Electrical source imaging (ESI) is an emerging technique for reconstructing brain or cardiac electrical activity from electrical potentials measured away from the brain or heart. The concept of ESI is to improve on electroencephalography (EEG) or electrocardiography (ECG) by determining the locations of sources of current in the body from measurements of voltages. ESI could improve diagnoses and guide therapy related to epilepsy and heart conduction abnormalities through its capability for monitoring the effects of drugs or for locating an electrical abnormality that is to be removed.