

ENDOCRINOLOGY WAIVERS

CONDITION: DIABETES MELLITUS (ICD9 250.0) and IMPAIRED GLUCOSE TOLERANCE

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AEROMEDICAL CONCERNS: The primary concern in any diabetic is the possibility of unexpected hypoglycemia and the associated risk of sudden loss of consciousness. This risk is greatest among those with Type I (insulin dependent) diabetes mellitus, but may also occur in diabetics controlled with oral hypoglycemics. Also of concern is the risk of renal, cardiovascular, neurological, and visual complications associated with any form of diabetes. Deployment frequently exacerbates symptoms/complications secondary to uncontrolled diet, long hours, and environmental stresses.

WAIVERS:

Diabetes Mellitus:

Initial (Class 1A/1W): Exceptions to policy are generally not recommended.

Initial (Class 2, 3,4): Waivers will be granted on a case-by-case basis.

Rated Aviation Personnel:

Class 2 Aviators: Waivers are recommended provided the diabetes is controlled without medication, i.e. treatment is with diet and weight control alone. These lifestyle changes must result in a normal fasting blood glucose (<126 mg/dl), a glycosylated hemoglobin (HbA1c) less than 7 %, and no medical sequelae. Use of medications is considered on a case- by- case basis and in the majority of cases will not receive waiver.

Class 2F, 3 and 4: Waivers are recommended provided the diabetes is controlled with diet, weight control, or using medications: oral hypoglycemic agents or Metformin (See Medication APLs), laboratory values are as above, and there are no medical sequelae. Use of other medications is considered on a case-by-case basis.

Waivers/Exception to Policy will not be granted for diabetes requiring insulin for control.

Impaired Glucose Tolerance (IGT):

Uncomplicated asymptomatic cases of IGT as well as a history of IGT to include gestational diabetes that has completely resolved are considered fully qualified and will be filed as Information Only.

INFORMATION REQUIRED:

- ❖ Internal Medicine consultation, and
- ❖ Testing confirming diagnosis (See below).

Category	Fasting Blood Sugar	2-Hour Post-Prandial
Normal	<110	<140
Impaired Glucose Tolerance	110 < FBS < 126	140 < 2HPP < 200
Diabetes Mellitus	>126	>200
Gestational Diabetes Mellitus	>105	>165

DIAGNOSTIC CRITERIA: Diagnosis of these conditions can be made with confirmatory tests as listed below. All individuals with a fasting plasma glucose of >110mg/dl must have one of the three tests meeting criteria and a second confirmatory test by any of the three methods done on a subsequent day. Methods:

1. FPG (Fasting Plasma Glucose) >126 mg/dl,
2. OGTT 75 gm glucose load with 2-hour postprandial value > 200 mg/dl,
3. Symptoms present or review of symptoms positive with a casual plasma glucose > 200 mg/dl.

Fasting is defined as no caloric intake for at least 8 hours.

Casual is defined as any time of day without regard to time since last meal.

Classic symptoms of diabetes include polyuria, polydipsia, and unexplained weight loss.

FOLLOW-UP: Continuation of waiver requires semiannual evaluations with maintenance of satisfactory weight control, a fasting plasma glucose less than 126mg/dl, and a glycosylated Hb-A1c of less than 7%. These lab results must be submitted with the annual FDME.

For those aircrew on Metformin, the following laboratory evaluation is recommended: Renal function (BUN/Creatinine) and LFTs must be checked before the start of therapy and then every 3 months for the first year of therapy and then at least annually thereafter. On the annual FDME, in addition to the required evaluation listed above, the following laboratory values **MUST** be reported and should be assessed within 90 days of the date of the FDME: CBC, Chem 7 (to include BUN/Cr), Urinalysis, HbA1c, and Fasting Blood Sugar.

Routine follow-up should be every 3-4 months with visits including the following:

- a. Interval history,
- b. Blood pressure and weight,
- c. Evaluation of fasting plasma glucose; and,
- d. Every 3-6 month evaluation of HbA1c.

Annual follow-up should include:

- a. Interval history,

- b. Exam to include cardiovascular, fundoscopic, peripheral, pulses/vascular, neurologic to include sensory and deep tendon reflexes to include ankle jerk and skin inspection, especially of feet,
- c. Ophthalmologic examination by ophthalmologist; and,
- d. EKG, labs as above and also check of renal function with BUN/CR, full lipid profile, and urinalysis.

TREATMENT:

Diabetes Mellitus: For aviation personnel, the following are approved methods of treatment:

1. Diet,
2. Weight reduction,
3. In addition, Class 2F, 3, and 4 rated aviation personnel may use oral hypoglycemics or Metformin with waiver approved by USAAMA. Any other medications must be submitted for waiver and may only be approved for use by USAAMA.

Impaired Glucose Tolerance: Diet, exercise, and weight reduction are primary therapies. These individuals also require aggressive cardiac risk factor modification.

DISCUSSION: Compared to healthy aviators, diabetic aviators are twice as likely to have a stroke, 2 to 10 times more likely to suffer a myocardial infarction, and 5 to 10 times more likely to suffer peripheral vascular disease. Diabetics are 25 times more likely to suffer partial or complete loss of vision compared to non-diabetics. The risk of cataracts is 4 to 6 times greater. Up to 20% of diet controlled diabetics have retinopathy at the time of diagnosis and all are at risk for maculopathy which can seriously affect visual acuity. Type II has an 8% chance of polyneuropathy being present at diagnosis and risk of neuropathy is 4% by 5 years and 15% by 20 years. Tight control of blood glucose levels has been demonstrated to delay the onset or reduce the risk of complications.

Screening fasting blood glucose is strongly recommended annually for all individuals at a higher risk for developing diabetes. These include: (1) Individuals with a parent, sibling, or child with diabetes mellitus; (2) A history of gestational diabetes mellitus or impaired glucose tolerance; (3) A history of previous abnormality of glucose tolerance associated with the metabolic stresses of obesity, trauma, surgery, infection, or alcohol intoxication; (4) A history of hypertension; (5) Cholesterol abnormalities with HDL <35 mg/dl and/or triglyceride level >250 mg/dl, and (6) members of high risk ethnic populations (See Reference).

REFERENCE: American Diabetes Association, *Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus*, Diabetes 25(S1) S5-20, January 2002.

American Diabetes Association: www.diabetes.org