*Acknowledgement:*

Melissa Greiner (biostatistician) and Dr. Arun Krishnamoorthy (cardiology fellow) from the Duke Clinical Research Institute were responsible for the development of an algorithm to define prevalent heart failure at visits 1, 2, and 3 of the Jackson Heart Study. After exploring several HF algorithms, they proposed to adopt the modified Gothenburg algorithm used for the ARIC study given the similarity of exam questions, availability of data and strong sensitivity (83.5%) and specificity (80.9%) of the algorithm found in earlier studies. They mapped the ARIC questions to JHS questions, added new JHS questions when available (additional CHD variables, AF from ECG or history as available, specific angina questions, etc.) and modified the algorithm as needed to account for differences in questions at each exam. The algorithm was presented to and approved by the JHS CVD working group.

*Note from Melissa Greiner:*

New Notes for 2015 Release:

While the actual Gothenburg hfhx variable has not changed, we have added several medication variables and have changed our derived variable ‘lvh\_any’ for left ventricular hypertrophy based on a suggestion from a reviewer for Rob’s QRS manuscript.

Old Notes before 2015 Release:

I have attached the SAS code for all three exams: dcri\_derived1, dcri\_derived2 and dcri\_derived3. In addition to Gothenburg HF derivation, these programs also contain additional DCRI derived variables for our internal use which you can just ignore. The HF flag in the three datasets is called ‘hfhx’.

We have derived the HF variable for exams 2 and 3 but not all of the exam 1 variables were available. Below is a summary of differences for exams 2 and 3 and how we tried to deal with the missing information.

Here is a summary of differences for exam 2:

    1) Many of the V2 questions are phrased "Since your last exam, have you...?"

       Therefore, for the purpose of deriving the HF history/prevalence variable at visit 2, we rely on both current

       questions and visit 1 derived variables.

    2) The variable and dataset names are not always consistent across visits.

    3) There were no questions about coughing, phlegm or wheezing at exams 2 or 3 so we will rely on the exam 1 responses.

    4) ECG was not performed at exam 2 so the chdhx variable was not derived in the JHS analysis2 dataset (MIecg, MI scar

       from ECG, is not available). We have derived an alternate variable, chdhx\_alt, derived from the other available

       exam 2 variables and chdhx from exam 1.

    5) Lack of ECG also means that atrial fibrillation was not assessed at exam 2. We use afib from exam 1 and current

       use of antiarrhythmic medications.

Here is a summary of differences for exam 3:

    1) Many of the V3 questions are phrased "Since your last exam, have you...?"

       Therefore, for the purpose of deriving the HF history/prevalence variable at visit 3, we rely on both current

       questions and visit 2 and 3 derived variables.

    2) The variable and dataset names are not always consistent across visits.

    3) There were no questions about coughing, phlegm or wheezing at exams 2 or 3 so we will rely on the exam 1 response.

*Simple Summary Statistics for HF status at Exam 1, 2 and 3:*

| **DCRI Derived: History of Heart Failure based on ARIC modified Gothenburg criteria at exam 1** | | | | |
| --- | --- | --- | --- | --- |
| **hfhx** | **Frequency** | **Percent** | **Cumulative Frequency** | **Cumulative Percent** |
| **0** | 4903 | 92.49 | 4903 | 92.49 |
| **1** | 398 | 7.51 | 5301 | 100.00 |

| **DCRI Derived: History of Heart Failure based on ARIC modified Gothenburg criteria at exam 2** | | | | |
| --- | --- | --- | --- | --- |
| **hfhx** | **Frequency** | **Percent** | **Cumulative Frequency** | **Cumulative Percent** |
| **0** | 3731 | 88.96 | 3731 | 88.96 |
| **1** | 463 | 11.04 | 4194 | 100.00 |

| **DCRI Derived: History of Heart Failure based on ARIC modified Gothenburg criteria at exam 3** | | | | |
| --- | --- | --- | --- | --- |
| **hfhx** | **Frequency** | **Percent** | **Cumulative Frequency** | **Cumulative Percent** |
| **0** | 3347 | 87.73 | 3347 | 87.73 |
| **1** | 468 | 12.27 | 3815 | 100.00 |