

## POSSIBLE COMPLICATIONS OF A PANCREAS TRANSPLANT?

Pancreas transplant (and kidney transplant, if applicable) operations are major surgeries; as such, there may be bleeding, infections or fluid collections within the abdomen. The transplanted pancreas may not work immediately after the operation, in which case insulin injections will be continued for a period. If a kidney transplant was done, the kidney transplant may also not work immediately, in which case, dialysis will be necessary for a period. In the long term, the success rate for a pancreas transplant is over 75%.

As for any transplant, there is a risk of rejection of the donated pancreas or kidney, as part of the body's natural response to reject any organ that is not its own. To prevent this rejection, patients will need to take immunosuppressants, or anti-rejection medications, for life. Without proper levels of these immunosuppressants, the pancreas and kidney will be rejected and the patient will once again need to inject insulin to control his blood sugars or to start dialysis for treatment of the kidney failure. Transplant patients hence need regular monitoring to check that the organs are functioning well.

## BENEFITS OF PANCREAS AND KIDNEY TRANSPLANT

Insulin injections will not be required, whereas after a successful kidney transplant, dialysis will not be needed.

Patients can expect to eat a near normal diet, have normal daily activities and thus a better quality of life.

Patients with Type 1 Diabetes with kidney failure will also live much longer with a pancreas transplant (SPK and PAK) than with dialysis or a kidney transplant alone.

Hence a pancreas transplant (SPK, PA or PAK) is the best treatment for many patients with complications from Type 1 Diabetes.

The NUCOT Pancreas Transplant Team, including surgeons, physicians, anaesthetists, radiologists, intensive care specialists, transplant coordinators, dieticians, pharmacists, nurses, social workers and many others, provide comprehensive, dedicated and individualized care for these patients.


GIVE A  
**GIFT**  
OF  
**LIFE.**

AND A  
**NEW**  
LEASE OF  
**LIFE.**

## FOR MORE INFORMATION

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Information is correct at time of printing (January 2015).

# PANCREAS AND KIDNEY TRANSPLANT PROGRAMME

# UNDERSTANDING PANCREAS AND KIDNEY TRANSPLANT

Pancreas transplant is the best treatment for patients with complications from Type 1 Diabetes. In Type 1 Diabetes, the pancreas, an organ located in the abdomen, does not produce enough insulin. Without enough insulin, the patient's blood sugar levels become very high, and regular insulin injections several times a day are needed to control blood sugar levels. Because of the delicate balance between insulin injections and blood sugar levels, the patient may also have low blood sugar levels at times. If blood sugar levels are too high or too low, the patient will go into a coma, requiring urgent hospitalization.

After several years of Type 1 Diabetes, high blood sugar levels cause damage to the kidneys and blood vessels in the heart, brain, limbs, eyes and nerves. Severe kidney damage leads to a build-up of fluid and wastes inside the body, causing swelling of the feet and body and breathlessness. Once kidney damage is severe, only kidney dialysis or kidney transplant can save the patient's life.

When a suitable Type 1 Diabetic undergoes a pancreas transplant, the transplanted pancreas produces enough insulin to control the patient's blood sugar levels and insulin injections will not be needed. Hence many of the complications of diabetes can be prevented. The first pancreas transplant in Singapore was performed at the National University Centre for Organ Transplantation (NUCOT) in 2012.

## TYPES OF PANCREAS TRANSPLANTS

### SIMULTANEOUS PANCREAS AND KIDNEY (SPK) transplant

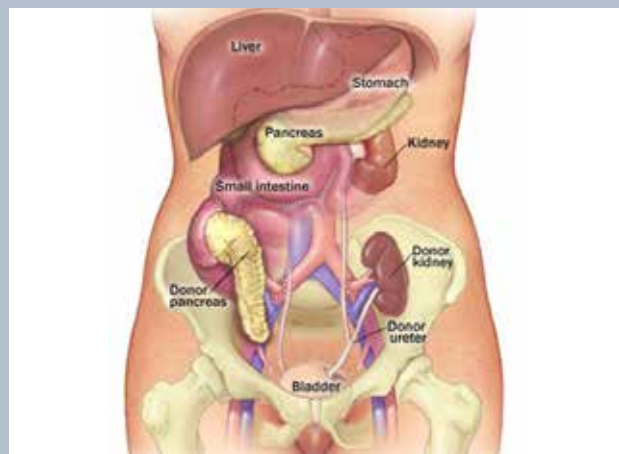
is an operation in which the patient with kidney failure from Type 1 Diabetes receives both a pancreas and kidney transplant at the same time. In such an operation, the transplanted pancreas produces the required insulin while the transplanted kidney removes fluid and wastes and dialysis will not be needed.

### PANCREAS ALONE (PA) transplant

is an operation in which only the pancreas is transplanted into the patient with Type 1 Diabetes. This operation is done for Type 1 Diabetics without kidney failure whose blood sugar levels are difficult to control despite correct insulin injections.

### PANCREAS AFTER KIDNEY (PAK) transplant

is performed for patient with Type 1 Diabetes who has undergone a successful kidney transplant for treatment of kidney failure previously, but have difficulty controlling his/her blood sugar levels despite the doctor's advice. In this case, only the pancreas is transplanted.



## WHO IS SUITABLE?

Patients with Type 1 Diabetes who are below 55 years of age are considered suitable for a pancreas transplant if they are free from the following:

- Heart disease
- Hepatitis B or C
- Cancer
- HIV infection or AIDS

Our transplant doctors and surgeons will evaluate the patient and his/her test results to determine whether he/she is suitable for a pancreas transplant, and if so, which type of transplant.

## WHERE DOES THE PANCREAS & KIDNEY COME FROM?

The pancreas for transplant is obtained from a Deceased Donor (DD, a patient who has died of irreversible brain injury and brain death in an ICU). Such DD are screened carefully to ensure that they do not have diabetes or other major illnesses themselves. For SPK transplants, the transplanted kidney is obtained from the DD as well, whereas for PAK, the kidney transplant is generally obtained from a living kidney donor.

## THE PROCESS OF TRANSPLANT

After our doctors and transplant surgeons have determined that a patient is suitable for a pancreas transplant (whether SPK, PA or PAK), he/she will be placed on the Pancreas Waiting List. This waiting list is kept by the National Organ Transplant Unit (NOTU) of the Ministry of Health. When a DD pancreas becomes available, the patient with the best possible match, based on blood and tissue type and who has waited the longest, will be called up for the transplant.

To make sure that the patients are fit for the transplant, the pancreas transplant coordinator will contact them regularly to arrange for tests or evaluations. Patients who are on the wait list must take good care of themselves (especially while on dialysis). Once the patient is called to come down to NUCOT for the transplant, the patient must come down immediately as the transplant surgery will take place within a few hours after the organs are removed from the DD.

## DURING THE OPERATION

Pancreas and kidney transplantation surgery involve placing the donor's healthy pancreas and kidney into the patient's abdomen. After the operation, the transplanted organs take over the functions of the patient's own failed pancreas and kidney.

The donor's pancreas will be positioned on the lower right side of the abdomen. If for SPK or PAK, the donor's kidney will be positioned on the lower left side of the abdomen. Both organs are surgically attached to nearby blood vessels. The donor ureter (tube carrying urine from the transplant kidney to the bladder) will also be attached to the patient's bladder if the kidney transplant is done. The SPK surgery takes approximately 8 to 10 hours, whereas that for PA and PAK is generally shorter at 6 to 8 hours.

The patient's own kidney and pancreas are not removed during the transplantation surgery.

After the surgery, the patient will be in the High Dependency Unit for a few days to allow close monitoring of the new pancreas (and kidney if applicable).