**CAP health & wellness handout: Diabetes mellitus**

**Overview:** Diabetes is a relatively common disorder that involves the body’s ability to manage blood sugar levels properly. Diabetes is not “curable” at this time, and without proper management can result in a wide range of complications.

**Definition:** There are two primary categories of diabetes that represent very different conditions.

**Type 1 Diabetes**: This refers to a genetically based condition in which the cells in the pancreas that normally produce a hormone called “Insulin” stop functioning. This often appears in childhood or early adolescence. The only treatment for Type 1 Diabetes is insulin replacement (by pump or injection). Without adequate supplementary insulin, blood sugar levels dramatically increase and glucose “spills over” into the urine.

**Type 2 Diabetes:** The primary problem in Type 2 Diabetes is a resistance to the normal effects of insulin, which is intended to facilitate the “uptake” of glucose (blood sugar) by the cells of the body. After many years of Type 2 Diabetes, many individuals eventually develop a deficiency of insulin as well as the resistance. Type 2 Diabetes most often appears in adulthood and is associated with obesity, though can occur in the non-obese as well. In recent years, there has been a significant increase in the number of adolescents with Type 2 Diabetes that is associated strongly with the increase in adolescent obesity.

**How Insulin works**: **Type 2 Diabetes:** The primary problem in Type 2 Diabetes is a resistance to the normal effects of insulin, which is intended to facilitate the “uptake” of glucose (blood sugar) by the cells of the body. After many years of Type 2 Diabetes, many individuals eventually develop a deficiency of insulin as well as the resistance. Type 2 Diabetes most often appears in adulthood and is associated with obesity, though can occur in the non-obese as well. In recent years, there has been a significant increase in the number of adolescents with Type 2 Diabetes that is associated strongly with the increase in adolescent obesity.

**Potential Complications of Diabetes**: One can think of diabetes as a disease of the blood vessels, because most of the complications of diabetes are the result of damage to various blood vessels in the body. In addition to this, there are two conditions that are more acutely damaging: very high blood sugar (hyperglycemia) and very low blood sugar (hypoglycemia). Hypoglycemia occurs after the use of insulin and other medications that lower the blood sugar. It can be rapidly fatal and is why we generally recommend giving a diabetic glucose in one form or another when we suspect a problem with the blood sugar level. Hyperglycemia usually develops over several days and if unrecognized and untreated can also be fatal, but does not develop as rapidly as hypoglycemia.

In addition to hypoglycemia and hyperglycemia, several organ systems in the body are the most likely sites of diabetic complications:

**Eyes**: One of the most common causes of blindness involves the effect of diabetes on the capillaries in the retina of the eye.

**Kidney**: Similarly, one of the most common causes of renal or kidney failure is diabetes as the disorder damages the small blood vessels in the kidney leading to a decrease in the function of the kidney.

**Cardiovascular:** The small blood vessels around the heart and around many other structures of the body are very vulnerable to the impact of diabetes. Having diabetes is equivalent (in terms of risk) to having had a previous heart attack. The damage to the blood vessels into the extremities, in particular into the feet, can cause blockages severe enough to require amputation.

**Neurological**: All of the nerves in the body are associated with small arteries that run down the middle of the nerve bundle. When those small arteries are damaged by diabetes, it has a serious impact on the function of the nerves leading to the loss of sensation and the development of diabetic neuropathy, which can involve severe pain in the affected area.

**Risk Factors for developing Diabetes**:

* Genetics: a family history of diabetes is very often found in those who develop either Type 1 or Type 2 diabetes.
* Obesity: If one carries the genetic predisposition for diabetes, becoming overweight or obese can “bring out” the disease.
* Inactivity: Everyone needs to be more physically active that is usual in this country. In activity contributes to obesity and is a risk factor itself for the development of diabetes.