Going Paperless in Radiation Oncology Clinic

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Learning Objectives

- Understand documentation requirements for the clinical flow in a Radiation Oncology Department
- Understand tools available within the vendor provided electronic patient record keeping system
- Understand the need to modify and adjust the clinical flow when switching from paper-based to paperless, to increase efficiency and convenience of accessing evidence data.

Cancer Centers

- Henry Ford Health System, Department of Radiation Oncology
  - West Bloomfield Hospital
  - Main Campus (Downtown)
  - Cottage (Grosse Pointe)
  - JFCC (Downriver, Brownstown)
  - Macomb Hospital (Clinton Township)

Varian Treatment Equipment

- 10 Linacs
  - Novalis (Exactrac), Trilogy TX (OBI/CBCT), TrueBeam, Varian HDR @ Downtown
  - 21iX (OBI/CBCT), Trilogy TX (OBI/CBCT), Downriver
  - 21EX (PV), Cottage
  - Novalis TX (OBI/CBCT/Exactrac), 21C/D (PV, US), West Bloomfield
  - 21iX (OBI/CBCT), Trilogy (OBI/CBCT), Varian HDR, Macomb

Treatment Planning

- Centralized Eclipse 10 in Citrix environment (10 FAS, 12 Citrix)
  - CT based (just a few cases 2D based)
  - Multimodality imaging is routinely used
- Site specific VariSeed, Centralized BrachyVision
- BrainLab (iPlan), centralized (iPlanNET) and site specific

Record and Verify

- ARIA 10 (last upgrade 05/2011)
  - Central servers (Downtown)
    - Citrix
    - Simplified upgrades, backup and maintenance
  - Integrated access
    - Possibility to add MedOnc information
    - Access from anywhere (VPN+Citrix)
    - Paperless solution
  - Additional servers
    - Billing, Demographics, T-Box
Networks

- 50 Mbs redundant fiber optic lines to all centers.
- “Tier 3” support by Hospital: providing hardware, lines and open firewalls ports specified by Varian. Vendor provides software and hardware support on equipment purchased through Varian (SSA may be required outside of the warranty)
- Domain structure
  - User access rights are maintained by the Department IT
  - Simplified and expedited processing and implementation of changes
  - Flexibility

Clinical Flow of Patient Data

- Consult
- Simulation
- Planning/Treatment Preparation
- Physics QA/verification
- Treatment
- Treatment Support/Check-ins
- Follow-up

Types of Documentation

- Billing
- Evidence data
- Flow management
- Treatment Management
- Post Treatment Management

Billing Consults

- Dictation note by a physician
- Complexity of exam
- Time spent with the patient

Billing Special Physics

- Work request by a physician
- Work report by a physicist
- Work report approval by a physician

Billing for Simulation

- Work request by a physician
- Work report by a CT tech/therapist
- Work report approval by a physician
- Documentation for intent to treat with Radiation
- Informed Consent
Evidence data
- Diagnosis
- Staging
- Fractionation schemes
- Quality of life data
- Demographics
- Planning indices
- Population-based statistics

Flow Management
- Managing transfer of information
- Managing tasks and sequences of tasks
- Managing communication between teams
- Use of external software tools to exchange data with R&V DB
- Communication with Hospital EPI system

Treatment Management
- Prior Radiation
- Setup notes/records
- Plan/verification/QA
- Weekly check-ins
- Weekly physics and therapy support
- Tx Imaging review
- Chart rounds
- Rx changes
- Adaptive plan modification
- Billing records

Post-treatment Management
- Quality of life data
- Follow-up records
- Follow-up schedule
- Prior Radiation data

Development and Implementation Champions
- Therapy
- Dosimetry
- Physicians, including residents
- Nurses
- Physics, including residents
- Administration and billing personnel

Development and Implementation Champions
- Therapy
  - Patient education (initial and continuous)
  - Daily Tx maintenance recordkeeping
  - Safe delivery
    - Time out procedure
  - Clinical flow efficiency and maintenance
    - Notifications of patient availability
Development and Implementation Champions

- Therapy
- Dosimetry
  - Planning
  - Dose tracking
  - Peer review and collaboration on hard cases
  - First call for Therapy for setup assistance and many other issues

- Physicians, Residents, Nurses
  - Bringing clinical relevance and decision making on all stages
  - Managing continuity of care on the medical side

- Physicians/Residents/Nurses
  - Process and procedure design and implementation
  - Continued support to all teams
  - Dosimetry verification, etc.

Record Keeping

- Clear
- Comprehensive
- Easy, on-demand access
- Reporting flexibility
- Indefinite storage
- Regular backups

Examples of using Varian Paperless Tools

- Data Administration and Administration
- Patient Manager
- Chart QA
- Offline Review

Data Admin, Dynamic Docs
### Use of R&V tools, templates

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### PM documents

**Summary:** Registration, Core Physics, Diagnostics, Cancer Management, Tumor Evaluation, Documentations, Journal...

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### Dynamic Documents

- Document1
- Document2
- Document3

### Sim ISO

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### Sim Setup Sheet

- Sheet1
- Sheet2
- Sheet3

### Setup pictures

- Image1
- Image2
- Image3
Regulatory compliance

- Centralized Argus database
- Identical QA equipment
- Early physics coverage
- On-call duties rotating through all satellites

SRS/SBRT QA Checklists

Additional Image Review Tools

Program Maintenance

- Educational follow-up
  - Periodic for all existing employees
  - Comprehensive for new employees
- Periodic compliance and uniformity audit
- Periodic review and modifications of policies and procedures to reflect changes in the clinical flow and technology and to improve efficiency of the process

Conclusion

- Paperless operations require careful assessment of clinical flow and documentation needs
- Champions and Checklists – key to success
- Necessity to adjust and modify clinical flow when going from paper to paperless
- Utilization of vendor-specific tools to full potential
- External (homegrown or other) efficiency tools
- Integrated environment offers additional efficiency
- Permanent storage of documents and data
- On-demand retrieval