



VERIQA

The Modular Software Platform
for Comprehensive Patient QA

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The Modular Software Platform for Comprehensive Patient QA

It is common practice to subject all treatment plans to a secondary dose check. AAPM TG No. 218, 219 and DIN 6875-3 recommend patient-specific QA to detect discrepancies between calculated and delivered dose.

One platform. Flexible and scalable.

From visualization and evaluation to verification and reporting, VERIQA is an all in one software built on future-proof client-server architecture.

Advanced 3D EPID Dosimetry

Based on a clinically proven algorithm, VERIQA RT EPID 3D enables true 3D patient dose reconstruction in the patient anatomy for all treatment sites and combines phantomless pre-treatment and in vivo EPID dosimetry in a fully automated solution.

Track. Trend. Monitor.

Track and analyse your results with the automated integration of Track-it.

Automated workflows. Streamlined operations.

Take your workflow efficiency to the next level by automating your patient-specific quality assurance.

Monte Carlo dose calculations: Fast and precise.

VERIQA calculates dose using the well-established SciMoCa™ Monte Carlo algorithm known for its accuracy and reliability. Use this gold standard method to automatically evaluate your treatment plans with minimum effort in 3D.

Benefit from comprehensive support.

Refer to page 18.

VERIQA Platform Overview

Powerful Patient QA Modules Integrated
in a Single Platform



Treatment plan visualization

DICOM RT Viewer for
detailed plan review and
comparison



Treatment plan evaluation

DICOM RT toolset for
enhanced treatment plan
analysis



Pre-treatment verification

Independent 3D dose
calculation using Monte
Carlo and pre-treatment
EPID dosimetry



Treatment delivery verification

Independent 3D dose
verification using in vivo
EPID dosimetry

RT View

RT Evaluate

RT MonteCarlo 3D

RT EPID 3D

Your advantages:

- ▶ **Independent**
Uses clinically proven, independent 3D dose verification tools and calculation algorithms for reliable results regardless of treatment complexity
- ▶ **Automated**
Fully automated workflows for verification, evaluation, and documentation, which means better use of machine and staff resources with minimum user interaction
- ▶ **Modular**
Flexibility to select and combine patient QA methods by simply adding VERIQA modules
- ▶ **Integrated**
One single, easy-to-access, web-based platform for all patient QA tasks in pre-treatment and delivery verification

New features with VERIQA 3.0

- ▶ 3D pre-treatment EPID dosimetry
- ▶ RT MonteCarlo 3D for MR-Linac, ZAP-X and Electrons
- ▶ 3D in vivo EPID dosimetry
- ▶ Support of stereotactic cones
- ▶ Platform improvements as extensive recalculation and reevaluation functionalities
- ▶ Optimization of the slice viewer

VERIQA RT MonteCarlo 3D

Secondary Monte Carlo 3D Dose Calculation.
Accurate. Fast. Automated.

Monte Carlo techniques are the gold standard for dose calculation in radiotherapy. VERIQA RT MonteCarlo 3D calculates doses using the well-known, clinically proven SciMoCa™ Monte Carlo algorithm for dose verification. VERIQA is independent from LINAC vendors and treatment planning systems, thus facilitating a truly independent dose

verification calculation. As part of the VERIQA patient QA platform, VERIQA RT MonteCarlo 3D offers a fully automated dose verification with both speed and accuracy, thus enhancing safety and increasing efficiency simultaneously in daily patient QA. Highly accurate calculation results are available in just a few minutes.

Accurate

Monte Carlo simulations are the most accurate method for dose calculation in radiotherapy treatment planning. With its ability to simulate the physics of photons and charged particles transported through matter, Monte Carlo can accurately compute the dose under almost any circumstances.

The advanced algorithm of VERIQA RT MonteCarlo 3D achieves a perfect balance between efficiency and accuracy.

Fast

VERIQA RT MonteCarlo 3D has been specifically designed for fast, accurate dose verification calculations in megavoltage external beam radiotherapy. With VERIQA's advanced algorithm and unique virtual source modeling, it is superior in speed, efficiency and minimizing non-Gaussian noise. Due to the streamlined workflow, calculations run in the background with no user interaction required.

Calculation results within 2 minutes

VERIQA RT MonteCarlo 3D comes pre-installed on a powerful server, allowing for high-speed dose computations. Calculation results are available in less than 2 minutes (under common clinical conditions).

Integrated

RT MonteCarlo 3D is a fully integrated module of the VERIQA patient QA platform, which automates workflows and streamlines all operations, requiring minimum user interaction.

Automated

Triggered by the transfer of treatment plans to VERIQA, RT MonteCarlo 3D knows what to do and will take care of all tasks – from calculation and evaluation to notification and documentation.

Independent

Due to its specific beam modelling process, which is based on water phantom measurements, VERIQA RT MonteCarlo 3D performs truly independent dose calculations for a reliable secondary plan check.

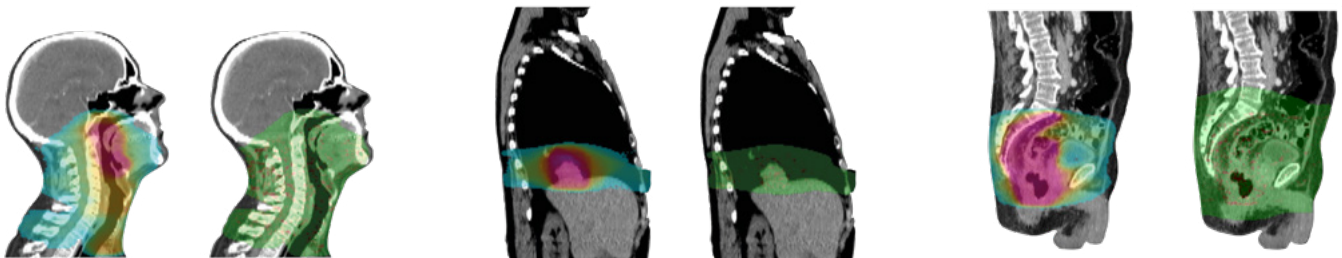


Scan the QR code
for more information about
VERIQA RT MonteCarlo 3D.

Clinically Proven Accuracy

VERIQA RT MonteCarlo 3D builds on the SciMoCa™ Monte Carlo dose engine which was specifically designed to efficiently calculate radiation treatment dose for QA planning purposes. SciMoCa™ derives from the EGSnrc/XVMC/VMC++ Monte Carlo code family. It keeps deviations in the toughest artificial situations to a maximum of 2 % compared to

general purpose Monte Carlo codes. Due to its unique virtual beam modelling and optimized use of sophisticated variance reduction techniques, it maximizes efficiency and minimizes non-Gaussian noise. The algorithm was benchmarked in numerous publications against measurements and dose calculation.



98% GPR*

99% GPR*

99% GPR*

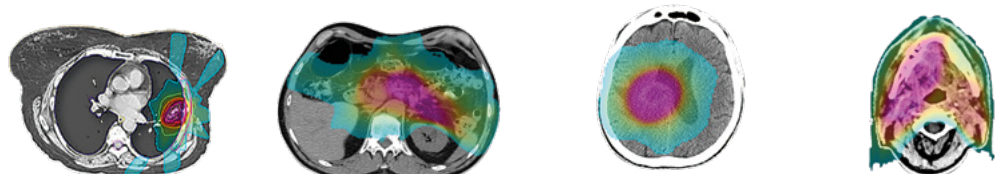
* Gamma Passing Rate, 2 % / 2 mm, global

VERIQA RT MonteCarlo 3D plan evaluations of three VMAT treatment plans calculated with Acuros XB (v 13.7, Varian Medical Systems). Outstanding agreements with differences below common experimental detection thresholds for clinical treatment plans (results from Hoffmann et al. Medical Physics Volume 45, Issue 8, 2018).

Exceptional Speed

VERIQA RT MonteCarlo 3D combines highest speed and accuracy. The graphics show an example of the calculation time needed by a VERIQA RT MonteCarlo 3D server as delivered by PTW. The calculation time of a Monte Carlo simula-

tion depends on dose grid size, statistical uncertainty, and the complexity of the simulation. Even in the most difficult cases, however, VERIQA RT MonteCarlo 3D simulations are completed in just a few minutes.



LUNG SBRT

Pancreas

Brain

Head and neck

3D / 7 beams
6 MV FFF

VMAT / 2 arcs / 180 CP¹
6 MV - SIB²

VMAT / 1 arc / 90 CP¹
6 MV FFF

VMAT / 2 arcs / 180 CP¹
6 MV - SIB²

PTV volume	46.45 cm ³	589.26 cm ³	264.48 cm ³	907.74 cm ³
Dose grid size	3 mm x 3 mm x 3 mm	3 mm x 3 mm x 3 mm	2 mm x 2 mm x 2 mm	2 mm x 2 mm x 2 mm
MC accuracy	1 %	1 %	0.5 %	0.5 %
Calculation time	12 sec	30 sec	46 sec	246 sec

Calculated on a dual 12-core Intel Xeon Silver 4214 2.2 GHz server with hyperthreading (48 logical cores).

¹control points, ²simultaneous integrated boost

Save Working Hours for More Important Tasks, Save Linac Time for the Treatment of More Patients

VERIQA RT MonteCarlo 3D does not require machine time so this time can be used for the treatment of additional patients. The fully automated workflow saves additional working hours so that you can concentrate on more important tasks.

< 2 %

SciMoCa™'s excellent dose calculation accuracy matches the best in class dose calculation algorithms like Varian Acuros® XB

2 min

Time needed for independent 3D dose calculation and evaluation of a typical clinical IMRT treatment plan*

5 x

Faster than measurement-based 3D dose verification: 2 minutes compared to 10 minutes for phantom measurements*

120 hrs

Can be saved annually on patient QA time if 75 % of treatment plans are verified using VERIQA RT MonteCarlo 3D instead of phantom measurements*

*Based on clinical feedback: 1200 plan evaluations per year, measurement time: 10 min, calculation time: 2 min

Setting New Standards in Patient QA

1

Catch errors already in the treatment planning process

VERIQA RT MonteCarlo 3D is a secondary 3D dose calculation module for pre-treatment plan verification. Providing an independent secondary dose check of the treatment plan makes VERIQA an ideal tool to identify errors in treatment planning.

2

Complementary measurement-based patient QA approach

VERIQA RT MonteCarlo 3D allows for separation of measurements and delivery errors from errors in treatment planning. Use its power and speed to efficiently perform a secondary 3D dose calculation for every treatment plan, as recommended by the AAPM Task Group No. 219.

3

Implement valuable Monte Carlo dose calculation into your QA workflow

Utilize the unique advantages of high-quality RT MonteCarlo 3D dose calculations. While phantom measurements neglect the patient anatomy, Monte Carlo is evidently the best solution to include accurately heterogeneous anatomies into your patient-QA. Monte Carlo has an inherent accuracy that is superior to any other analytical algorithm. Only this accuracy ensures the highest sensitivity to catch errors and the ability to define clinically relevant, patient-centered evaluation criteria.

4

Benefit from expert-based beam models

VERIQA's beam models are not standard – they are precise. Benefit from the unique, expert-based beam modelling process assuring high-end dose calculation.

All VERIQA beam models are created linac and customer specific by experienced PTW physicists using water phantom measurements. While other secondary dose calculation tools apply obsolete dose calculation algorithms with substandard beam model accuracy, VERIQA RT MonteCarlo 3D can reach true TPS-equivalent dose quality.

5

Rely on accuracy without limits

In complex situations, such as stereotactic treatments, measurement equipment can be limited in terms of positioning and measurement errors. VERIQA RT MonteCarlo 3D offers the unique combination of outstanding dose performance in heterogeneous anatomies and highly accurate beam model quality, without any limits in geometrical precision for small fields.

Publications could show that secondary Monte Carlo dose calculation with high-quality beam models can be an excellent alternative to phantom measurements in stereotactic radiotherapy.

6

Be truly independent

Secondary dose calculation tools should be completely independent of the treatment planning system to reliably detect clinically relevant errors. Independency from the TPS must be assured for the dose calculation algorithm and the dosimetric input data for beam modelling.

Scan the QR codes below for more information on points 2, 3, and 5

2



3



5





Testimonials



“VERIQA is extremely suitable, dynamic and efficient. It offers an excellent solution for independent plan verification, with a high-quality dose calculation. We believe it is important to establish appropriate tolerance and action levels for the use of VERIQA.”

Dr. Vicente Carmona
Medical Physicist, Hospital Universitari i Politècnic La Fe, Valencia



“For us VERIQA is an easy to handle, very useful and helpful software tool for secondary dose calculation.”

Rodrigo Lope Lope
Medical Physicist, Hospital Universitario Araba, Vitoria-Gasteiz



“In practice, Monte Carlo dose calculation is only as accurate as the specific beam model for the customer's linac. SciMoCa™ was born from the belief that we can master this challenge for every customer.”

Prof. Dr. Markus Alber
ScientificRT GmbH, Munich



“Secondary dose calculation systems should be completely independent from primary TPS. Accurate matching between the secondary dose calculational systems and the dosimetric characteristics of the linac is thereby essential for truly independent and valuable dose evaluation.”

Prof. Sotiri Stathakis, Ph.D.
University of Texas Health Science Center, San Antonio

VERIQA – Why Accuracy Matters

A second check software needs high accuracy to be more than only a plausibility check.

Modern treatment planning systems consider multiple interactions. A reliable second check software only makes sense if it considers more interactions than the TPS and not only a part of it. The second check software should calculate the dose with a higher accuracy than the treatment planning system to detect clinical relevant errors.

The algorithm of VERIQA RT MonteCarlo 3D delivers an accurate simulation of physical processes. The use of the SciMoCa™ Monte Carlo algorithm simplifies the complexity of a Monte Carlo algorithm and specifies it to its clinical use. This high accuracy allows the use of a strict gamma criterion to detect clinical relevant errors. Only a strict gamma criterion can guarantee that clinical relevant errors can be detected.

Other second check software that calculate with less accuracy will have a spread in the result. This spread will cause failed plans, even if they are calculated correctly by the TPS. Wrong warnings cause more work so that a second check software without a high enough accuracy will result in a higher workload rather than saving time.

Medical physicists from Aarhus University hospital performed a comparison between the VERIQA algorithm SciMoCa™ and Mobius (*The clinical benefit of Monte Carlo with Custom beam models over an analytical algorithm with generic beam models for secondary dose calculation*, L. Hoffmann, Aarhus University Hospital, ESTRO 2023). The result was that the gamma passing rate of Mobius is mainly random. For SciMoCa™, the gamma passing rate can be traced to a reason. That means the high accuracy of the dose calculation of VERIQA RT MonteCarlo 3D enables the user to trace back to error sources.

Hence, by using a strict gamma criterion Mobius will deliver false alerts and cause more work. The only way to avoid it, would be a less strict gamma criterion but then the second check calculation will be only a plausibility check. With SciMoCa™ and its high accuracy, it is possible to select a strict gamma criterion to reduce the workload, to detect only true errors and to trace it back to potential error sources.

Higher accuracy allows for stricter criteria and guarantees the detection of clinical relevant errors instead of wasting time by analyzing wrong warnings.



Graphic illustrating clinical benefit of SciMoCa™ vs. Mobius: SciMoCa™'s superior accuracy allows stricter gamma criteria without false positives.



In contrast, Mobius, with the same stringent gamma criteria, generates more false alerts, requiring additional investigation.

VERIQA Streamlined Workflow

Data Import

VERIQA receives and collects data from TPS and linacs and automatically starts the QA Workflow.

Results

Results can be directly accessed via web browser featuring an advanced 3D slice viewer. For further analysis and comparison, results can be exported to RT View/Evaluate.

Documentation

Multiple options are available to document the results: PDF report, DICOM export to PACS, Track-it export.



Calculation

VERIQA automatically calculates and compares dose based on settings in assigned evaluation templates and sends email notifications as soon as the task is completed.

Approval

Results are automatically evaluated based on user defined criteria and can be approved or rejected by authorized users. Comments can be added to each important step of the verification process, ensuring full traceability of the results.



Scan this QR code to directly access our workflow demo

Supported Systems

VERIQA RT MonteCarlo 3D supports the dose calculation for the following treatment machines:

Elekta

Linacs with Agility MLC or MLCi, or MLCi2
Elekta Unity

Accuray

CyberKnife® with fixed collimator, IRIS collimator, and MLC
TomoTherapy®: Hi-Art®, Radixact®

Varian

Linacs with Millenium 120 MLC or HD120 MLC
Varian Halcyon®
Varian Ethos®

ZAP-X

VERIQA RT EPID 3D

True 3D EPID Dosimetry.
Pre-Treatment. In Vivo. Fully Automated.

EPID dosimetry is gaining more and more attention in modern radiation therapy because of its time saving, easy to use pre-treatment Patient QA and ability to perform in vivo treatment verification. As part of the VERIQA Patient

QA platform, VERIQA RT EPID 3D provides a fully automated solution for both pre-treatment and in vivo EPID dosimetry enabling true 3D patient dose reconstruction from the acquired images.

True 3D patient dosimetry

Unlike most EPID dosimetry solutions, VERIQA RT EPID 3D enables a true 3D dose verification from the acquired EPID images by reconstructing the dose in the patient anatomy. This feature offers a significant clinical advantage of comparing the EPID-reconstructed dose directly to the planned patient dose as well as the calculation of patient dose-volume histograms (DVHs) for both pre-treatment and in vivo dosimetry.

Pre-treatment: Phantomless and efficient

VERIQA RT EPID 3D enables the reconstruction of a 3D patient dose distribution from EPID images acquired "in air" with no need for phantom set-up or re-planning. Thus creating a truly patient-specific pre-treatment QA while increasing efficiency.

Clinically proven

The back-projection algorithm of VERIQA RT EPID 3D is a clinically proven and well-established method, which has been successfully used at The Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital (NKI-AVL) in more than 75,000 patient treatments since 2005. Numerous peer-reviewed publications prove the accuracy of the algorithm and show the clinical benefit of using EPID-based pre-treatment and in vivo dosimetry.

Fully automated

One of the greatest achievements of VERIQA RT EPID 3D is the high degree of automation, which keeps user interactions at a minimum. Once a treatment plan has been sent to VERIQA, VERIQA RT EPID 3D will automatically import and assign corresponding EPID images. Whether its calculation and evaluation or notification and documentation, VERIQA knows exactly what to do.

In vivo: Catching clinically relevant errors

VERIQA RT EPID 3D enables in vivo reconstruction of the dose delivered to the patient from EPID images acquired during patient treatment. This makes it possible to not only detect unnoticed clinically relevant errors during pre-treatment verification, but also to quantitatively assess their dosimetric impact.

Fullfilling quality standards and legal requirements

VERIQA RT EPID 3D makes it very easy to comply with high quality standards for the dosimetry of advanced treatment techniques and at the same time fullfill legal requirements of in vivo dosimetry, which are expected to be adopted by more and more countries in the future.



“The new VERIQA module RT EPID 3D can be seen as a double-edged sword. It will provide the radiotherapy treatment chain with an extra safety net while at the same time reducing the overall QA workload.”

Dr. Anton Mans
Medical physicist, Radiation Oncology
Department of The Netherlands Cancer
Institute - Antoni van Leeuwenhoek
Hospital (NKI-AVL), Amsterdam



“The EPID dose back-projection algorithm of VERIQA RT EPID 3D will offer a double benefit. It will verify treatment delivery by using in vivo EPID measurements as well as increase efficiency in pre-treatment verification by using EPID images acquired “in air”, thus eliminating the need for phantom positioning and re-planning.”

Igor Olaciregui
Software & Physics Lead, The Netherlands
Cancer Institute - Antoni van Leeuwenhoek
Hospital (NKI-AVL), Amsterdam

Advanced 3D Back-Projection Approach

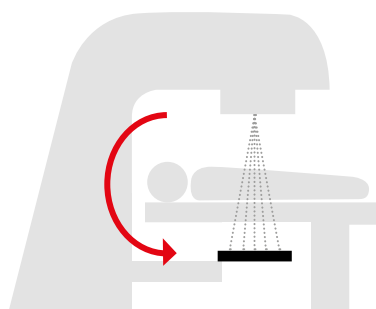
VERIQA RT EPID 3D builds on the well-established back-projection algorithm developed by The Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital (NKI-AVL) for dose reconstruction refined by a unique Monte Carlo-based inhomogeneity correction (patent pending), offering significant clinical advantages. Unlike most EPID dosimetry solutions using the so called forward approach, VERIQA RT

EPID 3D enables a true 3D dose verification from the acquired EPID images by accurately reconstructing the dose in the patient anatomy. This enables direct comparison with the planned patient dose and the use of clinically relevant comparison metrics such as patient dose-volume histograms (DVHs) for all treatment sites including those with significant tissue heterogeneities.

Forward approach*

Current standard of
commercial products

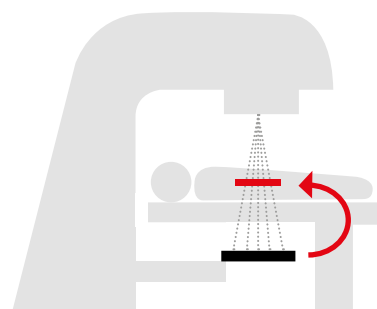
- 1 EPID images are acquired during patient treatment
- 2 Treatment plan is used to forward calculate/predict EPID images
- 3 Measured EPID images are compared against predicted EPID images



Back-projection approach*

Used in
VERIQA RT EPID 3D

- 1 EPID images are acquired during patient treatment
- 2 EPID measured dose is back-projected into patient
- 3 Reconstructed patient dose is compared against planned dose

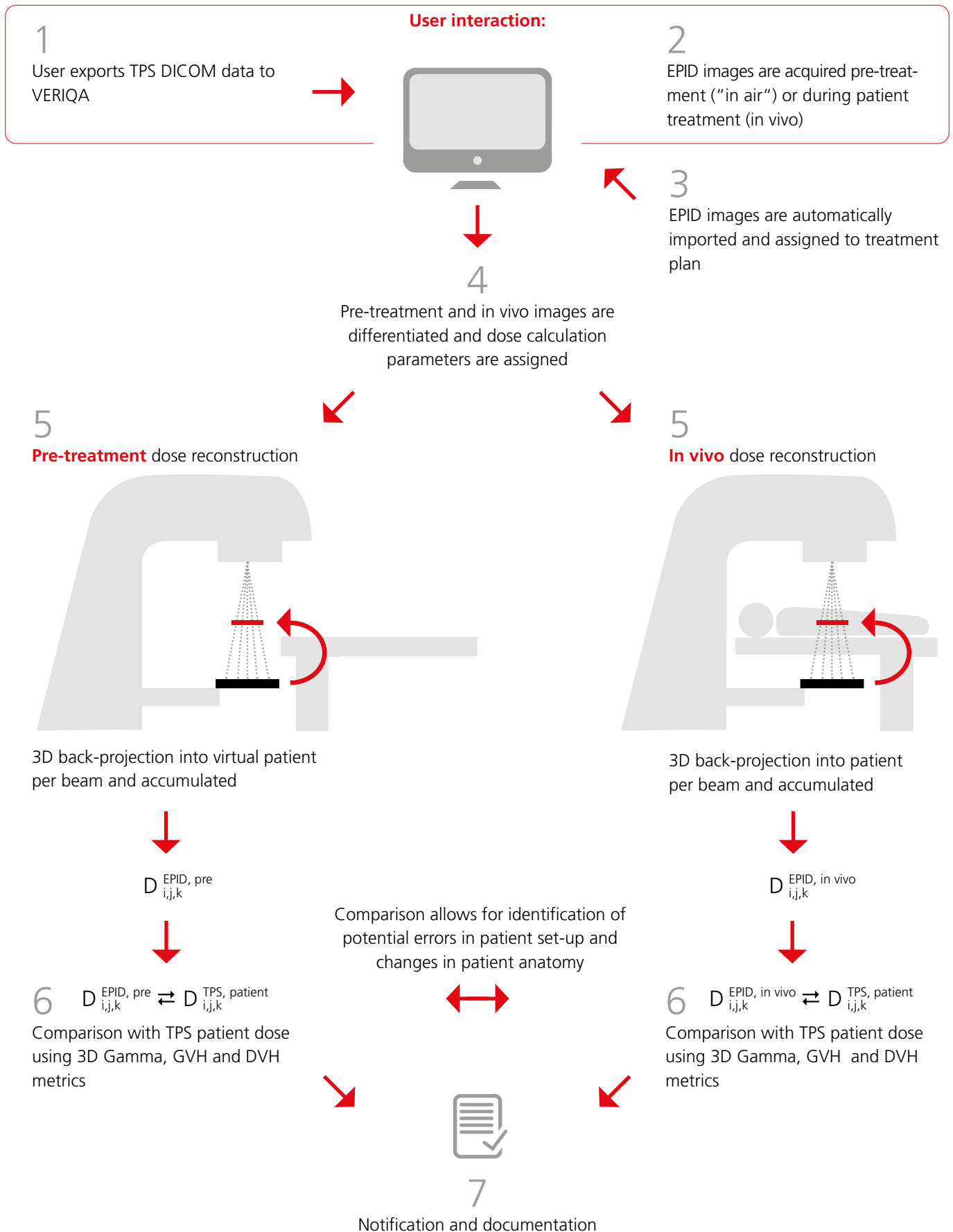


Comparison level	EPID	Patient
Reference	Predicted EPID image/dose distribution	TPS
Visualization	2D only	3D
Comparison metrics	2D Gamma	3D Gamma, GVH, DVH

* For simplicity, the comparison of forward-projection and back-projection approach is explained using the example of in vivo EPID dosimetry. However, the same concept holds true for EPID-based pre-treatment dosimetry.

Automation

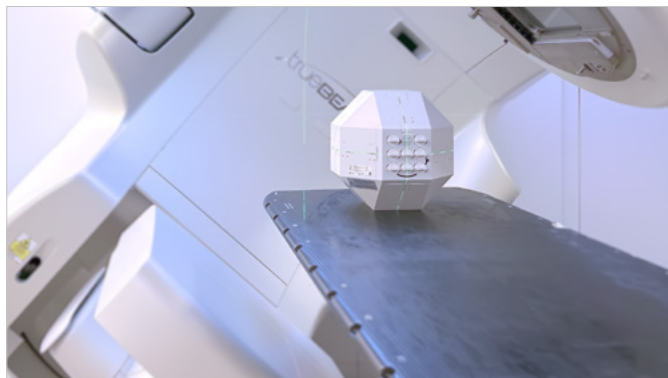
VERIQA RT EPID 3D uses the synergy of a single algorithm for pre-treatment and in vivo dosimetry. User interaction is only needed in step 1 and 2 - all other steps are taken care of by VERIQA RT EPID 3D.



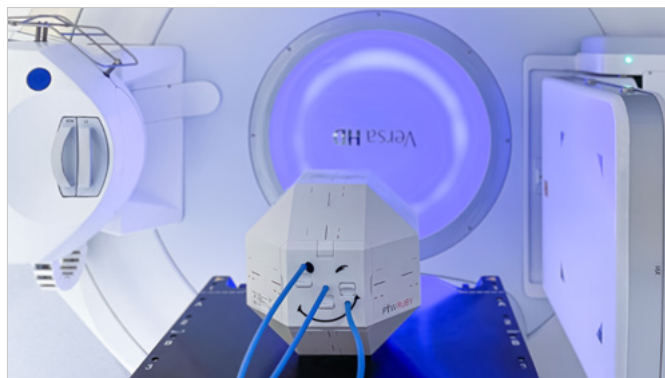
VERIQA RT EPID 3D Meets RUBY

Our RUBY modular QA phantom coming with highly versatile test inserts is the perfect patient to get to know and validate VERIQA RT EPID 3D. RUBY provides you with a simple, yet comprehensive solution that helps you to determine sensitivity and specificity of VERIQA RT EPID 3D to patient-related, machine-related and plan-related errors as recommended by the AAPM Task Group No. 307.

Its modular design and accessories make it very easy to mimic patient-related errors such as incorrect positioning or anatomical changes. RUBY enables a full end-to-end test with the possibility to perform all desired comparisons using the TPS dose, pre-treatment and in vivo (in phantom) EPID dose as well as independent dose measurements using various detectors and films.



RUBY phantom with Electron Density insert for HU/density calibration to mimic anatomical changes

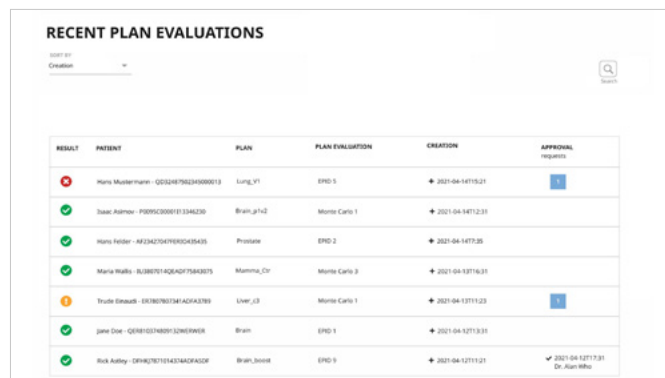
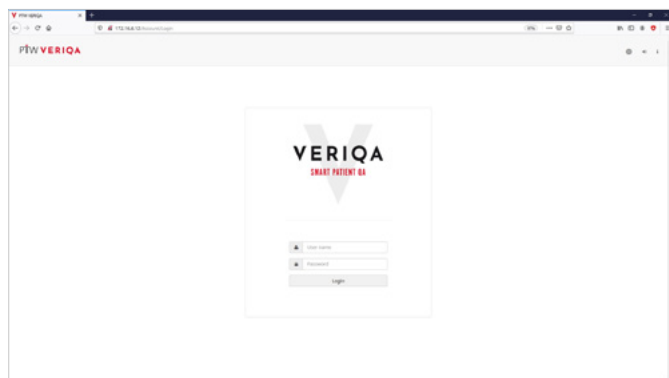


RUBY phantom with System QA MultiMet insert to check accuracy of patient positioning and measure dose at three positions

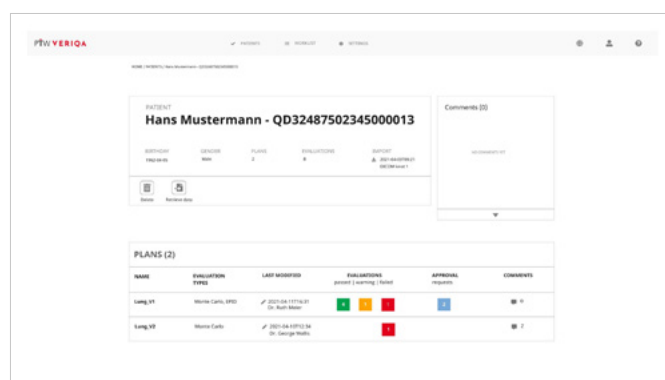
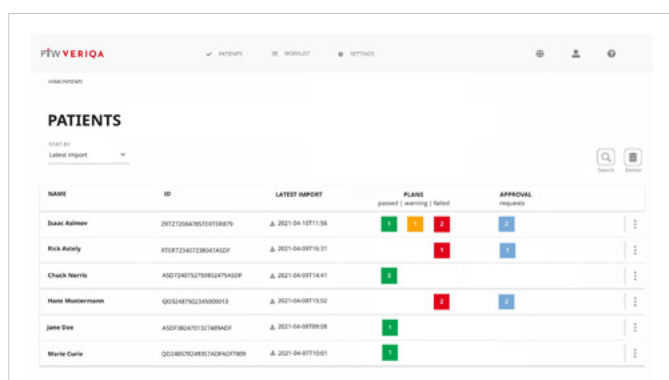
Selected Publications

- ▶ Olaciregui-Ruiz et al. *Extending in aqua portal dosimetry with dose inhomogeneity conversion maps for accurate patient dose reconstruction in external beam radiotherapy.* Phys Imaging Radiat Oncol. 22:20-27 (2022)
- ▶ Mans et al. *Reduction of systematic dosimetric uncertainties in volumetric modulated arc therapy triggered by patient-specific quality assurance phiRO, volume 21, P6-10* (2022)
- ▶ Olaciregui-Ruiz et al. *Transit and non-transit 3D EPID dosimetry versus detector arrays for patient specific QA.* J Appl Clin Med Phys, 1-12 (2019)
- ▶ Olaciregui-Ruiz et al. *Site-specific alert criteria to detect patient-related errors with 3D EPID transit dosimetry.* Med Phys 46, 45-55 (2019)
- ▶ Olaciregui-Ruiz et al. *Virtual patient 3D dose reconstruction using in air EPID measurements and a back-projection algorithm for IMRT and VMAT treatments.* Phys Med 37, 49-57 (2017)
- ▶ Mijnheer et al. *Overview of 3-year experience with large-scale electronic portal imaging device-based 3-dimensional transit dosimetry.* Pract Radiat Oncol 5, e679-e687 (2015)
- ▶ Mans et al. *3D Dosimetric verification of volumetric-modulated arc therapy by portal dosimetry.* Radiother Oncol 94, 181-187 (2010)
- ▶ Wendling et al. *A simple backprojection algorithm for 3D in vivo EPID dosimetry of IMRT treatments.* Med Phys 36, 3310-3321 (2009)
- ▶ Wendling et al. *Accurate two-dimensional IMRT verification using a back-projection EPID dosimetry method.* Med Phys 33, 259- 273 (2006)

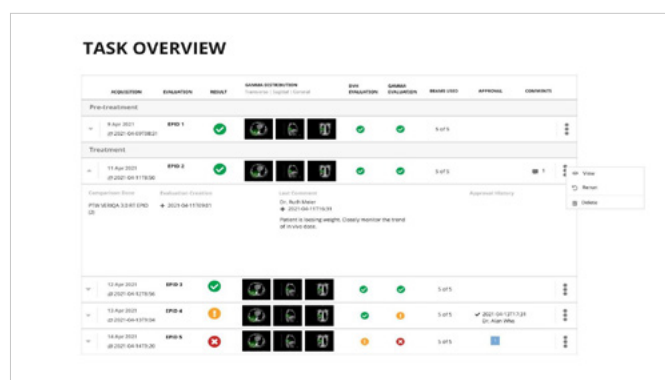
Workflow Example VERIQA RT EPID 3D



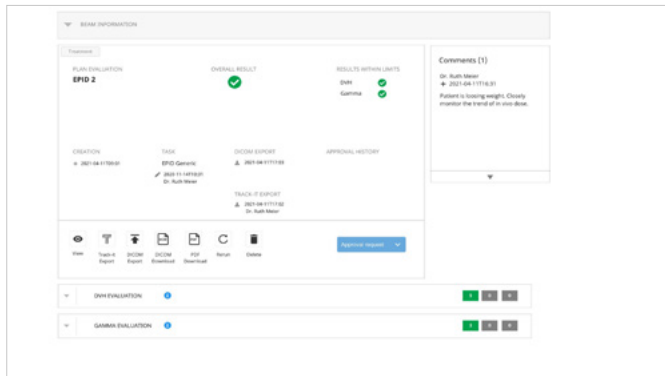
1. Log in via a common web browser from anywhere in your network.
2. Access recent plan evaluations via the VERIQA homepage or from email notifications. Click on the plan evaluation you want to view.



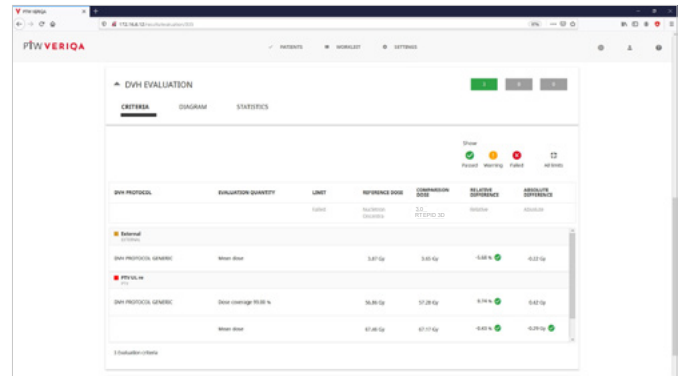
3. To access plan evaluations for a specific patient, go to the 'Patients' menu and select the patient from the list.
4. The 'Plans' page provides an overview of all treatment plans available for the selected patient and summarizes corresponding evaluation results.



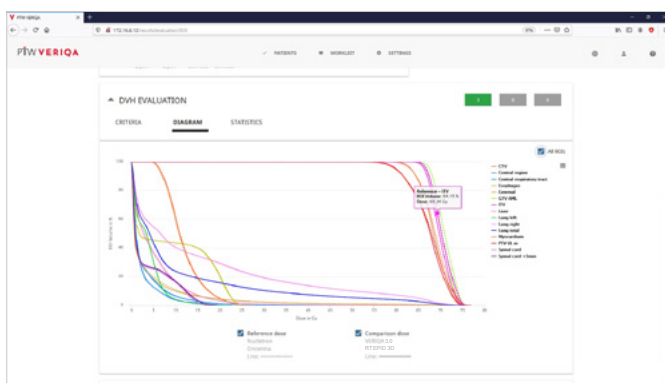
5. Click on the 'EPID' tab to access the QA results of all EPID evaluations for the selected treatment plan, sorted by pre-treatment and treatment verifications.
6. The 'Task Overview' page gives a clear over-view of the entire treatment course and provides quick, easy access to evaluation results of individual fractions.



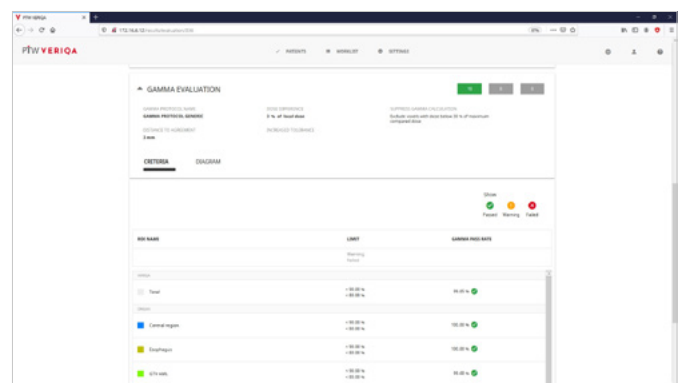
7. Take a closer look at your EPID-based plan evaluations and review the automatically calculated evaluation results at a glance.



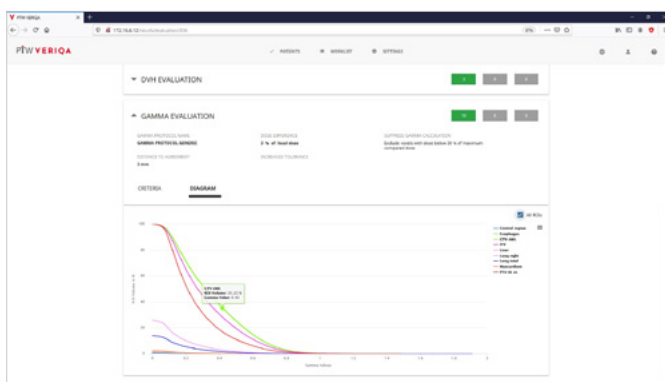
8. Review the DVH parameters for the plan, which are automatically calculated based on criteria defined in the assigned evaluation template.



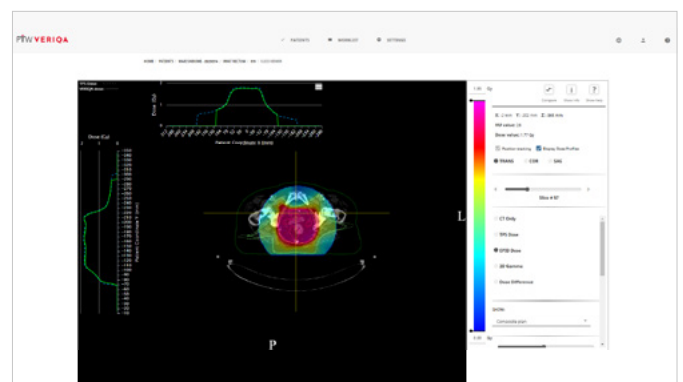
9. Display your calculated DVHs as graphs and compare them directly with reference DVHs from the treatment planning system.



10. Review the Gamma results for each ROI, which were automatically calculated based on criteria defined in the assigned evaluation template.



11. Display your calculated GVHs as graphs and compare them directly with reference GVHs from the treatment planning system.



12. Visualize dose distributions and Gamma evaluations directly in a web-based slice viewer.

VERIQA RT View



Independent Solution for Enhanced Visualization and Image Analysis in Radiotherapy

VERIQA RT View is a universal solution for the visualization of radiotherapy plans, designed to assist you in plan review. It provides quick and easy access to radiotherapy planning data and facilitates uniform viewing of radiation treatment plans

independent of the treatment planning system. As a versatile software, VERIQA RT View comes with powerful tools for interactive visualization and plan comparison.

Your advantages

► Comprehensive software toolbox for advanced visualization and image analysis

View treatment plans and images from different sources in one place.

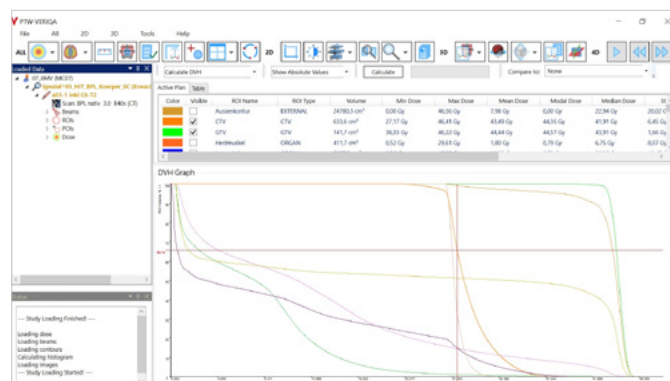
► Independent solution

Access and review all treatment planning data from any PC in your network.

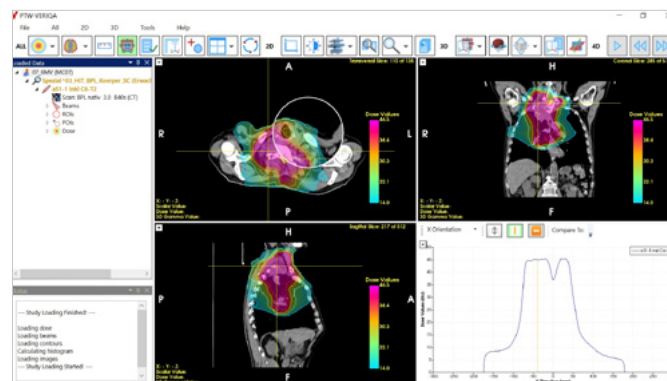
► DICOM-based

Benefit from a vendor-neutral, future-proof platform, meeting legal requirements for long-term data archiving and retrieval.

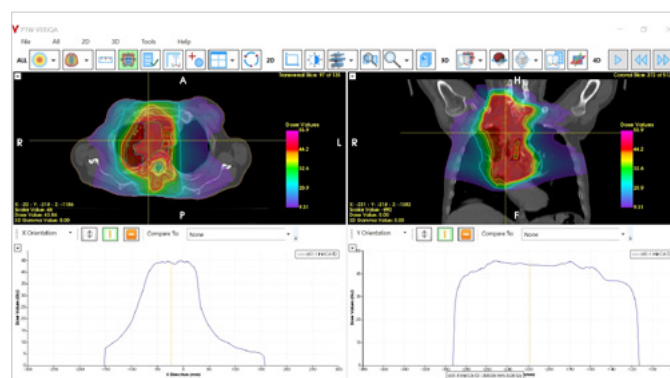
2D/3D/4D Data Visualization and Plan Comparison



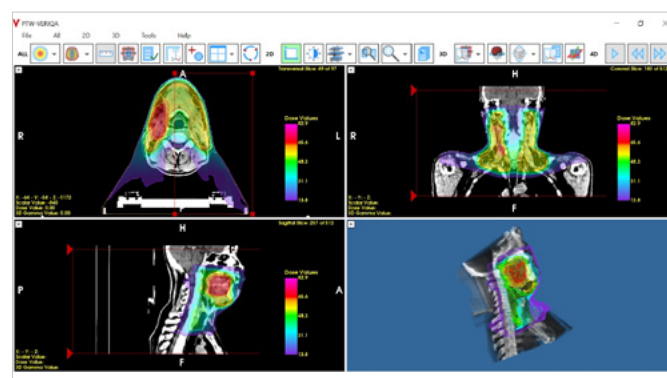
Calculation and comparison of DVHs



Magnification of selected regions



Dose profile plotting



Volume cropping

VERIQA RT Evaluate



Independent Solution for Radiotherapy Treatment Plan Evaluation

VERIQA RT Evaluate is the perfect addition to RT View, providing you with advanced tools for treatment plan analysis. It comes with a set of useful tools and powerful functions for rapid contouring and enables further plan evaluation by

offering rigid and deformable image registration. Investigate dose differences in detail by applying dose accumulation or 3D gamma comparison.

Your advantages

► Versatile RT toolbox

Combined with RT View, RT Evaluate offers an integrated, independent RT imaging solution for radiation oncology departments.

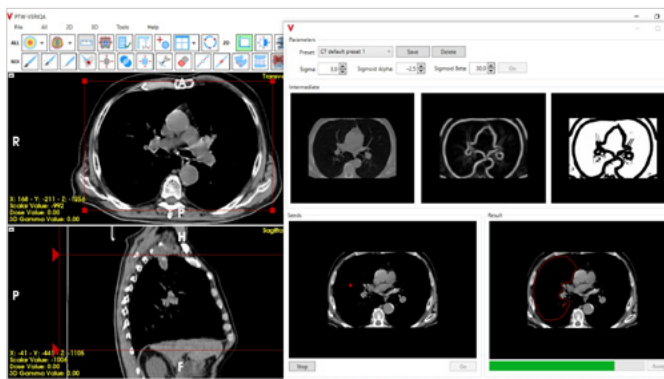
► Advanced plan evaluation

Gain access to advanced plan visualization and evaluation tools, including rigid and deformable image registration, dose summation and 3D gamma analysis.

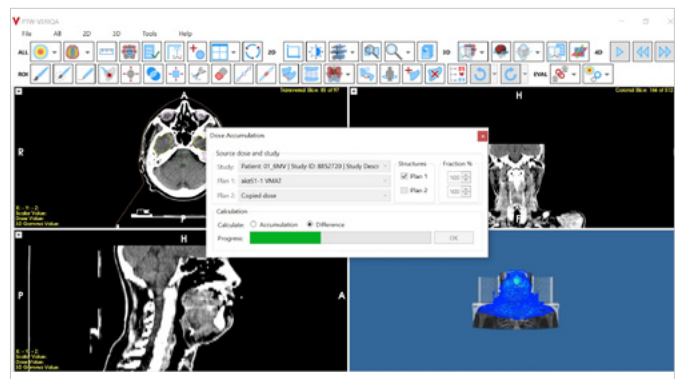
► Easy and smart contouring

Benefit from a comprehensive set of contouring functionalities - from manual painting tools and ROI algebra to semi- and fully automatic contouring.

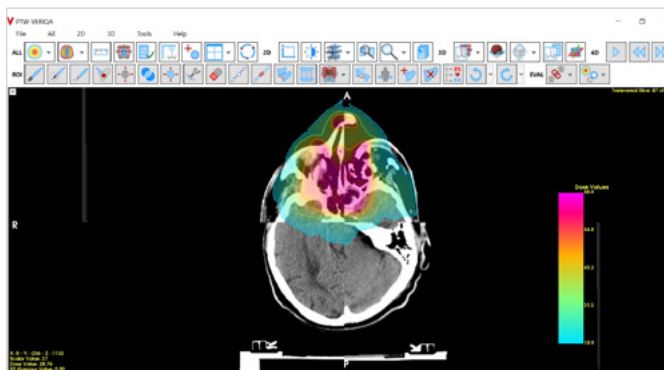
Powerful Visualization Tools for Plan Evaluation



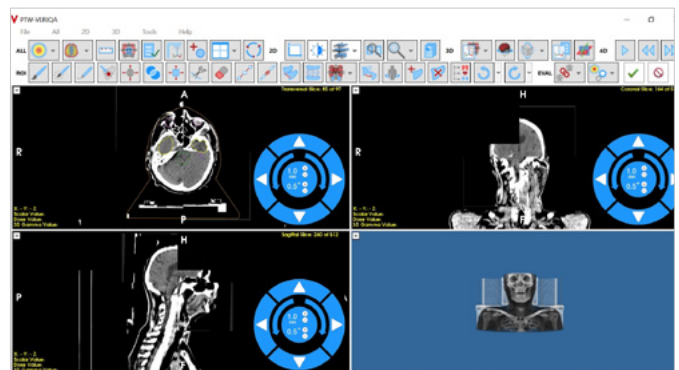
Auto contouring based on grey value and edge detection



Dose accumulation and calculation of dose differences



Overlaid view for image registration



Rigid and deformable registration

VERIQA

Benefit from comprehensive support



VERIQA is a modular and scalable patient QA platform designed to be tailored to the unique needs of its users. It features high-quality tools that achieve optimal performance when configured to match the specific requirements of individual customers. This flexibility ensures seamless integration and efficient operation within different workflows. The VERIQA platform also features customization capabilities, facilitating the selection and implementation of modules

and features to optimize functionality and effectiveness. To ensure the swift and smooth clinical integration of every VERIQA installation, PTW provides expert-led implementation and commissioning to achieve optimal results. Comprehensive support ensures that all tools and features are aligned with individual operational goals, maximizing VERIQA's potential.

Reliability

Our experienced team supports your product, from initial planning through to execution and beyond, while offering expert knowledge to address any challenge. We are committed to helping you achieve your goals and meet your expectations by providing reliable service and support. Your success is our success and we aim to deliver results reflecting our commitment to reliability.

Clarity

We aim to ensure a smooth implementation process, allowing you to focus on your core activities without distraction. Our experts work to streamline every aspect of implementation, ensuring your IT team has the tools and knowledge required for a smooth transition. We also provide guidance for your physics teams, helping them understand workflows, algorithms, and implementation details. This ensures all parties involved are prepared and aligned, avoiding miscommunication and improving overall efficiency. By managing these aspects effectively, we aim to deliver an implementation that addresses your needs while keeping your resources focused on what matters most.

Quality

Our experienced team has conducted numerous VERIQA installations and works to achieve optimal results for each project. We have a specialized beam modeling team that upholds high standards in beam modeling for VERIQA systems worldwide, ensuring every model is created with accuracy for reliable results. We are equipped to swiftly address technical inquiries and clinical questions, helping you make informed decisions. By leveraging our experience and expertise, we are committed to delivering quality throughout your VERIQA implementation. Benefit from a vendor-neutral, future-proof platform, meeting legal requirements for long-term data archiving and retrieval.



Ready.

Proactive Customer Support

Dedicated forward thinking assistance to anticipate issues ahead of time.



Set.

Competent Base Data Collection Support

Obtain expert assistance in gathering essential base data, ensuring consistent and reliable datasets.



Go.

Team-Training with flexible Training Options

Ensure your team has the necessary skills and knowledge with training from seasoned experts. Choose training to fit your team's schedule and preferences.



Succeed.

Expert Guidance for Clinical Adoption

Continuous support and expert guidance during the clinical adoption process.

Single Point of Contact

Streamlined planning and support through a dedicated contact, ensuring efficient communication.

Expert Monte Carlo Beam Model Creation

Benefit from accurate and high-quality beam models created by our specialized team.

Additional Follow-Ups

Access expert feedback to reinforce understanding and address outstanding questions.

Clinical and Physics Support

Offer qualified assistance for clinical and physics-related questions throughout the product lifecycle.

Comprehensive IT Assistance

Guidance on server planning, infrastructure development, and technical inquiries.

EPID Model Commissioning and Validation Assistance

Expert EPID calibration, commissioning and system validation assistance, ensuring accuracy and optimal performance.

Comprehensive Knowledge Base

Ensure your team learns how to utilize VERIQA to its full potential and drive optimal results.

Continuous Training and Education

Access regular training content and webinars to keep the clinical team informed about new features and best practices.

Installation and Configuration Support

Installation assistance, system setup, and verification of communication between the software and clinical systems, ensuring smooth operation.

Software and Workflow Configuration

Receive support in software setup and optimization to enhance efficiency and streamline operations.

Seamless Clinical Integration

Dedicated onboarding and assistance to facilitate smooth implementation.

Innovative Solutions

Constantly adapt and improve your system based on new VERIQA developments covering your needs.

Patient QA
Modular Track-it
Efficient **Confident** **EPID**
Proven **VERIQA** **SciMoCa™**
Monte Carlo **PTW quality**
Workflow orientated **Simplified documentation**
In vivo dosimetry **Full automatization**
Secondary dose check

Making Radiation Safer.

PTW is a global market leader for dosimetry and quality control solutions in radiation medicine, serving the needs of medical radiation experts in more than 160 countries worldwide. Starting with the famous Hammer dosimeter in 1922, the German manufacturer is the pioneer in medical radiation measurement, known for its unparalleled quality and precision.

For PTW, making medical radiation safer is both a passion and lifetime commitment. The family-run high-tech company operates the oldest and largest accredited calibration laboratory in the field of ionizing radiation and established THE DOSIMETRY SCHOOL to globally promote the exchange of knowledge in clinical dosimetry.

For more information on VERIQA visit ptwveriqa.com
or contact your local PTW representative:
ptwdosimetry.com/en/contact-us/local-contact

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