AbstractID: 2016 Title: Diagnostic accuracy of selected x-ray studies vs staff training and experience, equipment performance, patient dose and image quality in five Latin American countries

A multi-centric research project was conducted in medium-complexity radiology departments of Argentina, Bolivia, Colombia, Cuba and Mexico to correlate radiologists' and technologists' training and experience, equipment performance, patient dose and image quality with the accuracy of the radiological interpretation of selected x-ray examinations. X-ray units, film processors and view boxes used to diagnose breast cancer, gastrointestinal ailments and back injuries were evaluated utilizing common protocols and instrumentation. Patient doses were derived from ion-chamber air kerma measurements, TLDs, and the kV and mAs values used clinically. In each country and for each pathology, panels of radiologists -recognized as experts by the national radiological societies- evaluated the image quality of the clinical films and reported the radiological findings. The coincidence of the panel diagnosis with the one reported by the local radiologist was taken as the accuracy of the radiological interpretation. 366 mammograms, 343 upper and lower GI tract exams and 319 cervical and lumbar spine studies were analyzed. Most x-ray units complied with performance specifications; the main equipment deficiency found was insufficient luminance of the view boxes. Patient doses were within the guidance levels specified by the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (IAEA 1996). The only parameter that correlated with the accuracy of the radiological interpretation was the years of experience of the local radiologist performing mammography. Image quality was inversely proportional to technologists' years of experience in spine studies. No statistical correlation regarding equipment performance or dose was found.