

Zero-Click Automated Ejection Fraction (EF) and Global Longitudinal Strain (GLS) for 100% Echo Exams

Cardiac ultrasound imaging analysis is usually done through either visual estimation or manually, making the process subjective, error-prone and dependent on the user's experience

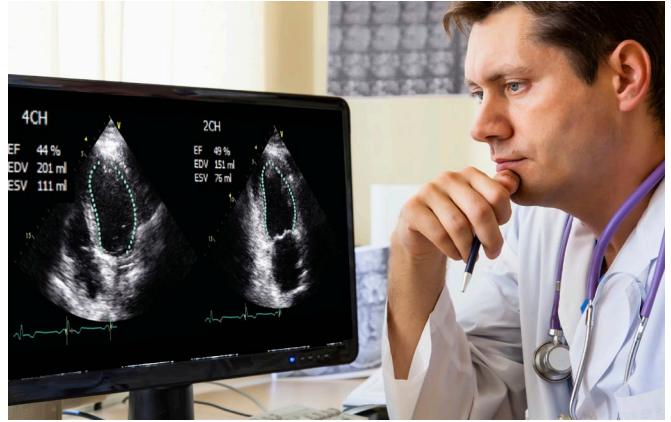
AI-Powered Ultrasound Analysis with LVivo Cardio Toolbox

LVivo AI-based solutions run automatically "behind the scenes," supporting clinicians with objective and reproducible results for every echo exam, on any PACS workstation.

After preselecting the best 2CH and/or 4CH views, LVivo generates an analysis of ejection fraction, left ventricular volumes and global longitudinal strain (GLS) as part of existing workflows.

LVivo EF: Provides an objective and automated analysis of Ejection Fraction (EF), a key indicator of global Left Ventricle (LV) dysfunction, used for evaluation and follow up of patients with suspected heart failure, including patients with confirmed or suspected COVID-19.

LVivo GLS: Provides automatic evaluation of global longitudinal strain (GLS), which is an early indicator of reduced LV function used to identify clinical abnormalities including in patients undergoing chemotherapy and before and after coronary events.



Zero click

Automated EF/ GLS analysis includes pre-selection of best available views for all echo exams



Faster evaluation

AI enables quick results to alleviate bottlenecks



Vendor neutral

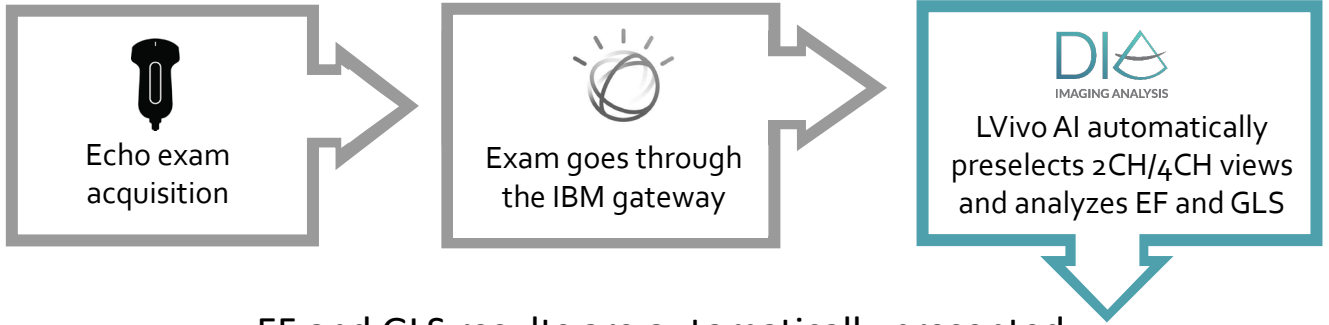
Supports clips from any ultrasound device, works with any PACS



Strain reimbursement

Clinicians in the USA can report and bill for myocardial strain as of January 2020 (CPT code +93356)

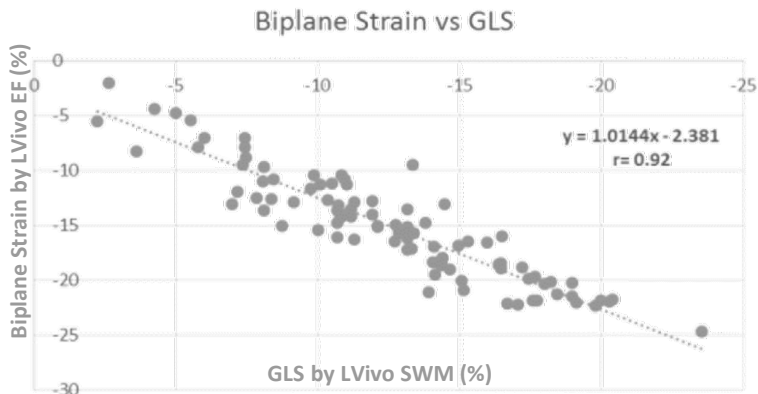
LVivo zero-click workflow:



EF and GLS results are automatically presented on any PACS workstation



GLS by LVivo was clinically validated



LVivo GLS calculated as part of the LVivo EF biplane analysis highly correlated ($r=0.92$) to full GLS calculated by LVivo SWM from 3 apical views. Excellent interobserver reliability score was obtained between GLS by LVivo SWM and GLS by Siemen's VVI (ICC=0.92) with 95% confidence interval (0.87, 0.94).

LVivo AI solutions during COVID-19

How COVID-19 affects the heart

Recent data from COVID-19 frontlines show that heart issues were a frequent cause of death for 50% of COVID-19 patients.¹

ASE and EACVI recommend performing limited echo exams on COVID-19 patients to monitor patients' Left Ventricle and detect dysfunction.^{2,3}

The new normal

As the number of COVID-19 cases decrease, the number of echo procedures is expected to increase, creating a load on sonographers and echocardiographers.

How LVivo AI solutions can help :



Automated workflow supports quick analysis of cardiac function



Minimized patient contact and risk of infection



Shorter measurement time reduces patient bottlenecks

LVivo AI solutions on the IBM Watson Health Imaging Marketplace work on any PACS to automate the cardiac analysis process for all echo exams, with objective and reproducible results.



"In the new COVID normal, sonographers and echocardiographers will face a new challenge in coping with increased procedures in the echo lab while supporting patients on the frontlines. AI-based tools like LVivo can help alleviate bottlenecks by automating workflows and shortening evaluation times to support faster decisions and minimize unnecessary risk of exposure to COVID19."



Dr. Noah Liel Cohen,
Department of Echocardiology

1. Shi S, Qin M, Shen B, et al. Association of Cardiac Injury With Mortality in Hospitalized Patients With COVID-19 in Wuhan, China. *JAMA Cardiol.* Published online March 25, 2020. doi:10.1001/jamacardio.2020.0950
2. ASE statement on COVID-19, March 2020
3. COVID-19 pandemic and cardiac imaging: EACVI recommendations on precautions, indications, prioritization, and protection for patients and healthcare personnel, *European Heart Journal - Cardiovascular Imaging*, April 2020