

Transplantation in MESOT (MTN) Countries

Marwan Masri

President MESOT

Transmedical For Life

Beirut Lebanon

www.tmforlife.com





Transplantation in MESOT

- I. Started as early as 1969**
- II. Turkey, Lebanon, Jordan, Egypt, Pakistan, Kuwait in 1970**
- III. Saudi Arabia, and Rest in 1980**
- IV. Currently transplantation is in all MESOT countries**



Total Number of Transplants

| | Population | No./Year | Transplant Per million |
|--|-------------------|--------------------------------|-----------------------------------|
| Transplant Per year MESOT | 600682175 | 10200 Approximately | 11 |



Transplantation MESOT

| Graft | US & EU | MESOT |
|------------------------|--------------------|------------------|
| Cadaver | 70 - 80 % | 5 - 25 % |
| Live related | 10 - 20 % | 15 - 20 % |
| Live no related | 10 % | 65 - 80 % |



4 regions

| Region | Population | Living | DD | Total | No/million |
|---------|------------|--------|-----|-------|------------|
| African | 161 M | 1276 | 14 | 1290 | 7.9 |
| Asia | 306 | 5808 | 889 | 6697 | 21.9 |
| NE | 36.5* | 573 + | 16+ | 589 | 16.13 |
| Gulf | | | | | |

Region 1 African COUNTRIES

| Country | Population | No. TX | DD | No/million |
|-------------|------------|--------|----|------------|
| N. Africa** | 87 M | 291 | 14 | 6.25 |
| Algeria | 37 M | 135 | 3 | 3.65 |
| Morocco | 33 M | 18 | 0 | 0.54 |
| Tunis | 10.5 M | 98 | 11 | 9.33 |
| Libya*** | 6 M | 40 | 0 | 6.6 |
| Egypt | 76 M | 985 | 0 | 12.9 ? |
| Total* | 161 M | 1276 | 14 | 7.9 |

*Egypt included

** the Maghreb

*** using 2010 data

Algeria (2011)

| Organ | No. Centers | Living | DD | Total | 2012 |
|----------|-------------|--------|----|-------|------|
| Kidney | 5 | 133 | 2 | 850 | |
| Heart | | 0 | 0 | 0 | |
| Liver | | 0 | | 33 | |
| Lung | | 0 | 0 | 0 | |
| Pancreas | | 0 | 0 | 0 | |
| BM | | | | 1854 | |

Morocco (2011)

| Organ | No. Centers | Living | DD | Total | 2012 |
|----------|-------------|--------|----|-------|------|
| Kidney | 6 | 18 | 3 | 286 * | |
| Heart | 0 | 0 | 0 | 0 | |
| Liver | 0 | 0 | | 33 | |
| Lung | 0 | 0 | 0 | 0 | |
| Pancreas | 0 | 0 | 0 | 0 | |
| BM | 1 | 72 | | | |

* Functional

Tunis (2011)

| Organ | No. Centers | Living | DD | Total | 2012 |
|--------------|--------------------|---------------|-----------|--------------|-------------|
| Kidney | 6 | 87 | 11 | 1242 | |
| Heart | 3 | | | 16 | |
| Liver | 2 | | | 23 | |
| Lung | 0 | 0 | 0 | 0 | |
| Pancreas | 0 | | | 1 | |
| BM | 1 | | | 778 | |

Egypt (2010)

| Organ | No. Centers | Living | DD | Total | 2012 |
|----------|-------------|--------|----|--------|------|
| Kidney | 12 | 985* | 10 | 985 | |
| Heart | | | | | |
| Liver | 6 | 520 | | | |
| Lung | 0 | 0 | 0 | 0 | |
| Pancreas | 0 | | | 0 | |
| BM | 8 | | | > 3000 | |

* Some are forgiven

Transplant registry data for the MESOT meeting in Shiraz

| Transplant | Country: <u>TUNISIA</u> | | | | |
|--------------|-------------------------|--------------|-------------------------------------|-------------------------------------|--------|
| | Date started | Total Number | support | | |
| kidney | 1986 | 749 | Government | Insurance | others |
| Liver | 1993 | 22 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Heart | 1993 | 16 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Lung | 1993 | 0 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Pancreas | 1993 | 1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Bonne marrow | 1998 | 278 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | |
| others | | | | | |

Total number /year

| Transplant | Number of centers | Total Number | Live related | Live non related | deceased |
|--------------|-------------------|--------------|--------------|------------------|----------|
| kidney | 6 | 749 | | | |
| Liver | 2 | 22 | | | |
| Heart | 3 | 16 | | | |
| Lung | 0 | 0 | | | |
| Pancreas | 0 | 1 | | | |
| Bonne marrow | 1 | 278 | | | |
| others | | | | | |

| Transplant | Induction therapy | | | Maintenance Immunosuppressive therapy | | | | | Generics Yes/no |
|--------------|-------------------|------|------------|---------------------------------------|------------|-----------|-----|------------|-----------------|
| | ATG | IL2R | Monoclonal | cyclosporine | Tacrolimus | Sirolimus | MMF | Everolimus | |
| kidney | | | | | | | | | |
| Liver | | | | | | | | | |
| Heart | | | | | | | | | |
| Lung | | | | | | | | | |
| Pancreas | | | | | | | | | |
| Bonne marrow | | | | | | | | | |
| others | | | | | | | | | |

Please fill and send by Fax to: +9611737706
Or e mail to: marwan.masri@mysalima.com

Country: Libya

| Transplant | Date started | Total Number | support | |
|-----------------|--------------|--------------|-----------|--------|
| kidney 2004 200 | Government x | | Insurance | others |
| Liver 2006 22 | | x | | |
| Heart | no | | | |
| Lung | no | | | |
| Pancreas | no | | | |
| Bonne marrow | no | | | |
| others | | | | |

| Transplant | Number of centres | Total Number | Live related | Live non related | deceased |
|--------------|-------------------|--------------|--------------|------------------|----------|
| kidney | 1 | 200 | 200 | 0 | 0 |
| Liver | 1 | 22 | 22 | 0 | 0 |
| Heart | | | | | |
| Lung | | | | | |
| Pancreas | | | | | |
| Bonne marrow | | | | | |
| others | | | | | |

Region 3 NE COUNTRIES

| Country | Population | living | DD | Total | No/million |
|-----------|------------|--------|-----|-------|------------|
| Syria | 23 | 336 | 0 | 336 | 14.6 |
| Lebanon | 4.5 | 82 | 16 | 98 | 14.9 |
| Palestine | 2.5 | 34 | ? | 34 | 13.6 |
| Jordan | 6.5 | 121 | ? | 121 | 18.6 |
| Iraq | 26** | ? | ? | ? | ? |
| Total | 36.5* | 573 + | 16+ | 589 | 16.13 |

* Without Iraq

** Iraq is excluded

Lebanon (2011)

| Organ | No. Centers | Living | DD | Total | 2012 |
|--------------|--------------------|---------------|-----------|--------------|-------------|
| Kidney | 6 | 76 | 16 | 82 | |
| Heart | 3 | | 6 | 6 | |
| Liver | 2 | 2 | 1 | 3 | |
| Lung | 0 | 0 | 0 | 0 | |
| Pancreas | 0 | 0 | 0 | 0 | |
| BM | 5 | 80 | | 566 | |

SYRIA

| | | | |
|---|--------------|-----------------------------|---|
| Country: Syria | | | |
| Transplant | Date started | Total Number | support : |
| kidney | 1979 | 2286 as per the end of 2007 | Government and from patients owns or from charity |
| Liver : non | | | |
| Heart : 1990, then stopped shortly after | | | |
| Lung: non | | | |
| Pancreas : non | | | |
| Bonne marrow : very soon to be started | | | |
| Others: cornea, before was more active using imported corneas, now no more donated corneas so stoped! | | | |

| Transplant | Number of centers | Total Number | Live related | Live non related | Deceased |
|----------------------------------|-------------------|-----------------------------|----------------------|-------------------------|----------|
| kidney | 6 | 2286 (till end 2007) | 1510 (till end 2007) | 776 (2004toend of 2007) | 0 |
| Liver : non | | | | | |
| Heart | 1 | 4 (in 1990) | * | * | 4 |
| Lung : non | | | | | |
| Pancreas : non | | | | | |
| Bonne marrow: to be started soon | | | | | |
| others : corneas | | | | | |

| Transplant | Induction therapy | | | Maintenance Immunosuppressive therapy | | | | | Generics Yes/no |
|--------------|-------------------|------|------------|---------------------------------------|------------|-----------|-----|------------|-----------------|
| | ATG | IL2R | Monoclonal | cyclosporine | Tacrolimus | Sirolimus | MMF | Everolimus | |
| kidney | Yes | Yes | no | yes | yes | yes | yes | no | no |
| Liver | | | | | | | | | |
| Heart | | | | | | | | | |
| Lung | | | | | | | | | |
| Pancreas | | | | | | | | | |
| Bonne marrow | | | | | | | | | |
| others | | | | | | | | | |

Region 2 Asian COUNTRIES

| Country | Population | living | DD | Total | No/million |
|----------|------------|--------|-----|-------|------------|
| Turkey | 76 | 1931 | 431 | 2362 | 31 |
| Iran | 74 | 2117 | 456 | 2573 | 34.7 |
| Pakistan | 156 | 1760 | 2 | 1762 | 11.3 |
| Total | 306 | 5808 | 889 | 6697 | 21.9 |

Organ Donation and Transplantation in Turkey

1- The Legislation on Organ Donation and Transplantation

- The Law about Organ and Tissue Procurement, Preservation, Grafting and Transplantation, Law No. 2238

The law came into effect in 1979. It regulates the procurement, preservation, grafting, and transplantation of organs and tissues for treatment, diagnostic and scientific purposes.

- The Criminal Code, Law No. 5237

The law regulates the punishments to be imposed on any person and persons who unlawfully procure, sell, preserve, deliver, transplant or graft an organ or tissue or act as an intermediary in selling of an organ or tissue.

Transplant Model (Turkey)

| | |
|--|-------------|
| Cadaver organ donation, the number of persons per one million | 3.5 |
| Total brain death declarations | 952 |
| Brain death declarations (without family consent) | 654 |
| Brain death declarations (with family consent) | 298 |
| Cadaver donors transplanted | 262 |
| Live-kidney transplantation | 1931 |
| Cadaver kidney transplantation | 431 |
| Live-liver transplantation | 364 |
| Cadaver liver transplantation | 229 |
| Heart transplantation | 55 |
| Lung transplantation | 7 |
| Pancreas transplantation | 18 |
| Ileum transplantation | 1 |



issues

1. Public and Professionals Attitude to Brain Death & Organ Donation
2. Religion & Organ Donation
3. Legal Aspects
4. Media and Scandals
5. Reporting of Brain Death
6. Hospital Infrastructure
7. Trained Transplant Co-ordinators /Counsellors



WHAT IS NEEDED

1. Legislation
2. financing
3. organization
4. education



Religious issues

1. Moslem countries have had a law since 1986 accepting organ donation
2. They have also issued laws accepting brain death
3. Each country need to endorse these laws
4. The last to accept was Egypt 2010
5. Christianity has also endorsed both organ donation and brain death
6. Also Hindu, Buddhism has endorsed organ donation



Transplantation in MESOT

- I. Religious approval as early as 1986 for both:
 - a) Brain Death**
 - b) Organ Donation****

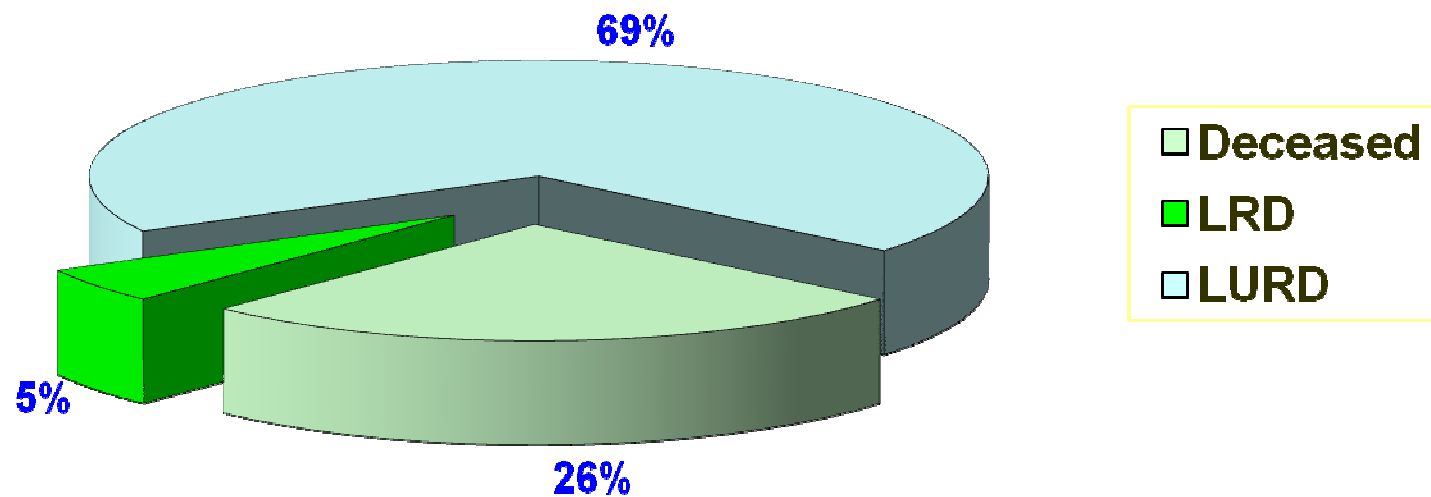
- II. Governmental Laws for cadaver in all with exception of Egypt, Yemen, Libya and (Pakistan pending)**

- III. Saudi Arabia, and Kuwait are most successful**

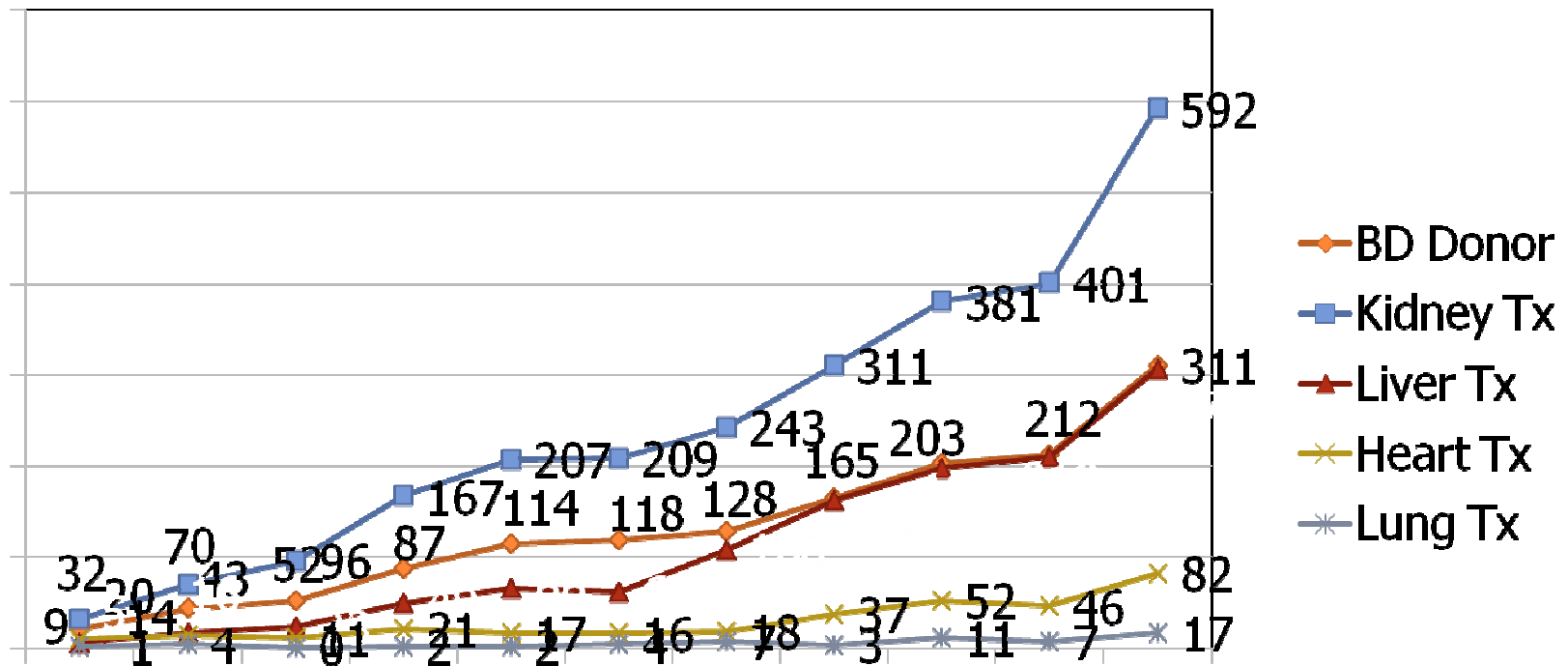
- IV. Iran started cadaver in 2002 and catching up quickly.**

- V. Lebanon Laws for organ donation and transplant centers**

Iran KIDNEY TRANSPLANT (2010)



CADAVERIC ORGAN TRANSPLANTATION 11 – YEAR ACTIVITIES SINCE LEGISLATION (2000)



Shiraz (2011)

| Organ | No. Centers | Living | DD | Total | 2012 |
|----------|-------------|--------|-----|-------|------|
| Kidney | 1 | 30 | 270 | 300 | |
| Heart | 1 | 0 | 2 | 2 | |
| Liver | 1 | 46 | 299 | 345* | |
| Lung | 0 | 0 | 0 | 0 | |
| Pancreas | 1 | | 49 | 49 | |
| BM | 1 | 270 | | 270 | |

* Top Rank world wide



Legislation

1. Many developing countries do not have legislation
2. Many want to have but need support.
3. The most recent (2010) was in Egypt which is considered to be the most important in Arab world and the most influential on religious issues

The PAST





The old news Egypt

Hundreds and possibly thousands of poor Egyptians sell their kidneys and livers every year to pay off debts and buy food, making the country a regional “hub” for organ trafficking, according to the [World Health Organization](#) (WHO).



The New Egypt

The bill, which is causing controversy among medics, clerics and rights activists, says organs donated from live donors will be restricted to “family members of the fourth degree”, and that the removal of organs without official authorization would be considered first-degree murder and be punishable by death. Official authorization for organ removal will come from a three-person panel to be established by the Higher Committee for Organ Transplants, a Ministry of Health-affiliated body.

For dead patients, the law stipulates that the panel reach consensus on whether or not the potential donor is dead - an issue on which there is much contention



Financing

1. There is a need for financial aid to many countries to develop the basic medical need.
2. Many still depend on financial aid for famine
3. The gdp in many of these countries is less than a 100 US\$
4. The available funds are usually diverted to (military and security).



Infra structure

1. Many still lack
2. No proper hospital
3. No ICU
4. Not enough beds
5. Those who have
 1. Increased number of transplant
 2. Proper work out
 3. Proper follow-ups

Transplantation in Yemen

| Transplant | Date started | Total Number | support | | |
|---------------------|-----------------|--------------|------------|-----------|--------|
| | | | Government | Insurance | others |
| Kidney | May 1998 | 599 | | | |
| Liver | Abroad | 8 | ✓ | | |
| Heart | Abroad | one | ✓ | | |
| Lung | - | | | | |
| Pancreas | - | | | | |
| Bonne marrow | - | | | | |
| others | - | | | | |

Transplantation in Yemen (2)

| Transplant | Number of centers | Total Number | Live related | Live non related | deceased |
|--------------|-------------------|--------------|--------------|------------------|----------|
| Kidney | one | 599 | 349 | 250 | - |
| Liver | - | 8 | - | 8 | |
| Heart | - | one | | | |
| Lung | - | | | | |
| Pancreas | - | | | | |
| Bonne marrow | - | | | | |
| others | - | | | | |

Transplantation in Yemen (3)

| Transplant | Induction therapy | | | Maintenance Immunosuppressive therapy | | | | | Generics Yes/no |
|-------------|-------------------|------|------------|---------------------------------------|------------|-----------|-----|------------|---|
| | AT G | IL2R | Monoclonal | cyclosporine | Tacrolimus | Sirolimus | MMF | Everolimus | |
| Kidney | - | - | - | ✓ | ✓ | ✓ | ✓ | | No (According to the protocols) |
| Liver | - | - | - | ✓ | ✓ | | ✓ | | |
| Heart | - | - | - | ✓ | | | ✓ | | |
| Lung | - | - | | | | | | | |
| Pancreas | - | - | | | | | | | |
| Bone marrow | - | - | | | | | | | |
| others | - | - | | | | | | | |



Education

1. Both levels
 - a) Medical professionals
 - b) Population
2. MESOT program
 - a) 10 surgical fellows
 - b) Over 250 transplant coordinators
 - c) Train the trainer 10 with MTN

Why the success (Kuwait)

- I. 1/3 of the transplants are supported cadaver donation
- II. Governmental support of the program
- III. All transplants are free
- IV. Donors are supported by a governmental organization.
- V. Immunosuppressive therapy supported by government
- VI. Trained coordinator.
- VII. Local registry

Why the success (KSA)

- I. 1/3 of the transplants are supported cadaver donation
- II. Governmental support of the program
- III. All transplants are free
- IV. Donors are supported by a non profit semi governmental organization (SCOT)
- V. Immunosuppressive therapy supported by government
- VI. Multi organ transplant programs
- VII. Transplant registry (SCOT)
- VIII. Trained coordinators

Why (Iran)

- I. 75 % of the transplants are compensated live non related donation
- II. Governmental support of the program
- III. All transplants are free in university hospitals
- IV. Donors are supported by a non profit semi governmental organization (patient dialysis society)
- V. Both poor and rich are being transplanted
- VI. Immunosuppressive therapy supported by government
- VII. Cadaver organ donation is very active (2001)
- VIII. Multi organ transplant programs
- IX. locally trained coordinators (250 cadaver)



The future

Cadaveric renal transplantation in MESOT countries constitutes 15 per cent of total kidney transplantation, giving the region a favorable status in cadaveric transplantation

Cadaveric transplantation in MESOT

| Country | Population | Living | cadaveric |
|----------|------------|--------|-----------|
| Turkey | 76 M | Yes | Yes |
| Iran | 74 M | Yes | Yes |
| KSA | 26 M | Yes | Yes |
| Kuwait | 3 M | Yes | Yes |
| Yemen | 27 M | Yes | No |
| Pakistan | 170 M | Yes | Yes (2) |
| Egypt | 76 M | Yes | No |
| Yemen | 26 M | Yes | No |
| Algeria | 37 M | Yes | Yes (3) |
| Morocco | 26 M | Yes | No |
| Syria | 22 M | Yes | No |
| Libya | 5 M | Yes | No |
| UAE | 3 M | Yes | No |
| Tunis | 10.5 | Yes | Yes |
| Lebanon | 4.5 | Yes | Yes |



The future

Date: Saturday, January 22, 2011,

Dear Dr X,

I would like to thank you and the organizing committee for your thoughtfulness and kind invitation to the meeting in your country. With such a rich scientific program and your organizational skills, I am sure that the congress will be a great success. And I look forward to join such a distinguished and accomplished group. The MESOT has endorsed the Declaration of Istanbul and the Drafter of this declaration included many prominent past and present MESOT councilors. It is now an official policy of the MESOT that neither the president nor any council member can attend a congress without an explicit and unconditional written endorsement of the Istanbul Declaration by the congress organizers. The MESOT is very keen and committed for supporting the expansion of the transplant programs in our area as long as it is done within the frame of the ethical guidelines set by the WHO and the Declaration of Istanbul. I am confident that you and your colleagues in the organizing committee are in full support of these principles.

The Kuwait document

The Kuwait Statement on Cell Tissue and Organ Transplantation 27 November 2006

Participants¹ in the WHO Informal Regional Consultation on Developing Organ Donation from Deceased Donors, held in Kuwait City, Kuwait, on 26–27 November 2006:

- 1. Support the development and expansion of organ and tissue donation from deceased donors in all countries of the Eastern Mediterranean Region;
- 2. Oppose commercialism and transplant tourism, including ¹¹brokerage and medical professionals seeking monetary profit as a result of the vendor sale or coerced donation of an organ or tissue; the placing of an arbitrary monetary value on an organ or tissue; the sole motivation by a vendor to undergo organ or tissue retrieval for monetary gain.
- 3. Support the identification of the procedural steps to develop organ and tissue donation from deceased donors, which should include:
 - Development of a national legal framework that enables organ and tissue donation from deceased donors with death determined by internationally accepted neurological or cardio-respiratory criteria;
 - Establishment of a national organization responsible for: organ and tissue donation from deceased donors and allocation;
 - engaging the public sector in educating society in support of organ and tissue donation from deceased donors;
 - engaging professionals and ensuring the knowledge and skill to determine death by criteria that enable organ and tissue donation from deceased donors;
 - oversight of the proper care and follow-up of live donors and transplant recipients;
 - maintaining a registry of (living and deceased) donor and recipient data to ensure transparency and accountability for human material, transplantation practice and outcome.
- 4. Urge all governments to appropriate the necessary legal, administrative, and financial resources to implement these recommendations through a national transplant authority.
5. Call upon the International Society for Nephrology, the Transplantation Society and the Global Alliance for Transplantation to take note of and communicate to partners the
6. principles contained in the Kuwait Statement on Cell Tissue and Organ Donation.

Participants will communicate the Kuwait Statement to their respective ministries of health and bring it to the attention of the next session of the WHO Regional Committee for the Eastern Mediterranean. In the Eastern Mediterranean Region, the Middle East Society for Transplantation (MESOT), in partnership with WHO and using the WHO guiding principles on transplantation, will support countries in the implementation of the Kuwait Statement on Cell Tissue and Organ Transplantation.



1. MESOT program

a) 10 surgical fellows

b) Over 150 transplant coordinators

c) Train the trainer 10 with MTN

d) CME

e) METCO

Acknowledgment

1. MESOT
2. WHO
3. IMF
4. FAO
5. MTN
6. DICG