Background and Aim

- Supply of healthcare resources is limited
- Demand for healthcare is high and potentially rising
- Decisions need to be made about how to treat specific conditions and which conditions to prioritise
- Expanding the role of allied health professionals is one solution to the challenge of increasing pressures on budgets
- Some concerns over such expanded roles
- Radiographer reporting of CXRs seen as a potential alternative to radiologist reporting
- What are the cost implications of radiographer reporting of CXRs for suspected lung cancer?
- How cost-effective is radiographer reporting?

Methods

- Study funded by Society of Radiographers and conducted by MSc student from City University
- Evaluation options:
  - Randomised trial
  - Observational study
  - Case note review
  - Simulation model
- Advantages of models:
  - Results can be produced quickly
  - Models can be adapted to aid generalisability
  - Allows a focus on certain key parameters of interest
- Disadvantages of models:
  - Models are by definition an abstraction from reality
  - Data are not always available

Key Assumptions

- Time taken to report chest X-rays is 2 minutes for both radiographers and radiologists
- False negatives present at A&E and at a later date at which point disease has advanced a stage (for patients at stage I to III)
- Sensitivity and specificity of radiographer reporting of chest X-ray and radiologist reporting of both chest X-ray and CT-scan is independent of disease stage or other patient characteristics such as age.
- Treatment costs in the year following diagnosis are maintained for the subsequent four years or until death
- QOL in the year following diagnosis is maintained for the subsequent four years or until death
- There is no QOL impact arising from false positive reporting
- Findings for non-small cell lung cancer are generalisable to other lung cancers

Results

- At initial presentation there would be:
  - 95.8 cancer cases identified through radiographer reporting
  - 85.5 cancer cases identified through radiologist reporting
- Total reporting costs:
  - Radiographer £57,302
  - Radiologist £65,768
- Total costs including treatment:
  - Radiographer £2,576,399
  - Radiologist £2,560,795
  - Difference = £15,604
- Total QALYs:
  - Radiographer 196.09
  - Radiologist 192.4
  - Difference = 3.69

Conclusions

- Radiographer reporting of CXRs appears to be a viable alternative to radiologist reporting
- Costs will rise if accuracy is greater
- Cost per QALY below NICE threshold (£20,000)
- Caveats
  - Simple model
  - Data from limited sources
  - Extra training costs not considered
  - Earlier diagnosis not assessed
  - More refined model and robust data required

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Table 1. Estimating of reporting accuracy

<table>
<thead>
<tr>
<th>Parameter</th>
<th>%</th>
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<tr>
<td>Sensitivity - Radiologist reporting CXR</td>
<td>69.7</td>
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<tr>
<td>Specificity - Radiologist reporting CXR</td>
<td>80.9</td>
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<tr>
<td>Sensitivity - Radiographer reporting CXR</td>
<td>78.1</td>
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<tr>
<td>Specificity - Radiographer reporting CXR</td>
<td>85.2</td>
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<td>Sensitivity - Radiologist reporting CT Scan</td>
<td>94.4</td>
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<td>Specificity - Radiologist reporting CT Scan</td>
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Activity £

<table>
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<th>Activity</th>
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<tr>
<td>Radiologist reporting chest X-ray</td>
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<tr>
<td>A&amp;E treatment</td>
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Table 2. Cost of activities

ICER

ICER = £15,604 / 3.69 QALYs = £4,229 per QALY