QA Pilot: An Effective Tool for RT QA Management

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At A Glance...

QA Pilot makes it easy to manage your facility's radiation therapy QA by providing:

- **Safety –** Build and manage a comprehensive QA system that you can monitor on any web-enabled device. QA Pilot reports quality issues in real-time, helping you keep your patients safe.
- **Efficiency –** Streamline communication and standardize operations to fit your facility's needs. QA Pilot helps to increase efficiency with a lower cost of entry, maintenance, and hardware.
- **Security –** QA Pilot provides secure, HIPPA compliant data storage.
- **Compliance –** QA Pilot makes it simple to demonstrate compliance with recommendations and regulations by putting all your data and documents at your fingertips.
- **Accountability –** Make oversight and review effortless. Immediately see the status of all QA scheduled throughout your organization. You can be alerted via email if QA becomes overdue or falls outside customized tolerances.

Introduction

The environment for RT administration has become increasingly challenging over the last few years. With reimbursements falling, regulation increasing, and greater public and regulatory scrutiny on patient safety, it has become increasingly important for RT centers to employ tools that provide the greatest return on investment.

Quality Assurance is an activity that has traditionally been viewed as a cost in RT centers. However, with highly effective and efficient tools such as QA Pilot, opportunities exist to turn these costs into a net benefit for RT centers.

Safety

Radiation therapy has seen incredible advances since the turn of the century with technologies such as IMRT, IGRT and VMAT becoming commonplace. These advances have led to dose escalation to tumors while more effectively sparing surrounding organs. Along with these advances comes a greater degree of complexity. Many different systems are linked to deliver these highly effective treatments, leading to increased need for preventative quality assurance.

Wide publicity of treatment errors in recent years has focused attention on safety practices in radiation therapy. When past accidents have been reviewed, a comprehensive and diligently applied QA system has been identified as a key component in detecting and preventing errors. The potential liability costs or increases in insurance rates from a radiation therapy accident vastly outweigh the costs of establishing and monitoring a preventive program.

QA Pilot allows you to build a comprehensive QA system that pulls together data from the wide variety of QA tools found in the typical radiation therapy center. The data can then be easily monitored and reviewed from anywhere in your facility or around the world through a secure login. Ensuring that all of your facilities' personnel are following established QA procedures and reporting quality issues in real time is a critical part of preventing avoidable accidents.

Efficiency

While QA needs in radiation therapy have increased greatly over the last 10-15 years, resources have not kept up with needs. Administrators striving to ensure safety in their facilities need to ensure their physics group are using highly efficient QA tools. QA Pilot delivers efficiency in several ways:

- **Lower Entry Costs** – QA Pilot operates on a service model that does not require a large initial capital investment on the part of your facility. Initial costs to start using QA Pilot are 10-15% of the costs to get comparable desktop products installed and running.

- **Lower Maintenance Costs** – The local footprint of the service is minimal, thus reducing time and expense to install software updates.

- **Lower Hardware Costs** – The QA Pilot service is delivered via web browser and does not need hardware with advanced graphics or calculational abilities thus saving money on expensive hardware upgrades required by many desktop systems.

- **Scalability** – Add service only when you need it. Adding levels of service can be done anytime your needs change.

- **Improved Operational Performance** – By standardizing operations into one interface throughout the operation training costs are streamlined and reduced. The web based interface improves the efficiency of communication by instantly relaying critical information to key people throughout the system. In one evaluation of a cloud based machine issue logging system, cancellations due to machine down time was reduced 68%.

SECURITY

Maintaining data security and durability while ensuring appropriate access is a costly challenge for many radiation therapy facilities. QA Pilot uses AWS web services to ensure state of the art, HIPAA compliant, security and data durability practices are used for all data storage and transactions. These security practices protect your sensitive QA data from:

- **Physical threats –** This encompasses threats ranging from power outages through unauthorized facility access, to catastrophic natural events.
- **Network threats –** These are perhaps the most ubiquitous threats in our increasingly interconnected world. These run the range from blunt denial of service attacks to more sophisticated intrusions of data systems.
- **Organizational threats –** These are vulnerabilities caused by poor organizational practices or sometimes simply a lack of depth and expertise in an organization.

By using AWS services, QA Pilot leverages AWS best in class abilities and experience in maintaining data reliability, security and integrity. The AWS system has a track record of 99.99% data availability and 99.999999999% data durability.

Maintaining your data on the cloud with QA Pilot is not only convenient but the responsible choice from a security and reliability point of view. It allows you to concentrate on delivering world-class treatment and care to your patients without distraction.

COMPLIANCE

Achieving and maintaining accreditation is no longer optional for RT clinics. Accreditation is increasingly required by insurers and state regulators, and to maintain competitive. The effort and cost of gathering and maintaining materials for these programs is only exceeded by the potential costs of losing status through mismanagement of key requirements. One of the commonly observed deficiencies resulting in deferment or denial of accreditation is failure to demonstrate ongoing compliance with the wide range of required physics QA programs.

In addition to the well-known TG142 QA guidelines for linear accelerators ACR accredited radiation oncology, programs must also demonstrate compliance with:

- **TG-51 –** Reference dosimetry of high-energy photon and electron beams
- **TG-106 –** Accelerator beam data commissioning equipment and procedures
- **TG-120 –** Dosimetry tools and techniques for IMRT
- **TG-53 –** Quality assurance for clinical radiotherapy treatment planning
- **TG-66 –** Quality assurance for computed-tomography simulators and the computed tomography-simulation process.
- **TG-103 –** Peer review in clinical radiation oncology physics.

Additionally, accreditation requires a wide range of other documents and records including:

- **Personnel Requirements –** Requirements for physicians, technicians and medical physicists in terms of:
  - Education
  - Certifications and Accreditations
  - Experience
  - Continuing Education Requirements
- **Policies and Procedures –** The programs require that the institution has implemented appropriate policies and procedures to maintain quality and patient safety.

Other accrediting bodies (e.g. ASTRO, ARCO, JCAHO) have similar lists of requirements.

QA Pilot pulls together all your disparate sources of QA data and makes it simple to demonstrate compliance with recommendations and regulations. Additionally, QA Pilot includes a document management system that makes managing and retrieving the required materials simple and efficient.

ACCOUNTABILITY

With RT centers moving towards a hub and spoke model or becoming integrated into larger multi-site practices, maintaining uniformity of service across the organization becomes a challenge. You don't want one under-performing facility to derail your whole organization's accreditation or regulatory position. At the same time you don't want to saddle your lean organization with burdensome and time-consuming oversight procedures. Imposing overly strict controls may be counterproductive.

QA Pilot makes oversight and review effortless. Immediately see the status of all QA scheduled throughout your organization. You can be alerted via email if QA becomes overdue or falls outside customized tolerances.

CONCLUSION

QA Pilot's ability to effectively manage the complex modern QA requirements for radiation oncology enables radiation therapy centers meet their safety, efficiency, and compliance goals in a cost effective manner.