

Keeping Dosimetrists Current, Engaged, and Integrated in an Expanding Network:

A Staff Dosimetrist's Perspective

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Disclosures

- ❖ I am employed by Allegheny Health Network
- ❖ We use Elekta's Monaco & XiO TPS, Mosaic EMR, and MIM



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Objectives

- ❖ Day-to day in a network
- ❖ Communication is key
- ❖ Same, but not the same
- ❖ Workflow



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Current Situation in Radiation Oncology

- ❖ Radiation Oncology is evolving daily
- ❖ Leads to challenges and different experiences
- ❖ Smaller cancer centers are being acquired by larger institutions
- ❖ Large networks are becoming more commonplace



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A little about Allegheny Health Network Radiation Oncology

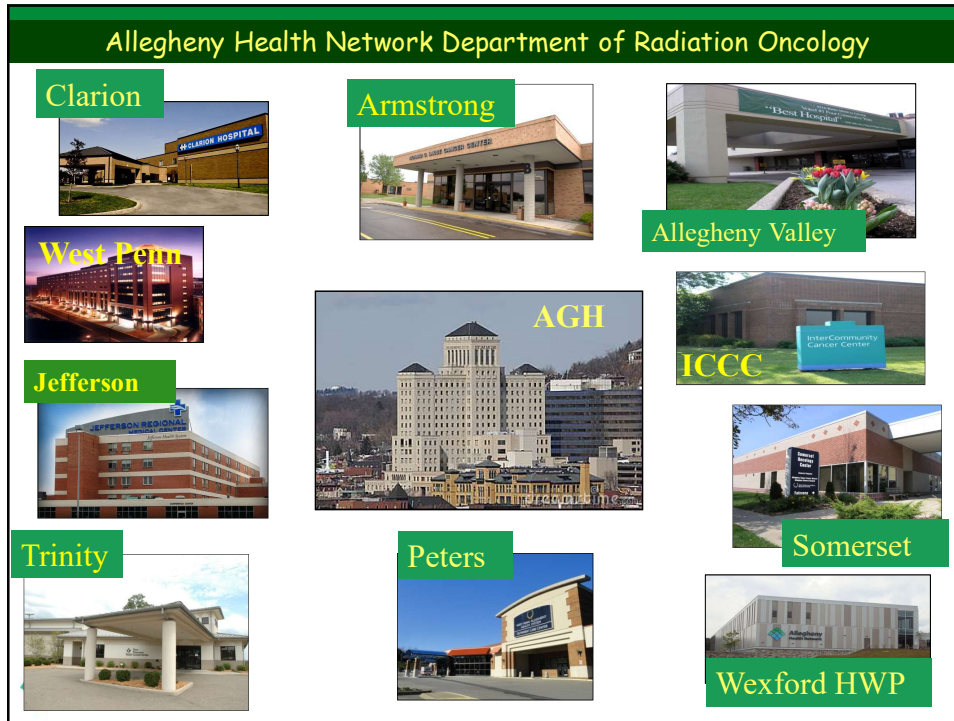


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- ❖ Allegheny Health Network (AHN) is one of two major health systems in the Greater Pittsburgh Metro area
- ❖ AHN's Radiation Oncology Department is comprised of 11 cancer centers across western PA/eastern OH



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- ❖ AHN currently employs 13 full-time Certified Medical Dosimetrists:
 - 3 at AGH, 1 at each site
- ❖ Varying years of experience, training, and backgrounds
- ❖ Each dosimetrist is responsible for planning at their site
- ❖ Varying patient census per site across the network

AGH

- ❖ 6 Radiation Oncologists
- ❖ 4 residents
- ❖ 3 Dosimetrists
- ❖ 2 treatment machines
- ❖ 9 RTTs
- ❖ 3 RNs
- ❖ Multiple physicists – clinical and research
- ❖ In- and outpatient / call
- ❖ Special procedures (SRS, SRT, SBRT, Mammosite, eye plaques, IVBT & PSI)
- ❖ Treated average 35-40 patients (including specials) per day in 2016



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Peters Township Radiation Oncology (my base)

- ❖ 1 Radiation Oncologist
- ❖ 1 Dosimetrist
- ❖ 1 treatment machine
- ❖ 2-3 RTTs
- ❖ 1 RN
- ❖ 1 physicist, 2 days per week
- ❖ Outpatient only
- ❖ No call
- ❖ Treated an average of 10-13 patients per day in 2016



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Advantages to being in a network

Alone at each site but never “alone” within the network

- ❖ Ability to brainstorm difficult or challenging cases
- ❖ Ability to help out if you have time, or receive help if you are busy
- ❖ PTO coverage is almost always available, either on-site or remotely through servers
- ❖ Everyone is connected via direct access broadband servers

Everyone has access to a network server

- ❖ Policies and procedures
- ❖ PTO schedules
- ❖ Clinical information

Network Processes

- ❖ Treatment processes are *mostly* uniform across the network
- ❖ Network EMR Careplan workflows in Mosaik have been established
- ❖ Evolve as necessary

Mosaiq Careplan / IQ Scripts

Starts when physician enters orders

- ❖ Without orders – nothing happens!
- ❖ Sends out initial QCL to Billing,
Nursing to get the patient started

- ❖ All QCL's are generated through the
Careplan / IQ scripts
- ❖ When each of our QCL items are
completed, the next step is triggered
- ❖ Keeps the workflow throughout the
network standardized

Workflow generated from scripts

- ❖ Starts with Physician – enter orders
- ❖ Biller gets insurance authorization
- ❖ Sim is scheduled – then completed
- ❖ Contours drawn
- ❖ Plan generated, reviewed and accepted
- ❖ Plan and beams transferred to Mosaiq
- ❖ Plan approved
- ❖ Plan 2nd checked by physics
- ❖ Patient scheduled on treatment machine
- ❖ Patient and plan reviewed in peer review / port conference
- ❖ MRQA completed

Mosaiq

- ❖ Network-wide EMR system
- ❖ All patient radiation therapy data is kept there
- ❖ Separated by site, but can still see the others

AHN Dosimetry QCL

- ❖ "Bucket" list of all dosimetry patients
- ❖ All work from this list



Location Quality Check List: AHN Dosimetry

Filters: By Location: Location: AHN Dosimetry

Date Range: Previous Weeks: 7

Stop All Incomplete Items Overdue Show Only Items Requested by Staff

Due Date	Due Time	Patient	Task	Assigned	Requested	Responsible	Instructions	Comment	Note
8/29/2017	12:00 AM		DOE: 3D Plan	Fuhrer, Ru.	Roberts, D.	AHN Dosimetry		HUP/PT - bladder boost-waiting for cytotoxic results before planning-DUV	
8/29/2017	12:00 AM		DOE: 3D Plan	Anolik, Ste.	Anolik, Ste.	AHN Dosimetry	DNRS complete 8/29/17 MW	ICCSLA-3D left breast	
8/29/2017	12:00 AM		DOE: 3D Plan	Anolik, Ste.	Anolik, Ste.	AHN Dosimetry	DNRS complete 8/29/17 MW	ICCSLA-3D left breast	
8/29/2017	12:00 AM		DOE: 3D Plan	Anolik, Ste.	Anolik, Ste.	AHN Dosimetry	Change Task to Correct Plan Type	ICCSLA-3D right breast	
8/29/2017	12:00 AM		DOE: 3D Plan	Winters, D.	Anolik, Ste.	AHN Dosimetry	Item planning - QDR Complete LL 8/29/17	ICC - 4D Lung SBRT	
8/29/2017	12:00 AM		DOE: 3D Plan	Colomas, C.	Colomas, C.	AHN Dosimetry	Change Task to Correct Plan Type	ICC - 3D Pancreatic Nodes Previous Tx	
8/29/2017	12:00 AM		DOE: 3D Plan	Malone, D.	Malone, D.	AHN Dosimetry	in vs - ready to begin plans	PTRO - left breast	
8/29/2017	12:00 AM		DOE: 3D Plan	Karlovic, K.	Karlovic, K.	AHN Dosimetry	DNRS complete 8/29/17	HUP/PT/CA Left Breast - DUV	
8/29/2017	12:00 AM		DOE: 3D Plan	Better, Ja.	Better, Ja.	AHN Dosimetry	Change Task to Correct Plan Type	PTRO - 3d left breast	
8/29/2017	12:00 AM		DOE: 3D Plan	Malone, D.	Malone, D.	AHN Dosimetry	in vs - ready to begin plan	PTRO - 3d left breast	
8/29/2017	12:00 AM		DOE: 3D Plan	Better, Ja.	Better, Ja.	AHN Dosimetry	Change Task to Correct Plan Type		
8/29/2017	12:00 AM		DOE: 4D Charge	Kirchenev, J.	Johnson, J.	AHN Dosimetry		Make sure charge is completed	
8/29/2017	12:00 AM		DOE: 4D Charge		Coghswain, J.	AHN Dosimetry		Make sure charge is completed	
8/29/2017	12:00 AM		DOE: 4D Charge	Kirchenev, J.	Lunga, T.	AHN Dosimetry		Make sure charge is completed	
8/29/2017	12:00 AM		DOE: Auto Observed	Uhrweck, D.	Schilling, L.	AHN Dosimetry			
8/29/2017	12:00 AM		DOE: ChemorT Concur	Klaumin, T.	Berke, D.	AHN Dosimetry	Start Date located in HSD, ChemorT Concur QCL		
8/29/2017	12:00 AM		DOE: ChemorT Concur	Anolik, Ste.	Reese, H.	AHN Dosimetry	Start Date located in HSD, ChemorT Concur QCL		
8/29/2017	12:00 AM		DOE: Complete Billing & Ass.	Fuhrer, Ru.	Fuhrer, Ru.	AHN Dosimetry	MD Approve Plan		
8/29/2017	12:00 AM		DOE: Complete Billing & Ass.	Fuhrer, Ru.	Fuhrer, Ru.	AHN Dosimetry	MD Approve Plan		
8/29/2017	12:00 AM		DOE: Complete Billing & Ass.	Fuhrer, Ru.	Fuhrer, Ru.	AHN Dosimetry	MD Approve Plan		
8/29/2017	12:00 AM		DOE: Enter in Mosaic	Fuhrer, Ru.	Fuhrer, Ru.	AHN Dosimetry		Verify Authorization / Import Plan and Print Plan	
8/29/2017	12:00 AM		DOE: Enter in Mosaic	Karlovic, K.	Roberts, D.	AHN Dosimetry		Verify Authorization / Import Plan and Print Plan	
8/29/2017	12:00 AM		DOE: 3D Plan	Malone, D.	Roberts, D.	AHN Dosimetry	in progress - mem	PTRO - right prostate boost	
8/29/2017	12:00 AM		DOE: 3D Plan	Uhrweck, D.	Rowley, R.	AHN Dosimetry	DNRS complete 8/27 MW	SDC - Whole Brain	
8/29/2017	12:00 AM		DOE: Pacemaker	Klaumin, T.	Klaumin, T.	AHN Dosimetry	Transfer to AKC - CONCURRENT CHEMO CODE =	QCL MD distance pacemaker to software	
8/29/2017	12:00 AM		DOE: Ready to Contour	Kirchenev, J.	Zelinski, A.	AHN Dosimetry	DNRS complete 8/29/17 DK	AGH/BRD/ Lymph Nodes - Previous Tx	
8/29/2017	12:00 AM		DOE: Ready to Contour	Eisen, Ver.	Vilcek, A.	AHN Dosimetry	waiting on scan - Can begin Contouring	CHRO - Brain wire on pump	
8/29/2017	12:00 AM		DOE: Ready to Contour	Anolik, Ste.	Alberk, Ja.	AHN Dosimetry	DNRS complete 8/29/17 MW	ICCSLA-PET Fusion 3D rectum	
8/29/2017	12:00 AM		DOE: Ready to Contour	Colomas, C.	Zelinski, A.	AHN Dosimetry	DNRS complete 8/29/17 DK	AGH 3D Pancreatic Nodes - Previous Tx / Transfer to ICCO	
8/29/2017	12:00 AM		DOE: Ready to Contour	Kirchenev, J.	Zelinski, A.	AHN Dosimetry	DNRS complete (except chestwall) 8/29/17 DK	AGH SBRT 3D Liver / SCD / Previous Tx ***Previous Liver SBRT in Monaco Sim	
8/29/2017	12:00 AM		DOE: Ready to Contour	Better, Ja.	Zelinski, A.	AHN Dosimetry	DNRS complete (except chestwall) 8/29/17 DK	AGH SBRT 3D Liver, pt may need a diagnostic CT per AHC	
8/29/2017	12:00 AM		DOE: Ready to Contour	Better, Ja.	Jarocha, J.	AHN Dosimetry	Can begin Contouring pt	JARO JB Prostate	
8/29/2017	12:00 AM		DOE: Ready to Contour	Colomas, C.	Zelinski, A.	AHN Dosimetry	DNRS complete (except chestwall)	HUP/PT/CA/IMRT H&H	
8/29/2017	12:00 AM		DOE: Ready to Contour	Kirchenev, J.	Zelinski, A.	AHN Dosimetry	DNRS complete (except chestwall) 8/29/17 DK	AGH Adrenalinal Mass / Tender Area was wired / Previous Tx - Exits unable to retrace	
8/29/2017	12:00 AM		DOE: Ready to Contour	Tymoshenko, M.	Colomas, C.	AHN Dosimetry	DNRS complete (except chestwall) 8/29/17 DK	AGH SBRT 3D Liver (AKK)	
8/29/2017	12:00 AM		DOE: Transfer Patient	Colomas, C.	Colomas, C.	AHN Dosimetry	Transfer to DCC	AGH RT Breast (WST)	
8/29/2017	12:00 AM		RI Charge	Anolik, Ste.	Fuhrer, Ru.	AHN Dosimetry			



AHN Dosimetry QCL Tasks

- ❖ 3D Plan
- ❖ 4D Charge
- ❖ Auth Obtained
- ❖ Chemo/RT Concur
- ❖ Enter in Mosaiq
- ❖ IMRT Plan
- ❖ Isodose Plan
- ❖ Pacemaker
- ❖ Ready to Contour
- ❖ Transfer Patient
- ❖ RX Change

MIM

- ❖ All contouring and fusions take place in one centralized MIM server
- ❖ All dosimetrists at all sites have access

Patient Name	Patient ID	Received	Modality	Images	Date	Series Description	Time	Study Description
	332800	2 hours ago	SESSION	1	2017-11-01	PET 201711026 to CT 20171101 Fusion done...	10:58:29	
	104002452	hours ago	RTIsd	1	2017-11-01	Ready to Export-RR-simplified	10:57:25	RT*RT_PELVIS_Customized (Adult)
	104002452	hours ago	RTIsd	1	2017-11-01	Ready to Export-RR	10:57:23	RT*RT_PELVIS_Customized (Adult)
	528839	2 hours ago	SESSION	1	2017-11-01	Saved Session: JC PETCT to CT Deformable	10:54:13	
	528839	2 hours ago	PT	136	2017-10-23	(Deformed) PET 2017-10-23 Aligned to Plan...	13:17:58	PET*CT_SKUL_MID_TH_INIT_TX_PI
	528839	2 hours ago	PT	136	2017-10-23	(Deformed) CT(ge) 2017-10-23 Aligned to Pl...	13:17:58	PET*CT_SKUL_MID_TH_INIT_TX_PI
	1059375	2 hours ago	RTIsd	1	2017-11-01	pending target lc	10:51:01	RT*RT_CHEST (Adult)
	2028751	3 hours ago	RTIsd	1	2017-11-01	OAR's Final-RR-simplified	10:48:11	RT*RT_BREAST_Customized (Adult)
	2028751	3 hours ago	RTIsd	1	2017-11-01	OAR's Final-RR	10:48:11	RT*RT_BREAST_Customized (Adult)
	2028751	3 hours ago	RTIsd	1	2017-11-01	OAR's Complete-RR-simplified	10:47:49	RT*RT_BREAST_Customized (Adult)
	2028751	3 hours ago	RTIsd	1	2017-11-01	OAR's Complete-RR	10:47:48	RT*RT_BREAST_Customized (Adult)
	104002453	hours ago	RTIsd	1	2017-11-01	VV final	10:44:57	RT*RT_PELVIS_Customized (Adult)
	104002453	hours ago	RTIsd	1	2017-11-01	VV working	10:42:33	RT*RT_PELVIS_Customized (Adult)
	1059375	3 hours ago	CT	141	2017-11-01	Chest 3.0 HD_FoV	10:53:37	RT*RT_CHEST (Adult)
	104002453	hours ago	RTIsd	1	2017-11-01	VV working	10:19:00	RT*RT_PELVIS_Customized (Adult)
	11652	3 hours ago	CT	142	2017-06-14		11:09:09	
	11652	3 hours ago	RTPLAN	1	2017-06-14	RL Lung 6000cc/30FX 99DL	11:09:09	
	11652	3 hours ago	RTIsd	1	2017-06-14		11:09:09	

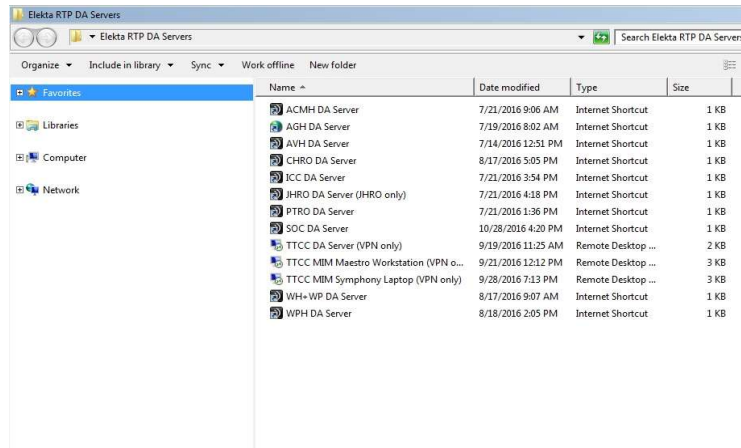
Alleghey Health Network logo and page number 23.

Monaco / XiO Treatment Planning Systems

- ❖ All sites have their own system, which houses their own patient data
- ❖ Any dosimetrist can remote into another TPS at another site

Alleghey Health Network logo and page number 24.

DA server / Monaco/XiO Links



The screenshot shows a Windows File Explorer window titled "Elekta RTP DA Servers". The address bar shows the path "Elekta RTP DA Servers". The left sidebar shows "Favorites", "Libraries", "Computer", and "Network". The main pane displays a list of files with columns for Name, Date modified, Type, and Size.

Name	Date modified	Type	Size
ACMH DA Server	7/21/2016 9:06 AM	Internet Shortcut	1 KB
AGH DA Server	7/19/2016 8:02 AM	Internet Shortcut	1 KB
AVH DA Server	7/14/2016 12:51 PM	Internet Shortcut	1 KB
CHRO DA Server	8/17/2016 5:05 PM	Internet Shortcut	1 KB
JCC DA Server	7/21/2016 3:54 PM	Internet Shortcut	1 KB
JHRO DA Server (JHRO only)	7/21/2016 4:18 PM	Internet Shortcut	1 KB
PTRO DA Server	7/21/2016 1:36 PM	Internet Shortcut	1 KB
SOC DA Server	10/28/2016 4:20 PM	Internet Shortcut	1 KB
TTCC DA Server (VPN only)	9/19/2016 11:25 AM	Remote Desktop ...	2 KB
TTCC MIM Maestro Workstation (VPN o...	9/21/2016 12:12 PM	Remote Desktop ...	3 KB
TTCC MIM Symphony Laptop (VPN only)	9/28/2016 7:13 PM	Remote Desktop ...	3 KB
WH+WP DA Server	8/17/2016 9:07 AM	Internet Shortcut	1 KB
WPH DA Server	8/18/2016 2:05 PM	Internet Shortcut	1 KB

Quality Controls

- ❖ Dosimetrists perform MRQA for/on each other
- ❖ Appears on master MRQA DOS QCL

Due Date	Due Time	Patient	Task	Duration	Requesting	Responsible	Comp/Skip	Status	Billable	Instructions	Comment
11/1/2017	12:00 AM		MRQA Review Required		Ulewicz, D.	AHN MRQA DOS				Complete Assessment	
11/1/2017	12:00 AM		MRQA Review Required		Potts, Joa.	AHN MRQA DOS				Complete Assessment	
11/1/2017	12:00 AM		MRQA Review Required		Ulewicz, D.	AHN MRQA DOS				Complete Assessment	

AllegHENY Health Network

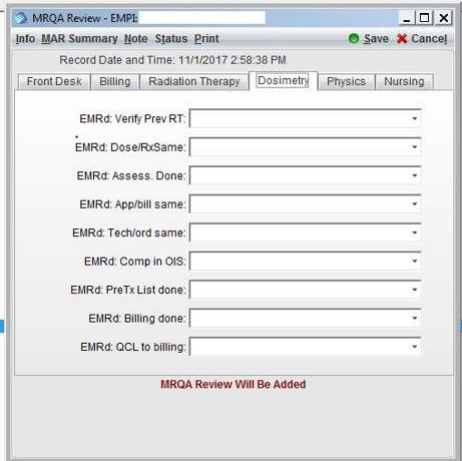
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AHN MRQA DOS QCL Tasks

❖ Review Required

AllegHENY Health Network

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MRQA Review - EMPE

Info | MAR Summary | Note | Status | Print

Record Date and Time: 11/1/2017 2:58:38 PM

Front Desk | Billing | Radiation Therapy | Dosimetry | Physics | Nursing

EMRd: Verify Prev RT: [dropdown]
EMRd: Dose/RxSame: [dropdown]
EMRd: Assess. Done: [dropdown]
EMRd: App/bill same: [dropdown]
EMRd: Tech/lord same: [dropdown]
EMRd: Comp in OIS: [dropdown]
EMRd: PreTx List done: [dropdown]
EMRd: Billing done: [dropdown]
EMRd: OCL to billing: [dropdown]

MRQA Review Will Be Added

Allegheny Health Network

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Quality Control Trigger

- ❖ Quality Control Trigger system with bi-weekly meetings to discuss issues with the network and how to correct them/prevent them from happening in the future
- ❖ Anyone network-wide can provide input
- ❖ Lessons learned are shared

Network Communication

Very important for keeping us all current,
engaged, and integrated!



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Daily

On-site "huddle" held at each individual
Rad Onc department

- ❖ Basically, 5 min daily staff meeting
- ❖ Discuss any new information
 - Network, department, staffing
- ❖ Address issues, problems
- ❖ Ask questions



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Monthly

Network dosimetry staff meeting

- ❖ Anything involving dosimetry staff
 - TPS status, PTO coverage, QCT/QA issues, site-specific information, announcements, trainings, personnel, etc.
 - Open discussion for us to talk about anything

Annual

AHN Annual Practicum

- ❖ Entire network learning
 - ½ day all together with speakers geared towards the network as a whole
 - ½ day with breakout sessions geared towards each group

Sunshine and Rainbows?



NOT ALWAYS!






Differences
(not necessarily disadvantages)




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Different equipment at each site

- ❖ Monaco vs XiO
- ❖ Elekta vs Siemens vs Varian



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Different treatment capabilities across sites

- ❖ SBRT
- ❖ VMAT

16 Different Radiation Oncologists

=

16 Different Opinions

Despite being part of a network,
each individual site
has their own “tweaks” to the
network process

What works at AGH may not necessarily work
perfectly at PTRO, and vice versa



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No matter what,
there will always be some people
who insist that change is bad,
and will
“do their own thing”



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Personal accountability

- ❖ We get so focused on our site / can easily neglect elsewhere
- ❖ Be aware of what's on the master QCL and MRQA QCL
- ❖ Take initiative

Ask, learn, get involved!

Future State

The next 5 years...

- ❖ AHN is planning to both expand the network to include 3 new cancer centers and 5 new dosimetrists
- ❖ Also, upgrading current clinics to the same equipment
- ❖ Eliminate some of the "differences" between sites

Which means....

- ❖ Dosimetrist's roles will continue to evolve
- ❖ We must continue to keep current and engaged so that we remain an integrated network of dosimetrists

Acknowledgements

- ❖ Lori Slack, BA, RT(T), CMD – Dosimetry Supervisor
- ❖ My dosimetry colleagues at AHN

Questions?



Thank You

