Varian Treatment

Product Specifications

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Introduction

Streamlined Treatment Delivery Management

Varian Treatment verifies treatment parameters for a wide variety of radiation therapy treatments with linear accelerators manufactured by Siemens and Elekta. By unifying plan and delivery information into a single workspace, users can easily verify treatment setups for patients.

Key Functionality

- Provides uniformity to the treatment delivery process
- Uses a standard DICOM-RT interface to exchange patient data with Varian's ARIA® oncology information system
- Combines patient, plan, and treatment parameters into a single workspace
- Provides validation checks of treatment parameters to optimize safety and precise treatment delivery with each patient session
- Accelerates the treatment process with plan validation and helps reduce the potential for random errors by automating
data entry
- Sends treatment data (e.g., records and acquired images) to the Varian system database where it is recorded to the patient's chart
- Supports quality assurance (QA) measurements with the actual treatment plan using Plan QA mode

Specifications

1.0 General Use

- Radiation therapy treatment delivery with medical linear accelerators

2.0 Treatment Techniques

Varian Treatment supports the following external beam radiation therapy:

- 2D conventional
- 3D conformal
- Arc therapy
- Intensity-modulated radiation therapy (IMRT)
- Volumetric modulated arc therapy (VMAT)
- Stereotactic radiation therapy (SRT)

3.0 Treatment Tasks

Varian Treatment is a treatment delivery management application that provides verify-and-record functions for supported[1] medical linear accelerators. The user-centric interface intuitively enables therapists to visualize and carry out treatment tasks with confidence and increased efficiency. With Varian Treatment, users are able to easily verify the actual setup against the approved prescription and are prevented from proceeding if the two do not match or are out of tolerance. Upon completion of treatment, Varian Treatment sends the treatment history and acquired images back to the Varian system database where clinical staff can view the information from nearly any area of the department using the ARIA client applications.

3.1 Parameter Verification

Varian Treatment verifies the following treatment parameters against the machine parameters including operating limits during setup:

- Technique
- Energy
- Monitor units (MU)
- Patient support (couch): vertical, lateral, longitudinal, rotation
- Gantry angle, stop angle, start angle, direction
- Multileaf collimator
- Jaws
- Accessories
    – Trays, blocks, compensators
    – Custom[2]
        o Blocks, bolus
- Physical and dynamic wedges
- Electron applicators
    – Fitments

3.2 Standard Treatment Tasks

For standard treatments, Varian Treatment:

- Loads approved plans and reference images from the ARIA oncology information system
- Verifies patient-specific accessories
- Allows for field reordering
- Allows users to acquire machine parameters
- Allows users to edit[3] treatment plan parameters
- Allows treatment resumption of a partially treated plan

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1 Supported machines listed on page 5
2 Requires manual verification and authorization
3 Allows only minor edits of couch translational values for approved treatment plans

- Provides support for single and multiple isocenter plans
- Provides auto field sequencing support
- Records treatment data (e.g., treatment records and acquired images) to the Varian system database once the patient plan
  is closed
  - Records dose to the reference point that is associated with the treatment plan
- Allows users to complete quality assurance measurements using the actual treatment plan or a verification plan
- Allows users to create and to deliver an emergency treatment plan from the Varian Treatment application

3.3 Overrides

Varian Treatment allows users with appropriate rights to override the following:

- Treatment machine
  - Switch of patient plans between dosimetric equivalent machines of the same manufacturer
- Machine parameter
- Couch orientation: vertical, lateral, longitudinal, rotation
  - Collimator (also known as jaws)
  - Gantry angle
  - Dose limit

Overrides are recorded to the patient's chart for auditing purposes.

3.4 Imaging

Varian Treatment allows imaging of setup and treatment fields using scheduled or ad-hoc image sequence templates for MV port films or electronic portal images.

- Add accessory during port film/image acquisition
- Sends acquired image data to ARIA, where it is available for review
- Supports manual or automated DICOM-RT image retrieval from Elekta's iViewGT™ R3.4 or higher

3.5 Patient Setup

- View patient demographics, fraction and plan information, actual versus planned parameters, setup photos (two per treatment field) and patient setup notes for the loaded field from the in-room monitor while setting up the patient

3.6 Network Independence

- Download entire treatment plan
- Complete treatment session without interruption if network connectivity is lost
- Saves patient treatment data to the Varian system database once connectivity is restored

4.0 System Components

4.1 Charge Capture

Charge Capture records the appropriate Current Procedural Terminology (CPT®) codes for treatment and imaging activities to the Varian system database for auditing and billing purposes.

4.2 PAVS and VVS

The Patient and Accessory Verification System (PAVS) (licensed option) or Varian Verification System (VVS) (licensed option) uses barcode technology to identify patients and verify accessories prior to treatment delivery.

- Electronic patient selection from queue
- Patient identification verification from the treatment room
- Beam interlock until patient and accessories are verified
- Verification of custom blocks and compensators
- Includes two barcode scanners, software and label printer

4.3 Queue

Queue loads the list of scheduled patients to Varian Treatment. Queue provides the following functionality:

- Patient selection via barcode scanner
- Patient check in
- Session management
  - Add/remove patients from daily treatment schedule
- Display of current day's schedule per treatment machine
- Audit tracking (user, date, time and location) of patient check in

5.0 Administration

Varian Treatment Administration, the administration application for Varian Treatment, manages the following:
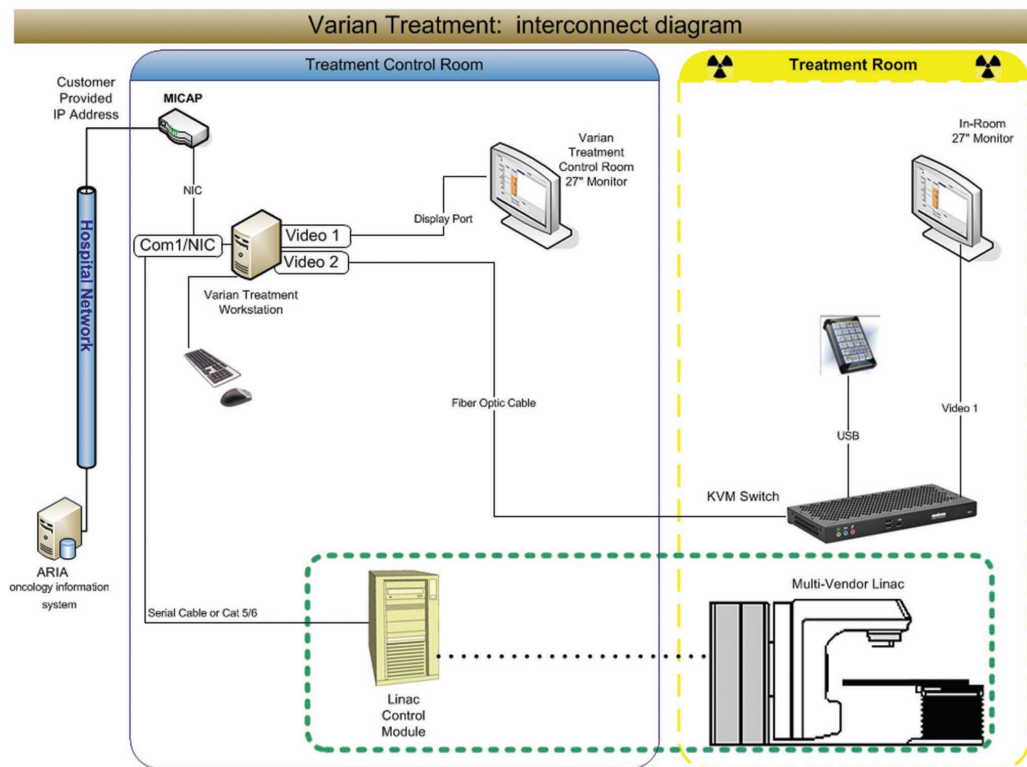
- Machine characterization and parameter configuration
- Machine operating limits
- Ad-hoc image sequence templates
- Independent user management of users, groups, and rights with audit tracking
- Back-up and restoration of the above information to/from a user-specified location

6.0 Import/Export Interface

- Supports DICOM RT (Digital Imaging and Communications in Medicine for Radiotherapy)
  Reference the DICOM conformance statements here:
  http://www.varian.com/us/oncology/services_and_support/resources/dicom_statements.html

Connectivity and communication with Varian Treatment

7.0 Hardware Requirements

- Hardware for the Varian Treatment system must be supplied by Varian Medical Systems.
  - The Varian Treatment hardware consists of a single workstation, two 27-inch monitors, mouse, keyboard, in-room keypad, MICAP, and cables (such as network, serial, and fiber).

8.0 Software Requirements

- Varian Treatment v13.0 is compatible with ARIA versions 11.0, 13.5, 13.6, 13.7, 15.1, 15.5, and 15.6.
  - National language support: English, French, German, Italian, Spanish, and Brazilian Portuguese
- Machine models supported
  - Varian Treatment v13.0 supports machines manufactured by Elekta and Siemens AG.
  - Varian Treatment supports treatment control systems, interfaces, and protocols as per the table below.
- Elekta's iCOM™ interface must be enabled on the linac. Interfaces and licenses must be purchased from Elekta AB.
- Siemens' Digital Mevatron Interface Protocol (DMIP) must be enabled on the linac. Interfaces and licenses can be purchased from Siemens AG.
- Applicable standards
  - The specifications declared for Varian Treatment within this document are based on the recommendations of the International Electrotechnical Commission (IEC)/ European Standard (EN) and include not only the below for the declaration of functional performance characteristics.
    - IEC 61217 (2011) / EN 61217 (2012) Radiotherapy equipment - Coordinates, movements and scales
    - IEC 62274 (2005) / EN 62274 (2005) Medical electric equipment - Safety of Radiotherapy Record and Verify Systems

Linac Vendor	Interfaces/ Protocols	Machines/ Models	MLC Supported	Dynamic Wedge Supported	IMRT Supported	Advanced Treatment
Elekta	**RTD with iCOM:** R7.01 (SP2) – (v12.09) **Integrity™[4] with iCOM:** Integrity R1.2 – (v12.09) Integrity R3.0, R3.1[5], R3.2[5, 6] – (v13.0)	SLi Series SLi Plus Series (SL20, SL15, etc.) Precise Series Synergy® Synergy S Infinity™ Axesse™ VersaHD™	MLCi MLCi2[7, 8] Beam Modulator[7] Agility 160MLC[7, 8]	Motorized Wedge	YES	YES[9, 10]
Siemens	Siemens DMIP 2 CCS[11] versions 4.5, 5.0, 6.0, 6.1, 6.2, 6.3, 6.5	Digital Mevatron® K Digital Mevatron® M Siemens PRIMUS™	NO[12]	NO	NO	NO
	Siemens DMIP 5 (IMRT) CCS[11] versions 6.1, 6.2, 6.3, 6.5	Digital Mevatron K Digital Mevatron M Siemens PRIMUS	58-MLC	Virtual Wedge	YES	NO
	Siemens DMIP 6 (Fast IMRT/IMMAXX) CCS[11] versions 6.5, 9.2	Digital Mevatron K Digital Mevatron M Siemens PRIMUS/ PRIMART Siemens ONCOR™	58-MLC	Virtual Wedge	YES	NO
	Siemens DMIP 9 (Fast IMRT/IMMAXX) CCS[11] versions 9.2, 11.0	Siemens PRIMUS/ PRIMART Siemens ONCOR	82-MLC	Virtual Wedge	YES	NO

4   Varian Treatment supports language customizations and selections with the Elekta treatment control system.

5   Varian Treatment supports flattening filter free (FFF) energies (6X or 10X) for Elekta machines.

6   Varian Treatment currently does not support high dose rate electrons (HDRE) for Elekta machines.

7   Varian Treatment supports interdigitation with these multileaf collimators (MLC).

8   Varian Treatment supports sliding-window with these multileaf collimators.

9   Varian Treatment supports Elekta advanced treatment techniques (OmniWedge™, dynamic, dynamic arc, and VMAT).

10 Elekta treatment control system must be properly licensed by Elekta AB to delivery these treatment techniques.

11 Varian Treatment supports language selections with the Siemens control console software (CCS).

12 Siemens machine outfitted with high performance defining (HPD) collimator.

Specifications are subject to change without notice. Not all features, products or options are available in all markets.

Intended Use Summary

Varian Treatment is designed to assist the operator of a radiation therapy device by retrieving treatment plans from the Varian system database for the Radiation Therapy Management module of the ARIA® oncology information system, by providing accurate treatment setups, by monitoring setup parameters, by preventing treatment when machine parameters are out of conformance to treatment plan parameters, and by sending the treatment history for recording to the Varian system database.

Important Safety Information

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.

Medical Advice Disclaimer

Varian as a medical device manufacturer cannot and does not recommend specific treatment approaches. Individual treatment results may vary.

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