

Clinician confidence in first pass acquisition: Image quality in abdominal ultrasound LOGIQ[™] Focus

Introduction

LOGIQ Focus is a general-purpose diagnostic ultrasound system intended for use by qualified and trained healthcare professionals. In June and July 2026, Use-Lab GmbH conducted a comparative marketing-claims study on behalf of GE HealthCare. Physicians experienced in abdominal ultrasound performed modified right upper quadrant examinations with LOGIQ Focus and either its predecessor, LOGIQ P8, or a competitive device.

Each physician scanned two volunteers — one with normal BMI (18.5 – 24.9) and one with a slightly elevated BMI (25 – 29.9) — and completed device-specific and comparative questionnaires. Images acquired on the two systems were subsequently reviewed side by side.

Objective

The goal of this study was to determine whether physicians found differences in image quality among the three devices; in particular, the primary hypothesis was that LOGIQ Focus would demonstrate superior image quality compared to the LOGIQ P8 and the competitive device. Additional predefined outcomes included diagnostic confidence, first-pass adequacy, time savings, inter-operator variability, ease of use, preferred use and training effort.

Abstract

Methodology

24 physicians participated; after three exclusions, 21 datasets were analyzed. Each participant worked with the LOGIQ Focus, the device this study centered around. A second device was randomly assigned to participants, this resulted in 10 LOGIQ Focus – LOGIQ P8 comparisons and 11 LOGIQ Focus – competitive device comparisons. Each physician completed two volunteer examinations on each study system, followed by a side-by-side image-quality review.

Primary endpoint

90% of 42 LOGIQ Focus assessments rated overall image quality as excellent. Across five evaluated image-quality attributes, 79% to 90% of LOGIQ Focus ratings were favorable. In the head-to-head comparison, LOGIQ Focus was rated better than LOGIQ P8 (66% for LOGIQ Focus vs. 12% for LOGIQ P8). Participants also favored LOGIQ Focus over the competitive device (56% for LOGIQ Focus vs. 27% for the competitive device).

Additional results

97% of LOGIQ Focus assessments indicated diagnostic confidence and 90% of physicians were confident they could achieve a diagnostic image in one pass. Median time-on-task was 26.1% lower, on average, with LOGIQ Focus than with LOGIQ P8; a significant difference (Holm-adjusted $p < 0.02$); no median time difference was observed against the competitive device.

Conclusion

The study showed that physicians consider LOGIQ Focus to have excellent image quality.

Physicians experienced strong diagnostic confidence using LOGIQ Focus and most were confident in the diagnostic quality of their images after just one pass.

Study design and methodology

Participants

Data from 21 physicians was included in analysis; these included 10 general practitioners, 7 internists and 4 physicians from other specialties. 12 scanned daily, 8 at least weekly and 1 at least monthly.

9 physicians primarily used a GE HealthCare system and 12 primarily used competitive systems.

Ultrasound systems

3 ultrasound systems were included in this study: LOGIQ Focus (GE HealthCare), its predecessor system LOGIQ P8 (GE HealthCare), and a commercially available competitive ultrasound system from another manufacturer (Product A). All systems represent comparable platforms within the same market segment and belong to a similar class of general imaging ultrasound platforms and were configured to support the study protocol. Comparable imaging modes, including 2D-imaging and 3D-imaging were utilized. Probe selections and imaging settings were standardized as closely as possible across platforms to ensure consistency in image acquisition and study execution. Training for all three devices also followed the same procedure.

Procedure

- Informed consent and briefing
- 15 minutes of familiarization with the first system and its instructions for use; LOGIQ Focus familiarization also included two slides provided by GE HealthCare
- Modified right upper quadrant scans of two volunteers, with post-volunteer and post-system questionnaires
- 20-minute distractor using an unrelated handheld ultrasound device
- Familiarization and repeat scans with the second system
- Side-by-side comparison of acquired images and a final device-comparison questionnaire

The order of devices and volunteers was varied between participants to reduce order and memory effects.

Examination

Each physician performed a modified right upper quadrant examination consisting of:

- Liver, longitudinal
- Liver, transverse
- Vascular anatomy of the liver
- Gallbladder
- Right kidney, including comparison with liver echogenicity

Volunteers and ethics

Each physician scanned one volunteer with normal BMI (18.5 – 24.9) and one with a slightly elevated BMI (25.0 – 29.9). 19 individuals served as volunteers and could participate in more than one session. The study procedures were approved by the responsible Ethics Committee (Ethik-Kommission Westfalen-Lippe).

Data collection and analysis

Tasks began with the first interaction after task instruction and ended when the final image was stored. Exams began with the start of the first task and ended with end of the final task.

Times were assessed per task and compared within participant and task. Tasks affected by extensive discussion, questions or inability to acquire the requested anatomy were excluded as defined in the report.

Questionnaires were administered on a tablet using SoSciSurvey. Image quality was assessed after scanning and through a final side-by-side comparison. Unless otherwise stated, N=21; medians were used for summary values.

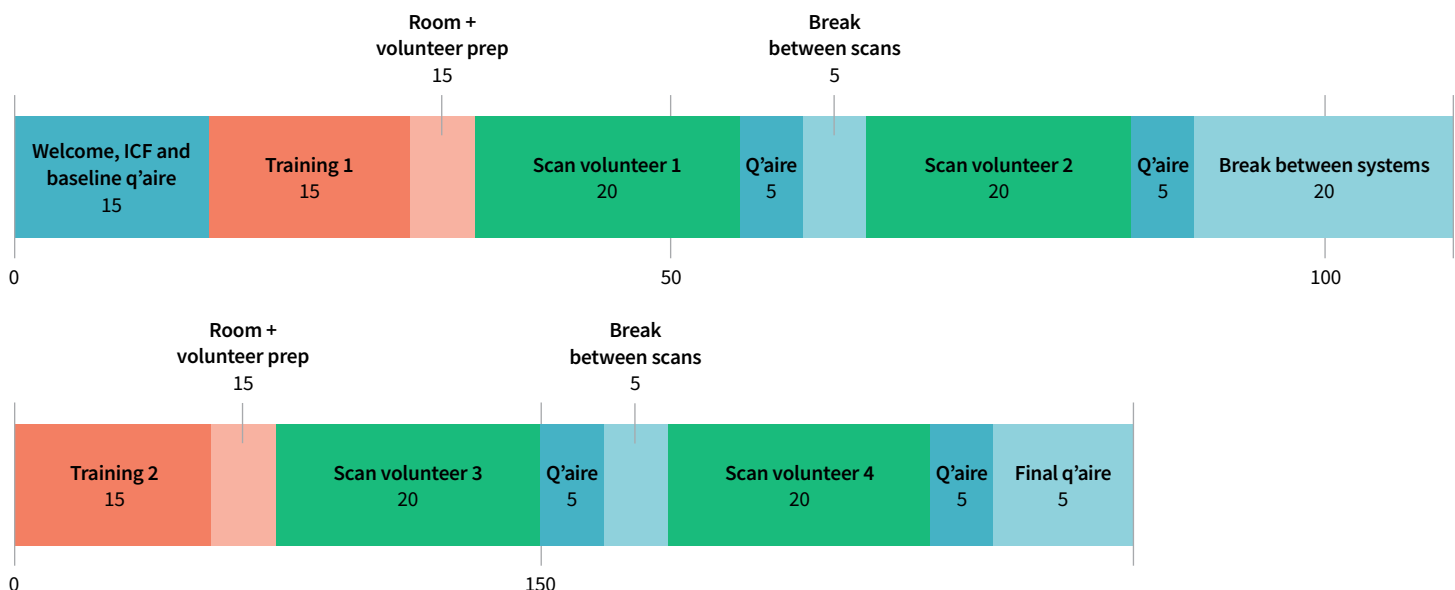
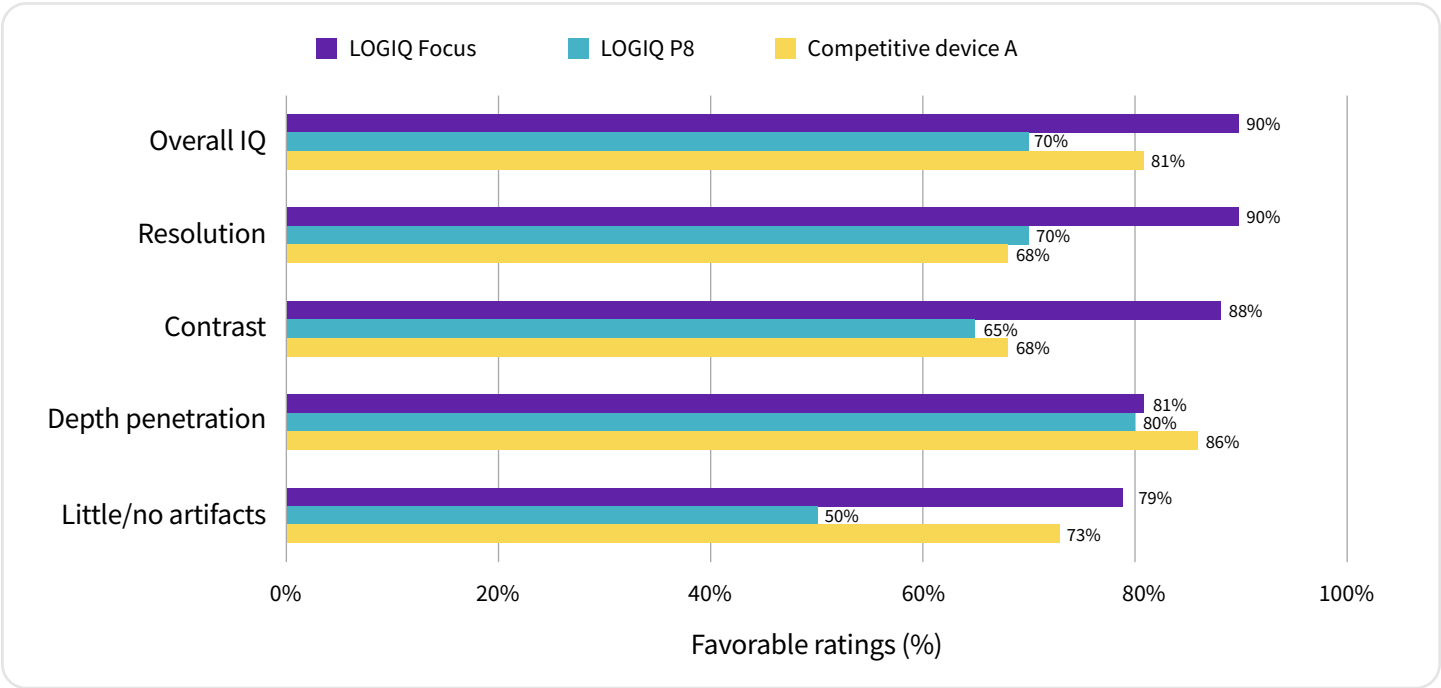


Image quality results



Favorable post-scan ratings by image-quality attribute based on two ratings per physician per device. Comparator groups: LOGIQ P8 n=10; competitive device n=11.

Consistently high IQ ratings

After each exam, physicians rated the image quality they experienced. 90% of the 42 LOGIQ Focus assessments rated overall image quality as excellent (score 4 or 5). In addition, LOGIQ Focus was rated higher for overall image quality approximately three times more often than the LOGIQ P8 (55% vs. 15%) or the competitive device (40% vs. 13%).

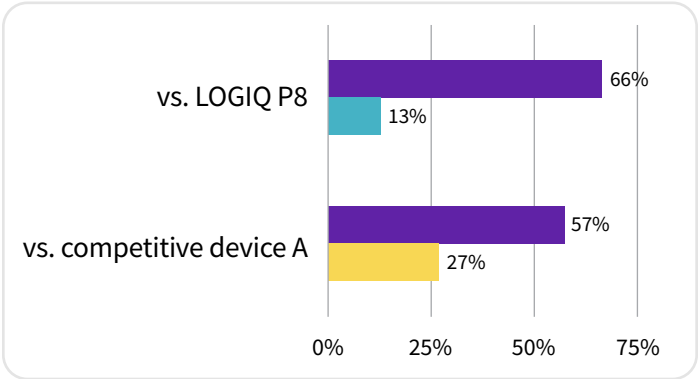
Ratings were similarly strong for resolution (90%), contrast (88%), depth penetration (81%) and little to no artifact presence (79%).

Post-scan paired ratings favored LOGIQ Focus more often than LOGIQ P8 for every image-quality attribute. Against the competitive device, ratings generally favored LOGIQ Focus; artifact presence was the exception, with competitive device favored more often (36% vs. 22%).

Head-to-head image review

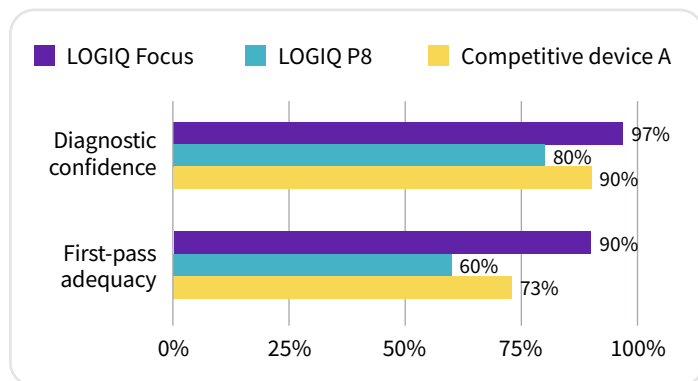
At the end of the session, both devices used were placed side-by-side and equivalent (same anatomy + same volunteer) images were displayed simultaneously. Physicians rated which image was better on an 11-point scale. LOGIQ Focus was selected as having better image quality for 66% of images in the LOGIQ P8 comparison, while LOGIQ P8 was selected for 13%. The overall statistical analysis showed a significant advantage for LOGIQ Focus (one-sided p=0.017).

Against competitive device, LOGIQ Focus was selected for 57% of images and the comparator for 27% — approximately a 2:1 ratio.



Purple: LOGIQ Focus rated better | Turquoise/yellow: comparator rated better; based on 446 comparisons between LOGIQ Focus and LOGIQ P8 and 456 comparisons between LOGIQ Focus and competitive device.

Diagnostic confidence and first pass adequacy results



Favorable post-scan ratings based on two ratings per physician per device. Comparator groups: LOGIQ P8 n=10; competitive device n=11.

97% of 42 LOGIQ Focus assessments indicated diagnostic confidence, compared with 80% of LOGIQ P8 assessments and 90% of competitive device assessments.

19 of 21 physicians (90%) were confident they could achieve a diagnostic image with LOGIQ Focus in one pass, compared with 60% in the LOGIQ P8 group and 73% in the competitive device group.

Comparator-specific time savings

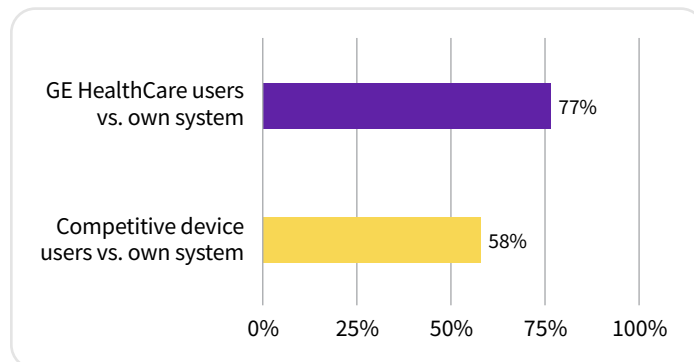
LOGIQ Focus was faster than LOGIQ P8, with a median time-on-task reduction of 26.1%. The paired comparison was statistically significant (one-sided Wilcoxon signed-rank test, Holm-adjusted $p=0.013$).

No median time difference was observed against the competitive device (one-sided Wilcoxon signed-rank test, Holm-adjusted $p=0.94$).

Preferred use

Comparing LOGIQ Focus with the systems they primarily use at their workplaces, 66% of physicians reported preferring LOGIQ Focus.

Broken down by GE HealthCare-experienced and competitive users, 77% of GE HealthCare users and 58% of competitive users preferred the LOGIQ Focus over their regular devices.



Favorable post-scan ratings. Comparator groups: GE HealthCare-experienced n=9; competitor-experienced n=12.

Ease of use

73% of physicians rated LOGIQ Focus as easy to use after 15 minutes of familiarization with the device followed by two modified upper-quadrant scans.

Study limitations

- The final analysis included 21 physicians split between two comparator groups (n=10 and n=11). Small subgroup percentages should be interpreted with the stated sample size
- Device order influenced time-on-task. Image-quality comparisons were not significantly affected by device or volunteer order

Conclusion

This comparative study demonstrated consistently high image quality for LOGIQ Focus, statistically significant image-quality superiority over LOGIQ P8, high physician diagnostic confidence and high confidence in first-pass image acquisition. Workflow time was reduced in comparison with LOGIQ P8.