Patient data accumulates exponentially as the field of imaging advances. Additional data, however, is not the answer to making more informed clinical decisions if it remains disconnected and isolated. More than ever, clinicians need tools to connect, compare, analyze, and understand the data that comes from many different sources over a patient’s lifetime medical history.

Velocity™ software is a universal bioinformatics solution that consolidates imaging information from virtually any imaging source. It provides clinical teams with the complete, reliable picture they need to collaborate effectively and make clinical decisions quickly and confidently. For clinicians, Velocity quickly becomes an indispensable ally for delivering quality care.

**VELOCITY HIGHLIGHTS**

- Imports multimodality DICOM imaging data from a variety of sources
- Organizes data into a logical overview of a patient’s imaging history
- Uses an elastic B-spline algorithm to deform CT, CBCT, MRI, PET, SPECT and RT images
- Deforms/sums plans from various treatment planning software vendors
- Enables a complete qualitative analysis of image deformation
- Allows real-time contouring of the axial, sagittal and coronal views
- Auto-propagates previously contoured structures
- Provides multiple refinement options for quick and efficient review of structures
- Saves time contouring with automated scripting
- Facilitates collaboration by allowing healthcare staff to easily share and review their work
THE COMPLETE PICTURE

No matter the source of data — diagnostic, planning or treatment system — Velocity can store it, display it, and work with it. Velocity is completely vendor neutral. Most DICOM imaging data is stored and displayed in an aesthetic, intuitive and logical layout. The timeline view captures the ongoing patient history, enabling clinicians to select, overlay, compare, and analyze any combination of images. Clinicians can rapidly review prior planning images and treatment courses, as well as evaluate tumor response.

With this history of information always at their fingertips, physicians can answer essential questions more definitively. How is the tumor growing over time? How has it responded to treatment? What is the total radiation dose to a critical organ? Is this a metastasis, recurrence, or necrosis? Is it safe to re-treat?

TRUE MULTIMODALITY IMAGE FUSION

Velocity yields highly reliable, trustworthy information. It uses an elastic B-spline algorithm to deform CT, CBCT, MRI, PET, SPECT and RT images. PET uptake can be propagated quickly to the planning CT for reliable tumor characterization during planning. Radiotherapy plans, including plans for stereotactic radiosurgery (SRS), stereotactic body radiation therapy (SBRT) and brachytherapy, from various treatment planning software vendors can be deformed and summed to generate a comprehensive understanding of past dose delivery.

Velocity goes beyond image registration and fusion. It builds confidence in quality care with a comprehensive Q/A toolkit, tailored to adhere to the recommendations outlined by Task Group 132 for deformable image registration. It enables a complete qualitative analysis of image deformation through blending, vector fields and displacement grids. Quantitative measurements, such as TRE, DICE, voxel warping, and the Jacobian, provide vital confirmation of fusion assessment.

Velocity combines multimodality imaging from different sources, at different time points, and in different positions to help clinicians make confident decisions for patients. A complete Q/A toolkit gives qualitative and quantitative confirmation of fusion results.
TIME-SAVING TOOLS

EFFICIENT CONTOURING AND PLAN REVIEW

Clinicians can contour in real-time the axial, sagittal and coronal views. Auto-propagation of previously contoured structures, real-time 3D contouring, and multiple refinement options make review of structures quick and efficient. Boolean operations and scripting saves time by automating repetitive procedures. Customizable isodose lists and DVH protocols accelerate the analysis of dose distribution to target volumes and organs at risk.

COLLABORATION AND REPORTING

With Velocity, healthcare teams communicate efficiently and effectively. Members can easily share and review their work and consult with each other using the Sessions feature. Reports can be created easily for review with patients and saved for documentation of clinical decisions.

Care teams can communicate via direct messaging. Easily create and save PDF reports of treatment decisions.

Devices presented in this case study may not be available in all markets.

**Intended Use Summary**

Velocity is a stand-alone software product that provides the physician a means for comparison of medical imaging data from multiple DICOM conformant imaging modality sources. It allows the display, annotating, volume rendering, registration and fusing of medical images as an aid during use by diagnostic radiology, oncology, radiation therapy planning and other medical specialties. Velocity is not intended for mammography diagnosis.

**Safety**

Radiation treatments may cause side effects that can vary depending on the part of the body being treated. The most frequent ones are typically temporary and may include, but are not limited to, irritation to the respiratory, digestive, urinary or reproductive systems, fatigue, nausea, skin irritation, and hair loss. In some patients, they can be severe. Treatment sessions may vary in complexity and time. Radiation treatment is not appropriate for all cancers.

©2017 Varian Medical Systems, Inc. All rights reserved. Varian and Varian Medical Systems are registered trademarks and Velocity is a trademark of Varian Medical Systems, Inc. All other trademarks are the property of their respective owners.