Changing from an Institution-based Resident on Call to a Federated Regional Model - Improving Quality of a Regional Radiology Service

Peter Rowlands, FRCR  liverpool, united kingdom
John Curtis, liverpool, united kingdom
Furhan Razzaq, MBChB  manchester, united kingdom
Sharron Dyce  liverpool, united kingdom
Previous system

- In our metropolitan region we have four general hospitals, two teaching hospitals and several specialist institutions.
- On call resident radiology service was supported by residents working independently in each of the institutions.
- Resident rotas varied from 1:4 to 1:10
- Hours worked noncompliant with European employment law
- Each institution had a standalone PACS. No image sharing

- Demand for imaging almost unsustainable in larger departments
- Residents in smaller specialist units underemployed
Regional PACS deployment 2013

- 10/12 sites procured a single virtual PACS. Full online image sharing and reading.
- 2/12 sites had existing PACS vendors. Local server installed to allow sharing with regional global PACS
- Reports sent by HL7 messaging from reporting PACS to ‘foreign’ PACS
- Acquisition and reporting completely independent geographically

- Created a single ‘hub’ where a team of residents were based.
- 4 residents of varying seniority rostered
Architecture

PACS across Cheshire & Merseyside
The ‘hub’
Workflow

• Single referral system
• Telephone triage system
• Filtered telephone scripts

• Service level agreements for scan and report

• Attending radiologists on call for second opinion and support

• All scans and reports have senior review in timely fashion

• Residents required to follow up the senior review

• Significant discrepancies communicated via secure email
Current system

- All 2-5 yr trainees are on the rota.
- Intensity around 1:10
- Rota predictable

- Discrepancy rates are around 2-3%, in line with other data

- Regional learning from discrepancy meetings every three months

- Significant cost savings related to unifying oncall intensity
Issues

• IT outages
  • Physical
  • Ransomware
  • Radiology team sent to individual institutions

• Increasing demand
  • Saturation of telephone call center
  • 95% of scans performed and read within one hour.

• Lack of local radiologist
  • Face to face presence
  • Ultrasound
  • Interventional Radiology (outside this process)
Conclusion

• Moved from unsatisfactory system
  • Non compliant rotas
  • Large workload variations
  • No peer support and remote supervision
  • No regional learning from discrepancy

• To legal system
  • Sustainable rotas
  • Smoothed peaks and troughs in workload
  • Local peer support
  • Regional learning from discrepancy

• Now national model for UK