

## Comparing twelve-lead electrocardiography with close-to-heart patch based electrocardiography - DTU Orbit (08/11/2017)

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Electrocardiographic (ECG) recording using adhesive patch-type ECG monitors (PEMs) has several advantages over conventional ECG recorders. However, due to the unconventional electrode locations used in PEM systems, the morphology of the acquired ECG signals may differ from conventional ECG leads used in the clinic impeding clinical interpretation. In this study, recordings from an ePatch<sup>®</sup> lead system involving three torso sites are compared with concurrently recorded standard 12-lead ECG. Pearson's correlation coefficients (CC) of  $-0.90$  and  $0.91$  is found between two of the PEM signals and the standard 12-lead ECG signals aVR and V2, respectively. Deriving the 12-lead ECG from the PEM leads through linear transforms on a subject-specific basis yield CC values ranging from  $0.78$  to  $0.96$  between measured and derived leads. The corresponding CC values for the PEM ECG leads range from  $0.88$  to  $0.95$ . It is found that the PEM lead system captures 'residual' information not contained in the standard 12-lead ECG and i.a. a negative deflection after the T-wave is discovered in the PEM signals.

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