Can radiographer musculo-skeletal trauma radiograph interpretation re-position the profession in Australian healthcare?

Literature review.
The literature review examines the socio-historic context of why radiographer interpretation has been hampered in Australia. Interpretation performance measurement methods are analysed allowing methodological corrections to be applied in this study. Literature also establishes whether current healthcare and political developments will enable radiographer image interpretation.

Method employed.
Development of a consensually agreed (3 of 4 radiologists) image test bank, balanced according to injury prevalence, rates of injury according to body region, age and gender is described. Sixteen volunteer radiographers with 2+ years of experience from radiology services imaging emergency department patients including children but not major trauma from across Victoria interpreted the images before and after an educational input. Sixteen final year medical students from a single medical school in Victoria also voluntarily interpreted the test bank. Participants provided interpretations using home computers with widely available software and a standardised response form. Radiographers completed surveys before and after an educational input to establish if radiographer attitudes changed about perceived interpretation ability and the structures needed to support radiographer interpretation. Medical students were questioned if undergraduate image interpretation education was adequate and to identify difficult to interpret images. They were also asked whether radiographer interpretation would help, if they knew radiographers should give verbal opinions on images when required or about international radiographer interpretation. Illustrative examples of radiographer interpretations in clinical situations to add study depth were obtained. Statistics demonstrating numerical inter-group variation from scores generated using a tick box and free text comments against the test bank are given. Participant abilities were compared using all images, appendicular only and adult only images. The Mann Whitney U non parametric test was used to establish statistical significance between the performance of radiographers post education test, radiologists and medical students.

Conclusions.
Radiographers overcalled more frequently than radiologists but ROC values showed least difference between this pairing. Radiographers missed fewer positives than medical students. Radiographer ROC values were significantly better than medical students. Depending on the comparison statistic used, a radiographer interpreting role is possible, though a longer period of education assimilation is advised. It is opined the educational paradigm for radiographers is currently inappropriate for diagnostic decision making and is supported by radiographer educational needs commentary and the medical students' belief that radiologists' interpretations are best. This is despite contradictory examples of health system failure and radiologist performance variation shown during the image test development. Analysis of radiographer registration, and professional and governmental body perspectives, provides an opportunity to develop radiographer interpretation if universities change their teaching paradigm. However, the Medicare reimbursement scheme to healthcare providers limits this. Corrective measures accounting for earlier Australian investigation flaws are successful in this study however further examination to extend the knowledge to understand the performance of radiology interpretation by non-radiologists is needed. An internet based system of benchmarking is proposed to achieve this. In the light of recent coronial comments and failures to report images, federal and state/territory governments should consider ways to re-position radiographers to provide interpretations in Australian healthcare.