Radiology in Yorkshire & The Humber
A Health Needs Assessment
Summary Report

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Executive Summary

Background
Summary: Radiology services in England are subject to high profile strategic proposals based on analysis of risk and evidence. The YHAHSN is leading a diagnostics project designed to translate this into robust, evidence-based change plans across the region.

Epidemiology and Demography
Summary: The anticipated population growth and change in the character of the population will have major implications for the Region. The large increase in the number of old people, particularly very old people, in the region will place considerable additional demands on health and social care services.

Service Review
Summary: Access varies across Districts, benchmarking this may reveal valuable good practice. It might be argued that activity data are at odds with the perceived rise reported across the country. It is important that this is monitored prospectively.

Human Resources
Summary: It is strongly recommended that skill mix audits are developed systematically across the region. This will enable better matching of skills and capital assets to local need, particularly if employed in tandem with commissioning strategies and policies.

Qualitative Study
Summary: The key major theme as expressed by all interviewees was the mismatch between demand and capacity. Other include the need for IT based solutions, addressing deep-rooted cultural issues, skill mix and the need for regional collaboration.

Cost-effectiveness and Health Economics
Summary: Radiology Departments and their processes place the Specialty in a unique position to provide crucial value-based information and strategic input to Acute Trusts, Radiologists should occupy key leadership roles in the change to value-based healthcare.

Comparative Needs Assessment
Summary: It is clear that there are no “silver bullets” to be found in international and private healthcare systems. Rather, careful consideration should be given to examples of innovation and critical analysis applied to evaluate whether they are generalisable to Yorkshire & Humber.

Recommendations
1. A formal region-wide Radiology Change Programme should be established, based on expert methodology such as PRINCE or MSP

2. A work programme based on in-depth analysis of ICD-10 coded clinical epidemiology of patients undergoing Radiological procedures should be undertaken

3. The AHSN should explore the potential for where it can support the scaling up a range of postgraduate training for different types of workforce and skill mix development

4. Radiologists should occupy senior positions in strategies to maximise value, supported by robust data to outline their unique position to inform efficient pathways of care
Introduction

Health Needs Assessment is defined as ‘A systematic method of identifying unmet health and health care needs of a population and making changes to meet those unmet needs’.

This Rapid Health Needs Assessment (RHNA) is part of a programme of Health Needs Assessments (HNAs) undertaken by the Public Health Directorate at NHS Bradford & Airedale. The aim is to cover all major health areas, for example Sexual Health, Cardiovascular Disease, Diabetes and Mental Health.

These RHNAs are designed to sit either under ‘parent’ full Health Needs Assessments or to stand alone albeit sitting within existing governance structures (outlined below), and remain faithful to the Stevens and Raftery model for HNA, keeping at their core the ‘triangle’ of HNA as shown below.

The elements of health care needs assessment

Governance structure for this Rapid Health Needs Assessment

Parent HNA (if applicable):
Key Partnership Board:
Key Committee 1:
Key Committee 1:
Public Health Lead:
Commissioning Lead:
Clinical Lead:
Methodology

Format
- 1 Page per section
- Short summary following each for insertion into Executive Summary
- Limit to four recommendations
- Short summary of implementation plans for each recommendation

Three Key Approaches:

1. Epidemiologically based HNA.
   Combining epidemiological approaches (health status assessments) with
   assessment of the effectiveness and possibly the cost-effectiveness of the potential
   interventions.

2. Comparative HNA.
   - Comparing levels of service receipt between different populations
   - Identify key comparative studies.
   - Describe corporate/governance context
   - Assess validity of comparison

3. Corporate HNA.
   - Canvassing the needs and demands of key professionals, patients, politicians and
     other interested parties.
   - Essential if policies are to be sensitive to local circumstances
   - Note particularly the value of GPs’ insight

Existing Services
- 4 key providers
- Description of service
- Key activity data

Evidence Review
- Clinical Effectiveness
- Cost-effectiveness and Health Economics
- Reference key guidance such as NICE Guidance
Background

National context:
RCR 4 proposals to Government 2015
- The next Government should increase immediately the number of trainee clinical radiologists by at least 60 per year
- The next Government should ensure that these lifesaving services to prevent death from exsanguination are available to patients at all times and in all settings where they are required by training additional interventional radiologists
- The next Government should minimise unnecessary patient exposure to radiation
- The next Government should grasp the opportunity to place radiology at the centre of the integration agenda

RCR 2014:
- Due to the expanding range of available interventional procedures, and the increasing inherent complexity of the procedures, there is additional demand on interventional radiologists.
- Regardless of population growth, it is widely accepted that the workload of interventional radiologists will continue to increase with continued advances in imaging technology.
- Combined with the high number of expected retirements in forthcoming years, set against static training numbers, this suggests that the gap between workforce supply and demand in interventional radiology will not close, and if this is not rectified, the situation will continue to deteriorate and will seriously affect patient care and safety.
- To address the shortfall, the report states that the RCR is seeking an increase of 25 trainees per year for the next five years. The RCR believes an increase of 25 per year is realistic and the minimum required to sustain a safe interventional service across England.

Regional context:
Aims of AHSN Diagnostics Project
- 1. More consistent approach to radiology demand optimisation e.g. clear and standardised protocols for when, why and how patients need access to diagnostics services
- 2. Identify existing technologies that would support earlier diagnosis or prevention, cash release, align with CCG priorities and support implementation at scale
- 3. Deliver a Diagnostic Symposium across North of England to identify opportunities which will impact on diagnostics across the region to improve patient outcomes and productivity of services.

Key national strategy:
From RCR case for a new service model Sept 2014:
“Our proposal is that existing radiology services should collaborate to form networks of expertise serving a population of several million rather than a few hundred thousand as at present. A grouping of say 150-200 radiologists would have the capacity to provide continuous 24 hour cover across the range of required specialties”.
Key issues:

1. RCR adopting high profile national strategic presence, highlighting concerns and risks and making firm recommendations to government
2. Strong focus on mismatch between demand and capacity
3. Acknowledgement of transformational issues affecting the NHS as a whole
4. YHAHSN leading comprehensive diagnostics programme designed to translate national priorities and dynamics into regional focus for Yorkshire and Humber

Summary: Radiology services in England are subject to high profile strategic proposals based on analysis of risk and evidence. The YHAHSN is leading a diagnostics project designed to translate this into robust, evidence-based change plans across the region.
Demography

Yorkshire and the Humber (Y&H) is one of nine official regions of England. It comprises South Yorkshire, West Yorkshire, the East Riding of Yorkshire and Hull, North Yorkshire and City of York, North Lincolnshire and North East Lincolnshire. The population in 2011 was 5,284,000.

N.Yorks. and the E. Riding have the largest proportion of >65s with the proportion of under 16s being highest in West Yorkshire, driven by a notably high proportion in Bradford.

Yorkshire and the Humber has 89% of its population declaring their ethnicity as ‘White’, which is above the proportion for England and Wales (86%). Yorkshire and the Humber has the highest proportion of ‘Asian/Asian British:Pakistani’ at 4%, compared with 2% in England and Wales.

The region is one of the more deprived in England, with far more LSOAs in the 20% most deprived districts than the 20% least deprived. The most deprived districts in the region are, Kingston upon Hull, Bradford, Doncaster, Barnsley, North East Lincolnshire, Sheffield, Wakefield and Rotherham. The least deprived are Harrogate, Hambleton, Richmondshire, Selby and Craven.

Pop. density can be a significant factor in respect of access to hospital services. A sixth of rural pensioners live below the poverty threshold - Previous research has identified this group as at high risk of poor access to care. There is considerable variation across the region in pop. density and size of key urban centres. The table below shows variation in size and pop density.
Y&H is broadly experiencing population growth. This growth is likely to continue over the coming decades. Based on recent population projections from the Office for National Statistics, the total population is forecast to reach an estimated **5,656,600** by 2025, an increase of **4.8% / 261,100**.

There is considerable variation in projected population growth between different LAs, with low rises in North East Lincolnshire and Doncaster, compared with high increases in Bradford, Barnsley, Kirklees and Leeds.

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2025</th>
<th>Change</th>
<th>%change</th>
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<tr>
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<tr>
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</tr>
<tr>
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<td>824200</td>
<td>48500</td>
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<td>2000</td>
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<tr>
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<td>178300</td>
<td>7700</td>
<td>4.5%</td>
</tr>
<tr>
<td>North Yorkshire</td>
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<td>625800</td>
<td>19200</td>
<td>3.2%</td>
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<tr>
<td>Rotherham</td>
<td>260800</td>
<td>269900</td>
<td>9100</td>
<td>3.5%</td>
</tr>
<tr>
<td>Sheffield</td>
<td>566900</td>
<td>597100</td>
<td>30200</td>
<td>5.3%</td>
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<tr>
<td>Wakefield</td>
<td>332200</td>
<td>349000</td>
<td>16800</td>
<td>5.1%</td>
</tr>
<tr>
<td>York</td>
<td>204300</td>
<td>216300</td>
<td>12000</td>
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<td><strong>Y&amp;H</strong></td>
<td><strong>5395500</strong></td>
<td><strong>5656600</strong></td>
<td><strong>261100</strong></td>
<td><strong>4.8%</strong></td>
</tr>
</tbody>
</table>

**Summary:** The anticipated population growth and change in the character of the population will have major implications for the Region. The large increase in the number of old people, particularly very old people, in the region will place considerable additional demands on health and social care services.
Epidemiology and Need

Life Expectancy and Potential Years of Life lost due to Conditions Amenable to Healthcare

Steep increases in Life Expectancy are observed across all Districts, as are the marked inequalities between some Districts - Barnsley and Bradford, deprived parts of the Region, show life expectancy of 78.1 and 77.5 years respectively, whereas Craven, amore affluent part of the region, shows a life expectancy of 81 years.

There is a clear upward gradient in PYLL from the more affluent Districts such as Harrogate and York to the more deprived Districts such as Hull and Bradford.

Social Deprivation and Morbidity

Socially deprived Region – Hull, Bradford, Doncaster, Barnsley, NE Lincs all in top 50 nationally

Employment status is a prominent determinant of health. As it is unequally distributed by social class, gender, ethnicity/race or migrant status, it makes a substantial contribution to health inequalities. Kingston upon Hull shows the greatest proportion, with North and Yorks the lowest – clear correlation with deprivation here.
Smoking
Smoking was responsible for over 460,000 adult admissions to NHS hospitals in England in the year to March 2012, and treating diseases caused by smoking cost the NHS over £5 billion, about 5% of its annual budget, in the 2005–2006 financial year.

Given the rising levels of activity in Radiology Department, they represent a prime opportunity in which to offer Clinically & Cost-effective Smoking Cessation advice.

Radiology and Disease Epidemiology
There is an excellent epidemiological opportunity to analyse the Radiology procedures conducted across Yorkshire and the Humber by the ICD-10 disease code of the admission itself. This would enable to us to perform in-depth, granular analyses of the relationship between population disease epidemiology and its effect on Radiology Services and activity. As part of this study, discussions took place with Public Health England as to how this might be achieved. We were informed that the data in question are only now being assembled and will be available by the end of 2015. If we continue and perform these analyses for Yorkshire and the Humber we will be the first people in the country to access these datasets. This represents an important opportunity for both the YHAHSN and the region and it is strongly recommended that this is pursued.

Summary: Disease epidemiology in the region will represents social deprivation profiles, with more potential years of life lost in more deprived areas. Smoking cessation remains a key priority and radiology departments can provide cost-effective smoking cessation advice.
Service Review

Acute Trusts
There are 15 NHS Acute Trusts and 28 hospitals providing Radiology Services in Yorkshire & Humber.

Catchment population range from 146,562 (Sheffield Children’s) to 824,636 (Leeds). Trusts show relatively good correlation with population density.

The greatest number of Radiology Departments are placed in Leeds, followed by Sheffield. This is to be expected given that both cities contain large tertiary referral centres.

In respect of global number of Radiology procedures, by modality in Acute Trusts across the region, again urban centres dominate, with plain X-Ray constituting the greatest volume of procedures.

Radiology Activity 2014-15
CT - Largely unremarkable with a relative steady state maintained across all Trusts
MRI - Upward spike Jan 2015 at Leeds, otherwise unremarkable with steady state maintained across Trusts
USS - Spike in activity Aug-Nov at Leeds, otherwise unremarkable - steady state maintained across Trusts
Plain X-Ray - Largely unremarkable with a relative steady state maintained across all Trusts
Nuc. Med. - Tail off Leeds Sheffield, otherwise unremarkable, relative steady state maintained across Trusts
Fluoroscopy - Largely unremarkable with a relative steady state maintained across all Trusts
PET - Notable for a steady climb in activity at Leeds across the period, levelling out approaching January 2015.

Equity of Access
The figure below sets out the population rates of access to Radiology procedures by District across the region. The results are subdivided into quintiles to provide a picture of equity of access across the region. On a global basis, Bassetlaw seems to provide best access, followed by North Yorks, Sheffield, Doncaster, N Lincs and NE Lincs. Calderdale, Barnsley and Hull seem to provide poorest access.
Discussions with stakeholders revealed that detailed Radiology equipment manifests and breakdown of staff by skill mix are not routinely collected, maintained and shared by Acute Trusts across the region. In order to be better prepared to plan for and adapt to the changing demands in epidemiology, demand and healthcare structures and processes, it is strongly recommended that these are developed systematically across the region. This will enable better matching of skills and capital assets to local need, particularly if employed in tandem with commissioning strategies and policies.

**Workforce Issues are addressed in the next section**

**Summary:** Access varies across Districts, benchmarking this may reveal valuable good practice. It might be argued that activity data are at odds with the perceived rise reported across the country. It is important that this is monitored prospectively.
Human Resources and Skill Mix

The UK has 48 trained radiologists/million pop., as compared to:

- Germany 78
- Sweden 107
- France 113

The recent yearly average increase in activity in England is 10.3% for CT and 12% for MRI. Current and anticipated increase in demand is for the more complex and time-consuming imaging examinations, largely due to the increasing number of elderly many of whom are more likely to require complex interventional procedures. The situation is exacerbated by problems recruiting generalists.

Royal College of Radiologists Census 2014

<table>
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<th>2010 WTEs</th>
<th>2012 WTEs</th>
<th>2014 WTEs</th>
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<tr>
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<td>239</td>
<td>259</td>
<td>251</td>
</tr>
<tr>
<td>UK Total</td>
<td>2,174</td>
<td>2,997</td>
<td>3,048</td>
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Conventional WTEs 2014 | Uncapped WTEs 2014 | Excess WTEs worked 2014

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<tr>
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<th>Conventional</th>
<th>Uncapped</th>
<th></th>
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<tbody>
<tr>
<td>Yorks and Humber</td>
<td>251</td>
<td>274</td>
<td>23</td>
</tr>
<tr>
<td>UK Total</td>
<td>3048</td>
<td>3278</td>
<td>230</td>
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WTEs | WTEs/100,000 2012 | WTEs/100,000 2014

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<th>WTEs</th>
<th>WTEs/100,000</th>
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<tr>
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<td>4.9</td>
<td>4.7</td>
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<tr>
<td>UK Total</td>
<td>3048</td>
<td>4.7</td>
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Current WTEs | Retiring within next 5 yrs (WTEs) | % loss

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<th>Current WTEs</th>
<th>Retiring within next 5 yrs (WTEs)</th>
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<tr>
<td>Yorks and Humber</td>
<td>251</td>
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<td>10.4%</td>
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<td>UK Total</td>
<td>3048</td>
<td>401</td>
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Retiring next 5 Years | Retiring next 10 Years | Retiring next 15 Years

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<th>Retiring next 5 Years</th>
<th>Retiring next 10 Years</th>
<th>Retiring next 15 Years</th>
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<tbody>
<tr>
<td>Yorks and Humber</td>
<td>12%</td>
<td>29%</td>
<td>47%</td>
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<tr>
<td>UK Total</td>
<td>14%</td>
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<td>46%</td>
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Total Posts 2014 | Unfilled Posts 2014 | % Unfilled 2014

<table>
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<th>% Unfilled 2014</th>
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<tr>
<td>Yorks and Humber</td>
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<td>29</td>
<td>10%</td>
</tr>
<tr>
<td>UK Total</td>
<td>3.66</td>
<td>421</td>
<td>12%</td>
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- Y&H performs relatively well cf. England
- There were 29 unfilled posts across the region in 2014 (10%)
- 26 Consultants are planning to retire in the next 5 years (10.4%)
- 47% of Consultants are planning to retire in the next 15 years
- Data points are so few it is not appropriate to perform significance testing on trends
- Discrepancy between WTES and Posts reflects part time working

RCR recommended an increase of 30 Specialty Training 1 posts above the planned posts for 2013, and that they are maintained at baseline + 30 for subsequent years to increases by 30/yr.

Summary: It is strongly recommended that skill mix audits are developed systematically across the region. This will enable better matching of skills and capital assets to local need, particularly if employed in tandem with commissioning strategies and policies.
**Qualitative Study**

Semi-structured interviews were undertaken with a number of key stakeholders across the region. Interviewees were selected to reflect the stakeholder profile and to include representation from key service providers and those who hold significant datasets relating to Radiology Services in the Region.

In total 7 individual qualitative interviews took place, including Radiologists, Senior Managers and academics. Two further additional interviews taking place outwith the qualitative study.

Standard qualitative tools were used to identify the Major Theme and Recurring Themes.

**Major Themes**

**Capacity vs. Demand**
As highlighted in Section 4 (Service Review), this is the single most important driver of both concerns and critical thinking. It was clearly expressed by all interviewees that activity is increasing in the face of higher expectation and limited capacity to deliver. There is a feeling that this is getting worse steadily and as such needs to be the primary strategic focus in any change management. This situation is exacerbated by a shortage of radiologists, particularly in district hospitals.

Key to these observations was the view that Radiology has changed over the last ten years from service to confirm diagnosis to a triage service for clinicians – this has led to massive increase in demand. Some frustration was expressed that there is investment in capital resource (e.g. scanners) in preference to investing in radiologists.

**Technological Solutions**
All interviewees cited the need to place technological innovation as a strategic priority. There was an almost universal acknowledgement that Networked IT solutions were of paramount importance, cross-organisational PACS.

It was felt that there is a strong integrated IT/Value argument to spend on linking up IT systems, modelling pathways and analysing them using health economics to identify value points. Crucially, this would allow us to extract benefits through image sharing and more equitable access to rare expertise.

There was concern that approaches to this could be limited by a tendency to expand the current ways of working and not changing using IT infrastructure – removing that which doesn't work whilst we innovate.

It was pointed out that hospitals across the region operate on different PACS systems, and that addressing the issue of connectivity to take data from any PACS system would be crucial.

Finally, it was felt that the IT solutions are already there, we just need to “pull the trigger”.

**Culture**
A number of deep-rooted cultural issues were highlighted as key issues. As has been highlighted in other pieces of work, there is often resistance to change amongst professional groups, including Consultants, and it can be very difficult for Medical
Directors to persuade clinicians to change. However, it was felt that there is high level support for leading change in this respect at Trust Board level.

Additionally it was acknowledged by a number of interviewees that the dominance of tertiary/teaching centres can be both a help and a hindrance, but the fact that there are pre-existing network cultures in the region (say in West Yorkshire) can mitigate against any problems this may pose.

One interviewee highlighted the underutilisation of senior SpTs and that they could be used more for service delivery - e.g. doing own Ultrasound lists.

Finally, one interviewee highlighted that Clinical Senates are valuable in the cultural arena, as when you define your approach, the senate can challenge and validate that approach for you - like having a letter of support from a key clinician – this could be very useful if they validated the clinical case for change in medical leadership.

**Recurring Themes**

**Need for Regional Collaboration**

There was a clear feeling expressed that there is potential for services to be better organised on a regional basis and that this would release a number of important benefits, for example “disentangling” radiologists from their own organisation, thus enabling better spread of precious skills. It was recognised that there may be a number of discrete “critical masses” of collaboration footprint – collaboration needs to be subregional as well as regional, with several levels and geographies. The notion of a “common approach” was generally agreed upon.

**Issues with Outsourcing**

A number of interviewees wanted to discuss outsourcing. There was concern expressed about the loss of face to face engagement with international outsourcing, and in particular the effect this can have on MDT dynamics. In addition, it was felt that outsourcing to locally based organisations needs to be readdressed, with greater integration with hospital corporate structures in order to maximise efficiency and value.

**Heterogeneity of Trust approaches to staffing**

There was a strong feeling that there are geographical areas with poor staff coverage. It was felt that smaller departments suffer more in this respect, with difficulties to recruit based on most newly qualified consultants wanting to work in specialist centres and smaller trusts being more likely to have Consultants first on call. There was acknowledgement of some “patchy” adoption of roles across different trusts – particularly in relation to skill mix and delegation patterns. It was felt that this probably driven by necessity (demand) rather than cost or strategic imperative.

**Positive Networks and staff cross-working across region**

There was universal acknowledgement that the existing willingness to work together across as best we can is a major asset to the region, and that this can be the key launchpad for improvement of services. There was a feeling that, as a region, we are lucky to have so many highly skilled radiologists and ancillary staff and that there is a willingness to “spread the wealth’ in terms of clinical expertise.

**Skill mix**

Different opinions were expressed here, reflecting the findings of theme 3 above.
Some felt that there is resistance amongst some Radiologists in respect of “letting go” of some roles and activities to other clinical ancillary staff, e.g. radiographers and ultrasonographers. There was some feeling that training structures could be amended to better suit a model of skill mix, and that corporate engagement with Consultants to address concerns would be important.

**Interfacing with Primary Care**

Some interviewees felt that there was somewhat of a growing “disconnect” with GPs. Radiologists often get asked very basic questions by GPs, and the issue of “descriptive” vs. “actionable” reporting here was felt to be important. Central to this is a perceived increasing readiness of GPs to refer when do not have enough time to do perform detailed physical examination. The awareness of the needs of GPs and Radiologists in this respect was felt to be worth reporting, as long as the patient outcome was at the centre of discussions.

**Summary:** The key major theme as expressed by all interviewees was the mismatch between demand and capacity. Other include the need for IT based solutions, addressing deep-rooted cultural issues, skill mix and the need for regional collaboration.
Systems, Value and Economics

Transformational Change
It is generally accepted across the developed world that healthcare systems are entering a “second phase” characterised by a change \( ^1, ^2, ^3 \):

**From:**
1. Volume Based Business Models
2. No shared financial risk
3. Acute Inpatient Hospital Focus
4. Regulatory Action Impedes Innovation
5. Volume attracts more reward than quality

**To:**
1. Focus on Population Health
2. Active Cost Management
3. New Ways of Delivering Care
4. Scientific discovery, Technology and skills
5. Process improvement in quality/productivity

This change is characterised by a system of healthcare delivery based on “Accountable Care Organisations” (ACOs) - In the most straightforward terms, ACOs are networks of health care providers who work together to provide coordinated care for a particular group of patients. The primary focus is containing the costs of health care while simultaneously improving quality.

What does “value” look like in a modern Radiology Department?
The “value chain” here is the series of linear and networked processes (image patients, image archiving) that use key resources (trained radiologists, scanners, PET imaging units) to create and deliver a product or service (report) someone is willing to invest in. However, robust, validated metrics assessing radiology’s contribution to cost or outcomes are largely lacking. In fact, radiology is widely viewed as a contributor to health care costs without an adequate understanding of its contribution to downstream cost savings or improvement in patient outcomes.

Radiology Context
Diagnostic imaging is often used early in a patient’s hospitalisation. For this reason the radiology department serves as a reliable predictor, of the remainder of the care cycle across departments.

Hospital leaders preparing for the second phase can explore and consider how radiology impacts performance across departments – and the benefits of being able to measure, analyse, benchmark, monitor and improve quality metrics either for themselves or for hospital clients and employers.

In addition to examining imaging appropriateness and utilisation, radiology analytics can also provide insight into cost drivers for imaging procedures, particularly with radiology workflow and report turnaround times revealing departmental bottlenecks that may be slowing treatment throughout.

Value Opportunities for Radiology Departments
Although the primary focus of hospital-based radiologists is to deliver the entire continuum of services to the institution, they can also “market” their value-added services within the administrative environment of their parent Trust. Radiology has a lot
to bring the table in this respect.

In a value focused ACO, radiologists become accountable for more of the value chain than reading images and have a better chance of thriving by centering on the idea of creating actionable information for decisions, rather than on the narrower focus of reading images.

This is contextualised as Radiology Departments being the “Nexus of Value” within an Acute Trust.

Summary: Radiology Departments and their processes place the Specialty in a unique position to provide crucial value-based information and strategic input to Acute Trusts, Radiologists should occupy key leadership roles in the change to value-based healthcare.
Comparative Needs Assessment

Rather than do a classic comparative review, we were asked to do a comparison with international and private sectors. A rapid review was conducted of the evidence relating to effective solutions to capacity:demand mismatch in other healthcare systems, and specifically in the private sector and in international healthcare systems. It was intended that this will constitute the first deliverable in the review process, and will inform the process as it continues.

Key Findings

International Comparison
- Internationally, all systems are struggling to cope with demographic changes
- The NHS is a world leader in providing cost-effective care
- The USA performs particularly poorly in respect of cost-effectiveness
- The German healthcare system is high-performing, but costly
- Examples of good practice have the potential to provide solutions in certain circumstances
- It is important to avoid any assumption that other developed countries have superior healthcare

Public:Private Comparison
Making meaningful comparisons between public and private healthcare systems is challenging. Particularly, in the UK, and any comparison is confounded at the outset by the fact that doctor:patient and nurse:patient ratios in the private sector are higher, so comparisons may be irrational.

Recommendations

International Comparison
1. We must be careful of assuming that other countries have the answer, we are all swimming in the same sea of austerity and rising demand
2. The safest approach is to look for innovations in international healthcare that demonstrate increases in effectiveness and efficiency
3. We should place any innovations in context and critique them in the context of the NHS and Y&H and Radiology services
4. We should at all times be cognisant of the outcomes that pertain to any innovations and research under consideration – are they clinical, process, financial etc.

Public:Private Comparison
1. We must be careful of assuming that superior performance demonstrated in private healthcare systems is generalisable to the NHS where clinician:patient ratios are lower.
2. The safest approach is to look for innovations in private systems that demonstrate increases in effectiveness and efficiency
3. We should place any innovations in context and critique them in the context of the NHS and Y&H and Radiology services
4. We should at all times be cognisant of the outcomes that pertain to any innovations and research under consideration – are they clinical, process, financial etc.
The most suitable approach may be to search for innovations in other systems that demonstrate increases in effectiveness and efficiency and consider them in a framework.

At all times we must be cognisant of the outcomes that pertain to any innovations and research under consideration – are they clinical, process, financial etc.

**Summary:** It is clear that there are no “silver bullets” to be found in international and private healthcare systems. Rather, careful consideration should be given to examples of innovation and critical analysis applied to evaluate whether they are generalisable to Yorkshire & Humber.
Recommendations

Recommendation 1: Governance

A formal Radiology Change Programme should be implemented on a Region wide footprint, led by a robust Programme Management approach. This will provide the vehicle and expertise to draw together the fragmented base of initiatives that different Trusts have contributed. The Programme should set strategic goals for quality in Radiology Services and frequently monitor progress towards achieving those goals, on a monthly basis for the first 12 months. The Programme should report directly at Board level to all Acute Trusts. Relevant smaller geographical groupings of Trusts should be considered and allowed a degree of autonomy in this respect.

Recommendation 2: Population-based Planning

A work programme based on in-depth analysis of ICD-10 coded clinical epidemiology of patients undergoing Radiological procedures should be undertaken. The requisite data will be available from Public Health England at the end of 2015 and YHAHSN will be the first to utilise it. This, allied with an agreed definition and framework for need in Radiology will allow detailed planning of service allocation to reflect need, demand and capacity, in partnership with commissioners, Public Health England and NHS England. This will also enable Trust Boards to develop a clear narrative to explain why unwarranted variation matters locally; for example, poor access results in poor outcomes for patients and high costs to commissioners.

Recommendation 3: Workforce

We should explore the potential for where we can support the scaling up a range of postgraduate training for different types of workforce, skill mix development, models of clinical governance for multi-disciplinary multi agency workforce development.

Recommendation 4: Value

Radiologists should occupy senior positions in strategic imperatives to maximise value. They should be supported by robust, timely data and evidence to outline their unique position to inform efficient pathways of care and to maximise cost-effectiveness through more streamlined and effective interdepartmental working.