

Strategie per incrementare il trapianto di rene da vivente

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SOD Nefrologia Dialisi e Trapianto Rene

Ospedali Riuniti - Ancona



STATI GENERALI
RETE NAZIONALE
TRAPIANTI

6-7-8 NOVEMBRE

ROMA



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THE ARTIFICIAL KIDNEY, READY TO RUN AT THE BEDSIDE, PURIFIES BLOOD REMOVED FROM THE PATIENT'S WRIST ARTERY AND PUMPS IT BACK INTO A VEIN

ARTIFICIAL KIDNEY

A vital human organ is replaced by salt solution and cellophane

The human kidney is a hard-working organ which handles some 900 gallons of blood a day to filter out urea, principal waste of the body's chemical processes. When the kidney is knocked out by disease or surgical shock it sometimes becomes so overloaded that it cannot recover in time to keep the patient from being fatally poisoned by his own urea. Now New York's Mt. Sinai Hospital uses an artificial kidney, built by Dutch Physician W. J. Kolff, which can save such patients by filtering urea out of their blood while the real kidney rests and recovers.

Dr. Kolff's kidney replaces the real one by circulating blood from a patient through 40 yards of cellophane tubing wrapped around a big drum. When the drum is turned in a salt bath, urea in the blood filters through the cellophane. In an hour all of the patient's blood passes through the artificial kidney 14 times, removing almost an ounce of urea. Although this output is larger than that of a healthy kidney, Dr. Kolff's machine is so difficult to splice into a patient's circulatory system that it will not be lightly used to treat kidney conditions. But it can save patients who might otherwise die.



Dr. Kolff for “the development of renal hemodialysis...prolonging the useful lives of millions of patients.”



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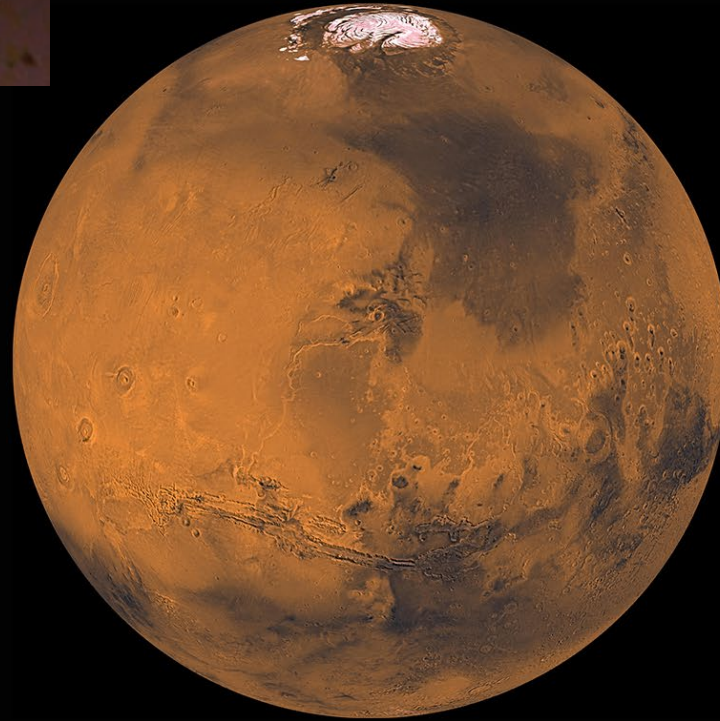
NASA'S LEGACY OF MARS EXPLORATION



NASA Science

MARS EXPLORATION PROGRAM

Beta

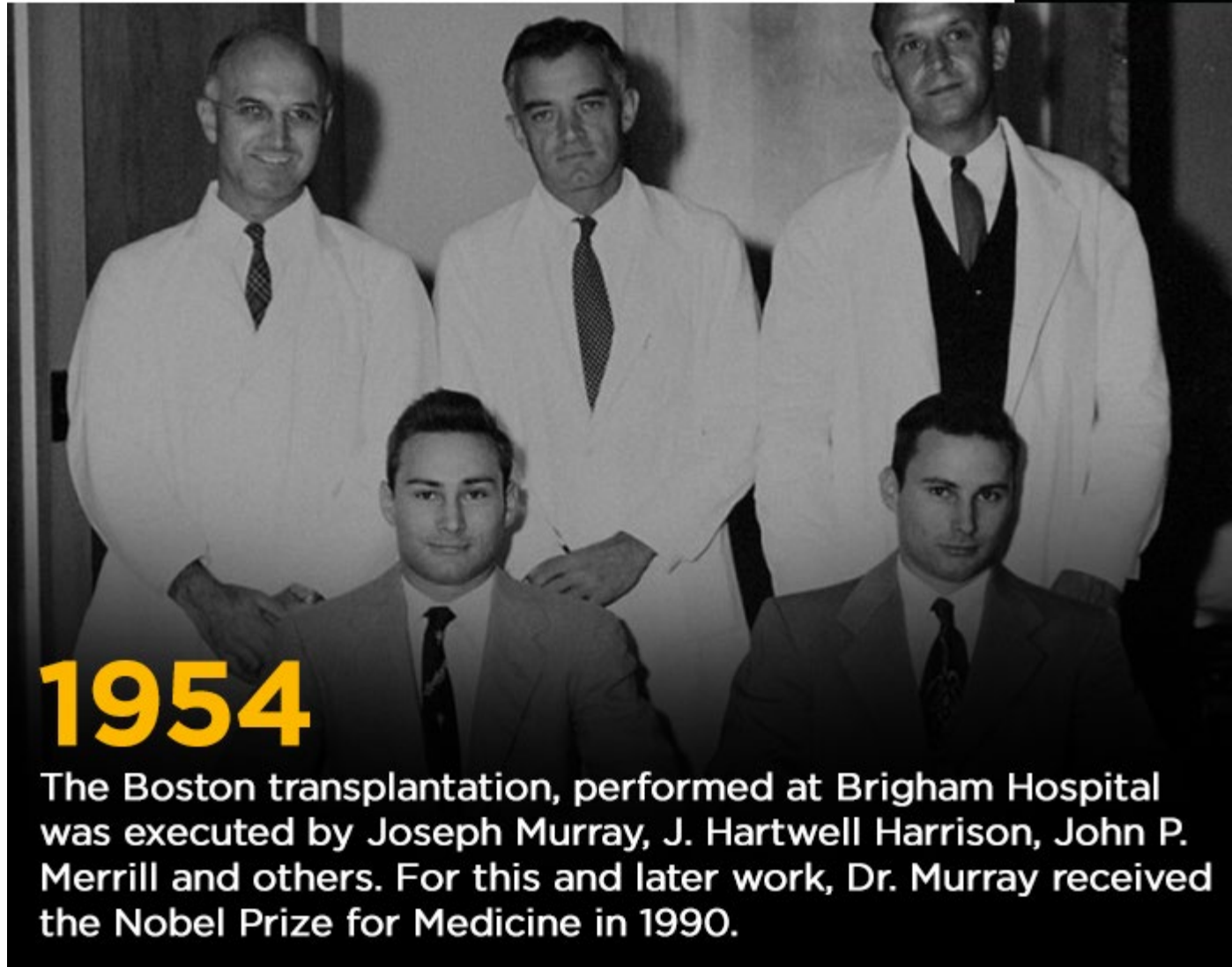


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1954

The Boston transplantation, performed at Brigham Hospital was executed by Joseph Murray, J. Hartwell Harrison, John P. Merrill and others. For this and later work, Dr. Murray received the Nobel Prize for Medicine in 1990.



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BENEFICIAL EFFECTS ON PATIENT AND GRAFT SURVIVAL OF LIVING KIDNEY DONOR TRANSPLANTATION COMPARED TO DECEASED KIDNEY DONOR

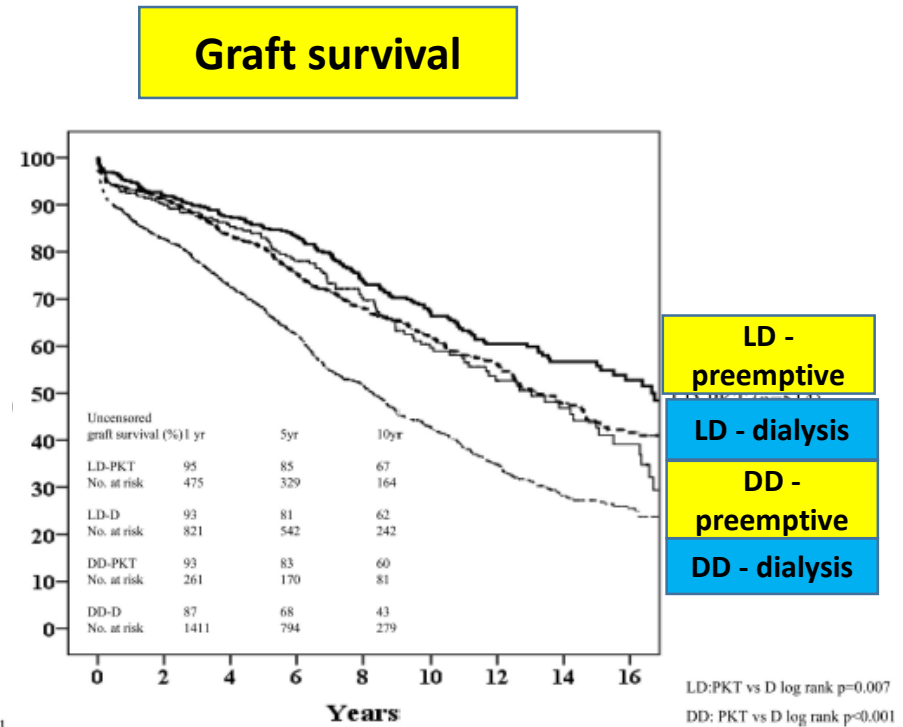
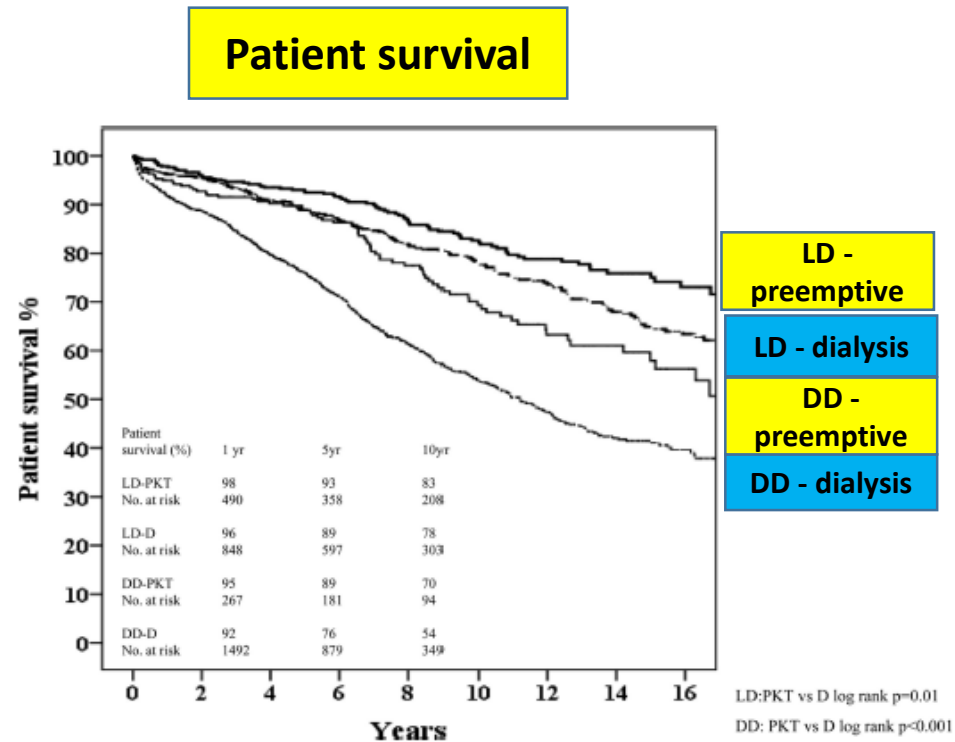


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LKDT IS ASSOCIATED WITH THE BEST PATIENT AND GRAFT SURVIVAL



LD: living donors ; DD: deceased donors

**SINCE LKDT IS THE BEST THERAPEUTIC
OPTION FOR PATIENTS WITH ESRD, IS IT
CONCEIVABLE THAT THE NUMBER OF
LKDT IS GROWING UP?**



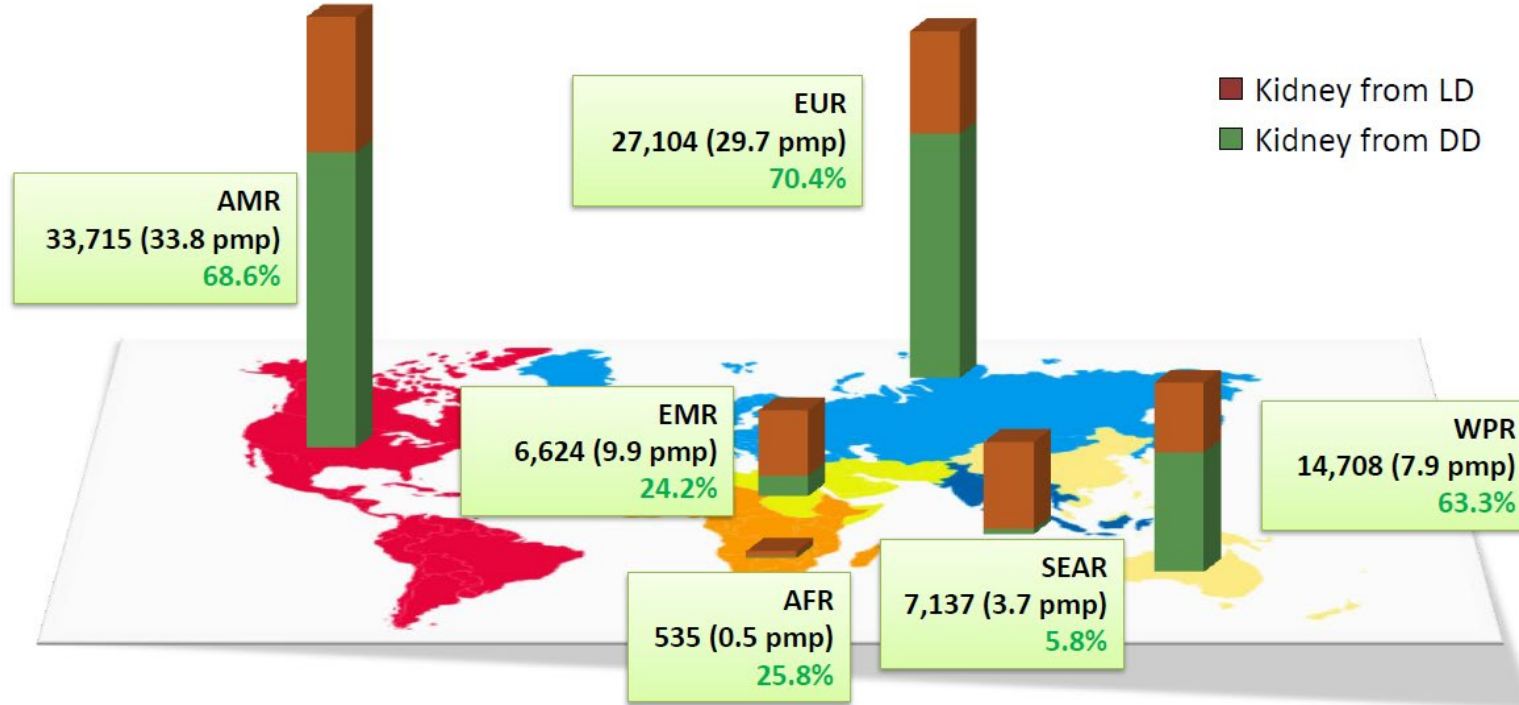
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Kidney transplants *per* WHO region- 2016

Absolute number (pmp); % Kidney tx from deceased donors



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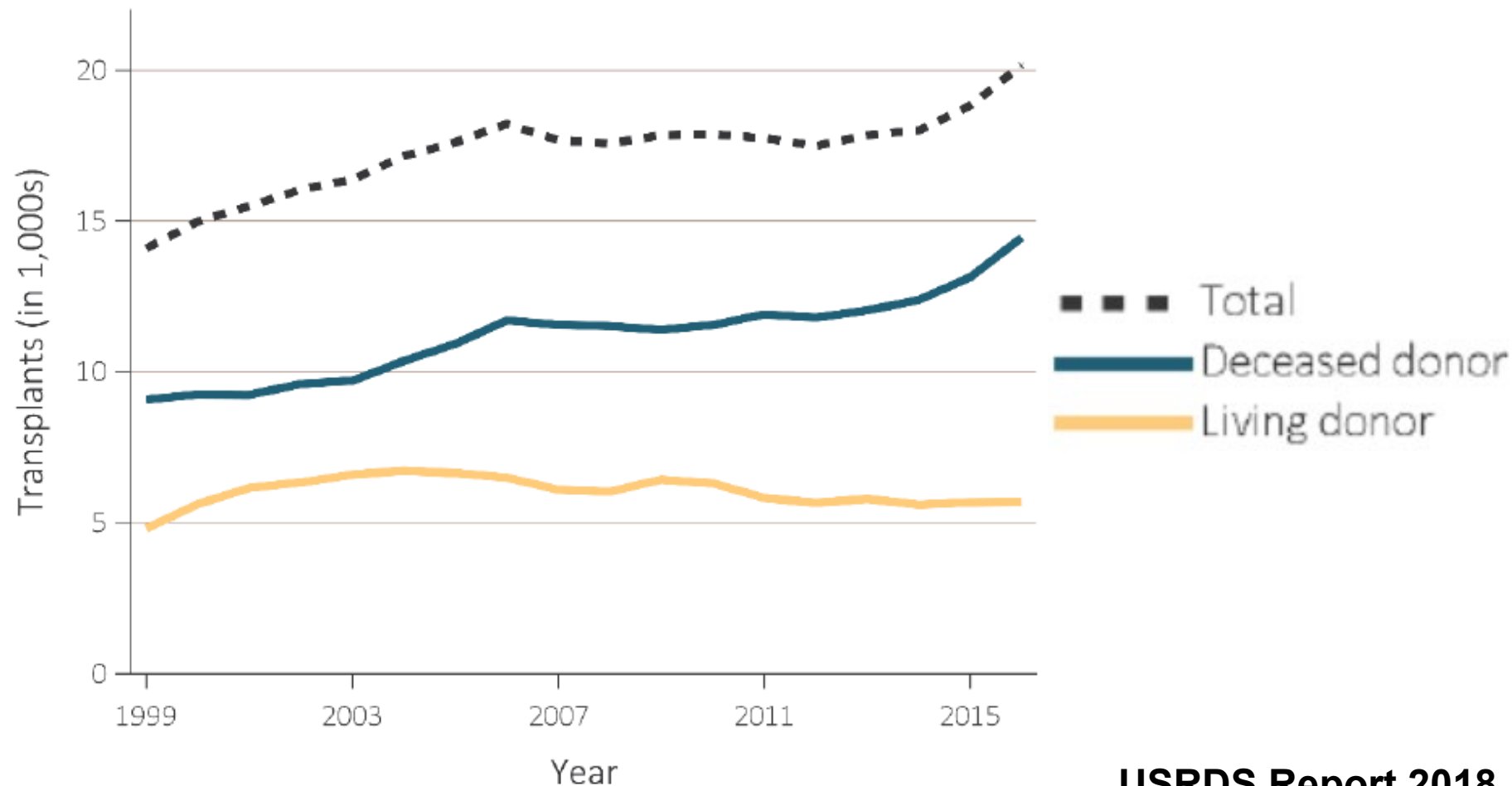
ANNI 1999-2019
RETE NAZIONALE
TRAPIANTI

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GODT Report 2016

NUMBER OF KIDNEY TRANSPLANTS BY DONOR TYPE IN US, 1999-2016



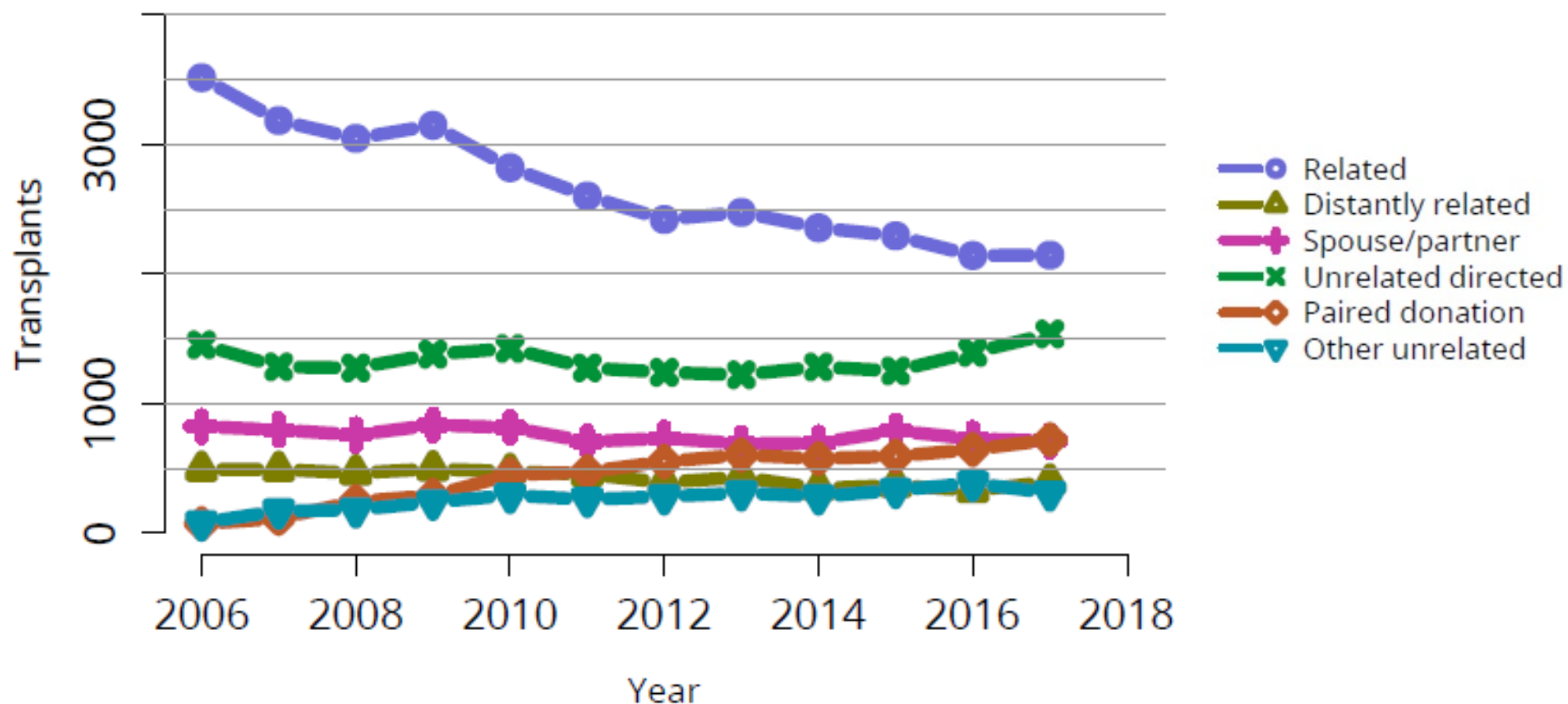
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USRDS Report 2018

KIDNEY TRANSPLANTS FROM LIVING DONORS BY DONOR RELATION – OPTN/SRTR 2017 REPORT





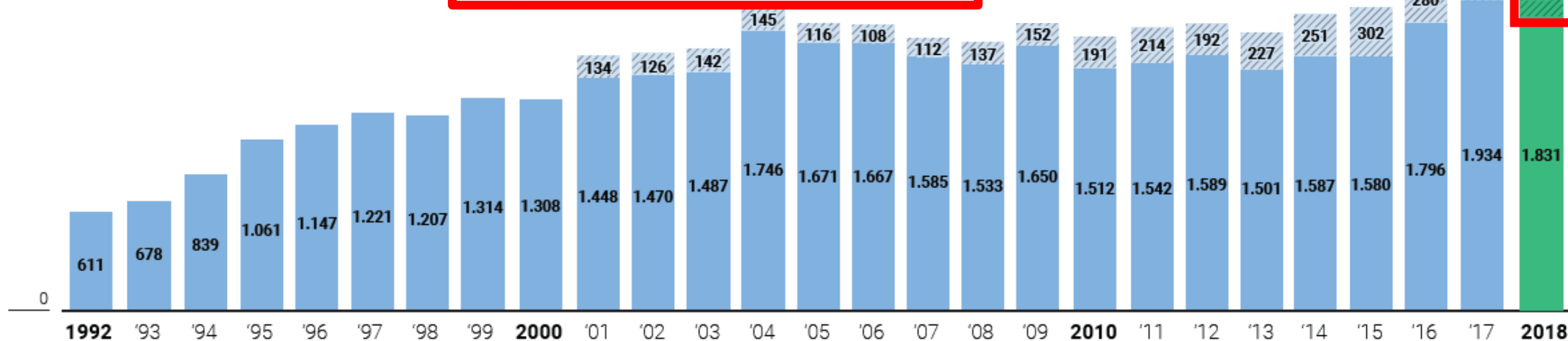
TRAPIANTI DI **RENE**

Periodo 1992-2018

rene da donatore deceduto

rene da donatore vivente

13,5%



STATI GENERALI



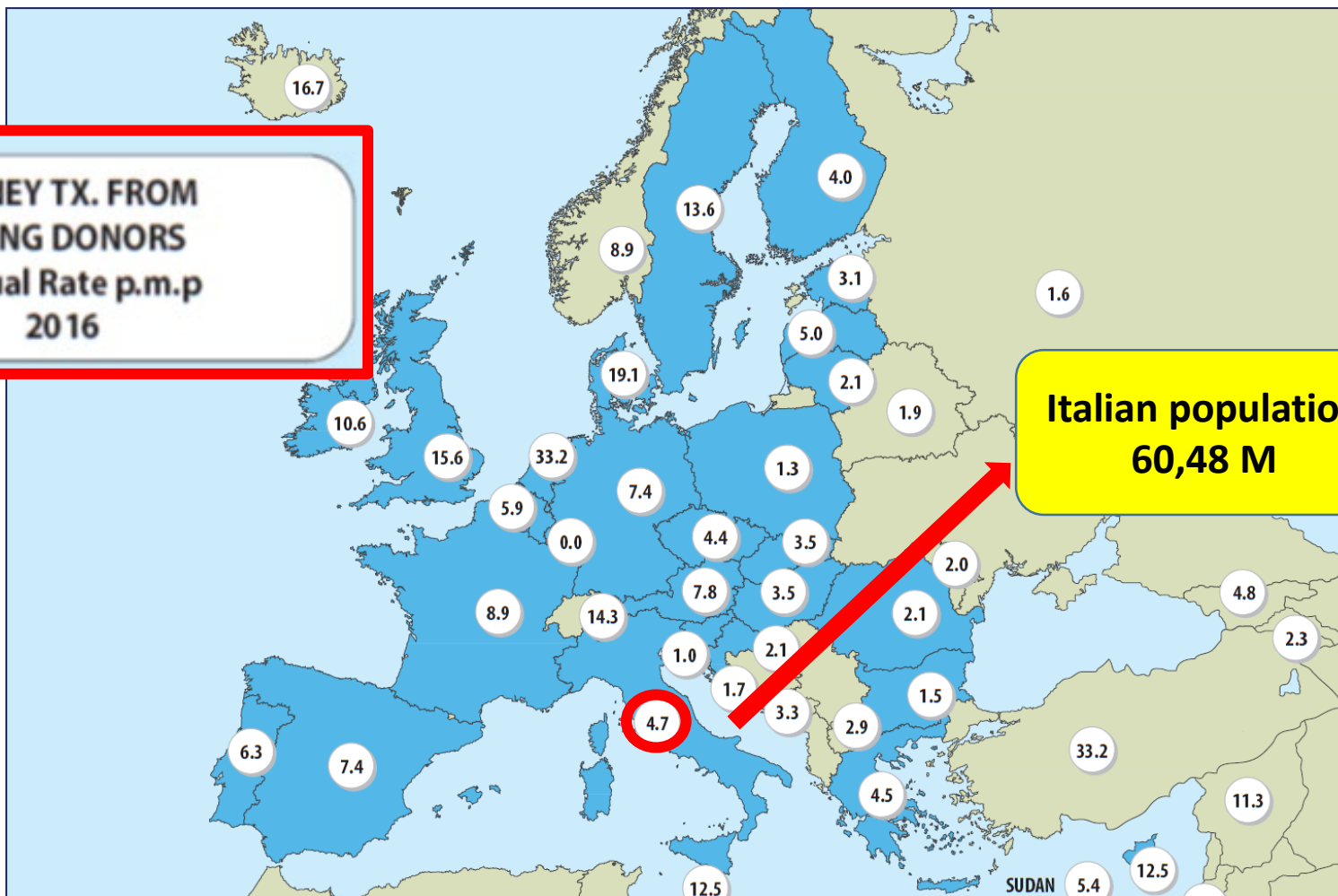
RETE NAZIONALE
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CNT Report 2018

**KIDNEY TX. FROM
LIVING DONORS
Annual Rate p.m.p
2016**



**Italian population
60,48 M**

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GODT Report 2016

WHAT IS THE REASON?



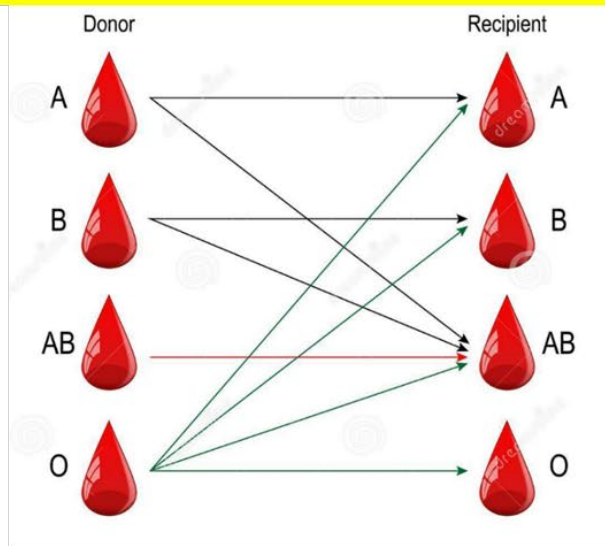
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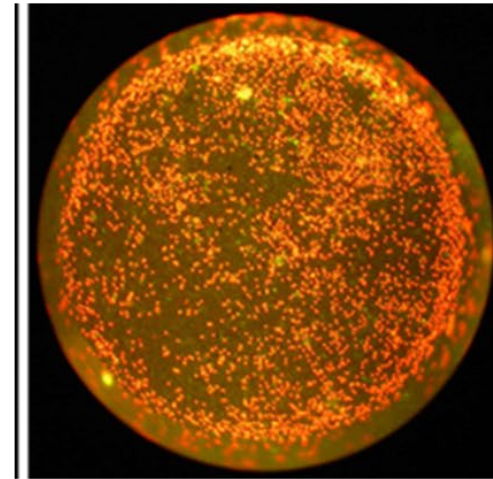
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IMMUNOLOGIC BARRIERS

ABO-incompatible



HLA-sensitization (PRA>80%; presence of DSA)



Score 8: reazione positiva

POSSIBILITY TO OVERCOME ABO AND HLA - INCOMPATIBILITY

- Paired donation and cross over programs
- Desensitization protocols

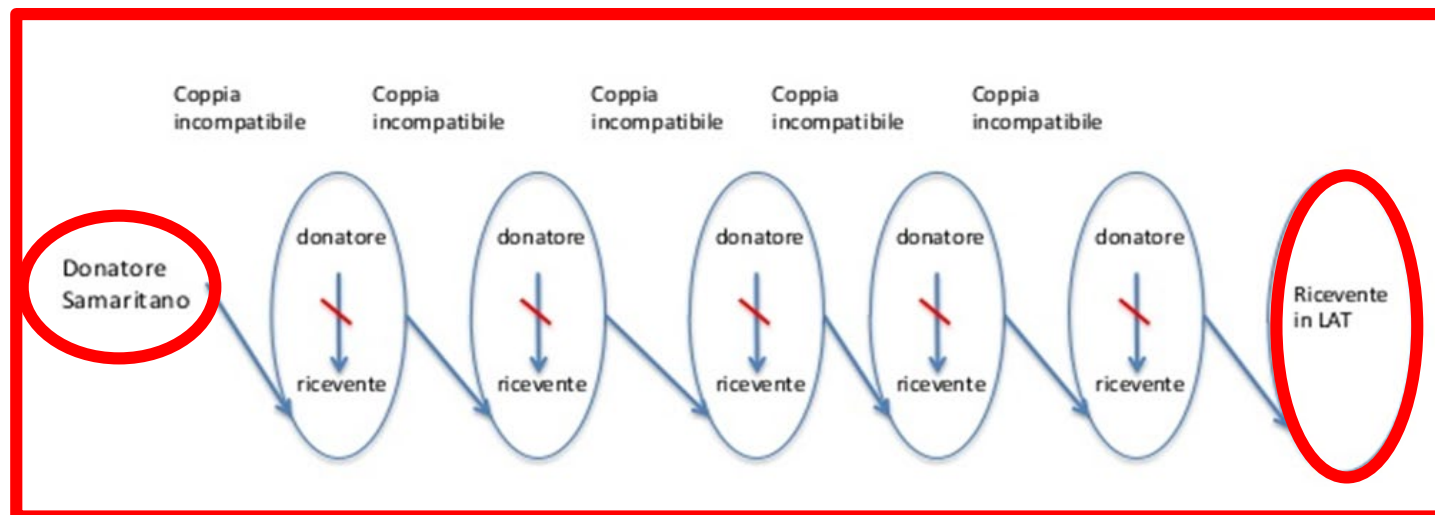
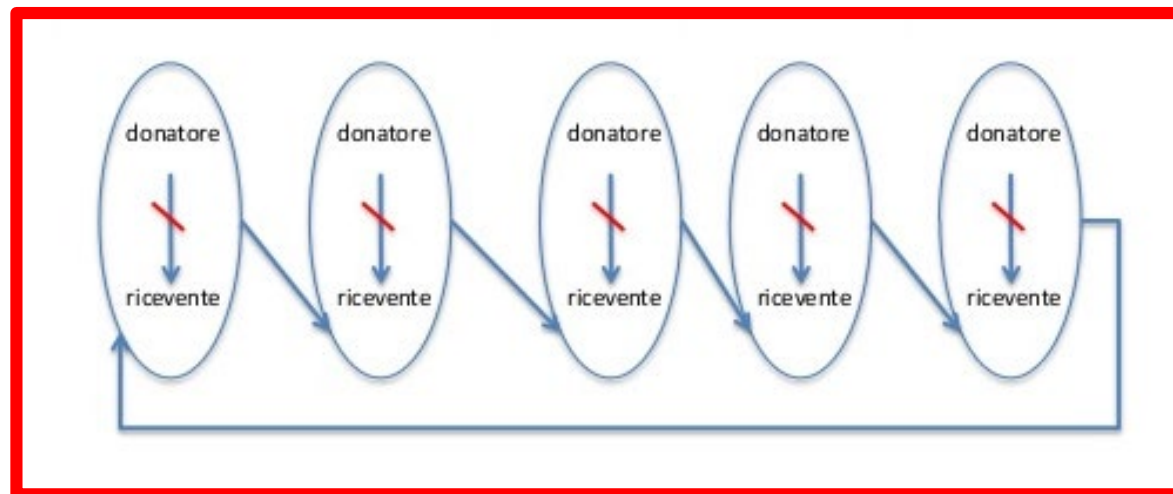
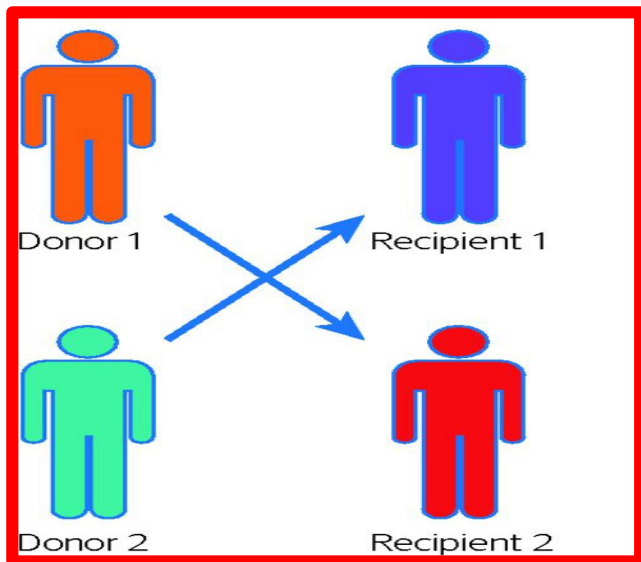


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PAIRED DONATION AND CROSS-OVER PROGRAMS

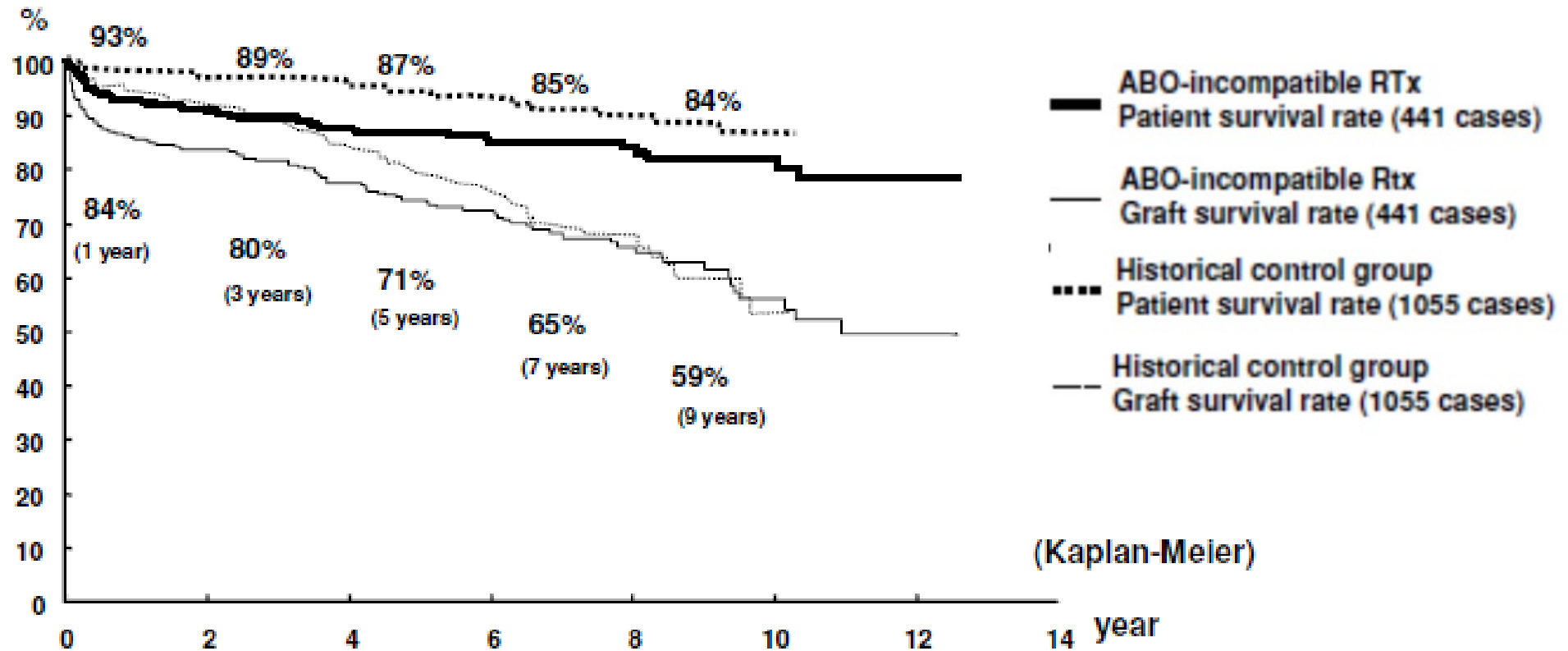


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ABO-INCOMPATIBLE KIDNEY TRANSPLANT OUTCOMES



Takahashi K et al Am J Transplant 2004



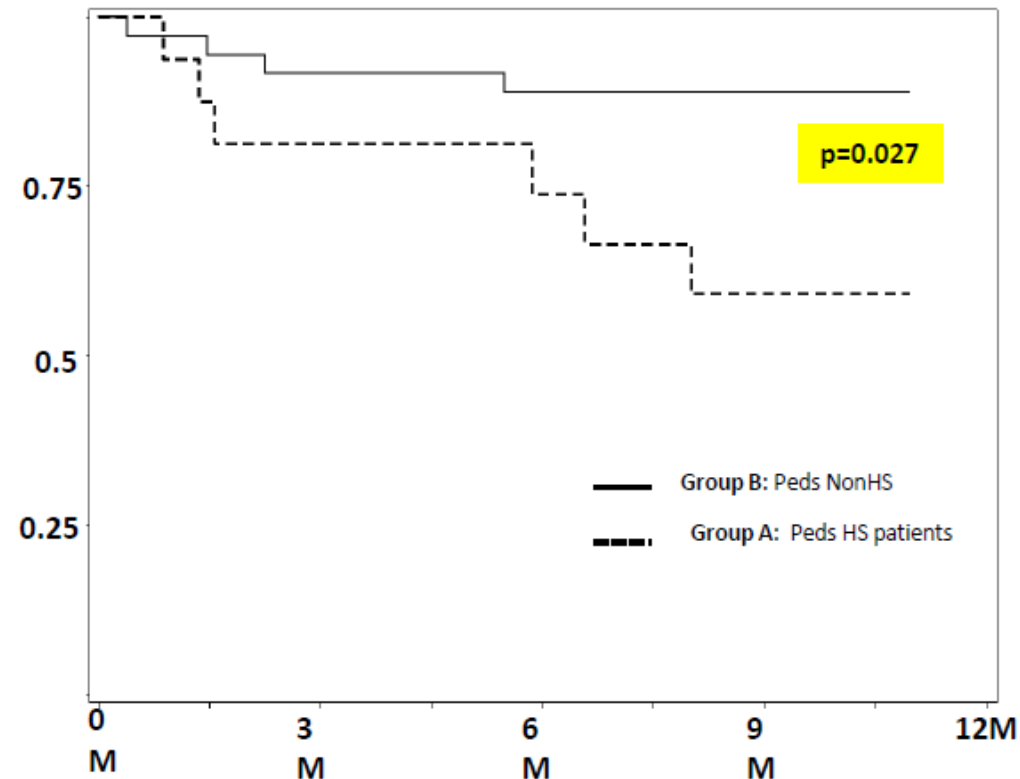
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DESENSITIZATION FOR HIGHLY-HLA SENSITIZED PATIENTS

Freedom from Rejection by Sensitization Status



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Wongsaroj P et al World J Nephrol 2015
Jordan SC FDA 2015

NON-IMMUNOLOGIC BARRIERS TO LIVING DONOR KIDNEY TRANSPLANTATION

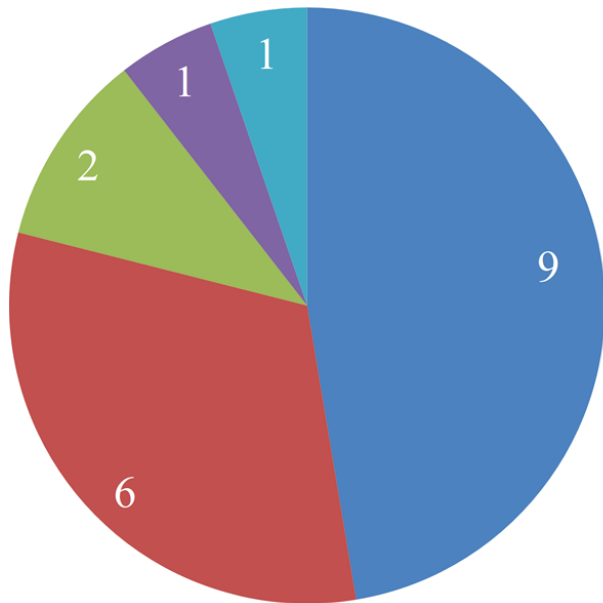


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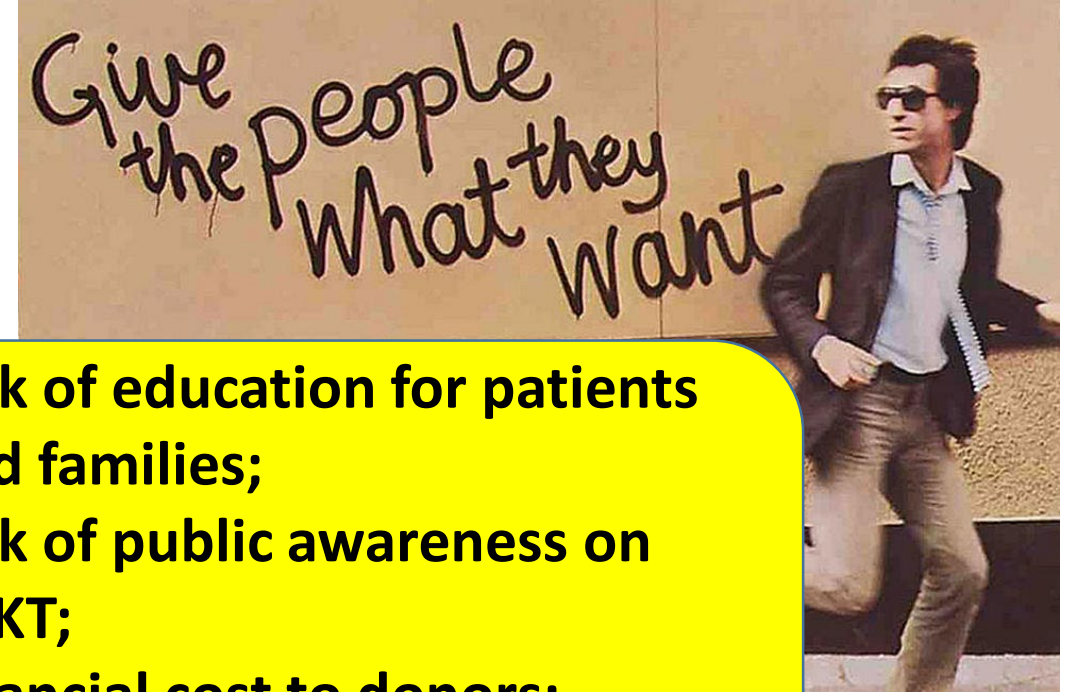
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BARRIERS OF LIVING DONOR KIDNEY TRANSPLANTATION: THE PATIENTS' POINT OF VIEW



- living kidney recipients
- living kidney donors
- dialysis patients
- chronic kidney disease patient
- deceased donor recipient



- lack of education for patients and families;
- lack of public awareness on LDKT;
- financial cost to donors;
- health care system-level barriers



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Getchell LE et al Canadian Journal of Kidney Health and Disease 2017

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BARRIERS TO LIVING DONOR KIDNEY TRANSPLANTATION: THE HEALTH PROFESSIONALS' POINT OF VIEW



- lack of communication between transplant and dialysis teams
- absence of referral guidelines
- lack of multidisciplinary involvement
- lack of information and training
- negative attitudes of some HPs toward LDKT

| Characteristic | Targeted quota (%) | Recruited % (n) |
|--|--------------------|-----------------|
| Role | | |
| Physician (nephrologist) | 20 | 31 (5) |
| Nurse | 20 | 50 (8) |
| Other | | 19 (3) |
| Gender | | |
| Male | 20 | 19 (13) |
| Female | 20 | 81 (3) |
| Experience in the field of nephrology | | |
| 10 years and less | 20 | 62 (10) |
| More than 10 years | 20 | 38 (6) |
| Transplant centers per province | | |
| Québec | 20 | 50 (8) |
| BC | 20 | 25 (4) |
| Ontario | 20 | 25 (4) |



BARRIERS TO LIVING DONOR KIDNEY TRANSPLANTATION: THE FAMILY AND FRIENDS' POINT OF VIEW

- They are completely unaware of how they can support their sick relative in his decision-making to pursue a kidney transplant
- They may be afraid to discover some health conditions that may affect their insurability
- Some of them may be afraid to discover a misattributed paternity that could affect the father-child relationship
- The evaluation process takes time and energy for all those involved, and the candidate can incur substantial financial costs



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Garg AX, Clin J Am Soc Nephrol 2018

WHAT WE CAN DO TO BREAK DOWN THE BARRIERS TO LIVING DONOR KIDNEY TRANSPLANTATION



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FIRST WE HAVE TO INFORM THE PATIENTS



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iChoose Kidney

The iChoose Kidney risk calculator is a tool that educates patients about the risk of available treatment options for kidney disease.

Receiving a kidney from a living donor would save the patient from waiting many additional years for a deceased donor kidney. Thus, the estimated 3-year chance of survival with a living donor transplant would be 96% compared with 94% with a deceased donor transplant

CONNECTING PATIENTS WITH PEER MENTORS OR NAVIGATORS MAY HELP MORE PATIENTS RECEIVE A LKDT

- Navigators are individuals who educate patients and help them navigate through the medical system.
- It is reasonable that kidney transplant recipients may be ideal navigators for other patients because of a shared experience with ESRD



IMPACT OF NAVIGATORS ON COMPLETION OF STEPS IN THE KIDNEY TRANSPLANT PROCESS

The involvement of a trained transplant recipients as navigators resulted in increased completion of steps in the kidney transplant process



Sullivan C et al Clin J Am Soc Nephrol 2012



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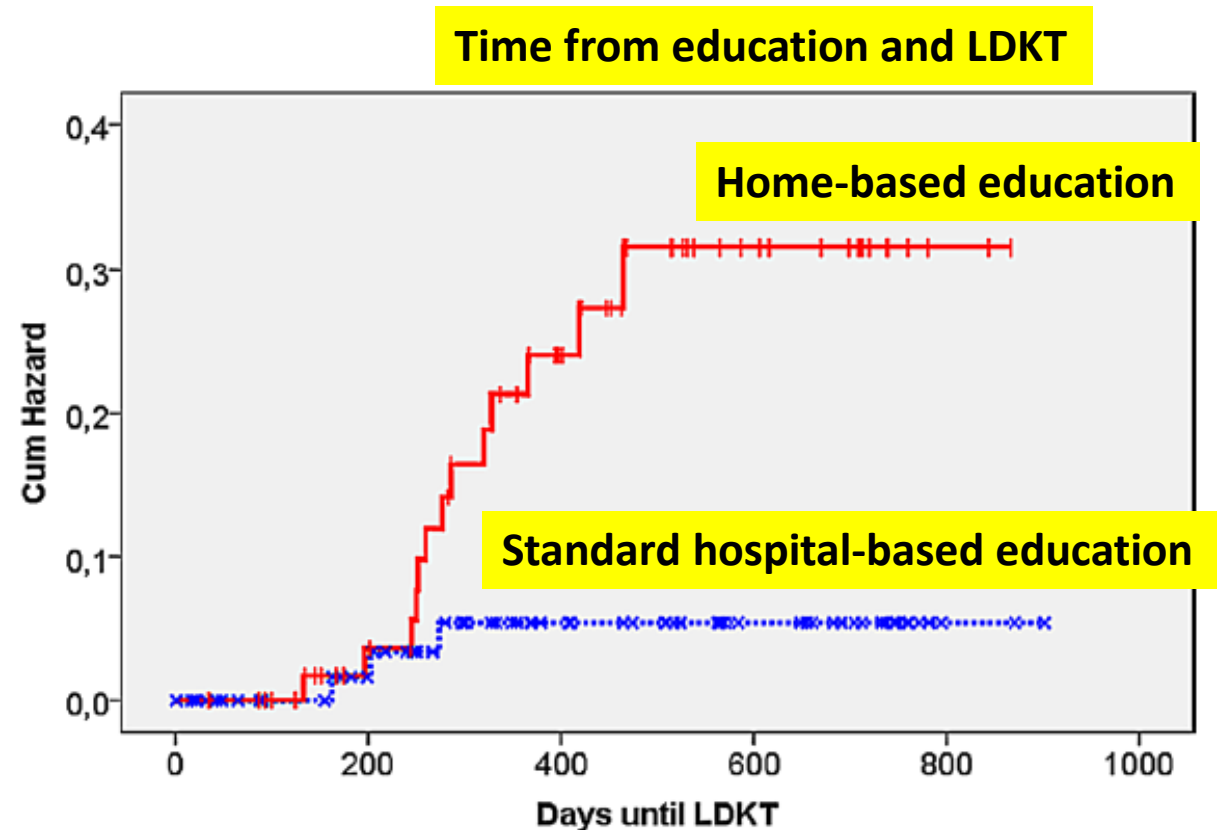
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HOME-BASED FAMILY INTERVENTION INCREASES KNOWLEDGE, COMMUNICATION AND LIVING DONATION RATES

Four potentially modifiable hurdles with home-based interventions are:

- (1) inadequate patient education
- (2) impeding cognitions and emotions
- (3) restrictive social influences
- (4) suboptimal communication



DECISION AIDS TO INCREASE LIVING DONOR KIDNEY TRANSPLANTATION

AUSTRALIAN COMMISSION
ON SAFETY AND QUALITY IN HEALTH CARE

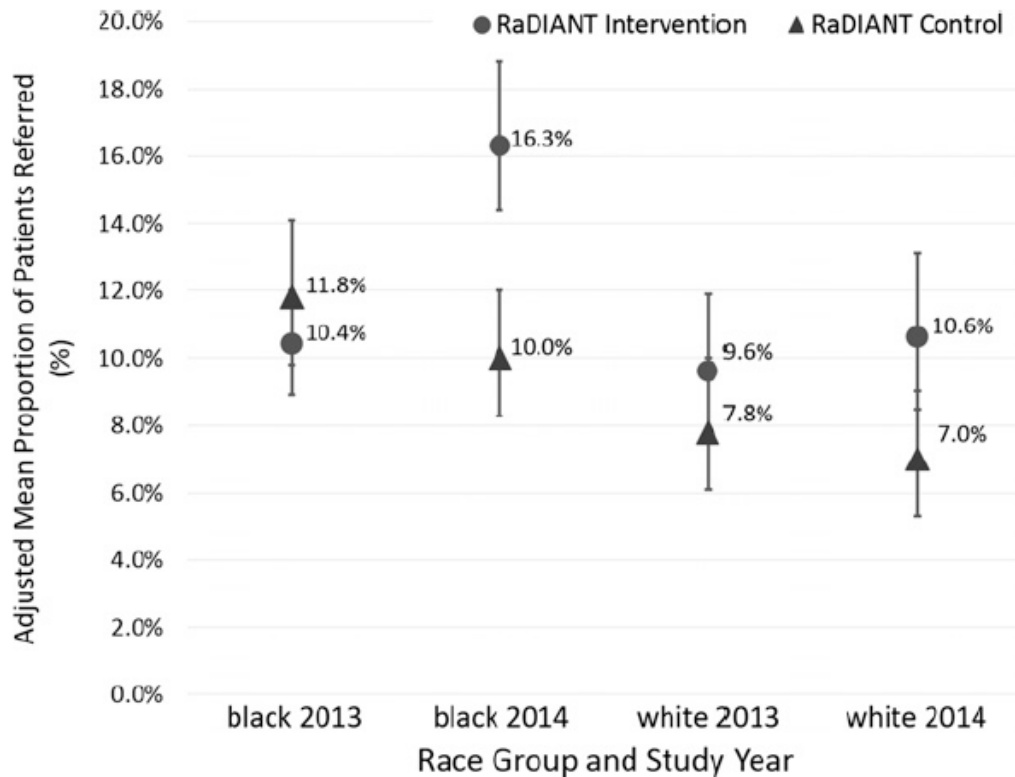


Decision Aid should be realized and validated according to the guidelines of IPDAS Collaboration

International Patient Decision Aid Standards (IPDAS) Collaboration

1. Define scope and target audience
2. Assemble stakeholders
 - a. Ensure representation from clinical experts and target audience
 - b. Assess different viewpoints, review literature, and synthesize evidence
3. Design
 - a. Determine format
4. Multiple iterations of field testing and revising
 - a. Complete field testing with target audience and clinicians
5. Finalize decision aid and disseminate
 - a. Stakeholders develop and implement a distribution plan

A MULTICOMPONENT INTERVENTION INCREASED REFERRAL AND IMPROVED EQUITY IN KIDNEY TRANSPLANT REFERRAL FOR PATIENTS ON DIALYSIS



Compared with usual care, dialysis centers that received the intervention had a significant increase in:

- (1) referrals for transplant evaluation
- (2) completed transplant evaluations
- (3) transplant wait-listing

WHAT WE HAVE DONE IN MARCHE REGION TO INCREASE LIVING DONOR KIDNEY TRANSPLANTATION

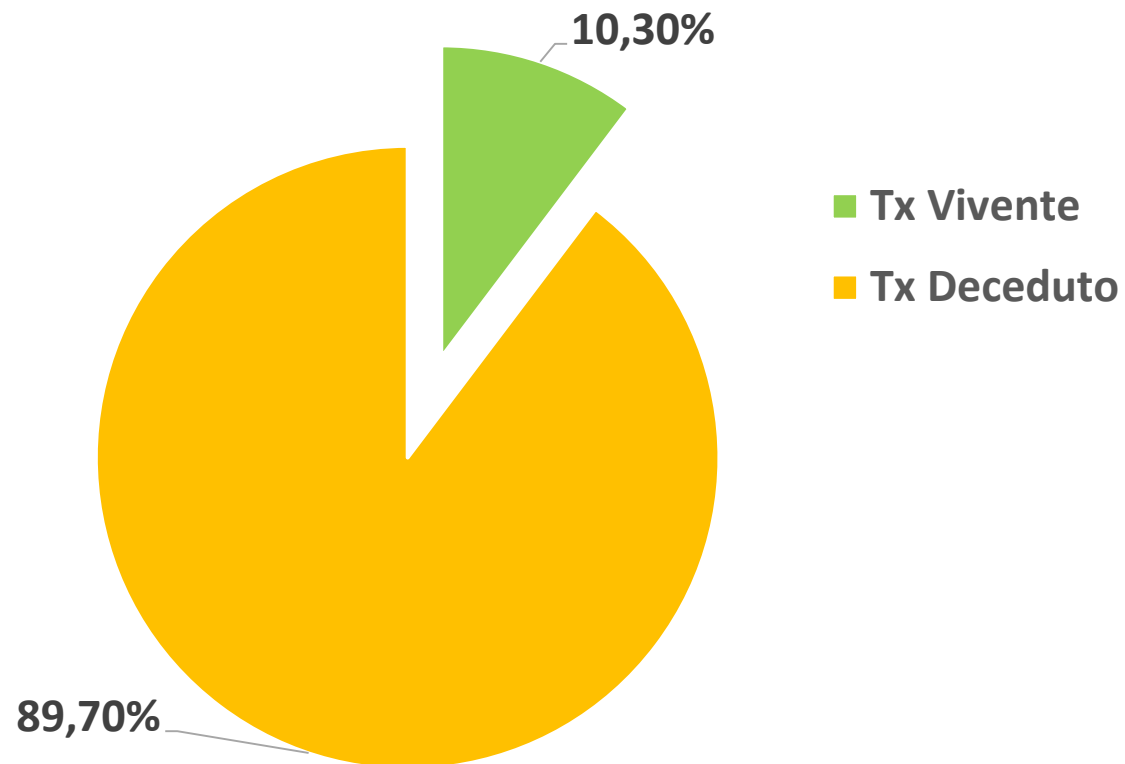


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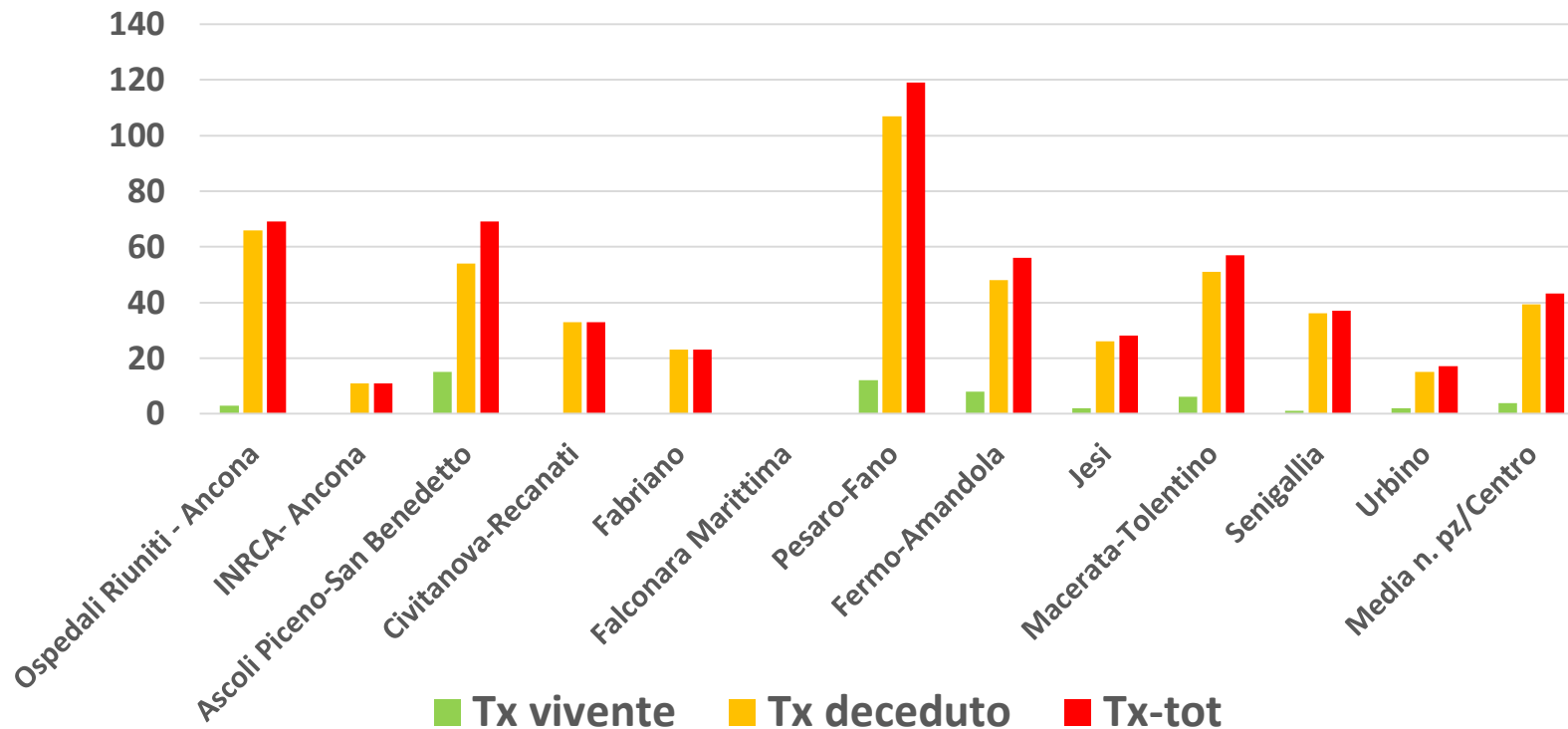
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DISTRIBUZIONE DEI PAZIENTI PREVALENTI TRAPIANTATI DI RENE NELLA REGIONE MARCHE IN ACCORDO ALLA TIPOLOGIA DEL DONATORE



DISTRIBUZIONE DEI PAZIENTI TRAPIANTI DI RENE NELLE NEFROLOGIE DELLE MARCHE IN ACCORDO ALLA TIPOLOGIA DEL DONATORE



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RDT – Marche 2017

ATTIVITÀ DI PROMOZIONE PER IL TRAPIANTO DA DONATORE VIVENTE NELLE MARCHE

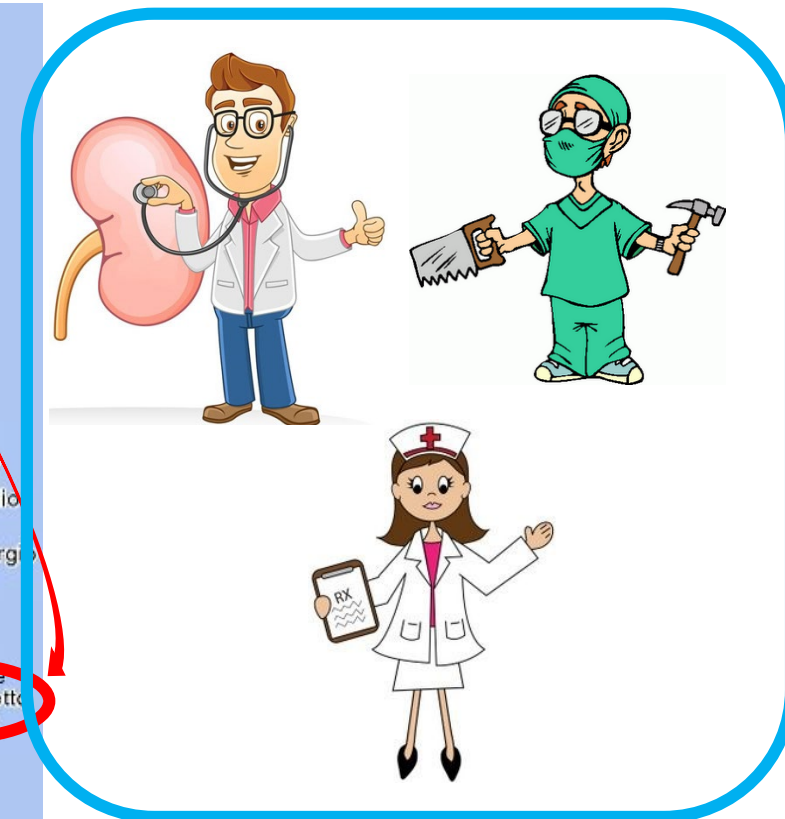
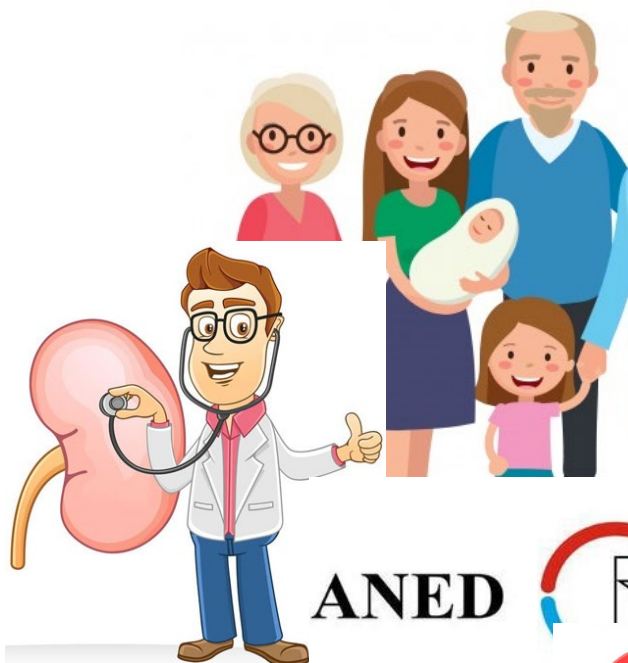


TRAPIANTO DI RENE DA VIVENTE

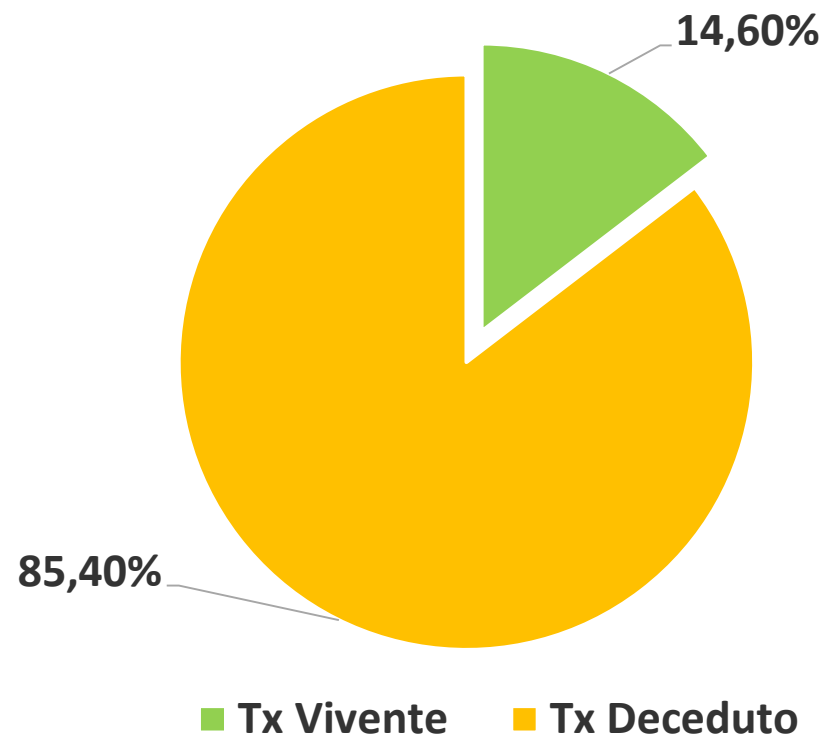
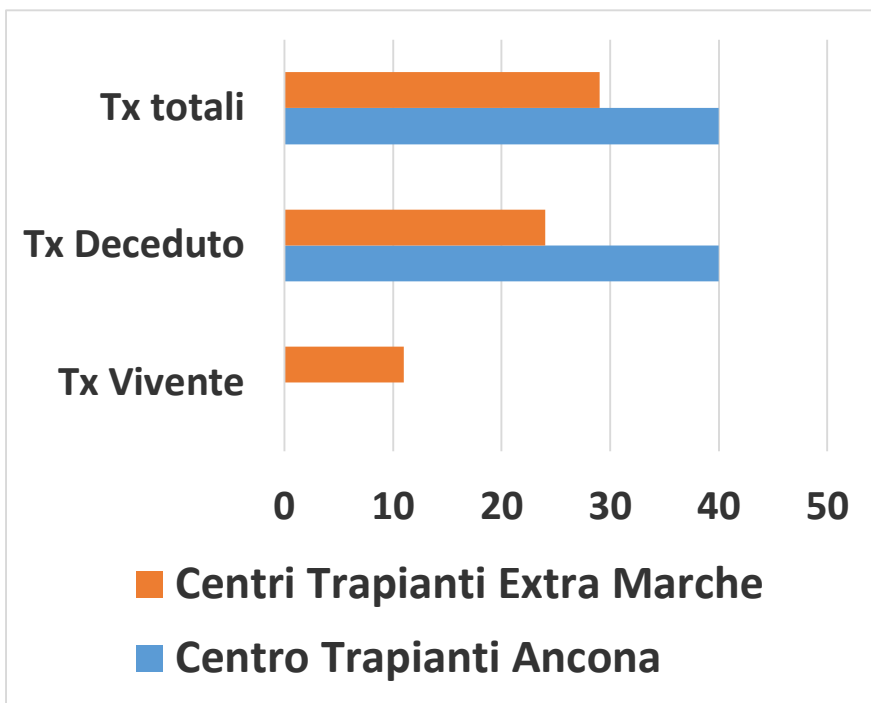
UN PROGETTO PROMOSSO DAL CENTRO NAZIONALE TRAPIANTI

in collaborazione con

ANED
ASSOCIAZIONE NAZIONALE EMO-DIALIZZATI DIALISI E TRAPIANTO - ONLUS



PAZIENTI INCIDENTI TRAPIANTATI DI RENE NELLA REGIONE MARCHE IN ACCORDO ALLA TIPOLOGIA DEL DONATORE



REALIZZATO UN PROGRAMMA DI TRAPIANTO RENALE DA DONATORE VIVENTE IN ANCONA



TRAPIANTI DI **RENE**

Da donatore vivente

Periodo 2001-2018



ATTIVITÀ PER PROGRAMMA TRAPIANTO

Trapianti da donatore vivente

| | | | | | | | |
|----------------------|----|----------------------|----|---------------------|---|--------------------|----------|
| Padova | 59 | Vicenza | 14 | Siena | 5 | Roma - San Camillo | 2 |
| Bologna | 24 | Roma - Bambino Gesù | 11 | Firenze | 4 | Ancona | 1 |
| Roma - Gemelli | 19 | Parma | 10 | Pisa | 4 | Modena | 1 |
| Bari | 19 | Palermo - ISMETT | 8 | Padova - Pediatrico | 4 | Treviso | 1 |
| Verona | 17 | Milano - Niguarda | 8 | Udine | 3 | Reggio Calabria | 1 |
| Milano - Policlinico | 17 | Milano - S. Raffaele | 6 | Roma - Tor Vergata | 2 | | |
| Torino | 16 | Pavia | 6 | Palermo - Civico | 2 | | |
| Novara | 16 | Roma - Sapienza | 5 | L'Aquila | 2 | | |

LA MAPPA



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FINALLY DONOR CANDIDATES NEED FINANCIAL COVERAGE

Financial burdens of living kidney donation

Indirect costs

- Lost wages for donor and supports
- Use of employer-sponsored paid time off
- Effect on insurability
- Effect on employment stability

Direct costs

- Transportation to transplant center for testing, surgery, and follow-up care
- Food, lodging, and incidentals for donation-related visits for donor and supports
- Dependent care
- Uncovered medical expenses



COSTI MEDI ANNUALI (IN EURO) DEI TRATTAMENTI SOSTITUTIVI DELLA FUNZIONE RENALE

| | Emodialisi | Dialisi peritoneale | Trapianto |
|--------------------------|-------------------|----------------------------|------------------------------------|
| Primo anno | 43 600 | 25 900 | 50 900 (LD) 51 000 (DD) |
| Secondo anno | 40 000 | 15 300 | 17 200 |
| Dopo secondo anno | 40 600 | 20 500 | 12 900 |

LD: living donors ; DD: deceased donors



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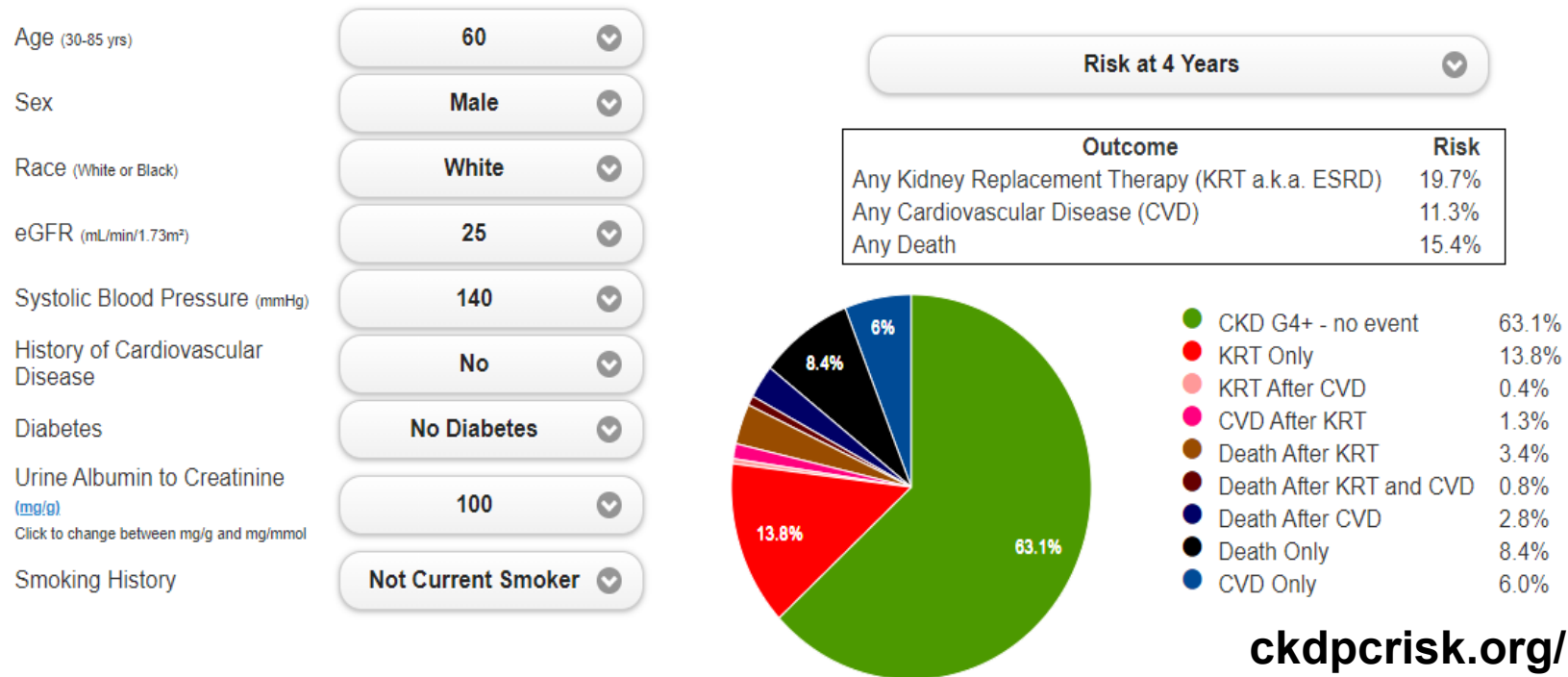
6·7·8 NOVEMBRE

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Haller M et al, Nephrol Dial Transplant 2011

IMPROVED EVALUATION EFFICIENCY MAY ALSO YIELD MORE PRE-EMPTIVE TRANSPLANTS AND SUBSTANTIAL HEALTHCARE COST SAVINGS THROUGH AVERTED DIALYSIS COSTS

Timing of clinical outcomes in CKD with severely decreased GFR



REAL WORLD

PROBLEMI

- Eterogeneità nell'informazione al donatore ed al paziente
- Tempi lunghi per esami (scintigrafia miocardica, valutazione GFR con radioisotopi, etc)
- Difficoltà burocratiche per esecuzione esami a donatori stranieri a favore di pazienti italiani

POSSIBILI SOLUZIONI

- Necessità di *Decision aids* condivisi e validati e di training per il personale sanitario e delle associazioni
- Realizzazione di PDTA condivisi con l'Azienda e supporto CNT
- Disposizioni Ministeriali e supporto del CNT



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TAKE HOME MESSAGES

- **Informare ed educare il paziente con malattia renale cronica in stadio IV circa i benefici del trapianto da donatore vivente prima della dialisi**
- **Informare correttamente i potenziali donatori circa i rischi associati alla donazione sottolineando i potenziali benefici (mantenimento di una buona qualità della vita, eventuale diagnosi precoce di malattia, etc)**
- **Informare le coppie donatore/ricevente circa le possibilità di trapianto in caso di incompatibilità di Gruppo e iperimmunità (cross over, pair donation, desensibilizzazione)**
- **Promuovere sul territorio incontri con pazienti, familiari, MMG, Nefrologi, Infermieri, volontari per disseminare la cultura del trapianto e la bontà del programma di trapianto da donatore vivente indipendentemente dal Centro trapianti che li eseguirà.**



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Grazie per l'attenzione