

# Artefacts and Image Interpretation

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Myocardial perfusion gated SPECT (GSPECT) is a sensitive and accurate method for the detection, localization, and risk stratification of patients with known or suspected coronary artery disease (CAD). However, the accuracy of GSPECT may be hampered by image artefacts resulting from the patient's body and behaviour during the acquisition, the distribution of the radiopharmaceuticals outside of the heart, and technical factors associated with image acquisition, processing, and display. Recognition of these issues and how they can affect the resultant perfusion images, as well as knowledge of the available methods that minimise or correct their impact are mandatory for both the technologist and interpreting physician. Quality control starts by reviewing the projection images in an endless loop cine display so as to detect motion, sources of attenuation, extracardiac activity, and flashing. Nowadays there is software available to generate a "pseudo" rotating projection image from the projection images acquired by the multiple stationary detectors of solid-state CZT cameras, which helps to perform the initial quality control when using these new cameras. Subsequently, when attenuation correction is performed, verification of high quality of attenuation maps (with high count density, minimal or no truncation of the transmission projections, precise alignment of emission and transmission data, and minimal noise) should be done. Thereafter, the orientation and defined axes and borders of the heart should be carefully reviewed on the aligned stress and rest images. Finally, the reconstructed slices as well as polar perfusion and functional maps should be assessed visually, semiquantitatively, and quantitatively. This session will focus on all of these practical issues in order to obtain optimal GSPECT images and achieve an accurate diagnosis.

## References:

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