Less RT = More Access:

Rural Patient Outcomes Benefit from Academic-Community QI

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NAPBC Standard 5.12

1

ACS CoC Commission on Cancer
American College of Surgeons

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COC 2016/NAPBC 2019
21-bed critical access (rural) hospital on island built 2002

2

A QI Roadmap:

ACS Cancer Conference 2024
February 22-24, 2024
Austin, TX
ACS Cancer Programs

1. Start with an Idea
2. How Problem identified
3. Develop Problem Statement
4. Enlist Quality Team members
5. Pick Performance tool
6. What is the Data?
7. Data analysis/Factors
8. Compare to National data
9. Implement Intervention
10. Results after Intervention
11. Next steps (new interventions?)

3

Start with an idea

Mastectomy = Lumpectomy + Whole Breast RT (BCT)*

Surgery is a "one and done"
but RT classically is daily M-F for 5-7 weeks

This RT time-dependence could present barriers to patients

RT = Radiation Therapy
BCT = Breast Conservation Therapy

*Early Breast Cancer Trialists' Collaborative Group (EBCTG), Darby S, McGale P, et al. Effect of radiotherapy after breast-conserving surgery on 10-year recurrence and 15-year breast cancer death: Meta-analysis of individual patient data on 10,801 women in 17 randomised trials. Lancet 378:1707-1716, 2011.

4

Suspected Problem/Gap

- Many factors affect patient choice of breast surgery
- Lumpectomy rates seemed low historically for us (<50%)
- Our island IS a geographic barrier, and even though we offer RT services, it is 100 miles from one end to other (access barriers) and many surgical procedures are not available on the island

5

Link between distance of RT facility and type of surgery

Impact of Distance to XRT in Mastectomy Use *

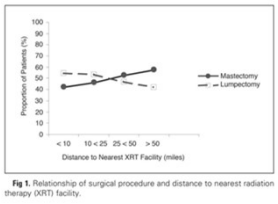


Fig 1. Relationship of surgical procedure and distance to nearest radiation therapy (XRT) facility.

More distance to RT
=
Less lumpectomy %

* Impact of Patient Distance to Radiation Therapy on Mastectomy Use in Early-Stage Breast Cancer Patients Anneke T. Schroen, David R. Brenin, Maria D. Kelly, William A. Knaus, and Craig L. Slingluff Jr. J Clin Oncol 23: 7074-7080, 2005 (N = >20,000 breastcancer patients in VA registry)

6

How can we make it easier for patients to get RT?

1. Build more centers (not cost effective/CoN laws)
2. Transportation assistance (gas cards/volunteer drivers)
3. Give *less numbers* of treatments at higher daily dose- this is commonly done in palliative settings, but not so much in curative RT- at least not in US
4. For ~10 years "less RT" has been a standard of care in Europe and Canada

7

We call this Hypo-fractionation (HypoRT)

- Each treatment is a fraction of some total dose of planned radiation
- For some cancers, it is as effective to give the radiation quicker- at more than conventional 1.8 – 2.0 Gy fractions
- Common examples include 2.5 - 4.0 Gy fractions
- This results in *less total number of fractions needed (hypo = less treatments)* since daily dose is higher
- *Less RT = More Patient Convenience* ☺

8

NCCN Guidelines (2016/2017/2018)

"The NCCN panel recommends a dose of 46 to 50 Gy in 23 to 25 fractions *or* 40 to 42.5 Gy in 15 to 16 fractions for WBRT."

"Based on the results from the Canadian and START trials and overall convenience, hypofractionated courses are the NCCN-preferred option for treating patients receiving WBRT. Use of hypofractionation is not recommended for RNI (regional nodal irradiation)"

WBRT = Whole Breast Radiation Therapy

Canadian OCOG study published 2010, and UK START trials 2006, 2008, 2013

9

Gap Identified

- *Following COC accreditation,* radiation oncologist brings to our awareness the NCCN guidelines for preferred "less RT"

  -Our adherence estimated to be low at <20% of eligible patients, which he thinks factors into our low BCT rates (<50%) relating to rural geography and the distance-time barriers

10

Develop Problem Statement

- We are slow to adopt guidelines in the use of hypo-fractionated radiation (HypoRT) as small community cancer program (identified problem)
- We want to improve adherence to these specific guidelines over 2 years (timeline) with relative increase of 50% over baseline (<20% rate currently), with eventual primary outcome of improved access to *preferred* RT regimens, and secondary goal of higher BCT rates (absolute 10% increase over time) (enumerate baseline and goal)

11

Assemble Quality Team

- Surgeon(s) - we are trying to improve surgery outcomes
- Radiation Oncologist(s) in Community and expert Academic peers since we are looking at new processes in RT
- Physicists/other RT Technical staff
- Oncology Navigator
- Quality Coordinator
- CA Registrar (Data)
- Cancer Committee (review interim results, final report)
- Hospital Administration (possible less revenue)
- Provider Champion*

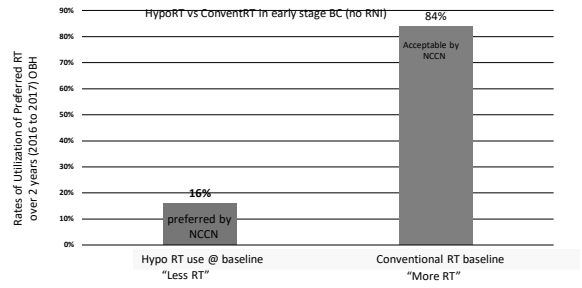
12

Use a familiar QI Tool

Plan (plan the interventions based on analytics)
Do (implement some change)
Study (measure the impact of change)
Act (decide what to do from this which often = more iterations of PDSA)

13

Our Baseline Data (2 yr. retrospective)



14

Barriers for *not using* less RT locally

- Not recommended for all postop BC situations (post mastectomy, regional nodes being irradiated, following reconstruction)
- Lack of familiarity/experience/long term effects(cosmetics)
- Lack of peers to discuss in solo practice
- Monetary risks (less RT = less $$) since reimbursement often linked to treatments (COI, realized or not)
- Reluctance to change habits (old dogs/new tricks)

15

You want me to do what? Do less??!!

Photo by M. Shelton

16

How we compared with (inter) national data using Less RT

	HypoRT use OBH	HypoRT use NCDB	HypoRT use UK/Canada
2013	0	15-23%	70+%
2016-17	16%	?30-40%?	75+%

? ? = data lag in NCDB reporting tools* (not in real time) so we don't know at time of QI

*Hasan, Y., Waller, J., Yao, K. *et al.* Utilization trend and regimens of hypofractionated whole breast radiation therapy in the United States. *Breast Cancer Res Treat* **162**, 317–328 (2017). https://doi.org/10.1007/s10549-017-4120-0 . Data is for invasive breast cancer post BCT

^Update by Minji M. Kang, MPH, Yasmin Hasan, MD, Joseph Waller, MS, Loren Saulsberry, PhD, Dezheng Huo, MD, PhD. Has Hypofractionated Whole Breast Radiation Therapy Become Standard of Care in the United States? An Updated Report from National Cancer Database. Clin Breast Cancer. 2022 January ; 22(1):e8–e20. doi:10.1016/j.clbc.2021.05.018 reveals we should have been at roughly 38% by 2016, and only 17% of community programs use it as "preferred" vs 24% academic in period 2013-2016(with >50% of patients treated with it)

17

Baseline lumpectomy rates- comparison

Chesapeake VA (nearby community partner hospital) 65%

NAPBC Target Goal 2018 > 50%

NCDB rate 60% in 2016

UK rates BCS 57% (2015)

Canadians 61%

OBH rates (2016-17) 45%

18

Factors accounting for use of less RT (NCDB*)

1. Program specific:

Academic programs higher users of hypoRT than community programs

2. Volume

Facilities treating larger volumes more likely to use less RT regimens (hypoRT) than small volume centers

3. Geography

Living in mountain states, rural area, or ≥50 miles from hospitals utilized HypoRT more (to increase access)

4. Patient factors

Older age, smaller tumors, and node negative more likely to get HypoRT; ethnics, income, insurance also linked

1= Provider (Rad Onc) Factor

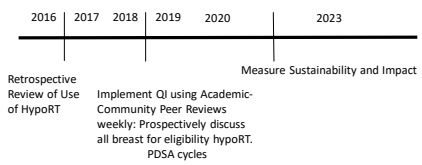
19

Proposed Intervention(s)

- Leverage academic peers (better users of HypoRT) to help rural (solo) practitioners adopt using *less RT* where guideline-appropriate
- Academic-Community peer rad onc team meets regularly to discuss elements of RT planning since 2014 (previous QI)
  - -Review all cases before start of therapy vis-à-vis appropriateness for accelerated (less) treatments starting early 2018
- Discuss all cases prospectively with breast surgeon(s) in separate breast tumor board (begin mid-2018) so they too are engaged

20

Timeline



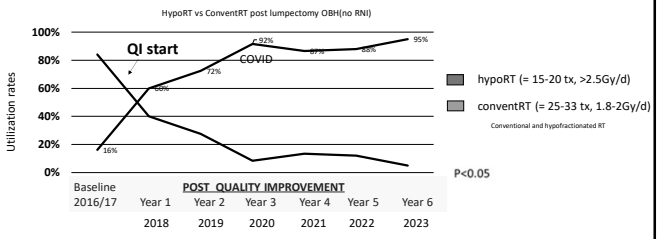
21

Comments: Academic-Community Collaboration

- 150 meetings per year, 35 minutes each
  - -10 Rad Onc providers (5 academic MD @ ECU, 5 solo private practice MD) , dosimetrists, physics staff, head technologist, other supportive staff
  - -Prospective review CT contours of anatomy, planned doses, whether dose constraints met, concurrent therapies, techniques, use of guidelines, etc.
- Consensus by all providers on treatment plans (any changes implemented before therapy started)
- *All breast cases prospectively presented (100%) over this period with consideration of hypoRT eligibility, adherence to guidelines*
- N = ~1100 cases per year in region discussed as team, breast =25%

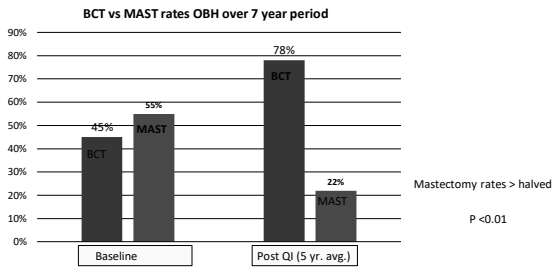
22

More Uptake Rurally of Less RT



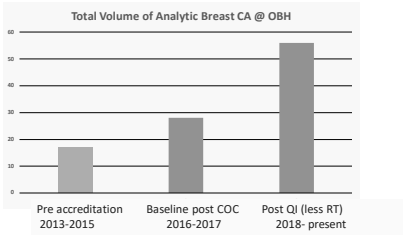
23

Impact: Less RT = More BCT rurally



24

Less RT = More Patient Volume Locally



25

Conclusions

- Goal of 50% relative improvement over baseline- we improved hypoRT rates 450% during first 2 years of QI
- Current rates of (95+%) HypoRT use in eligible patients at our critical access hospital demonstrates it is now preferred regimen
- With more adherence to less RT, we not only were more compliant with guidelines (and new 2024 NAPBC std 5.12), we also see higher BCT rates (HR 1.73)
- We now have 3x more analytic BC patients (more surgeries and more RT) suggesting quality initiatives that improve access to guideline-concordant care helps re-capture patients that previously left area

26

Next steps

- Explore role of hypoRT in Breaking Barriers initiative 2024 (quantitate reduction in financial toxicity, transportation barriers, compliance, patient satisfaction)
- Consider early adoption of hypoRT in post-mastectomy/RNI/recon settings (ESTRO* recommends moderate hypoRT since 2022 in these pts.)
- Tracking *omission (omitRT)* in select patients (>70 yrs. with favorable biology ER+ treated with BCT (~20% of our population of BC meets this definition of even less RT)

*ESTRO is European Society for Radiotherapy and Oncology

27

28

Equivalent WBRT regimens for Breast CA in 2023

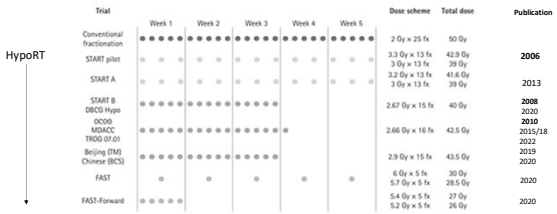


Fig. 2. Treatment schedules and dose regimens of trials for hypofractionated radiation therapy. BCS, breast-conserving surgery; TM, total mastectomy; START, Standardization of Breast Radiotherapy Trial; OCOG, Ontario Clinical Oncology Group; DBCG, Danish Breast Cancer Group; MDACC, MD Anderson Cancer Center; TROG, Trans-Tasman Radiation Oncology Group.

Nalee Kim1, Yong Bae Kim2. Journey to hypofractionation in radiotherapy for breast cancer: critical reviews for recent updates. Radiat Oncol J 2022;40(4):216-224

29