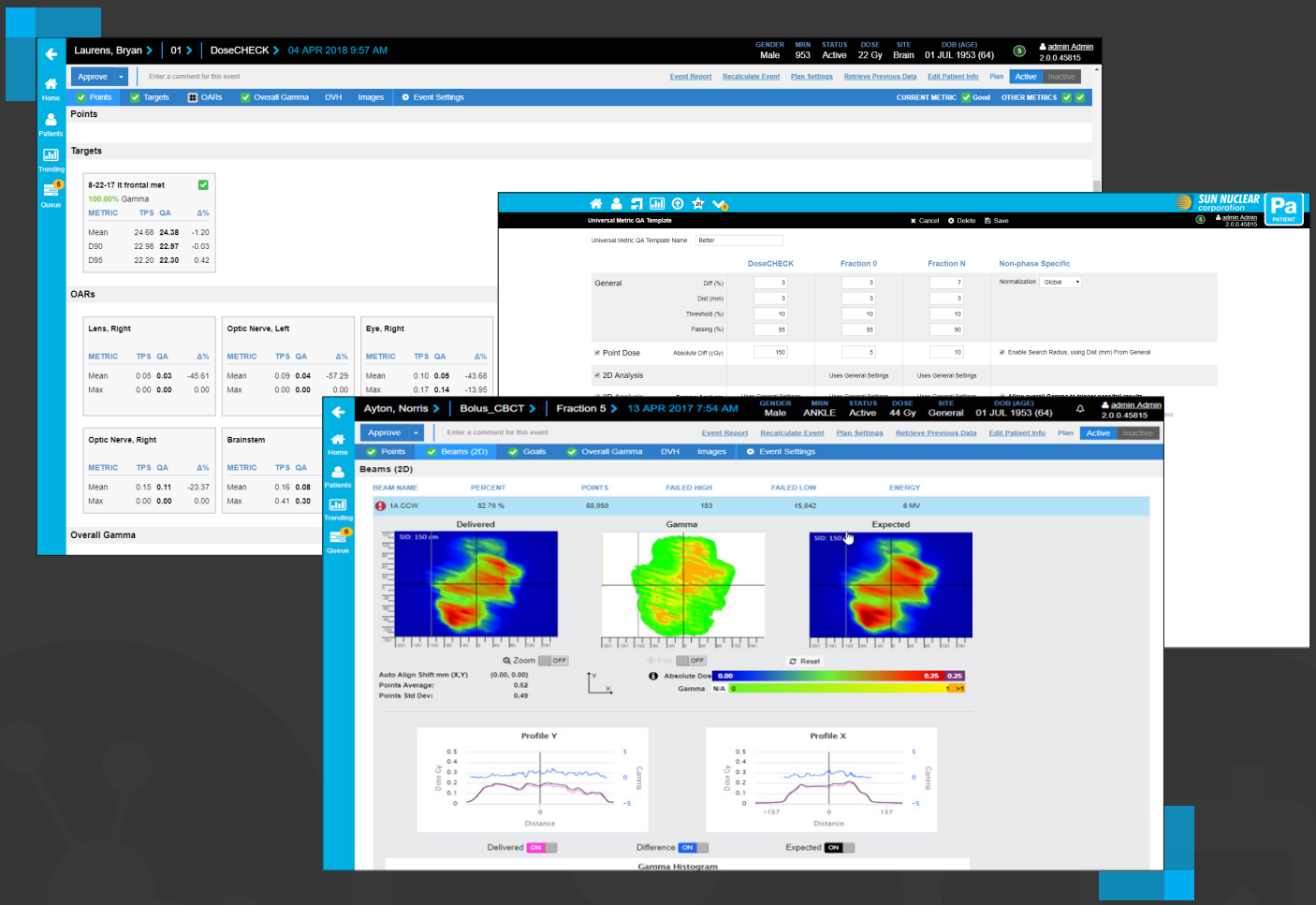
SunCHECK™ Patient

Comprehensive Patient QA



The SunCHECK™ Platform

SUN NUCLEAR corporation

Automate Your Patient QA

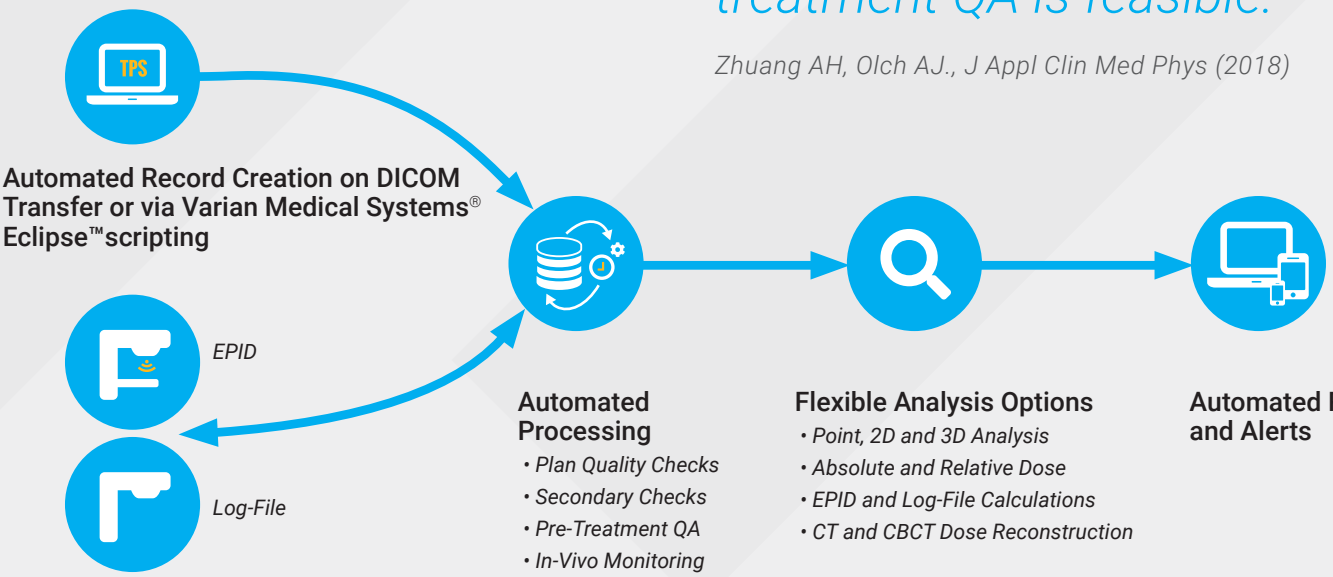
SunCHECK™ Patient automates all your Patient QA needs – from Plan Checks and Secondary Checks to Pre-Treatment QA, and In-Vivo Monitoring.

Through a single web-based software application, all data and results are stored in the central SunCHECK database.

With SunCHECK Patient, all phases of Patient QA integrate into a flexible, automated and seamless workflow. Rather than spending time searching for data, you will spend more time enhancing treatment quality.

"Because this system is fully automated and no physics time is required for data acquisition and evaluation, daily patient treatment QA is feasible."

Zhuang AH, Olch AJ., J Appl Clin Med Phys (2018)



Automated Record Creation on DICOM Transfer or via Varian Medical Systems® Eclipse™scripting

Automated Data Capture

Automated Processing
- *Plan Quality Checks*
- *Secondary Checks*
- *Pre-Treatment QA*
- *In-Vivo Monitoring*

Flexible Analysis Options
- *Point, 2D and 3D Analysis*
- *Absolute and Relative Dose*
- *EPID and Log-File Calculations*
- *CT and CBCT Dose Reconstruction*

Automated Results and Alerts

FOUR CRITICAL PHASES. ONE WORKFLOW. COMMON ANALYSIS TOOLS.

Plan Quality Checks
PlanCHECK™

Validate the treatment plan against departmental requirements, and automatically assess performance versus intent. Automating this time-consuming task for experienced medical physicists provides time to focus on other areas of quality management.

Phantomless and Array-Based Pre-Treatment QA
PerFRACTION™ Fraction 0

Choose from flexible options for pre-treatment QA using ArcCHECK®, EPID and/or Log File data, or with EPID data alone for independent 2D planar analysis.*

** Features included in Advanced Dosimetry Package*

Secondary Checks
DoseCHECK™

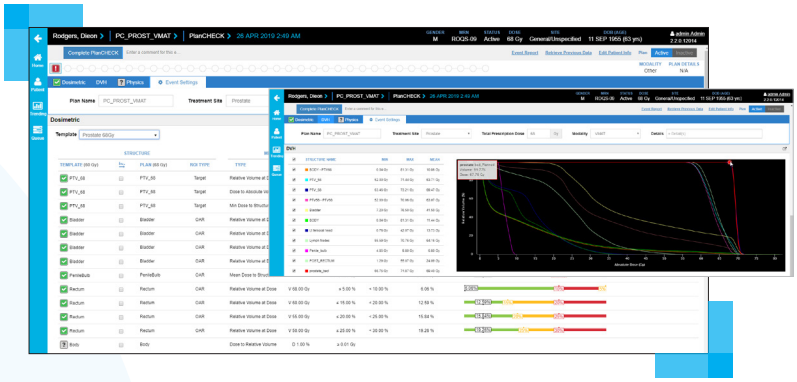
Perform 3D secondary dose calculations for the systems your clinic uses — 3D, IMRT, VMAT, SRS, SBRT, bore-based, TomoTherapy® and HDR Brachytherapy treatment plans. Having an integrated system enables efficient planned vs. calculated dose comparison.

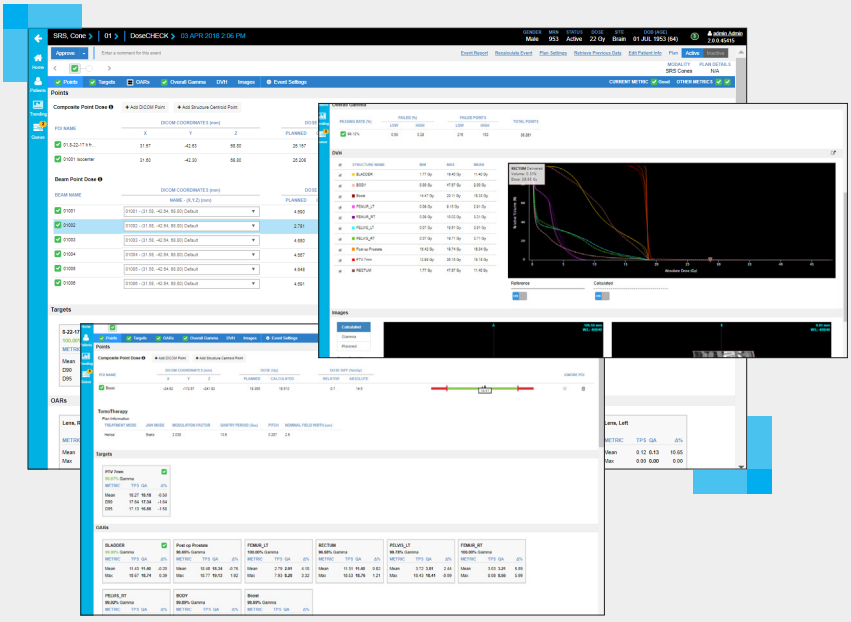
In-Vivo Monitoring
PerFRACTION™ Fraction n

Verify and track dose throughout the treatment course to catch the most common types of errors — those associated with the patient, as well as machine errors.

Plan Quality Checks

Plan checks often require significant experience, time and expertise to ensure treatment plans are created as intended. PlanCHECK™, the latest advancement of the SunCHECK Patient workflow, eases the burden of performing checks. It automatically loads data from Varian Medical Systems® Eclipse™ and other DICOM-compliant TPSs. It's designed to: compare dose/volume metrics to user-defined constraints (Dosimetric Checks), verify treatment and non-treatment beams, and validate image and contour data (Physics Checks).





Secondary Checks

Automated, independent secondary checks create efficiencies, allowing you to focus on results and investigate point doses, calculated vs. planned MUs, and 3D dose displays. In addition to support for conventional MLC-equipped linacs, secondary checks of Varian Medical Systems® Halcyon™ System, TomoTherapy®, HDR Brachytherapy and treatments using stereotactic cones can be automated within the SunCHECK workflow.

Phantomless and Array-Based Pre-Treatment QA

SunCHECK Patient supports 3D CRT, IMRT/VMAT and SRS/SBRT calculation and delivery. Measurements can be analyzed in 3D using ArcCHECK®, EPID and/or Log File data, or by using the EPID for independent 2D planar analysis*.

ArcCHECK device connectivity provides an efficient audit QA solution and improved root-cause analysis of delivery issues.

74% of errors occur in first fraction
Bojechko et al, Med Phys

In-Vivo Monitoring

Verify patient set up, first fraction, and intra-fraction motion against the treatment plan and each delivered fraction, either on the planning CT or daily CBCT* images. Results can be analyzed in 3D using EPID and/or Log File data, or in 2D through the Transit Dosimetry* feature, with no additional time or effort required. Using calibrated EPID data, true dosimetric In-Vivo Monitoring is clinically feasible, creating a fully independent absolute dosimetric QA of patient treatments.

** Features included in Advanced Dosimetry Package*

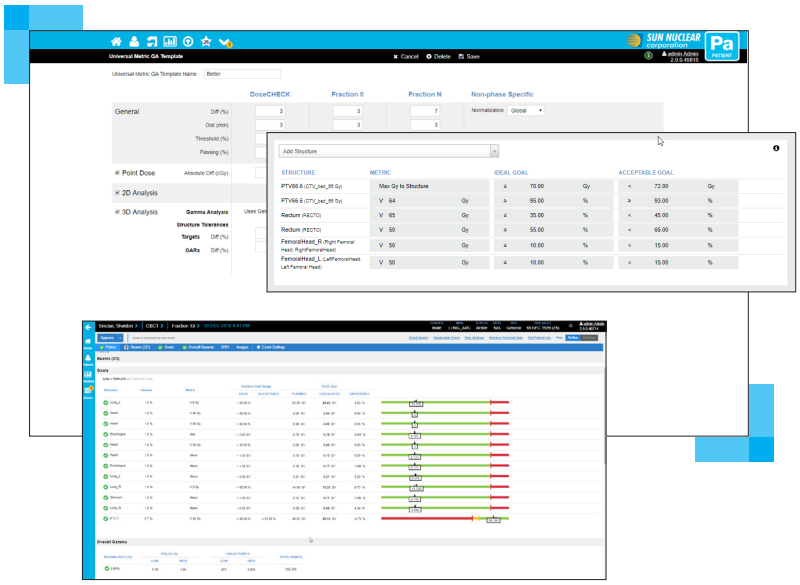
SunCHECK: Meaningful Metrics Faster

Universal Metrics: Set Criteria Relative to Approved Treatment Plans

Pre-set, yet customizable dose tolerances for each phase of Patient QA provide meaningful results. Instantly analyze the impact of different criteria sets, including dose deviations, and quickly switch criteria as needed.

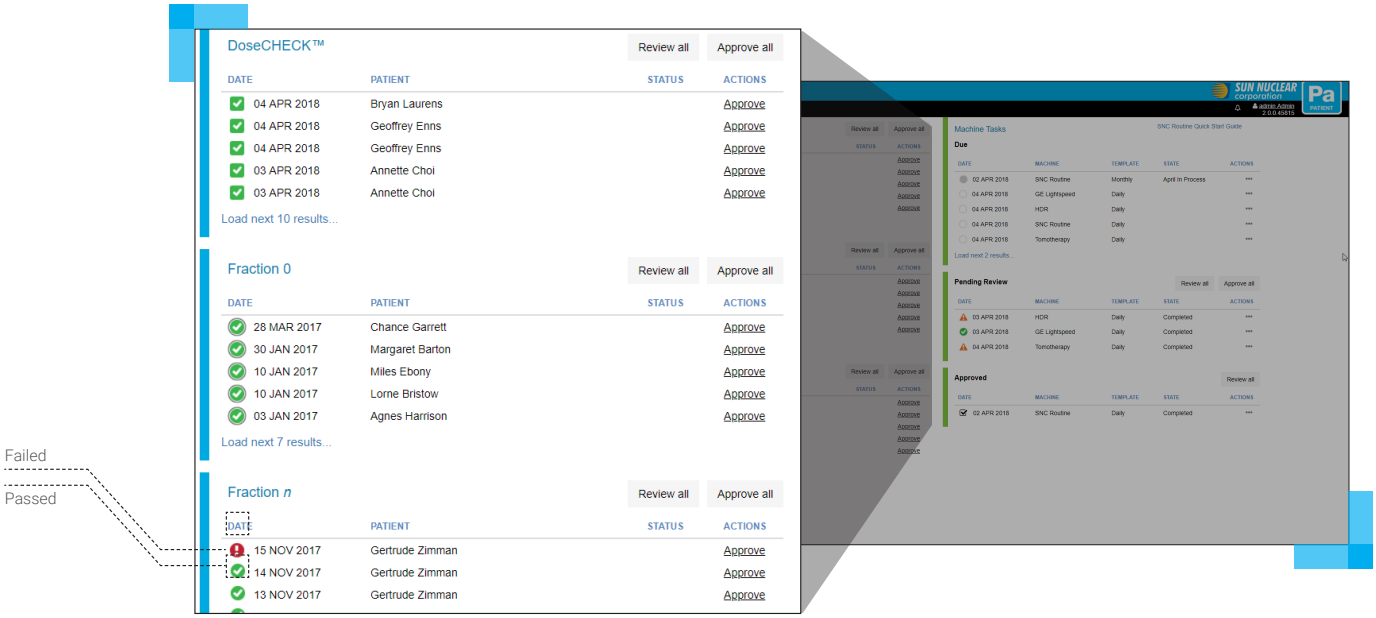
Custom Metrics: Set Criteria for Structure-Specific Absolute Constraints

User-defined absolute limits for specific clinical dosimetric goals allow scoring of results relative to specific dose/volume constraints established by RTOG, QUANTEC, Emami or your own protocols.



The SunCHECK Dashboard: Focus on What's Next

A single view presents all Patient and Machine-focused QA. Select an entry to see all results and analysis for a specific event. Use the same analyses for each phase.



INDEPENDENT QA. YOUR WAY.

The SunCHECK Platform provides flexible workflow automation for integrated and independent QA.

Combine SunCHECK Patient with SunCHECK Machine to realize the full power of the platform.

- One Solution for Radiation Therapy QA
- Speed and Efficiency through Automation
- Access from Anywhere
- Seamless Clinical Integration

Learn more: **sunnuclear.com/suncheck**

SunCHECK Patient Specifications

Dose Calculation Algorithms:	Conventional Linacs: Collapsed Cone Convolution Superposition; TomoTherapy Systems: Monte Carlo*; HDR Brachytherapy: TG-43-compliant algorithm*
Dose Reconstruction Method:	Forward projection (EPID and/or Log Files)
Hardware Environment:	See "SunCHECK Server, Environmental and 3rd Party Pre-Requisites" Documents
Secondary Checks (DoseCHECK Module)	
Supported Systems:	Elekta and Varian Medical Sytems® linacs, including the Halcyon™ system, TomoTherapy Hi-Art® and H-Series™ Systems
Available Analysis and Pass/Fail Criteria:	Composite and Beam Point Doses and MUs**; 3D Dosimetric Analysis for Photon plans; Beam Point Doses for Electron plans
Supported Systems for HDR Brachytherapy Option :	Varian Medical Systems® and Elekta HDR Brachytherapy Systems
Available Analysis and Pass/Fail Criteria for Option:	Composite Point Doses, Source Information, 3D Dosimetric Analysis
Phantomless and Array-Based Pre-Treatment QA and In-Vivo Monitoring (PerFRACTION Module)	
Supported Systems:	Varian Medical Systems® and Elekta Linacs with MLCs
Supported Treatment Modalities:	3D CRT, IMRT, VMAT, SRS and SBRT Photon Treatments
Data Sources:	EPID and/or Log Files (dependent on Linac model and imaging type used in delivery), and/or ArcCHECK array
Pre-Treatment QA	
Available Analysis and Pass/Fail Criteria:	Composite and Beam Point Doses, 2D Absolute Dose Analysis (Fraction Zero Absolute Dose Option), 3D Dosimetric Analysis
In-Vivo Monitoring	
Available Analysis and Pass/Fail Criteria:	Composite and Beam Point Doses, 2D Relative Dose Analysis, 2D Absolute Dose Analysis (Transit Dosimetry Option), 3D Dosimetric Analysis
Dose Calculation Image Set:	Planning CT image set, Cone Beam CT image sets (CBCT Recalculation Option)
PerFRACTION Dosimetry Package Option:	Includes: Fraction Zero Absolute Dose, Transit Dosimetry, CBCT Recalculation

** Only Secondary Dose Calculation supported ** For Varian Medical Systems® and Elekta Linac Plans Only – not applicable for TomoTherapy*

SunCHECK™

Used by 800+ Clinical Sites Worldwide

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Patient Safety Starts Here

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