July 2012

Policy Statement

Radiotherapy: equipment

This policy statement aims to provide an overview of Cancer Research UK’s position on radiotherapy equipment. It is one of a number of policy statements on radiotherapy which explore different issues in detail.

Background

Radiotherapy is delivered by machines called linear accelerators (‘linacs’). They have a finite working life expectancy which depends on their hours of clinical use. For example, a linac being used for 40 hours per week can be expected to have a working life of between 10-12 years. This means that local radiotherapy services must plan to maintain existing numbers of linacs. As the population ages and incidence of cancer rises, more linacs will be needed to meet the increased demand for radiotherapy.

The full dose of radiation is usually divided into many smaller doses called ‘fractions’. In 2010 over 1.5million fractions were delivered from 230 fully operational linacs. This is a 43% increase in the fractions delivered over a ten-year period and a 55% increase in the number of linacs.

A 2010 questionnaire of radiotherapy centres\(^1\) showed that there are plans in place to increase the number of linacs operational by 2016 by between 46-50 machines. This will increase the number available in England to 296. Of these additional linacs 10-14 will be installed in seven or eight new satellite or linked services.

The 2007 NRAG report identified a need for 90 additional linacs.\(^2\) In addition the age profile for linacs in England means that between 6 and 35 linacs will need to be replaced each year.\(^3\)

Increasing capacity

We welcome the 2010 *Improving Outcomes: Strategy for Cancer (IOSC)*\(^4\) commitment to provide additional resources to increase capacity within the service.

In the light of uncertainty around demand for radiotherapy, we urge the Government to develop a new plan setting out more up-to-date demand modelling (or confirmation that the 2007 work still stands), and a dedicated national plan for central and local investment in ensuring capacity is where it should be to meet demand.

Planning for the future

Local radiotherapy services will also need to develop a dedicated plan for replacing existing linacs as they reach the end of their working life. We urge the Government and local radiotherapy services to ensure that such plans are in place. Best practice suggests that radiotherapy centres should have some spare capacity for emergencies, in the case of machine breakdown, and this should be reflected in the planning process.
Such plans should consider additional national investment for more specialised radiotherapy equipment. Although the vast majority of linacs in England are IMRT compatible,\(^5\) investment in imaging equipment to support four-dimensional (4D) planning for IGRT is needed. Following increasing evidence for the use of stereotactic radiosurgery for head and neck cancers, and stereotactic body radiotherapy for lung and other cancers,\(^6\) the Department of Health should make recommendations on the number and appropriate location of these new facilities across the UK.

We also strongly welcome the recent Government announcement to develop proton beam facilities in England by 2017. There is an increasing demand for proton therapy and patients currently have to travel abroad for treatment. We urge the Government to ensure that, upon introducing proton beam facilities, plans are in place to replace equipment as required.

For more information, please contact Cancer Research UK’s Policy and Public Affairs team on 020 3469 8360 or publicaffairs@cancer.org.uk.

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\(^3\) Ibid.
\(^4\) Department of Health 2010 Improving Outcomes: a strategy for cancer.
\(^6\) Department of Health 2011 Guidance to commissioners on stereotactic body radiotherapy.