COMMENTARY

The launch of the first UK charity devoted to radiotherapy: ACORRN — Action Radiotherapy

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ABSTRACT. The Academic Clinical Oncology and Radiobiology Research Network (ACORRN) was set up to support research and development in radiotherapy in the UK. This innovative networking initiative was launched initially by the National Cancer Research Institute in 2005 to harness the power of the radiation research base in the UK. Through an interactive website a co-ordinated network of multidisciplinary radiation researchers has been established. The network has developed to a stage where it can be self-funding and dedicated to improving radiotherapy for cancer. A patient interactive section and extended support for service development will ensure that anyone treated in the UK will have immediate access to the best knowledge in the country. This provides a solution for cost-effectiveness and future improvement of cancer care and is seen as a new model to support healthcare development and delivery. The charity ACORRN — Action Radiotherapy aims to support radiotherapy research and development and was launched in the House of Lords in July 2010.

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On 13th July 2010 a reception was held at the House of Lords to launch the first UK charity devoted to radiotherapy research and development: Academic Clinical Oncology and Radiobiology Research Network (ACORRN) — Action Radiotherapy. It was attended by representatives from all the groups devoted to radiotherapy development including the British Institute of Radiology (BIR), Institute of Physics and Engineering in Medicine (IPEM), Royal College of Radiologists (RCR), Society of Radiographers (SoR), Association for Radiation Research (ARR), Cancer Research UK (CRUK), Cancer Action Team, Health Protection Agency (HPA), the private sector, members of the House of Commons and House of Lords and many of the great and the good in the field. Professor Norman Coleman of the National Institutes of Health in the USA, Chief Scientific Advisor to ACORRN, spoke at the launch [1]. The occasion marked the official launch of the charity, the launch of the new website, the announcement of our first grants to members and an opportunity to inform the new coalition government of the importance of radiotherapy and how ACORRN can assist and support the delivery of cancer care and research in the UK.

The challenges for service development of radiotherapy in the UK

One in three people develop cancer at some time in their lifetime. Of those who get cancer, 50% will receive

radiotherapy at some point in their treatment and of those cured of cancer, 40% will have received radiotherapy [2]. Radiotherapy is effective and inexpensive compared with some cancer treatments and second only to surgery in its potential to cure cancer. Even small improvements in how radiotherapy is delivered could lead to large increases in the number of patients cured, and improve palliative treatment for others [3].

Until the 1980s the UK was seen as the international radiotherapy leader and provided training to many around the world. However, the UK lost its lead in the 80s and 90s. This was mainly because of expectation that the magic bullet of chemotherapy would replace radiotherapy for the treatment of many cancers. Although involvement from “big pharma” led to some advances, it was at the expense of losing our focus on radiotherapy. Radiotherapy research has declined since the mid-1980s, especially in the UK. Recent advances in technical radiotherapy (intensity modulated radiotherapy (IMRT), image-guided radiotherapy (IGRT) and particle therapy) and the combination of radiotherapy with chemotherapy has led to a resurgence of recognition for the importance of radiotherapy in cancer management. However, this has come at a time when, in the UK, the radiotherapy research field finds itself depleted and demoralised. Only 6% of cancer research funding in the UK is devoted to radiation research [4]. To compete for funding, we need to expand our academic expertise and develop our leading international researchers.

Radiotherapy- and radiobiology-related research has many challenges. There is no endpoint product to be bottled and sold to attract commercial funding by the

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projection of big shareholder profits. If radiotherapy improvements were a drug and we could package it, large profits could be generated and our funding problems would be over. However, radiotherapy improvements are about how we can best deliver treatment, which needs multidisciplinary development, and is generally obtained without the benefit of big pharma support. Of course, with the increasing interest in mixed modality treatment, pharmaceutical companies are starting to take an interest in radiotherapy and it is important that we ensure the best available radiation techniques are used with promising new drugs.

The introduction of innovative new radiotherapy techniques in the UK lags behind that in many European countries and the USA. Now we are at a time when rapid advances are being made in the technical delivery of radiotherapy and combining new molecularly targeted agents with radiation. Many patients in the UK do not have access to state-of-the-art treatment, and yet the demand for radiotherapy services is predicted to increase by 91% from the 2007 levels by the year 2016 [5].

Response of government

The previous government made considerable successful efforts to improve cancer care, including the appointment of a National Cancer Director who has, superbly, kept cancer on the forefront of the government agenda. Waiting lists were reduced by introducing treatment time targets, huge investments in radiotherapy machines were made by setting up the National Radiotherapy Advisory Group and the Cancer Action Team, as well as many other important developments. All these actions are helping the UK "catch-up" with other countries. The National Cancer Research Institute (NCRI) was set-up in 2001 to develop common plans for cancer research and to avoid unnecessary duplication of effort. The NCRI was instrumental in co-ordinating the development of the Gray Institute for Radiation Oncology and Biology in Oxford, supporting the set-up of ACORRN and more recently setting up the NCRI Clinical and Translational Radiotherapy Research Working Group (CTRad). CTRad is now working hard to develop and raise the profile of radiotherapy-related research and has recently held a number of well-attended events aimed at engaging and re-energising the radiotherapy community. The investment in UK clinical trials has also been remarkable. This is helping to re-establish the UK as internationally competitive and a leader in radiotherapy clinical trials with, renowned quality assurance programmes and practice-changing radiotherapy protocols, which have contributed to step changes in radiotherapy treatment delivery.

The UK radiotherapy workforce has worked well together in the past by co-ordinating the different support each one offers. However, there are still gaps and deficiencies that need to be addressed to maximise the investment already made. There is still a lack of radiotherapy and radiobiology researchers in the UK and a recent reduction in the, already perilously low, levels of academic departments in the UK has been experienced. The level of overall research funding received is critically low at 6%. The current range of UK research funding,

although fairly comprehensive, is not well suited to the needs of technical radiotherapy developments within a highly specialised area, with its diverse needs of multi-disciplinary working and the development and implementation of new technology equitably across the UK. Radiotherapy and radiobiology research is not an attractive area for junior doctors and scientists who see the lack of funding and investment in this area and above all a lack of core-funded infrastructure. Many feel there should be a step change in priority and strategy for radiotherapy reinvigoration, similar to the recent innovative multimillion investments in imaging research infrastructure in the UK by CRUK and the Engineering and Physical Sciences Research Council (EPSRC), and less top-down project prioritisation or promotion of short-term reactive funding.

How can ACORRN help?

A charity dedicated to raising funds for radiotherapy research and development is long overdue and has enormous potential to support important exploratory or pilot studies that can sometimes be viewed as uncompetitive by the big funding agencies. A radiotherapy charity is not subject to short-term reactive funding initiatives from the big funding agencies that have, in the past, had a very negative impact on our community.

We have a long way to go until investment in radiotherapy research in the UK is back on a par with levels in the early 1980s or with Europe and the USA. Until then there is much we can do to help ourselves and ACORRN — Action Radiotherapy can assist in the effort by providing a unique resource in the UK. The network might even be a model for healthcare service development in this new era of austerity. It is also common sense. We aim to improve radiotherapy treatment cost-effectively, by mobilising and facilitating the UK-wide depth of researchers and NHS deliverers of cancer care to work together and make a step change in radiotherapy treatment in the UK. We have based our philosophy on the thoughts of the Nobel Prize winner, Rutherford, who said, "When you have no money, you have to think". Our present motto is "When you have no money, you need to network". The whole will be greater than the sum of its parts, and we have a huge amount of resource in the UK with which to do this. There are at least 62 radiotherapy centres, more than 300 radiotherapy oncology consultants, more than 2000 therapy radiographers and hundreds of medical physicists and biologists. We are using this resource actively together. Individually we may not be strong, but together we can be internationally competitive again. To network we will be using the power of the internet. We have an interactive website with more than 1600 members stretching across the UK and also including representatives from all 5 continents. Many are working towards finding better and safer ways to treat patients with radiotherapy, and to cure more patients with cancer. We work together with researchers, funders, policy makers, patients and the NHS to improve radiotherapy services and treatments for cancer patients. ACORRN has received considerable support from the BIR who see it as in line with their objectives to support the radiological sciences. ACORRN will be working

closely with the BIR as it develops further and there is a vision for developing this or a similar network for the diagnostic imaging community.

What does ACORRN do?

There are a range of activities that we have found most productive.

- Interactive forums where individual researchers and healthcare deliverers can post questions on the website and answers are delivered within minutes from around the UK. This ensures that patients in any of the 62 centres around the UK know that those managing their care have access to the best UK knowledge. There is no longer a postcode lottery regarding knowledge, and it is also extended to the private sector.
- Education and training for therapy radiographers who have developed their Research Radiographer Starter Pack [6], which summarises and supports the role of radiographers in the UK.
- Multidisciplinary research through across-the-board researchers linking multidisciplinary groups providing administrative assistance and an internet-based domain for sharing documents. We have successfully supported grant applications that have been awarded over £12 million in the last few years; we have also published 9 research papers, 2 working party reports, 1 national audit of guidelines and one Lancet Oncology editorial. This research ranges from accelerator physics through to patient care and to normal tissue radiobiology.
- Introducing new developments by supporting the introduction of complex technology. We developed the image-guided radiotherapy road map [6] for the efficient sharing of introducing the technology. We are now developing the website for sharing radiotherapy plans and images to serve as minimum standards, quality control and audit.

Plans for the future

We hope our new website will inspire more interaction to ensure added value and a "can do" culture. We will be expanding our patient area on the website. We want to engage patients and their relatives in the whole process, particularly their ideas of where service can be improved and where research is needed. We want to expand our support to other groups and work with all the agencies so that they can benefit from this innovative

research and development platform. We will be funding research and development where there are current gaps in the funding structure and supporting internet-based sharing of radiotherapy plans and images to improve patient care. We will be expanding our forums and working parties where there is a need. The charity ACORRN — Action Radiotherapy has launched a £5 million appeal to raise funds to support radiotherapy-related research and development.

Summary

ACORRN is an excellent model for improving patient care in the UK. It suits the UK's personality and community of the NHS structure *i.e.* we are good at networking and it brings out the Dunkirk spirit in us all. This is a bottom-up, grass-roots approach, with the emphasis on patients and cancer care deliverers defining research and development priorities. This philosophy will ensure that the correct service delivery and research is prioritised and is a smart way of effectively using the resource more cost-effectively to improve patient care.

The launch at the House of Lords has given us momentum and support, has made the new coalition government aware of the huge depth of expertise and support for radiotherapy and has demonstrated to everyone the importance of the physical sciences working with the biological sciences to improve clinical care in the UK.

For further information and to share ideas for fundraising visit www.acornn.org.

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