In the fall of 1920, Dr. Frederick Banting had an idea that would unlock the mystery of the dreaded diabetes disorder. Before this, for thousands of years, a diabetes diagnosis meant wasting away to a certain death. Working at a University of Toronto laboratory in the very hot summer of 1921, Frederick Banting and Charles Best were able to make a pancreatic extract which had anti diabetic characteristics. They were successful in testing their extract on diabetic dogs. Within months Professor J. J. R. MacLeod, who provided the lab space and general scientific direction to Banting and Best, put his entire research team to work on the production and purification of insulin. J.B. Collip joined the team and with his technical expertise the four discoverers were able to purify insulin for use on diabetic patients. The first tests were conducted on Leonard Thompson early in 1922. These were a spectacular success. Word of this spread quickly around the world giving immediate hope to many diabetic persons who were near death. A frenzied quest for insulin followed. Some patients in diabetic coma made miraculous recoveries.

While insulin is not a cure, this medical discovery has and continues to save millions of lives worldwide. The production of insulin has changed a great deal since 1922. Modern science and technology has made high quality insulin and delivery systems available to diabetic persons.

Fiction 1: Insulin cures diabetes
When used properly, insulin is a medicine that helps to keep the levels of blood sugar in the near-normal range. In Type 1 (insulin dependent) diabetes, insulin must be used because the pancreas is not producing the insulin the body needs. In Type 2 diabetes, diet (meal plan), exercise, and oral diabetes medications are used, with insulin sometimes used for additional control. Insulin itself does not cure diabetes.

Fiction 2: People with diabetes can’t eat carbohydrates
Not true—however, when a person is first diagnosed with diabetes it is important to meet a dietician who is aware of the medical treatment planned by your doctor. The dietician can then help you balance medication (if you take any) with physical activity, life-style, and the amount and types of food that you eat. This will help you keep blood sugar levels at near-normal levels, feel healthy, and prevent long-term complications.
Fiction 3: If my insulin dose is increased, my diabetes must be getting worse.
The most important goal for people with diabetes is keeping near-normal blood sugar levels in order to
feel well and avoid long-term diabetes complications. To do this, each person needs different amounts
and types of food, physical activity, and medicines like insulin. Insulin dose may be increased to cater
for reduced secretion by the pancreas & better control of blood sugar.

Fiction 4: There is extreme danger in injection insulin if there are any air bubbles in the syringe
Patients may have a fear of dying if air bubbles are injected with a syringe. (This may be related to the
misconception that insulin is injected directly into the vein). Reassure patients that the main danger
in having air bubbles in the insulin syringe is that the amount of insulin being injected is less than the
required dosage. It is often difficult to remove every small “champagne” bubble from the syringe. Thus
the patient should be reassured that injection of insulin when these bubbles are present will not cause
any harm.

Fiction 5: Once insulin injections are started for treatment of type 2 diabetes, they can never be discontinued.
During periods of acute stress (such as illness, infection or surgery) or when receiving certain medications
that cause elevations in blood glucose, some patients with type 2 diabetes will require insulin. If
the diabetes had previously been well controlled with diet alone or diet with oral hypoglycemic agents,
the patient should be able to resume previous methods for control of diabetes when the stress is
resolved. In addition, insulin is sometimes used to control blood glucose levels in obese type 2 diabetic
patients who have been unsuccessful at weight reduction. The insulin doses may be tapered and the
patient may be able to switch to diet and exercise alone or with oral hypoglycemic agents for control
of blood glucose.

Fiction 6: If increasing doses of insulin are needed to control the blood glucose, the diabetes must be getting
“Worse”
Unlike other medications that are given in standard doses, there is not a standard dose of insulin that
is effective for all patients. Rather, the dose must be adjusted according to blood glucose test results.
If the initial insulin dose prescribed for the patient does not adequately decrease the glucose level, the
patient may assume that he or she is a resistant case of diabetes or that the diabetes is getting worse. It
is important to instruct patients that many different factors may affect the ability of insulin to lower the
glucose, including obesity, puberty, pregnancy, illness and certain medications. In addition, to avoid
hypoglycemia, physicians frequently initiate insulin therapy with smaller dosages than will eventually
be needed. The doses are then increased in small increments until blood glucose levels are in the
desired range.

Fiction 7: Long term complications cannot be prevented in Insulin dependent Diabetes mellitus.
Intensive treatment of type I diabetes may provide lasting benefits that reduce the risk of long-term
complications from the disease. Researchers found the benefits of previous intensive-diabetes therapy
can last up to eight years. They also found that intensive therapy has extended effects that may help
delay or prevent the progression of diabetes-related kidney and heart problems. Kidney damage is a
common complication of diabetes and is thought to result from chronically high blood sugar levels that
eventually damage the kidney’s ability to filter blood.

Fiction 8: Once the patient is on insulin, there is no need for diet control, exercise or continue with life style
changes.
Insulin replacement does not cure the disease; there is extra need for diet control, exercise & to
continue with the life style changes. Careful control of blood sugar is the single most important & major
determinant of the long-term complications of diabetes mellitus.
Fiction 9: Human Insulins are better than bovine or porcine insulin

Human, bovine or porcine insulin, all produce antibodies, primarily due to the impurities in the formulation & not the differences in the molecular structure of the insulin. There has been no reported cases of vCJD (“Mad Cow Disease”) in the eighty years that bovine insulin has been in use. In terms of efficacy of use & the cost involved in a developing country, bovine or porcine insulins should still remain the first choice, followed by human insulin, if clinically indicated. A comparison of the effects of human and animal insulin as well as of the adverse reaction profile did not show clinically relevant differences. The story of the introduction of human insulin might be repeated by contemporary launching campaigns to introduce pharmaceutical and technological innovations that are not backed up by sufficient proof of their advantages and safety.

References