

IROC Houston QA Center's International Anthropomorphic Phantom Activity



IROC Houston's Mission

Provide integrated radiation oncology and diagnostic imaging quality control programs in support of the NCI's NCTN Network thereby assuring high quality data for clinical trials designed to improve the clinical outcomes for cancer patients **worldwide**



Support the Mission

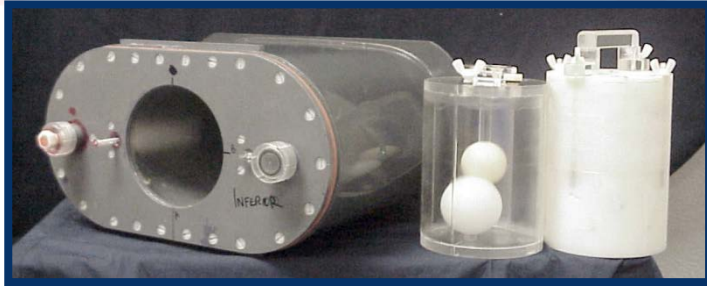
credentialing
dosimetry review
OSLD
phantoms
site visits



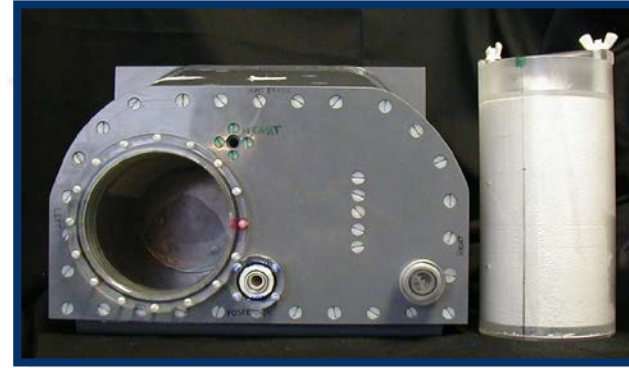
Non-NCI phantoms

- Company Agreements
- EORTC and other clinical trial networks
- IAEA
- Individual Site orders
- Pharma trials

Phantom Family



prostate



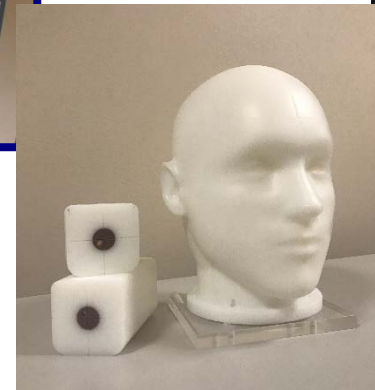
lung



H&N



Spine



SRS

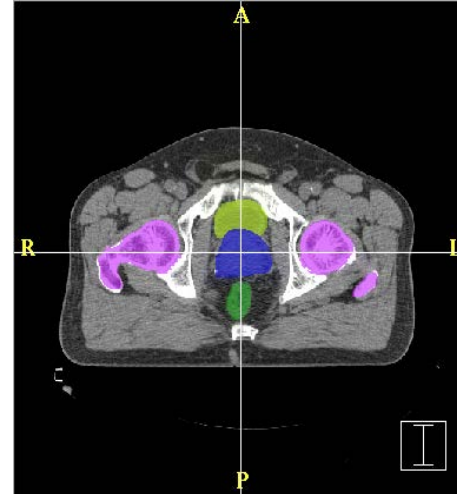


liver inserts

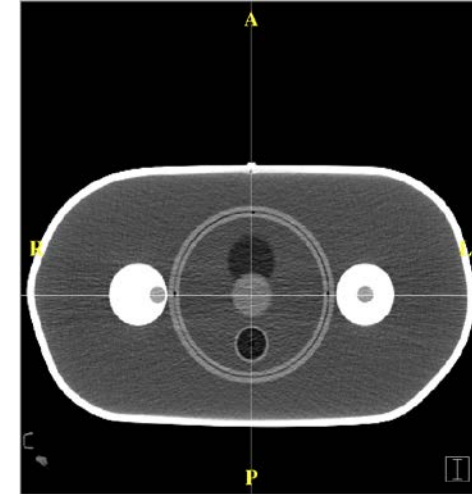
Phantom Design

- Anthropomorphic shape
- Plastic inserts containing targets and organs at risk
- TLD and film dosimeters

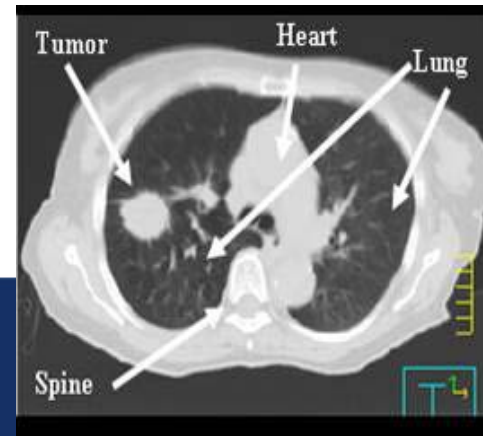
Patient



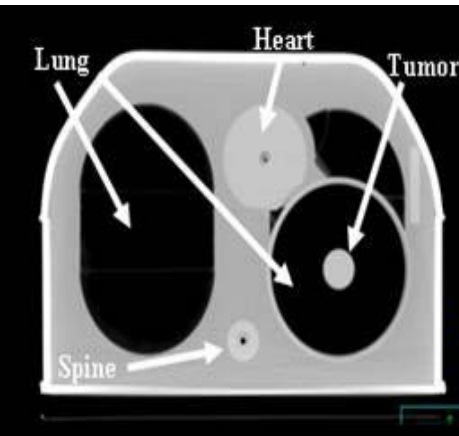
Phantom



Patient

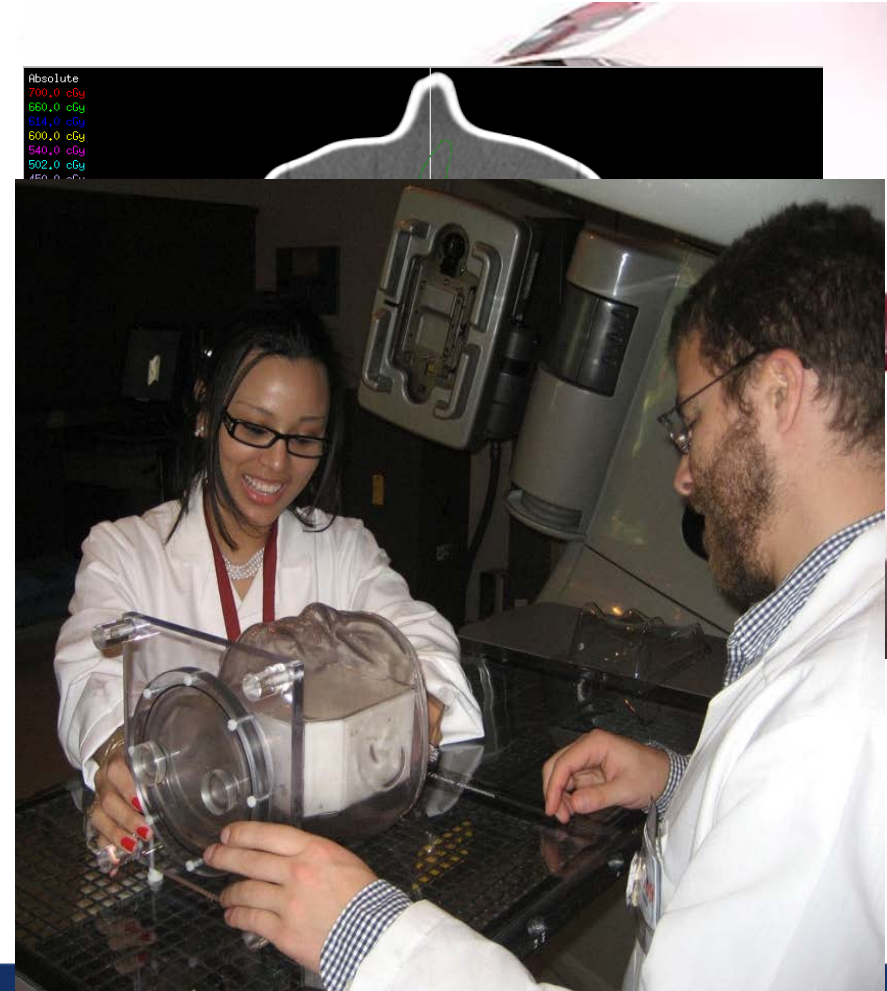


Phantom



Phantom Credentialing Process

- Request phantom
- Phantom is shipped
- Phantom is imaged
- Treatment plan developed
- Treatment is delivered
- Phantom is returned
- Plan is submitted electronically



Countries that have received a phantom

- 52 countries
- 6 continents



Phantom Results

(2009-2018)

Phantom	irradiations	pass irradi	pass rate (%)	international irradiation	international pass irradiation	international pass rate (%)
HN	1778	1605	90	322	296	92
liver	237	168	71	26	17	65
lung	1408	1210	86	82	78	95
prostate	491	420	86	83	76	92
spine	394	305	77	45	37	82
SRS	897	608	68	87	67	77
SpineLung	64	54	84	6	6	100

Phantom Results

(2009-2018)

- Lung phantom significant difference ($p=0.014$)
- No other phantom had significant difference
- 21% of world's countries have received a phantom
- Middle and Low income countries less likely to receive phantom

The Countries

(number of irradiations)

Argentina (5)	Czech Republic (7)	Israel (46)	Saudi Arabia (8)
Australia (33)	Denmark (7)	Italy (8)	Singapore (6)
Austria (3)	Dominican Republic (2)	Japan (14)	Slovenia (1)
Bahamas (0)	Ecuador (1)	Mexico (4)	South Africa (7)
Belgium (23)	Egypt (1)	Netherlands (12)	South Korea (22)
Bosnia Herzegovina (1)	El Salvador (1)	New Zealand (13)	Spain (14)
Brazil (7)	Estonia (1)	Norway (2)	Switzerland (17)
Canada (196)	France (24)	Peru (5)	Taiwan (10)
Chile (4)	Germany (8)	Philippines (1)	Thailand (2)
China (24)	Hong Kong (2)	Poland (7)	Turkey (8)
Colombia (14)	Hungary (0)	Portugal (3)	United Arab Emirates (2)
Costa Rica (1)	India (9)	Qatar (1)	United Kingdom (15)
Cyprus (3)	Ireland (42)	Russia (4)	United States of America (4618)

Summary

- IROC Houston is no longer just domestic as trials go international
- Phantoms continue to provide advanced technology E2E monitoring

Thank You
Questions?

