ECG measurements from the Lifelines cohort provide an overview of average values and ECG abnormalities among the general Dutch (Caucasian) population of the Netherlands.

**number of Lifelines participants with**:  
- 1,100 stroke baseline
- 500 stroke newly reported cases
- 1,500 myocardial infarction baseline
- 500 myocardial infarction newly reported cases
- 800 heart failure baseline
- 1,500 heart failure newly reported cases

**average ECG values:**

<table>
<thead>
<tr>
<th></th>
<th>men</th>
<th>women</th>
</tr>
</thead>
<tbody>
<tr>
<td>PQ</td>
<td>157 (145-172) ms</td>
<td>148 (137-162) ms</td>
</tr>
<tr>
<td>HR</td>
<td>84 (57-71) bpm</td>
<td>67 (61-74) bpm</td>
</tr>
<tr>
<td>QRS</td>
<td>100 (92-107) ms</td>
<td>88 (82-97) ms</td>
</tr>
<tr>
<td>QTc</td>
<td>404 (393-415) ms</td>
<td>409 (399-420) ms</td>
</tr>
</tbody>
</table>

**blood pressure data on**:  
- 152,000 adults (18 years and older)
- 9,000 children (8-17 years)

**ECG data on**:  
- 152,000 adults (18 years and older)
- 1,600 children (13-17 years)

*source: van der Ende et al. (2017) doi.org/10.1002/clc.22737*

**which of the Lifelines data could contribute to scientific research on cardiovascular diseases?**

**risk factors**
A diverse data set is available on the risk factors of cardiovascular diseases. These include hypertension, diabetes, weight, cholesterol levels, kidney disease, blood clotting disorder, family health history, smoking, stress, physical activity, physical environment and nutrition.

**diseases and conditions**
Data are available on 1,800 Lifelines participants who currently have or have had thrombosis, 700 who have or have had atherosclerosis, and 1,500 who have or have had a heart valve disorder. These data are based on self-reported information.

**health problems and drug use**
Problems and symptoms related to cardiovascular disease, such as chest pain and dyspnoea on exertion, have been surveyed in Lifelines questionnaires. Data are also available on drug use (e.g. drugs acting on the renin-angiotensin system, lipid drugs and beta blockers).

**genetic data**
The Lifelines cohort provides a unique combination of genetic data and family relationships. DNA data (GWAS) are available on 13,000 participants.
Lifelines is a large, multi-generational cohort study that includes over 167,000 participants from the northern population of the Netherlands. Lifelines works with a combination of questionnaires, measurements and biological samples; thus, providing a unique source for research purposes. Participants from three generations are followed for at least 30 years, to obtain insight into healthy ageing and the main factors relating to the onset and progression of diseases. Every 1.5 years, participants complete a questionnaire, in which they provide a wide variety of data. In addition, once every 5 years, participants are invited to visit a Lifelines location for a physical examination. During this visit, biological samples are collected and several measurements and tests are conducted. Biological samples are stored at -80 °C to ensure high quality and long-term preservation.

available data & biological samples

- **measurements:**
  - anthropometry
  - blood pressure
  - ECG
  - lung function
  - cognitive tests
  - psychiatric interview
  - skin autofluorescence

- **biological samples:**
  - blood (fasting sample)
  - 24h urine
  - faeces
  - scalp hair
  - DNA

- **questionnaires:**
  - medical history
  - lifestyle
  - nutrition
  - physical activity
  - socio-demographic factors
  - quality of life
  - symptoms
  - personality
  - stress
  - social context
  - other

Lifelines data are available to researchers, worldwide, in the field of healthy ageing. If you are interested in the possibilities Lifelines has to offer for research or policy development, please see our website: [www.lifelines.nl](http://www.lifelines.nl), or contact us directly at research@lifelines.nl