QUALITY IMPROVEMENT OF WALK-IN GP CHEST X-RAYS (CXRs)

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BACKGROUND
- Poor diagnostic quality of walk in GP CXRs mainly due to inadequate penetration and poor inspiration
- Increasingly obese, physically unfit/frail and elderly patients
- Workload pressure and staff shortages making staff less critical and reluctant to repeat examinations
- Experienced radiographers ‘promoted’ to the modalities removing radiographic skills and resources from the plain radiography rooms

AIM
- Find out why the quality of CXR’s is suboptimal and address issues
- To improve the quality of CXRs being taken
- Remind radiographers of the quality standards

PRIMARY DRIVERS
Improve diagnosis; prompt appropriate treatment; reduce need for repeat images or further imaging; radiation protection

SECONDARY DRIVERS
Time and resources; facilitate diagnosis; financial benefits; reduce mortality rate

METHODOLOGY
First 10 CXRs selected from a walk-in GP session over 10 consecutive days
- Sampled work of a wide number of radiographers
- Picked at random without looking at rotas so there was no bias as to the radiographers on duty during the audit
- Excluded CXRs performed AP and paediatric CXRs
- Using RIS, PACS and a spreadsheet each image was checked for inspiration and penetration using a point based system
- 3 Independent assessors to view and record criteria, Consultant Radiologist, Reporting Radiographer and F2 Doctor
- Targets deemed achieved when all three observers agreed
- Radiographer who performed CXR also recorded

STANDARD (1,2)
1. Clear visualisation without manipulation of both costo-phrenic angles and descending Aorta-diaphragm junction, 2 points for each achieved
2. Diaphragms at 10 posterior and 6 anterior ribs, 4 points for 16 ribs, 2 points for 14, 0 points for less than 14

TARGET
Ideally 100%, realistically given local population:
Standard 1 = 75%, Standard 2 = 90%

1st ACTION PLAN
- Results presented at radiographer staff meeting
- Encouraged staff to offer ideas
- Reminders to staff as to importance of diagnostic images
- Stressed importance of using a ‘grid’ for large patients
- Practice breathing technique and explain to patient before taking CXR
- Record difficulties on CRIS
- Informed staff of audit repeat

2nd ACTION PLAN
- Increase use of ‘grids’ and high kV for large/obese patients or consider using new direct radiography (DR) rooms deemed better quality than Computed radiography (CR) rooms
- Meeting with radiographers to discuss progress and results
- 90% target may be unrealistic for obese elderly population
- Slight improvement but re-audit in 3 months and on going
- Strengthened business case submitted for second DR room
- Stress importance of criteria to staff and effect on diagnosis and patient pathway
- Development of a plain film reporting and quality team

SUMMARY/KEY POINTS
- Good basic radiographic technique is very important, but obese frail patients can not achieve ideal inspiration
- We need to continue to promote good radiographic technique and regularly train/retrain both new and experienced staff
- Demonstrates what is possible when staff are involved in quality improvement and links well to performance appraisals and CPD
  - Lung fields better visualised on DR compared to CR
  - Interestingly an Assistant practitioner was only technician to achieve 100% record!

REFERENCES
(1) de Lacey G Morley S Berman L 2008 The chest x-ray A survival guide Saunders Elsevier