

Deploying a collaborative educational exercise to identify student knowledge gaps in planning workflow

Background/Materials and Methods

Medical dosimetry students at the Mount Sinai Center for Radiation Sciences Education at Stony Brook University completed six months of clinical internship. At this time, an educational exercise was deployed in a didactic setting to determine knowledge gaps in planning workflow. Students were prompted individually, and subsequently in teams of two, to identify all steps in creating a treatment plan. Teams then came together to produce one cohesive list. Following, an instructor led a discussion on filling the gaps in student knowledge. Depending on learning style, each team of two was then assigned to create a visual map or a checklist that can be utilized in clinical settings. The goal of this exercise was threefold:

1. To collaborate with peers to develop a list of duties/responsibilities to deploy for each patient plan
2. To identify knowledge gaps for each student and of the cohort as a group
3. To develop a visual concept map and a practical checklist students can implement in their planning workflow



Group 1: Reading/Writing Learners

Treatment Planning Checklist

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Pt Name	MRN	Site	Laterality	Rx	Boost	Image Sets	Fusion	Patient Orientation	Couch/Struc	Energy	Machine	Clearance	Shifts	Bolus	Pacemaker	Prior RT
John Smith	12345	Parotid	RT	200cGyx35	N	12/22/2022	Y-PET	HFS	Y	6MV	TB1	Y	N	N	N	N
Jane Doe	98765	Breast	LT	266cGyx16	Y	1/2/2023	N	HFP	Y	6+10MV	TB2	Y	N	N	N	N

Record and Verify System Checklist

A	B	C	D	E	F	G	H	I	J
Approve Images	Setup Field Type	Tx Field (Time)	Dosimetry	Dose Action Point	Approve Site Setup	Plan Document	Prior RTT Notes	Billing	QA Verification
Y	CBCT + KVS	3 min	Y	Y	Y	Y	N	Y	Y
Y	MV	N/A	Y	Y	N/A	Y	N	Y	N

Group 2: Visual Learners

DOSIMETRY PLANNING TREATMENT TIMELINE CHECK LIST



Results/Gaps in Knowledge

Major outcomes were as follows:

- Student lists did not include or identify:
 - Reviewing physician contours
 - Fusion requests by physician
 - Reading the simulation note
 - Checking for prior radiation
- After student and instructor collaboration, a final workflow checklist inclusive of 27 major steps was developed by reading/writing learners
- Additionally, a treatment timeline graphic inclusive of five major planning categories was illustrated by visual learners

Lessons Learned/Future Directions

Lessons learned from this exercise will impact future program development. The visual map and checklist created will be presented in a didactic lab environment, prior to students joining the clinical setting. Additionally, program faculty will embed a mini course specific to identifying each step of the planning process in month two of the clinical year. This exercise promoted collaboration and knowledge development while tailored to each student's learning style.

Author Information

Victoria Olsen, BS, CMD Victoria.olsen@stonybrook.edu
 Vishruta Dumane, PhD, DABR Vishruta.dumane@stonybrook.edu
 Anthony Machuca, BS Anthony.machuca@stonybrook.edu
 Talha Mojawalla, BS Talha.mojawalla@stonybrook.edu
 Miftah Rahman, BS Muhhammad.rahman@stonybrook.edu
 Eden Zhang, BS Xuantong.zhang@stonybrook.edu
 M.Dimopoulos, PhD, MBA, RT(T) Maria.dimopoulos@stonybrook.edu

 Follow our Dosimetry Program on Instagram searching the handle @MountSinaiRTTedu