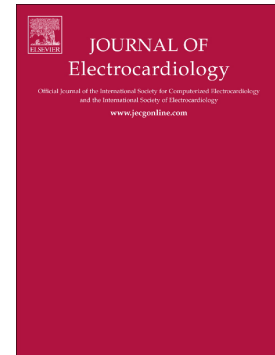


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Readily available ECG databases

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Abstract— Medical databases are an essential tool in health research that have become more frequently used in the last few decades alongside the growth and worldwide availability of the internet. Heart diseases are one of the most common health problems in the world with a vast amount of work being done on disease prevention and surveillance. With respect to arrhythmia detection, the electrocardiogram (ECG) is one of the most studied monitoring tools to date, generating large amounts of real-time data and giving rise to readily available ECG databases. In this research, we provide an overview of the most cited ECG databases with public/read access and discuss their characteristics with emphasis on the ECG records, as well as their use and applications carried out by other researchers around the world.

Keywords— cardiovascular disease, electrocardiogram, ECG databases.

INTRODUCTION

Nowadays, in the age of technology and network communication, the internet is an essential tool for carrying out almost any kind of work. The great advancements in medical research could not have been possible without simple and quick access to electronic resources. All modern technological tools have allowed for better and more fast-paced research in healthcare and biomedicine, including medical databases. Cardiovascular diseases (CVD) consist of pathologies that come from a multifactorial origin, and can occur at different ages in the human being, making treatment difficult in a variety of ways. The WHO and the Pan American Health Organization have highlighted CVD as the leading cause of premature deaths worldwide, marking them as red flags for attention due to a rising incidence of CVD in recent years [1].

METHODOLOGY

In order to undertake this mini literature review, we performed a literature search for electronic resources related to the subject of electrocardiography. We utilized several medical databases and ran a search query using very general and a few specialized keywords in order to capture a wide variety of articles on the subject. We used the “*IEEE xlore*”, “*SCOPUS*” and “*ScienceDirect*” search engines to find the electronic resources of interest for this review. We employed the keywords: “database”, “electrocardiogram (ECG or EKG)”, “cardiovascular disease (CVD)” and “acute myocardial infarction (AMI)”. Furthermore, we utilized “AND” and “OR” connectors in order to create search chains that would better delimit the topic of interest. The inclusion criteria consisted of: articles and review papers published in journals from 01/01/2007 to 01/11/2017 and articles and review papers that utilized publicly available databases for cardiovascular diseases. The exclusion criteria consisted of: articles that were part of conferences, posters and book chapters as well as articles that studied medical images instead of ECG. A schematic diagram of the literature search is shown in Fig. 1.

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