Mr. Banting you can come in now.

So, Dr. Banting, I understand that you have an idea on a possible way to treat diabetes. I'm quite curious what you have in mind.

Well sir, first I had the thought to try ligating the pancreatic ducts of the pancreas to allow degradation of the acinar cells.

I believe that as a result, this will make it much easier to isolate the internal secretions of the pancreatic islet cells, as external secretions will no longer be able to be produced and can not intervene.

Once isolated we can create a serum with the secretion and inject it into a test subject such as a diabetic dog and see if blood glucose will decrease.

This is a very interesting idea, however there will be challenges. The internal secretion you speak of has yet to be proven to exist... however it is worth trying since negative results would be of great physiological value. I will write to you to let you know when we will move ahead with this project.

Thank you, sir, I'm looking forward to it.
Many months later Banting received a letter from Macleod, telling him to come back to Toronto in May of 1921 to begin his project.

Hello Dr. Banting, it's good to see you, this project will be difficult to do alone so I found you some help.

Here are two of my best fourth year students, this is Charles Best and Clark Noble. They are more than happy to help you with your project.

However, I can only afford to pay one of them at the moment, so the boys have decided to flip a coin to see who will be your assistant.

Alright boys go for it and may lady luck be with you both.

Tails! Looks like I won!

Congratulations... Best... was it?

Yes, thank you sir! I'm very much looking forward to working with you!
In May 1921, Banting and Best began their project in the University of Toronto medical building.

The next step was to ligate the pancreatic ducts, however most of their test dogs had died and Banting was forced to find dogs on the street and bring them back to the medical building. They then proceeded to ligate each dogs' pancreatic ducts.

Here Doggy, come get the bone!

After some time and several problems Banting and Best finally had a degenerated pancreas from dog #391. They then used this pancreas to create their first pancreatic extract.

They began testing the pancreatic extract on their dogs, yielding positive results. The blood sugar of the diabetic canines tended to decrease when injected with the extract.

Waiting for the dog pancreases to degenerate were taking too long, Banting found a faster way by stimulating the pancreas with secretins until it no longer had an external secretion. This proved to be successful on dog #92.

Not wanting to rely on dog pancreas anymore, Banting had the idea to use foetal calf pancreases, as they were more richly concentrated with pancreatic islet cells.

Pancreatic extracts derived from foetal calves were effective and aided in the longevity experiment on dog #33 also known as Marjorie. She lived for about 70 days, showing that the extract could possibly help control diabetes over long periods of time.
Banting and Best discovered that alcohol could be used to extract the internal secretion from a whole pancreas.

This discovery led them to invite Dr. James Collip to the team, as his biochemistry skills could be used to further refine and purify the extract.

Welcome to the team!

Once Collip had begun refining the extract, an impatient Banting took Collip's newly refined extract and began human trials on Leonard Thompson. The results were not to Banting's liking leaving him very frustrated.

Collip went on further after this to purify and refine the extract. Collip tested it on Leonard Thompson by himself. This time the extract had much better results, with drastic drops in blood sugar and improving Thomson's overall health.

Collip was upset with Banting rushing to human trials without his input. After Collip's success with Leonard Thompson he threatened to take out a patent on the extract without them.

Well fellows, I've got it, and I have decided not to tell you how.

Fortunately, both Collip and Banting came to an understanding a short time later and signed an agreement that prevented them from taking out an independent patent.

They then went on and continued with more successful human trials, refining, and improving the extract along the way.