The Christie NHS
NHS Foundation Trust

Lung Cancer Service

Operational Structure

Manchester Cancer Lung Cancer Pathway is an integrated cancer system for Greater Manchester and Cheshire servicing a population of >3.2M. The aim of our local lung cancer service is to deliver high quality treatment and holistic care for our patients in order to improve survival outcomes while maximising a patient's functional capability and quality of life.

All patients in whom lung cancer is suspected should be referred to a Lung Cancer Rapid Access Clinic in operation at 11 Greater Manchester NHS Trusts in our Manchester network. Lung cancer Clinical Nurses Specialists (CNS) are introduced to patients early in their disease pathway supporting them at diagnosis, during treatment and through end of life care. The CNS provides an essential link between the patient, their carer's and the variety of clinicians that are involved in their diagnosis and treatment.

Diagnosis

Lung cancer diagnostic services are in operation at the following 11 locations and clinics take place weekly at each:

- The Bolton NHS Foundation Trust
- Central Manchester University Hospitals NHS Foundation Trust (CMFT)
- East Cheshire NHS Trust
- Mid Cheshire Hospitals NHS Foundation Trust (MCHFT)
- The Pennine Acute Hospitals NHS Trust
- Salford Royal NHS Foundation Trust
- Stockport NHS Foundation Trust's
- Tameside Hospital NHS Foundation Trust
- Trafford General Hospital (CMFT)
- University Hospital of South Manchester NHS Foundation Trust (UHSM)
- Wrightington, Wigan and Leigh NHS Foundation Trust

Specialist diagnostic services requiring a high level of expertise are available to all patients but are not delivered at each trust:

- Positron emission tomography–computed tomography PET-CT – The Christie/CMFT/Salford
- Endobronchial Ultrasound-guided Transbronchial Needle Aspiration (EBUS-TBNA) – UHSM, CMFT, North Manchester (Pennine), Wigan, East Cheshire
- Medical thoracoscopy – UHSM, East Cheshire, Pennine, Bolton
- Molecular Pathology and profiling – The Christie and Central Manchester

MDTs

There are currently 9 Multi-disciplinary Team (MDT) meetings per week in Greater Manchester and Cheshire

MDT Name	NHS Trusts	Number of patients reviewed in 2013
North West Sector	Bolton, Wigan, Salford	666
Pennine	Fairfield, North Manchester, Oldham, Rochdale	534
CMFT	MRI, Trafford	226
Tameside	Tameside	161
UHSM	UHSM	255
Stockport	Stockport	202
Mid Cheshire	MCHFT	122
East Cheshire	Macclesfield	135
Totals		**2301**

Surgery

The Christie links closely with Greater Manchester's regional tertiary surgical centre at UHSM. The cardiothoracic surgical team there are responsible for the delivery of all lung cancer surgery in our network.

Molecular profiling

Molecular profiling of tumour specimens is routinely carried out in order to identify patients suitable for targeted therapies. This is centralised at St Mary's Hospital, CMFT.

Chemotherapy

The Christie is a tertiary cancer centre delivering chemotherapy and radiotherapy as well as conducting a wide range of Phase I-III clinical trials for patients with lung cancer. The Christie receives patient referrals from all trusts in the Manchester network. Approximately 1700 new lung cancer patients annually are referred to The Christie and over half receive anticancer therapy.

Radiotherapy

All radiotherapy is delivered at The Christie across three sites, Withington (main Christie hospital) and Oldham and Salford (satellite sites).

- Concurrent chemoradiation – The Christie, Withington
- Stereotactic ablative radiotherapy (SABR) - The Christie, Withington
- Intensity-modulated radiation therapy (IMRT) – The Christie Withington, Oldham and Salford
- Image guided radiotherapy (IGRT) – the Christie Withington, Oldham and Salford

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Patients requiring stereotactic radiosurgery for brain metastases are treated at The Christie at Salford following assessment at a specialist neuro-oncology MDT at Salford.

Support services

All patients at The Christie have access to a range of services:

http://www.christie.nhs.uk/our-services.aspx

Personnel *(*Whole Time Equivalents)*

Medical Oncologists	**(*WTE)**
Dr Fiona Blackhall *(BSc, MBChB, FRCP, PhD)* ***(Disease Group Lead)***	1.0
Dr Raffaele Califano *(MD)* ***(Education Lead)***	1.0
Dr Yvonne Summers *(BSc, MB ChB, MSc, PhD, FRCP)*	1.0
Dr Paul Taylor *(MBChB, FRACP)*	1.0
Clinical Oncologists	**(*WTE)**
Dr Neil Bayman MB *(ChB, MRCP, FRCR)* ***(Manchester Cancer Lung Cancer Pathway Lead)***	1.0
Dr Paul Burt *(MBChB, MRCP, FRCR, FRCP)*	1.0
Dr Abbass Chittalia *(MBBS, MD, MRCP, FRCR)*	0.9
Dr Joanne Coote *(MBChB, BSc, MRCP, FRCR)*	0.6
Dr Corinne Faivre-Finn *(FRCR, MD, PhD)*	1.0
Dr Maggie Harris *(MBBS, BSc, MRCP FRCR)* ***(Clinical Audit Lead)***	0.9
Dr Lip Lee *(MBBS, MRCP, FRCR, MSc)*	1.0
Dr Laura Pemberton *(MBChB, BSc, MRCP, FRCR)*	0.8
Dr Hamid Sheikh *MA, MB BChir, MRCP, FRCR*	1.0
Rotational SpRs	**(*WTE)**
x 4 (3 monthly rotations)	1.0
Research Fellows	**(*WTE)**
2-4 (~6 month appointments)	1.0
Clinical Nurse Specialists	**(*WTE)**
Emma Halkyard	1.0
Jacqueline Fenemore *(concurrent treatment)*	1.0
Clinical Research Nurses	**(*WTE)**
Sharon Woolley (Team Leader)	0.6
Glenda Laviste	1.0
Nicky Moore	0.6
Patsy McCaul	1.0
Philip Russell	1.0

The Manchester Cancer Pathway Board (members from The Christie)

Name	Designation	Role
Dr Neil Bayman	Clinical Oncology	Pathway Board Clinical Director
Dr Yvonne Summers	Medical Oncology	Pathway Board Lead for oncology
Dr Fiona Blackhall	Medical Oncology	Pathway Board Lead for research
Dr Ben Taylor	Radiology	Pathway Board Lead for PET-CT

Service Development 2013/14

- Expansion of clinical trials portfolio to include more trials for patients with SCLC and palliative and supportive care trials in addition to trials for patients with NSCLC
- Appointment of academic medical physics posts with a focus on lung radiotherapy research
- Development of molecular pathology and profiling service to diagnose clinically relevant molecular subsets of lung cancer and to provide blood based mutation testing

Activity

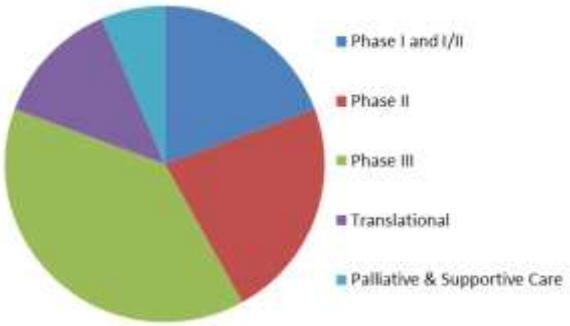
Number of patients treated by TC with breakdown, by tumour site, place of treatment and treatment modality (eg adjuvant, neoadjuvant, radiotherapy alone, chemoradiotherapy, chemotherapy, palliative radiotherapy, supportive care etc)

Therapy	Number of patients
Chemotherapy	471
Brachytherapy	11
Radiotherapy	759
Any	1011

Outcomes – Click Here

Research

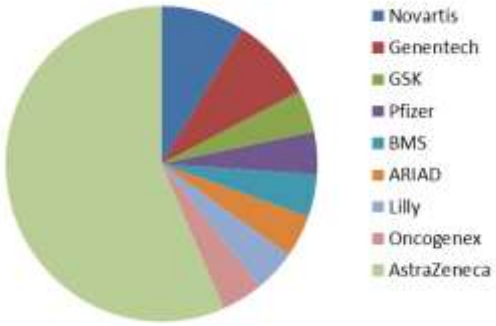
Trials available during March 2013 – April 2014



Key Lung Cancer Trials Performance Metrics (Apr 2013 – Mar 2014)	
Achieved 70 day target	76%
Achieved patient recruitment target	47%*
Achieved ≥50% patient recruitment target	79%
Exceeded patient recruitment target	21%

*Many of our clinical trials are of targeted anticancer therapies that act on specific molecular targets that are associated with a patient's cancer. These molecular targets are often only present in the tumours of a small number of patients and in the early stages of drug development, this number can be difficult to estimate. For example, the ALK gene mutation is present in ~3-5% of the adenocarcinoma patient population and in one particular study we had to screen the tumours of >150 patients to identify just 7 with the ALK gene mutation.

Current pharmaceutical partners in lung cancer trials portfolio (Phase I-III)



We have established relationships with a number of world leading pharmaceutical companies forming partnerships that enable the delivery of novel compounds in to the clinic.

The income generated for our research through the conduct of commercially led clinical trials is >£1M per annum.

Key Lung Team Clinical Trial Statistics (Apr-13-Mar-14)	
Studies in conduct	31
Studies completed	19
IMP studies	21
Radiotherapy studies	4
Translational	4
Palliative & Supportive Care	2

Ongoing studies from the above dataset

SELECT-1: A Phase III, Double-Blind, Randomised, Placebo Controlled Study to Assess the Efficacy and Safety of Selumetinib (AZD6244; ARRY-142886) (Hyd-Sulfate) in Combination with Docetaxel, in Patients receiving second line treatment for KRAS Mutation-Positive Locally Advanced or Metastatic Non Small Cell Lung Cancer (Stage IIIB – IV)

AZ Study 70: A Phase I, Open-Label, Multicentre Study to Assess the Safety, Tolerability, Pharmacokinetics and Preliminary Efficacy of Selumetinib (AZD6244; ARRY-142886) in Combination with First Line Chemotherapy Regimens in Patients with Non-Small Cell Lung Cancer (NSCLC)

FIGARO: A Phase II, double-blind, placebo-controlled, randomised study evaluating the safety and efficacy of carboplatin/ paclitaxel/ bevacizumab with and without GDC-0941 in patient with previously untreated advanced or recurrent NSCLC

GSK BRAF V600E: A Phase II study of the selective BRAF kinase inhibitor GSK2118436 in subjects with advanced non-small cell lung cancer and BRAF mutations

Fatigue QLQ FA13: Update of the EORTC questionnaire for assessing quality of life in lung cancer patients (EORTC QLQ-LC13) conducted on behalf of the EORTC Quality of Life Group

CHEMORES: Molecular mechanisms underlying chemotherapy resistance, therapeutic escape, efficacy and toxicity

The Christie Lung Group clinical researchers collaborate with scientists at Cancer Research UK Manchester Institute (formerly the Paterson Institute for Cancer Research), leading academics at The University of Manchester and respiratory physicians, surgeons and pathologists at UHSM with the goal to conduct clinically relevant research that will lead to better outcomes for patients.

Peer Reviewed Publications 2013/14

Top 5

Crizotinib versus Chemotherapy in Advanced ALK-Positive Lung Cancer. Shaw AT et al; *N Engl J Med. 2013 Jun 20;368(25):2385-94*

Treatment and detection of ALK-rearranged NSCLC. Peters S et al; *Lung Cancer. 2013 Aug;81(2):145-54.*

Clinical Utility of Circulating Tumour Cell Detection in Non-Small Cell Lung Cancer. Fusi A et al;. *Curr Treat Options Oncol. 2013 Dec;14(4):610-22.*

Activity of the monocarboxylate transporter 1 inhibitor AZD3965 in small cell lung cancer. Polański R et al; *Clin Cancer Res. 2014 Feb 15;20(4):926-37*

Molecular analysis of circulating tumour cells-biology and biomarkers. Krebs MG et al; *Nat Rev Clin Oncol. 2014 Mar;11(3):129-44*

International conference presentations Apr 2013 - Mar 2014

Oral presentations: **15**
Poster presentations: **44**

- The American Society of Clinical Oncology (ASCO)
- GHENT Pathology
- The NCRI Cancer Conference
- International Symposium on Minimal Residual Cancer
- International Association for the Study of Lung Cancer (IASLC) World Lung Conference
- The British Thoracic Oncology Group (BTOG)
- European Lung Cancer Conference (ELCC)
- European Respiratory Society (ERS) Congress
- Manchester International Medical Student Cancer Conference

International / national committee membership

- British Thoracic Oncology Group (BTOG)
- LUCADA Audit
- American Association for Cancer Research (AACR)
- American Society of Clinical Oncology (ASCO)
- Clinical and Experimental Pharmacology (CEP) Group, CRUK MI
- Drugs & Therapeutics Committee
- European Molecular Genetics Quality Network
- European Organisation for Research and Treatment of Cancer (EORTC)
- European Society for Radiotherapy and Oncology (ESTRO)
- European Society of Medical Oncology (ESMO)
- European Thoracic Oncology Platform (ETOP)
- Experimental Cancer Medicine Centre (ECMC)
- International Association for the Study of Lung Cancer (IASLC)
- Manchester Academic Health Science Centre - Clinical Trials Co-ordination Unit (MAHSC-CTU) Management Committee
- Manchester Cancer Research Centre (MCRC) Lung Cancer Research Group
- Medical Oncology Specialist Training Committee, North West Deanery
- National Peer Review Board – Acute Oncology & Chemotherapy
- North West Lung Centre Charity
- North West Mesothelioma Group
- Optimising Lung Cytology and Molecular Pathology in Collaboration (OLYMPIC)
- RCR Professional Support and Standards Board
- Roy Castle Lung Cancer Foundation (Charity)
- UK National Cancer Research Institute (NCRI)
- UK National Institute for Clinical Excellence (NICE)
- UK Task Force on cough
- Yorkshire Cancer Research
- Young Oncologists Committee of the European Society of Medical Oncology (ESMO)

Clinical Audit activity

Clinical Oncology	Consultant(s)
Lung cancer (NLCA)	Fiona Blackhall
Thoracic Radiotherapy in ES-SCLC	Maggie Harris
Intraluminal brachytherapy of the bronchus: an audit of practice	Hamid Sheikh
Efficacy and Toxicity of Stereotactic Ablative Body Radiotherapy for Lung Cancer	Neil Bayman/ Corinne Faivre-Finn
Medical Oncology	**Consultant(s)**
EGFR mutation analysis in NSCLC	Raffaele Califano
Advanced stage NSCLC patients with good performance status receive chemotherapy appropriately	Yvonne Summers
Use of Pemetrexed and Carboplatin in Advanced NSCLC	Maggie Harris
One year follow up project for patients with EGFR mutations on TKI's	Fiona Blackhall/Yvonne Summers

Educational Activity at the Christie

http://www.christie.nhs.uk/school-of-oncology.aspx

Key highlights

ESMO-Christie Lung Cancer Course – Feb 2014

This event was a joint initiative between The European Society for Medical Oncology (ESMO) and The Christie NHS Foundation Trust which allowed us to bring together a renowned multidisciplinary faculty to deliver a comprehensive course on the management of lung cancer for young oncologists. The course was championed and developed by Dr Raffaele Califano who is the Chairman of the Young Oncologists Committee of ESMO and member of the ESMO Educational Committee Steering Group.

Lung Cancer Clinicians Undergraduate teaching The University of Manchester - MBChB

- 5th year medical student oncology lectures – 360 students over 4 lectures
- 5th Year medical student clinic attendance and small group teaching
- 4th Personal Excellence Path Year (PEP), (Speciality Study Modules) SSM and Project Option students

The (PEP) is a unique feature of the MBChB programme at Manchester Medical School. PEP provides medical students with a flexible framework of modules between Years 1 to 4, in which they can focus on specialised topics of study

Undergraduate students

Consultant	**Students**
Dr Fiona Blackhall	4 (Post graduate)
Dr Corinne Faivre-Finn	1 (Undergraduate) 1 (Postgraduate)