

## Author Disclosures:

Hai-Peng Dong: Nothing to disclose  
Houmin Tan: Nothing to disclose  
Li-Fei Ma: Nothing to disclose  
Qian Jiang: Nothing to disclose  
Xin-Yang Wu: Nothing to disclose  
Xiao-Meng Wu: Nothing to disclose

## RPS 2303-8

### Evaluation of novel rapid post-processing vs conventional strain parameters in highly accelerated cardiac magnetic resonance

\*M. C. Halfmann\*, T. S. Emrich<sup>2</sup>, K-F. Kreitner<sup>1</sup>; <sup>1</sup>Mainz/DE, <sup>2</sup>Charleston, SC/US

**Purpose:** Development of compressed sensing (CS) cardiac magnetic resonance (CMR) sequences rapidly accelerated cardiac imaging while showing good reproducibility for volumetric analyses. However, for imaging biomarkers such as strain, CS-derived measurements are significantly altered. Novel prototype rapid strain parameters (junction strain (JS) and long axis strain (RS)) are evaluated for their potential to overcome that bias.

**Methods or Background:** 15 prospectively enrolled healthy volunteers (HV) underwent CMR including a stack of short-axis slices and two orthogonal left ventricular long-axis slices. Acquisitions were based on balanced steady-state free precession Cine (bSSFP) and CS-sequences. Exclusion criteria were any history of cardiac disease and abnormal volumes as characterised by CMR. Dedicated post-processing software (cvi42 Circle) was used to compute JS, RS and global longitudinal strain (GLS).

**Results or Findings:** GLS correlated moderately between bSSFP and CS ( $r=0.58$ ). JS and RS correlated strongly between acquisitions ( $r=0.70/0.69$ , respectively). Correlation between novel parameters and GLS was moderate in bSSFP (JS/GLS  $r=0.56$ ; RS/GLS  $r=0.53$ ) and weak in CS (JS/GLS  $r=0.34$ ; RS/GLS  $r=0.31$ ). Bland-Altman analysis showed a significant bias for CS-derived GLS with a mean difference of -3.9% and limits of agreement (LoA) from -6.9 to -1.0%. There was no significant bias for both JS and RS (mean differences -1.1/-1.0%; LoA -3.8 to 1.7/-3.8 to 1.8%).

**Conclusion:** Novel rapid strain parameters correlate strongly between bSSFP and CS acquisitions and with established GLS. However, they differ from GLS as there is no significant systematic bias between acquisition types.

**Limitations:** Rapid post-processing strains are still under evaluation, larger studies including patient populations are needed to evaluate the clinical significance of these preliminary results.

**Ethics committee approval:** The study protocol was approved by the local ethics committee with a waiver for informed consent.

**Funding for this study:** No outside funding was acquired for this study.

## Author Disclosures:

Tilman Stephan Emrich: Other: Siemens Healthineers Speaker: Siemens Healthineers  
Moritz Christian Halfmann: Nothing to disclose  
Karl-Friedrich Kreitner: Nothing to disclose

**Methods or Background:** Any referrals that had been cancelled or modified by radiographers at the time of examination were collected. The reasons for cancellation/modification were coded according to 13 different categories. The origin of the referrals was also recorded allowing the data to establish trends with relation to the clinics/departments where most modified/cancelled referrals originate from.

**Results or Findings:** The majority of referrals that were modified or cancelled had originated from the emergency department (ED) (42%) and from the out-patient department (35%). The audits further demonstrated that the majority of the reasons for cancelling/changing an exam are due to, 'incorrect exam selected according to clinical indication', 'unnecessary additional views requested', 'wrong body part', 'wrong side requested', 'exam not justified by the referrer'.

**Conclusion:** This audit shows that the role of the radiographer as a practitioner is both established and of fundamental importance to positive patient outcomes. Radiographers are not only professionally trained to act as practitioners but also are effective gate-keepers to potential errors in the referral process. Outcomes and learnings from the audit are disseminated among referrers where possible.

**Limitations:** No limitations were identified.

**Ethics committee approval:** Not applicable.

**Funding for this study:** Not applicable.

## Author Disclosures:

Liliana Barreira: Nothing to disclose  
Louise Bowden: Nothing to disclose  
Siobhan Hoare: Nothing to disclose

## RPS 2314-4

### Inadequate filling of radiology request form and its impact on patient radiation exposure and waiting time: a preliminary study

\*B. S. Hussain\*, I. Garba; Kano/NG  
(shussainreal@gmail.com)

**Purpose:** The purpose of this study was to evaluate how the failure or inadequacy in filling of radiology request forms leads to an increase in patient radiation exposure resulting from repeat investigations.

**Methods or Background:** A total of 158 patient request cards for conventional X-ray examination were randomly evaluated. Scoring criteria: filled; inadequately filled, and unfilled were used to score each item based on the following: patient demographic information; patient referral details and referring physician details. Repeat examinations due to inadequate filling or lack of filling of the request card were evaluated. Data was analysed based on descriptive statistics using SPSS statistical software.

**Results or Findings:** Patient names were adequately filled on all the request cards (100%). Demographic information related to gender and hospital number was provided in 94.9% and 93.7% of the request forms, respectively. Information related to patient referral details such as previous X-ray examination, blood pressure (BP), and last menstrual period (LMP) were inadequately filled with 4.4%, 2.5%, and 19.7% completion, respectively. Of the 158 request forms assessed, 33 (20.9%) led to repeat due to inadequate information provided. Inadequate information related to clinical history and requested examination had the highest and accounted for 45.5% and 24.2% of the causes of repeat, respectively.

**Conclusion:** Study findings have shown that information related to patient referral details is the most inadequately provided information. Besides, clinical history and the requested examination are the commonest causes of a repeat which is associated with an increase in patient exposure and also in patients' waiting time all of which has medico-legal implications and impact on the overall quality of service rendered.

**Limitations:** The sample size is small considering the large number of requests received on the daily basis.

**Ethics committee approval:** Ethics approval was obtained from the institutional research and ethics board.

**Funding for this study:** No funding was received for this study.

## Author Disclosures:

Idris Garba: Nothing to disclose  
Bashir Shafiu Hussain: Nothing to disclose

## RPS 2314-5

### Assessment of clinical information in examination requests in a radiology department

S. R. Gonçalves, A. F. C. L. Abrantes, L. P. V. Ribeiro, S. I. Rodrigues, \*O. Lesyuk\*, J. Pinheiro, A. d. M. Ribeiro, R. P. P. Almeida; Faro/PT

**Purpose:** Clinical information is an important tool to perform correctly imaging studies. Immobilisation devices may difficult the identification of the region of study, therefore, proper communication before an examination to adjust the study to a patient's condition is important. The present study aims to evaluate the existence or absence of clinical information in the examination requests forms in a radiology department.

09:30-10:30

Channel 4

## Research Presentation Session: Radiographers

## RPS 2314

### Optimising patient referral checks and pre-examination communication

## Moderators

L. A. Rainford; Dublin/IE  
B. M. Verbist; Leiden/NL

## RPS 2314-3

### Referral justification and the role of the radiographer

L. Bowden, \*L. Barreira\*, S. Hoare; Dublin/IE

**Purpose:** Recently in Ireland, the role of the radiographer has been revised to include a 'practitioner status', as amended into statutory legislation S.I. 256. In effect, this means that radiographers have the qualification and professional judgment to accept, reject or amend a referral according to the clinical information, prior imaging and presentation status of a patient. This ensures that no exam is performed without being justified in advance by the radiographer and documented accordingly. A justification audit was devised in a Tertiary Paediatric Hospital to evaluate at what rate radiographers cancel or modify referrals received, the results of which are presented here.

**Methods or Background:** A retrospective study was carried out with a total of 600 examination requests from two hospitals (300 from the emergency department and 300 from routine procedures), which were analysed in order to assess the presence or absence of clinical information. The instruments used were a checklist of existence or absence of clinical information in the examination request, and software for examination and visualisation of the exam request forms called RADIO from Global Intelligent Technologies (Glintt). In the second phase, a questionnaire "Relevance of prescription/clinical information in the Orto-traumatology services" by Vasconcelos was applied to a total of 34 radiographers.

**Results or Findings:** In this study, we verified that only 44.6% of the examination requests in the context of emergency trauma presented clinical information and 55.3% of them do not present any relevant information. 100% of the radiographers affirm that the requests for examination do not contain enough clinical information or correct anatomic region identification to perform the examinations and correct diagnosis. So, questioning the patient or the physicians is necessary to perform the study, decreasing the workflow in radiology departments.

**Conclusion:** Better communication to ensure a multidisciplinary approach is necessary in order to provide the patient with the best possible care and avoid an inadequate exposure.

**Limitations:** No limitations.

**Ethics committee approval:** No ethics conflicts were identified in this study.

**Funding for this study:** No funding was received for this study.

**Author Disclosures:**

Joao Pinheiro: Nothing to disclose

António Fernando Caldeira Lagem Abrantes: Nothing to disclose

Anabela de Magalhães Ribeiro: Nothing to disclose

Rui Pedro Pereira Almeida: Nothing to disclose

Susana Ribeiro Gonçalves: Nothing to disclose

Sónia Isabel Rodrigues: Nothing to disclose

Oksana Lesyuk: Nothing to disclose

Luís Pedro Vieira Ribeiro: Nothing to disclose

## RPS 2314-6

### The benefits of quality referral information and assessment: the radiographers' perspective

\*C. Chilanga\*, H. M. Olerud, K. B. Lysdahl; Drammen/NO

**Purpose:** The purpose of this study was to determine the benefits of quality referral information and involve radiographers in assessing referrals for appropriate imaging, as perceived by radiographers.

**Methods or Background:** An online survey was distributed to radiographers in clinical and non-clinical/academic settings via the International Society of Radiographers and Radiological Technologists (ISRRT) networks. The questionnaire consisted of 5-point Likert scale questions on radiographers' usefulness of referral information (12 reasons listed) and benefits of radiographers assessing referrals (8 benefits suggested).

**Results or Findings:** A total 279 responses were received. Clinical radiographers reported making use of the referral information frequently for a number of reasons, with the highest rank for 'patient identification', 'ensuring imaging of the correct body region' and 'correct patient positioning' (83%, 79%, 66% very frequently responses). Non-clinical/academic radiographers ranked the same reasons high for usefulness (74%, 63%, 52% strongly agreed as useful responses). Benefits of radiographers' involvement in referral assessment ranked high (strongly agree responses) were the items 'promotes radiographers' professional responsibility' (72%) 'improves radiographers' collaboration with radiologists and referring clinicians' (67%) and 'enables efficient use of radiology services' (57%).

**Conclusion:** Radiographers perceive referral information as useful for many purposes in their clinical practice, all vital for ensuring patient safety and quality radiology services. Radiology departments can benefit from involving radiographers in assessing referrals, through professional development, inter-professional collaboration, and efficiency of services.

**Limitations:** The number of responses is low. Larger sample size could also have been of benefit to capture views of a wider range of radiographers. The study is subject to selection bias as only participants who had information from ISRRT organisation networks were able to view and respond to the survey.

**Ethics committee approval:** The Norwegian Centre for Research Data (NSD) approved this study (reference number 472337).

**Funding for this study:** No funding was provided for this study.

**Author Disclosures:**

Kristin Bakke Lysdahl: Nothing to disclose

Catherine Chilanga: Nothing to disclose

Hilde Merete Olerud: Nothing to disclose

## RPS 2314-7

### Evaluating clinical criteria in patients being referred for a preoperative chest X-ray in a state general hospital in Malta

F. Vella<sup>1</sup>, \*K. B. Borg Grima<sup>2\*</sup>, D. Mizzi<sup>2</sup>; <sup>1</sup>Sliema/MT, <sup>2</sup>Misda/MT  
(karen.borg-grima@um.edu.mt)

**Purpose:** Preoperative chest X-rays (CXRs) are frequently performed before surgeries. The aim of this study was to investigate adult clinical referral criteria for a preoperative CXR and to determine if referrals adhered to local protocols, international and European guidelines. The association between clinical indications and the result of the preoperative CXR was investigated.

**Methods or Background:** The research design was a prospective, cross-sectional study performed in a state general hospital in Malta. 271 adult participants undergoing elective surgery were recruited, using convenience sampling. The research tools comprised of a close-ended questionnaire in which clinical and medical information was obtained. The questionnaire was complimented by a data sheet completed by intermediaries.

**Results or Findings:** Out of 271 participants, 72 (26.6%) participants were healthy asymptomatic patients, having an American Society of Anaesthesiology (ASA) score I. ASA II was the most common score obtained (45.7%). 44 (16.2%) participants had an abnormal CXR result, with cardiomegaly being the most common abnormality detected. Abnormalities were significantly low in all ASA scores but were seen to increase with an increasing ASA score. Only 11.4% (n=5) of abnormalities were unexpected. A statistically significant association (p=0.007) was found between increasing age and abnormal CXR results. No statistically significant association was found between cardiac or respiratory conditions and CXR abnormalities.

**Conclusion:** 64.2% of CXRs were not requested in accordance with protocols implemented locally on preoperative testing. Whereas, if the international and European guidelines were applied, 70.1% of CXRs were not requested according to guidelines.

**Limitations:** Referring physicians may have had cogent reasons for requesting the preoperative CXR but due to time constraints were unable to provide them in detail.

**Ethics committee approval:** Ethical approval was sought and obtained from the University Research Ethics Committee of the University of Malta.

**Funding for this study:** No funding was received for this study.

**Author Disclosures:**

Karen Borg Grima: Nothing to disclose

Deborah Mizzi: Nothing to disclose

Faith Vella: Nothing to disclose

## RPS 2314-8

### What makes compassion difficult: a narrative review of the evidence for compassion fatigue in diagnostic radiographers

\*S. Robertson<sup>1</sup>, H. McNair<sup>1</sup>, E. Olanloye<sup>1</sup>, S. Cruickshank<sup>1</sup>, A. England<sup>2</sup>; <sup>1</sup>London/UK, <sup>2</sup>Keele/UK

**Purpose:** The objective of this study was to investigate the evidence of occupational stressors in diagnostic radiographers, and whether they are at risk of developing compassion fatigue.

**Methods or Background:** Compassion is an essential concept in healthcare, however, repeated exposure to challenging or traumatic situations can lead to compassion fatigue (CF). A review protocol was developed and registered on PROSPERO. Database and grey literature searches were carried out. No meta-analysis was possible therefore data has been presented as a narrative.

**Results or Findings:** Fifteen studies were selected for review published between 1982 and 2020. Evidence demonstrates that radiographers suffer from high levels of occupational stress. Stress is perceived rather than defined. Common causes of occupational stress were identified as poor patient interactions, and a lack of time to spend with patients. There is a lack of evidence to show how this stress affects radiographers' health or their ability to provide compassionate care.

**Conclusion:** Radiographers are prone to suffering from symptoms that can be attributed to CF. This has been present for an extended period of time, and the main changes have been a decrease in job satisfaction and accomplishment. Patient interaction was identified as a cause, but it is unclear if this affects staff ability to be compassionate. Further work is required to find ways to mitigate these effects and prevent the issue from getting worse.

**Limitations:** It was difficult to find consistency in the range of studies identified in this review, and direct comparisons of the data have not been possible. The wide range of definitions used to cover this topic means that some studies may not have been identified.

**Ethics committee approval:** Not applicable.

**Funding for this study:** SR is supported by a pre-doctoral research fellowship grant from the Royal Marsden Hospital Charity.

**Author Disclosures:**

Elizabeth Olanloye: Nothing to disclose

Scott Robertson: Nothing to disclose

Susanne Cruickshank: Nothing to disclose

Helen McNair: Nothing to disclose

Andrew England: Nothing to disclose