

Telemedicine and e-Health

Ambulance 12-Lead Electrocardiography Transmission via Cell Phone Technology to Cardiologists

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Abstract

This study demonstrates transmission of 12-lead electrocardiography (ECG) in an ambulance to the cell phone of the attendant emergency medical technician and then to the hospital and to cell phones of off-site cardiologists. The emergency medical technician cell phone receives Extensible Markup Language files generated by a Phillips Extensible Markup Language ECG instrument via Wi-Fi-based wireless network and then sends them to an ECG-processing server at the hospital over the mobile telephone network. After reducing ECG noises and artifacts, the server converts files to Digital Imaging and Communications in Medicine-based ECG reports stored in Picture Archiving and Communication System. These reports are sent to the cell phones of off-site cardiologists. Consequently, on-site Emergency Department physicians and off-site cardiologists can discuss ECG reports via Picture Archiving and Communication System on their computers or cell phones to prepare for the most appropriate treatment while the patient is on the way to the hospital. In conclusion, this 12-lead ECG transmission e-technology expands the functions of a 12-lead ECG instrument and facilitates more efficient prehospital cardiac care.