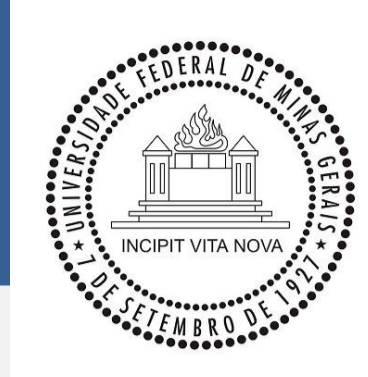


# Major Electrocardiographic Abnormalities in Brazilian Adults: Prognostic value and reclassification potential in primary prevention (From the ELSA-Brasil Cohort Study).

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## Introduction

- The role of electrocardiogram (ECG) as a screening tool for cardiovascular diseases (CVD) prevention is still unclear for intermediate and high-risk subjects
- The Minnesota Code Classification System (MC) allowed standardization of ECG evaluation in population studies.

## Hypothesis

Major electrocardiographic abnormalities (MEA) according to the MC may have a negative impact on all cause and cardiovascular mortality.

## Objective

- Evaluate if MEA according to the MC are independently associated with all-cause and cardiovascular mortality
- investigated if MEA would improve cardiovascular death risk prediction when incorporated to the European SCORE.

Funding



## Methods: Participants

The ELSA-Brasil cohort is a multicenter study that included 15,105 civil servants from universities and research institutions of six Brazilian cities.

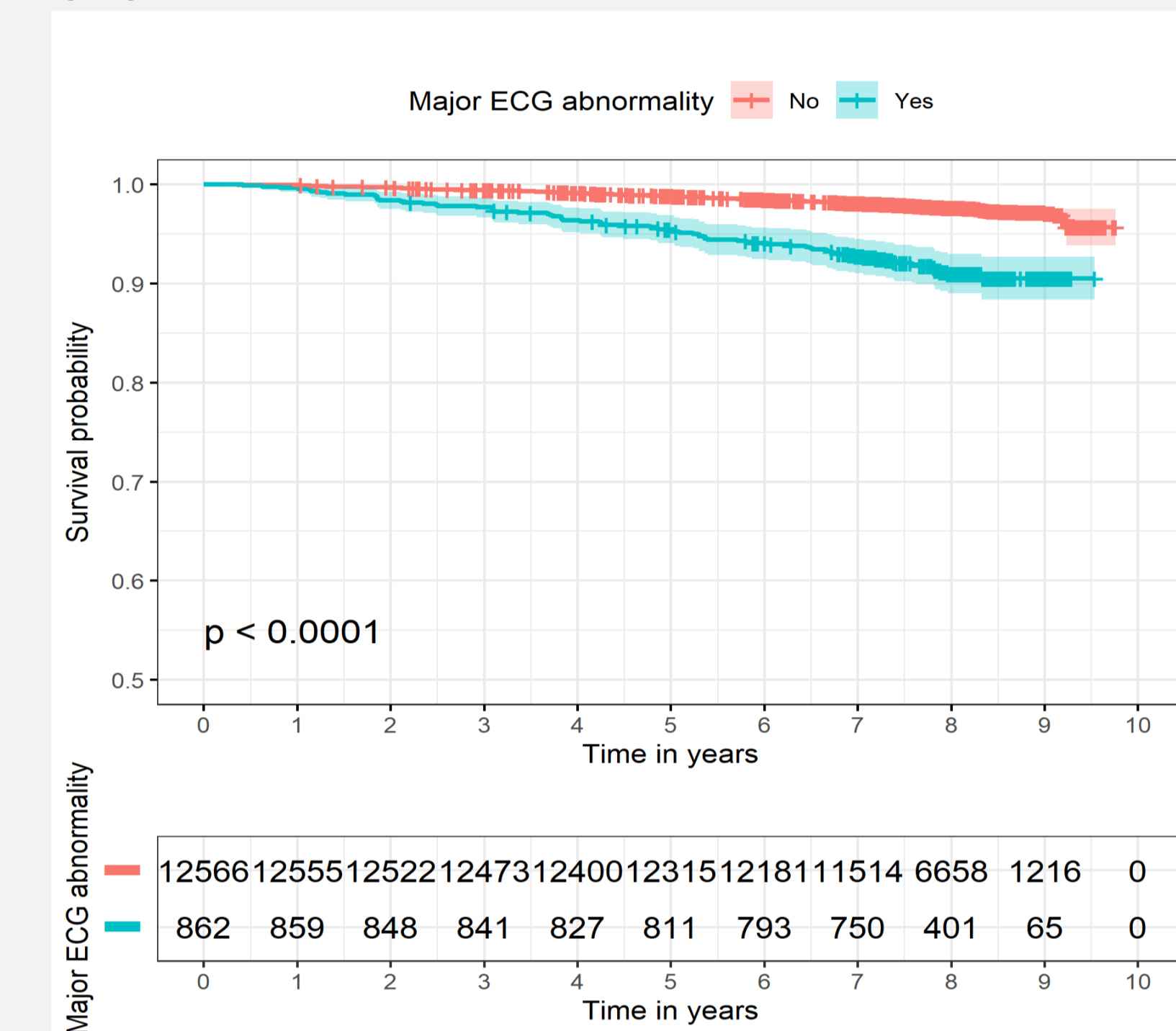
- **Inclusion criteria:** participants from ELSA-Brasil with valid ECG
- **Exclusion criteria:** participants with prevalent cardiovascular diseases.
- **N = 13,428** (45% men, age range: 45-58)

## Methods: Variables & Statistical Analyses

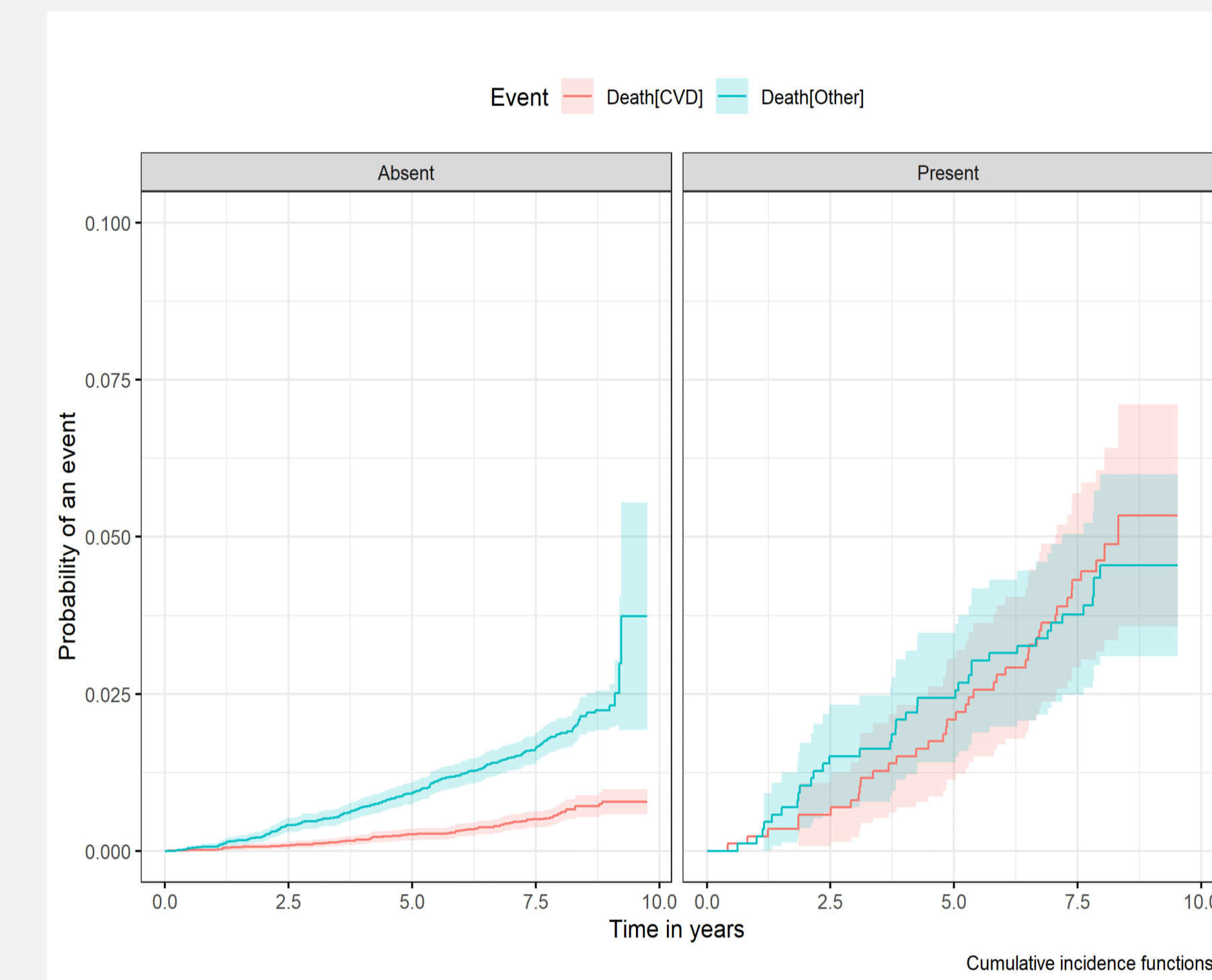
- Explanatory variable: MEA defined by the MC
- **Covariates and potential confounders:** European SCORE (<1: low risk, ≥1 and <5: intermediate risk, ≥ 5 high risk), hypertension, diabetes, present smoking, dyslipidemia, obesity and school years as a proxy for socioeconomic status
- **Dependent variable:** All-cause and cardiovascular death
- **Mean follow up:** 8±1 years
- **Statistical analysis:** Cox regression for all cause mortality, Fine and Gray competitive risk analysis for cardiovascular mortality and net reclassification index assessment to evaluate incorporation of MEA to the SCORE

## Results

**Figure 1:** Kaplan-Meier curves for cumulative survival from all-cause mortality according to presence of major electrocardiographic abnormality at baseline, in the general population.



**Figure 2:** Fine and Gray model for competitive risk from non-cardiovascular and cardiovascular death between those with and without major electrocardiographic abnormalities at baseline.



**Table 1:** Systematic Coronary Risk Evaluation score reclassification for the outcome of cardiovascular death after addition of the variable “presence of major electrocardiographic abnormality”.

| Reclassification for non-event participants      |               |                   |           |                |
|--|---------------|-------------------|-----------|----------------|
|  | Updated Model |                   |           |                |
| Initial Model                                    | Low-Risk      | Intermediate-Risk | High-Risk | % Reclassified |
| Low-Risk   | 0             | 0                 | 0         | 0              |
| Intermediate-Risk                                | 0             | 6566              | 177       | 3              |
| High-Risk  | 0             | 0                 | 272       | 0              |
| Reclassification for event positive participants |               |                   |           |                |
|  | Updated Model |                   |           |                |
| Initial Model                                    | Low-Risk      | Intermediate-Risk | High-Risk | % Reclassified |
| Low-Risk   | 0             | 0                 | 0         | 0              |
| Intermediate-Risk                                | 0             | 229               | 41        | 15             |
| High-Risk  | 0             | 0                 | 90        | 0              |

## Conclusion

- MEA defined by the MC are associated with increased risk of all cause and cardiovascular death
- ECG may have a role in defining strategies for CVD risk prediction and prevention