# 30 day mortality following adult palliative radiotherapy

**Descriptor:**

An audit tool, utilising routinely collected data, to assess early mortality in adult palliative radiotherapy and acknowledge the importance of fractionation, in order to reduce avoidable harm.

**Background:**

Palliative radiotherapy aims to relieve symptoms of advanced cancer. Excessive fractionation, in patients with limited survival, can be considered an avoidable harm given randomised evidence of equivalent symptom control following hypofractionated treatments. [1-3]  Clinicians must be vigilant to the risk of early mortality when prescribing palliative radiotherapy. Improving outcomes: A Strategy for Cancer [4] recommended the use of 30 day mortality in palliative radiotherapy as an indicator of avoidable harm. As clinicians are often unable to follow up all individual patients this audit aims to deliver early mortality feedback, in the context of fractionation, with a view to reducing avoidable harm in palliative radiotherapy.

## The Cycle

**The standard:**

No published standard exists. The treatment burden, in terms of time spent on treatment and toxicity, varies with fractionation. Even when survival is limited it is still realistic to expect many patients to gain symptom improvement after treatment. On this basis 30 day mortality should not be zero as this would deny many patients the potential benefits of appropriately hypofractionated palliative radiotherapy.  30 day mortality of below 20% has previously been recommended in the Royal College of Radiologists forum and consensus. This level is reasonable when the burden of treatment is minimal i.e. single fraction treatments but following fractionated treatment this level is excessive. In a large, single centre study of 14, 972 treatment episodes it was demonstrated that early mortality varies with fractionation. 30 day mortality for 1, 2-4, 5, 6-9 and 10 or more fraction treatments had 30 day mortality of 16.74%, 11.9%, 8.71%, 5.54% and 2.78% respectively. [5]  As such, a graded approach, acknowledging the variation in treatment burden with fractionation, is more appropriate.

**Target:**

Some variation in outcomes is inevitable, however if treatment pathways and standards are similar across the country outcomes should mirror this. Significantly lower early mortality should be seen with fractionated treatments than with single fraction treatments.

## Assess local practice

**Indicators:**

The proportion of patients dying within 30 days of commencing palliative radiotherapy.

**Data items to be collected:**

Radiotherapy intentFractionation – ideally both planned and delivered fractionationDate of start of radiotherapyDate of deathSite treatedPrimary diagnosis

**Suggested number:**

All patients treated within the centre over a 6 month period.

**Suggestions for change if target not met:**

Presentation and discussion of outcomes locally.Identification of specific areas of concern e.g. by diagnosis, fractionation pattern or site treated to allow review of local protocols if appropriate.Retrospective case note review of all patients dying within 14 days of a single fraction of radiotherapy and 30 days of a fractionated treatment. Assessing adherence to local protocols and considering appropriateness of fractionation approach taken.Assessment of waiting times within the centre. Any change in waiting times might be expected to impact upon 30 day mortality.Annual re-audit.

**Resources:**

Where possible audit of these outcomes should use data from treatment delivery systems and electronic records. In some centres this may need to be augmented by collection of diagnostic and mortality information separately, increasing the time required. This could be completed by trainees, consultants or treatment radiographers.When required, retrospective case note review has a greater time commitment and should be carried out in regular morbidity and mortality meetings by treating clinicians.

**References:**

1. Lutz ST, Chow EL, Hartsell WF, et al. A review of hypofractionated palliative radiotherapy. Cancer 2007;109(8):1462-70 doi: 10.1002/cncr.22555.
2. van der Linden YM, Steenland E, van Houwelingen HC, et al. Patients with a favourable prognosis are equally palliated with single and multiple fraction radiotherapy: results on survival in the Dutch Bone Metastasis Study. Radiotherapy and oncology : journal of the European Society for Therapeutic Radiology and Oncology 2006;78(3):245-53 doi: 10.1016/j.radonc.2006.02.007.
3. Lester JF, Macbeth FR, Toy E, et al. Palliative radiotherapy regimens for non-small cell lung cancer. The Cochrane database of systematic reviews 2006(4):CD002143 doi: 10.1002/14651858.CD002143.pub2.
4. DoH. Improving Outcomes: A Strategy for Cancer. Secondary Improving Outcomes: A Strategy for Cancer  2011. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213785/dh_123394.pdf>.
5. Spencer K, Morris E, Dugdale E, et al. 30 day mortality in adult palliative radiotherapy - A retrospective population based study of 14,972 treatment episodes. Radiotherapy and oncology : journal of the European Society for Therapeutic Radiology and Oncology 2015 doi: 10.1016/j.radonc.2015.03.023.

**Submitted by:**

Dr Katie Spencer FRCR

**Co-authors:**

Dr Eva Morris PhD

Dr Emma Dugdale FRCR

Dr Rob Turner FRCR

Prof David Sebag-Montefiore FRCR

Dr Geoff Hall PhD

Dr Adrian Crellin FRCR

**Published Date:**

Friday 29 May 2015

**Last Reviewed:**

Friday 18 May 2018