

ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #298

1. Title:

The relationship between computer and visually assigned prevalence and incident ECG codes in ARIC

2. Writing Group:

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3. Timeline:

Submit Proposal to Publication Committee	4/95
Complete analysis	5/96
Submit first draft to Publications Committee	8/96
Submit to Journal	10/96

4. Rationale:

Computer-processed ECGs provides a clear advantage over visual reading because it derives a set of continuous measurements and is more precise than visual coding. However, it requires more costly, standardized ECG recording equipment, and is not suitable for processing ECGs recorded on paper.

In epidemiologic studies and clinical trials, the use of computer processed ECGs has become more frequent and is now the preferred methodology of ECG classification for large prospective studies. In the U.S., the NOVACODE computer ECG program is the most commonly used classification method.

This program assigns prevalence Minnesota Codes generates continuous measurements and identifies significant ECG pattern change. Because the method of assigning Minnesota Codes is different for the computer and the traditional visual approach, systematic differences in prevalence and incidence codes will make inter-study comparisons for ECG events less reliable.

In the ARIC study, both computer and visual methods were used to code baseline and periodic follow-up visits. Therefore, we can assess the differences between methods and can make recommendations for adjusting a study's ECG results for the method used to assign codes.

5. Main hypothesis:

- a. The NOVACODE procedure for assigning prevalence and incidence codes is more sensitive and less specific than the visual method.
- b. The combination of computer read ECGs with visual adjudication from periodic follow-up recordings increases sensitivity and specificity for clinically validated interim MI than for either method alone.

6. Data:

Visit 1 and visit 2 computer read ECGs from all participants. Differences between computer vs. visually read abnormal ECGs and 10% sample of computer labelled "normals" with adjudicated results. Incident cases from computer vs. visual methods and from clinically validated definite or possible in-hospital MI.