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Abstracts

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on visual inspection. Geometric mean of anterior and posterior projections is frequently computed for quantification purposes. However, this quantification method does not take into account real photon attenuation and sensitivity of gamma cameras. In this work, we propose an atlas based attenuation correction method to quantify radiopharmaceutical distribution. **Materials and Methods:** Whole-body CT acquisitions from 18 females referred for clinical reasons were used to build an attenuation atlas dataset. Another dataset was built with 10 minutes post-injection (610±56 MBq of ^{99m}Tc-Oxidronate) bone scintigraphy from 35 females. This dataset was used for validation. To create the attenuation atlas, the attenuation map on anterior-posterior direction was created from each whole-body CT, considering the photon energy of the ^{99m}Tc. Each 2D attenuation map was then geometrically aligned with a female bone scintigraphy atlas previously built. Then the attenuation atlas was obtained by averaging all 2D attenuation maps. The second step was the implementation of the attenuation correction and validation. The bone scintigraphy atlas was aligned with each patient's bone scintigraphy and then the geometric transformations found were applied to the attenuation atlas built. Since the attenuation profile of each patient depends on the anterior-posterior body thickness, before applying the attenuation map to the geometric mean of the anterior and posterior projections, a patient specific correction was performed. This was based on a linear regression model taking into account the patients' height and weight. Finally, the correction for the gamma camera sensitivity was applied. Validation was done by comparing the theoretical whole-body activity (injected activity corrected for the decay) with the estimated whole-body activity using the proposed methodology. **Results:** High agreement between the theoretical and estimated activities was achieved (intraclass correlation coefficient of 0.856, $p < 0.001$). Mean and median absolute deviations were 3.9% and 2.7%, respectively. There were four cases with a deviation equal or superior to 10%. **Conclusion:** The herein proposed methodology proved to have potential to be used in the estimation of the radiopharmaceutical body distribution. Further studies are imperative using late (more than 2 hours post-injection) acquisitions. Potential sources of error also need to be thoroughly investigated. **Financial support:** Project LISBOA/NORTE-01-0247-FEDER-017685 - BTSCAD (Bone Tumor Scan - CAD) under the PORTUGAL 2020 Partnership Agreement, through the European Regional Development Fund. **References:** None.

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Outsourced Teleradiology in the swiss medical system: a financial analysis for a promising concept

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Aim/Introduction: Teleradiology is feasible and yields similar quality of traditional reporting. Only a few papers have investigated the financial impact of teleradiology, and only considering in-house systems for remote reporting, thus reporting high costs and limited impact on personal management. Conversely, an outsourced management of teleradiology is expected to provide major advantages in terms of organization of department workload, personnel management and cost optimization. We here report a financial analysis based on an innovative teleradiology model, wherein the reporting is outsourced to an external society. **Materials and Methods:** Costs were quantified using insurance reimbursements of swiss medical system as reference. A cost-minimization analysis was conducted considering a representative Institution performing among other investigations 50 FDG-PET/CT, 150 Thorax-Abdomen CT und 40 Thorax-Abdomen MR each week, employing 10 nuclear medicine physicians (2 engaged in PET) and 20 radiologists (2 engaged in CT, 2 in MR). The following aspects were considered: 1) the need of reassigning MD to different diagnostics in case of personnel shortage (PS) 2) the maximum number of scans that a MD can report in one day without loss of quality, with consequent need for reducing department's workflow 3) insurance reimbursement 4) the costs of outsourced teleradiology. Three scenarios of MD-PS (illness, congresses, vacations) were considered: 1=10%; 2=20% and 3=30%, **Results:** Total revenue per week in the representative Institution is 80,000 CHF for PET/CT, 72,990 CHF for CT and 43,830 CHF (=196,820 CHF/week). In Scenario 1, overall loss was 22,115 CHF/week. In Scenario 2, the loss increased to 39,364 CHF/week. Finally, in Scenario 3 the total loss reached 93,532/week. Assigning the canceled investigation to outsourced teleradiology allowed to limit money loss to 4,955 CHF in scenario 1 (-77%), 8,828 CHF in scenario 2 (-78%) und 21,022 CHF in scenario 3 (-79%). **Conclusion:** A flexible system for teleradiology accounting for fluctuating PS allowed to reduce the potential loss due to canceled scans. This is expected to financially impact even more those Institutions with less employees. It may be foreseen that a comparable increase in revenue can be obtained by optimizing the scanners utilized capacity without the need of increasing fix costs. **References:** None.

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Study of different quantitative uptake metrics in F18-FDG PET/CT imaging in breast cancer: impact of workstation and segmentation method

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Aim/Introduction: There is increased interest in various new quantitative uptake metrics beyond standardized uptake value (SUV) in oncology PET/CT studies. The purpose of this study is to investigate the variability of several quantitative metrics