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Statement of

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U.S. Department of Health and Human Services

for

Oversight Hearing: VA Disability Compensation: Presumptive Disability Decision-Making  
before the

Committee on Veterans' Affairs

United States Senate

September 23, 2010

For Release on Delivery

Mr. Chairman and members of the Committee, thank you for this opportunity to appear before you on behalf of the Acting Director of the National Heart, Lung, and Blood Institute, part of the National Institutes of Health, an agency of the Department of Health and Human Services (HHS). I was asked to address current understanding of ischemic heart disease, or IHD, including information on known risk factors and the extent of those risks for developing the disease, methods of diagnosis and treatment, physician qualifications for treating IHD, its prevalence rates among males over age 60, and the relationship between dioxin exposure and IHD.

Atherosclerotic plaque begins to develop in humans during the first two decades of life in the form of "fatty streaks" inside the artery walls. A landmark study published in 1953 found gross evidence of coronary plaque in 77.3% of U.S. fatalities in Korea. The average age of these young soldiers was 22 years. This eye-opening study taught us that coronary disease or IHD starts early and generally progresses throughout life. These findings have been repeatedly confirmed. For most people this plaque causes no symptoms, but for some persons later in life it may eventually "rupture", blocking an artery and leading to symptoms including chest pain or angina, or heart attack (myocardial infarction, known as MI). By the eighth decade of life almost all Americans have some plaque in their arteries.

The major causes of IHD are smoking, dyslipidemia (high low-density lipoprotein [LDL] cholesterol and/or low high-density lipoprotein [HDL] cholesterol levels), high blood pressure, and diabetes. Sedentary lifestyle, poor diet, obesity, and psychosocial factors such as stress and depression are also believed to contribute to IHD. Together these factors account for 80 to 90% of IHD.

The diagnosis of angina is based on symptoms of chest pain and shortness of breath, particularly upon exertion. The diagnosis of acute MI or heart attack is made on the basis of similar but

usually more severe symptoms, a certain pattern on an electrocardiogram, and elevation in cardiac enzymes measured in the blood. Diagnostic testing for IHD may include exercise

electrocardiogram; nuclear testing with exercise; echocardiography with exercise; computed tomography (CT), including CT angiography; or conventional angiography. Stress testing would never be performed on someone suspected of having an acute MI.

Primary care, internal medicine, family practice, and general practice physicians in the U.S. are all trained to recognize the typical symptoms of IHD and understand the need for prompt treatment. Treatment guidelines from respected sources are readily available and widely promulgated. Most physicians who do not feel comfortable instituting or changing treatment for IHD would refer to a subspecialist.

In the US, 17% of men aged 60-69 and 26% of men aged 70-79 report having IHD. These proportions have remained stable since 1996, as indicated by the National Health Interview Survey of HHS's Centers for Disease Control and Prevention. Three of four men 60-69 years old and 80% of men 70-79 who do not report having IHD would be expected to have coronary atherosclerotic plaque. Combining these estimates, approximately 80-90% of men aged 60-79 would be expected to have either symptomatic or asymptomatic IHD.

Treatment of IHD includes aggressive treatment of the risk factors mentioned earlier with medication and lifestyle changes, daily aspirin, and more invasive interventions as indicated, including coronary artery bypass or angioplasty.

Although the National Academy of Sciences recently concluded that dioxin exposure does appear to be associated with IHD mortality, the association is modest, and most of the studies in the NAS review could not be adjusted for the other factors I have just described, known as confounders. Men in these studies who had been exposed to dioxin also may have had other exposures that increased their risk of IHD, such as smoking. It is also impossible to determine in a given individual if dioxin caused the IHD. The specific risk factors for disease are more clearly identifiable in populations than in individuals.

Thank you again for this opportunity to provide information on this topic. I would be pleased to try to answer any questions you may have.