Organs and tissues that have been successfully transplanted since 1950 are:

- **Liver** by Thomas Starzl in Denver, U.S.A. [1967].
- **Heart** by Christiaan Barnard in Cape Town, South Africa. [1967].
- **Monkey head** transplant by Robert White in Cleveland, U.S.A. [1970].
- **Heart or lung** by Bruce Reitz in Stanford, U.S.A. [1981].
- **Lung lobe** by Joel Cooper in Toronto, Canada. [1983].
- **Double-lung** by Joel Cooper in Toronto, Canada. [1986].
- **Whole lung** by Joel Cooper in St. Louis, U.S.A. [1987].
- **Live-donor partial pancreas** by David Sutherland in Minnesota, U.S.A in the year. [1998].
- **Hand** in France. [1998].
- **Partial face** transplant in France. [2005].
- **Penis** transplant in China. [2006].
- **Jaw** (to combine donor jaw with bone marrow form the patient) by Eric M Genden in Mount Sinai Hospital, New York. [2006].
- **Full double arm** by Edgar Biemer, Christoph Höhnke and Manfred Stangl in Technical University of Munich, Germany. [2008].
- Baby born from transplanted **ovary**. [2008].
- **Human windpipe** using a patient’s own stem cells by Paolo Macchiarini in Barcelona, Spain. [2008].
- **Full face** transplant by Dr Joan Pere Barret and team in Hospital Universitari Vall d’Hebron, Barcelona Spain. [2010].
The two most commonly transplanted organs are kidney and cornea.

*Autograft*: tissue that is taken or transplanted from one site of an individual and then grafted to another site in that same individual. (www.encyclo.co.uk)

*Allograft*: tissue or organ transplanted from a donor of the same species but a different genetic makeup. The recipient’s immune system must be suppressed to prevent rejection of the graft; this is because of genetic difference. (www.encyclo.co.uk)

*Xenotransplant*: a surgical procedure in which tissue or whole organ is transplanted from one species to another. (www.encyclo.co.uk)

*Immunosuppression*: lowering the body’s normal immune response to invasion by foreign substances. This can be deliberate (as in lowering the immune response to prevent rejection of a transplanted organ) or incidental (as a side effect of radiotherapy or chemotherapy for cancer). (www.encyclo.co.uk, www.autoenglish.net)

In 1954 the immunosuppressant, cyclosporine was invented. This has made transplants successful as it stops the recipient’s white blood cells from rejecting the transplanted organ. Another development that took place was in 1954 in which a kidney was successfully transplanted between two twin brothers.

Development of ideas and techniques has led to the present success of transplant surgery. Before 1954, recipients’ bodies’ immune system rejected transplanted organs, experiments revealed that it was as a result of the difference in tissue type and this brought about the development of cyclosporine. This development has contributed to the present success of transplant surgery. In addition development in sterile techniques has also contributed to the present success of transplant surgery.

(www.discoveriesinmedicine.com)

- The number of donors
The graph shows that the number of donors is staying at a similar figure from 1995 to 2004 i.e. there isn’t much difference between the numbers of donors each year. The estimated mean of the number of donors between the years 1995 and 2004 is seven hundred and eighty eight \([788]\). There is a difference of one hundred and sixty-five \([165]\) between the years 1996 and 2003, this shows the decrease in the number of donors in eight years. It can also be seen that as the number of donors increases, the number of transplants also increases.

- The number of people receiving transplant

The graph shows that the number of people receiving transplants is staying the same. As the number of people receiving transplants increases the number of people on the waiting list decreases.

- The number of people on the transplant list

The graph shows that the number of people needing transplants is increasing each year. The number of people needing transplants each year exceeds both the number of donors and the number of people receiving transplants. The estimated mean of the number of people on the transplant list is six thousand seven hundred and sixty two \([6762]\).

The problems that the trends above show are that there are not enough organs and therefore the number of people who need transplants increases. This increases the chances of death as some patient may not be able to survive due to lack of organs. On the other hand some patient may live a bit longer if they are fortunate to get life support machines and other devices that do the job of certain organs e.g. someone who is in need of a kidney could be connected to a dialysis machine. If the number of donors is less than that of the people who need transplants, this will mean the government will have to spend more money on devices and machines.

Present and future developments in Science and Technology can overcome some of these problems. If there are developments in science and technology, this will mean some problems will be solved e.g. problem of inadequate donors. One way they can help is by doing research or by experimentation. Also, present science and technology could help by inventing new devices. Research is still being carried out on stem cells, scientist have said that there are possibilities of stem cells curing certain
diseases. These stem cells could help do the job of certain organs. If this research is successful, this will mean the rate of people who on the waiting list will decrease. Developments in Xenotransplants could also help.

**Advantages of using animals as organ donors for humans**

- Animals are readily available, this means that the rate of people on the transplant list will decrease.
- It will save the government money.
- The number of people dying while on the waiting list will decrease.

(www.yahoo.com)

**Disadvantages of using animals as organ donors for humans**

- There will be higher chances of organ rejection because of the difference in genetic makeup of animals and humans.
- Structural difference of some organs e.g. kidney.
- Some animal diseases could transfer to humans.
- Some animals might become extinct.
- Ethical concerns- animals have rights.
- Religious reasons, some religion might be against organ transplantation using animal organs.

(www.yahoo.com)

In my opinion, I think humans should not use other animals for organ transplant because some animals will be endangered and may later become extinct. Moreover humans could also be at risk because animal diseases could spread to humans because certain viruses could be introduced into the recipient’s body.