



## **HOW SURE HAS HELPED THE BEACON CENTRE RADIOTHERAPY SERVICE**

SURE's fundraising activities for the Beacon Centre started long before it opened in May 2009, when we pledged to buy a CT simulator for the Radiotherapy Department. This special type of CT scanner (with sophisticated software) takes clear pictures allowing doctors to define the parts of the body that need radiotherapy and, equally important, the parts of the body that the radiation beams must avoid.

Since this time, SURE has constantly supported the development of the Beacon Centre radiotherapy service for small and large projects.

### **1) Opening the centre (May 2009)**

As well as providing the CT simulator and software, SURE provided a number of essential pieces of equipment to help bring the treatment machines (linear accelerators) into clinical use and ensure that they are functioning correctly. Other essential pieces of equipment were Patient Positioning Devices, made from carbon fibre, which ensure that patients can be treated in exactly the same position each day and a software set called Radcalc which allow checking that the doses planned for each patient were correct.

### **2) Superficial X-Ray Unit/ Mould Room**

Long before the Beacon Centre was built, Musgrove Park Hospital could treat some types of skin cancer with a special machine called a superficial x-ray unit. SURE paid for repair work following a major breakdown in 2010 and funded a replacement unit in 2011. In 2012, SURE funded a Mould Room for The Beacon Centre which is used to make treatment shells for patients having head and neck radiotherapy as well as other important accessories for the treatment. The availability of this facility meant that patients from Taunton no longer have to travel to Bristol or Exeter for head and neck radiotherapy.

### **3) Intensity Modulated Radiotherapy/Image Guided Radiotherapy**

In 2012, SURE funded the purchase of two large computer systems, with very specialised software to plan treatments with what are known as "bendy x-rays". Using these systems enables treatments to give high doses of radiation to cancers but reduce the risk of some side effects by bending x-rays around normal tissues. In 2013 SURE provided a significant contribution to a Synergy unit, which takes high quality pictures of the patient while undergoing treatment to check that the patient is in the correct position and that the radiation is going exactly where wanted. This is known as Image Guided Radiotherapy (IGRT).

### **4) Current and future developments:**

In 2014 SURE have agreed to fund an upgrade to the CT simulator to allow treatment planners to see things more clearly if a patient has any metal implants near to the part of the body that needs radiotherapy. This software is called OMAR (Orthopaedic Metal Artefact Reduction).

The Beacon Centre is aiming to start some patients with what is known as Stereotactic Radiotherapy (SABR) by the end of 2014 where very high doses of radiation can be given to very small tumours. This technique is currently only used for patients with very small lung tumours. The first step is to be able to locate the tumour very accurately on the CT simulator and SURE have provided equipment and software to enable tracking of the movement of lung tumours during breathing so this can be accounted for in the treatment. This is called 4D-CT and it started clinical use in March 2014.