RESEARCH & EVIDENCE: DRIVING IMPROVEMENTS IN EARLY DIAGNOSIS

EARLY DIAGNOSIS RESEARCH CONFERENCE, 23 FEB 2017

Harpal Kumar
CEO
CANCER RESEARCH UK

THE IMPORTANCE OF EARLY DIAGNOSIS

<table>
<thead>
<tr>
<th>EARLY AND LATE CANCER DIAGNOSIS</th>
<th>LATE DIAGNOSIS = POORER OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STAGE OF CANCER WHEN DIAGNOSED, ENGLAND 2014</strong></td>
<td><strong>SURVIVAL BY STAGE AT DIAGNOSIS</strong></td>
</tr>
<tr>
<td><strong>EARLY (STAGE I+II)</strong></td>
<td><strong>LATE (STAGE III+IV)</strong></td>
</tr>
<tr>
<td>ALL CANCERS</td>
<td>54%</td>
</tr>
<tr>
<td>BREAST CANCER</td>
<td>85%</td>
</tr>
<tr>
<td>BOWEL CANCER</td>
<td>44%</td>
</tr>
<tr>
<td>LUNG CANCER</td>
<td>25%</td>
</tr>
<tr>
<td>MELANOMA SKIN CANCER</td>
<td>91%</td>
</tr>
<tr>
<td>NON-HODGKIN LYMPHOMA</td>
<td>36%</td>
</tr>
<tr>
<td>OVARIAN CANCER</td>
<td>42%</td>
</tr>
</tbody>
</table>

**DATA FOR PEOPLE DIAGNOSED IN ENGLAND IN 2014**

HOW CAN WE IMPROVE EARLY DIAGNOSIS?

Hiom et al. (2015) Diagnosing cancer earlier: reviewing the evidence for improving cancer survival. BJC.

HOW WE'RE WORKING TO IMPROVE EARLY DIAGNOSIS

Potential screening interval

- Early biomarkers
  - Cytosponge

Primary care interval

- Screening
  - CanTest Catalyst award

Secondary care interval

- Symptomatic
  - EDAG Early Diagnosis Advisory Group
- Treatment
  - Lung Matrix

First pre-cancerous indicators

First development of cancer

First symptom

First presentation/clinical appearance

Investigation of related symptoms

Referral to secondary care

First specialist visit

Diagnosis/referral to treatment

Start of treatment
UPTAKE OF BOWEL CANCER SCREENING IS POOR

- Bowel screening (gFOBT) is about 10 years old now, but uptake remains lower than other national screening programmes
- Bowel cancer mortality is 25% lower in those who’ve taken part in bowel screening (gFOBT)
- There are significant inequalities in uptake related to:
  • Deprivation
  • Sex (lower in men)
  • Age

BOWEL CANCER SCREENING

- Bowel screening uptake looks set to improve through:
  • Implementation of FIT in England and Scotland
  • Bowel scope roll-out in England
- We’re supporting these changes through:
  • Publication of GP good practice guide
  • Be Clear On Cancer: Bowel screening regional pilot (Jan – March 2017)
CERVICAL CANCER SCREENING

- Testing for HPV as a first test in cervical screening is more effective than current cytology-only screening
  • England, Scotland and Wales have committed to introducing this test.

- Women who test HPV-negative would need to be screened less often
  • 5 year screening interval
  • Cost-saving to NHS

LOCAL STAGING DATA COMPLETENESS IS IMPROVING

Percentage of cases, of known stage, diagnosed at stage I and II, for patients diagnosed between 2012 and 2014. Based on Public Health England data.
REGIONAL VARIATION IN STAGE AT DIAGNOSIS

UNADJUSTED

Percentage of cancers diagnosed at a late stage (Stage 3 and 4) where stage at diagnosis is known:

- **Most late diagnosis** (44.5%): 40.5% - 46.7%
- **45.5% - 46.7%**
- **43.5% - 45.5%**
- **Least late diagnosis** (39.2% - 45.5%)

ADJUSTED FOR CANCER TYPE

Percentage of cancers diagnosed at a late stage (Stage 3 and 4) where stage at diagnosis is known, weighted according to cancer type incidence:

- **Most late diagnosis** (49.5% - 54.5%)
- **49.0% - 50.5%**
- **48.5% - 49.5%**
- **46.5% - 48.5%**
- **45.5% - 46.5%**
- **Least late diagnosis** (44.5% - 46.5%)

ADDITIONAL DRIVERS OF VARIATION

- GENDER
- AGE
- SOCIOECONOMIC FACTORS
- ETHNICITY

WE KNOW MORE ABOUT THE DIFFERENT ROUTES TO DIAGNOSIS

**ALL CANCERS**

<table>
<thead>
<tr>
<th>% OF PATIENTS DIAGNOSED</th>
<th>STAGE WHEN DIAGNOSED</th>
</tr>
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<tbody>
<tr>
<td>No national screening programmes</td>
<td>EARLY STAGE 1</td>
</tr>
<tr>
<td>By urgent GP referral</td>
<td>34%</td>
</tr>
<tr>
<td>By routine GP referral</td>
<td>25%</td>
</tr>
<tr>
<td>In an emergency, via emergency department, accident and emergency department, or hospital outpatient</td>
<td>21%</td>
</tr>
<tr>
<td>Hospital inpatient or outpatient</td>
<td>11%</td>
</tr>
<tr>
<td>Unknown data</td>
<td>5%</td>
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**BOWEL CANCER**

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</tr>
<tr>
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<td>10%</td>
</tr>
<tr>
<td>Unknown data</td>
<td>2%</td>
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Source: PHE data by CICO for 2013/14. Calculated to the National Cancer Intelligence Network.
WE KNOW MORE ABOUT THE DIFFERENT ROUTES TO DIAGNOSIS

GP Urgent Referrals (from Waiting time data)

WE'RE NOT MEETING WAITING TIME TARGETS

Performance against 62 day standard from GP Urgent Referral to First Treatment

Percent of patients waiting more than 6 weeks for a diagnostic test
Patients waiting more than six weeks for pathology diagnostics at quarter end.

Patients waiting >12 weeks for pathology diagnostics at quarter end.

Waiting times for pathology services are increasing.

We know we have less imaging equipment and fewer trained staff in the UK.
WE NEED GREATER DIAGNOSTIC CAPACITY

CRUK COMMISSIONED WORK ON ENDOscopy, IMAGING AND PATHOLOGY SERVICES

KEY RECOMMENDATIONS
✓ INCREASE INVESTMENT IN DIAGNOSTIC SERVICES
✓ RECRUIT AND TRAIN MORE STAFF
✓ INCREASE NUMBER OF IMAGING MACHINES IN A WIDER RANGE OF LOCATIONS
✓ CONTINUE CONSOLIDATION OF NETWORKING
✓ FUTUREPROOFING

A FASTER DIAGNOSIS STANDARD HAS BEEN SET

Any patient referred for testing is definitively diagnosed/ cancer is excluded AND the result communicated to the patient, within four weeks.

AMBITION
• 95% of patients have this by 2020
• 50% definitively diagnosed within 2 weeks
THE ACE PROGRAMME

- A programme to accelerate, coordinate and evaluate (ACE) innovation and streamline diagnostic pathways to achieve earlier diagnosis of cancer.

- ACE 2 is piloting six projects trialling a new diagnostic pathway for patients with vague symptoms - an approach incorporating a Multidisciplinary Diagnostic Centre as in Denmark.

THE INTERNATIONAL CANCER BENCHMARKING PARTNERSHIP

PHASE 2

19 jurisdictions in 6 countries
8 cancers
LOOKING TO THE FUTURE

New research directions:

- Biomarkers of disease:
  - Pre-cursors
  - Early cancers
- New imaging modalities
- Distinguishing lethal cancers that need treating from non-lethal ones which don’t
- Use of AI/machine learning:
  - Radiology and pathology – capacity (and accuracy?)
  - Investigation or presentation patterns

SCREENING: diagnose bowel cancer earlier through screening
- UK wide implementation of FIT

Evaluating ACE: ensure appropriate recognition, management and referral of patients in primary care
- Implementing good practice

Diagnostics: ensure swift access to, and reporting of, appropriate diagnostic tests
- Greater diagnostic capacity
- Improved diagnostic efficiency
- Improved skills mix in workforce and networking of specialists
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