

Establishment Compact:
Learning Health Care
System for Radiotherapy
Services in England



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Foreword

As the largest single-funded* health care system in the world, we are in a unique position to work collaboratively as key partners to continue to innovate and build upon the quality and effectiveness of radiotherapy services across England.

Radiotherapy is one of the core treatments used to treat cancer, and also some non-malignant tumours. It uses doses, or 'fractions', of radiation to offer a curative treatment, manage symptoms (such as reducing pain), reduce the size of a tumour to make it easier to remove through surgery, or destroy small amounts of tumour that can remain after surgery.

More innovative forms of radiotherapy are now enabling us to deliver planned treatments more precisely, with less time in hospital - improving outcomes, increasing cure rates and reducing side effects. We want to continue to modernise radiotherapy services by increasing access to clinical trials and proven new treatments and techniques, taking advantage of new equipment; developing and implementing evidence-based standardised treatment protocols; building workforce resilience; improving equipment utilisation; and improving access to sub-specialist expertise.

NHS England has now confirmed that the 52 radiotherapy providers in England will, from April 2019, work within 11 clinically led radiotherapy networks and has set out ambitious targets to continue to improve radiotherapy services – and cancer pathways as a whole – in the Long Term Plan.

The time could not therefore be better to establish a national learning health system to help take forward our ambitions together, and at pace. Between us we have the passion, expertise, dedication and courage to explore, test and learn together.



Cally Palmer
National Cancer Director
NHS England



James Palmer
Medical Director (Specialised Services)
NHS England

*NHS England is the sole commissioner of NHS funded radiotherapy services in England, as part of the wider specialised services portfolio. NHS England currently spends around £440m a year on radiotherapy services and is investing an additional £56m in a new national Proton Beam Therapy service which treated its first patient in 2018. A £130m capital programme has supported the replacement and upgrading of radiotherapy equipment.

Contents

Foreword 3

Contents 4

Introduction..... 5

Our Ambitions..... 6

Membership..... 7

New Radiotherapy Networks in England (from April 2019)..... 13

Terms, Abbreviations and Acronyms Explained 15

Member Signatures 16

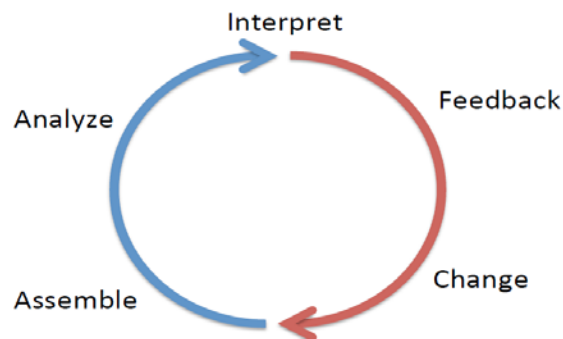
Introduction

This document describes a collective commitment made to establish a new, vibrant learning healthcare system (LHCS) for radiotherapy in England.

A Learning Healthcare System is defined, by the Institute of Medicine (IoM) ([Institute of Medicine 2015](#)), as a system in which;

“science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience.”

Professor Friedman describes a cycle with processes that are common to all Learning Health Systems ([Friedman 2014](#)):



Members of the new Radiotherapy Learning Health Care System have made a collective commitment to:

- Create a shared culture of learning and improvement, through a collaboration of leading clinical partners with the professional and scientific credibility to shape priorities, service change and roll-out
- Involve patients as partners in developing and prioritising our work programme
- Synchronise and optimise the efforts of key partners influencing the quality of radiotherapy services in England
- Reduce the missed opportunities to improve radiotherapy based treatments and associated outcomes for cancer patients in England
- Actively learn from research and innovation, directly shaping and supporting implementation in front line clinical care
- Identify and deliver new forms of evaluation that better fit the pace and complexity of change, integrate with day to day service delivery and better align to real life clinical practice in the NHS
- Enable faster and more consistent roll out of good practice and innovation in radiotherapy

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- Make better use of the rich sources of data already available to promote, identify and track improvements in patient care, experience and outcomes
- Harness the opportunities provided by strong local clinical and patient leadership, in testing new approaches, disseminating learning and facilitating local networks to enable transformative change

Our Ambitions

Working together, our collective ambitions are to:

- ✓ Improve the outcomes and experience of patients receiving radiotherapy in England
- ✓ Reduce inequity of access and benefit
- ✓ Identify, test, establish and implement innovation and best practice
- ✓ Speed up the translation of research into practice
- ✓ Increase awareness and understanding of the role of radiotherapy in cancer treatment and management, facilitating patient knowledge and choice
- ✓ Identify evidence gaps in current and future clinical practice, working with partners to develop and articulate study questions with the potential to be practice changing, and to facilitate the prioritisation and commissioning of new research to reduce duplication and dilution of effort
- ✓ Raise patient awareness and participation in clinical trials, at all ages
- ✓ Inform and reshape the investment and reinvestment of available funding to maximise the benefits for patients receiving radiotherapy treatment in England

Membership

Member Organisation	What We Will Give to the LHCS
<p>British Nuclear Medicine Committee</p>	<ul style="list-style-type: none"> • Provide expert advice on all aspects of molecular radiotherapy (MRT) • Guide best practice on radiation safety with radiotherapeutics • Support training, networking and standardisation of MRT • Collaborate with CTRad and other organisations to promote multicentre clinical trials in MRT • Facilitate clinical introduction and best practice of new radiotherapeutics • Host and participate in national meetings • Collate information on the use of radiotherapeutics • Promote research into the development of personalised MRT treatments
<p>Cancer Research UK (CRUK)</p>	<ul style="list-style-type: none"> • Access to a wide range of funding streams • Strong charity across whole population • Fund a network of nurses supporting research • Support high impact discovery and translational research as well as clinical • New strategy to invest in radio-biology and radio-oncology • Building model of radiotherapy research units and centres • Policy development relating to radiotherapy delivery, with input from a network of clinicians, researchers and people affected by cancer • A voice for radiotherapy in the media and to parliamentarians • Analytical partnership with Public Health England, including analytical projects relating to radiotherapy
<p>Clinical Oncology Journal</p>	<ul style="list-style-type: none"> • Publish commissioned editorials • Have a process in place for rapid publication • Will provide national & international reach • Can build and distribute podcasts • Have a social media presence to promote

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<p>Department of Health and Social Care (DHSC)</p>	<ul style="list-style-type: none"> • A funder of research • Delivery system of research funding from other funders • Engages patients in research development • Provides funding awards for researchers in training • Fund individuals to deliver research • Engage with companies for technological development • Build the research infrastructure • Co-ordinate and links into 15 research networks • Access to trial portfolio and recruitment data • Capacity for horizon scanning through Innovation Observatory
<p>National Institute for Health Research (NIHR)</p>	
<p>Institute of Physics and Engineering Medicine</p>	<ul style="list-style-type: none"> • National outreach and engagement with clinical scientists and engineers working in the physical sciences domain - in particular this includes clinical scientists and engineers delivering radiotherapy and clinical informatics. • Impact assessment of proposals. • Advise on technology for collection of PROMs. • Develop Guidelines for the Management of informatics within Radiotherapy (T&F group in development) • Contribute to design of national minimum dataset • Utilise existing national audit structure • Provide up-to-date information on clinical scientist and technologist workforce through bi-annual IPEM RT Workforce Census • Contribute to horizon scanning • Representation on the Radiotherapy Board
<p>National Cancer Research Institute (NCRI)</p>	<ul style="list-style-type: none"> • A partnership comprising 17 government and charity members, with a collective spend of £650M on cancer research in 2018/19 • A forum of approximately 100 trained patients and carers (NCRI Consumers) • 17 NCRI Groups bringing together over 1200 clinicians, scientists, statisticians and consumers to coordinate development of a strategic portfolio of clinical trials • Funding and support of the NCRI CT-Rad initiative • A highly UK wide, motivated, collegiate interdisciplinary research group
<p>Clinical and Translational Radiotherapy (CT-RAD)</p>	

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	<ul style="list-style-type: none"> • Identifies strategic priorities for radiotherapy related research • Advises on and deliver the evidence for new radiotherapy technology • A proven track record of the design and conduct of radiotherapy focussed clinical trials • Engages with the national community to develop multi-disciplinary radiotherapy research across a wide range of funders • Proposals' guidance meetings and workshops to develop high quality research applications • Strong public and patient involvement in radiotherapy research
<p>NHS Digital</p>	<ul style="list-style-type: none"> • Largest manager of National Data Collections • National Data Safe Haven • Delivery of Data Platforms as a Service • Learning Health System expertise • Extensive partnerships throughout the system • Indicator development and assurance • Trial support capabilities • Data Science Capabilities
<p>NHS England Cancer National Programme of Care and Specialised Commissioning</p>	<ul style="list-style-type: none"> • Single largest commissioner (funder) of radiotherapy services internationally • Provides the structure to formalise national work programmes • Provides challenge to the status quo of service delivery • Sets national clinical policy on eligibility for radiotherapy treatments • Can offer the new radiotherapy service specifications specifying within them that research needs to be aligned with outcomes. • Can influence tariff (pricing) re-design • Opportunity to introduce incentives for research through new tariff • Whole system funding oversight • Contractual arrangements and levers to reinforce change • Leading equipment modernisation • Incentivise cultural change

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<p>NHS England Radiotherapy Clinical Reference Group (CRG)</p>	<ul style="list-style-type: none"> • Source of independent expert clinical advice to NHS England • Oversight of the whole territory of radiotherapy both in terms of service development and research • Conduit of requests for service change • Oversight of evaluative commissioning projects • National clinical policy development oversees research into policy • Interrogation of the RTDS • Allocating equipment funds • Clinical advice and leadership and ability to bring together experts to identify leadership • Designing quality standards • Service specifications modification and re-fresh • Supporting implementation through engagement with regional teams
<p>Public Health England</p>	<ul style="list-style-type: none"> • Collects consistent and comparable radiotherapy activity data across all NHS Acute Trust providers in England • We provide data liaison support to providers to drive improvements in data quality and support data completeness • Data is utilised to provide intelligence for service planning, commissioning, and clinical practice and research and the operational provision of radiotherapy services across England • Provide commissioned reports for NHSE on radiotherapy activity across England. • Provides radiotherapy, SACT and COSD reports on Cancerstats 2 to NHS users with N3 access • Provides freely available radiotherapy data on Cancerdata platform at an alliance level • Services requests for data through the Office for Data Release • Provide analytical and clinical expertise to assist requesters of data to exploit datasets further
<p>Radiotherapy Trials Quality Assurance Group (RTTQA)</p>	<ul style="list-style-type: none"> • Multi-professional national group with a wide geographical UK base

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	<ul style="list-style-type: none"> • Design and implement QA for all trials that include a radiotherapy component • Benchmarking of radiotherapy delivery in the clinical trial setting • Undertake baseline assessment for equipment and ability of centres to adhere to study protocols • Promote and support change in practice • Standardise radiotherapy through national and international guideline development • Established national and international collaborations working towards standardisation and benchmarking for radiotherapy trials • Involved in new technique implementation and familiar with supporting centres to implement such technologies • Credentialing of new techniques (SABR and SRS) under contract with NHS England • Building IT infrastructure to support centralised radiotherapy trial data collection
<p>Royal College of Radiologists</p>	<ul style="list-style-type: none"> • National outreach and engagement with members and Fellows who deliver radiotherapy • Ensuring proposals have clinical utility in all departments • Use RCR <i>Radiotherapy Dose Fractionation</i> guidance to inform current gold standard practice • Continue development of influential RCR guidance documents such as <i>Timely delivery of radical radiotherapy: guidelines for the management of unscheduled treatment interruptions</i> and <i>Radiotherapy target volume definition and peer review</i> • Contribute to design of national minimum dataset • Utilise existing national audit structure • Provide up-to-date information on Clinical Oncology workforce through annual RCR Workforce Census • Contribute to horizon scanning • Member of the Radiotherapy Board - opportunity for multi-disciplinary working alongside SCoR, IPEM and other key stakeholders
<p>Society and College of Radiographers</p>	<ul style="list-style-type: none"> • National outreach and engagement with service leaders and members who deliver radiotherapy • An active Patient Advisory Group and published patient engagement strategy • Defining standards of practice for the therapeutic radiography profession; accreditation standards for advanced and consultant practitioner level practice

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	<ul style="list-style-type: none"> • Published five-year research strategy; provision of research grants; opportunities for publication within a peer reviewed International Journal Radiography; research grants • Ensuring proposals have clinical value across services • Key stakeholder within the UK Radiotherapy Board and development of multi-professional guidance <ul style="list-style-type: none"> • Ionising Radiation (Medical Exposure) Regulations 2017 • Combining 'On Target: Ensuring Geometric Accuracy in Radiotherapy' with 'Image Guided Radiotherapy (IGRT)-Guidance for Implementation and Use • Continue development of influential SCoR NICE accredited guidance documents such as Skin Care guidance for radiotherapy patients • Contribute to design of national minimum dataset • Provide up-to-date information on Therapeutic Radiography workforce via an annual census • Contribute to horizon scanning • Strong relationship with industry through our College of Radiographers Industry partnership (CoRIPs) scheme
<p>NHS Proton Beam Therapy Service</p>	<ul style="list-style-type: none"> • Proposes national policy for access to PBT • Collects PBT outcome data • Agrees national dataset • Creates an electronic referral system • Capacity for evaluation • Collaboration with international centres

New Radiotherapy Networks in England (from April 2019)

Radiotherapy Network Partnerships	Cancer Alliances
Brighton and Sussex University Hospitals NHS Trust Imperial College Healthcare NHS Trust Royal Surrey County Hospital NHS Foundation Trust The Royal Marsden NHS Foundation Trust	North West and South West London Surrey and Sussex
Barking, Havering and Redbridge University Hospitals NHS Trust Barts Health NHS Trust East and North Hertfordshire NHS Trust North Middlesex University Hospital NHS Trust Royal Free London NHS Foundation Trust University College London Hospitals NHS Foundation Trust	North Central and North East London
Guy's and St Thomas' NHS Foundation Trust Maidstone and Tunbridge Wells NHS Trust	South East London Kent and Medway
Gloucestershire Hospitals NHS Foundation Trust Plymouth Hospitals NHS Trust Royal Devon and Exeter NHS Foundation Trust Royal Cornwall Hospitals NHS Trust Royal United Hospitals Bath NHS Foundation Trust Taunton and Somerset NHS Foundation Trust Torbay and South Devon NHS Foundation Trust University Hospitals Bristol NHS Foundation Trust	Peninsula Somerset, Wiltshire, Avon and Gloucestershire
Hampshire Hospitals NHS Foundation Trust Oxford University Hospitals NHS Foundation Trust Royal Berkshire NHS Foundation Trust Poole Hospital NHS Foundation Trust Portsmouth Hospitals NHS Trust University Hospital Southampton NHS Foundation Trust	Thames Valley Wessex
Cambridge University Hospitals NHS Foundation Trust	East of England

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<p>Colchester Hospital University NHS Foundation Trust</p> <p>Ipswich Hospital NHS Trust</p> <p>Norfolk and Norwich University Hospitals NHS Foundation Trust</p> <p>North West Anglia NHS Trust</p> <p>Southend University Hospital NHS Foundation Trust</p>	
<p>Derby Teaching Hospitals NHS Foundation Trust</p> <p>Northampton General Hospital NHS Trust</p> <p>Nottingham University Hospitals NHS Trust</p> <p>United Lincolnshire Hospitals NHS Trust</p> <p>University Hospitals of Leicester NHS Trust</p>	<p>East Midlands</p>
<p>Royal Wolverhampton Hospitals NHS Trust</p> <p>Shrewsbury and Telford Hospital NHS Trust</p> <p>University Hospitals Birmingham NHS Foundation Trust</p> <p>University Hospitals Coventry and Warwickshire NHS Trust</p> <p>University Hospitals of North Midlands NHS Trust</p> <p>Worcestershire Acute Hospitals NHS Trust</p>	<p>West Midlands</p>
<p>Lancashire Teaching Hospitals NHS Foundation Trust</p> <p>The Christie NHS Foundation Trust</p> <p>The Clatterbridge Cancer Centre NHS Foundation Trust</p>	<p>Lancashire and South Cumbria</p> <p>Greater Manchester</p> <p>Cheshire and Merseyside</p>
<p>Hull and East Yorkshire Hospitals NHS Trust</p> <p>Leeds Teaching Hospitals NHS Trust</p> <p>Sheffield Teaching Hospitals NHS Foundation Trust</p>	<p>Humber, Coast and Vale</p> <p>West Yorkshire</p> <p>South Yorkshire, Bassetlaw, North Derbyshire and Hardwick</p>
<p>North Cumbria University Hospitals NHS Trust</p> <p>South Tees Hospitals NHS Foundation Trust</p> <p>The Newcastle Upon Tyne Hospitals NHS Foundation Trust</p>	<p>North East and Cumbria</p>

Terms, Abbreviations and Acronyms Explained

PREMS	Patient Reported Experience Measures (e.g. quality of communication from clinical team, time spent waiting for a treatment)
PROMS	Patient Reported Outcome Measures (e.g. quality of life, symptoms such as pain etc)
Proton Beam Therapy	Proton Beam Therapy (PBT) provides radiation by delivering a beam of proton particles, rather than X-rays (photons). The physical properties of protons results in almost no radiation dose being deposited in the normal tissue beyond the tumour, potentially reducing unwanted side effects.
Radiotherapy	Radiotherapy is the controlled use of high energy x-rays to treat many different types of cancer. In a few cases, radiotherapy can also be used to treat benign (non-cancerous) tumours. Radiotherapy may be used to cure an illness for example, by destroying a tumour (abnormal tissue); to control symptoms e.g. pain relief; to shrink a tumour to make it easier to remove, prior to surgery, and after surgery, to destroy small amounts of tumour that may be left.
RTDS	The Radiotherapy Data Set (RTDS) is a requirement of all commissioned radiotherapy providers in England to submit standardised data monthly against a nationally defined data set (managed by Public Health England)

Member Signatures

The signatories to this document confirm the commitment of their team, programme or organisation to the establishment of a learning healthcare system for radiotherapy in England.

<p>Name & Title: Dr Glenn Flux</p> <p>Signature:  Date: 18/09/2019</p> <p>On behalf of: British Nuclear Medicine Committee</p>
<p>Name & Title: Dr Ian Walker, Director of Clinical Population and Early Detection Research</p> <p>Signature:  Date: 10/09/2019</p> <p>On behalf of: Cancer Research UK</p>
<p>Name & Title: Dr Charlotte Coles, Editor-in-Chief, Clinical Oncology Journal</p> <p>Signature:  Date: 27/08/2019</p> <p>On behalf of: Clinical Oncology Journal, Royal College of Radiologists</p>
<p>Name & Title: Professor David Sebag-Montefiore</p> <p>Signature:  Date: 28/08/2019</p> <p>On behalf of: Clinical and Translational Radiotherapy (CT-RAD)</p>
<p>Name & Title: Professor Matt Seymour, NIHR CRN Speciality Cluster Lead for Cancer Surgery and Oral and Dental Health</p> <p>Signature:  Date: 23/08/2019</p> <p>On behalf of: National Institute for Health Research (NIHR)</p>

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Name & Title: Steve Weston, Chair of IPEM Radiotherapy Special Interest Group, Lead Physicist for Radiotherapy Technology Leeds cancer Centre

Signature: 

Date: 30/08/2019

On behalf of: Institute of Physics and Engineering Medicine

Name & Title: Dr Iain Frame, Chief executive Officer

Signature: 

Date: 12/08/2019

On behalf of: National Cancer Research Institute

Name & Title: Tom Foley, Senior Clinical Lead of DIS

Signature: 

Date: 13/08/2019

On behalf of: NHS Digital

Name & Title: Cathy Edwards, Clinical Programmes Director

Signature: 

Date: 09/10/2019

On behalf of: NHS England Cancer National Programme of Care and Specialised Commissioning

Name & Title: Dr Imogen Locke

Signature: 

Date: 12/08/2019

On behalf of: NHS England Radiotherapy Clinical Reference Group

Name & Title: Jem Rashbass, National Director for Disease Registration and Cancer Analysis

Signature: 

Date: 13/08/2019

On behalf of: Public Health England

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Name & Title: Elizabeth Miles



Signature:

Date: 14/08/2019

On behalf of: Radiotherapy Trials Quality Assurance Group (RTTQA)

Name & Title: Dr Jeanette Dickson



Signature:

Date: 06/09/2019

On behalf of: The Royal College of Radiologists

Name & Title: Gill Hodges, President UK Council Society of Radiographers



Signature:

Date: 03/09/2019

On behalf of: Society of Radiographers