

The image shows the cover page of the 'STORE 2018 Standards for Oncology Registry Entry' manual. The title is prominently displayed in large, bold, brown letters. To the right, there is a smaller version of the cover image with the text 'Standards for Oncology Registry Entry STORE 2018' and 'Effective for Cases Diagnosed January 1, 2018'. At the bottom left, there are two URLs: https://www.facs.org/~media/files/quality%20programs/cancer/ncdb/store_manual_2018.ashx and <https://bit.ly/2LMqYY0>. At the bottom right, there is a green box with the text 'Radiation Fields'. The FACS logo and 'Cancer Programs' text are also visible.

1

This slide is titled 'Updates and Alerts: Corner STORE' and is marked with a small '2' in the top left corner. It lists three updates in colored boxes: an orange box for '11/15/2018 Clarification' with the bullet point 'Coding Instructions for Brachytherapy and Radioembolization'; a green box for '3/28/2019' with the bullet point 'CTR Guide to Coding Radiation Therapy released'; and a yellow box for '4/4/2019 Clarification' with the bullet point 'I-131 for Thyroid'. At the bottom, there is a URL: <https://www.facs.org/quality-programs/cancer/news>.

2

This slide is titled 'Updates and Alerts: Corner STORE' and is marked with a small '3' in the top left corner. It lists three updates in colored boxes: an orange box for '4/18/19 Clarification' with the bullet point 'CTR Guide to Coding Radiation Therapy (priority over STORE instructions)'; a green box for '5/9/19 Clarification' with the bullet point 'Use of Code 86 for Radiation Primary Tx Volume'; and a yellow box for '7/2/2019 Clarification' with the bullet point 'CTR Guide to Coding Radiation Therapy: Savi is 09'. At the bottom, there is a URL: <https://www.facs.org/quality-programs/cancer/news>.

3

New Definitions: First Course Tx

4

STORE pg 29: FCOT includes all therapies listed in the Treatment Plan intended to modify, control, remove or destroy PROLIFERATING cancer cells

STORE pg 40: Prophylactic actions taken to prevent spread or recurrence of cancer as part of FCOT are treatment

Code any treatments **administered**, including prophylactic treatments, when part of planned FCOT & treatment occurs before disease progression or recurrence

- Treatments must be started, but don't have to be completed
- New field RT D/C Early

4

Example of Prophylactic FCOT

5

Small cell lung CA plan: chemo, and if patient responds well by CT review, prophylactic CNS RT

- Now, prophylactic recorded as RT treatment even though no cancer cells found in CNS

5

STORE vs CTR Guide to Coding RT

6

Conflicts between the instructions in STORE and the CTR Guide to Coding Radiation Therapy

I-131	Total Dose	Ordering Phases	Unused phases	Etc.
-------	------------	-----------------	---------------	------



The Corner Store 4/18/2019: CTR Guide to Coding Radiation Therapy Treatment (in Resources section of NCDB website) takes precedence over current version of STORE (v1.0)

6

Keep These Fields

- Reason for No Radiation
- Date RT Started • Date ANY first course RT started
- Date RT Ended • Date ANY first course RT ended
- Location of RT
- RX Date—Radiation Flags (started/ended)

7

24 New Items

Update target volumes and modality to reflect *modern nomenclature* and for patterns of care studies

- Based on large database studies

7 of the new items are repeated for each phase; 3 are cumulative, so really, it is only 10 new “items” to learn

8

It's just a PHASE!

“Regional” and “boost” descriptions OUT

Phases IN

- Phase 1, Phase 2, Phase 3
- Rules define when the phase begins/ends
- Phases may be sequential or simultaneous

RT to mets site and primary, primary = phase 1

Lung CA: RT to brain met and RT to lung
 Phase 1 => lung, Phase 2 => brain
 (no matter which one starts first)

9

Phases

10

Phase 1 could be initial plan

Phase 2 or 3 could be subsequent phase OR boost OR cone down

New phase begins when meaningful change to:

- Target volume
- Treatment fraction size
- Modality
- Treatment technique

Change in energy is NOT new phase (i.e., 6MV to 18 MV)

10

Tx Volume (aka target, aka body parts)

11

Usually phase 1 is primary site

- If NOT primary site, then document what that volume was
- EX: Stage IV prostate cancer – RT to spine mets, volume = spine

11

New Instructions Order of Phases

12

Dose across phases to a single point or region	Multiple metastatic sites	Primary site and metastatic site	Simultaneous Integrated Boost (SIB)
Chronologically	Same time frame: Site with highest dose first	Primary site first, then metastatic site(s)	PTV with highest dose first
	Different time frame: Chronologically	Metastatic sites	

Adapted from Wilson Apollo CANSWER Forum post 04-15-19

12

Each Phase needs documentation of:

- RT Primary Tx Volume
- RT to Draining LN
- RT Modality
- RT External Beam Planning Technique
- Dose per Fx (session)
- Number of Fx (sessions)
- Total Dose

13

Tx Volume & Draining LN

Former RT Volume divided into 2 data items per phase

- RT Primary Tx Volume: Primary tumor (primary site) or tumor bed USUALLY treated
- RT Draining LN: RT frequently hits draining LN regions associated w/primary

14

Radiation Treatment Volumes

- Added specific volumes for LN regions (9)
 - Prior to 2018, only had breast/LNs, chest wall/LNs, and LN region, NOS
- Organized the volume codes by body area
- Added a field for RT to draining LNs

15

Radiation Treatment Volumes

16

01-07, 09 LN Regions	10-14 Eye/orbit, Pituitary, Brain, and Spinal Cord	20-26, 29 Head and neck sites, incl. Thyroid	30-32 Lung, mesothelium, and thymus
40-42 Breast and chest wall	50-59 GI sites	60-68 Genitourinary	70-73 GYN
80-86, 88 Bones	90-93 Skin, Soft Tissue, Hembody, Whole Body	98 Other volume 99 Unknown	01-08, 88, 99 Draining LNs

16

Tx Volumes – LN

17

CODE	LABEL	DEFINITION
00	No Tx	None given
01	Neck LN	Primary tx to LN regions neck
02	Thoracic LN	Hilar, mediastinal SC LN
03	Neck & thorax LN	LN in neck & thorax w/o tx to primary organ
04	Breast/chest wall	Axillary, SC, internal mammary LN w/o breast
05	Abdomen LN	Retrocrural, perigastric, perihepatic, etc
06	Pelvic LN	Common, internal/external iliac, inguinal, etc
07	Abd & pelv	Combo of 05 + 06
09	LN NOS	Regions not fitting 01 - 07

17

Tx Volumes - CNS

18

CODE	LABEL	DEFINITION
10	Eye/orbit/ optic nerve	All or portion of eye
11	Pituitary	Pituitary gland
12	Brain	Whole brain (brain & meninges)
13	Brain ltd.	≥ 1 subsite of brain but not whole brain
14	Spinal cord	All or part spinal cord or cord meninges

18

Tx Volumes – Head & Neck

CODE	LABEL	DEFINITION
20	Nasopharynx	All or part nasopharynx
21	Oral cavity	All or part oral cavity organs
22	Oropharynx	All or part of oropharynx organs
23	Larynx OR hypopharynx	All or part of larynx and/or hypopharynx
24	Sinuses/ Nasal tract	All or part of sinuses and nasal tract
25	Parotid or other salivary	Parotid or other salivary glands
26	Thyroid	All or part thyroid. Use this for I-131 (STORE instructions updated in 4/18/19 Corner Store)
29	Head & Neck NOS	Primary tumor head & neck but primary site not documented in codes 20 – 26

19

Tx Volumes – Chest Area

CODE	LABEL	DEFINITION
30	Lung	All or part lung or bronchus
31	Mesothelium	All or part mesothelium (even if part lung included in field)
32	Thymus	All or part thymus
39	Chest/lung NOS	Chest primary but not documented in codes 30-32
40	Breast whole	All of intact breast; breast tissue not surgically removed (lumpectomy or partial mastec)
41	Breast partial	Portion intact breast (mammosite, partial RT, IMRT)
42	Chest wall	Chest wall following mastectomy

20

Tx Volumes – Gastrointestinal

CODE	LABEL	DEFINITION
50	Esophagus	All or part esophagus incl. GEJ
51	Stomach	All or part stomach
52	Small Bowel	All or part small bowel
53	Colon	All or part colon
54	Rectum	All or part of rectum (incl. rectosigmoid)
55	Anus	All or part of anus
56	Liver	All or part of liver
57	Biliary or GB	All or part of biliary tree or GB
58	Pancreas or ampulla	All or part pancreas or hepatopan ampulla (periampullary)
59	Abdomen NOS	Primary tumor abdomen but primary site not documented in codes 50 - 58

21

Tx Volumes – Genitourinary

CODE	LABEL	DEFINITION
60	Bladder whole	All of bladder
61	Bladder partial	Portion of bladder but not whole
62	Kidney	All or part kidney
63	Ureter	All or part of ureter
64	Prostate whole	Prostate & seminal vesicles (even if not noted)
65	Prost partial	Part of prostate but not whole
66	Urethra	All or part of urethra
67	Penis	All or part penis (incl urethra)
68	Testicle or scrotum	All or part of testicle &/or scrotum

22

Tx Volumes – Gynecologic

CODE	LABEL	DEFINITION
70	Ovaries or FT	All or part of ovaries or fallopian tubes
71	Uterus/cervix	All or part of uterus, endometrium, cervix
72	Vagina	All or part of vagina \ Urethra should be
73	Vulva	All or part vulva / code 66

23

Tx Volumes – Bones

CODE	LABEL	DEFINITION
80	Skull	All or part of bones of skull (even if incl brain)
81	Spine, vertebra	All or part of bones of spine/vertebral bodies incl sacrum but NOT spinal cord
82	Shoulder	All or part proximal humerus, scapula, clavicle, or other shoulder complex
83	Ribs	All or part of one or more ribs
84	Hip	All or part of proximal femur or acetabulum
85	Pelvic bones	All or part of bones pelvis NOT hip NOT sacrum
86	Pelvis NOS	Primary of pelvis but primary subsite not pelvic organ
88	Extremity bone	All or part arms or legs (NOT femur NOT humerus)

24

Tx Volumes – Etc.

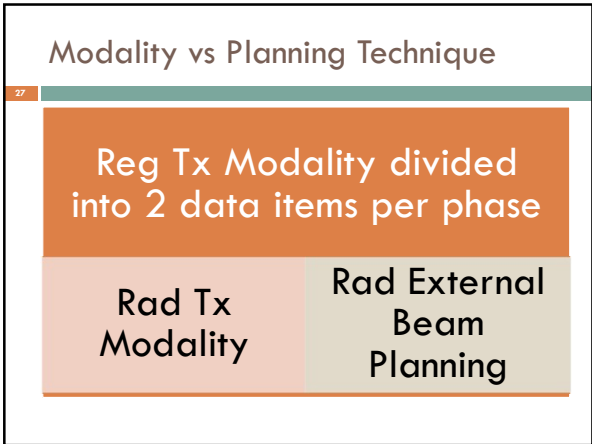
CODE	LABEL	DEFINITION
90	Skin	Primary starts in skin (not skin mets)
91	Soft tissue	Primary OR mets soft tissue
92	Hemibody	Single tx encompass ALL above or ALL below diaphragm
93	Whole body	Entire body in a single tx
94	Mantle, mini-mantle	Obsolete after 2017 – for historical data only
95	Inverted Y	Obsolete after 2017 – for historical data only
97	Invalid	Historical FORDS code only – can't convert
98	Other	Volume other than 01 – 93
99	Unknown	No info available about volume or unk if RT done

25

RT Draining LN

CODE	LABEL	DEFINITION
00	No Tx	No Tx; Dx at Autopsy
01	Neck LN	LN regions neck
02	Thoracic LN	Hilar, mediastinal SC LN
03	Nk & thrx LN	LN in neck & thorax w/o tx to primary organ
04	Brst/chest wall	Axillary, SC, internal mammary LN
05	Abdm LN	Retrocrural, perigastric, perihepatic, etc
06	Pelvic LN	Common, internal/external iliac, inguinal, etc
07	Abd & pelv	Combo of 05 + 06
08	LN NOS	Regions not fitting 01 - 07
88	N/A	LN's were the primary target
99	Unknown	Unknown if treatment to draining LN's

26



27

Radiation TX Modality Codes

External Beam	Brachytherapy	Radioisotopes
01 NOS	07 NOS*	13 NOS*
02 Photons	08 Intracavitary LDR	14 Radium-232
03 Protons	09 Intracavitary HDR	15 Strontium-89
04 Electrons	10 Interstitial LDR	16 Strontium-90
05 Neutrons	11 Interstitial HDR	
06 Carbon ions	12 Electronic	

Also available: Radioembolization codes:
 00 No RT 07 dx prior to 1/1/2018 (50)
 99 RT modality unk; unk if RT 13 dx after 1/1/2018
 done Per Corner Store 11/15/18

28

Other Modality by Brand

Equipment	Modality	Comments
Acuboost	07 (brachy, NOS)	Non-invasive breast brachy (NIBB)
Contra MLB	09 (brachy, intracav, HDR)	Most are HDR
LIAC 10 by Sordina IORT	04 (electrons)	Max energy 10 MeV
LIAC 12 by Sordina IORT	04 (electrons)	Max energy is 12 MeV
Mammosite, SAVI, Contura	09 (brachy, intracav, HDR)	Most are HDR
Mobertron	04 (electrons)	Energies 6 MeV, 9 MeV, 12 MeV
NOVAC by Sordina IORT	04 (electrons)	
SAVI Strut Assisted Val Impl	09 (brachy, intracav, HDR)	Most are HDR
XOFT Axxent	12 (brachy, electronic)	Isotope-free \ No radioactive
Zeiss intrabeam	12 (brachy, electronic)	Isotope-free / source used

29

Planning Codes

CODE	LABEL	DEFINITION
00	No tx	Not given
01	EBRT NOS	Known it's EBRT but no info on planning
02	Low energy x-ray photon	EBRT using equipment w/max energy < 1 million volts (MV) – usually expressed in kilovolts. Axxent, INTRABEAM, Esteya, Zeiss, Xoft
03	2-D therapy	EBRT plan use 2-D imaging to define location & size beam. Usually palliative tx
04	Conformal or 3-D conformal	Planning uses multiple, fixed beams to conform defined target FiF (Field in Field)
05	Intensity modulated	Planning shape or energy of beams optimized w/software algorithms. IMRT (photon) or IMXT/IMPT (proton), VMAT (volumetric arc), Rapid Arc-Varian, DART(?), Tomotherapy, CTB, SIB-IMRT

30

Planning Codes

CODE	LABEL	DEFINITION
06	Stereotactic radiotherapy or radiosurgery, NOS	Stereotactic/radiosurgery but NOT Cyberknife or Gamma Knife. SBRT, SABR (stereotactic ablative radiation), SRS (stereotactic radiosurg), SRT (stereotactic RT). IF described as SRS w/online re-optimize/re-plan, use those codes, DART (?) , Quad Shot Technique , Gamma Pod
07	Stereotactic, robotic	Planning stereotactic described as robotic (e.g. Cyberknife)
08	Stereotactic, Gamma Knife	Planning stereotactic uses Cobalt-60 gamma ray, Gamma Knife (use for brain)

31

Planning Codes

CODE	LABEL	DEFINITION
09	CT-guided online adaptive	EBRT where tx plan adapted over course of RT to reflect changes in patient's tumor or normal anatomy using CT scan online at tx machine. If described as "adaptive" but not "online", don't use this code
10	MR-guided online adaptive	EBRT where tx plan adapted over course of RT to reflect changes in patient's tumor or normal anatomy using MR scan online at tx machine. If described as "adaptive" but not "online", don't use this code. ViewRay MRIdian , Cross Cancer Institute MRI-Linac , Elekta MRI-Linac

32

Planning Codes

CODE	LABEL	DEFINITION
88	N/A	Treatment NOT by external beam (MammoSite , SAVI , Contura , Accuboost/NIBB)
98	Other NOS	Other radiation NOS. RT done but tx modality not specified/unknown
99	Unk	Unk if RT done

33

Coding Modality for Heavy Equipment of Modern RT

PRODUCT	MODALITY	PLANNING TECHNIQUE(S)
Accubost (NIBB)	07	88
CyberKnife	02	07
Elekta MR-Linac	02	10
Elekta VersaHD	02	03,04,05,06,09
GammaKnife	02	08
GammaPod	02	06
LIAC, NOVAC	04	03,04
(MammoSite), SAVI, (Contura)	09	88
Tomotherapy	02	05,06,09
Varian Halcyon	02	03,04,05,06,09
Varian TrueBeam	02	03,04,05,06,09
ViewRay MRIdian MR-linac	02	10
VMAT, RapidArc, Hyperarc	02	05,06
Zeiss, Xofig, Esteya	02	02

34

Image-Guided RT: Planning Technique?

Per Wilson Apollo CANSwer Forum
12/21/18: **IGRT** (Image-Guided
Radiation Therapy)

- IGRT is not associated with any planning or modality codes in STORE
- Means imaging was used during (pre and/or post) treatment to ensure the beam is targeting the tumor or tumor bed as planned
- Can be used with 3D-conformal, IMRT, VMAT, SBRT
- Review the RT prescription to determine the planning technique that was used.

35

Dose per Fraction

Unit of measure is centiGray (cGy)

Radiation dose absorbed by person

Amount of energy deposited in human tissue by radiation

Record dose DONE/delivered (not the planned dose)

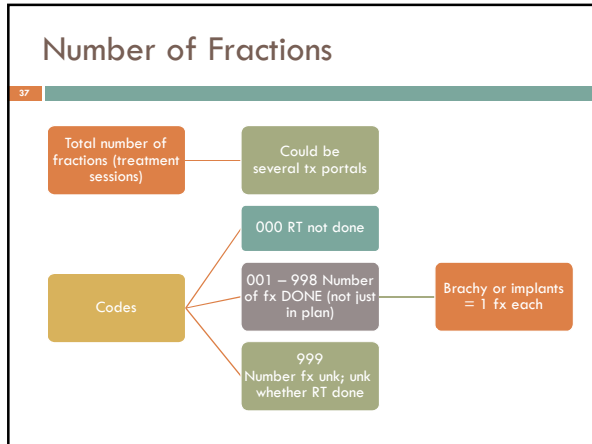
1 cGy = 1 Rad

1 Gray = 100 cGy

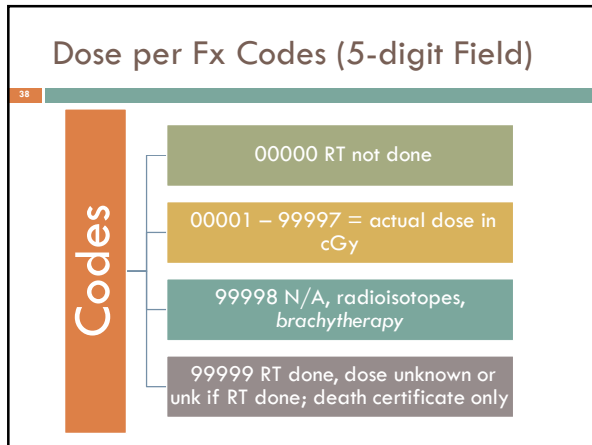
1 Joules/kg = 100 cGy

1 cGe (Cobalt Gray Equivalent) = 100 cGy (protons)

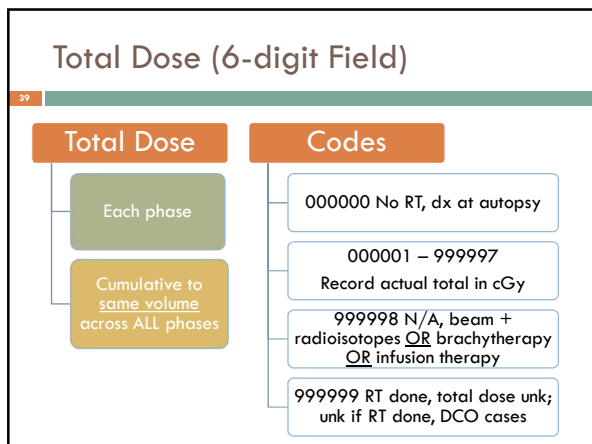
36



37



38



39

Dose Across Phases to a Single Volume

40

Text documentation: Start date - End date; Site (Volume), Modality, Dose/fx, Total dose

5/1/18 - 6/5/18 Prostate/SV/Pelvic LNs; 10X; 180 cGy/fx; 4500 cGy. 6/10/18; Prostate; I-125, LDR, interstitial; 4500 cGy

Total Dose = 999998

- Do not sum doses across phases if the phases use different treatment fraction sizes or modalities (Can't add Phase 1 EBRT and Phase 2 brachytherapy; brachy dose is 99998, even when TD provided)

40

CAnswer Forum 8/2018

41

- Question Example: 10 fx at 30Gy to **lung** (Phase 1) plus 10fx at 25Gy to **brain** mets (Phase 2)
- "Answer: The total dose identifies the total cumulative radiation dose administered to the patient across all phases during the first course of treatment, in the example **55Gy**. The number of phases of RT to this volume is 02."
- **CTR Guide:** Total dose Phase 1 003000, Phase 2 002500, Total Total **003000** (most to **single area**)
CAnswer Forum not corrected yet

41

Multiple Plans in One Phase?

42

EXAMPLE

- 3/5/18 6Mev using **IMRT** to **lung/LN**, 180 cGy per day, 25 fx, total 4500 cGy
- 4/6/18 CT shows 50% reduction in gross tumor volume
- 4/10/18 **IMRT** to **lung/LN**, 180 cGy per day, 5 fx, total 900 cG

Per Exercise #8 of CTR Guide to Coding RT:

- As long as no change in volume, modality, planning technique, and dose/fx, adapted plans are **one** phase

42

Codes for # of Phases of RT to Volume

43

- 00 No RT
- 01 - 1 phase
- 02 - 2 phases
- 03 - 3 phases
- 04 - ≥ 4 phases
- 99 Unk # phases, unk if RT done

43

Total Dose Example

SITE TX	Method	# Tx	Dose/Fx	Total dose
Rt Breast	3D	15	267 cGy	4005 cGy
Tumor Bed BV	9MeV	6	200 cGy	1200 cGy

phases? **2**
 Dose per fx? **00267; 00200 (5 digits)**
 Total per phase? **004005; 001200 (6 digits)**
 Was each phase given to same volume/body area? **Yes**
 Total Cumulative? **005205 (6 digits)**

44

Case Example (Pay Attention!)

45

RT Consult CC: 12 cm, cT4 cN3 cM1, Stage IV, Small Cell Lung CA

Right Hilar Tumor with Mediastinal and Right SC LN @ DX.

Bilateral Adrenal/Diffuse Bone Mets @ DX.

Partial Response post Chemotherapy. MRI brain neg @ DX.

45

Radiation Treatment PLAN

- Thoracic Radiation to 3000 cGy
- Prophylactic Cranial Radiation to 2500 cGy

SITE TX	Method	# Tx	Dose/Fx	Total dose
Rt Lung/Mediastinum	AP-PA	10	300 cGy	3000 cGy
Whole Brain	Opp Lats	10	250 cGy	2500 cGy
Total RT Dose	0 of 10 Thoracic Rx Completed. 0/10 Brain Rx Completed.			
Date RT Initiated	2/14/19		(Anticipated Initiation and Completion Dates)	
Date RT Completed	3/6/19			

46

Radiation Treatment SUMMARY

- RT Progress Note: brain metastases found on MRI Feb 2019 after patient's complaint of H/A, N&V

SITE TX	Method	# Tx	Dose/Fx	Total dose
Rt Lung/Mediastinum	AP-PA	10	300 cGy	3000 cGy
Whole Brain	Opp Lats	14	250 cGy	3500 cGy
Date RT Initiated	2/14/19			
Date RT Completed	3/12/19			

phases? **1 (Single phase for FCOT d/t brain mets)**
 Dose per fx? **00300 (5 digits)**
 Total per phase? **003000 (6 digits)**
 Was each phase given to same volume/body area? **Yes, 1 phase**
 Total Total? **003000 (6 digits)**

47

Phase Example

- cT4 cN2 cM1c , Stage IVB, Adenoca LUL
- Stage text: PET/CT: SC, medias, hilar LN; 5.7 cm LUL mass invl hilum, prob invad medias, BIL adrenal mets, mesent & retroper LN, destruct 7th rib & L5 vertebra

SITE TX	Volume Code	Start Date	# Tx	Dose/Fx	Total Dose	Phase?
LT Ribs	83	7/16/18	6	400 cGy	2400 cGy	1
L4-LT Hip	98	7/16/18	5	400 cGy	2000 cGy	2
Hyoid Bone	98	7/17/18	5	400 cGy	2000 cGy	3

48

RT Discontinued Early

49

- Patient received fewer fx than plan called for
- Can exclude these patients from patterns of care analysis

49

RT D/C Early Codes

50

- 00 No RT
- 01 RT completed as prescribed
- 02 RT D/C early – toxicity
- 03 RT D/C – contraindicated
- 04 RT D/C – patient decision
- 05 RT D/C – family decision
- 06 RT D/C – patient expired
- 07 RT D/C – reason not documented
- 99 Unk if RT D/C; unk if RT done


50

What if NO Radiation in FCOT?



51


- Some codes still expected
 - Reason for No RT?
- Your software may export codes in these fields for you
 - Date RT Started - Flag? 11 if no RT
 - Number of phases? 0 if no RT
 - Phase 1 Volume? 00 if no RT

51

Questions? 


52

- STORE has it's own section in the Forum
- Questions answered by:  



52

If you do not change direction, you may end up where you are heading.
Lao Tzu



53

53