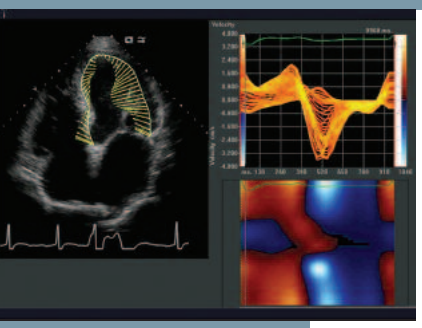
Intuitive Visualization and Assessment of Myocardial Motion



syngo® Velocity Vector Imaging™ (VVI) technology is a state-of-the-art technology that enables clinicians to examine the mechanical functions of the myocardium to determine possible myocardial dysfunctions such as dyssynchrony and fetal heart dysfunction. It uses individual vectors to display direction and relative velocity of frame-to-frame tissue movement, delivering motion measurement at any point in the cardiac cycle. This unique graphical presentation enables visualization, measurement and display of myocardial mechanics as never before.

Highlights

Advanced Motion Assessment

- Displays myocardial tissue motion, direction, rotation and relative velocity in the left ventricle, right ventricle, left and right atria and aortic root
- Utilizes high frame rates to deliver superior spatial and temporal resolution clarifying subtle wall motion abnormalities
- Displays trajectory mapping of the physical location of the traced region over the cardiac cycle
- Sophisticated 2D tracking algorithm provides accurate strain and strain rate calculations (longitudinal, circumferential,and radial) of myocardial mechanics
- Provides dynamic assessment of mechanical synchrony without the limitations of Doppler

Intuitive Visualization

- Enables simple and intuitive visualization through use of moving vectors
- Provides graphical display of segmental and regional velocity information
- Aids identification of wall motion changes in serial studies of the same patient

Convenient and Versatile Operation

- Facilitates study of all heart chambers across all clinical applications from any angle and any transducer position
- Displays accurate velocities for longitudinal, tangential and radial motion
- Works with all transducers including TEE, vascular and ACUSON AcuNav™ ultrasound catheters
- Available off the system on *syngo*® US Workplace 3.0
- Operates on DICOM clips from select Siemens and non-Siemens ultrasound systems

***syngo* Velocity Vector Imaging technology 2.0**
Enabling new insights in cardiac function

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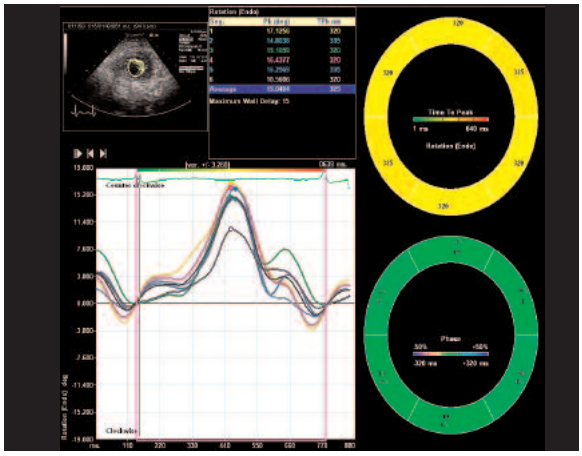
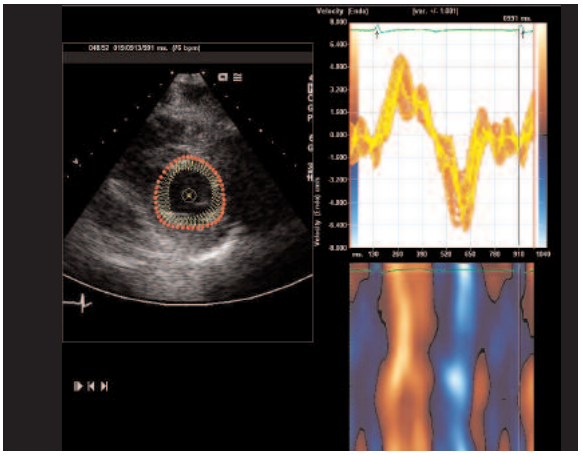
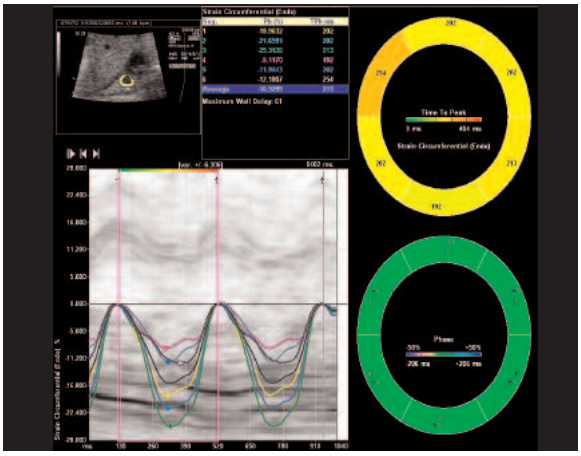


- Apical rotation compliments longitudinal assessment.



- Trajectory display maps the physical location of the traced region over the cardiac cycle.

- A heart failure patient with a bi-ventricular pacemaker and regional dyssynchrony.



- Circumferential strain analysis in a 30 week fetus.

Validation

1. Pirat B, Khoury DS, Hartley CJ, Tiller L, Rao L, Schulz DG, Nagueh SF, Zoghbi WA. A Novel Feature Tracking Echocardiographic Method for the Quantitation of Regional Myocardial Function: Validation in an Animal Model of Ischemia-Reperfusion. J Am Coll Cardiol 2008, in press
2. Dr. Mani Vannan, Gianni Pedrizzetti, Peng Li, Swaminathan Gurudevan, Helene Houle, Joan Main, John Jackson, Navin Nanda, UC Irvine Effect of Cardiac Resynchronization Therapy on Longitudinal and Circumferential Left Ventricular Mechanics by Velocity Vector Imaging: Description and Initial Clinical application of a Novel Method Using High-Frame Rate B-mode Echocardiographic Images ECHOCARDIOGRAPHY, Volume 22, November 2005
3. Bahar Pirat, Marti L. McCulloch, William A. Zoghbi, Methodist DeBakey Heart Center Evaluation of Global and Regional Right Ventricular Systolic Function in Patients with Pulmonary Hypertension Using a Novel Speckle Tracking Method American Journal of Cardiology, 2006 (Volume 98, pp 699-704)
4. Maxime Cannesson, Masaki Tanabe, Matthew S. Suffoletto, David Schwartzman, John Gorcsan IIIVelocity Vector Imaging to Quantify Ventricular Dyssynchrony and Predict Response to Cardiac Resynchronization TherapyAmerican Journal of Cardiology, 2006 10 01 (Volume 98, Issue 7, pp 949-953)

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Headquarters
Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway
Malvern, PA 19355-1406 USA
Telephone: +1-888-826-9702
www.usa.siemens.com/medical

Europe: +49 9131 84-0
Asia Pacific: +65 6341 0990
Latin America: +1-786-845-0697

USA
Siemens Medical Solutions USA, Inc.
Ultrasound Division
1230 Shorebird Way
P.O. Box 7393
Mountain View, CA 94039-7393 USA
Telephone: +1-888-826-9702