

## B-442 10:39

### Implementing evidence-based protocols for i.v. contrast media; the process, outcome and follow-up

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**Purpose:** The department of radiology at HUH aims to provide patients with services based on best available evidence in all aspects of imaging. Based on risk assessment and ESUR guidelines for administering i.v. contrast media (IVCM), a need was recognised for systematic review of current practice. The objective was to 1) survey and 2) improve all processes involving the use of IVCM. The overall aim is to utilise and increase the competence of all professions involved in the various steps involved to provide the best achievable quality in the use of IVCM; evidence-based practice.

**Methods and Materials:** All diagnostic use of IVCM; referral, radiology report, follow-up of sideeffects was reviewed. Main focuses were identifying precise, manageable measurement of kidney function (eGFR), patients at risk for CIN, NSF, thyroid patients, use of, i.e. metformin, classification and handling of sideeffects, responsibility (clinician, radiologist and radiographer) and patient information.

**Results:** By reviewing routines and implementing new procedures, the process has created awareness on the use of IVCM so that patient care and safety are met. It has been challenging to clarify the responsibility for each professional participant. Continued staff information and education throughout the process was important.

**Conclusion:** Evidence-based routines and procedures have been established, and are clearly communicated to all involved participants to achieve and maintain good practice. A successful implementation requires continuous focus (dynamic process) from dedicated staff to follow-up; implement new knowledge and adjust the daily routines. Quality indicators for evaluating the effect of implementation must be developed.

## B-443 10:48

### Effect of informed consent for administration of intravenous contrast material in the anxiety level of patients submitted to computed tomography exams

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**Purpose:** Evaluation and relation of the state and trait anxiety level in patients before the delivery of informed consent with patients after that, and the evaluation of eventual relations between psychometric tests and sociodemographic characteristics.

**Methods and Materials:** The present study is quasi-experimental. The total sample of 161 patients was divided in a control group and an experimental group, and then state-trait anxiety inventory was applied to both, after the sociodemographic interview and always after the consent of participation of the patient.

**Results:** At a 95 % confidence interval, the intergroup difference between means of state anxiety ranged from -0.929 and -0.810. The value of t student test was -28.701 (df = 159 and 2-tail sig = 0.000). On the other hand, the intergroup difference between means of trait anxiety ranged from -0.141 and -0.022. The value of t student test was -2.722 (df = 159 e 2-tail sig = 0.007). Application of Spearman's R<sub>s</sub> revealed the correlation between values of state and trait anxiety based in a non-normal approximation: for control group 0.409 (sig = 0.000) and for experimental group 0.321 (sig = 0.004), whereas it did not reveal any statistically significant correlation between sociodemographic characteristics and psychometric tests.

**Conclusion:** There exists a significant intergroup difference between the anxiety state and the anxiety trait. A significant correlation is verified between state and trait anxiety within each group, what is not verified between psychometric tests and sociodemographic characteristics.

## B-444 10:57

### Can collaboration between radiographers and non-consultant hospital doctors during image interpretation improve the accuracy of diagnostic decisions?

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**Purpose:** In emergency departments (ED) junior doctors regularly make diagnostic decisions based on radiographic images [1]. This study investigates whether collaboration between junior doctors and RTs impacts on diagnostic accuracy.

**Methods and Materials:** Research was carried out in the ED of a university teaching hospital and included 10 pairs of participants. RTs and junior doctors were shown 42 wrist radiographs and 40 CT brains and were asked for their level of confidence of the presence or absence of distal radius fractures or fresh intracranial bleeds, respectively, using ViewDEX software, first working alone and then in pairs. Receiver operating characteristic was used to analyse performance. Results were compared using one-way analysis of variance.



**Results:** The results showed statistically significant improvements in the area under the curve values (AUC) of the junior doctors when working with the RTs for both sets of images (wrist and CT) treated as random readers and cases ( $p < 0.008$  and  $p < 0.0026$ , respectively). While the RTs' results saw no significant changes, their mean Az values did show an increasing trend when working in collaboration.

**Conclusion:** Improvement in performance of junior doctors following collaboration strongly suggests changes in the potential to improve accuracy of patient diagnosis and therefore patient care. Further training for junior doctors in the interpretation of diagnostic images should also be considered. Decision making of junior doctors was positively impacted on after introducing the opinion of an RT. Collaboration exceeds the sum of the parts; the two professions are better together.

## B-445 11:06

### Novel, portable, cassette-sized, and wireless flat-panel digital radiography (DR) system: initial workflow results versus computed radiography (CR)

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**Purpose:** To compare workflow efficiency between a conventional computed radiography (CR) system and a novel, portable, cassette-sized, and wireless flat-panel digital radiography (DR) system.

**Methods and Materials:** Observational time-motion analyses were performed at one site at which CR, and the new portable DR system are used concurrently. The workflow steps of both systems were identified and categorised to facilitate comparison. The time required for examination preparation, patient positioning, exposure, post-acquisition processing, and for the examination as a whole, was recorded by a neutral observer. Timing differences between the CR and portable DR systems were compared, and all data were analysed using commercially available statistical software. Nine general radiographic exam types were selected with approximately 50 patients per exam type.

**Results:** A total of 941 examinations (CR,  $n = 474$ ; portable DR,  $n = 467$ ) were timed in this study. Total examination time differences between CR and portable DR system (mean 26.44s; median 26.99s) were found to be statistically significant ( $P < 0.001$ ), with DR proving faster than CR. The single largest contributor to the time difference between CR and portable DR was post-acquisition processing (mean 26.58s, median 25.91s), a composite of multiple individual steps, including cassette transport (CR only, mean 13.22s, median 12.74s), cassette readout (mean 10.15s, median 10.4s) and post-processing (mean 3.21s, median 3.11s).

**Conclusion:** Overall radiographer time was significantly shorter when performing exam-related tasks with the novel, portable DR system than when performing comparable tasks with CR, a difference that appears to result largely from technology configuration.

## B-446 11:15

### Interobserver agreement among PGMI radiographer in quality classification of mammograms: a pilot study

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**Purpose:** To evaluate the inter-observer agreement between internal and external radiographers with and without experience in PGMI classification of mammograms using the classifications recommended in the quality assurance manual for the Norwegian Breast Cancer Screening Program (NBCSP).

**Methods and Materials:** Three PGMI radiographers, A = internal experienced radiographer, B = external experienced radiographer, C = internal inexperienced radiographer, reviewed and classified 480 screening mammograms from 120 women. Using the PGMI classifications were P = perfect, G = good, M = moderate and I = inadequate mammograms, each radiographer classified the mammograms independently, by scoring them as: P = 1, G = 2, M = 3, and I = 4. Inter-observer agreement was assessed (Kappa analysis).

**Results:** The agreement between the PGMI radiographers was:  $\kappa = 0.40, 0.40$ , and  $0.44$ , respectively, for A + B, B + C, A + C. This level of agreement is classified as fair to moderate according to Kappa classification. The exact agreement between A + B, B + C, A + C was, respectively, 57%, 56% and 61%. The best agreement appeared between the experienced and inexperienced internal radiographer (A + C), while there is less agreement between the two experienced (A + B). The lowest agreement was between the external experienced and the internal inexperienced radiographer (B + C). This indicate that there are a different competency levels between the three radiographers.

**Conclusion:** Interobserver agreement with the PGMI quality classification in our pilot study was fair to moderate. This indicates that PGMI classification is a challenge in mammography screening, since there is room for individual assessments - despite guidelines.