

# Manifesto for Radiotherapy

## Improving cancer survival with a modern world-class radiotherapy service

- **1 in 2** people in the UK now develop cancer at some point in their lives.
- By **2025**, the percentage of cancer patients needing radiotherapy as part of their treatment will have risen from the current **50% to 60%**.
- Only **5%** of the NHS cancer budget is spent on radiotherapy (£383 million a year). More investment in access to advanced modern radiotherapy will increase cancer survival.
- Only **£424 million** in the last 6 years has been spent on new advanced radiotherapy, compared with **£1.95 billion** spent on new cancer drugs.
- An increase from 5% to **6.5%** of the annual cancer budget would secure a world-class radiotherapy service for the UK.
- An additional one-off investment of **£250 million** would secure equal access for all radiotherapy patients over the next 10 years.

# Contents

1. What is radiotherapy?
2. The need for radiotherapy and improving access to radiotherapy
3. The vision for radiotherapy in the next 10 years
4. Current UK radiotherapy funding
5. How much money is needed?
6. Summary of funding use, acknowledgements and references

## What is radiotherapy?

Radiotherapy is a treatment used to kill cancer cells through aiming high-energy radiation at the tumour. Unlike chemotherapy, which impacts the entire body with chemicals, modern radiotherapy is accurate to within millimetres, limiting damage to healthy cells around the cancer. This makes radiotherapy useful for treating cancers in areas vulnerable to damage, allowing effective treatment of cancers, which would be practicably untreatable through surgery or chemotherapy.

There have been major breakthroughs in radiotherapy in the last 10 years with modern advanced radiotherapy being more precise, curing more patients and producing fewer side effects to the point where patients can often continue working normally during the course of their treatment.

**However, this advanced radiotherapy is not currently available across all the UK.**

## The need for radiotherapy

- **1 in 2** of us in the UK will develop cancer and **1 in 4** of us will undergo radiotherapy at some time in our lives.
- Radiotherapy is highly effective, improving survival rates in **16%** of cancer patients compared with only **2%** with chemotherapy<sup>1</sup>.
- With rising cancer rates due to obesity and ageing, radiotherapy need in the UK is expected to rise by up to **25%** by 2025<sup>2</sup>.
- UK cancer survival rates lag behind the European average in **9 out of 10** cancers. The UK has the **second worst survival rates** for lung cancer in Europe<sup>3</sup>. Modern advanced radiotherapy (e.g. stereotactic body radiotherapy, SBRT) improves survival rates in lung cancer. SBRT is needed to make effective use of new diagnostic tests and turn early detection into cures.
- If England achieved the best European cancer survival rates, **10,000** lives would be saved each year<sup>3</sup>.

## Improving access to radiotherapy

- Radiotherapy centres are unevenly distributed with varied access for patients across the UK<sup>4</sup>. Future planning must account for an ageing population.



Although needed in over **50%** of cases, access to radiotherapy in England varies from **25% to 49%** depending on the region, with the average around 38%<sup>1</sup>.

Patients want radiotherapy as close to home as possible. A CRUK survey showed that only 57% of the public would be willing to travel 'as far as possible' to get the best RT treatment<sup>5</sup>.

<sup>1</sup> Recommendations for achieving a world class radiotherapy service in the UK: Final report for Cancer Research UK. Cullen et al 2014

<sup>2</sup> How many new cancer patients in Europe will require radiotherapy by 2025? An ESTRO-HERO analysis. Borrás et al Radiother Oncol 2016; 119 (1): 5-11.

<sup>3</sup> National Cancer Action Team, 'Developing Key Messages on Cancer for Commissioners', www.ncin.org.uk/view?rid=942

<sup>4</sup> <https://www.england.nhs.uk/wp-content/uploads/2013/06/b01-radiotherapy.pdf>

<sup>5</sup> Cancer Research UK Response to NHS England's Consultation on Modernising Radiotherapy Services, January 2018.

## The vision for radiotherapy in the next 10 years

- Every patient will have access to the best **high-quality** radiotherapy for their individual cancer.
- The UK will develop a **world-class patient-first** radiotherapy service.
- The UK will have the **best survival rates in Europe**, not some of the worst.
- The UK will have and make full use of the best and most modern radiotherapy equipment, facilitated by a system of **funding that incentivises effective modern treatment**.
- An investment in IT connectivity will allow a transformational change in model of radiotherapy service so that every cancer patient will have access to a radiotherapy centre **as close to home as possible** to provide radiotherapy for the most common kinds of cancer within the recommended 45-minute travel time<sup>6</sup>.
- The NHS will have enough highly trained clinicians, radiographers, medical physicists and healthcare professionals with the right skills to deliver the best possible outcomes for patients.
- Modern advanced radiotherapy only costs **£3–4K per patient**. This relatively modest investment in radiotherapy will lead to significantly increased survival rates and a higher quality of life for people with cancer.

**The All Party Parliamentary Group for Radiotherapy in England seeks to act as the voice of radiotherapy to work with the government and NHS to realise our vision.**

6. National Radiotherapy Advisory Group (NRAG) recommendation

## Current UK radiotherapy funding

- Radiotherapy receives only 5% of the cancer treatment budget; so £383 million per year<sup>7</sup> (0.025% of the NHS budget).
- This compares with the cost of just one cancer drug. The NHS Herceptin budget (a drug used to treat **15-20%** of breast cancer patients) is **£160** million a year.
  - A recent UK trial<sup>8</sup> showed only 6 months, and not 12 months, of adjuvant Herceptin may be needed in adjacent therapy. Therefore, up to £80 million a year could potentially now be saved by the NHS, offsetting much of the additional radiotherapy cost.
- Radiotherapy accounts for 9% the cancer budget in Australia and 11% on average across Europe (includes outpatient funding)<sup>9</sup>. The UK already spends **20% less per cancer** patient than the European average<sup>2</sup>.
- NHS investment in advanced radiotherapy compares poorly with cancer drugs. Only **£424 million in the last 6 years** has gone towards radiotherapy<sup>10</sup>, with **£1.95 billion** spend on new cancer drugs<sup>11</sup>. Yet radiotherapy is clinically proven as the more effective form of curative cancer treatment<sup>1</sup>.
- Modern treatment **needs fewer patient visits to hospital** due to its increased effectiveness. The current funding system (tariff) for radiotherapy creates perverse incentives as to the best possible delivery of treatment for patients. NHS trusts **receive less income if patients attend less often**, thus removing incentives to introduce such modern advanced radiotherapy. Changing this perverse payment system would allow NHS Trusts to introduce newer, more effective radiotherapy, requiring fewer patient visits.

*'Radiotherapy is one of the most clinically and cost-effective treatments for cancer.'* – Jeremy Hunt, 2012

7. Social and General Statistics, House of Commons Library 2018

8. [http://abstracts.asco.org/214/AbstView\\_214\\_217191.html](http://abstracts.asco.org/214/AbstView_214_217191.html)

9. Economic burden of cancer across the European Union: a population-based cost analysis. Luengo-Fernandez et al Lancet Oncol 2013;14:1165-7

10. Written answer to WPQ 148715

11. <https://www.bmj.com/content/357/bmj.i2097> & <https://www.bmj.com/content/360/bmj.k461>

## How much money is needed?

- An estimated sustained additional **£100 million a year** is needed to catch up with and provide the advanced modern radiotherapy currently needed in the UK.
- With a **£250 million one-off investment**, the transformational change in the model of radiotherapy services in the UK that is need over the next 10 years can be provided.
- This is only an increase in the annual radiotherapy budget from **5% to 6.5%** of the cancer budget.

*'Investment in radiotherapy not only enables treatment of large numbers of cancer cases to save lives, but also brings positive economic benefits.'*<sup>11</sup> – Lancet Oncology

**Equipment:** a rolling programme is needed to ensure no radiotherapy machine is more than 10 years old. This will free up front-line staff from bureaucracy. Estimated costs excluding VAT below:

Machines cost £1.4–£1.8 million and on average £300,000 for IT licences and service contracts (stipulating 98% reliability). One machine can treat 5,000 patients in its 10-year life span. UK NHS has 285 radiotherapy machines: 5.2 per million population; the European average is 6–7 machines per million population. New machines allow precise personalised radiotherapy using adaptive therapy and future AI.

Enabling works can cost up to £500,000. IT and software upgrades for equipment can cost £200,000.

Treatment planning machines can cost £500,000 plus VAT and CT simulators approximately £1 million plus VAT.

**Next-generation equipment needed:** e.g. MR Linacs (currently only 2 in the UK) cost approximately £7 million.

**Work force:** sustained investment in highly trained multidisciplinary work force needed<sup>13</sup>.

Investment needed in quality assurance teams, planning posts (medical physics), therapeutic radiographers, consultant workforce (100% increase in new training posts recommended). Funding need to reinstate bursaries for radiographer training (1 of the 10 universities in 2018/2019 now not running its course due to reduced applicants) and incentives for maintained work force in less popular geographical areas.

**Transformative new model for networked centres to improve access to radiotherapy**

12. Expanding Global access to radiotherapy. Atun et al Lancet Oncol 2015;16:1153-86

13 Full Team ahead: understanding the UK non-surgical cancer treatments workforce CRUK 2017

## Summary of use of radiotherapy annual investment

**Capital costs:** to centrally fund rolling capital replacement budget (funding machines/enabling work/software) to ensure sustainable access to efficient modern radiotherapy machines for the years to come.

**Revenue costs:** to change the radiotherapy tariff to one based on the cancer treatment, not the number of visits to hospital: rewarding innovations and outcomes.

**Advanced radiotherapy:** to allow rapid, comprehensive implementation of modern advanced radiotherapy.

**Networking:** to transform IT connectivity investment to support an efficient multidisciplinary networked UK service.

**Work force:** to sustain and expand the current technically advanced and highly skilled work force

## Acknowledgements

This Manifesto arose from a Parliamentary reception in November 2017 hosted by Tim Farron, MP, supported by an industry partnership (Advamed); subsequent Westminster Hall debate in January 2018; round table meeting in April 2018 with stakeholders, radiotherapy professionals and interested charities; and formation of the APPGRT in May 2018: [www.actionradiotherapy.org/appg](http://www.actionradiotherapy.org/appg)

## References

1. Recommendations for achieving a world class radiotherapy service in the UK: Final report for Cancer Research UK. Cullen et al 2014 [http://www.tavinstitute.org/wp-content/uploads/2014/05/Tavistock\\_Projects\\_Recommendations-for-achieving-a-world-class-radiotherapy-service-in-the-UK-.pdf](http://www.tavinstitute.org/wp-content/uploads/2014/05/Tavistock_Projects_Recommendations-for-achieving-a-world-class-radiotherapy-service-in-the-UK-.pdf)
2. How many new cancer patients in Europe will require radiotherapy by 2025? An ESTRO-HERO analysis. Borras et al Radiother Oncol 2016; 119 (1): 5-11.
3. Comparator report on patients access to cancer medicines in Europe revisited-a UK perspective. IHE report 2017 <https://abpi.org.uk/about-us/resources/publications-library/comparator-report-on-patient-access-to-cancer-medicines-in-europe-revisited-a-uk-perspective/>
4. <https://www.england.nhs.uk/wp-content/uploads/2013/06/b01-radiotherapy.pdf>
5. Cancer Research UK Response to NHS England's Consultation on Modernising Radiotherapy Services, January 2018. [https://www.cancerresearchuk.org/sites/default/files/cruk\\_response\\_to\\_nhs\\_england\\_radiotherapy\\_service\\_review.pdf](https://www.cancerresearchuk.org/sites/default/files/cruk_response_to_nhs_england_radiotherapy_service_review.pdf)
6. [http://www.axrem.org.uk/wp-content/uploads/2016/07/RESOURCE-DH\\_Radiotherapy\\_developing\\_first\\_class\\_service\\_NRAG.pdf](http://www.axrem.org.uk/wp-content/uploads/2016/07/RESOURCE-DH_Radiotherapy_developing_first_class_service_NRAG.pdf) and referred to in [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/213151/Radiotherapy-Services-in-England-2012.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213151/Radiotherapy-Services-in-England-2012.pdf)
7. Social and General Statistics, House of Commons Library 2018
8. [http://abstracts.asco.org/214/AbstView\\_214\\_217191.html](http://abstracts.asco.org/214/AbstView_214_217191.html)
9. Economic burden of cancer across the European Union: a population-based cost analysis. Luengo-Fernandez et al Lancet Oncol 2013;14:1165-7
10. Written answer to WPQ 148715
11. <https://www.bmj.com/content/357/bmj.j2097> & <https://www.bmj.com/content/360/bmj.k461>
12. Expanding Global access to radiotherapy. Atun et al Lancet Oncol 2015;16:1153-86
13. Full Team ahead: understanding the UK non-surgical cancer treatments workforce December 2017 CRUK [https://www.cancerresearchuk.org/sites/default/files/full\\_team\\_ahead-full\\_report.pdf](https://www.cancerresearchuk.org/sites/default/files/full_team_ahead-full_report.pdf)