MEMO: To Drs. Keys & Taylor, W. Parlin & N. Shultz

From: Henry Blackburn, M.D.

Date: February 16, 1965

Subject: Background for discussion on classification of cohorts & "new cardiac events" in population studies.

Most of the components already exist in our tabulations for classification of "new events" as does the machinery for accomplishing it. But in several areas discussion would be helpful and this is meant to provide the background for such discussion. Please comment.

One approach is involved in screening out "healthy cohorts" and in reporting new events occurring in them. It assumes we know a great deal about the manifestations of heart disease. Another approach is involved in studying relationships and assessing the eventual significance of a number of attributes and measured variables. It assumes less knowledge about the variables on which we have collected data.

In any approach we will place more reliance on handling straightforward descriptive and measured phenomena than on interpretations, except in areas where our measures totally fail.

<u>Prevalence and Screening of Healthy Cohorts</u>

1. <u>CORONARY HEART DISEASE</u>

The clinical manifestations of interest are myocardial infarction, angina pectoris, a chronic form of heart failure and/or arrhythmias, and certain ECG items.

1) ECG, Q, & QS item 1, present on initial examination when agreed upon by 2 observers takes precedence over those events listed below.

2) ECG, Q, & QS item 1, 2 takes precedence over ECG items listed below (lesser Q waves which should be reported and screened out of healthy cohorts).

3) ECG item V_1, takes precedence over ECG items, listed below (deeply negative T which should be reported and screened out of healthy cohort).

4) ECG item II_1 — Left axis $> -30^{\circ}$

V_2 — Negative T waves

VI 1, 2 — Complete & partial A-V block

ECG items VII: 1, 2, 4 — Complete bundle branch block

ECG items VIII: 3, 4, 5, 6 — Important arrhythmias

(All these items will be reported individually as prevalence and screened out of healthy cohorts.)

5) ECG item XI, 1. Post-exercise S-T depression, 1 mm. or more, ischemic type, not present on resting ECG will be reported as prevalence but not screened from healthy cohorts.

6) Clinical form: Heart disease present, angina pectoris, impression of the examiner, takes precedence over no ECG items and is used for screening of cohorts. Its reporting as a prevalence figure should be discussed.

New Events in Living Subjects

1. CORONARY HEART DISEASE

Its recognized clinical manifestations are myocardial infarction, angina pectoris, a chronic form of heart failure and/or arrhythmias, and sudden death.

A) ECG, Q & QS item 1, 1. The occurrence of this item when not present on the prior examination and when agreed upon by two observers, qualifies as a new event, and takes precedence over those events to be listed below.

B) In the absence of (A) above individuals who give a positive response to the Rose questions to follow (based on interim 5 year occurrence) will be classed under a separate category of new event:

> "Have you ever had a severe pain across the front of your chest lasting for half an hour or more?"

C) In the absence of (A) and (B), individuals who give a positive response to all the Rose questions to follow (based on interim 5 year occurrence) will be classed under a separate category of new event:

"Have you ever had any pain or discomfort in your chest?

Do you get it when you walk uphill or hurry?

(If never hurries or walks uphill: Do you get it when you walk at an ordinary pace on the level?)

Stop or slow down?

Relieved in 10 minutes or less?

Substernal or left chest plus left arm."

D) Deaths:

1) Narrative descriptions of the terminal illness from physicians and family sources are reviewed in the central laboratory and coded according to the International List for cause of death.

2) Subjects dying suddenly (within an hour after onset of symptoms) with no known prior heart disease or above manifestations will be coded separately and as "sudden, and unexpected death".

E) ECG Classes:

1) For subjects who do not fall into main classes of A-D, nor into specified clinical classes for other forms of manifest heart diseases the appearance of a major resting ECG classification when none was previously found is coded as a separate new event. This includes the following ECG codes:

I, 2	Lesser, but significant Q waves
II, 1-2	Left & right axis deviation
III, 1-2	Left & right "hypertrophy"
IV, 1-3	Ischemic S-T depression
V, 1-3	Negative or flat T waves
VI, 1-4	A-V conduction defects
VII, 1, 2, 4	Ventricular conduction defects
VIII, 3-6	Significant arrhythmias

2) For subjects who do not fall into main classes of A-D, nor specified clinical classes for other forms of heart disease, nor ECG items under E. (1) above, the development of a clearly ischemic S-T depression post-exercise (XI, 1) will be coded separately as a new event.

Classes A-D may be lumped for CHD morbidity and mortality, after reporting individual subclasses. Class E. should not be lumped with A-D.

II. VALVULAR HEART DISEASE

Prevalence & Screening of Healthy Cohorts

The clinical manifestations of interest are the history of an ascribable etiology (rheumatic, luetic, congenital) and murmurs to be described. Prevalence will be reported under descriptive headings as follows:

A. With history of etiological factor.

1) Grade II or more (of VI) apical or aortic systolic murmur.

2) Any diastolic murmur or ~~mutual~~ mitral opening snap.

B. Without history of etiological factor.

1) Grade III or more (of VI) apical or aortic systolic murmur plus thrill.

2) Any diastolic murmur or ~~mutual~~ mitral opening snap.

New Events:

Probably not applicable except for special studies of natural history of findings in prevalence cases.

III. Hypertension Heart Disease

IV. Pulmonary Heart Disease

Discussion is required.