The Christie Proton Beam Therapy Centre
A Success Story – Lucy Thomas

Dad Stuart says: “One of the major benefits of Proton Beam Therapy is that the beam stops when it hits the tumour and causes much less damage to the surrounding healthy tissue.

“Going to the USA was confusing for Lucy. They have a different health system and work in different ways which is hard to explain to a poorly six year old. It would have been much easier for Lucy if this treatment had been available in Manchester.

“Owen also missed around eight weeks of school, so having to go to America for the Proton Beam Therapy really hit us all. Being away was upsetting for the whole family, and we felt cut off from our extended family and close friends.”

Mum Caroline adds: “It would be fantastic to know that Proton Beam Therapy is finally coming to the UK. It will give more children like Lucy the opportunity to have this form of treatment, as not every family is as fortunate as us to be able to move to America for three months.”

Lucy’s treatment appears to have been successful. Now 8 years old, she has taken up piano lessons, enjoys going to Brownies with her friends and has rediscovered a love for swimming.
Establishing a national proton beam therapy service

Proton Beam Therapy is a rapidly expanding therapy across the world with centres in North America, Continental Europe, Asia and Africa.

The Government has pledged £250m to build two new PBT centres in the UK. The Christie has been chosen as one of the sites, the other is University College London Hospitals NHS Foundation Trust (UCLH).

The Christie and UCLH are developing proposals to deliver a National PBT service in the UK, so that patients throughout the country can benefit.

At The Christie we anticipate that up to 750 patients will benefit from PBT each year from 2018.

The Department of Health and Treasury approval is anticipated in Summer 2015.

Current referral system for NHS patients

The NHS has a service for patients eligible for proton beam therapy (PBT) to travel abroad for treatment, often to the USA. This will allow for up to 400 patients to benefit from Proton beam therapy per year.

In the UK there are around 1,500 patients who would benefit from PBT, but most do not receive it due to the cost, or being unable to travel abroad for the therapy.

Partnership working

We are working closely with UCLH to develop a national proton beam therapy service.

The national service will co-ordinate referrals, share best practice on patient treatment, co-ordinate training and audit clinical outcomes to ensure that patients are getting the best possible service and that PBT is delivering value for money.

Referrals for PBT will be received from other cancer centres across the country and the national service will work closely with them to ensure that patients get the best possible treatment before and after their PBT treatment.

Distance of travel (hours) from the proposed PBT centres in London and Manchester.
Radiotherapy treats cancer by damaging the cancer cells, meaning they can no longer multiply and will die. But the beams don’t discriminate between cancerous and normal tissue, and can cause side effects by destroying healthy cells in their path.

Although advances in technology mean doctors can now target radiotherapy ever more precisely to match the shape and size of a patient’s tumour, no matter how advanced the techniques get, one problem with x-ray radiotherapy remains – once the beams have entered a person’s body, they keep going. Although the radiation beams are focused on a tumour, there will inevitably be some potential damage, leading to short or long-term side effects.

It can be particularly harmful for children, especially those being treated for brain tumours, as their bodies are still developing and they’re more susceptible to the effects of radiation. They’re also more at risk of developing a second cancer later in life, caused by their early exposure to radiation.

Proton Beam Therapy
One way to avoid these problems is to treat tumours with a beam of protons, rather than x-rays. Protons are positively charged tiny particles that can be generated and focused into beams in a controlled way.

Like regular radiotherapy treatment, proton beam therapy damages cancer cells in the same way, so that they die. But unlike x-ray beams, proton beams stop once they hit their target, rather than carrying on through the body.

This cuts the chances of damaging the surrounding tissues, reducing side effects – something that’s especially important if you’re dealing with a small child’s developing brain and body.
Proton beam therapy is a specialist form of radiotherapy that targets certain cancers very precisely, increasing success rates and reducing side-effects. It targets tumours with less damage to surrounding healthy tissue and is particularly appropriate for certain cancers in children who are at risk of lasting damage to organs that are still growing.

Because it is more accurate, proton beam therapy can also treat tumours in hard to reach places – such as the base of the skull or the brain, eye or spine. It has higher success rates, reduced side-effects and quicker recovery.

Currently the NHS has to send children and adults needing proton beam therapy to the United States and Switzerland.

The Government has now pledged £250m to build two new proton beam therapy centres in the UK. The Christie has been chosen as one of the sites, the other is University College London Hospitals NHS Foundation Trust.

Over the last century, The Christie radiotherapy department has pioneered many advances in radiotherapy.

It already leads in advanced radiotherapy, delivering more complex treatments than any other centre in the country. The introduction of proton beam therapy will allow it to continue to make advances in this area and improve patient treatment and care.

The Christie Proton Beam Therapy Centre is due to open in 2018 and will treat up to 750 patients a year at full capacity.

What will Proton Beam Therapy mean for patients?

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