bedside ultrasonography in the outpatient medical office, followed by confidence, reliability and skill maintenance.

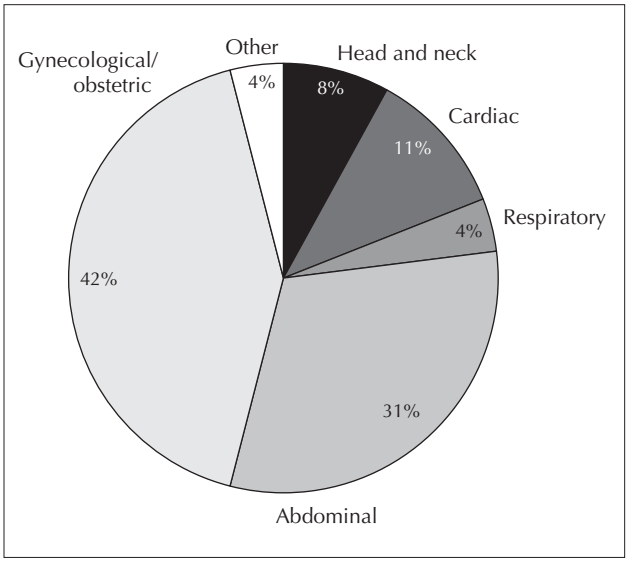


Fig. 1. Areas of clinical application for which family physicians reported using bedside ultrasonography.

DISCUSSION

Although access to ultrasonography is not an issue in Whitehorse because of the availability of ultrasound technicians and diagnostic imaging support, there may be advantages to family physicians performing bedside ultrasonography. Ultrasound technicians are a scarce resource in many remote and rural locations because of the difficulty of recruitment and retention. Although the best way to manage this scarce resource is appropriate referral, bedside ultrasonography performed by family physicians may lessen the workload of ultrasound technicians. Bedside ultrasonography performed by family physicians will most often be focused in scope and used to answer a specific clinical question (e.g., is there an intrauterine pregnancy?). With this extra and instantaneous information, family physicians may then be in a better position to decide whether the patient requires a referral for ultrasonography.

Because Whitehorse is the medical referral centre for the entire Yukon Territory, many patients must travel significant distances for their medical appointments. It would certainly benefit the patient if the required information could be obtained by bedside ultrasonography in the outpatient medical office during the same appointment, instead of the patient needing to return to Whitehorse several times for the ultrasonography appointment and to obtain the result. Among patients in whom follow-up and adherence is poor, the use of bedside ultrasonography may facilitate timely diagnosis and prevent the patient from being lost to follow-up.

In rural communities where formal ultrasonography is not available, focused bedside ultrasonography could enhance clinical decision-making regarding patient transfer and management. One example would be a woman who presents with mild pelvic pain and is found to be pregnant, incidentally. If the patient were at very low risk for heterotopic pregnancy and bedside ultrasonography revealed a normal intrauterine pregnancy, the clinician would probably not urgently transfer the patient based on a presumptive diagnosis of ectopic pregnancy. On the other hand, bedside ultrasonography that showed a distended appendix with fat-stranding in the appropriate clinical context would help the clinician make the referral quickly and appropriately. Since the 1980s, the use of bedside ultrasonography by family physicians in gynecology and maternity care has been investigated. Ultrasonography performed by family physicians was deemed to accurately predict delivery date and diagnose fetal anomaly in several studies.[6–9] Many potential uses of bedside ultrasonography in outpatient medical offices have been investigated, including screening for abdominal aortic aneurysm,[10] musculoskeletal diagnosis and procedural guidance,[11] and focused echocardiography.[12–14] However, there is no consensus on how family physicians can safely use bedside ultrasonography in outpatient medical offices, and further research is needed.

Ultrasonography performed by family physicians was found to be cost-effective in studies in the United Kingdom and the United States.[3,15] In Canada, physician remuneration differs depending on the jurisdiction. Whereas some may argue that the use of bedside ultrasonography is an elaborate extension of the bedside stethoscope physical examination, others may insist that bedside ultrasonography is an appropriate office-based investigation (similar to electrocardiography or 24-hour blood pressure monitor), where fee-for-service physicians could bill for interpretation and a technical fee. This may be a discussion physicians need to have among themselves and with the health authorities.

Limitations

Limitations of this survey include the moderate response rate, the small sample and the small geographical area. Despite sharing some similarities with rural communities, Whitehorse is not a rural community, and its physicians' experiences may not be generalizable to rural settings. Future research on this topic may survey more rural physicians in a greater geographical area.

CONCLUSION

Although rural family physicians have been using bedside ultrasonography in emergency and inpatient wards for many years, its use in the outpatient medical office is limited. From our survey, we found that a wealth of experience in bedside ultrasonography already exists among family physicians in Whitehorse. An overwhelming majority are ready to embrace its use in outpatient medical offices. Most of the physicians surveyed believe that bedside ultrasonography would improve patient care. However, the skills and willingness of family physicians have not translated into the use of bedside ultrasonography in outpatient medical offices. The barriers identified are economic (i.e., equipment cost and remuneration) and training issues (i.e., confidence,

reliability and skill maintenance). Although the results of this survey may not be generalizable to rural and remote communities, they serve to initiate dialogue on future research and discussion on the role of bedside ultrasonography in outpatient family medicine clinics.

Competing interests: None declared.

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Appendix 1. Survey distributed to family physicians in Whitehorse, Yukon

Please circle all the appropriate answers.

1. Do you use bedside ultrasonography in your outpatient community clinic (i.e., nonemergency setting such as family practice clinic, walk-in clinic, nursing stations)?
   Yes No
2. Do you have any ultrasonography training?
   Continuing education course (e.g., EDE course) Official diploma Component of residency/prior training
   Ad-hoc preceptor/mentor Self-taught Other, please specify
   None
3. How do you use bedside ultrasonography in your outpatient community clinic?
   Procedure guidance Diagnostic Both Other, please specify
4. What area of clinical application do you use bedside ultrasonography for?
   Head and neck Cardiac Respiratory Abdominal Gynecological Obstetric
   Other, please specify
5. Do you think bedside ultrasonography will change your clinical decision?
   Yes No Not sure
6. How do you think bedside ultrasonography in your outpatient community clinic will affect patient care?
   Improve No change Worsen Not sure
7. If training and equipment opportunities arise, would you consider using bedside ultrasonography in your outpatient clinic?
   Yes No
8. What do you think are the barriers to general practitioners using bedside ultrasonography in outpatient clinics?
   Training availability Economics (equipment cost/remuneration) Lack of evidence Other, please specify

EDE = Emergency Department Echo.