

Written evidence submitted by Professor Pat Price on behalf of Radiotherapy UK and the #CatchUpWithCancer campaign (ECS0028)

Executive Summary

The Government's commitments to improving cancer outcomes must be read in light of the fact that even **before the pandemic started the UK was at the bottom of the cancer league tables and it now faces a backlog of cancer patients the National Audit Office warns could be as high as 60,000 patients.** Cancer treatment also cannot wait; a 4-week delay in diagnosis and treatment can reduce survival by around 10%¹. The COVID induced cancer backlog is a cancer crisis that poses a huge obstacle to meeting any pre-pandemic ambitions to leave the bottom of the league tables. There is a huge risk our cancer services fall even further behind. The only way the NHS can catch up on these missing patients while also having the capacity to meet its Long-Term Plan aim of saving thousands of lives by detecting an extra 55,000 cancer patients by 2028, and treating patients faster, is by significantly **increasing the capacity of cancer diagnosis and treatment.** The Government has been clear about its plan for diagnostic hubs to increase diagnostic capacity and access. However, there is no sufficient plan to increase the capacity to treat and cure these patients. If we only succeed in diagnosing the patients and we have not invested in the capacity to treat them, then we have not saved the planned 55,000 cancer patients and failed to meet the commitment. We need to increase our treatment capacity if cancer services are to improve. This has not happened, and no realistic plan has been forthcoming, despite pleas, since the beginning of the pandemic.

The three main pillars of cancer treatment are surgery, chemotherapy and radiotherapy and they need to work together in harmony to improve cancer outcomes. However, they start at different levels of current capacity and have different needs to increase capacity. 1) Surgery needs bed, which means nurses and Trusts' priority and management of beds. 2) Chemotherapy and other systemic therapy, needs workforce expansion and funding of drugs. 3) Radiotherapy needs more innovative and radical thinking with investment as radiotherapy delivery involves a highly specialist unique technical workforce and equipment. Radiotherapy is needed in 50% of cancer patients and in 40% of cures and yet **radiotherapy cancer services have been systemically held back, underfunded and overlooked.** For a variety of reasons, the need to improve radiotherapy to meet Government commitments has simply not been prioritised in the way it should be. It is one of the cheapest treatments; a new machine costing £250K a year (the cost of some immunotherapy treatments for 3 or 4 patients) can treat 600-700 patients a year. In recognition of the underserved low priority the treatment has received in meeting Government objectives, the radiotherapy community has come together to present the solutions to these problems in a six point plan. However, the majority of the solutions proposed by the frontline experts in the services have been completely overlooked in current plans.

The COVID response should have increased the urgency to invest in radiotherapy, but it didn't. Instead funding decisions were delayed and radiotherapy services are a breaking point. Radiotherapy is the closest thing we have to a secret weapon to COVID proof cancer services. It can be delivered in a COVID secure outpatient setting and often patients are able to return to work the same day, does not impact the immune system as does chemotherapy and does not demand ITU or inpatient beds like surgery. And in many cases, particularly in lung and prostate cancer, it can substitute for surgery as curative treatment to bring down waiting lists. Therefore, radiotherapy is being internationally recognised as one of the most COVID secure cancer treatment.

This evidence submission will therefore focus on how Government commitments to improving radiotherapy are either not being met or fall woefully short of what is needed. This submission will also look at the specialist cancer workforce which too often is overlooked in NHS plans. There is a desperate shortage of the specialist radiotherapy workforce that includes clinical oncologists, medical physicists, engineers and therapeutic radiographers. There is also a shortage of equipment and IT, combined with bureaucratic restrictions and a lack of overall central national planning of an integrated efficient service. The amazing technological advances in radiotherapy in the last ten years and the value for money available makes expanding capacity and improving survival achievable with the right targeted investment.

Innovation and technology

Government commitment: *Safer and more precise treatments including advanced radiotherapy techniques and immunotherapies will continue to support improvements in survival rates.*

Radiotherapy is one of the three main pillars of cancer treatment, alongside surgery and chemotherapy. It is needed by 50% of cancer patients and in 4 in 10 cures. It is often delivered in conjunction with other treatments but is also a mainline/primary treatment for a number of cancers, particularly some of the common cancers that are targeted for early diagnosis such as lung and prostate. The UK will absolutely need to improve and expand its capacity in radiotherapy if the Government is to improve cancer outcomes in the country. There has been a technical revolution in radiotherapy in recent years, allowing it to deliver treatment with incredible accuracy, more safely than ever, in fewer treatment sessions, and increasing tumour control rates. With advances in remote planning, training and IT connectivity treatment it is now possible for treatment to be given closer to home if networked centres are developed. AI is available as well as cloud based workflow tools to radically increase efficiency and reduce the pressure on the workforce and improve quality. All this is available as off the shelf affordable solutions, but the current reluctance for/ignorance of change and modest investment needed means this simply has not happened in the UK. Radiotherapy can deliver on the Government's commitment to "safer more precise treatments", but this simply will not happen without radical changes in attitude to radiotherapy which bring modern technology and reinforces and expands the small but highly specialized workforce. Radiotherapy services have effectively been hollowed out and the most recent Radiotherapy UK workforce survey showed the service is on its kneesⁱⁱ. There is chronic underinvestment which means equipment is getting older, breaks down, ties up precious staff time and cannot deliver the best radiotherapy and therefore less safe. And perverse bureaucracy, in the form of tariffs and commissioning, restricts and prevents clinicians from using the most precise advanced techniques, even when they have the right equipment to do it.

We are not even meeting current commitments for radiotherapy. To achieve better cancer outcomes we need to go even further than these commitments. The high-level arguments for more investment in radiotherapy are:

- 1. Radiotherapy is a vital tool in our arsenal of cancer treatments.** As we diagnose more patients to meet the NHS Long-term plan commitments and as populations get older, the need for radiotherapy increases. The UK needs a world-class radiotherapy service if we are to deliver world-class cancer care. If we do increase the number of patients diagnosed at early stage, more radiotherapy will be needed as this is the curative treatment needed in so many.

2. **Radiotherapy is incredibly cost-effective.** Typically, the cost of a radiotherapy cure is between £3-£7k, a mere fraction of the costs of surgery and chemotherapy. Some immunotherapy treatments cost £100K a patient a year. Radiotherapy machines are expensive (approx. £2M each), but treat thousands of patients, last ten years and so cost in the region of £400 a patient. If the NHS were offered a chemotherapy drug that could treat 600-700 patients a year over 10 years for a cost of £250K a year it would be at the heart of Government and NHS cancer planning. But because of the way NHS budgets flow technologies do not feature in NHS plans in the way they should.
3. **Radiotherapy is remarkably COVID-resilient.** It does not affect the immune system as does chemotherapy and does not have the infection risk and ITU demands associated with surgery. And in many cases, it can be a substitute for surgery (lung, prostate, bladder cancer etc.).

We are not currently on track to meet Government commitments for safer more precise radiotherapy. There has been an institutional failure by the NHS leadership and successive Governments to understand and harness the potential of radiotherapy.

The problems in radiotherapy are numerous, but include:

We do not fund radiotherapy properly: In the UK we spend of the order of 5% of the cancer budget on radiotherapy, whereas other advanced economies spend up to 10% or more. This level of funding is barely enough to maintain the existing treatment capacity. Instead, aging equipment and a workforce crisis is leading to less capacity, not more. With a relatively modest investment of £850M over 3 years (just £283M a year), radiotherapy can secure a dramatic and guaranteed improvement in cancer survival. This is far less than the new cancer drugs fund ongoing investment and will cure patients.

Our equipment is out of date: Half of Trusts are having to use machines past their 10-year suggested life which has consequential reliability issues and inability to deliver modern radiotherapy according to FOIs by the Radiotherapy4Life campaignⁱⁱⁱ. The Government provided £130M in 2016 to replace Linear Accelerator radiotherapy machines over 10-years old but that was not enough funding and was spent by 2019; and only replaced 69 machines^{iv}. There are still as many as 63 machines out of date as of 2021, the latest £32M investment announced will only replace 17 of them and there are no current plans to increase the overall number of machines and capacity.

The NHS systematically ignores radiotherapy: The medical physicists that run radiotherapy services report fighting a constant uphill battle to make the case for funding and machine replacements. The commissioning of cancer services does not suit high-tech treatments like radiotherapy. To replace breaking down equipment or old equipment services are expected to be delivering 9,000 fractions (treatments) to raise a business case. But during a pandemic when we have seen referrals plummet and services are overstretched this prevents services from receiving the funding they need. The tariff is insufficient to provide funding for the replacement machines and now with the COVID pressures machine replacement business cases are routinely declined by Trusts. The tariff was put in place to fund machine replacements but this is not happening. There is a desperate need for a central rolling machine replacement program (like Scotland has) which will save money by bulk ordering deals, and save workforce time by allowing proper planning.

There is a lack of access: CRUK figures show that only 27% of UK cancer patients are given radiotherapy. This compares disastrously with the recommended international guidance which sets out that 53-60% of cancer patients should be given radiotherapy. This lack of access is reinforced by

the fact that 3.5m people in England do not have a radiotherapy centre within the recommended 45-minute travel time of their home. For example, 24% of curable lung cancer patients are not receiving any treatment when they would have benefitted from/be cured by radiotherapy (PHE audit 2019)

Health inequalities and travel times: 3.5 million people in England do not have a radiotherapy centre within the recommended 45-minute travel time from their home. Radical transformation in IT connectivity and cloud based solutions now allows for safe remote centres networked with larger centers. The NHS is also embarking on the roll-out of diagnostic hubs to bring diagnosis closer to people’s homes which is welcomed. But they should also be investing in radiotherapy treatments closer to people’s homes. If they considered putting radiotherapy treatment machines in a few of these centres they could have a dramatic impact on access to treatment and overall capacity.

Bureaucracy is holding back clinicians from delivering modern treatments: There are perverse tariffs and commissioning that mean even in centres that have more modern machines that can treat patients more quickly in fewer sessions, staff are not allowed to do so. Instead, historically they have had to treat less effectively over more sessions as the tariff generates income to the Trust based on the number of visits.

Workforce
Workforce <i>Government commitment: The Cancer Workforce Plan committed to the expansion of capacity and skills by 2021</i>

There are concerning workforce deficiencies in cancer services. The 2020 [Clinical Oncology Census](#) noted that 52% of cancer service leaders reported that workforce shortages have negatively impacted the quality of patient care. There is a lack of overall responsibility for funding extra training places in specialist roles. These roles are consistently shown by workforce studies to be far below recommended levels. There are significant problems in the specialist cancer workforce. Frontline cancer services report being unable to run their full suit of radiotherapy machines due to a lack of staff. Failure to invest in up to date equipment and IT means the existing workforce is unable to make up for this lack of numbers through remote planning.

A survey run by the charity Radiotherapy UK and the Institute of Physics and Engineering in Medicine warned that vital radiotherapy cancer services were at breaking point. There was no confidence in existing plans to improve cancer services and was a morale sapping feeling that the radiotherapy workforce was treated as an after thought in Government planning. The workforce feel that even if there is a plan for cancer they will be forgotten. This is underlined by the fact 79% of radiotherapy professionals responded that they, or someone they knew, were considering leaving the radiotherapy sector.

We estimate that an investment is needed to address the estimated 20% workforce shortfall in the specialist multidisciplinary workforce.

Conclusion

The pandemic exposed the weaknesses in our cancer services and in particular the lack of progress made to deliver the world-class radiotherapy service the country needs. There is much discussion about investment in diagnostics, and this is welcome. But without substantial investment in cancer treatments, radiotherapy in particular, we will not meet Government objectives of improving cancer outcomes.

References

ⁱ Hanna TP, King WD, Thibodeau S, et al. Mortality due to cancer treatment delay: systematic review and meta-analysis. *BMJ* 2020; 371: m4087.

ⁱⁱ Radiotherapy UK workforce survey 2021 - https://ebf9be9c-890d-4dca-b67e-2c40c584e614.filesusr.com/ugd/09a4f7_0a863b1383a94e42a39ccd7ecd65bd0f.pdf

ⁱⁱⁱ <https://radiotherapy.org.uk/professionals/info-guidance/research/>

^{iv} <https://questions-statements.parliament.uk/written-questions/detail/2019-03-08/230081>

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