

Handheld vs Cart-Based Ultrasound: What Each Can Realistically Do

Audience: Practice owners, clinicians, training programmes and purchasers | Educational resource for focused bedside ultrasound practice

A balanced guide for buyers comparing handheld and cart-based systems, with practical advice on workflow, image quality, governance and use-case fit.

Important: These guides are educational summaries. Clinical use should follow local scope of practice, credentialing, infection-control policies, image archiving rules and escalation pathways.

The central question

- Handheld systems improve access, portability and bedside availability. Cart-based systems still lead when advanced imaging performance, ergonomics, workflow integration and high-end features are required.
- The right question is not which is universally better, but which system matches the clinical task, operator skill and service model.

Where handheld systems fit well

- Rapid bedside triage, procedure guidance, focused cardiac and lung checks, ward rounds, outreach, theatre and prehospital or rural settings.
- Teaching and scaling access across more clinicians when governance and image storage are in place.

Where cart-based systems still matter

- High-volume departments, detailed echocardiography, advanced Doppler, difficult body habitus, long sessions and services needing superior ergonomics and larger displays.
- Formal imaging environments where image optimisation, archiving and broader feature sets are critical.

Buyer checklist

- Probe portfolio and depth requirements.
- Image storage and data governance.
- Battery life, infection control and software support.
- Training pathway, QA process and documentation standards.
- Whether the device solves a clear clinical workflow problem rather than adding novelty.

Buyer comparison

Feature	Handheld systems	Cart-based systems
Portability	Excellent	Limited
Setup speed	Very fast	Moderate

Advanced Doppler / feature dependent	Variable or limited	Usually stronger
Screen ergonomics	Smaller display	Larger, easier prolonged use
Best fit	Focused bedside tasks	Comprehensive imaging services

Selected references

- Nielsen MB, et al. The Use of Handheld Ultrasound Devices - An EFSUMB Position Paper. *Ultraschall Med.* 2019;40(1):30-39.
- Cardim N, et al. The use of handheld ultrasound devices: a position statement. *Eur Heart J Cardiovasc Imaging.* 2019;20(3):245-252.
- European Society of Radiology. ESR statement on portable ultrasound devices. *Insights Imaging.* 2019.