

State of Ultrasound

2023 REPORT

What is the current state of ultrasound? This dynamic imaging modality has long been used in hospital settings. More recent advancements in ultrasound portability have allowed it to move outside hospital walls and into clinics and private practices. There, practitioners and specialists are using ultrasound to provide real-time, immediate care to their patients, improving diagnosis, procedural safety, outcomes, and costs.

But how many specialists and clinicians are actually using it? Are they fully realizing the benefits and value ultrasound can bring to their practice and to their patients?

To better understand the current state of ultrasound usage, we surveyed 687 physicians in various specialties from the US, UK, and Canada, 87% of whom own their own practice. We wanted to get a better understanding of what physicians believe about ultrasound – Does it bring value? How does it impact patient care? What are some common hurdles to bringing ultrasound into practice?

We learned that physicians are positive about ultrasound and actively adopting it within their practice – 85% believe ultrasound leads to better patient outcomes and 87% plan on purchasing a system in the next year to upgrade legacy systems or expand access within their practice.

However, obstacles and misconceptions must still be overcome before the potential of ultrasound is fully realized in a broader range of practitioner settings. These include training, cost, portability, and workflow optimization to make time for introducing this modality at the point of care.

We hope you'll use these findings – to not only benchmark where your practice is in regards to incorporating ultrasound – but to learn more about how this technology can lead to better patient outcomes.



Ohad Arazi

President & CEO | Clarius

The physicians we surveyed gave us the following five key insights about how they engage with ultrasound.

85% believe that ultrasound leads to better patient outcomes. Physicians see ultrasound bringing value to patient care through real-time imaging, ease of bedside use, providing image guidance for procedures, and the fact that it's a radiation-free alternative.

Expanding services is the top driver for incorporating ultrasound into a practice. Other drivers include improving patient outcomes, improving patient education and engagement, and reducing medical costs for patients.

86% have an ultrasound machine at their practice. Additionally, 87% plan to purchase additional ultrasound machines, or upgrade legacy ones in the next year, as a way to expand their services.

Not being trained in ultrasound is the primary reason for not having one. Reasons for passing on ultrasound include the impression that ultrasound is too expensive, and that the practice already has a system of referring patients elsewhere.

89% believe that all clinicians should be trained in ultrasound. This includes heavy ultrasound users like emergency physicians and cardiologists, as well as relative newcomers to the benefits of ultrasound like orthopedic surgeons, plastic surgeons, and cosmetic dermatologists.

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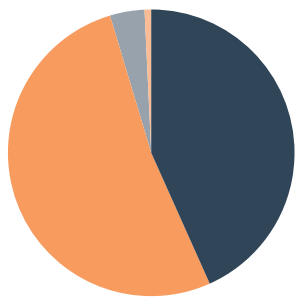
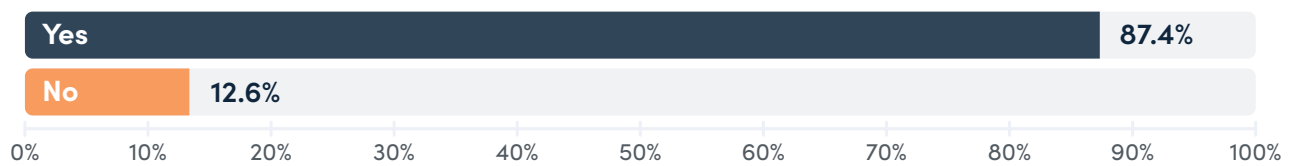
PART #5

Actionable Takeaways for Physicians

Methodology and participant demographics

To provide greater context around these findings, here are more details on who we surveyed and the methodology used. Starting on November 1, 2022, we surveyed 687 physicians in various specialties from the US, UK, and Canada. The survey was conducted online via Pollfish using organic sampling. Learn more about the Pollfish methodology [here](#).

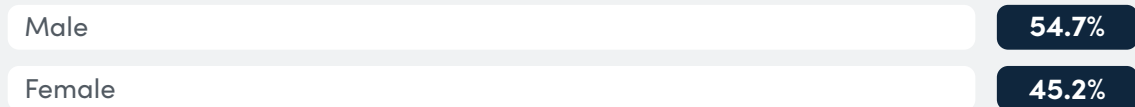
Do you own your own practice?



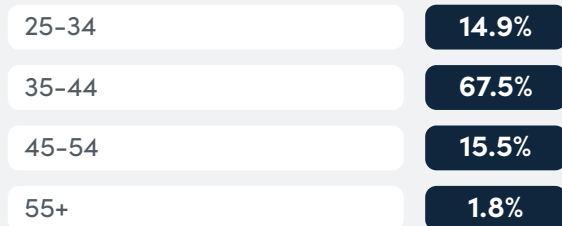
How long have you been a physician?



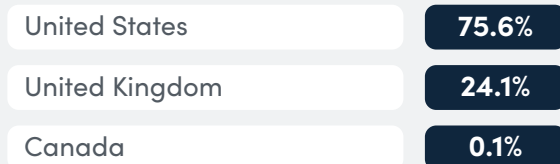
Gender



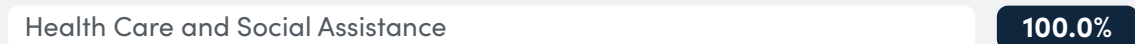
Age



Country



Career



PART #1

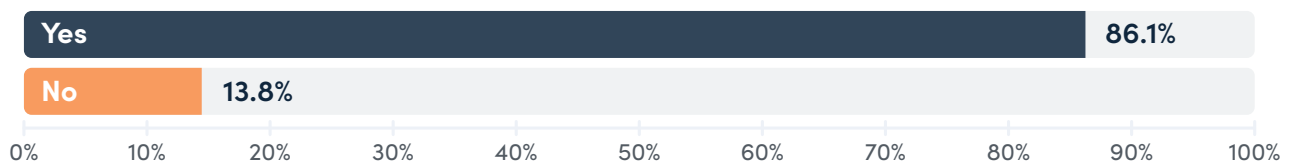
Ultrasound Usage in Clinician Settings

Ultrasound systems, especially handheld ultrasound, can open up avenues to better patient care, quicker diagnoses, and both cost-and time-savings for physicians and patients. But are ultrasound machines already a permanent fixture in practitioner offices? While it appears that most physicians do have access to an ultrasound system at their practice, some are still hesitant to adopt the technology.

86% have an ultrasound machine at their practice

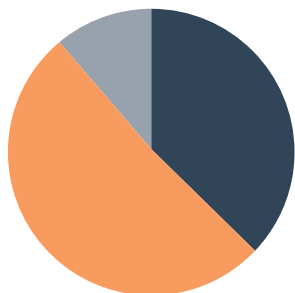
86% of physicians do have an ultrasound machine, in some form, at their practice already.

Do you have an ultrasound machine at your practice?

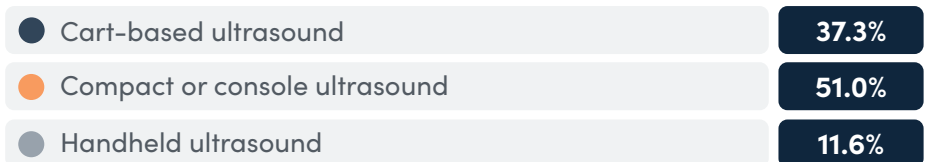


Half use a compact or console ultrasound machine

For those physicians who do have an ultrasound machine at their practice, 51% have a compact or console ultrasound, typically a laptop-based system. 37% have a much larger cart-based ultrasound, and 12% have a handheld ultrasound.



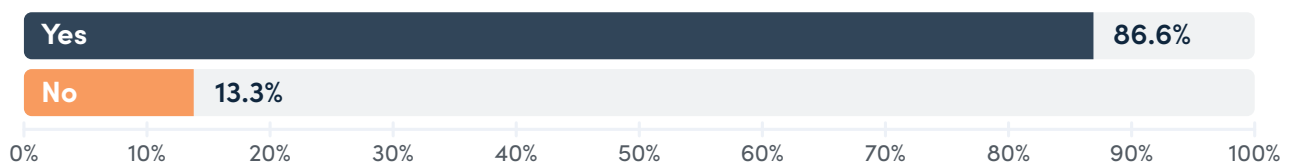
What type of ultrasound machine do you have?



87% plan to purchase additional ultrasound machines in the next year

For those who already have an ultrasound machine in their practice, 87% say they plan to purchase additional machines in the next twelve months. Expanding their capacity of ultrasound machines points to the fact that respondents see the benefits in what ultrasound can offer to their patients. Moreover, this is another indication that respondents are replacing legacy carts and compacts with personal handheld devices, or otherwise upgrading the machine they currently have.

Do you plan to buy additional ultrasound machines in the next 12 months?



Top 5 reasons physicians don't have an ultrasound system

For the 14% of physicians polled who do not currently have an ultrasound machine in their practice, they shared the following reasons for why they don't.



24%

Not trained in how to use ultrasound

A quarter of respondents who do not have an ultrasound machine in their office say it's because they just don't know how to use it, or don't know how to utilize ultrasound for their particular specialty.



19%

Too expensive

The second largest segment hasn't purchased an ultrasound machine because they believe it to be too expensive. Outside of the affordable handheld machines today, a good quality compact ultrasound system typically costs at least \$25,000. Handheld systems cost much less and adoption is growing at a much faster pace relative to legacy compact and cart systems.



17%

Currently referring patients to have ultrasound exams performed elsewhere

Some physicians haven't purchased an ultrasound system because they already have a process to send patients to outside diagnostic imaging centers for ultrasound scans.



15%

No time to perform an ultrasound exam during a patient visit

Another reason why they haven't incorporated ultrasound into their practice is because they believe they don't have the time to perform an ultrasound scan during a patient visit.



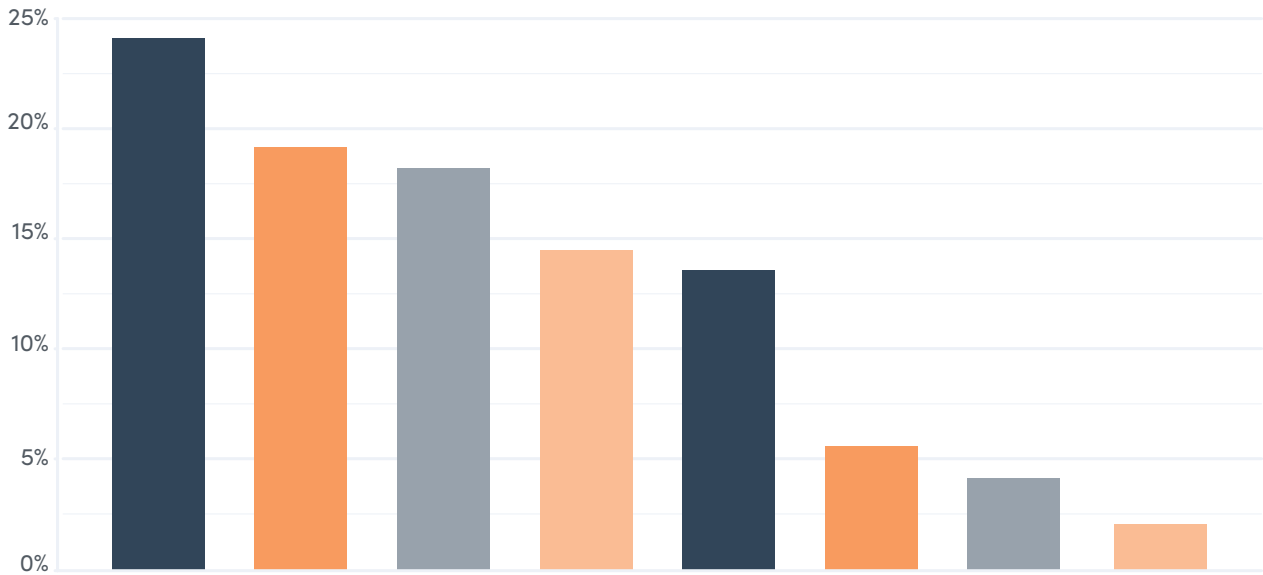
14%

Unsure of how to fit ultrasound into my practice

Respondents are also uncertain of how to incorporate ultrasound, whether it be that they're unaware of the benefits it can provide to patients or don't have enough training to know how it can enhance their diagnoses.

Other reasons they don't have ultrasound include that they don't have time to learn how to use ultrasound (4%), ultrasound is not necessary in their daily practice (5%), and that ultrasound is too complex (2%).

Why don't you have an ultrasound machine?

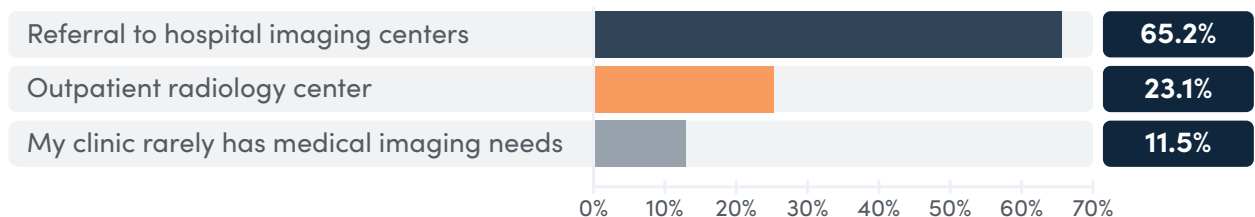


● Not trained in how to use ultrasound	24.0%
● Too expensive	19.0%
● Currently referring patients to have ultrasound exams performed elsewhere (via partnerships with diagnostic imaging centers where they refer their patients to obtain sonogram)	17.0%
● No time to perform an ultrasound exam during a patient visit	15.0%
● Unsure of how to fit ultrasound into my practice	14.0%
● Ultrasound is not necessary in my daily practice	5.0%
● Don't have time to learn how to use ultrasound	4.0%
● Too complex	2.0%

Those without access to ultrasound systems refer patients to hospital imaging centers

For those who don't use ultrasound in their practice, the majority (65%) satisfy their medical imaging and diagnostic sonography needs by referring patients to hospital imaging centers. 23% refer patients to outpatient radiology centers. Finally, 12% said that their clinic rarely has medical imaging needs.

How do you currently satisfy your medical imaging / diagnostic sonography needs?



Part #1 Summary

From these responses we can see that ultrasound machines are a common presence in clinical settings, with 86% of respondents saying that there's an ultrasound machine at their practice. Additionally, the fact that 87% of respondents who say that their practice already has an ultrasound machine yet may purchase more means that they see the value ultrasound can bring — it may also indicate that practices are growing and expanding their services and upgrading from legacy compact systems to personalized handheld devices. Half use a compact or console ultrasound at their practice, while 37% use larger, more traditional, and more expensive cart-based ultrasound. While handheld ultrasound devices are newest to market in the past five years, already 12% of physicians reported using handheld ultrasound in their practice.

Those who haven't purchased an ultrasound for their practice cite reasons that are common across physicians for their hesitation to incorporate ultrasound into their practice. They view getting trained on ultrasound as a learning curve too steep to climb, or they see the price tags of more traditional, expensive machines as too cost-prohibitive. They also believe that conducting an ultrasound scan is too time-consuming during a patient visit and are unsure of the benefits ultrasound can bring to their patient care. Finally, many already have a process where they send patients out for third-party imaging.

While many physicians already possess an ultrasound, the next section will give insights into how they view the benefits and drawbacks of ultrasound technology.

PART # 2

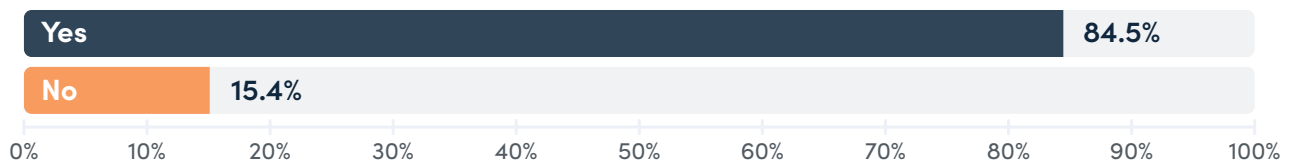
Perceptions of Ultrasound

In the last section, respondents affirmed that many have an ultrasound system in their practice, and that many are purchasing additional systems in order to expand their services. But what are their perceptions of ultrasound? Do physicians see it as genuinely bringing value to their patient care, or, like the respondents above, are they challenged with how to bring it into their practice?

85% believe that ultrasound leads to better patient outcomes

85% of respondents said they agree with the statement “Using ultrasound leads to better patient outcomes.” Only 15% disagree.

Do you agree with the following statement: “Using ultrasound leads to better patient outcomes.”



5 ways ultrasound can bring value to patient care

How can ultrasound provide value to patient care? Respondents said it does so in several ways.

36%

Real-time imaging that can be used for diagnostic purposes

Since ultrasound is the only real-time imaging that is readily available for every physician to use, it makes sense that it's at the top of the list. Having real-time imaging means investigating patient concerns and getting answers quickly.

28%

Ease of bedside use

Even the clunkiest of cart-based systems are still portable enough to provide care at the bedside, this is another way that ultrasound provides value to patients.

14%

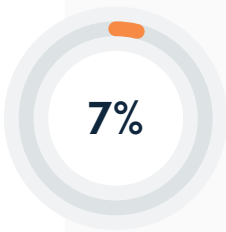
Radiation-free alternative

Ultrasound also provides a radiation-free alternative to seeing inside the human body and diagnosing illness or injury.



Performing image-guided procedures

Ultrasound also provides value in that it allows physicians to perform ultrasound-guided procedures, like needle injections, without the risks associated with performing them blind.

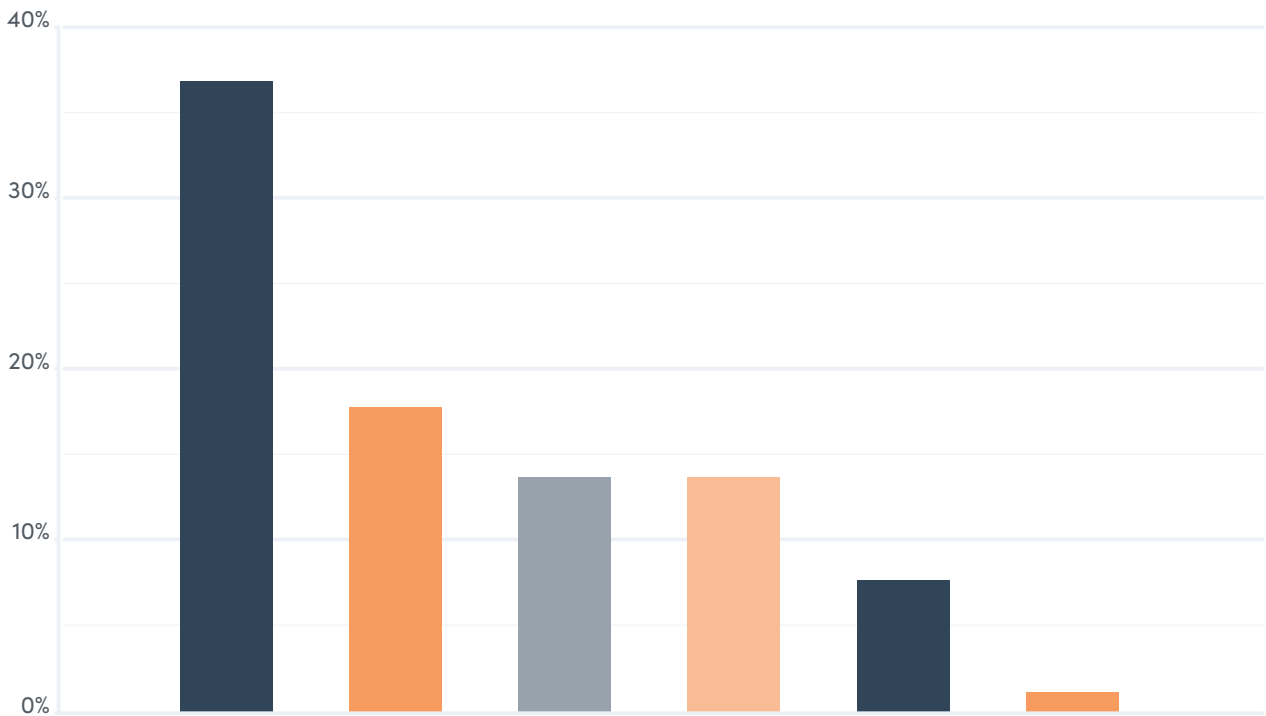


Portable diagnostic modality

Finally, physicians find value in ultrasound because it's a portable method of diagnosis, specifically with handheld devices that can be brought anywhere.

Only 1% don't believe ultrasound brings value to patient care.

What's the top value that ultrasound brings to care?

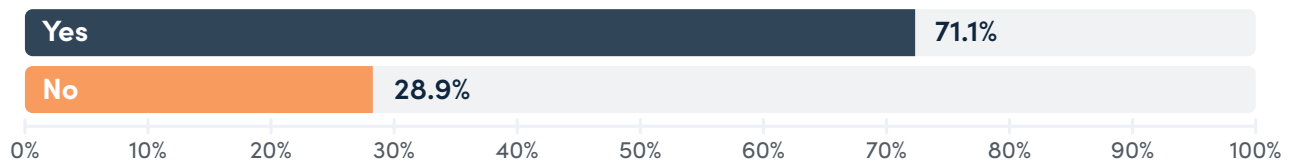


● Real-time imaging that can be used for diagnostic purposes	36.0%
● Ease of bedside use	28.0%
● Radiation-free alternative	14.0%
● Performing image guided procedures	14.0%
● Portable diagnostic modality	7.0%
● I do not believe ultrasound brings value to care	1.0%

71% believe the cost of ultrasound is too expensive for their practice

The majority of respondents (71%) agree with the statement “The cost of purchasing and maintaining an ultrasound is too expensive for private practices like mine.” This links to the response above about why physicians don’t yet have an ultrasound – they believe it’s too expensive.

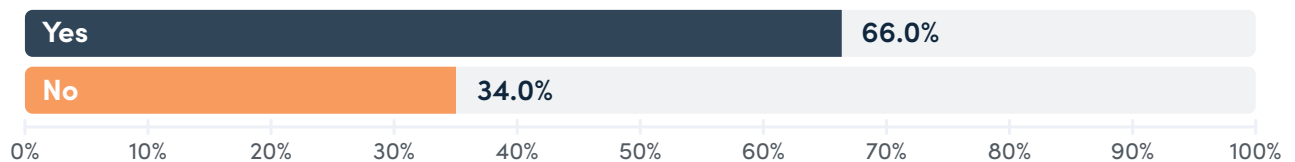
Do you agree with the following statement: *“The cost of purchasing and maintaining an ultrasound is too expensive for private practices like mine.”*



66% believe that learning ultrasound is very complicated

66% of respondents said they agree with the statement “Learning ultrasound is very complicated,” which is one of the reasons above why physicians are reluctant to purchase an ultrasound for their practice. Those who use a console system (70%) and cart-based systems (67%) agree with this statement more and see their learning curve as steeper, whereas those who use handheld ultrasound agree less (58%).

Do you agree with the following statement: *“Learning ultrasound is very complicated.”*



Part #2 Summary

Considering that only 1% of respondents don't believe ultrasound provides value to patient care means that physicians know there's value in incorporating ultrasound into their practice and have experienced it firsthand. The biggest value is the real-time imaging that ultrasound provides and the ability to see inside a body to get immediate answers on what's going wrong. Another value is that ultrasound can be used at the bedside, from rolling in cart-based systems to pulling a handheld ultrasound out of your pocket.

These top reasons point to the value of immediacy. Not only can ultrasound provide immediate insights into a patient's anatomy, it can provide immediate answers to a physician's questions. It can be used immediately on a patient in the office or at the bedside as well, reducing time spent waiting to get a scan elsewhere. That immediacy gets patients to treatments quicker, saving time and costs on time and costs for both patient and physician. This is likely why 85% say they believe that ultrasound leads to better patient outcomes.

However, the reasons for being hesitant to purchase an ultrasound system for their practice – training and money – surface again, with 71% believing that the cost is too expensive for their practice and 66% believing that learning ultrasound is very complicated. However, more affordable handheld options are being offered today and training is probably not as complicated as physicians think or as those already trained have experienced.

PART # 3

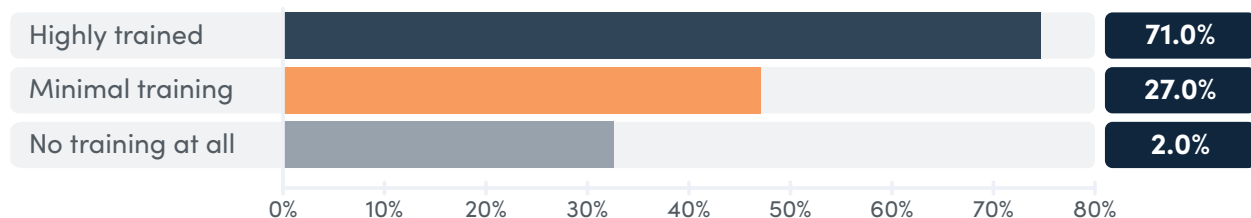
Ultrasound Training

Our respondents have already told us that they're familiar with ultrasound, understand the value it can bring to patient care, and believe that it leads to better patient outcomes. Here, they tell us more about their direct experience and training with ultrasound.

71% consider themselves highly trained in ultrasound

Our respondents are actually very familiar with ultrasound overall. 71% of respondents would characterize themselves as highly trained in ultrasound. 27% say they have minimal training, and only 2% have no training at all.

What best describes your level of training with using ultrasound?



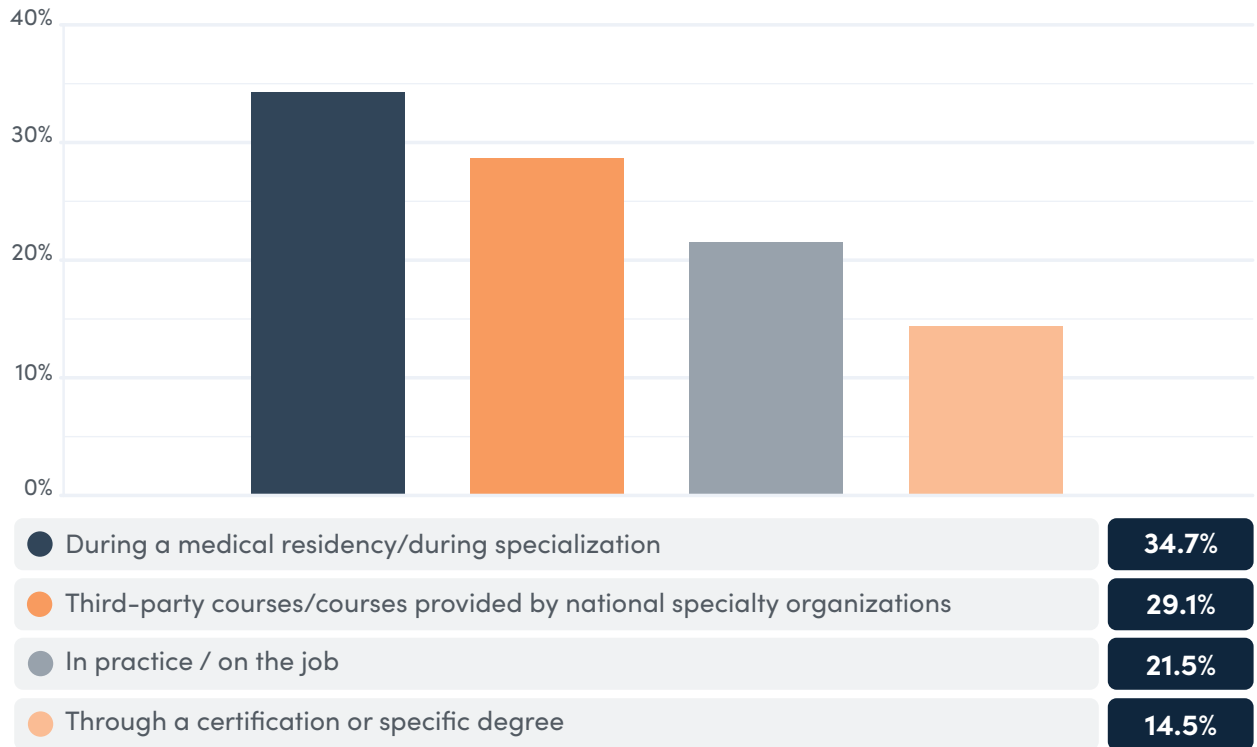
Most received ultrasound training during their residency

Where did they receive their training? We asked them to choose all that applied – some may have received training from multiple sources – and 65% said they received their training during a medical residency or during a specialization. 55% got it from a third-party course provided by a national specialty organization. 40% were trained in practice or on the job. 27% received training through a certification or specific degree.

Those who use different types of ultrasound machines learned them in different ways as well. For those who use cart-based machines, 72% learned ultrasound through a third-party course provided by a national specialty organization. For those who use console or compact systems, 69% learned ultrasound through a medical residency or during a specialization. For those who use handheld ultrasound, 56% learned ultrasound in practice or on the job, perhaps indicative of their shorter learning curve.

When looking at how our respondents were trained by age, we see a shift in how they learned ultrasound as well. 85% of respondents over 54 learned ultrasound during a medical residency or during a specialization. However, 73% of respondents between ages 45 and 54 learned ultrasound that way, 66% of respondents between ages 35 and 44 learned ultrasound that way, and only 50% of respondents between ages 25 and 34 learned ultrasound that way. The majority (69%) of those ages 25 to 34 say they learned ultrasound from a third-party course provided by national specialty organizations.

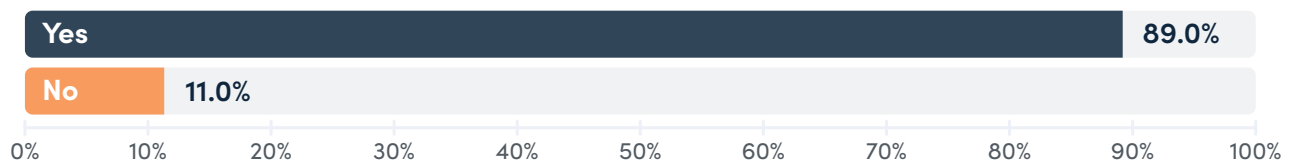
How did you get trained in using ultrasound?



89% believe that all clinicians should be trained in ultrasound

89% believe that all clinicians should be trained in ultrasound – which seems a given, considering the added value that ultrasound can bring to patient care as stated in the last section.

Is ultrasound training something you believe all clinicians should have?



Part #3 Summary

Nearly all physicians see the value ultrasound can bring to patient care, directly indicating the majority of respondents believe that all clinicians should have ultrasound training as well. While power users like emergency physicians and cardiologists would be likely to reply yes to seeing their colleagues trained, we see other groups like orthopedic surgeons, plastic surgeons, and cosmetic dermatologists also say yes to widespread training. Until recently, these medical specialists didn't rely on ultrasound in their private practices and therefore didn't need ultrasound training. However, this likely indicates that physicians who perform more risky procedures, such as facial injections and Brazilian Butt Lifts, also believe that learning to use ultrasound is important for their specialty.

What's interesting to note is that respondents who have been trained in ultrasound also said that lack of training was keeping them from bringing ultrasound into their practice. There could be a few reasons for this. Many said they learned ultrasound during a residency, yet may not have used the skill for years – and the “brushing up” on ultrasound skills may be holding them back. Or they may have learned it during a rotation – OB/GYN, likely – and went into a different specialty like orthopedics where ultrasound would be used differently.

Whatever the reason, training is the solution to widespread adoption of ultrasound technology – and technologies such as artificial intelligence can reduce that learning curve.

PART # 4

Incorporating Ultrasound into Your Practice

Finally, our respondents tell us the main drivers of why they incorporated ultrasound into their practice — why they already have and how they intend to continue to incorporate ultrasound — and reasons why they wouldn't.

Top 5 drivers for bringing ultrasound into your practice

For physicians who have adopted ultrasound into their practice, their top reasons for doing so were the following (and we asked them to choose all that applied, and many chose multiple benefits, considering the high percentages for each).



61%

Expansion of services

The biggest driver for respondents of incorporating ultrasound in their practice is to expand the services they offer to patients. This could either be seeing the practice grow — thus the aforementioned need to purchase more ultrasound machines — or an effort to offer services other specialists don't and differentiate their business.



43%

Improved patient outcomes

Respondents also want to incorporate ultrasound to simply drive better patient outcomes: quicker diagnoses, more informed treatment, safer guided procedures, and more.



40%

Improving patient education and engagement

When a physician uses ultrasound on a patient, the patient can follow along and learn what's happening in their own body in real-time. This can increase patient education and engagement, and can help them make better decisions about their health.



34%

Reducing medical costs for patients

Having ultrasound available in a practitioner's office has the ability to also reduce medical costs for patients, not only by not needing to pay for a third-party service for a scan, but ultrasound's immediacy can help diagnosis and start treatment sooner, thus saving costs then and down the road.



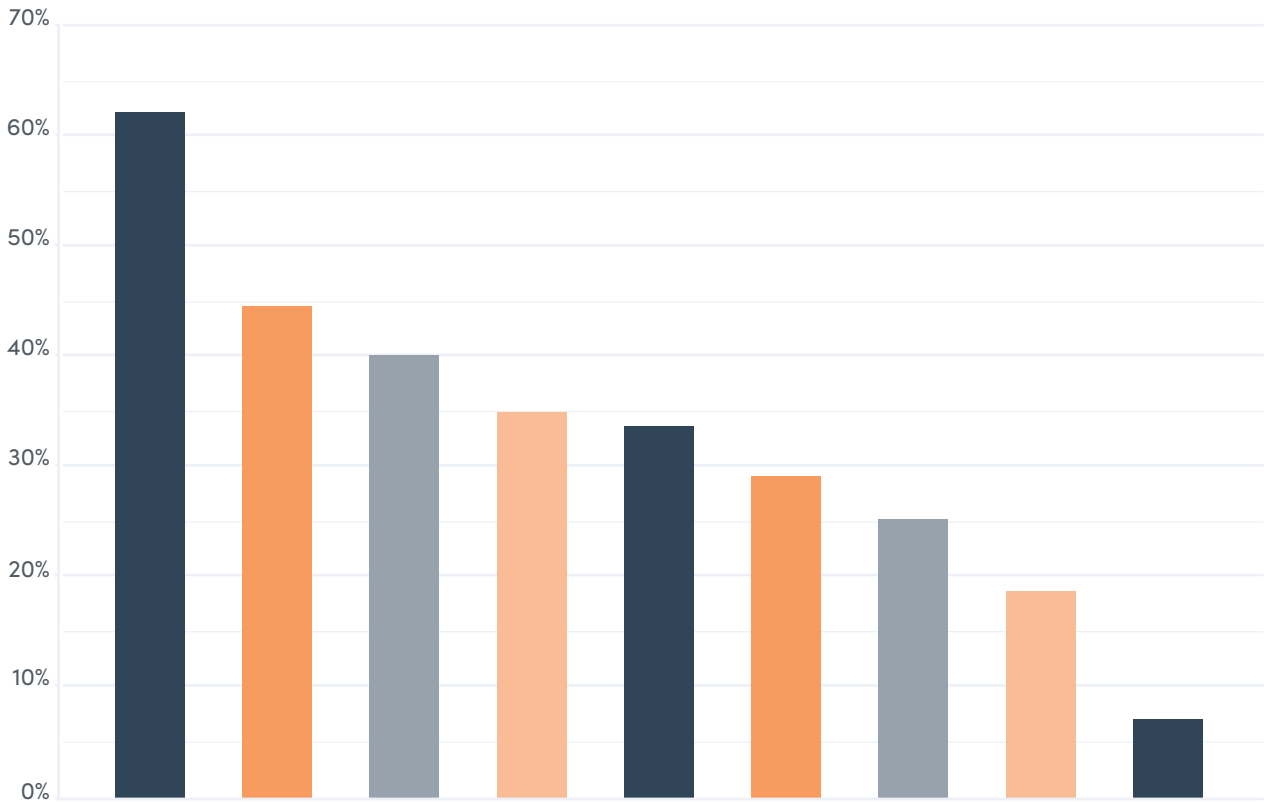
32%

Furthering my own medical education

Respondents said they also want to use ultrasound to help further their learning of the human body and how to provide better care.

Other drivers include differentiation for their practice (29%), improving diagnostic confidence (25%), increasing income (19%), and improving procedural safety (7%).

What is the primary driver for you wanting to bring ultrasound to your practice?



● Expansion of services	61.0%
● Improved patient outcomes	43.0%
● Improving patient education / engagement	40.0%
● Reducing medical costs for patients	34.0%
● Furthering my own medical education	32.0%
● Differentiation for my practice	29.0%
● Improving diagnostic confidence	25.0%
● Increasing income	19.0%
● Improving procedural safety	7.0%

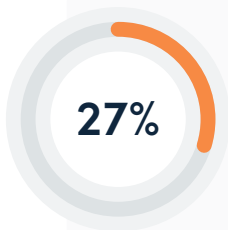
Top reasons physicians won't incorporate ultrasound

Those who don't plan to integrate ultrasound into their practice cite the following reasons for their reluctance.



Incorporating ultrasound will be too costly

From purchasing a system to spending money on training to realizing a return on investment, physicians who don't plan to incorporate ultrasound see it as being too cost-prohibitive for them.

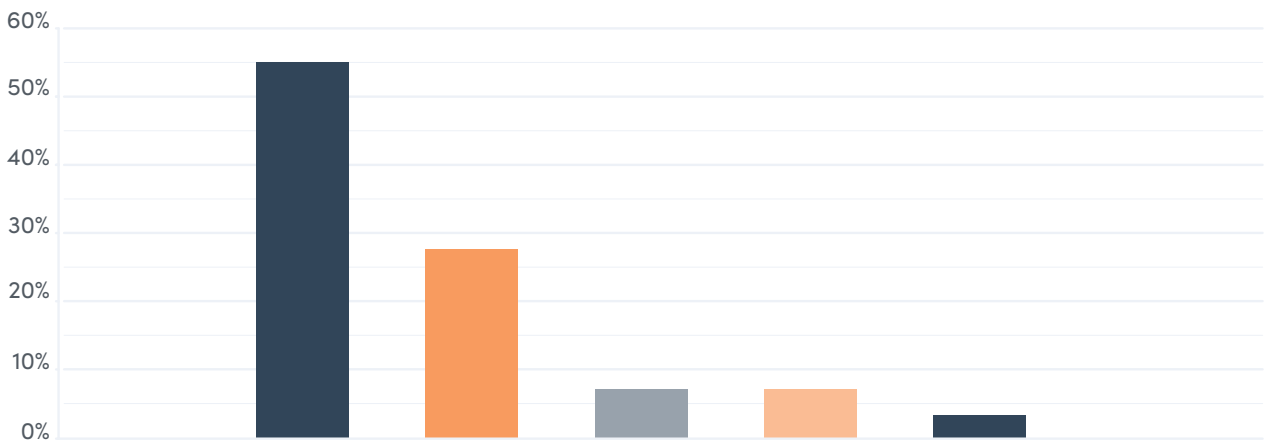


I do not have time to use ultrasound in my daily practice

Those who view ultrasound scans as time-consuming — or those who don't have training enough to do them quickly — don't believe that they have the time to incorporate ultrasound into their patient schedule.

Other lesser reasons include that they do not believe bringing ultrasound into their practice will benefit their patients (7%), they cannot benefit financially from incorporating ultrasound into their practice (7%), and they do not know how to incorporate ultrasound into their practice (3%).

Why don't you plan to integrate ultrasound technology into your practice?



● Incorporating ultrasound will be too costly	55.0%
● I do not have time to use ultrasound in my daily practice	27.0%
● I do not believe bringing ultrasound into my practice will benefit my patients	7.0%
● I cannot benefit financially from incorporating ultrasound into my practice	7.0%
● I do not know how to incorporate ultrasound into my practice	3.0%

Part #4 Summary

Respondents are clear on the benefits of incorporating ultrasound into their practice. It can serve their patients by improving patient outcomes, increasing their engagement, and saving on medical costs. It can also improve the state of their practice by offering differentiated and expanded services to patients, with more knowledgeable, technology-forward care.

The primary reason why physicians won't pursue ultrasound as part of their practice is the cost — and seeing ultrasound to be too cost-prohibitive, despite its many benefits, has been a common theme throughout the survey.

PART # 5

Actionable Takeaways for Physicians

Not that long ago, ultrasound was only found in hospital settings and was limited in its usage because it was only confined to one department. With the creation of cart-based systems, then laptop or console systems, and today's emerging handheld ultrasound systems, ultrasound is expanding beyond the walls of the hospital and into physicians practices.

While many physicians understand the value that ultrasound can bring to patient care, there are still barriers in place to incorporating ultrasound into everyday patient visits and diagnosis. If you're looking to incorporate ultrasound more fully into your practice, or are hesitant because of some of the barriers stated above, here are some insights into why ultrasound is the best choice for your practice.

1. Improve patient care

85% of the respondents to our survey believe that ultrasound leads to better patient outcomes, and it can lead to those improved outcomes in a number of ways. The biggest value that respondents say ultrasound brings to their practice is its ability to see into the body in real time. During a patient visit, physicians with ultrasound in their office can get answers to diagnostic questions immediately, resulting in quick time to care.

Ultrasound can also provide better patient outcomes when it comes to treatments as well. Some of our survey respondents are orthopedic surgeons, plastic surgeons, and cosmetic dermatologists who rely on injections for various procedures. Instead of presuming accurate needle placement, these specialists use ultrasound to guide their needle and get it right each time, resulting in better treatment, less chance of injury or death, and a better patient experience.

A number of studies report that ultrasound-guided injections are much safer, more accurate, effective, and much safer than going in blind. [A study from 2021](#) found that "most ultrasound-guided musculoskeletal interventional procedures around the shoulder produce better results in terms of accuracy and clinical efficacy than those performed in a blinded fashion." Needle injections guided by ultrasound also result in safer outcomes with risky procedures. [A study from August 2022](#) investigating safety with Brazilian Butt Lift (BBL) procedures found that "the newest and most compelling recommendations from these guidelines include the utilization of ultrasound-guided documentation of cannula placement prior to and during fat injection."

2. Differentiate and expand your practice

The primary driver of why physicians want to incorporate ultrasound into their practice is in order to expand their services and to differentiate their practice. Expanding your practice's services by incorporating ultrasound will attract patients looking for physicians who can provide real-time insights into their concerns, quicker time to treatment, and safer procedures.

Word of mouth and reputation is what can make or break small or midsize practices, and patients will seek out the best care that they can find — especially if they've had a procedure gone wrong in the past and see you providing more effective care. As our respondents said above, using ultrasound can improve patient engagement and increase trust as well by showing them what's going on in their bodies and treatment in real-time.

While improving patient outcomes is also a key driver, physicians in private practice are driven to grow their business by offering more services. Ultrasound use for procedure guidance and diagnosis is reimbursed for many physicians in the United States, and for elective procedures like plastic surgery and aesthetics, patients are willing to pay more for safer procedures, to get an immediate diagnosis, and to save time by having ultrasound performed in the physician's office rather than being referred.

3. Find a more cost-effective ultrasound system

One of the biggest hurdles that surfaced in our survey was cost: 71% believe the cost of ultrasound is too expensive for their practice, and “too expensive” was the second highest reason respondents didn’t have ultrasound in their practice.

Traditionally, ultrasound systems have been costly, especially given that they’ve been larger cart-based or compact systems. A quality compact ultrasound system can range from \$20,000 to upwards of \$90,000, with cart-based systems being more expensive. Considering that most of our respondents are using compact or cart-based systems, seeing that price tag can certainly cause reluctance – especially when questions arise about how quickly they can see an ROI and how they can reimburse for procedures.

However, handheld ultrasound systems today are entering the market at a fraction of the price and can be purchased for as little as \$3,400. And the more ultrasound procedures a physician performs, the more they can bill for them and reap a return on investment. US insurance companies will often reimburse physicians for their ultrasound usage because it provides benefits to the patients. Patients will also be more willing to pay a higher fee for more accurate and safer procedures like pain medicine injections and aesthetic treatments.

4. Let technology guide the training

Finally, another barrier to ultrasound adoption is the learning curve. 66% believe that learning ultrasound is very complicated and “not trained in how to use ultrasound” was the top reason why respondents don’t have an ultrasound machine at their practice. Yes, the difficulty in learning to use ultrasound has long been a barrier. However, with the emergence of machine learning (ML) and artificial intelligence (AI), ultrasound innovators are actively working on solutions to make ultrasound easier to learn.

Physicians worried about the learning curve can look to some recent studies that show ultrasound training can be relatively quick. [A study from 2021](#) found that after only two supervised examinations, ultrasound users “are easily adept in the identification of the nerves of the brachial plexus at the level of the interscalene space.” Additionally, a [study from February 2022](#) found that performing procedures on just five patients “is sufficient for emergency physicians to achieve an adequate level of competency in conducting right-sided diaphragmatic ultrasound examinations.”

Ultrasound that leverages AI and ML can not only improve patient outcomes by providing users with better guidance. That AI guidance is essentially training on the spot, helping practitioners better visualize patient anatomy and needle placement, and teaching them during the process of performing their procedure. This could be why the majority of handheld ultrasound users said they learned how to use ultrasound on the job.

Adopting Ultrasound Today

The future of better patient care will be found in visionary specialists adopting and utilizing ultrasound to create more positive outcomes for their patients and to provide more differentiated services for their practice. We hope these findings are beneficial in not only benchmarking where your practice is in regards to incorporating ultrasound, but also in learning more about how ultrasound can benefit your practice and your patients.

State of Ultrasound

2023 REPORT

We're Here To Help

Whether you're looking for a specific ultrasound solution or need help finding the right scanner for your practice, we're here to help. Get in touch with us and let's get started!

[CONTACT US](#)