DOSIMETRY



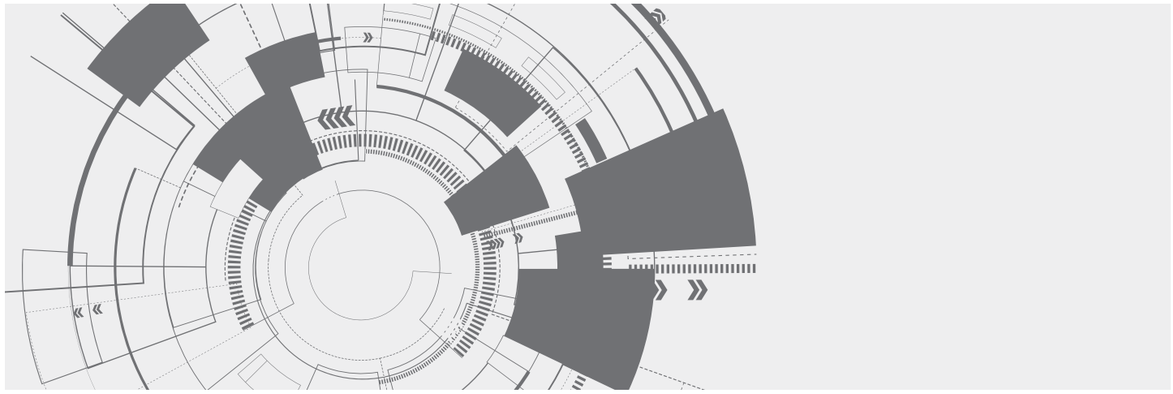
myQA® iON

The Independent QA Environment for Proton Therapy

Life. Science.

myQA® iON

The Patient QA Environment for Proton Therapy



End-to-end Accuracy

- High accuracy through leading-edge **Monte Carlo** dose computation.
- Verify TPS plan dose vs. independent **Monte Carlo** dose.
- Verify TPS plan dose vs log-reconstructed dose.

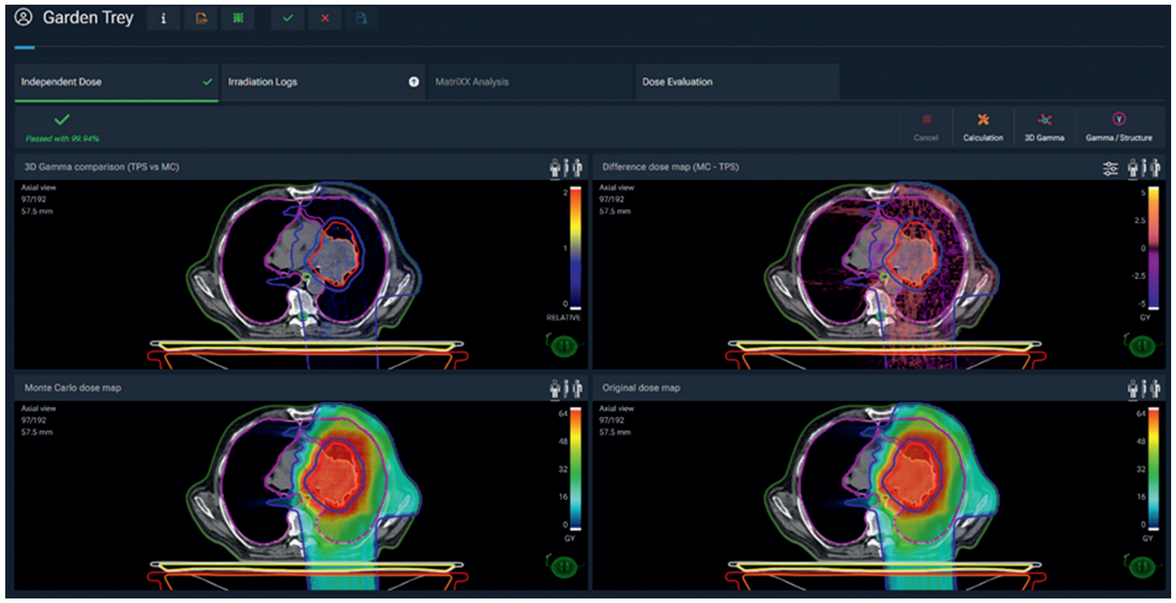
End-to-end Efficiency

- Save significant time through patient QA workflow and process automation.
- Overcome time consuming detector measurements at isocenter.
- Monte Carlo and machine logs QA calculations in the background.

End-to-end Confidence

- Verify treatment delivery quality of each fraction, until the last fraction.
- No additional QA workload required through automatic log transfer and analysis.
- Automatic fractional dose reconstruction based on treatment delivery/machine logs.

End-to-end Accuracy



3D Dose and Gamma verification of the TPS plan dose vs. independent MC plan dose on patient anatomy: 3D Gamma map (upper left), dose difference map (upper right), TPS plan dose (lower right), independent MC plan dose (lower left).

3D Monte Carlo Analysis

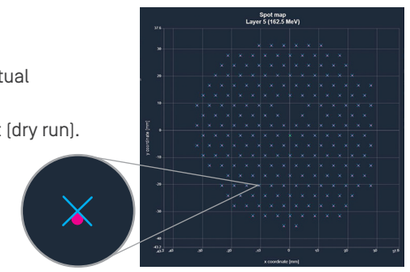
- Fully automated independent Monte Carlo dose computation.
- Verify TPS dose vs. independent Monte Carlo dose.
- 3D gamma analysis and difference dose map.
- Display and verify independent Monte Carlo and log-reconstructed dose vs. TPS plan dose on patient anatomy (and DVH verification).
- Define and compare clinical goals with the ones from the TPS.



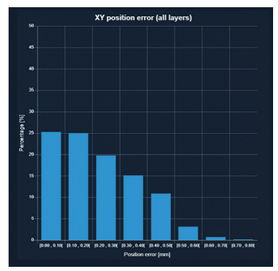
DVH verification of the TPS plan dose (solid line) as well as the independent Monte Carlo dose (dotted line).

3D Log Analysis

- 3D Monte Carlo dose reconstruction based on the actual treatment delivery logs.
- Verify each treatment fraction, not just pretreatment (dry run).
- Track the fractions-accumulative delivered dose.
- Intuitive visualization of TPS planned vs. actual delivered spot map, and analysis of spot position error for each energy layer.



Comparison of spot position for the TPS planned (blue cross) vs. delivered spot (red dot).



Histogram of position error between TPS planned vs. delivered spot.



"Combining irradiation logs and an independent dose recalculation with myQA® iON, we intend to reduce the amount of measurements performed for patient QA by approximately 90%."

Stephan Both, PhD, DABR, FAAPM

Professor & Head of Medical Physics, Department of Radiation Oncology / University Medical Center Groningen, Netherlands

End-to-end Efficiency

QA time saving through logs and automation

Log based QA

- myQA iON uniquely integrates machine log QA, allowing up to 5 times faster patient QA.[1]
- Eliminate time consuming detector measurements at isocenter.
- User-defined log analysis, result display & verification with customized thresholds for warning and error management.

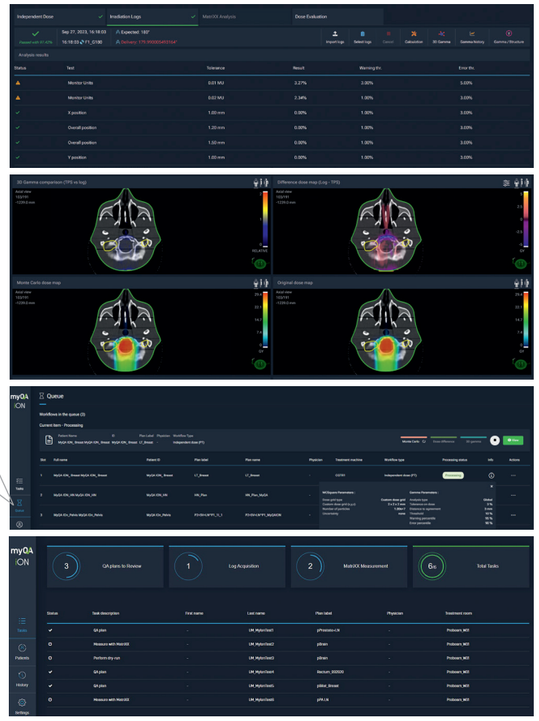
Automation

- **NEW:** Queue manager* for your QA workflow.
- Process automation saves you from tedious and error-prone manual QA operations and status checks.
- Automatic data retrieval and background processing.
- Easy integration in your routine QA workflow.



Workflow Efficiency

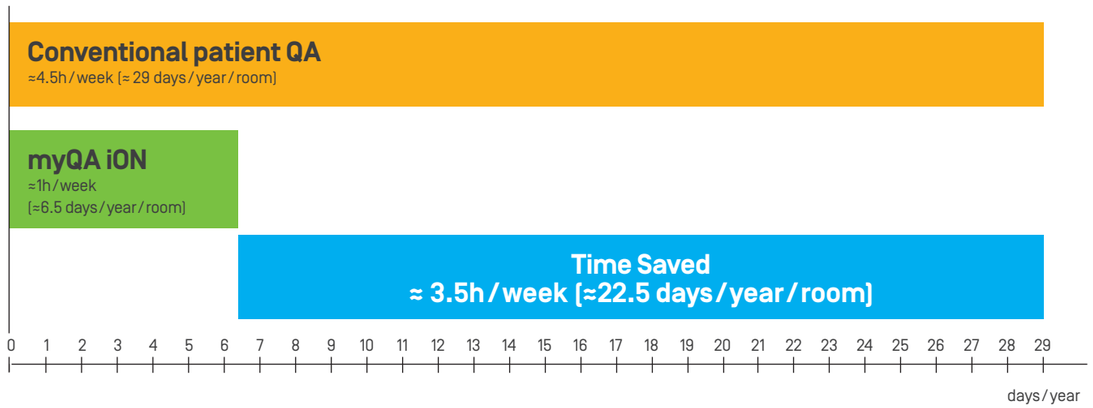
- Monitor your complete QA status in one comprehensive overview.
- Minimize your setup times through automatic grouping of identical tasks.
- Easy management of all your QA tasks, due dates, and staff assignments.
- Convenient network access: The web-client enables QA reviews on any device connected to your hospital network.



Patient Manager: Gain your clear and easy QA status overview for each individual patient.

myQA iON – Reduce your QA time by almost 80%

Typical time spent on patient QA per Proton Therapy treatment room (survey)[1]



myQA iON offers a wide array of tools and process optimization that will allow you to significantly reduce your patient QA time.

- Reduce time consuming detector measurements by applying log based QA.
- Automate repetitive tasks.
- Optimized workflow approach.

[1] A patient QA survey organized among 18 particle therapy centers in the scope of the 2023 ESTRO Physics Workshop "Towards a Consensus on pre-treatment verification in Particle Therapy."

* The queue manager is currently limited to specific workflows and does not support additional computations such as clinical goals and advanced comparison analysis. For further information, please contact your regional sales representative.

myQA® iON End-to-end Accuracy, Efficiency, and Confidence

myQA iON is the unique and comprehensive clinical solution for efficient, accurate, and safe patient QA in Proton Therapy.

- myQA iON significantly reduces the time needed to complete patient QA: Task-based workflow, automation, and the latest web-based software technologies increase QA efficiency while ensuring patient treatment safety.
- myQA iON uniquely integrates 3 advanced patient QA verification tools into 1 environment – enabling fast, accurate, and optimal treatment delivery – based on each individual case.
- myQA iON delivers treatment safety fraction by fraction, including the last fraction, which can now be verified for the first time by utilizing the fractional treatment delivery logs.



Provision PQA Time/Cost Study

Minimum Physics Time Savings

For one fixed beam room:

Measurement-Based PQA	=	**168 hours/year**
Log-Based PQA	=	**34 hours/year**
Difference	=	**134 hours/year**

For three treatment rooms:

	=	**402 hours/year**
	=	**16.75 days/year**
	=	**50.25 8-hour shifts/year**

Minimum Annual Cost Savings

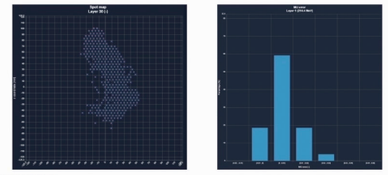
Certified Physicist/Assistant	=	**$27,000/yr**

PROVISION CARES PROTON THERAPY NASHVILLE

11 NashvilleProton.com

Irradiation Logs

- Use the online instrumentation to simulate what the external instrumentation at isocenter would measure and obtain equivalent data.
- This methodology is even more viable for proton pencil beam scanning.
  - Delivered spot position in X and Y
  - Delivered MU/spot
  - Delivered spot size



PROVISION CARES PROTON THERAPY NASHVILLE

8 NashvilleProton.com



Marc D. Blakey, MS, DABR
VP of Medical Physics & Treatment Planning
Provision CARES Proton Therapy Centers

Watch user presentation from PTCOG 2020

Patient-Specific QA in Proton PBS: Past, Present, & Future

PTCOG 2020 Online



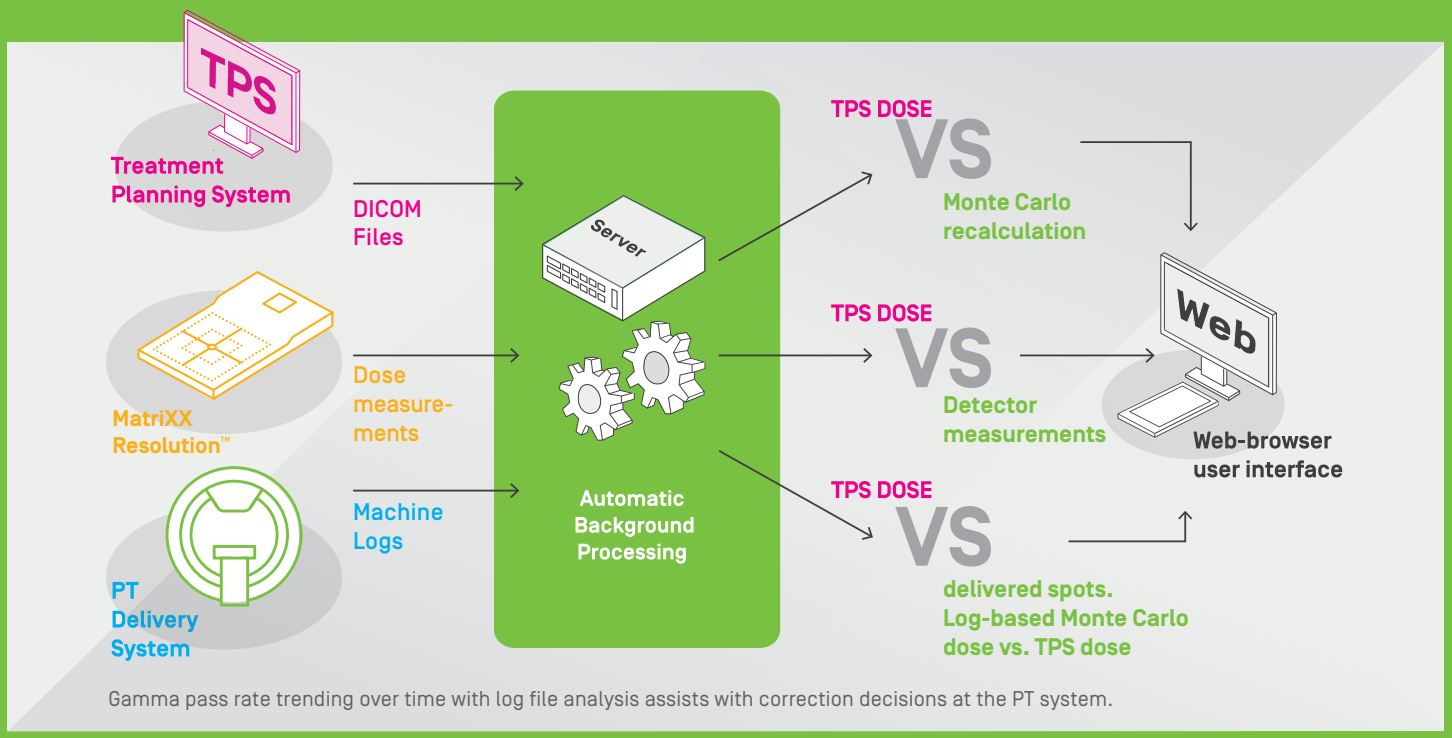
"The ability to automate our patient QA, and the flexibility to use irradiation logfiles, real dose measurements, and Monte Carlo secondary recalculations in one system will bring us to a new level in PT treatment plan QA efficiency and accuracy."

Zuofeng Li, DSc
Physics Director, University of Florida Health Proton Therapy Institute
Jacksonville, FL, USA

myQA iON
The Independent QA Environment for Proton Therapy

Flexibility: 3 advanced patient QA tools integrated in one platform.
Select the suitable tool for your patient QA:

- Independent Monte Carlo 3D dose computation.
- Unique log file 3D reconstruction and spot map analysis.
- 2D planar dose analysis with the MatriXX Resolution™.



Gamma pass rate trending over time with log file analysis assists with correction decisions at the PT system.

Supported Systems

Compatibility	· Monte Carlo dose calculation and MatriXX Resolution detector measurements are supported for all PT machine providers. · Pencil Beam Scanning plans, with or without range shifter. · All treatment planning systems following the DICOM standard.
Monte Carlo Specification	· Monte Carlo computation expected in less than 1 minute for a standard PBS plan with 10 million protons simulated and run on recommended hardware.

Recommended Server Requirements

	Recommended Specifications
CPU	32 cores
RAM	128 GB
Processor	2.2 GHz

	Recommended Specifications
Operating System	Windows Server 2019, 2022 and 2025*
Supported Web-Browser	Chrome™, Firefox™, Edge™
Free Hard Disk Space	SSD 6 TB effective storage in RAID 1/5/10

Monte Carlo (MC) dose engines are optimized to run on Intel-based servers on the system requirements for both myQA iON PT and myQA iON RT

myQA iON-PT_Rev.04_0926_E | All rights reserved | Manufacturer: IBA Dosimetry GmbH. Technical specifications and product features are subject to change without prior notice. myQA iON (figurative logo) is a trademark registered in the name of IBA Dosimetry GmbH in the European Union, the United Kingdom, Canada, and the United States.

Certified B Corporation

IBA Dosimetry
Bahnhofstrasse 5 | 90592 Schwarzenbruck, Germany
Independent & Integrated Quality Assurance
sales-therapy@iba-group.com | iba-dosimetry.com
@ibadosimetry