

Key messages from the evaluation of Multidisciplinary Diagnostic Centres (MDC): a new approach to the diagnosis of cancer



Accelerate Coordinate Evaluate The ACE Programme

Working collaboratively to support innovation in cancer services

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ACE team, January 2019

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Introduction

As we come to the end of Wave 2 of the ACE Programme, we are really pleased not just with the impact of the Multidisciplinary Diagnostic Centre (MDC) pilots, but also with the strong collaborative network we have built, made up of individuals who are committed to innovation in cancer services.

This summary report highlights the key findings from the five MDC projects and draws together the learning gained from their implementation. It also includes the most recent data on patient characteristics, cancer yield, and pathway activity. You can read more about this on pages 12 – 15.

When we started work on the MDC pathway in 2015, we did not know it would gain so much traction. Delivered in line with Recommendation 21 of Achieving World Class Cancer Outcomes, we have found a real need and appetite for a pathway for patients with non-specific but concerning symptoms, with many areas across England and Wales trialling similar approaches. We are pleased that the findings and broader learning from the Wave 2 pilots are contributing to the development of future NHS England policy through the new 'rapid diagnostic centres', which will help ensure this group of patients are diagnosed as early as possible.

Delivering this new cancer pathway requires strong primary and secondary care connections and has achieved both cancer and non-cancer diagnoses. This co-operative style of working has been a distinguishing feature of the pathway, based on strong collaboration across a range of specialist

areas and wider community services. Patients referred to the pathway have also positively described this style of working, stating they felt supported throughout the process. Our patient stories are featured on pages 18 -19.

We would like to thank those involved in Wave 2, particularly the project managers and clinicians who made the MDC a reality. We would also like to extend a special thank you to our patients, academic colleagues and our funders: NHS England, Cancer Research UK and Macmillan Cancer Support.

It's this combined ongoing commitment to improving cancer outcomes that drives us forward. Thank you!

The ACE Programme team
April 2019

This report was designed and produced by Cancer Research UK.

The ACE MDC Projects

ACE has been working with five MDC projects to evaluate the MDC concept & assess its potential for patients with non-specific but concerning symptoms (NSCS).

Greater Manchester

Area context: Urban area serving a population of over 600,000, with high rates of cancer incidence and cancer related mortality when compared to the national average

MDC sites: Manchester University NHS Foundation Trust (Wythenshawe Hospital) and The Northern Care Alliance (Royal Oldham Hospital)

Launch dates: December 2016 – March 2017

Referral criteria: Non-specific abdominal pain; unexplained weight loss; severe unexplained fatigue; nausea/ appetite loss; lymphadenopathy; hepatomegaly; splenomegaly; bloating; GP clinical suspicion; and non-iron deficiency anaemia

Referral route: GP referral

Lead clinician: Gastroenterologist

Project description: The two MDC sites trialled a same-day 'hot-reporting' diagnostic service model, including provision for individualised health risks assessments, personalised behavioural change interventions, and health promotion services.

Airedale, Wharfedale & Craven

Area context: Rural area serving a population of approximately 160,000, a significant number of which are elderly. Cancer is the leading cause of premature death and the second most frequent cause of death in the area, with cancer incidence rates higher than the national average.

MDC site: Airedale General Hospital

Launch date: January 2017

Referral criteria: Persistent unexplained abdominal pain; persistent unexplained weight loss; non-specific but concerning symptoms with a high risk of cancer; GP clinical suspicion; and too unwell for Two Week Wait (2WW)

Referral route: GP referral, A&E and secondary care clinic

Lead clinician: Medical oncologist

Project description: The MDC pathway was designed for patients presenting with non-specific symptoms who need diagnosis and treatment or referral within a few days of presentation but do not necessarily require hospital admission.

Leeds

Area context: Urban area serving a population of over 800,000, with significantly higher rates of years of life lost from avoidable causes of death and high cancer mortality when compared to the national average.

MDC site: St James's University Hospital (specialist cancer centre)

Launch date: January 2017

Referral criteria: Appetite loss + nausea (unexplained), 40 and over; weight loss (unexplained), 40 and over; abdominal pain without rectal bleeding or weight loss, 50 and over (<3 month duration or recent change in character/ severity; anaemia (non-iron deficiency, without evidence of bleeding) 50 years and over; hypercalcaemia (unexplained and persisting <12 months); thrombocythemia (unexplained and persisting <12 months); and GP clinical suspicion and general condition.

Referral route: GP referral, Acute medicine

Lead Clinician: Consultant Gastroenterologist / Consultant Geriatrician

Project description: The project was based on a virtual MDC concept within shared hospital diagnostic resources, with a primary aim to 'improve patient experience and outcomes by getting the quickest, most accurate diagnosis for people with non-specific, concerning symptoms with GP suspicion of cancer'.



The ACE MDC Projects

ACE has been working with five MDC projects to evaluate the MDC concept & assess its potential for patients with non-specific but concerning symptoms (NSCS).

Oxford

Area context: Urban and rural area serving a population of approximately 750,000, with slightly lower rates of cancer incidence and mortality when compared to the national average.

MDC site: Oxford University Hospitals Trust (specialist cancer centre)

Launch date: March 2017

Referral criteria: Severe unexplained fatigue; unexplained weight loss; persistent nausea or appetite loss; new atypical pain; unexplained laboratory findings; no organ specific symptoms; no symptoms fulfilling referral via the standard 2 Week Wait (2WW) pathway; GP clinical suspicion ("gut feeling") and aged 40 years and older.

Referral route: GP referral

Lead clinician: General Physician / Radiologist

Project description: The pathway accepted patients aged 40 years and older (a population of approximately 345,000) for whole-body, low dose, contrast enhanced CT and broad panel of laboratory investigations as the first tests for all referrals. The overarching aim of the project was to improve the time to referral for testing and diagnosis for patients with non-organ specific symptoms who do not meet the national 2WW referral criteria.



London

Area context: Urban area serving a population of approximately 3,700,000.

MDC sites: Queens Hospital (Barking Havering Redbridge University Hospital Trust), North Middlesex University Hospital, the Royal Free Hospital, Barts Health and Southend University Hospital, and University College London Hospital (specialist cancer centre)

Launch dates: December 2016 – March 2018

Referral criteria: Broad range of abdominal and respiratory symptoms with no clear referral pathway and where patients cannot wait for routine referral, including new unexplained abdominal pain; unexplained weight loss; persistent nausea/appetite loss; GP clinical suspicion; and painless jaundice.

Referral route: GP referral

Lead clinician: Gastroenterologist

Project description: The project piloted the MDC concept across five sites, including urban specialist and urban district general settings. The overarching aim of the project was to improve access to diagnostics, patient survival, experience and costs associated with cancer presenting with non-specific but concerning symptoms.



Implementation lessons

The ACE Programme has worked collaboratively with both the MDC projects and the Cancer Policy Research Unit to produce a range of resources for areas considering the development of pathways for non-specific but concerning symptoms, including:

Early lessons for planning and setting up a symptom-based cancer pathway

Based on a survey conducted with the five projects in December 2017, an [information leaflet](#) was produced which provides practical information on a range of subjects and will be of interest to areas developing similar pathways. Topics ranged from data management and governance to identifying which stakeholders were essential to MDC development and how best to liaise with them.

Realist Evaluation of the Implementation of the ACE Programme (MDC)

This [qualitative evaluation](#), conducted by the Cancer Policy Research Unit (University of Newcastle), is a substantial, theory-based analysis of the introduction of MDC-based pathways.

Based on insights from 128 one-to-one interviews with clinicians, managers, commissioners and other key informants from the five projects (six pilot sites), it represents a significant resource on the development and implementation of MDC-based pathways. The report provides insight into factors that affected implementation success, such as:

- organisational culture;
- leadership;
- change skills and capacity; and,
- ability to support different ways of clinical working.

ACE Wave 2 Patient Experience Survey 2018

From May 2017 to February 2018, the Cancer Policy Research Unit (University of Newcastle) worked with the five projects (six pilot sites) to implement a bespoke 21-item patient experience survey. The survey specifically measured patient experience of the MDC pathway, drawing on and adapting previously validated items from the Cancer Patient Experience survey (CPES) and the Manchester Cancer Survey.

The final report is based on 256 completed patient surveys and provides details of the development, administration and results of the patient experience survey. The report, and supporting resources, are available on the [ACE website](#).

An approach to building the local case for MDCs

The ACE Programme worked with Greater Manchester MDC to develop a [potential approach to planning](#) a MDC-based pathway, which guides you through a series of questions.

Local healthcare commissioners have found this to be a helpful, general approach for addressing non-specific but concerning symptoms, as it provides a core framework which can be tailored to reflect local priorities and infrastructure, and emerging national guidance.



In particular, patients reported high levels of satisfaction with how all the people caring for them in the MDC work together to give the best possible care. 82% stated that the different people involved in their care always worked well together to deliver care, with an overall positive score of 85.0%



Newcastle University: ACE Wave 2 Patient Experience Survey, (2018) page 22.

Features of the pathway

- Early programme work initially identified three distinct pathway approaches which have now evolved into a more nuanced understanding of the MDC model.
- A set of **distinguishing features** common to all five projects has been identified, that represent aspects of the MDC model considered to be of real value by clinicians and project teams.
- By adhering to these distinguishing features, projects have been able to configure their approaches to reflect local healthcare systems and clinical priorities, whilst being faithful to the MDC concept.
- These local pathway variations are a positive reflection of the model's ability to adapt to the local environment.

ACE animation

Our animated video looks at the benefits of the MDC pathway from six different perspectives. It features the views of ACE team members who are assessing the effectiveness of MDCs and the clinicians who are working on the pathway.

The four main features of the MDC pathways are as follows



Symptom based

The MDC concept offers a symptom-based approach to patient referral and therefore differs from existing suspected cancer referral pathways which focus on suspicion of tumour-specific disease.

Underpinning local referral criteria, all pilot sites have adhered to two mutual principles regarding referral:

1. that the patient must be considered as being of clinical concern, with non-specific symptoms potentially indicative of cancer (or other serious disease); and
2. that their presenting symptoms are not sufficiently clear to indicate an appropriate tumour-specific urgent referral pathway.



Rapid & multidisciplinary

Triage and assessment arrangements vary across the projects, but all sites conduct this process at pace.

This process is supported by enhanced multidisciplinary working, both within the MDC and with referring primary care practices, which enables clinical decision-making and patient management to be achieved quickly. Projects have suggested that a generalist specialist role would be well suited to the MDC lead position, due to the breadth of clinical cases referred onto the pathway.

Pathway speed is also maintained by active and ongoing coordination and clinical liaison by the MDC Clinical Nurse Specialist (CNS) and Navigator roles, who track and support the patient throughout the process.



General diagnostic pathway

A non-specific symptom-based approach provides a broad diagnostic framework for complex, unwell patients which enables primary care to address patient need in a planned and rapid manner.

Non-specific symptoms can have a range of potential explanations, including cancer and non-cancer conditions, and the MDC is providing a broad range of cancer and non-cancer diagnoses for their patients.



Patient centred

Patients receive an enhanced level of support, with continuity of care for patients provided by the CNS or Navigator from the point of referral into the MDC. This differs from existing suspected cancer referral arrangements, which generally see the allocation of a CNS at the point of diagnosis.

Clinical responsibility for the patient is also retained within the MDC until a diagnosis has been achieved for the patient (cancer and non-cancer) or once serious disease has been ruled out.

Furthermore, as every patient's care pathway is determined by the results of their pre-referral filter tests and their initial assessment, the selection of further tests is based on need and may result in patients avoiding unnecessary tests.

Headline results

At the start of the programme, a **dataset** was agreed across the five projects to ensure a robust basis for evaluation. It included data items based on the cancer outcomes and service dataset and additional project specific items.

The dataset has been collated since the onset of the projects, which for some is as early as January 2017. Programme findings are based on overall MDC referrals up to 31st July 2018.

Patient characteristics

2,961

patients were referred into the ten MDC sites during the evaluation.

The median age of patients was **69** years old.

The age range for patients was **17** to **97** years old.



56%

of the cohort was female.

At point of referral, patients reported a degree of comorbidity and varying levels of physical restriction:



43%

of patients had mild comorbidity and



27%

had moderate and severe comorbidity (2,067 total records).



18%

of patients (2,067 total records) had moderate or severe physical restrictions



58%

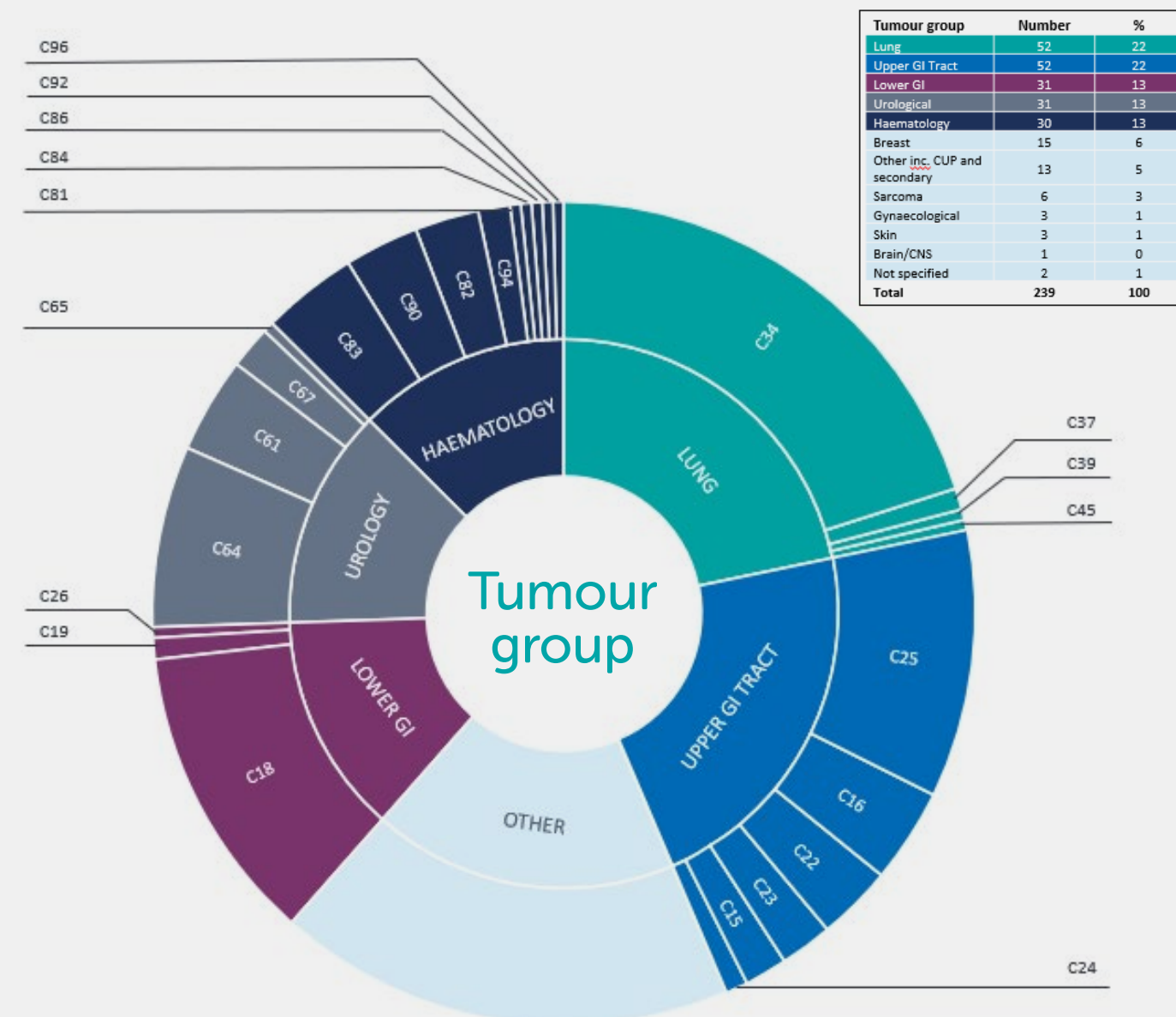
of patients presented with 2 or more non-specific symptoms exc. 'GP gut feeling'.

Based on available data (2,851) weight loss (66%), pain (abdominal pain and others) (36%), nausea and appetite loss (30%) were commonly recorded symptoms, with GP 'gut feeling' also recorded (36%).



56%

of patients reported experiencing their symptoms for 3 months or longer.



Cancer diagnoses

During the evaluation period, 239 cancers were diagnosed and the top 5 cancer groups were: upper GI tract (22%), lung (22%), urological (13%), lower GI tract (13%) and haematological (13%). At a programme level, the MDC conversion rate for cancer was 8%, with a range at project level of 4-11%.

Malignant neoplasm of bronchus and lung (C34), malignant neoplasm of colon (C18), malignant neoplasm of pancreas (C25), by non-hodgkin's lymphoma (C82, C83 & C85) and malignant neoplasm of kidney (C64) were the most common types of malignant neoplasms diagnosed.

A broad range of cancer diagnoses

Excluding diagnoses associated with the four most common cancers (breast, colorectal, lung and prostate), 56% of cancers were considered as rare and less common (as shown in the table below). Many of these cancers are considered to be hard to detect, such as pancreatic, stomach, non-Hodgkin's lymphoma, and myeloma. The MDCs predominantly diagnosed cancers with a broad symptoms range with varying or low predictive value.¹

¹ M. M. Koo, W. Hamilton, F. M. Walter, et al., "Symptom Signatures and Diagnostic Timeliness in Cancer Patients: A Review of Current Evidence," Neoplasia, vol. 20, no. 2, pp. 165-174, 2018.

Rare and less common cancers diagnosed

Brain/Central Nervous System

- Brain cancer, unspecified

Gynaecology

- Ovarian cancer
- Cancer of other and unspecified female genital organs

Haematology

- Hodgkin's disease
- Follicular (nodular) non-Hodgkin's lymphoma
- Diffuse non-Hodgkin's lymphoma
- Other and unspecified T-cell lymphomas
- Angioimmunoblastic T-cell lymphoma
- Multiple myeloma and malignant plasma cell neoplasms
- Acute myeloblastic leukaemia
- Other leukaemia of specified cell type
- Other specified primary malignant neoplasm of lymphoid or hemopoietic tissue

Lower Gastro Intestinal Tract

- Intestinal tract, part unspecified

Lung

- Cancer of the thymus
- Mesothelioma

Other

- Adrenal gland cancer
- Other and ill-defined site cancer
- Secondary cancer
- Cancer of unspecified origin

Sarcoma – Soft Tissue Sarcomas

- Cancer of pelvic bones, sacrum and coccyx
- Retroperitoneal cancer
- Cancer of other connective and soft tissue

Skin

- Skin cancer

Upper Gastro Intestinal Tract

- Oesophagus cancer
- Stomach cancer
- Liver and intrahepatic bile duct cancer
- Gallbladder cancer
- Biliary tract cancer (unspecified)
- Pancreas

Urology

- Kidney cancer (except renal pelvis)
- Renal pelvis cancer
- Bladder cancer

Stages of cancer diagnoses

At programme level, 79% of cancers diagnosed had staging data and of those 26% were diagnosed at an early stage (I/II). However, variation was evident at a tumour-specific level. It should be noted that, as many of the cancers types diagnosed within the MDC will present when disease is already advanced, early diagnosis for some of these cancers may not be possible.



Interval times across the pathway – median time (range) in days

GP referral to first seen: 8 (0-84) N:2744

GP referral to cancer diagnosis (clinical): 19 (0-199) N:217

Any referral to treatment: 57 (6-269) N:142

Summary of findings

Headline findings from the MDC evaluation currently suggest that the MDC model:

- has value as a cancer diagnostic pathway for patients presenting with non-specific but concerning symptoms
- is diagnosing a broad range of cancer types, including rare and less common cancers
- should be considered as an approach to achieving earlier diagnoses of cancer for patients presenting with non-specific symptoms, given the types of cancer being detected
- provides a broad diagnostic approach encompassing a range of cancer and non-cancer conditions
- provides a planned and rapid pathway for patients with complex presentation

Non-cancer diagnoses

In addition to diagnoses of cancer, the MDC also detected a broad range of non-cancer conditions. More than a third of cases were diagnosed with a non-cancer condition.

The non-cancer conditions were commonly associated with diseases of the digestive system (39% of cases), including diverticular disease, gastritis, hiatus hernia, gallstones, non-ulcer dyspepsia, irritable bowel syndrome and Barrett's oesophagus. 12% were classified as 'symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified', which included lung nodules, and 9% related to diseases of the respiratory system, including bronchiectasis, emphysema and interstitial pulmonary disease.

Hear from the MDC clinicians



JULIE-ANN
MORELAND
SCAN (MDC) NAVIGATOR AT
OXFORD SITE



It has been challenging, exciting and motivating. It has given me the opportunity to deliver the type of healthcare that I have always wanted to. A patient centred model using a holistic approach to care is what patients and healthcare staff have been missing. I have gained a huge amount of job satisfaction working on the SCAN project and I know that it will make me a better healthcare professional moving forward in my career.

The Oxford SCAN pathway is a prime example of what happens when the joint forces of primary and secondary care work cohesively with each other, focusing on the patient. When we work together the standard of care and patient outcome improves. An obvious but important lesson that we must remember moving forward.



FRANCINE
HILTON
MDC CLINICAL NURSE SPECIALIST
(CNS) AT GREATER MANCHESTER SITE



It is an excellent service for ruling out anything sinister and the relief that some of our patients experience makes you realise how important it is to put people's minds at rest who have been thinking that they could possibly have a cancer. We also have excellent working relationships with radiology and gastroenterology which helps to iron out any problems quickly and easily.

The benefits for the patients are that there is no waiting for a clinic appointment prior to ordering tests and results are given on the same day. Patients are contacted by the navigator before their appointment and a plan of care for the day is explained to alleviate anxieties and prevent 'do not attends' (DNAs). The CNS and navigator are then there throughout the day to provide reassurance and escort patients to the various departments, which means there are no extra anxieties.



CLAIRE
WADDINGTON /
AMY
DUGDALE
MDC CLINICAL NURSE SPECIALISTS (CNS)
AT AIREDALE SITE



The idea of MDC is phenomenal, it is an excellent service for patients and it is a credit to the organisation. There is swift input from the specialist team, patients receive early direct contact from the CNS and clinicians and results are followed up and investigated swiftly. I love working as a CNS in this role and I really hope that the MDC can continue within our trust. Should it continue, I feel that it is essential to ensure that there is consistent consultant cover with a variety of expertise to enable the service to work to its full advantage."



Watch our clinician videos

Identifying benefits

Find out what clinicians working on this new cancer pathway think the benefits are.

Overcoming challenges

Hear about the challenges our clinicians faced trialling this pathway and how they overcame these difficulties.

ROB TURNER
CONSULTANT CLINICAL ONCOLOGIST AT LEEDS SITE



The Leeds site has shown that progress in the appropriate investigations of vague symptoms is possible and yields important diagnoses. Getting to this point has been a multi-professional system-wide effort and is one that continues to evolve. We have demonstrated that a unified process can be scaled up to a population of over 750,000 yet still be tailored to single patient's diagnostic needs.

Core to the Leeds' approach is excellent communication of high-quality basic clinical information that feeds into enhanced triage delivered by an expert clinical collective. This is not a pathway, it is a way of working, a cultural change, that is challenging to initiate and maintain but one with clear application outside of suspected cancer."



ANDREW MILLAR
CONSULTANT GASTROENTEROLOGIST AND
HEPATOLOGIST AT LONDON SITE



85% of patients are very satisfied or extremely satisfied with the level of care they've been given and I think this is largely the result of the fact that when they're referred they are rapidly contacted by someone who can take them through the diagnostic pathway and this offers them a great level of support which they really value.



Patient stories

GEORGE, 68



I was recently diagnosed with Lymphoma, which is a cancer that starts in the lymph glands or other organs of the lymphatic system. Hearing the word 'cancer' was a surreal moment, especially as I viewed myself to be fit and healthy. I had been to my GP six times with headaches and dizziness without making any progress. I was provided with very little information or guidance which was frustrating and made the whole process more stressful. It was not until I passed out at home and was taken to Wythenshawe Hospital that I got a referral for the Multidisciplinary Diagnostic Centre (MDC).

My experience of the MDC pathway was really positive. I was worried at first when I was told it was all going to be happening on the same day in the hospital, but I knew that I was in the best place possible. I was told by a GP that one of the symptoms I had could indicate cancer; she wasn't quite sure but advised that I go to a clinic where all my tests could be done quickly.

I was apprehensive at first, but it was a really quick process and my consultation and tests were all done in one day. I also had my CT scan on the same day as my initial consultation and was told that I may have lymphoma. The staff at the hospital were all very supportive and I had my wife with me throughout the day too, which helped make everything more bearable.

The consultant I saw at the MDC was excellent, as was my Navigator, Kath. She helped me on the day and gave me confidence as she took me to the scanner and told me more about the hospital. It was helpful having a dedicated person to answer my questions, especially as I hadn't had as much information from my GP. The nurse on the day also explained things that initially confused me. Fortunately, I was able to phone the nurse up when I was sent for further tests and she answered all my questions and explained them thoroughly. She was there when I first heard my diagnosis and also when I saw the Haematology consultant. And here I am today quite happy.



GUDULA, 78



The MDC site I attended was very efficient and supportive. Everyone was most kind and were very patient and helpful with explaining procedures and answered all my questions. Everything was clearly explained, and it was reassuring to have that more personal contact.



SAMIXA, 55

Samixa was not a patient at one of the ACE MDC sites but has been involved with the London MDC project as a patient representative since February 2018.



I was diagnosed with Stage IV ovarian cancer in May 2012, a week before my son's final exams at university. Even though I had suspected that I had ovarian cancer when I went to see my GP in Oct 2011, it was only confirmed after 7 months of visiting the gynaecology, gastroenterology and haematology departments of my local hospital. After my initial visit to the GP, I had several tests including an ultrasound scan and an MRI which were both seen to be normal and nothing sinister had shown up.

After even more tests, I was referred for a CT scan and a colonoscopy because my stomach was very bloated. I was then referred for an X-ray guided biopsy which was very painful and had me in tears since the radiologist could not get a sample at the



first attempt. From the gastroenterologist I was referred to a haematologist and I was convinced I had lymphoma. In May 2012 the haematologist confirmed I did not have lymphoma. I asked her to call me as soon as she got the result because I did not want to wait for another appointment to see the consultant. From here I was referred to another hospital specialising in ovarian cancer to see an oncologist and get a proper diagnosis.

Fortunately, after all of this I managed to attend my son's graduation in June and my chemotherapy started in July. I feel the MDC pathway could have saved me 7 months of anxiety and not knowing what was wrong with me as well as going to different consultation and test appointments. I think I may have got an earlier diagnosis and my cancer may have not spread to the lymph nodes and been Standardise to Stage IV. I also feel I may also have had a better understanding of the tests being carried out and why they needed to be carried out.



FAQs

DAVE CHAPMAN

PROGRAMME LEAD OF ACE MDC
PATHWAYS ANSWERS QUESTIONS
ON THE MOST COMMON
QUESTIONS THE ACE
PROGRAMME HAS BEEN ASKED.



What's the difference between a Multidisciplinary Diagnostic Centre (MDC) and a Rapid Diagnostic Centre (RDC)?

The MDC pilots are trialling a specific model for patients with non-specific but concerning symptoms, with pilots based around a set of defining characteristics and principles. MDCs are therefore being assessed on that basis and within a set evaluation period. Rapid Diagnostic Centres (RDC) are distinct in that they relate to the implementation of national policy for England, as outlined in the NHS Long Term Plan 2019. Although RDCs include a focus on non-specific symptoms, their exact design has not been determined at this point.

Evidence from the real-world evaluation of MDCs aims to support future discussions and decision-making regarding the development of the RDC model, to ensure that aspects of value within the MDC model are considered.

Why is it important to establish a pathway for patient with non-specific but concerning symptoms?

There is currently no established urgent referral route for patients presenting with non-specific but concerning symptoms.

Analysis of the National Cancer Diagnosis Audit (NCDA) has indicated that patients with non-specific symptoms often experience longer times to diagnosis, with higher rates of late stage diagnosis, than those presenting with recognised alarm symptoms, so it's clear that changes need to be made to address this disparity.

Additionally, the MDC evaluation has indicated that a symptom-based pathway has value as a diagnostic approach for patients with non-specific symptoms.

How does the MDC define 'non-specific but concerning symptoms'?

Non-specific but concerning symptoms refer to serious symptoms that could be indicative of a range of conditions, including cancer. These include symptoms such as unexplained abdominal pain, nausea, and weight loss. In some instances, these symptoms may be high-risk, but they are not specific enough in their presentation to indicate a single appropriate diagnostic pathway.

In that sense, the MDC provides a rapid referral route for patients who warrant urgent referral for suspected cancer but whose symptoms aren't clear enough to indicate an appropriate tumour-specific diagnostic pathway.

What is meant by the term complex patients?

Referrals into the MDC are presenting with a range of characteristics that can potentially complicate diagnostic decision-making, including a patient's age, comorbidity, performance status and presenting symptoms. Amongst MDC patients, these characteristics can often occur in parallel. MDC patients often present with multiple non-specific symptoms, which further complicates the patients' clinical profile.

The combination of these factors presents a challenge to appropriate clinical case management and, in this sense, MDC patients can be considered to be complex.

How have patients been involved in the pilots and what information is available on their experiences of the pathway?

Patients have actively contributed to the implementation of all five MDC projects, with examples ranging from active patient representation on MDC project steering groups to involvement in the development of patient materials and information leaflets.

Direct patient experience of the MDC pathway is also measured by a patient experience survey. Whilst this is subjective in nature, a patient's perception of their care is an important measure which enables quality of care to be monitored. A Patient Experience Survey has been conducted as part of the ACE Evaluation and is available on the ACE webpage.

Are MDCs providing early stage cancer diagnoses for patients with non-specific but concerning symptoms?

At a programme level, 26% of cancers were diagnosed at early stage (I/II). This figure includes all cancer diagnoses and whilst there may not be an improvement in staging for some cancers, there may be an improvement for some tumour sites associated with very poor early stage diagnosis (e.g. pancreatic etc.).

It is also important to acknowledge that some cancers diagnosed within the MDC do not present until a late stage, so early diagnosis may not be possible for these cases – it may be more appropriate to think of the MDC as a route for earlier diagnosis, especially considering the large proportion of rare and less common cancers detected.

Future areas of work

The ACE Programme team will be continuing their analysis of the pilot sites throughout 2019 and will be producing the following papers.



Describing the diagnostic experience of patients with non-specific but concerning symptoms

Analysing National Cancer Diagnosis Audit (NCDA) data to describe the unmet need for these patients



First results from the five MDC projects

Assessing the MDC's value as a cancer diagnostic pathway



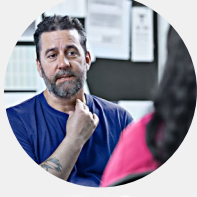
Diagnostic testing within the MDC

Evaluating diagnostic aspects of the MDC, considering topics such as the type, sequencing, number and cost of tests within the model and any overall impact on clinical outcomes



Qualitative assessment of the effectiveness of MDC implementation

The Cancer Policy Research Unit will build on the approach and findings of the PRU qualitative evaluation of MDC pathways



MDC patient experience survey

The Cancer Policy Research Unit will assess the potential use of the survey as the standardised reporting approach for MDC patient experience



MDC patient complexity & non-cancer diagnoses

Exploring the wider potential diagnostic value of the MDC model



Rare and less common cancers

Looking at the MDC model's potential for diagnosing rare and less common cancers

We have really enjoyed working on this innovative new pathway and are pleased to have been able to share important learning and good practice. We hope this document has provided you with a better understanding of the MDC pathway and that you are able to use this information to support the development of similar approaches.

Looking forwards, we are in the early stages of developing a new ACE 'wave'. If you are interested in finding out more, please sign-up for our [newsletter](#).

Acknowledgements:

Thank you to everyone who has contributed to the final MDC report, including MDC patients, the Cancer Policy Research Unit and project clinical teams from:

- Airedale General Hospital
- Manchester University NHS Foundation Trust (Wythenshawe Hospital) & The Northern Care Alliance (Royal Oldham Hospital)
- Leeds St James's University Hospital (Specialist Cancer Centre)
- London: North Middlesex University Hospital, University College London Hospital (Specialist Cancer Centre), Southend University Hospital, Queens (BHRUT) & the Royal Free Hospital
- Oxford University Hospitals Trust (Specialist Cancer Centre)

If you have any questions, please get in touch. Our email is: aceteam@cancer.org.uk

We also have several other MDC related sources which can be accessed through the ACE webpage, cruk.org.uk/ace

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