A User's View

**Implementation and use of Track-it data management software for quality assurance in radiation therapy: A user experience**
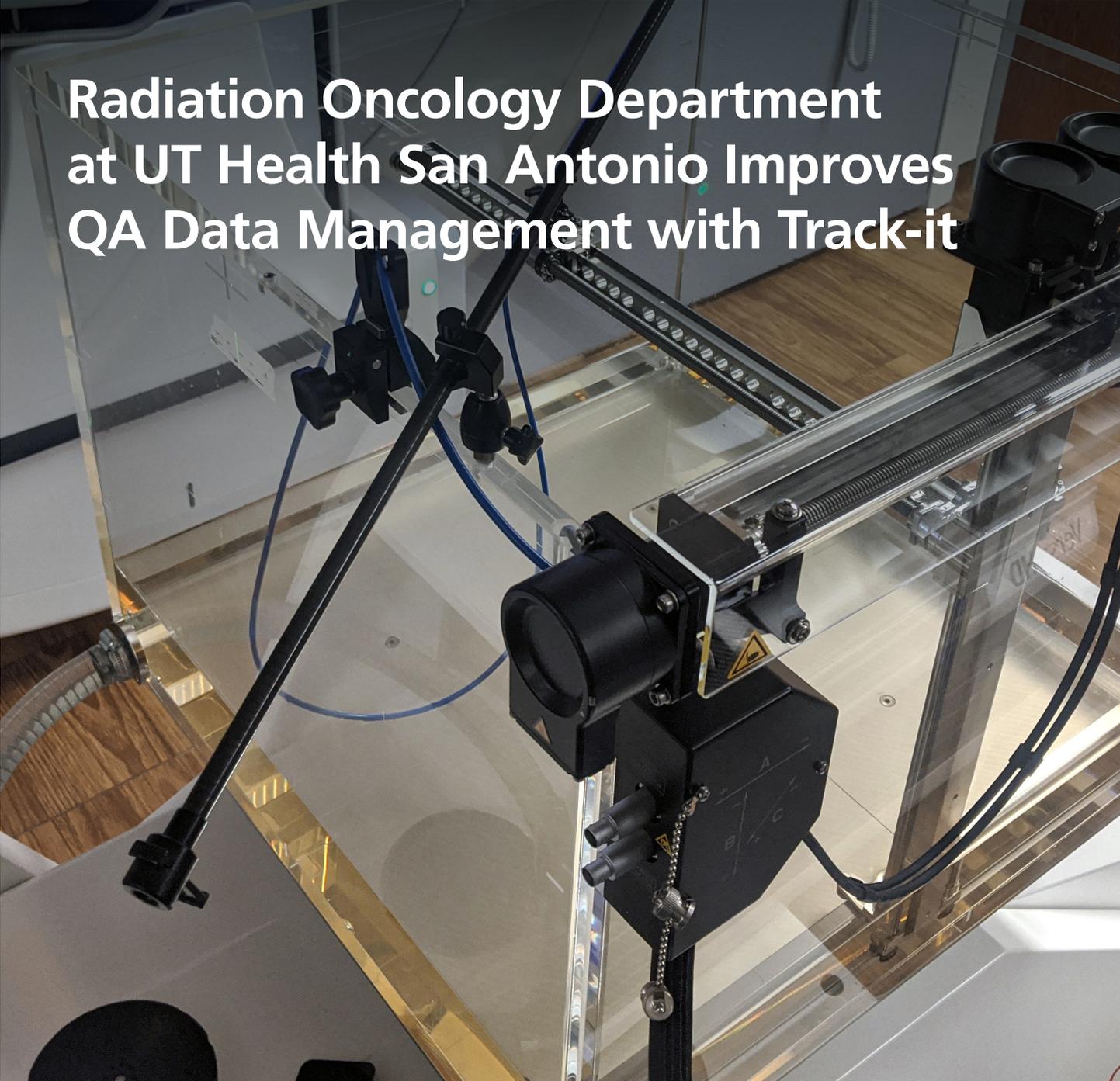
Radiation Oncology Department at UT Health San Antonio Improves QA Data Management with Track-it

Medical physics department chooses Track-it to streamline quality assurance and conveniently access all QA data – anytime, anywhere
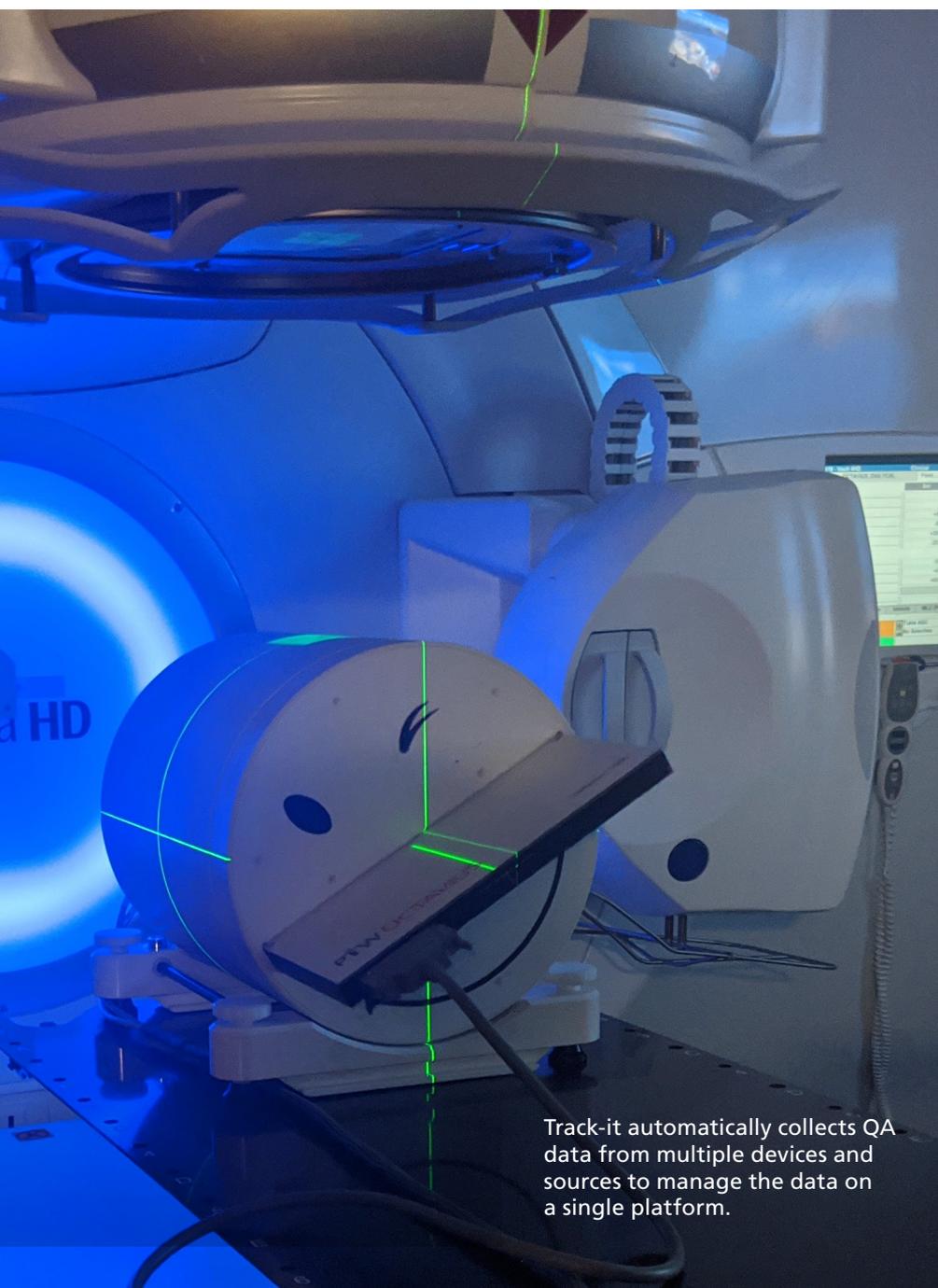
Track-it automatically collects QA data from multiple devices and sources to manage the data on a single platform.

Medical physicists and radiotherapists are all too familiar with the time-consuming tasks involved in performing annual audits of linear accelerators (LINACs), in addition to conducting monthly, weekly and daily quality assurance (QA) reviews. The documentation and management of QA data and reports require a great deal of administrative work – from gathering data from multiple sources to preparing compliance documentation and generating organized reports.

At UT Health San Antonio, Track-it Software from PTW is used to manage their QA data on a single, easy-to-access platform. This browser-based data management software automates workflow steps to save time and ensure data consistency across their department.

The team of six medical physicists, six medical residents and 12 radiation therapists uses a full range of PTW solutions for patient and LINAC QA, including QUICKCHECK webline for daily QA, STARCHECK systems for monthly QA, OCTAVIUS 4D Modular QA System and OCTAVIUS Detector for patient QA, and BEAMSCAN 3D water phantom for commissioning and annual data collection. They also use an array of PTW devices such as PTW ionization chambers, microDiamond detectors and UNIDOS electrometers.

Why the Radiation Oncology Department Uses Track-it for Quality Control

Here are key benefits the department has experienced since using Track-it to integrate data from these various QA systems.

UT Health San Antonio

Department of Radiation Oncology

▸ **Radiation Equipment and Devices:**
5 LINACs
2 CT simulators
1 Brachytherapy unit

▸ **Measuring Devices:**
4 BEAMSCAN 3D water phantoms
QUICKCHECK webline
STARCHECK systems
OCTAVIUS 4D Modular QA System
OCTAVIUS Detector
UNIDOS electrometers
PTW ionization chambers
microDiamond detectors

▸ **Medical Physics Department:**
6 medical physicists
6 medical residents
12 radiation therapists

▸ **Use of Track-it:**
Since 2018

▸ **Number of Track-it Licenses:**
3

Setting Up for Streamlined Questions

Because Track-it collects and stores quality control data and analysis in a central database, reports can be generated with the press of a button, and users can manage all QA data on a single platform. Track-it software implementation was primarily done by the medical physicists, with any questions answered by PTW technical support.

With Track-it serving as a centralized digital data repository, the team now can easily access an overview of the status of all controls. Previously, this would have required them to check many digital and paper data sources.

The Track-it digital logbook stores and retrieves entries and attached service documents for their individual LINACs, such as manuals, service reports or images. With all this information collected and stored digitally in one location, engineers can easily review and look for issues with each machine.

"The Track-it digital logbook stores and retrieves entries and attached service documents for their individual LINACs in one location, so engineers can easily review and look for issues with each machine."

Standardizing Reports for Deeper Insights

Since implementing Track-it, reporting time and the overall reporting process have greatly improved. Before Track-it, the team recorded data on spreadsheets for daily and monthly LINAC QA and printed them out to review the information. Everyone had their own way of recording data to spreadsheets and writing reports. For example, in listing test results, one person might list dosimetry first, then mechanical, imaging and safety. Another team member might record safety first, then imaging, dosimetry and mechanical. Now, each category of information on the report is in the same place for every LINAC.

This standardization is important because it brings continuity to the data recording and reporting process. It makes reading the reports easier because everyone knows where to find the data they need. Problems with individual test results can be easily called out and highlighted for operators. In addition, the reporting system is helpful when training new people who join the department.

"Because Track-it standardizes the reporting process, problems with individual test results can be easily called out and highlighted for operators."
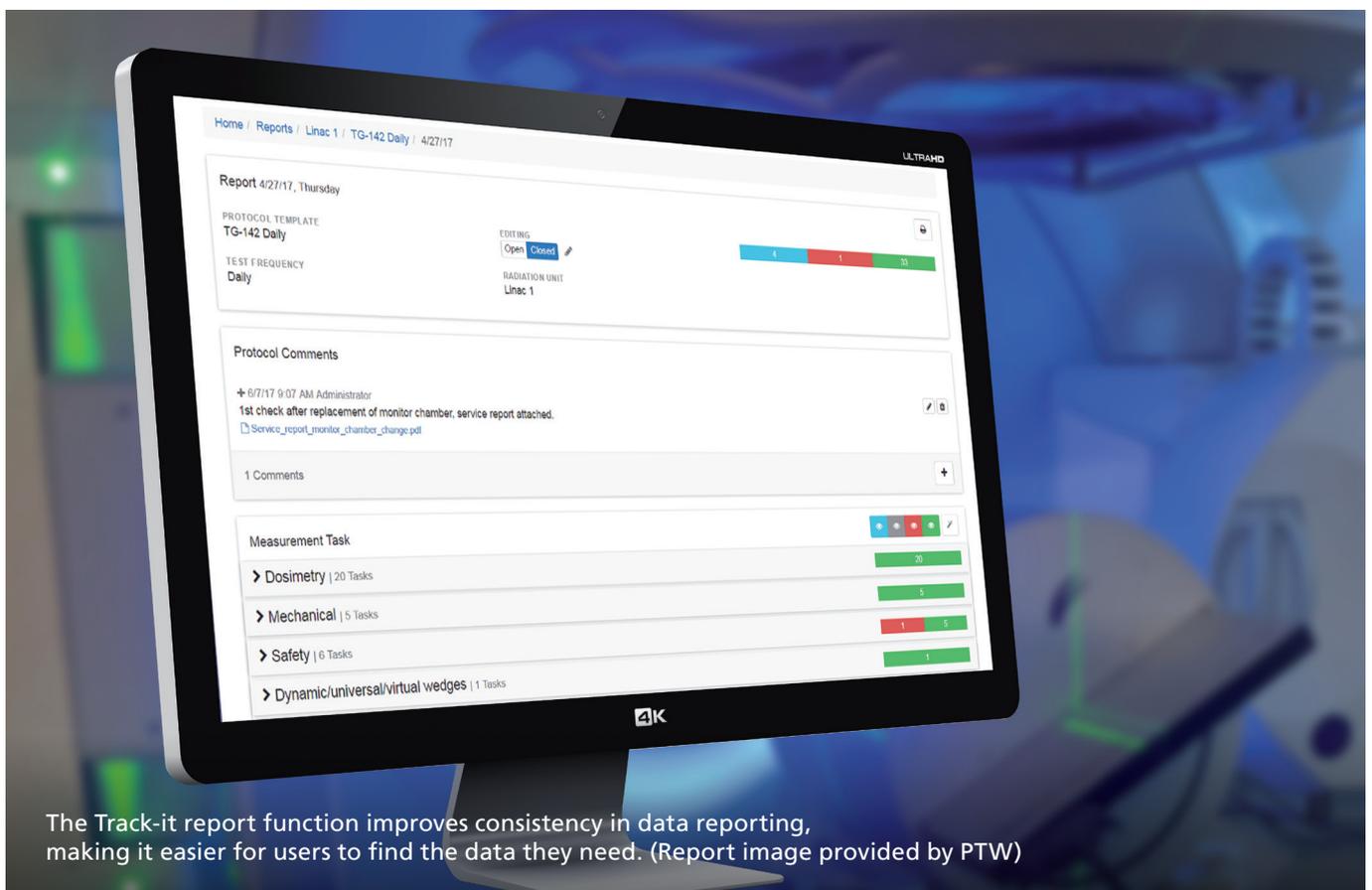
The Track-it report function improves consistency in data reporting, making it easier for users to find the data they need. (Report image provided by PTW)

Analyzing Trends to Reduce Downtime

"Track-it shows the trends of selected data types to help users recognize deviations from previously defined limits and catch problems early."

The Track-it system shows trends of selected data types to help users recognize deviations from previously defined limits. For example, Dr. Stathakis and his team use the trending patient QA to evaluate how results are progressing through time to identify any potential issues with a LINAC. They look at how the department's four LINACs perform daily, looking for trends in dosing, energy and beam symmetry. The visual graphs that Track-it generates inform their decision making.

If the data indicates slight daily changes, such as slowly decreasing passing rate from 98 percent to 94 percent over a few days, they can have an engineer perform proactive maintenance before a larger problem develops. Prior to using Track-it, this gradual change might have been missed until much later. Using trend analysis to catch problems early can also reduce LINAC downtime.

Track-it trend analysis can reduce LINAC downtime by identifying problems at an early stage. (Trend analysis image provided by PTW).
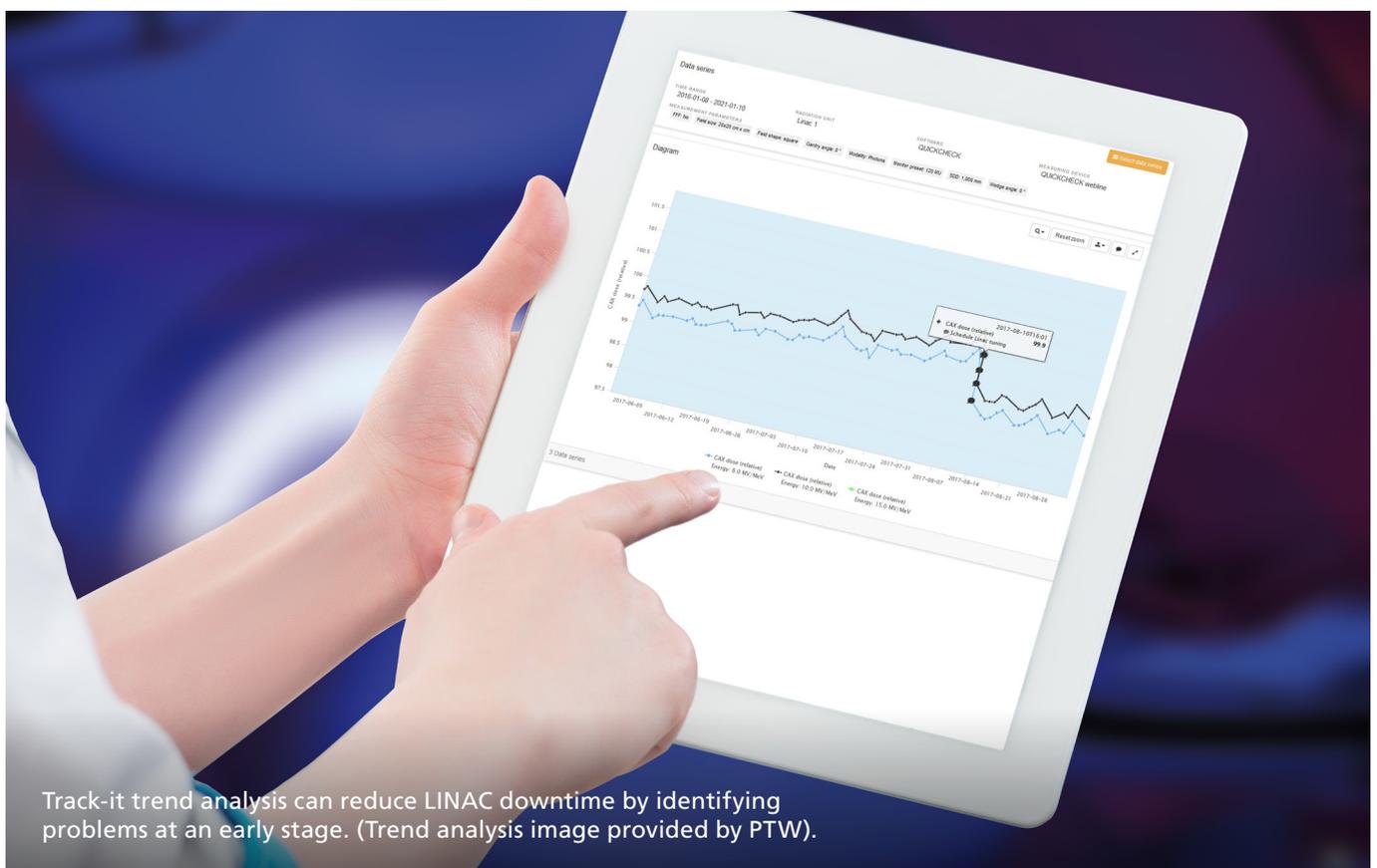
Moving Forward

Future expansion of Track-it technology can be integrated with patient treatment. It could be used to track doses and results. It could also be used to track the treatment and outcomes of special issues – like patient complications during the procedure. Identifying such treatment trends could lead to guidelines for improved care of patients undergoing radiology treatment.

To learn more about streamlining QA workflows and increasing QA data management efficiency with Track-it, visit www.ptwtrackit.com.

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