Rapid Cancer Diagnostic Clinics - the Role of a Radiologist and Novel “One-Stop” Imaging Service Provision

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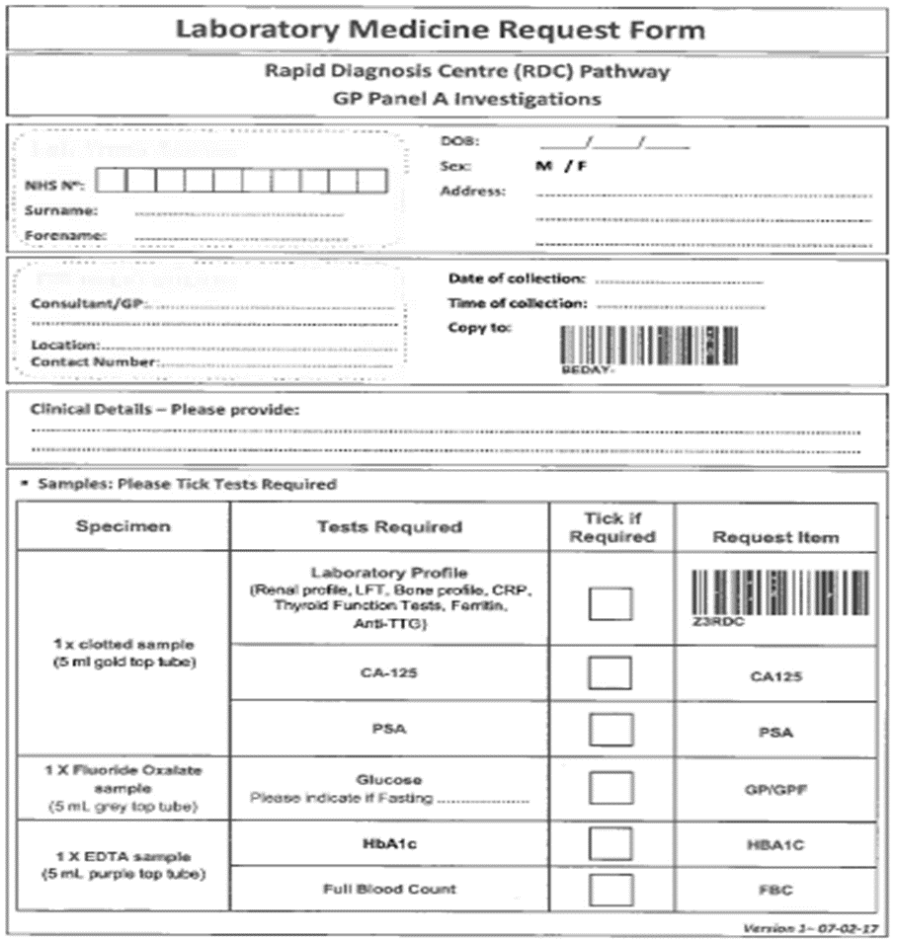
Introduction

There are many established referral pathways from primary to secondary care for patients with typical ‘red flag’ symptoms of cancer. However 50% of patients with cancer do not present with specific symptoms[1]. These patients present a greater diagnostic challenge to general practitioners (GP) who often have to try and access a variety of investigations before the diagnosis is eventually made.

Based on a Danish model of care, the Rapid Diagnostic Clinic (RDC) was established. This allowed GPs the option to refer patients with suspected cancer but with no symptoms that would qualify for a specialist cancer referral pathway.



Laboratory Medicine Request Form

Rapid Diagnosis Centre (RDC) Pathway
GP Panel A Investigations

NHS No: | DOB: ___/___/___
Surname: | Sex: M / F
Forename: | Address:

Consultant/GP:
Location:
Contact Number:

Date of collection:
Time of collection:
Copy to:

Clinical Details – Please provide:

* Samples: Please Tick Tests Required

Specimen	Tests Required	Tick if Required	Request Item
1 x clotted sample (5 ml gold top tube)	Laboratory Profile (Renal profile, LFT, Bone profile, CRP, Thyroid Function Tests, Ferritin, Anti-TTG)	☐	Z3RDC
	CA-125	☐	CA125
	PSA	☐	PSA
1 X Fluoride Oxalate sample (5 mL grey top tube)	Glucose Please indicate if Fasting	☐	GP\GPF
1 X EDTA sample (5 mL purple top tube)	HbA1c	☐	HBA1C
	Full Blood Count	☐	FBC

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All patients required to have a standard set of investigations prior to referral

Role of the radiologist in the RDC

The RDC comprises of a multidisciplinary team (MDT) approach with a consultant physician, consultant radiologist, clinical specialist nurse and a healthcare support worker.

Patients' previous investigations and standard referral investigations including chest radiograph are reviewed and the patient seen by the physician. All patients undergo a CT scan of the thorax, abdomen and pelvis (CT TAP), which is reported by the radiologist during the clinic. Some patients may also have other examinations including CT Head and ultrasound abdomen.

The clinical and radiological findings are then reviewed in an MDT discussion – with the radiology often playing a crucial role in the diagnosis. The patient is the seen again by the physician and the diagnosis and management plan discussed.

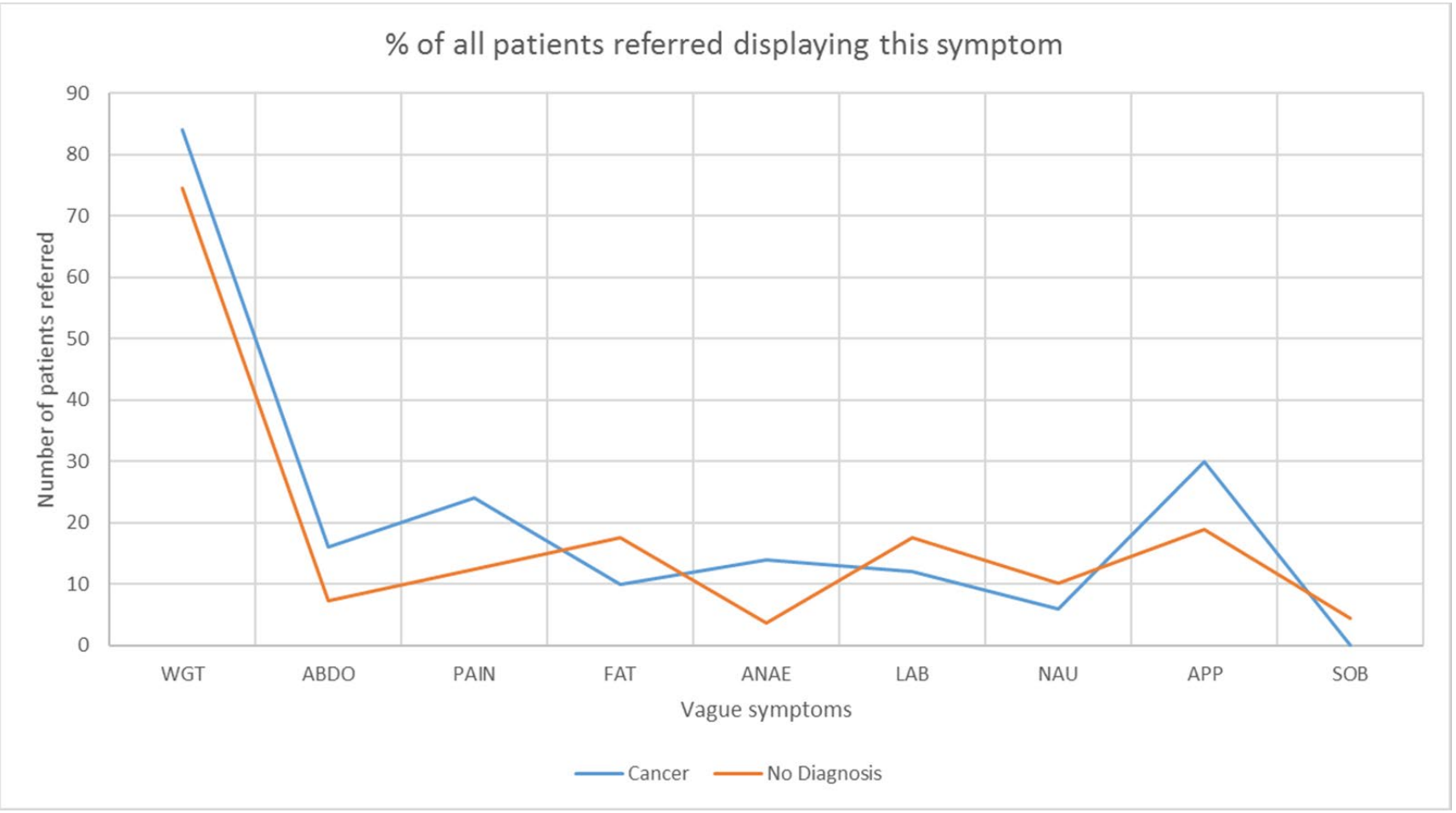
This is a novel method of radiology service delivery with **same day imaging and physician review in a one stop clinic**.

Methods

The RDC was initially piloted for two half day clinics per week in a District General Hospital in a public healthcare system. GPs in the area were made aware of the RDC and strict inclusion criteria were given. These included patients only over 18 years of age, no other suitable available urgent referral pathway, and no previous relevant cancer diagnosis.

Fully anonymised routinely collected data was used for evaluating outcome measures, including number and reasons for referral, patient waiting times, diagnosis and patient satisfaction. The RDC has also been subject to economic evaluation. This compared those patients who had been seen by the RDC and those who would have been inappropriately referred to specialty specific pathways and subsequently downgraded due to lack of red flag symptoms.

Referral Symptoms



ABBREVIATIONS

WGT – Weight loss

ABDO – Abdominal pain

PAIN – Generalised pain

FAT – Fatigue

ANAE – Anaemia

LAB – Unexplained laboratory findings

NAU – Nausea

APP – Appetite loss

SOB – Shortness of breath

Results

Time to diagnosis (days)

- Mean time from Primary care referral to RDC diagnosis - 5.90
- Mean time from Primary care referral to RDC diagnosis in comparator arm (hospital records) - 84.22

Time at the RDC

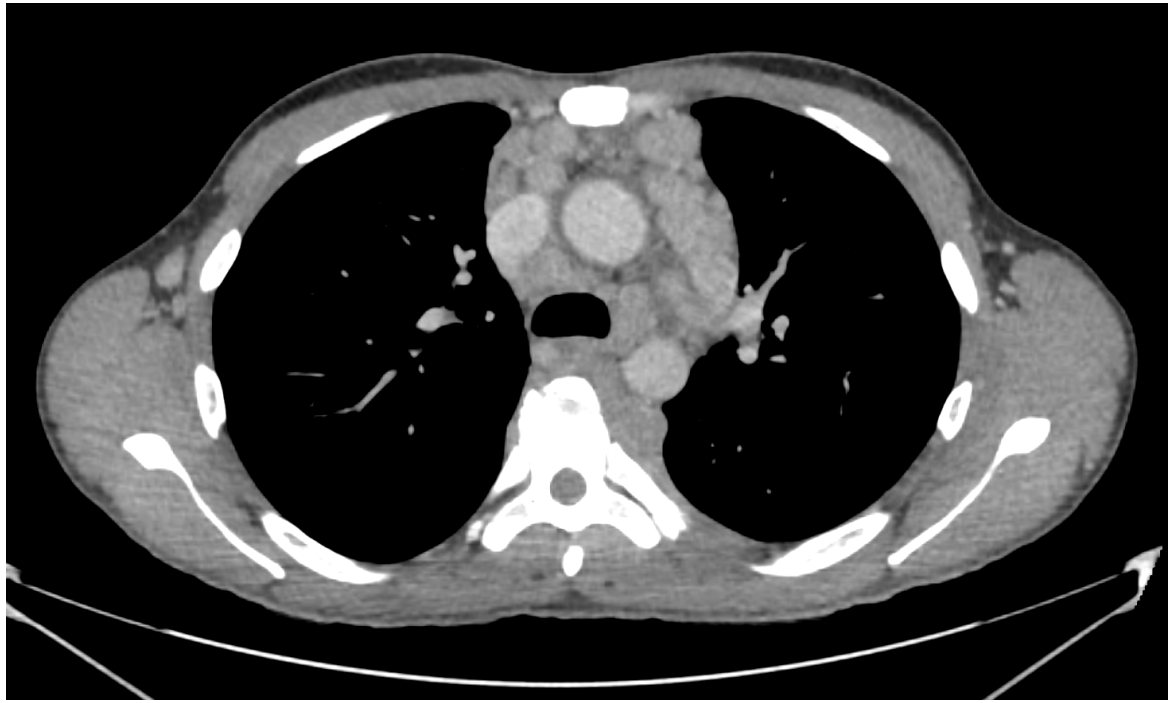
- Patients spend approximately 3 hours at the centre if they have a suspicion of cancer diagnosis. This includes consultation with clinical radiologist and physician, and appropriate diagnostics. The time in clinic was shorter if there was a non-cancer diagnosis or to await further specialist investigations that could not be undertaken that day. Queue times were between 28 minutes and 37 minutes.

Patient satisfaction

- Over 80% of patients stated they had a positive experience with a full explanation of the reason for their referral to the RDC by their GP with 93% of patients reporting that they were extremely satisfied with the overall experience.

Clinical outcome

- 189 patients attended the RDC in the initial pilot year.
- Cancer diagnosis with referral to specialist (n = 23, 12%)
- Non-cancer diagnosis (n = 30, 16%)
- No serious pathology found with discharge to GP (n = 68, 36%)
- No diagnosis; continue investigations (n = 68, 36%).



35 year old male presenting to the RDC with symptoms of back pain and weight loss. CT scan (above) performed at the clinic shows large mediastinal lymphadenopathy consistent with Non Hodgkin's Lymphoma.

MRI whole spine (right) shows lymphomatous deposits in multiple vertebral bodies. In addition there is an epidural metastasis at the level of T8/9 causing moderate spinal canal stenosis.

The patient was seen by the physician, had all imaging performed and reported by the radiologist during the clinic and was made aware of his diagnosis and management plan during the session.

78 year old male presenting to the RDC with weight loss and a medical history of type 2 Diabetes Mellitus. Portal venous phase CT performed at the clinic shows a malignant pancreatic tail tumour and peritoneal metastatic disease.

This patient presenting with non specific symptoms received a much earlier diagnosis and management than through standard referral pathways.

Conclusion

- An RDC model where same day diagnostic imaging and multidisciplinary collaboration leads to earlier diagnosis in patients with vague symptoms by a mean of 78 days.
- Patients report a very good experience of the RDC with high levels of satisfaction recorded. General practitioners also found it to be a very useful referral pathway.
- The model was implemented without any detrimental effect on traditional imaging pathways.
- The RDC has been shown to be clinically cost effective according to National Institute of Health and Clinical Excellence (NICE) thresholds. This cost effectiveness rises with an increase in the number of patients per clinic.

Discussion

- The radiologist is pivotal to the RDC with real-time reporting of imaging and active collaboration and multidisciplinary team discussion.
- This cost effective approach to managing patients with vague conditions is a novel form of imaging service delivery.
- This integration of the radiologist in the patient care team is a move towards the role of an ‘embedded radiologist’, where the radiologist has a greater knowledge of the patient and their management than with other methods of service delivery.[2]

References:
1. Neal RD, Din NU, Hamilton W, et al. Comparison of cancer diagnostic intervals before and after implementation of NICE guidelines: analysis of data from themUK General Practice Research Database. Br J Cancer 2014; 110(3): 584–592.
2. The Future of Radiology Consultation Richard B. Gunderman and Henry Y. Chou Radiology 2016 281:1, 6-9