Insights from research and policy initiatives in different healthcare systems and settings

Chair: Dr Yoryos Lyratzopoulos
Speakers: Professor Peter Vedsted
Dr Hardeep Singh
Introductory observations

Dr Yoryos Lyratzopoulos, MD, FFPH, FRCP, MPH,
Reader in Cancer Epidemiology
Cancer Research UK Clinician Scientist Fellow 2015-2019
An exercise in knowledge brokerage and ‘comparing notes’ for reciprocal learning...

*Not* about discovering who is ‘better’ or ‘worse’

“Root problems” = same everywhere

- Low predictive value of symptoms – *forever*
- Few accurate & easy-to-use tests – *currently*

*We are all in this together*
Session plan

• Introduction

• Evidence from Denmark
   
   *Good clinicians in supportive health care systems - the Danish three-legged strategy for cancer diagnosis*

• Evidence from the US
   
   *Research on missed opportunities in cancer diagnosis in the US: Defining, measuring and reducing*

• Panel / plenary discussion
Circle 1

Non-prompt diagnosis is not only a barrier to improving cancer survival....

but a global ‘quality and safety’ problem

[both for the public health and the health care system]
Consider.....

5-year survival with stage IV melanoma currently > 20%

*But* associated with:
- Substantial treatment burden
- Considerable risk of serious side effects
- High costs to health care system

Therefore: We need to consider the impact of advanced stage diagnosis on morbidity / QoL / cost

Lebbé C *et al*, *Ann Oncol*, 2014
Why earlier diagnosis matters
– a more complete picture

- Improving cancer survival
- Improving patient experience
- Increasing efficiency / cost-effectiveness
- Reducing cancer-related morbidity / disability
- Decreasing medico-legal & other complaints
- Improving outcomes for other diseases
Improving patient experience

• Cancer patients with a non-prompt referral, evaluate the experience of their subsequent cancer care more critically

• Associations stronger for aspects of cancer management involving primary care, and questions about ‘confidence and trust’

Mendonca S et al, submitted EJCC
Circle 2

Stratification (of risk of non-prompt diagnosis)

- Between patient groups
- Between healthcare organisations (e.g. practices)
Better understanding of variation in risk

Targeting and tailoring of early diagnosis efforts

- **Interventions:** Increased effectiveness & efficiency
- **Research:** Higher ‘Return on Investment’ (ROI)
0.75 million patients, 27 cancers, ~2000 strata (cancer-age-sex-deprivation) regarding risk of emergency presentation

Very large degree of complexity and variability – lots of variation to explain and learn from

What about stratifying organisations (practices) for cancer-relevant diagnostic activity?

Telling practices apart challenging for some indicators

**Diagnostic outcome indicators**

- **TWW detection rate**
  - Reliability = 0.37 (very low)
  - Median N° of cases / practice = 12

**Diagnostic process indicators**

- **TWW referral rate**
  - Reliability = 0.96 (really high)
  - Median N° cases / practice = 124

Emerging findings from NAEDi grant
see poster #1 by Abel et al.
Circle 3

“Missed diagnostic opportunities”

Bridging epidemiology and improvement science
Opportunities for earlier diagnosis may exist but we do not know the mechanisms involved

- Primary care use -12 to -1 months before diagnosis
  - Patients with / without colorectal cancer

Understanding missed opportunities for more timely diagnosis of cancer in symptomatic patients after presentation

G Lyratzopoulos*1,2, P Vedsted3 and H Singh4
‘Missed diagnostic opportunities’: 3 key aspects of definition

• Case analysis suggests that something different could have been done to make the correct diagnosis earlier

• Occur anywhere in the ‘evolving’ diagnostic process
  – E.g. during consultation or during follow-up (or lack of it)

• They have multiple aetiologies
  – Patient, provider and system factors at play (often together)

Singh H Jt Comm J Qual Patient Saf 2014
<table>
<thead>
<tr>
<th>Phase of Dx process</th>
<th>Patient factors</th>
<th>Provider factors</th>
<th>System factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical encounter</td>
<td>Awareness / psychosocial factors</td>
<td>Inadequate Hx taking / cognitive factors</td>
<td>Rigid consultation norms / 10’ consultation</td>
</tr>
<tr>
<td>Test performance</td>
<td>Practical barriers / fear of result or procedure</td>
<td>Cognitive barriers / biases</td>
<td>Lack of fail-safe systems for no-shows or alerting abnormal results</td>
</tr>
<tr>
<td>Follow-up</td>
<td>Practical barriers / attitudinal issues</td>
<td>Cognitive overload / unappreciated abnormal findings</td>
<td>Over-reliance on patients to ‘call back’</td>
</tr>
</tbody>
</table>
Not all missed opportunities come to harm
Not all harm comes from missed opportunities

Adapted from Singh H, Jt Comm J Qual Patient Saf 2014
Interim conclusions

• Early diagnosis matters for many different outcomes
  – Not just survival
• Epidemiology increasingly identifying stratified risk of early/late diagnosis
  – Revealing potential mechanisms and intervention targets
• Epidemiology is vital but not adequate
  – Multidisciplinary research needed to support the diagnostic process and improve timeliness
  – Patient, provide and healthcare factors operate both during and after the first encounter
Our two speakers...

- Leading multi-disciplinary research groups
  Representing ‘early diagnosis research systems’

- Research across the translational pathways
  From observational studies to randomised controlled trials

- Sustained productivity innovation / many years
Introducing Professor Vedsted
Few very recent innovative contributions to the evidence

Novel diagnostic care models evaluation

“Missed opportunities” in Danish primary care

Epidemiology of diagnostic pathways
Danish early diagnosis research and policies have *inspired and influenced* UK early diagnosis research and policy for many years.

Ready for another migratory wave of good ideas and learning from Denmark.
Introducing Dr Singh
Exploring situational awareness in diagnostic errors in primary care

Hardeep Singh,¹ Traber Davis Giardina,¹ Laura A Petersen,¹ Michael W Smith,¹ Lindsey Wilson Paul,² Key Dismukes,³ Gayathri Bhagwath,⁴ Eric J Thomas⁵

ABSTRACT
Objective: Diagnostic errors in primary care are harmful but poorly studied. To facilitate the understanding of diagnostic errors in real-world primary care settings that use electronic health records (EHRs), this study explored the use of the situational awareness (SA) framework from aviation human factors research.

Methods: A mixed-methods study was conducted involving reviews of EHR data followed by semi-

these errors are challenging to study and have received inadequate attention.¹⁵—¹⁸ Additionally, the science of understanding and analyzing outpatient diagnostic errors is poorly developed.¹⁹—²¹ Although patient and system factors are known to contribute to diagnostic error,²² little is known about how diagnostic decision-making errors occur in routine primary care settings.²³
All our ‘comfort blankets’ questioned

• US setting – problems amidst ‘diagnostic information affluence’ and minimal gate-keeping

• Focus not only on the ‘consultation’ but what happens ‘afterwards’

• Emphasis on system factors in ‘diagnostic safety’
Few milestone papers

Fact-finding (based on integrated patient records)

Theory-building / conceptual frameworks

Interventions

Journal of Clinical Oncology

Characteristics and Predictors of Missed Opportunities in Lung Cancer Diagnosis: An Electronic Health Record–Based Study

JAMA Internal Medicine

Types and Origins of Diagnostic Errors in Primary Care Settings

BMJ Quality & Safety

Electronic health record-based triggers to detect potential delays in cancer diagnosis