Is a lateral view of the hip necessary for extra capsular fractures?

Do you have a broad research topic for students to consider?
Research into CT dose measurements.
Research into DRL measurements and dose optimisation.

Research question:
Can radiographers recognise extra capsular fractures on an AP pelvis?
Could they use this information to make a correct assessment on whether to proceed with further imaging?

This project is appropriate for students in the following discipline(s):
Bachelor of Applied Science (Diagnostic Radiography) Honours

Aims and background:
The gold standard treatment for an extracapsular fracture is internal fixation. For this to be diagnosed there is no requirement for lateral image information. However, current clinical protocols dictate that two views are always necessary. This project sets out to determine whether radiographers would be able to correctly diagnose extracapsular fractures after the AP is taken, and consequently reducing the need for multiple projections to subsequently be taken.

Proposed method of data collection:
Take an image set of 50 AP pelvis, with some fractures present in some images. Radiographers will be asked to view the images and diagnose any extracapsular fractures. If radiographers can correctly diagnose extracapsular fractures using AP images, they will be able to decide there is no clinical need for a lateral projection to be taken.

Type of study:
Quantitative
Accuracy of measured and reported dose data during computed tomography

Do you have a broad research topic for students to consider?
Dose measurements in CT

Research question:
Is there a correlation between measured and reported doses?

This project is appropriate for students in the following discipline(s):
Bachelor of Applied Science (Diagnostic Radiography) Honours

Aims and background:
This project aims to measure the dose to tissues and organs within an anthropomorphic phantom during a CT scan and compare those doses to those reported on the CT scanner itself. The use of computed tomography in medicine is increasing. It is estimated that approximately 5% of all those received by the human population now has an origin from computed tomography. Recently, fears have been raised by publications in the British medical Journal that indicate an increase of 20% in the odds ratio for developing cancer as a result of one CT scan as a child. In light of this it is increasingly important that we have accurate measurements of the dose received by the patient. Previous work has demonstrated that the reported computer tomography dose index on the CT scanner itself may vary by as much as 5% from the actual calculator dose the Phantom. The patient size is another factor in this problem, which should be accounted for.

Proposed method of data collection:
This project would measure the actual dose using state-of-the-art dose meters, anthropomorphic phantoms that accurately simulates the organs and tissues of a human patient, and the 16 slice CT scan housed within the basement of medical radiation science. The student would undertake exposures on the CT scanner and would be in charge of measurement of dosimetry. The measured doses would be compared to the displayed doses on the scanner. Student would also investigate any causes of discrepancies between the measured an actual doses. During this project students would gain experience on the use of a modern CT scanner and would gain skills in dosimetry.

Type of study:
Quantitative
What types of breast cancers are missed when recall rates are reduced in screening mammography?

Do you have a broad research topic for students to consider?
What is the knowledge base and practices of radiographers when imaging obese patients?
What radiation dose strategies are employed?
What common mistakes are made in breast cancer screening with mammography?
How can we minimise error and maximise participation?
Does radiography curricula prepare students for emotionally challenging situations such as acute emergency imaging and intensive care imaging?

Research question:
When recall rates are reduced, radiologists are forced to let go cases they believe are not malignant but may be tricky to determine. Is there one type(s) of cancers that are more likely to be recalled than others and what are these mammographic features?

This project is appropriate for students in the following discipline(s):
Bachelor of Applied Science (Diagnostic Radiography) Honours

Resources needed (all available):
This project would analyse data that has already been collected but not included in a PhD study.

Additional information:
This Honours project builds upon an existing project looking at the effects of forcing radiologists to make decisions in order to reduce their recall rate. It examines what types of cancers radiologists can rationalise to let go and has very important implications for cancer screening in Australia.

Type of study:
Quantitative