Objectives

Organ and Tissue Donation:

• Understand the process and enable every patient to make an informed decision to donate organs and tissue
• Be alert to the possibility of a donor
• Provide support for other health care professionals in implementing patients’ wishes
Canada: Donation & Transplantation

Source: Canadian Organ Replacement Register, Canadian Institute for Health Information (2008)
International Donation Rates: 2009

source: www.tpm.org
London Health Sciences Centre

- 1972 - University Hospital opens
- 1973 - kidney
- 1977 - liver
- 1981 - heart
- 1982 - first patient trial using cyclosporine
- 1983 - heart-lung
- 1987 - Transplant Unit opens
- 1988 - liver-bowel
- 1989 - lung
- 1990 - liver-bowel-stomach-pancreas
- 1993 - living-related liver transplant – child
- 1997 - youngest multi-organ recipient
- 2000 - living-related liver transplant – adult
- 2004 - kidney-pancreas
- 2006 - DCD liver transplant
- 2008 - DCD kidney/pancreas transplant
- 2011 - split pancreas with kidney transplant

London Health Sciences Centre
Organs for Transplantation

Criteria for organs

- neurological (brain) death
- intact heartbeat & circulation
- on ventilator
- sometimes, DCD donors (donation after cardiac death)

Organs

- heart
- lungs
- liver
- pancreas
- kidneys
- small bowel

< 3% of ALL deaths
Neurological Death is not Coma

Brain death
- No blood flow to the brain
- Brain stem reflexes are absent
- Patient does not breathe
- The patient is clinically dead

Coma
- Blood flow to the brain
- Some or all brain stem reflexes are present
- Patient breathes on own
- The patient is NOT dead
Cerebral Angiography
Brain death is determined by neurologists who are not part of the Transplant Team.

normal blood flow  no blood flow
Age Guidelines

Chronological age of any potential donor should never preclude organ donation – organ quality must be evaluated for each individual donor.

<table>
<thead>
<tr>
<th>ORGAN OR TISSUE</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIVER</td>
<td>1 month to 92</td>
</tr>
<tr>
<td>HEART</td>
<td>newborn to 65</td>
</tr>
<tr>
<td>LUNG</td>
<td>4 to 79</td>
</tr>
<tr>
<td>KIDNEYS</td>
<td>newborn to 75</td>
</tr>
<tr>
<td>PANCREAS</td>
<td>15 to 45</td>
</tr>
<tr>
<td>CORNEAS</td>
<td>3 to 75</td>
</tr>
<tr>
<td>HEART VALVES</td>
<td>newborn to 60</td>
</tr>
<tr>
<td>BONE</td>
<td>15 to 65</td>
</tr>
<tr>
<td>SKIN</td>
<td>14 to 75</td>
</tr>
</tbody>
</table>
Who Needs a Transplant?

- end-stage organ failure
- no other surgical or medical option
- limited life span
Who Gets the Organ?

blood type: identical
compatible
status of recipient:
sickest in hospital
stable at home
The Need for Transplants

- 4,000 Canadians currently on waiting list
- Every 1.6 days, someone in Canada dies while on waiting list for a transplant
- Every 2.8 days, someone in Ontario dies
The Need for Transplants

• Approximately 25% of heart and liver patients die while waiting for a transplant

• Hepatitis C has increased need for liver transplants by 5-fold

• Dialysis requirements increase 8% per year
Liver Transplant
“Talk about adding insult to injury! Not only did we arrive late but they deliberately left his organ donor card.”
Living Donor Transplants

**Kidney**
- genetically or emotionally related donors
- anonymous donors through Living Donor Paired Exchange Registry (Canadian Blood Services)

**Liver**
- genetically or emotionally related
- parent-to-child transplants (London performed Canada’s first, 1993)
- adult-to-adult transplants (London performed Canada’s first, 2000)
Split Liver Transplants

- Left Lateral Segment
- Left Hepatic Vein
- Right Portal Vein with Common Portal Vein
- Left Portal Vein
- Left Hepatic Artery
- Right Hepatic Duct
- Right Hepatic Artery with Celiac Axis
- Left Hepatic Duct
- Left Hepatic Artery
Tissue Donation – A Provincial Problem

Ontario Tissue Supply & Demand for 2004

1 multi-tissue donor → up to 40 lives enhanced

<table>
<thead>
<tr>
<th>Tissues</th>
<th>Supply</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone</td>
<td>1034</td>
<td>16456</td>
</tr>
<tr>
<td>Heart Valves</td>
<td>134</td>
<td>625</td>
</tr>
<tr>
<td>Skin</td>
<td>55</td>
<td>605</td>
</tr>
<tr>
<td>Corneas</td>
<td>1209</td>
<td>1734</td>
</tr>
<tr>
<td>Total Tissue</td>
<td></td>
<td>19420</td>
</tr>
</tbody>
</table>

Trillium Gift of Life Network
Tissues for Transplant

Criteria for tissues
- cardiac or brain death
- perfusion not necessary
- artificial support not necessary

Tissues
- corneas
- heart valves
- skin
- bone
- tendons
- veins
Corneal Transplant

Before transplant

After transplant
Oldest Human Organ?

Norway – Bernf Aune’s cornea transplant is 123 years old

- Recipient: 80 years old
- Received right eye in 1958
- Donor was born in 1885
Heart Valve Allograft
Bone Allograft

bone graft in between C5-C6
World Religions

No major world religion is against donation.

transplant4life@aol.com
Transplant Tourism

• “Transplant tourism”: term to describe people who travel abroad, usually to poor countries, to have organ transplant operations

• Organs come from living donors who sell one of their kidneys – poor, vulnerable or simply easy to coerce

• Not based on altruistic motivation
Transplant Tourism

Pakistan:

- In some villages, 40-50% of residents have only one kidney; other kidney was sold to a wealthy person, usually from another country.
- Donors may be offered $2,500 US for a kidney but may receive only half because of the broker's fee.
- Illicit transplant surgeons make a substantial amount of money on foreign patients who spend anywhere between $70,000 to $115,000 for a kidney transplant.
- Liver transplants go as high as $130,000.
Transplant Tourism
“Don’t take your organs to heaven

heaven knows we need them here.”
Cheryle  Anne Mac Belford

Transplant Program Educator
London Health Sciences Centre

ext. 35091
pager 15091