

Analysis of number of patients not having access to the radiotherapy they should have to treat their cancer

Question

How many patients are not receiving the benefit of radiotherapy (RT) per year for treatment of their cancer in the UK?

Background

Analysis by the [Marie Curie Foundation](#) based on *Atun et al 2015* estimated that if, by 2035, every cancer patient who needs radiotherapy had access to it, almost one million more lives would be saved every year worldwide. An assessment therefore was made as to how many patients in the UK do not have access to the radiotherapy they may need.

Methodology

Optimal Radiotherapy Utilisation (ORTU) based on published cancer statistics and recommended radiotherapy rates, and Actual Radiotherapy Utilisation (ARTU) based on published radiotherapy delivery data were compared. The gap between ORTU and ARTU provides a measure of the number of patients who may not be receiving the benefit of radiotherapy for their cancer.

Results

Data was assessed for England as data sets for England have recently become publicly available. Based on the most up to date published figures (2015-2016) from the [Office for National Statistics](#) there were 303,135 patients diagnosed with cancer each year in England.

Published international and national estimates on the percentage of cancer patients who should receive radiotherapy as part of their cancer treatment vary between 53–54.4% (*Borras et al, 2016*) and 50% (*Cancer Research UK and NHS England, 2014*). This means that an estimate of the **ORTU** in England per year for cancer is between 151,567 and 164,905 patients (50–54.4% of 303,135).

Based on published figures for the same period, 2015-2016 (Public Health England, 2017), the number of radiotherapy episode (persons) from England treated with radiotherapy in English radiotherapy centres was 133,117 with between 90–95% of these treatments for cancer. The **ARTU** per year for cancer on assessment from this data was 123,521.

This gap between ORTU and ARTU is therefore between 28,046 and 41,384 (151,567 minus 123,521 and 164,905 minus 123,521).

There are uncertainties about the true recommended radiotherapy rates, there will be regional population based differences in cancer rates and patient demographics, and some differences in clinical decision making and patient choice. Even accounting for these uncertainties and qualifications, it would appear likely that the gap between OTRU and ARTU is at least 20,000 patients per year as a conservative estimate.

Conclusions

Based on a conservative estimate and accounting for uncertainties it appears that at least 20,000 patients per year are not benefiting from radiotherapy in England.

Possible reasons for this gap between OTRU and ARTU may include; lack of public and professional awareness of the benefits of radiotherapy in all clinical circumstances and the technical advances and subsequent advantages of modern radiotherapy, difficulties with patient travel to radiotherapy centres ([smart-consult-public-consultation-report.pdf](#)), lack of highly trained staff and IT infrastructure, and a lack of commissioning and encouragement of use radiotherapy services. Lack of funding for radiotherapy and challenges in the organisation of such a rapidly developing highly technical multidisciplinary service therefore play a key role in 20,000 patients in England not benefiting from radiotherapy.

Figures for Wales, Scotland and Northern Ireland have not been derived directly from equivalent data bases. However, based on these results and extrapolation on a population basis suggest that nearly 24,000 patients per year in the UK do not have access to the radiotherapy they need to treat their cancer.

Acknowledgements: Thanks are due to the European Society for Radiotherapy and Oncology (ESTRO) and the Royal College of Radiologists (RCR) and individual professionals in the UK who provided advice on the methodology for this assessment.

Note: Assessment of how many patients are dying prematurely as a result of not having access to the radiotherapy they need is more difficult to estimate. CRUK estimate that 50% of patients survive cancer. Of those who are cured 40% will have needed radiotherapy, so 20% of patients receiving radiotherapy will need this treatment to be cured. It is however unknown how many patients not having access to radiotherapy are likely to be (i) cured of their cancer (ii) need radiotherapy to extend their cancer survival or (iii) need radiotherapy to improve their cancer symptoms. The highest figure of patients potentially dying prematurely would be between 5,609 -8,276 (20% of 28,046 and 41,384) in England but using the more conservative estimate the maximum figure is likely to be nearer 4,000 (20% of 20,000) in England and 4,800 (20% of 24,000) in the UK. However patients not accessing radiotherapy are less likely to be those potentially cured. Therefore an estimate of patients dying prematurely by either not having curative radiotherapy or palliative radiotherapy to extend their survival in the UK due to not having access to radiotherapy may be a few thousand. Further work will be required to determine this figure more accurately.

References

Atun R., Jaffray DA., Barton MB., (2015) Expanding global access to radiotherapy. *Lancet Oncology*. 16:1153–86. [https://doi-org.iclibezp1.cc.ic.ac.uk/10.1016/S1470-2045\(15\)00222-3](https://doi-org.iclibezp1.cc.ic.ac.uk/10.1016/S1470-2045(15)00222-3)

Borras JM., Lievens Y., Barton M., (2016) How many new cancer patients in Europe will require radiotherapy by 2025? An ESTRO-HERO analysis. *Radiotherapy and Oncology*. 119(1): 5-11. <https://doi.org/10.1016/j.radonc.2016.02.016>

Cancer Research UK and NHS England (2014) Vision for Radiotherapy 2014–2024. https://www.cancerresearchuk.org/sites/default/files/policy_feb2014_radiotherapy_vision2014-2024_final.pdf

Public Health England (2017) Radiotherapy activity across England. National Cancer Registration and Analysis Service (NCRAS). www.ncin.org.uk/view?rid=3426

Action Radiotherapy

Registered charity number: 1135902

April 2019

For further information please contact: info@actionradiotherapy.org

Website: www.actionradiotherapy.org