Chest X-Ray Interpretation: Agreement Between Consultant Radiologists And A Reporting Radiographer In Clinical Practice In The United Kingdom

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Introduction

• Trained radiographers now undertake image interpretation in the United Kingdom1.
• Image interpretation is a subjective task2.
• Significant variation in X-ray interpretation between radiologists is reported in the literature3,4.
• There is little work examining the agreement between consultant radiologists (CRs) and reporting radiographers (RRs) in clinical practice.

Methods

• CRs performed their evaluation independently, blinded to the proportion of cases receiving multiple radiologist opinions.
• Inter-observer agreement analysis using the Kappa statistic was performed to determine consistency among observers.

Results

• Eight cases in which the reviewing radiologist not in agreement with the RR.
• Of the discordant cases there were three instances in which one of the reviewing CRs was in agreement with the RR report.

Consecutive series of 1,000 CXR reported by RR

Random cases (1-50) reviewed by CR1

Cases 26-50 reviewed by CR2

Cases 51-75 reviewed by CR2

Cases 51-75 reviewed by CR2

Cases 76-100 reviewed by CR2

Consecutive series of 1,000 CXR reported by RR

RR-CR1

RR-CR2

RR-CR3

CR1-CR2

CR2-CR3

Agreement (Kappa)

• Only one major discrepancy was identified.
• This case was deemed normal by CR3, in agreement with the RR report.
• Subsequent CT confirmed small volume mediastinal lymphadenopathy and tuberculosis was diagnosed.

References

2 - Smokstaj E, Study AJ. Use in paediatric residency training: Radiology 2007;218(1):380-387

Conclusion

• Level of inter-observer agreement between radiographer and radiologist reports demonstrate no apparent difference when compared to inter-radiologist variation.