

# NPL unveils new equipment to make cancer treatment safer

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A new piece of medical technology unveiled at the National Physical Laboratory (NPL) today will help improve the success rates of radiotherapy cancer treatments. The new clinical electron linear accelerator (linac) will help ensure patients are treated with accurate doses of radiation.

Radiotherapy treats cancer, by using ionising radiation such as high-energy X-rays or electron beams, to destroy cancer cells. Every hospital needs to ensure that its radiotherapy equipment is stable and accurate because delivering correct radiation doses is critical. If the dose is too low, the cancer may continue to grow. If it is too high, healthy tissue could be damaged.

NPL's new clinical linac's ability to provide highly stable beams and accurate doses will enable calibrations with smaller uncertainties. This will allow hospitals to deliver more accurate, and more effective, radiation doses to cancer patients.

The new facility helps the UK respond to a recent report from the National Radiotherapy Advisory Group (NRAG) which states that the UK has a huge gap between the number of people treated with radiotherapy and optimal treatment levels. The number of people treated is increasing by 100,000 per year but this is still far short of the number of treatments required. The aging population means that more people than ever will require radiotherapy treatment in the future and a 91% increase in activity is needed by 2016 to hit targets.

One of the benefits of the new linac is that it will greatly speed up the calibration process.

"The linac will vastly reduce the time it takes to calibrate equipment. Its new technology allows it to calibrate the full range of beam qualities currently in therapeutic use in the UK in a very short period of time," says Acting Managing Director of NPL Dr Martyn Sene.

Professor Mike Richards, the National Clinical Director for Cancer at the Department of Health stressed the importance of the facility today.

"The new linac at the National Physical Laboratory is an important step forward in the fight against cancer. Hospitals can now be confident that their radiotherapy instruments will be calibrated more accurately and efficiently than ever before."

NPL's new clinical linac is a £1.5 million government-funded investment. It will allow NPL scientists to calibrate hospital equipment against the UK's primary standard of absorbed dose using beams of ionising radiation identical to those used in hospitals. It has been manufactured and installed by Elekta, a UK-based supplier of radiotherapy linacs.

Source: National Physical Laboratory

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