

Electronic Charting in Radiation Oncology utilization and assessment
: A report from TG262 on a survey of AAPM membership

Introduction, Implementation & QA of the e-chart

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TG-262 - Charge

1. To provide guidance in the administration, design, and implementation of electronic charting for simulation, planning and treatment using external beam radiotherapy and brachytherapy.
2. To provide guidance in maintaining safe clinical processes and communication when designing an electronic charting system - both during the transition to the new system and once the system is implemented.
3. To provide guidance in implementation and management of electronic charting in the context of other systems in the clinic and other programs in the hospital (billing, IT, medical records).
4. To provide a list of desired features for a robust electronic charting system and potential pitfalls based on accumulated clinical experience.

TG-262: Electronic Charting of Radiation Therapy Planning and Treatment

- James G. Mechalakos (MSKCC)
- Grace Gwe-Ya Kim (UC San Diego)
- Constantine Mantz (21st Century Oncology)
- Sue Merkel (U. Michigan)
- Susan L. Richardson (Swedish Medical Center)
- Steven G. Sutlief (Landauer Medical Physics)
- Sridhar Yaddanapuddi (U. Iowa)
- Sonja Dieterich (UC Davis)
- Luis Fong de los Santos (Mayo Clinic)
- Sandra Fontenla (MSKCC)
- Joseph Hanley (Princeton Rad. Onc. Center)
- Vijay A. Harwalkar (VA)
- Linda X. Hong (MSKCC)
- Jessica Huang (U. Utah)
- Mark Parry (Mayo Clinic)

Survey

Develop survey question set

Implement Internal Survey for 150 questions

Review the internal survey results

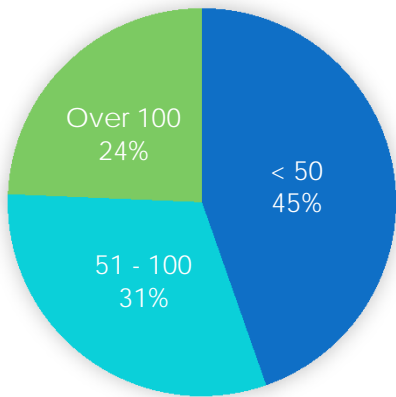
Finalize external survey questions (50 questions)

- Implementation and QA
- Information Storage
- Workflow and Communication
- IT
- Brachy/non-standard

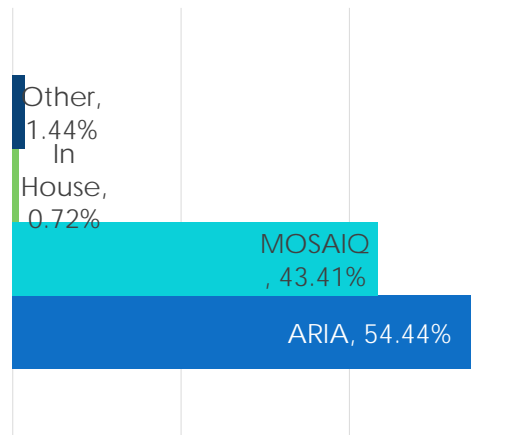
Open external survey 4/1/2017 - 5/15/2017

Demographics

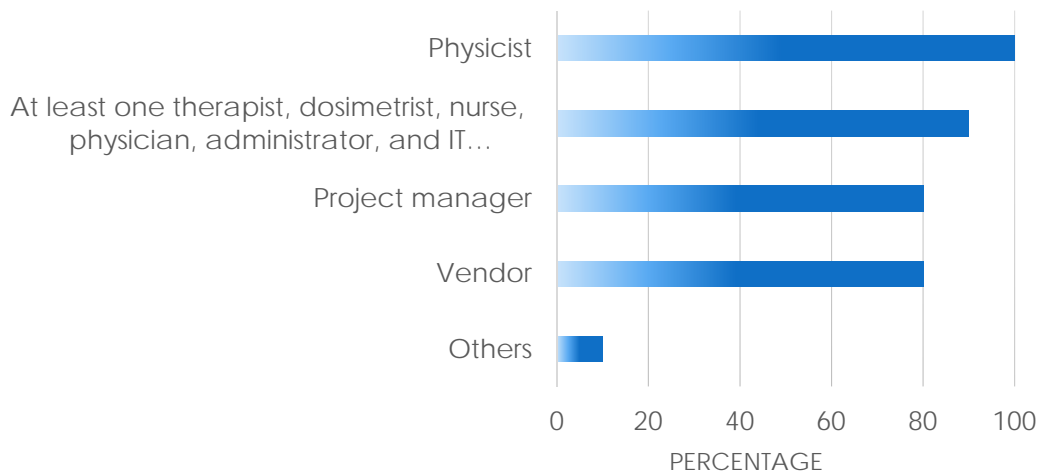
- Clinic Size (daily tx. patients)



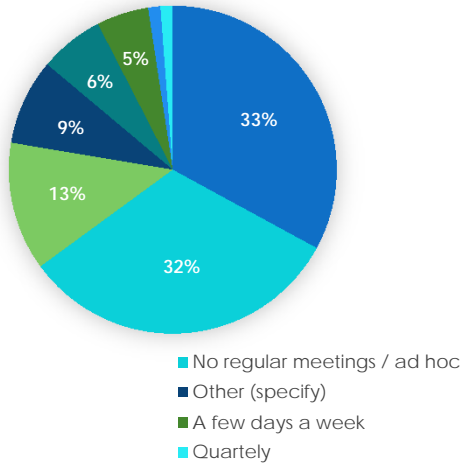
- Type of EMR platform



IQA 1- 2. Was a committee created to transition to the ROEMR environment? **Yes: ~60%**



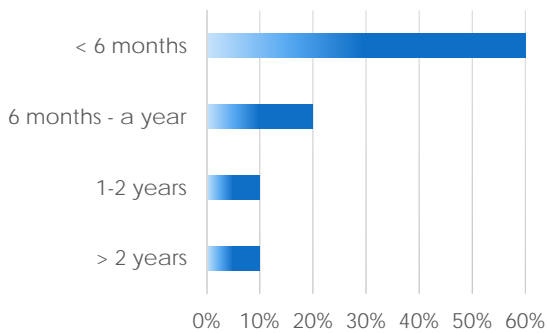
IQA 3. What was the average frequency of team meetings for implementation?



IQA 4. Estimate the percent effort of the implementation team on each of the following processes



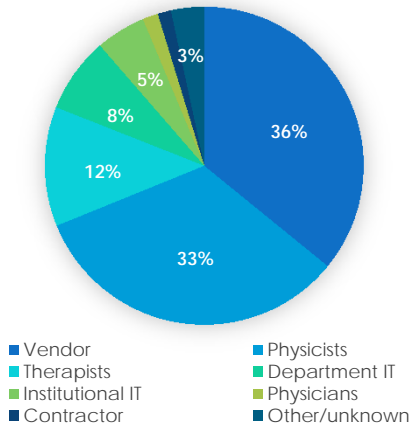
IQA 5. How many months was a hybrid chart used during the transition to e-chart?
Hybrid: ~60% of responders



IQA 6. How did you gather the necessary information that drove the selection process for the e-chart

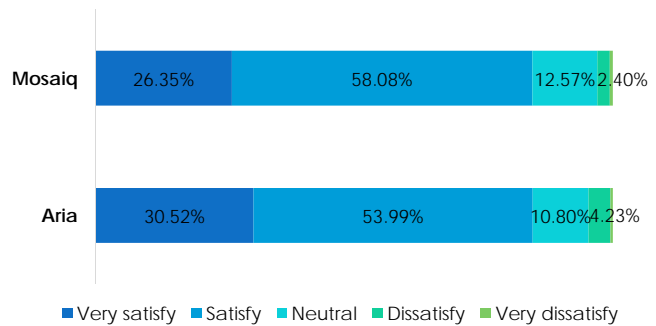
| Method | Percent |
|-----------------------------------------------------------------------------|---------|
| It was already being used as our record and verify system | 22.66 % |
| Vendor presentations at your facility | 21.50 % |
| Consulting with colleagues in other clinics | 16.23 % |
| Visiting other clinics | 12.96 % |
| Conversation with vendors during national meetings (e.g. ASTRO, AAPM, etc.) | 12.86 % |
| Virtual or testing system provided by the vendor to your institution | 9.80 % |
| Other / unknown | 4.00 % |

IQA 7. Who provides training in the use of the RO-EMR in your clinic?



IQA 8. Overall, how satisfied is your practice with the e-chart environment transition?

> 80% of responders: very satisfied or satisfied



IQA 9. Which feature(s) of your RO-EMR do you consider the most effective in preventing errors?

Electronic transfer of data/Automation

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Single database & integration across treatment planning, treatment management & delivery system • Scripting - IQ script • Electronic Prescription • Alerts when parameters are not set correctly • Auto loading of patient machine parameters • Tracking patient treatments • Less manual entries | <ul style="list-style-type: none"> • Chart checking features that highlight treatment changes during the previous week • Automatic task creation, multiple signatures, automatic billing drop downs • Data integrity – acts as another check before plan is sent to Linac before treatment • Bar code for patient identification and accessory verification |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

IQA 9. Which feature(s) of your RO-EMR do you consider the most effective in preventing errors?

Standardization of processes/workflow/documentation

- Consistent documentation and improved consistency concerning workflow
- Removal of redundancy
- Carepath/Tasks/Checklists
- Well defined works flows and check lists that ensure nothing falls through the crack
- Templated documents
- Communication improves
- Chart QA feature used by physicist & therapists for pre-treatment & weekly QA
- Clinical notes in EMR in the most legible unambiguous manner
- It prompted us to follow the procedures more strict which removed some confusion

IQA 9. Which feature(s) of your RO-EMR do you consider the most effective in preventing errors?

Approval – different levels of approval

- Lock on plan parameters – if there is a change to plan then it becomes unapproved so cannot treat
- Prescription approval
- It is set that patients cannot be treated unless approved by physician and physicists
- Sign-offs/Approval on patient alerts & documents

Information access

- Always having the current information available
- Multiple people can access the chart at the same time – paper chart only one person at a time
- No more missing charts – Hunting for paper charts

IQA 10. Have RO-EMR document templates ever been revised as a corrective action of failure/near-missed events?

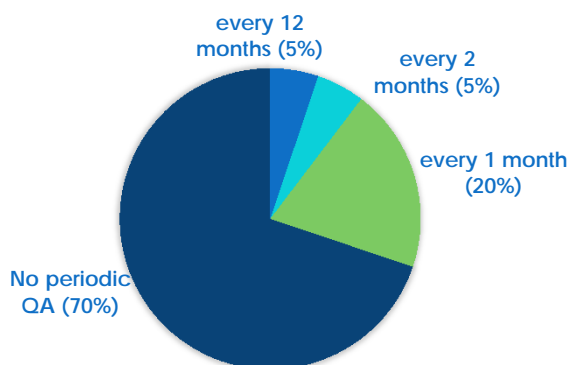
Yes: ~60% of responders

IQA 12. Has your clinic performed an FMEA analysis for all or part of your RO-EMR system?

Yes: 13% of responders

No: 87% of responders

IQA 11. Frequency of QA process for your RO-EMR.



Recommendations (in progress)

- Transition Committee
- Automation
- Standardization
- On-going quality assurance
- Risk assessment (Continual improvement)