

CARDIOVASCULAR WAIVERS

CONDITION: CARDIOVASCULAR SCREENING PROGRAM

Revised November 2001

AEROMEDICAL CONCERNS: Coronary artery disease (CAD) is the leading cause of permanent suspension from flying duties and non-accidental, premature death in aircrew members. The first signs and symptoms of CAD are often dramatic, incapacitating, or even fatal. A CAD screening program for asymptomatic aircrew members is vital for aggressive risk factor modification to prevent in-flight incapacitation with a secondary benefit of timely intervention and if possible, reversal or arrest of the disease process.

WAIVERS: Waivers for rated aircrew members are required only for documented CAD. (See CAD APL) Failure of any screening level with the subsequent passage of the following level is filed Information Only. FDMEs submitted without completion of CAD screening will be returned disqualified as incomplete. Failure of Level 1 CAD screening may be locally returned to FFD; abnormal Level 2 CAD screening, i.e., abnormal AGXT or EBCT (Electron Beam Coronary Tomography), may be returned to flying with a second rated pilot pending completion of Levels 3 and/or 4 after approval by USAAMA. Aircrew members declining to complete any level of the screening program will normally be considered for permanent medical suspension.

INFORMATION REQUIRED: All aircrew members are required to undergo CAD screening at 40 years or greater, but risk factor evaluation should be assessed annually for all aircrew regardless of age.

ATCs (Class 4 FDME): Civilian ATCs failing Level one are counseled on risk factor modification. Military ATCs failing Level one will be further evaluated as per AR 40-501, 8-25.

LEVEL 1: Annual submission of risk factors to include: age, family history, blood pressure, smoking history, serum lipids (See Hypercholesterolemia APL), blood sugar, ECG findings of Left Ventricular Hypertrophy (LVH).

If Framingham risk index is 7.5 or greater, LDL 190 or greater (if LDL unavailable a serum cholesterol 255 or greater), or total cholesterol/HDL ratio is 6.0 or greater, rated aircrew members (except ATCs) will proceed to Level 2.

Those rated aircrew members with borderline elevations of cholesterol or decreased HDL may use the average of 3 laboratory tests obtained over a six month period to calculate their risk index and ratio. If their risk factors are within standard as calculated with these average values they need not undergo AGXT or EBCT at that time.

LEVEL 2: AGXT or EBCT. If either of these is abnormal, proceed to level 3. An EBCT Calcium score greater than 400 is considered abnormal. Borderline abnormalities should be referred to USAAMA.

LEVEL 3: Noninvasive Cardiac Imaging: Thallium GXT (preferred) or Stress Echocardiogram. If abnormal, proceed to level 4, but only after consultation with USAAMA. If no hemodynamically significant perfusion defects are detected, aggressive risk factor modification is to be done.

LEVEL 4: Invasive Cardiac Procedure: Cardiac catheterization. Results of cardiac catheterization must be forwarded to USAAMA for review along with the other reports from Levels 1-3. Final Disposition on cases will be made after review of study results.

FOLLOW-UP: Continued failure of Level 1 CAD screening after a normal subsequent work-up will necessitate the submission of a repeat Level 2 CAD screening every 3 years.

TREATMENT: The key to lowering the incidence of coronary artery disease is aggressive risk factor modification/reduction. Treatment of Hyperlipidemia, Hypertension, and increased blood glucose are essential. Additionally, therapeutic lifestyle changes focused on tobacco cessation, regular exercise and a healthy diet are of the utmost importance in lowering cardiovascular risk. Aircrew that fail Level 1 screening with subsequent passage of level 2 still require careful assessment and treatment of risk factors. See appropriate APLs for aeromedically acceptable treatment for these conditions.

DISCUSSION: The Framingham CAD Risk Index calculator is a computer generated, weighted multiple regression formula available from USAAMA and the U.S. Army Health Care Systems Support Activity. The risk calculator is available via the Ultimate Flight Surgeon CD, the USASAM website, or the USAAMA website.

Sudden incapacitation of aircrew secondary to heart disease may result in loss of life and aircraft, and resultant mission failure. In-flight cardiac events are rare. A review of the Army Safety Center Database over the last ten years indicates that there were no mishaps directly attributable to an incapacitating coronary event in flight. U.S. Air Force records analysis for the period 1988-1992 reveals an average 5 year incidence of cardiac events of less than .15%. The screening program is an opportunity to diagnosis disease at a subclinical or asymptomatic level in order to ensure that in-flight incapacitation remains a rare event.

REFERENCE: *Prevention of Coronary Heart Disease in Clinical Practice.* European Society of Cardiology/European Atherosclerosis Society/European Society of Hypertension/European Society of General Practice/Family Medicine/International Society of Behavioral Medicine/European Heart Network. 1998. (Available from the National Guideline Clearing House: [www. guideline.gov/index.asp](http://www.guideline.gov/index.asp))