



BC Cancer Agency

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Impact of a multi-pronged intervention to improve the use of single fraction radiotherapy for bone metastases across six cancer centres

Robert Olson¹, Ivo Olivotto^{2,5}, Manpreet Tiwana¹, Mark Barnes¹, Ross Halperin³, Stacy Miller¹, David Hoegler³, John French⁴

BC Cancer Agency and UBC: ¹Prince George, ²Victoria, ³Kelowna and ⁴Vancouver
⁵ Current affiliation: Tom Baker Cancer Centre and U of Calgary



Disclosures

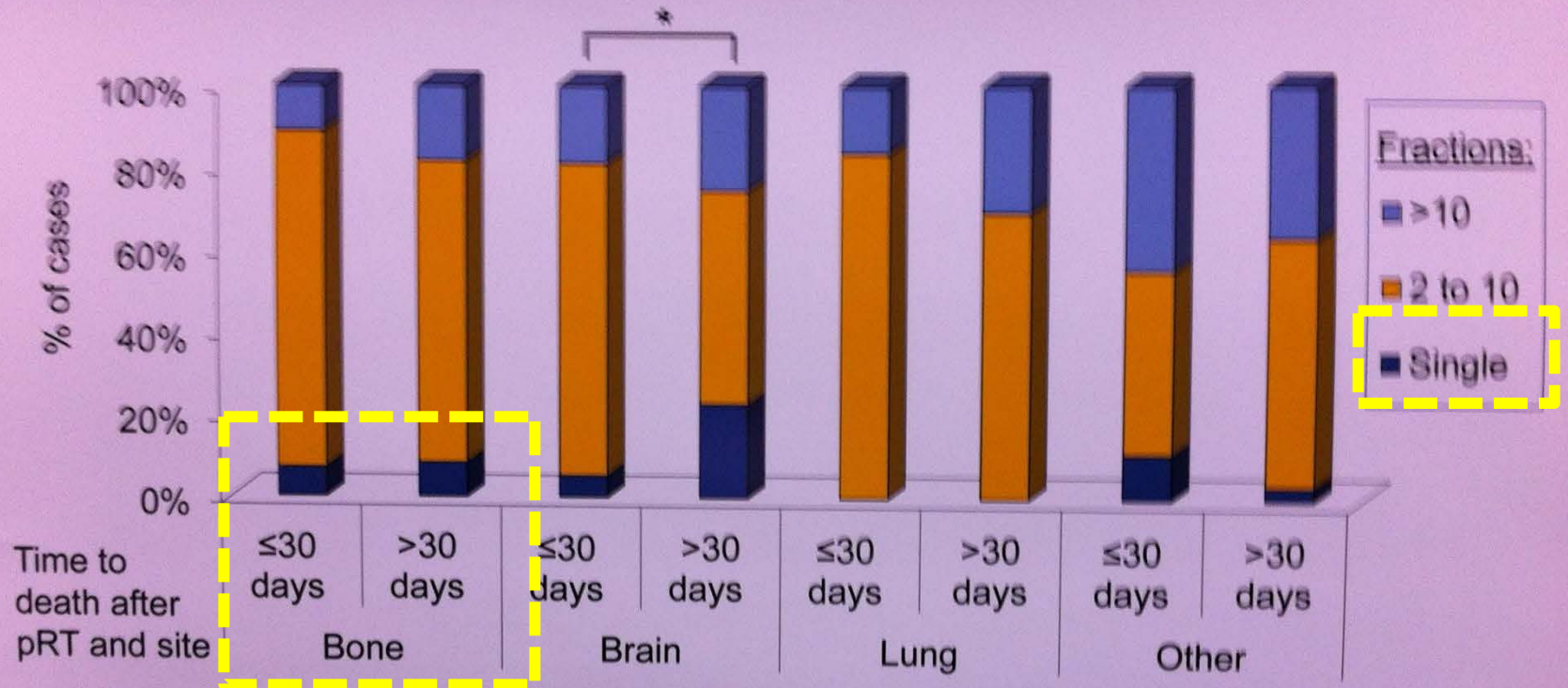
- No conflicts or financial interests to disclose.
- This work was conducted while Dr. Olivotto was the Head of the BC Cancer Agency Radiation Therapy Program.

Background

- There is ample evidence (**26 RCTs**) that a single 8 Gy fraction of palliative RT achieves **equivalent** pain relief compared to multi-fraction radiotherapy for painful bone metastases
 - **Acute side effects** are more common with **Multiple Fractions**
 - **Retreatment** is somewhat more common with **Single Fractions**
- Despite this, the use of Single Fraction RT is low in North America.

Johns Hopkins 2007-2012: < 5% received SF RT

Figure 3: Fractionation scheme by time to death after pRT and site

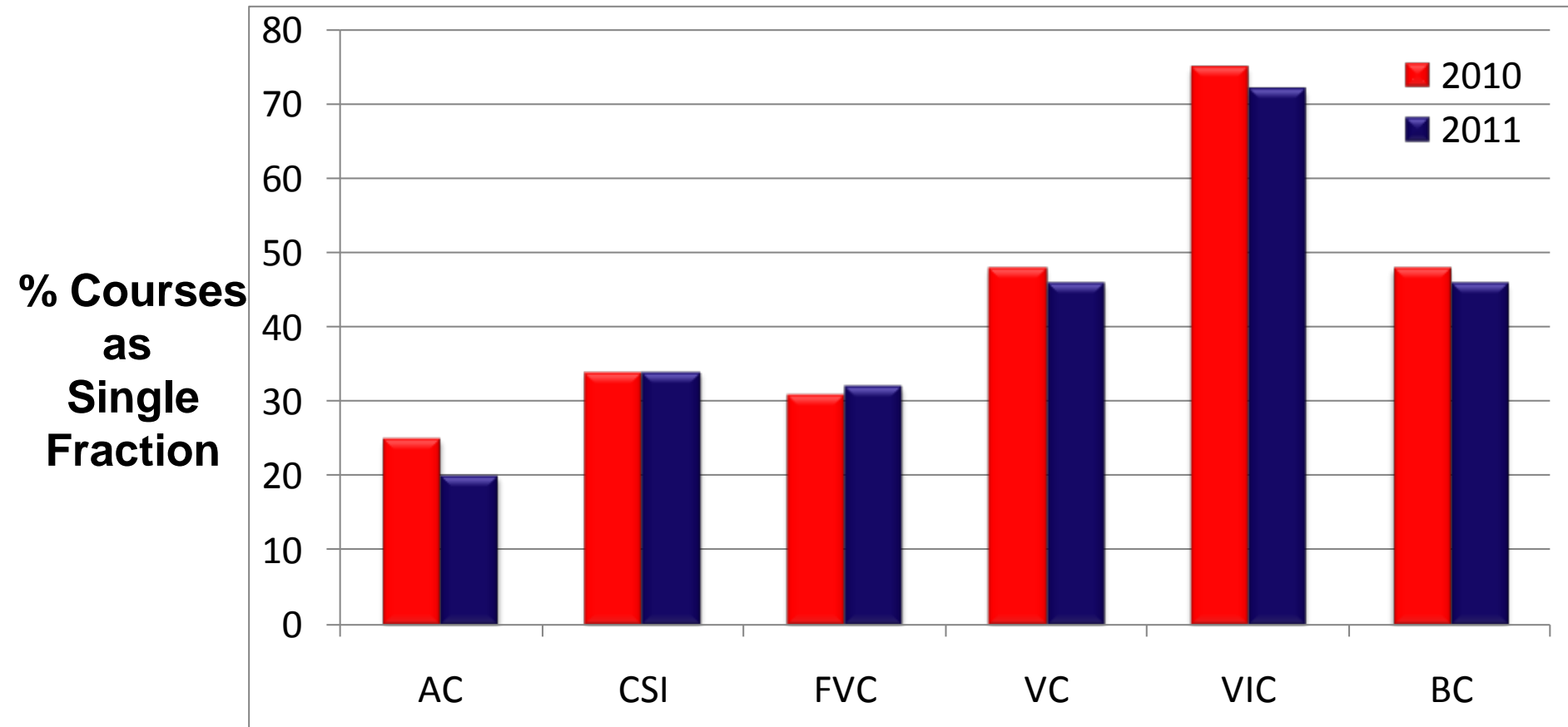


* Statistically significant difference in fractionation pattern by time to death, $p < 0.001$.

Background

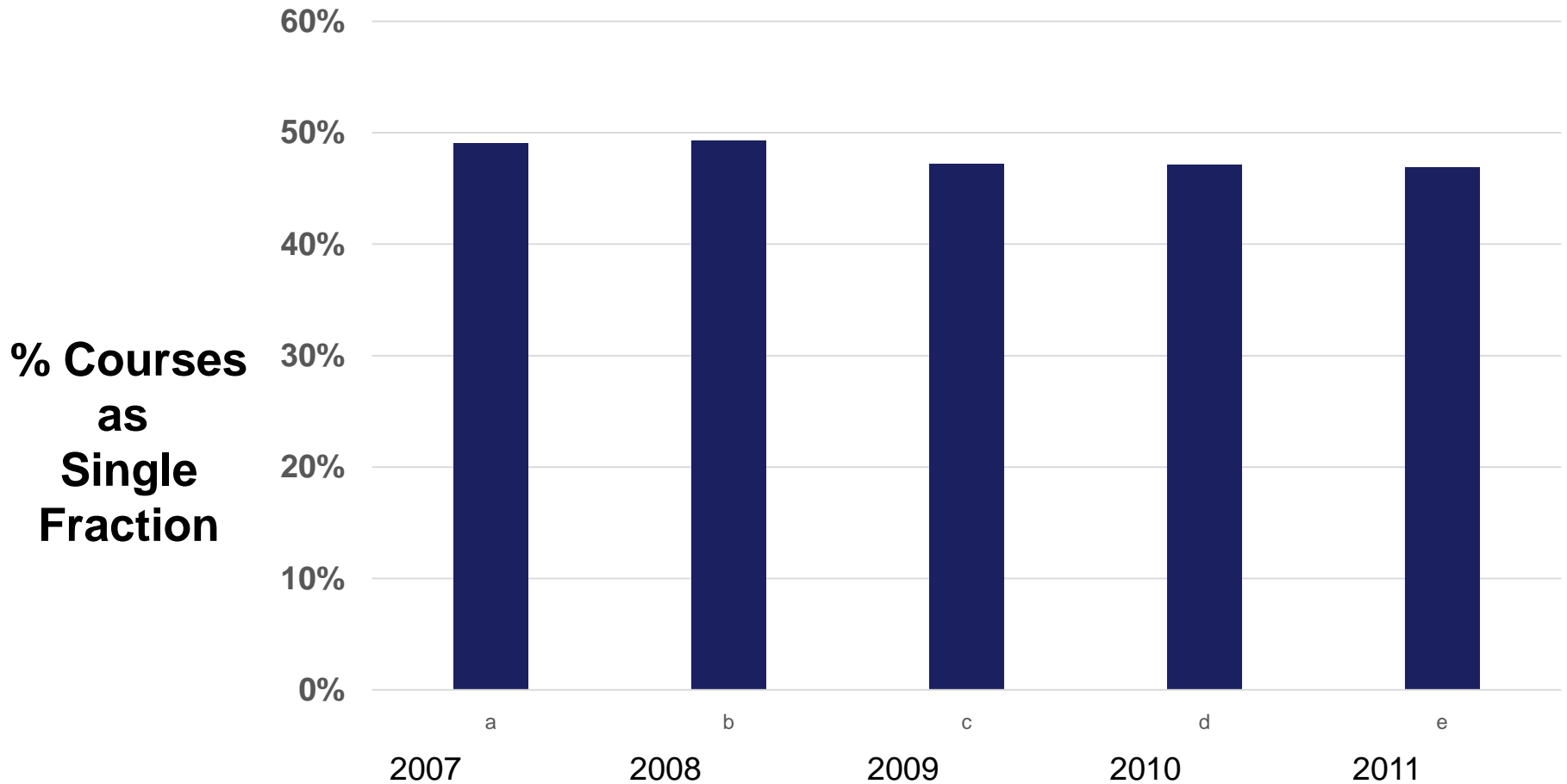
- MD and Treatment Center compensation models incentivize multi-fraction RT in many jurisdictions.
- But, in BC, Radiation Oncologists' compensation is independent of the number of courses, fractions per course or RT complexity prescribed by the Radiation Oncologist.
- Other factors (such as evidence) should drive decisions about the use of single vs. multiple fractions for bone metastases.
- Approximately 3500 courses of palliative RT for bone metastases are delivered annually in BC.

The use of Single Fraction RT for bone metastases varied by BCCA centre



*Approx. 3500 RT courses for bone metastases in BC in 2013
(2 extra or fewer fractions per course = 1 Linac capacity at 8hr/day)*

And, ... Single Fraction use declined from 2007 to 2011



Background

- To improve the use of Single Fraction RT for bone metastases, **in 2012**, the RT Program:
 - Examined utilization data from 2007 to 2011
 - Reported single fraction RT use variation to RT Leaders
 - Circulated BCCA variation data, Guideline statements and Meta-analysis publications to all BCCA Rad Oncs.
 - Convened a provincial discussion of the issue including presentation of intra- and inter-regional variation to which the majority of Radiation Oncologists (Dec 2012).
- Re-evaluated the use of Single Fraction RT use in 2013.

A selection of the Practice Variation data
shared
with BCCA Radiation Oncologists

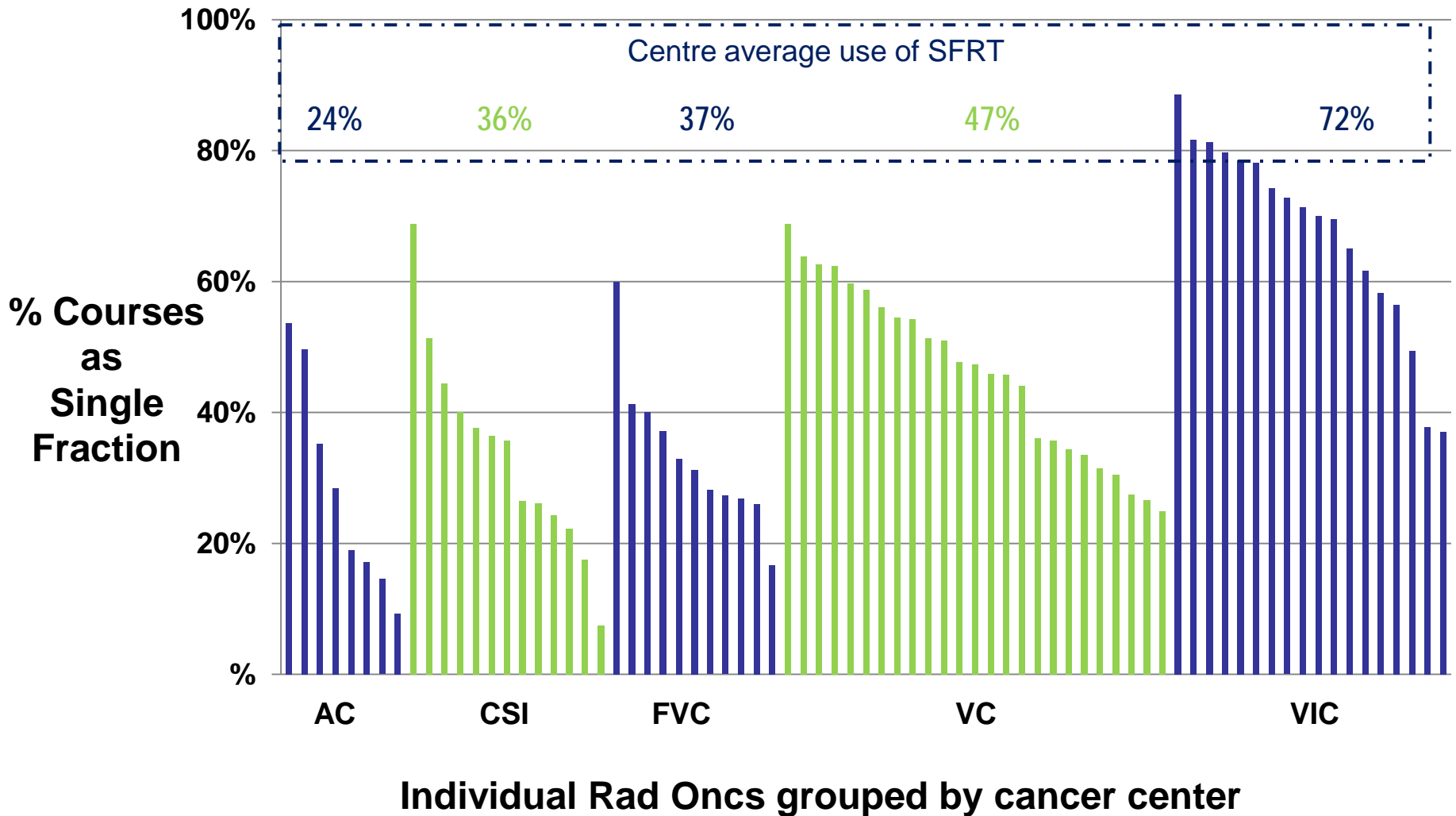


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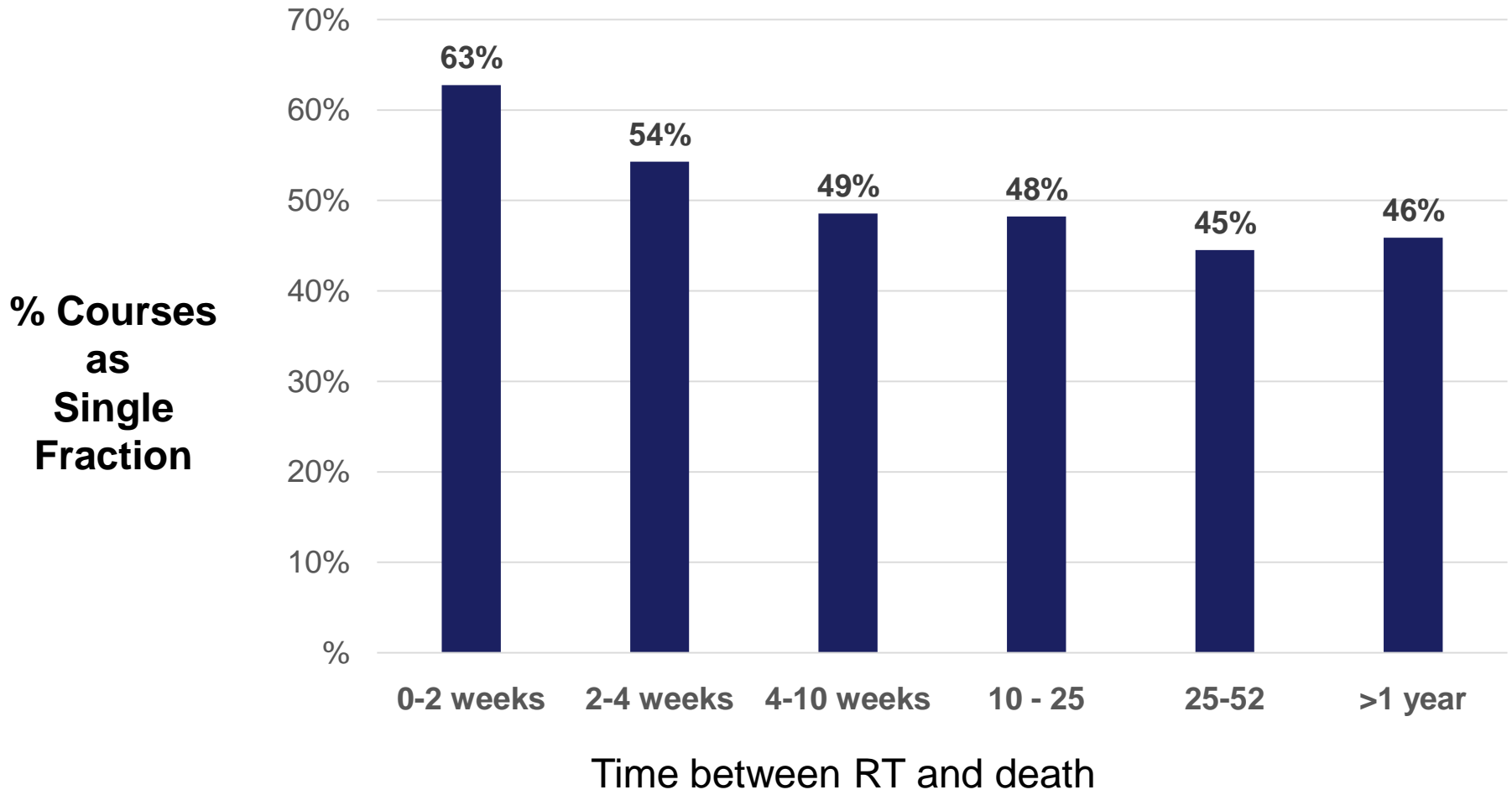
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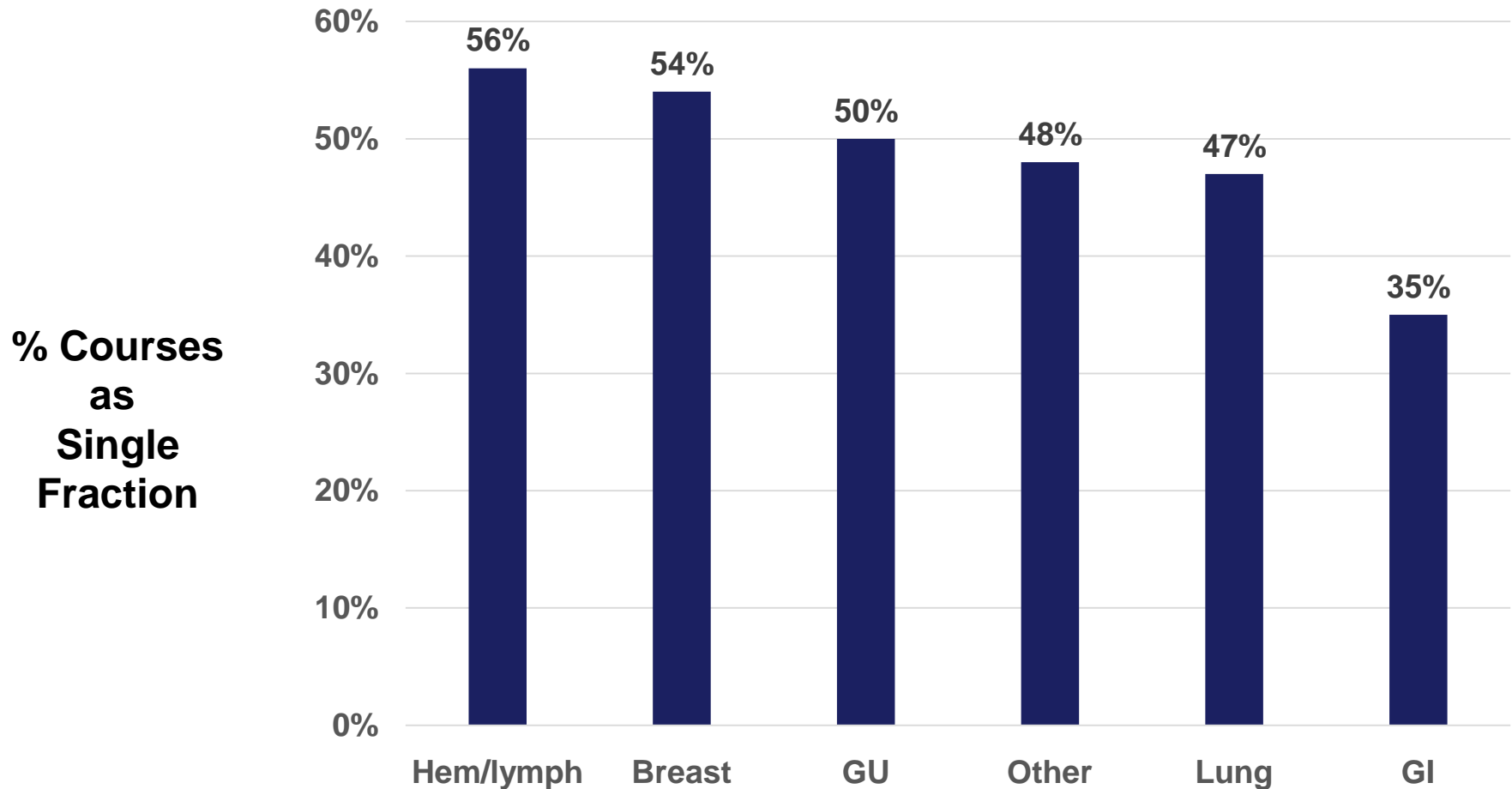
Single Fraction RT use varied between centres and also, substantially, within centres by physician



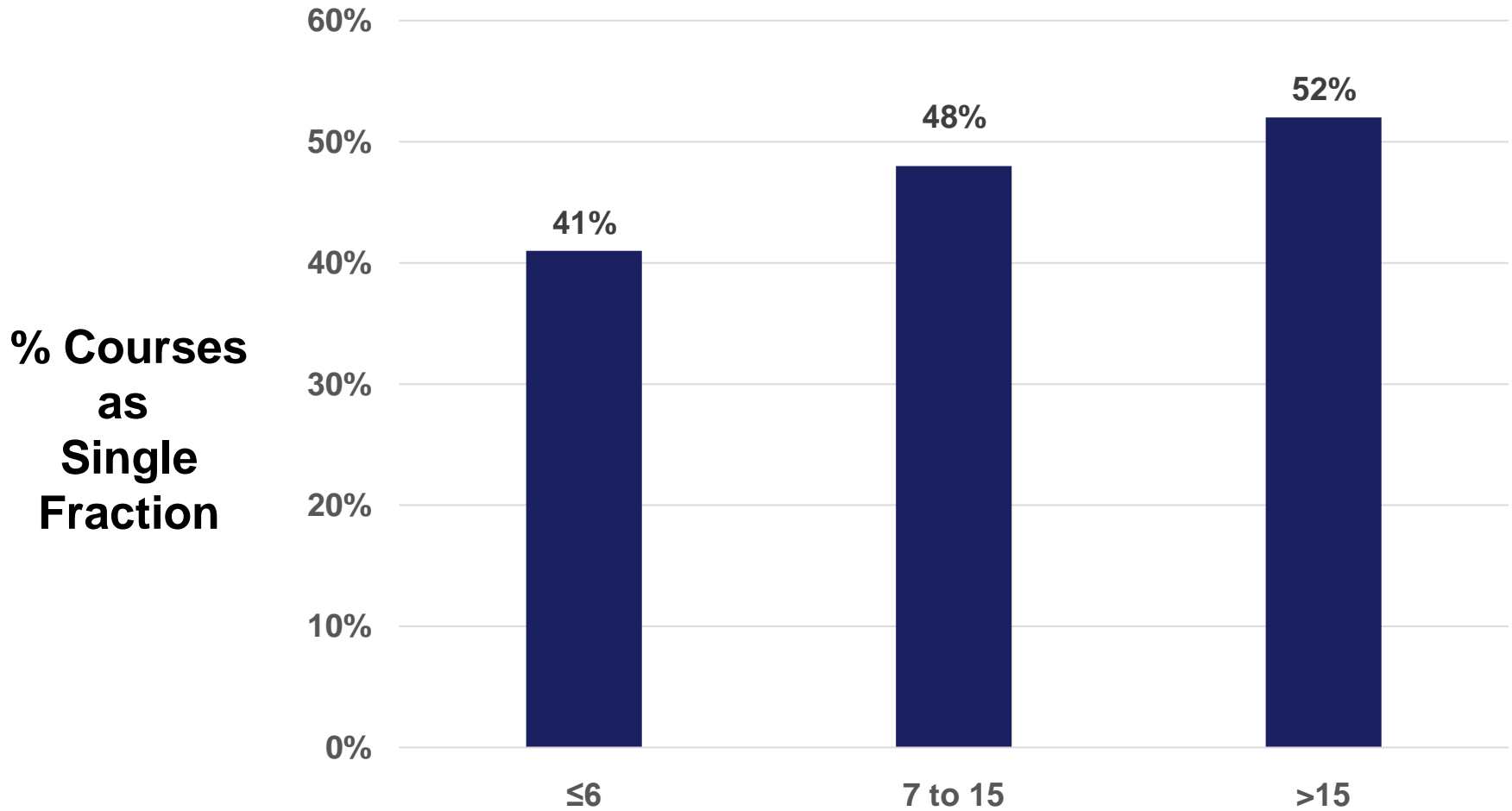
Use of Single Fractions was somewhat more common among patients dying within 2 weeks of RT !



Primary Tumour type was somewhat associated with the use of Single Fractions for Bone Metastases



Years since Certification was associated with the Use of Single Fractions



So, Did anything change in 2013 ?

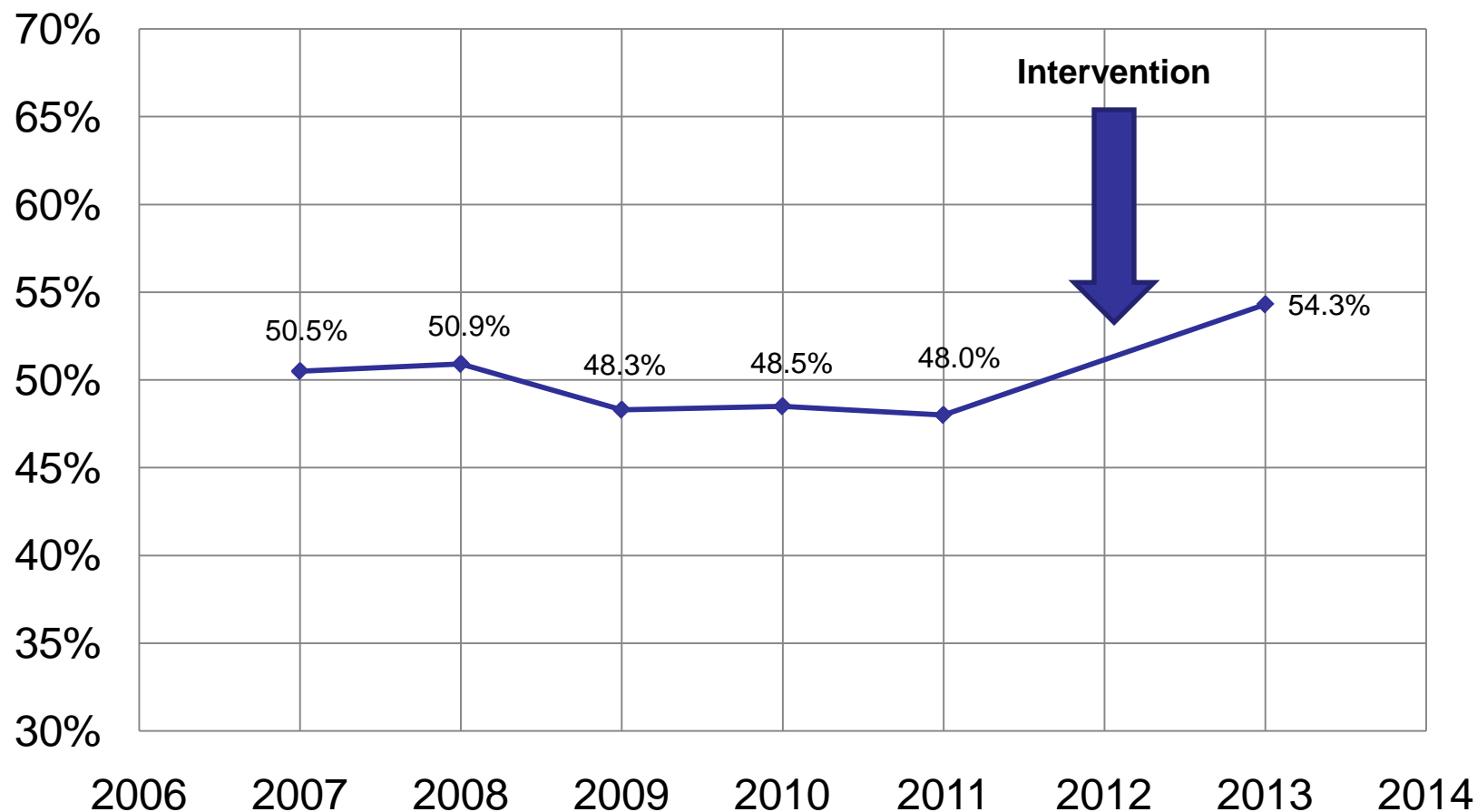


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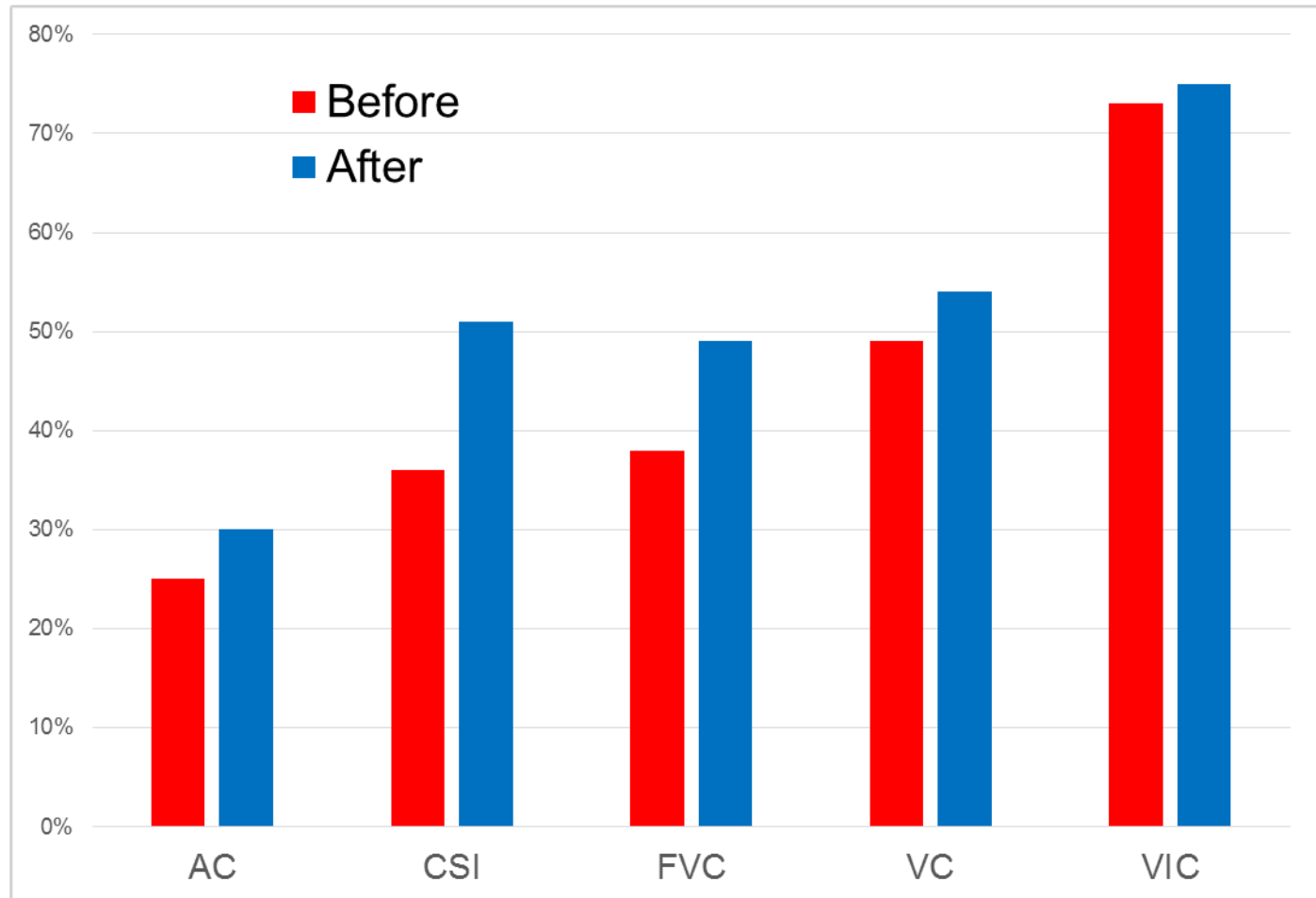
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A trend to less Single Fraction RT use was reversed in 2013



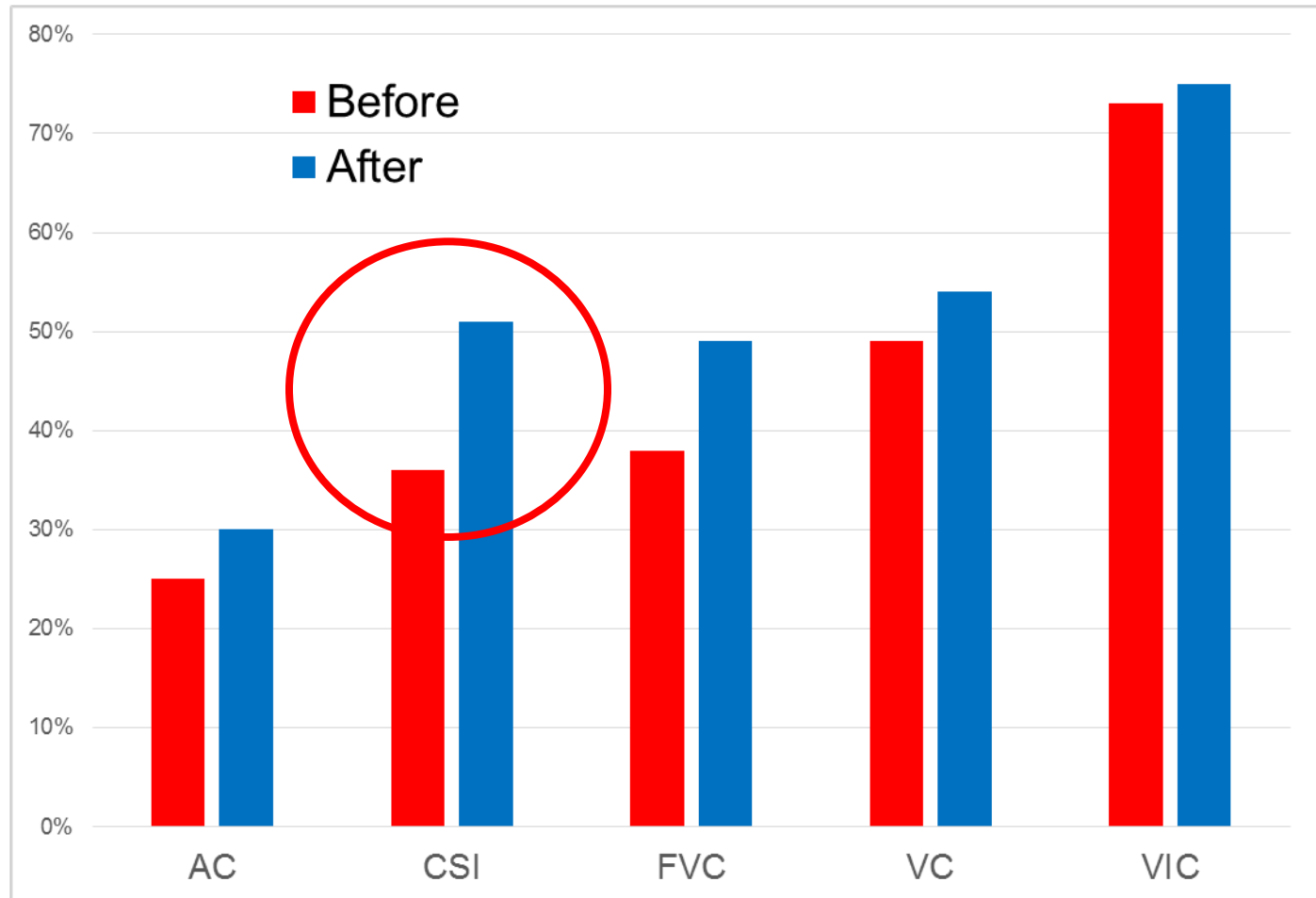
Single Fraction RT use increased in each centre, but variation persisted

**% Courses
as
Single
Fraction**



Additional targeted rounds were conducted in the centre with the largest change

% Courses as Single Fraction



Conclusions

- Dissemination of programmatic quality indicators can influence evidence-based practices.
- An education-based, non-coercive strategy to increase the use of single fraction RT for bone metastases had a modest, positive effect.
- Large variations in practice persisted between centres.
- The centre with the largest change in single fraction RT use had additional intra-centre discussions and rounds on the topic.