The Radiography Workforce

Current Challenges and Changing Needs
Diagnostic imaging

Background
Imaging plays a central role in modern healthcare, with almost all patient pathways reliant on an effective and efficient service to improve patient experience and outcomes.

- Team working is fundamental to the delivery of a patient focused service.
- Of increasing importance given the sustained and significant increases in radiology activity, driven by new and emerging technologies, an ageing patient population with changing health needs, and a drive towards 7-day working.

Chronic shortages in the diagnostic workforce, including consultant radiologists and diagnostic radiographers.

- Significant diagnostic capacity issues are hampering the drive to improving patient care, experience and outcomes, with a considerable volume of investigations waiting more than 30 days for a report.

- Ambitious plans for new care models and improved cancer outcomes require novel approaches, maximising the skills of the entire imaging team. The status quo is no longer an option.

Methodology
The collaborative approach taken by the radiology department of an acute London hospital has been published as a case study, highlighting the team working approach advocated by the Royal College of Radiologists and the College of Radiographers.

These are the results from a continuous service evaluation, using the same methodology as used in previously published studies.

- Analysis of departmental activity, report turnaround times, waiting times and the proportion of examinations performed and/or reported by radiologists, reporting radiographers, sonographers and extended scope physiotherapists.

- Activity benchmarked against Royal College of Radiologists’ workforce planning and national reporting standards.

- Novel approaches that maximise the contribution of the entire diagnostic team have been highlighted.

Results
Overall departmental activity shows ongoing growth, and reflects concurrent overall activity pressures on the NHS.

- Total activity has increased 35% from 117,520 examinations in 2010-11 to 158,773 in 2015-16.
- This has been driven by sustained growth in cross-sectional imaging. Over the six year cycle:
  - MRI has increased 72% (5,814 to 9,754 in 2015-16)
  - CT 26% (11,636 to 14,754)
  - Non-obstetric ultrasound 41% (23,057 to 32,719).

- Average waiting times have remained relatively consistent, especially given the increase in demand

- Reporting turnaround times have been maintained, or improved. MRI has shown a slight increase, however this needs to be placed in the context of sustained activity growth.

- Homerton University Hospital Radiology is one of few departments in England to report zero wait in the Royal College of Radiologists’ audits.

<table>
<thead>
<tr>
<th>Modality</th>
<th>Average Reporting Time</th>
<th>Proportion &lt;24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ray</td>
<td>34 hours</td>
<td>74%</td>
</tr>
<tr>
<td>CT</td>
<td>16 hours</td>
<td>73%</td>
</tr>
<tr>
<td>MRI</td>
<td>72 hours</td>
<td>36%</td>
</tr>
</tbody>
</table>

- Aside from overnight cover for urgent CT scans, outsourcing has not been required to maintain capacity or reporting times.
- Despite an increasing trend for clinicians outside of radiology to provide reports in England, all examinations, apart from intra-oral dental X-rays and intraoperative fluoroscopic imaging, receive a radiology report.
- The consultant radiologist and radiographer advanced practice establishment has increased, shaped by anticipated demand and service requirements.
- Advanced and consultant practitioners, reporting radiographers, sonographers and physiotherapists have provided a significant contribution to the service delivery.
- Departmental activity was examined using the Royal College of Radiologists, guidance on workforce planning.

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected radiologist hours</th>
<th>Actual radiologist hours</th>
<th>Consultant radiologist (FTE) savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>15,595</td>
<td>11,834</td>
<td>3</td>
</tr>
<tr>
<td>2015-16</td>
<td>23,832</td>
<td>17,699</td>
<td>6</td>
</tr>
</tbody>
</table>

- Extending the contribution of radiology department assistants (healthcare assistants) allows radiographers to concentrate on patient care, efficient service delivery and creates capacity for additional reporting sessions.
  - Cannulating patients for CT and MRI contrast examinations
  - MRI safety checks
  - Assisting consultant radiologists and physiotherapists with ultrasound and CT interventional procedures
- An assistant practitioner is used in outpatient and general practitioner x-ray and provides a significant contribution to capacity. The assistant practitioner performs approximately 20% of outpatient x-ray imaging.
- Proactive training and role extension of sonographers has improved retention. At present we are up to full complement and are one of a few departments not using agency/locum staff in ultrasound.

Conclusions
A team-based approach is essential within radiology to meet rising demand and to maintain a patient focused service. Radiographer reporting provides a significant contribution and has been shown to be effective, efficient and safe.

Ensuring sufficient radiographers, both for reporting and for backfill into traditional roles, is essential for a robust, reliable service. This was recognised and addressed during 2014-15 when reporting times increased.

For further information contact:
Nick Woznitza
Clinical Academic Reporting Radiographer
Homerton University Hospital
Canterbury Christ Church University
nicholas.woznitza@nhs.net
020 8510 5315
Radiographer Reporting - Summary of Evidence

Chest X-rays
Woznitza et al. Adult chest radiograph reporting by radiographers: Preliminary data from an in-house audit programme Radiography 2014; 20:223-229
Findings: Radiographers report chest X-rays with a high degree of accuracy and with comparable agreement to consultant radiologists.
Importance: Redesign of lung cancer pathway and improved lung cancer outcomes.

Gastrointestinal Imaging
Law et al. Radiographer performed single contrast small bowel enteroclysis Radiography 2005; 11:11-15
Findings: Radiographers can perform and report a range of gastrointestinal examinations with comparable accuracy to radiologists.
Importance: Increased workload due to bowel cancer screening programme and move away from traditional barium procedures.

Mammography
Findings: Radiographers identified all cancers in image test bank, and perform screening with good accuracy.
Importance: Shortage of breast radiologists and general breast imaging workforce.

Magnetic Resonance Imaging
Brealey et al. Observer agreement in the reporting of knee and lumbar spine magnetic resonance (MR) imaging examinations: Selectively trained MR radiographers and consultant radiologists compared with an index radiologist Eur J Radiol 2013; 82:e507-e605
Findings: Radiographers report knee and lumbar spine MRI examinations with high accuracy and comparable performance to radiologists.
Importance: Significant increase in MRI activity and rising demand from general practitioner with direct access.

Skeletal X-rays
Findings: Radiographers report skeletal X-rays with high accuracy and immediate reporting of skeletal X-rays from the emergency department is cost effective.
Importance: Emergency medicine is under significant strain with significant backlogs of GP skeletal X-rays waiting for a report across England.

Evidence of Service Contribution
Woznitza et al. Optimizing patient care in radiology through team-working: A case study from the United Kingdom Radiography 2014; 20:258-263
Findings: Radiographer reporting provides a significant contribution to radiology service delivery in an effective, efficient and patient focused way.
Importance: Diagnostic capacity is frequently identified as a barrier to improved patient care and outcomes, with a significant backlog of examinations waiting for a report.
It is essential that these roles are endorsed by the whole clinical team, allowing correct use of and support for the radiographers in the development of their advanced skills. When correct strategies are not implemented, this can pose challenges. Defining a clear scope of practice can protect the teams and ensure role boundaries are clear. Radiographers in such roles may also require extra support to ensure a degree of clinical competency is achieved, for example on a linear accelerator, or with brachytherapy treatments and this can be difficult to achieve with the other responsibilities these roles encompass.

As practitioners in advanced/consultant roles, we have enjoyed the enhanced skills and knowledge we have acquired from the clinical teams and the responsibilities we have gained with this. Being able to support patients using a holistic approach through their entire pathway is extremely rewarding.

In the future, these roles are likely to expand as newer technologies within radiation delivery specialise even further. For example, brachytherapy delivered as monotherapy will increase the case load of patients and will require expert knowledge.

We are also likely to see an increase in radiotherapy patients due to the new research findings from the STAMPEDE trial suggesting radiotherapy to the primary prostate cancer, even in metastatic patients, is likely to be beneficial.

**CASE STUDY: Phil Reynolds**

Since qualifying in 1999, I have worked in hospitals in the UK, Australia and New Zealand. I started as a general treatment review radiographer eight years ago seeing patients for all tumour sites and for the past six years I have been the Advanced Urology Practitioner specialising in radiotherapy for prostate and bladder cancers. The development of this role came after a gap was identified in the quality of support available for these patients.

My role is to be the link between urology and radiotherapy and so I have contact with all patients undergoing radiotherapy for a urological cancer. I support both the patient and their family throughout treatment after initially seeing them at a pre-treatment seminar. As well as inserting gold seed markers into the prostate to aid the accuracy of treatment, I provide continuity of care throughout the course of radiotherapy. As a non-medical prescriber, I am able to initiate treatment for side effects and provide a follow up clinic.

Close working with colleagues in the multi-disciplinary team is crucial to ensuring the best care for the patient, enabling referral to other specialties as required, such as andrology or continence nurses. The role also includes involvement and facilitation of a monthly prostate cancer support group since its inception five years ago. I have really enjoyed helping facilitate the group as well as giving talks in my field of expertise.

As a member of the urology working party within radiotherapy, I help to continually improve techniques and outcomes for patients having radiotherapy for a urological cancer. To that end I am also responsible for writing our department patient information, as well as reviewing information for Prostate Cancer UK.

In the future, I hope to continue advancing the role working towards a consultant practitioner and to continue to make the journey for the patient as smooth as possible.

**For further information contact:**

Spencer Goodman MSc PgDip FHEA DCR (T)  
Professional Officer for Radiotherapy  
The Society and College of Radiographers  
spencerg@sor.org  
020 7740 7257