

Competency Based Education and Training in Radiation Therapy

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UC San Diego

RETHINKING MEDICAL PHYSICS

Disclosure

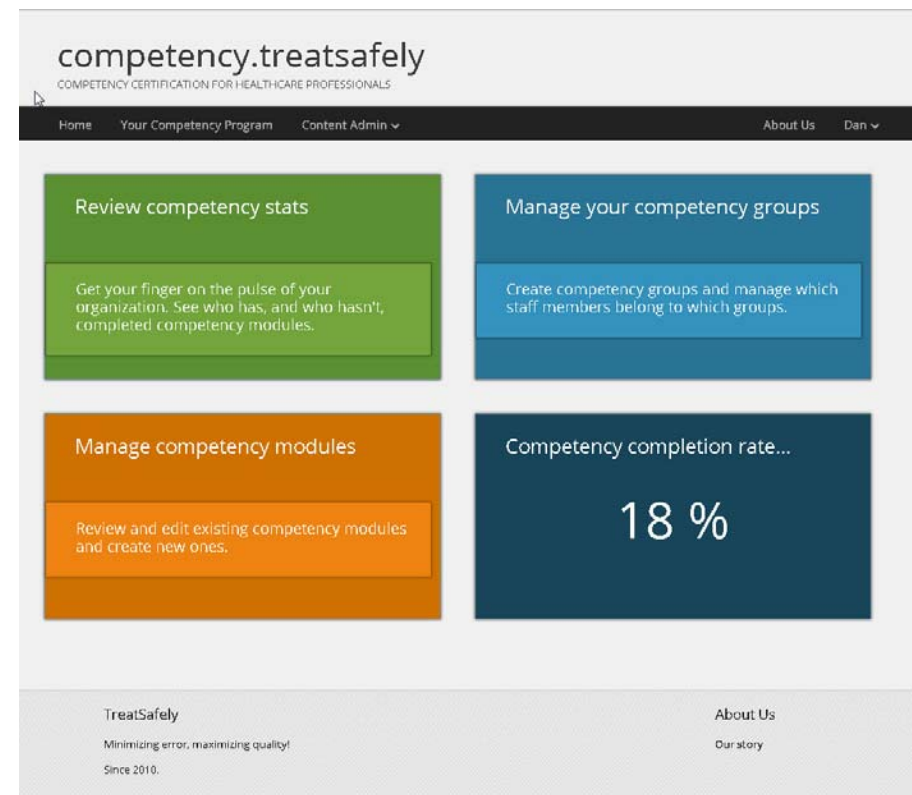
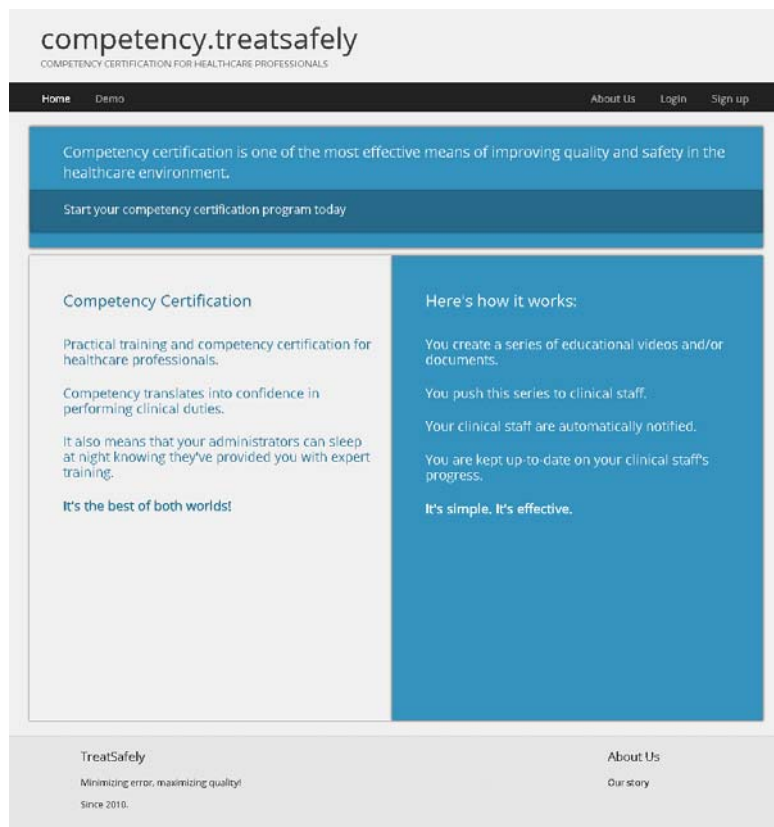
- Varian Medical Systems, Inc.

Background

- Safety?
 - Continuous improvements to make our field safer
- Mistakes
 - Rapidly changing technology
 - Lack of Education or Training
- Education and Training
 - WHO – Radiotherapy Risk Profile (2008)
 - ICRP 86
 - “Purchasing new equipment without a concomitant effort on education and training and on a programme of quality assurance is dangerous”
 - What is education and training? What does it entail? When are we “well trained”?

Suggested preventive measures
Peer review process Evidence-based practice
Peer review process Standard protocol Competency certification Consultation with seniors
Competency certification QA check & feedback Incident monitoring
Competency certification QA check & feedback Incident monitoring
QA check & feedback New staff & equipment orientation Competency certification Incident monitoring
Clear documentation Treatment sheet check 'Record & verify' system In vivo dosimetry
Competency certification Incident monitoring Supervisor audit
Incident monitoring Imaging/Portal film In-vivo dosimetry
Competency certification Incident monitoring Independent audit

Online Education System



Online Education System

competency.treatsafely
 COMPETENCY CERTIFICATION FOR HEALTHCARE PROFESSIONALS

Home Your Competency Program **Content Admin** About Us Dan

Create and manage your competency modules

Step 1: General information [RETURN TO COMPETENCY MANAGEMENT PAGE](#)

Competency module title - Brachytherapy HDR GYN Cylinder
 Content administrator - dscanderbeg@ucsd.edu

[EDIT COMPETENCY MODULE INFO](#) [DELETE THIS COMPETENCY MODULE](#)

Step 2: Define Recertification Frequency

Use this space to define the time in MONTHS for which the competency certification is valid. After this time period, users must redo the competency module.

Recertification frequency in months
 12

[SUBMIT](#)

Step 3: Upload a document or video

Upload any document (SOP, policy, etc) or video and track whether or not your users have read or watched.

Documents currently associated with this competency program.

HDR Emergency Procedures.pdf	<input checked="" type="checkbox"/> Require read acknowledge
HDR GYN Cylinder Treatment SOP_final.pdf	<input checked="" type="checkbox"/> Require read acknowledge
hdr_operating_procedures.pdf	<input checked="" type="checkbox"/> Require read acknowledge

Click on a document to update or delete it.

Upload another document

Document Title

Document Credits

Videos currently associated with this competency program.

HDR Gyn Cylinder - Part 3.mp4	<input checked="" type="checkbox"/> Require watch acknowledge
HDR Gyn Cylinder - Part 2.mp4	<input checked="" type="checkbox"/> Require watch acknowledge
HDR Gyn Cylinder - Part 1.mp4	<input checked="" type="checkbox"/> Require watch acknowledge

Click on a video to update or delete it.

Upload another video

Video Title

Step 4: Add a quiz question

Add quiz questions that help you get a handle on whether or not your users are competent.

Here's a list of quiz questions currently associated with this competency program.

Who are the two people that need to be present for any HDR treatment?

What is the nominal cylinder length that you would measure (subtracting the 1.4 cm)?

If the source fails to return to its home "safe" position during a patient's treatment, what is the first thing you should do?

What are the two possible prescription depths for HDR cylinder treatments from the cylinder surface?

When should you survey an HDR patient with handheld survey meter?

Click on a quiz question to update or delete it.

Add another quiz question

Quiz Question

First Option

Second Option

Third Option

Fourth Option

Correct Answer

Must copy and paste text from one of the above options

Response for correct answer

Response for incorrect answer

[ADD QUIZ QUESTION](#)

Step 5: Add a Clinical Observation checklist item

A Clinical Observation checklist is a list of clinical tasks that must be performed under the supervision of the Competency Program administrator (you).

Clinical Observation Items currently associated with this competency program

Online Education System

The screenshot shows the homepage of the competency.treatsafely system for UC San Diego. The header includes the logo and navigation links for Home, Your Competency Program, Content Admin, About Us, and Dan. The main content area is divided into several sections: 'UC San Diego Competency Program Home', 'Assigned Competency Modules' (listing 'Brachytherapy HDR GYN Cylinder' with the administrator's email), a 'CREATE A NEW COMPETENCY' button, 'Completed Competency Modules' (listing 'Annual Radiation Safety Training - PACU (Prostate Implants)' with a recertification date), 'Competency user groups that you belong to' (listing 'Thornton PACU Staff' and 'Dan'), and a footer with 'TreatSafety' information and 'About Us' link.

The screenshot displays the details for the 'Brachytherapy HDR GYN Cylinder Competency Program'. It features a 'Completion Status' section with a 'RETURN TO COMPETENCY HOME' button and a note that the status is 'In Progress'. Below this is a 'Documents' section with a list of PDF files and checkboxes for confirmation: 'HDR Emergency Procedures.pdf', 'HDR GYN Cylinder Treatment SOP_final.pdf', and 'hdr_operating_procedures.pdf'. The 'Videos' section lists three video files: 'HDR Gyn Cylinder - Part 3.mp4', 'HDR Gyn Cylinder - Part 2.mp4', and 'HDR Gyn Cylinder - Part 1.mp4', each with a confirmation checkbox. A 'Quiz' section asks 'Got it all figured out? Take the quiz' and shows a score of 100%. The 'Clinical Observation Checklist Items' section includes the item 'Able to plan and treat an HDR cylinder independently'.

Methods - Implementation

- Medical Physics Residents
 - 2 Physics Residents
 - 1x ~ 4 mo TPS exp; 1x ~ 7 mo TPS exp
 - No prior brachytherapy experience
 - Assigned two cases prior to start of BT rotation
 - Completed module w/out participation procedures assigned
 - Re-tested
 - Survey

Results

- Subject 1
 - Pre: ~ 40-60 min, undeliverable
 - Post: ~ 15-20 min, deliverable
- Subject 2
 - Pre: ~ 30-45 min, undeliverable
 - Post: ~ 15-25 min, deliverable
- Commonalities
 - Insertion of solid applicator from library
 - Unrealistic planning aim (optimization constraints)

Conclusions

- Established online education system
- Track progress
- Improvement over baseline
- Overall – useful and accepted system

Acknowledgements

- Derek Brown, Associate Professor, UC San Diego