Good clinicians in supportive healthcare systems –
the Danish three-legged strategy for cancer diagnosis

3rd NAEDI Research Conference
London 2015

Peter Vedsted
Professor
Research Centre for Cancer Diagnosis in Primary Care – CaP
The Research Unit for General Practice
Aarhus University
Denmark
It is sometimes difficult to be a GP...

Almost half of cancer patients diagnosed too late
Late detection of condition in 46% of sufferers can greatly reduce chances of survival, warns Cancer Research UK

Denis Campbell, health correspondent
The Guardian, Monday 22 September 2014
Jump to comments (264)

Patients to be allowed to self-refer for cancer diagnostics without going through GP
12 January 2015 | By Jamie Kaffash

Patients will be able to self-refer themselves for cancer diagnostics without needing to go through GPs as part of NHS England’s new strategy for tackling cancer, which GP leaders said could ‘undermine GPs’ gatekeeper role’.

As part of NHS England’s early diagnosis programme announced over the weekend, it will pilot initiatives to offer patients the option to self-refer for diagnostic tests, lower referral thresholds for GPs and introduce multi-disciplinary diagnostic centres where patients can have several tests in the same place on the same day.

It will also set up a taskforce to develop a five-year action plan for cancer services based on the pilots that will include representatives from the RCGP, as well as Macmillan Cancer Support, Public Health England and local councils.
How we diagnose cancer

- 90% of cancers are diagnosed based on symptoms
- More than 80-85% are seen in general practice

Sources e.g.:
- General practice forms the basis of cancer diagnosis
- And the rest of the healthcare system must support the GP
- A perfect example of integrated healthcare

High quality cancer diagnosis = Integrate primary and secondary care

Green T, Atkin K, Macleod U. Br J Cancer. 2015
The GP in first line

- Following 6% of consultations, GPs suspected a serious disease
- 10% of these patients got a new serious disease in 2 months

Better than ‘alarm symptoms’!

Positive predictive values of ≥5% in primary care for cancer: systematic review
Mark Shapley, Germani Manelli, Joanne I. Jordan and Kelvin P. Jordan

Alarm symptoms in early diagnosis of cancer in primary care: cohort study using General Practice Research Database
Roger Jones, Wolfson professor of general practice,1 Radhakshi Lattouf, database manager,2 Judith Charlton, research assistant,2 Martin Coulter, senior lecturer in public health

Full Paper
The CAPER studies: five case-control studies aimed at identifying and quantifying the risk of cancer in symptomatic primary care patients
W Hamilton1,2

Abstract
Objectives: To evaluate the association between alarm symptoms and the subsequent diagnosis of cancer in a large prospective-based study in primary care.

Design: cohort study.
Setting: UK General Practice Research Database.
Participants: 78,125 patients aged 15 years and older, registered with 128 general practitioners between 1994 and 2000. First occurrence of symptoms, haematology, haematology, symptoms and rectal bleeding identified in patients with no previous cancer diagnosis.

Main outcome measure: Positive predictive value of the occurrence of haematuria, haemorrhagic symptoms, or rectal bleeding for diagnosis of neoplasms of the urinary tract, colorectal, breast, and ovarian and other cancers.

Results: Among the 128 general practitioners, 20% of their patients each year for special attention and having investigations.2 Referral from primary to secondary care is often triggered by a general practitioner’s awareness of so called “alarm symptoms,” features in the clinical presentation that are considered to predict, often malignant, disease. For example, guidelines on the identification of patients with well-defined haematuria and haemorrhagic symptoms may be used to diagnose renal cell carcinoma. However, the evidence base for the grading of many alarm symptoms is weak, and general practitioners often use guidelines developed for the identification and exclusion of urological cancer.

Keywords: diagnostic test, primary healthcare, predictive value

- Shapley M. Br J Gen Pract 2010
But how good do GPs think they are?

What is the probability that a 50-year-old patient has cancer when you choose to refer the patient to urgent referral diagnostic services?

<table>
<thead>
<tr>
<th>GPs' anticipated risk of cancer</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-14%</td>
<td>115</td>
<td>20.3</td>
</tr>
<tr>
<td>15-24%</td>
<td>99</td>
<td>17.4</td>
</tr>
<tr>
<td>25-49%</td>
<td>117</td>
<td>20.6</td>
</tr>
<tr>
<td>50-74%</td>
<td>160</td>
<td>28.2</td>
</tr>
<tr>
<td>75-100%</td>
<td>77</td>
<td>13.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>568</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Is this because they are unrealistic clinicians? Or is it the culture of the system they are situated in?

How do GPs evaluate the diagnostic pathway

GPs reported quality deviation in 30% of pathways they were involved in

Is this because they are bad clinicians?
Or the system has taught the GPs to wait?

It means a lot to patients…

Active disenrollment from GP’s patient list

- Cancer patients
- Cancer-free references

Jeppesen KG, et al. Under preparation
It means a lot to patients

Is this due to the clinical difficulties for some cancers?

Or a lack of access to investigations when symptoms are not clearly indicative of cancer?

Jeppesen KG, et al. Under preparation
Pre-diagnostic activity – colorectal cancer

Measuring haemoglobin in general practice

What if the GPs had access to relevant investigations?

Hansen P, et al. IJC 2015
Urgent referral to Diagnostic Centre \( (n=1200) \)

The GP’s gut-feeling and risk of cancer

| Risk of cancer |  
|---------------|---|
| Do we trust a GP’s specialist nose? |  
| Is the healthcare system responsive when symptoms are not indicative of cancer? |  
| Very much | 34.0% |

Ingeman ML, et al. Submitted 2015

Funded by: Danish Cancer Society | The Novo Nordisk Foundation

[Image of Danish Cancer Society and The Novo Nordisk Foundation logos]
Acknowledge the 3 groups of symptoms!

<table>
<thead>
<tr>
<th>Symptom group</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm symptom</td>
<td>50</td>
</tr>
<tr>
<td>Serious, non-specific</td>
<td>20</td>
</tr>
<tr>
<td>Common</td>
<td>30</td>
</tr>
</tbody>
</table>

A differentiated approach to referrals from general practice to support early cancer diagnosis – the Danish three-legged strategy

P Vedsted* and F Olesen

*Research Unit for General Practice, The Research Centre for Cancer Diagnosis in Primary Care (Cap), Institute of Public Health, Aarhus University, Bovbjerg Alle 2, 8000 Aarhus C, Denmark

Abstract: When aiming to provide more expedited cancer diagnosis and treatment of cancer at an earlier stage, it is important to take into account the symptom epidemiology throughout the pathway, from first bodily sensation until the start of cancer treatment. This has implications for how primary-care providers interpret the presentation and decisions around patient management and investigation. Symptom epidemiology has consequences for how the health-care system might best be organised. This paper argues for and describes the organisation of the Danish three-legged strategy in diagnosing cancer, which includes urgent referral pathways for symptoms suspicious of a specific cancer, urgent referral to diagnostic centres when we need quick and profound evaluation of patients with nonspecific, serious symptoms and finally easy and fast access to ‘No-Clinics’ for cancer investigations for those patients with common symptoms in whom the diagnosis of cancer should not be missed. The organisation of the health-care system must reflect the reality of symptoms presented in primary care. The organisational change is evaluated and monitored with a comprehensive research agenda, data infrastructure and education.

In recent years, many health-care systems have implemented specific strategies to ensure timely cancer diagnosis (Department of Health, 2006; Bradley et al., 2015). This has been motivated by poor cancer survival, overwhelming demand, and the need to provide diagnosis and treatment within recommended time frames. To meet these challenges, the Danish three-legged strategy has been developed to improve the early diagnosis and treatment of cancer.
1 - Urgent referral is effective but...

- Urgent referral for cancer suspicion
  - Has given shorter diagnostic intervals

- For those 40% diagnosed through urgent referral

- 60% are not diagnosed through the expedited route!

2 - Urgent referral to diagnostic centres

- If the GP cannot allocate the patient to a specific route
- The GP performs a filter function:
  - Imaging and blood samples within 2 days
  - If no explanation, then referral and seen within 2 days
- A multidisciplinary team of specialists at hospital
- Outpatient ‘pit-stop’
3 - Direct access to investigations

- Implemented as ‘No-Yes-Clinics’ (NYC)
  - GPs have direct access to expedited investigations
    - Ultrasonic investigation of abdomen, pelvis, CT, endoscopy etc.
  - The GP is fully responsible
- No record, history taking etc. at clinic – only a No or a Yes!
Direct access to low-dose CT scan

- Direct access gave no difference in use of CT scans
- 22 pulmonary specialist hours saved per 100 patients referred
- 0.2 CT scans / 1000 listed / month
- 50% needed additional investigation
- 2.3% had a lung cancer
Change the GPs or change the system?

- Increase the GPs’ awareness
- Educate GPs in how to use the system correctly
- Develop indicators of GP performance
- But what if it is the health system that is poorly functioning?
Some ‘inborn errors of metabolism’

- Urgent referral for cancer suspicion is the solution
  - No, less than half of the problem – it’s not the reality
- The GP can suspect cancer based in a list of symptoms and signs
  - Other symptoms can wait and we do not trust “gut-feeling”!
- We focus on the cancer type and not on the symptoms
  - GPs see symptoms and patients, - not cancers!
- Empower the patients to navigate correctly
  - Do patients know? Equality? Anxiety, barriers?
- Include specialists to check the GP’s work (double gatekeeping)
  - ‘We get too many referrals and only 30% have cancer’
Understanding missed opportunities for more timely diagnosis of cancer in symptomatic patients after presentation

G Lytratzopoulos, P Vedsted, and H Singh

1Health Behaviour Research Centre, Department of Epidemiology and Public Health, University College London, 1-19 Torrington Place, London WC1E 6BT, UK; 2Department of Public Health and Primary Care, Cambridge Centre for Health Services Research, University of Cambridge, Institute of Public Health, Forvie Site, Robinson Way, Cambridge CB2 0SR, UK; 3Department of Public Health, Research Unit for General Practice, Research Centre for Cancer Diagnosis in Primary Care (CaP), Aarhus University, DK-Bartholins Allé, 8000 Aarhus, Denmark and 4Houston Veterans Affairs Center for Innovations in Quality, Effectiveness and Safety, Michael E. DeBakey Veterans Affairs Medical Center and the Section of Health Services Research, Department of Medicine, Baylor College of Medicine, Houston TX 77030, US

Abstract: The diagnosis of cancer is a complex, multi-step process. In this paper, we highlight factors involved in missed opportunities to diagnose cancer more promptly in symptomatic patients and discuss responsible mechanisms and potential strategies to shorten intervals from presentation to diagnosis. Missed opportunities are instances in which post-hoc judgement indicates that alternative decisions or actions could have led to more timely diagnosis. They can occur in any of the three phases of the diagnostic process (initial diagnostic assessment, diagnostic test performance and interpretation, and diagnostic follow-up and coordination) and can involve patient, doctor/care team, and health-care system factors, often in combination. In this perspective article, we consider epidemiological ‘signals’ suggestive of missed opportunities and draw on evidence from retrospective case reviews of cancer patient cohorts to summarise factors that contribute to missed opportunities. Multi-disciplinary research targeting psychological, human factors, science and informatics can be extremely valuable in this emerging research agenda. We provide a conceptual foundation for the development of future interventions to minimise the occurrence of missed opportunities in cancer diagnosis, enriching current approaches that chiefly focus on clinical decision support or on widening access to investigations.
Good clinicians in a supportive health system

- We should continue educating good clinicians
- But not change the GPs so they fit into a poorly functioning system
- Try to make a supportive system acknowledging the reality of the GPs’ clinical work
- And integrate primary and secondary care in making high quality cancer diagnostics

The 3-legged strategy for cancer diagnosis
Thank you