Crossing borders in search of health, welfare, and safety

(Kidney failure, Surrogacy, and Refugee qualification)

Market Design Perspectives on Inequality
HCEO, Chicago, August 2016

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Health inequality

• Kidney failure
U.S. Incident counts (new patients) & adjusted rates of ESRD, by race

Figure 1.5 (Volume 2)

Incident ESRD patients. Adj: age/gender; ref: 2005 ESRD patients. USRDS 2012 ADR
Kidneys Transplanted per million population

Nigeria, Philippines

(U.S.A., Nigeria, Philippines (Global Observatory on Donation & Transplantation))
Patients receiving renal replacement therapy (dialysis) in 2010 (estimate)

In the U.S., 100,000 people are on the deceased donor waiting list, but we only have 12,000 deceased donor transplants per year.

Elsewhere, 2-7 million people die every year worldwide due to inability to pay for either dialysis or kidney transplantation.
Papers


• “Financing Transplant Costs of the Poor: Global Kidney Exchange,” Afshin Nikzad, Mohammad Akbarpour, Michael Rees, and Alvin E. Roth, working paper, 2016
Kidney exchange—U.S. background

• Many more people need kidney transplants than there are available organs.

• The waiting list in the US has about 100,000 people
  – The wait can be years, and many die while waiting (4,448 in 2015, with another 4,377 removed from waiting list as “too sick to transplant”).
  – In 2015 we had 12,250 transplants from deceased donors

• Transplantable organs can also come from living donors.
  – In 2015 we had 5,628 transplants from living donors

• Sometimes donors are incompatible with their intended recipient.

• This opens the possibility of exchange.
Simple two-pair kidney exchange

Donor 1
Blood type
A

Recipient 1
Blood type
B

Donor 2
Blood type
B

Recipient 2
Blood type
A
Notice that no money changes hands...

• Kidney exchange is an “in kind” exchange

• Section 301, National Organ Transplant Act (NOTA), 42 U.S.C. 274e 1984: “it shall be unlawful for any person to knowingly acquire, receive or otherwise transfer any human organ for valuable consideration for use in human transplantation”.
2-way exchange involves 4 *simultaneous* surgeries
Chains initiated by non-directed (altruistic) donors

Non-directed donation before kidney exchange was introduced
Chains initiated by non-directed (altruistic) donors

Non-directed donation before kidney exchange was introduced

Non-directed donor

Wait list

Non-directed donation after kidney exchange was introduced

Non-directed donor

R1

D1

R2

D2

Wait list
A Nonsimultaneous, Extended, Altruistic-Donor Chain


SUMMARY

We report a chain of 10 kidney transplantations, initiated in July 2007 by a single altruistic donor (i.e., a donor without a designated recipient) and coordinated over a period of 8 months by two large paired-donation registries. These transplantations involved six transplantation centers in five states. In the case of five of the transplantations, the donors and their coregistered recipients underwent surgery simultaneously. In the other five cases, “bridge donors” continued the chain as many as 5 months after the coregistered recipients in their own pairs had received transplants. This report of a chain of paired kidney donations, in which the transplantations were not necessarily performed simultaneously, illustrates the potential of this strategy.
1 The initiating donor was an unpaired altruistic donor from Michigan.

2 The recipient of Transplant 6 required desensitization to HLA DSA by T and B cell flow cytometry.

3 The recipient of Transplant 9 required desensitization to blood group (AHG titer of 1:8).

**The Kidney Chain**

How a single organ donation changed 20 lives and created the longest-running transplant chain
KPD and NDD Transplants in U.S.
KPD and NDD as % of LD in the United States

![Graph showing the percentage of KPD and NDD as % of LD in the United States from 2000 to 2015.](chart.png)
Kidney exchange outside the U.S.

- Wednesday, August 3, 2016 First kidney exchange in Nepal
- March 7, 2016 First paired kidney exchange transplant done in Singapore
- Friday, July 24, 2015 Kidney exchange in Turkey (1st exchanges there)
- April 10, 2015 A first non-directed donor kidney exchange chain in Italy
- March 30, 2015 A first kidney exchange in Argentina
- March 5, 2015 First kidney exchange in Poland
- Friday, November 7, 2014 Kidney exchange in Spain: now more than 100 transplants
- June 7, 2014 Kidney exchange in France
- December 19, 2013 Kidney exchange in Vienna
- August 19, 2013 Ten kidney exchange transplants on World Kidney Day in Ahmedabad, India
- July 28, 2013 First Kidney Exchange in Portugal:
- July 23, 2013 Kidney exchange chain in India
- June 6, 2013 Kidney exchange between Jewish and Arab families in Israel
- December 26, 2012 Kidney exchange in Canada
- December 1, 2012 Kidney exchange in India
- June 1, 2012 Mike Rees and Greece: an intercontinental kidney exchange
- March 27, 2012 Kidney exchange in Britain
- February 5, 2012 Kidney exchange in Australia, 2011
- April 29, 2011 First kidney exchange in Spain
- December 8, 2010 National kidney exchange in Canada
- August 3, 2010 Kidney Exchange in South Korea
- Tuesday, August 3, 2010 Kidney Exchange in South Korea
- Friday, July 30, 2010 Kidney transplantation advice from the Netherlands
- March 9, 2010 Kidney exchange news from Britain (1st 3-way there)
- January 27, 2010 The Australian paired Kidney eXchange (AKX) goes live
- June 25, 2009 Kidney exchange in Canada (1st exchange there)
- February 27, 2009 Kidney Exchange in Australia (in Western Australia)
Global kidney exchange: a possibility of mutual aid

United States

Two-way exchange

Developing World

Transplants unavailable
First global kidney exchange, with a pair from the Philippines—January 2015,

- Alliance for Paired Donation (Rees et al.)

Jose Mamaril received a kidney from a non-directed American donor in Georgia. His wife, Kristine, donated one of her kidneys to an American recipient in Minnesota, whose donor continued the chain by donating to a patient in Seattle.

*THE BLADE/JETTA FRASER*
The chain to date
Safely home...

• $50,000 escrow fund for post-surgical care
Global Kidney Exchange

The GKE proposal is “self-financing”.

• Back of the envelope calculation:
  – cost of hemodialysis $\approx \$90,000$ per year
  – average time under dialysis $\approx 5$ years
  – cost of transplant $\approx \$120,000$ per surgery (plus $\$20,000$ in maintenance therapy costs per patient per year)

• But in steady state, waiting time decreases. So dialysis costs will go down...how long will GKE remain self financing?
GKE remains self financing even when it becomes widespread.

Intuition:

• Some domestic pairs immediately find a match
• Some other do not find a match upon arrival.
  – They increase the average waiting cost
• International pairs get matched to those the latter type of domestic pairs
• So even if the *average* dialysis cost is less than the surgery costs, GKE can still be self-financing because it matches domestic patients with higher-than-average dialysis costs.
The medical logistics may not be the hard part
Financial flows

• Savings:
  – Medicare—complex legislative/bureaucratic
  – Private insurers (33 months)

• Costs:
  – Surgeries—transplant centers
  – Post surgical treatment in home countries
  – Infrastructure development in home countries

• USAID?--Same Federal budget, but no change needed in Medicare

• Allow insurance companies to nominate patients?
Repugnance constraints

• Living donors
  – From poor countries

• As a first reaction, many people are going to conflate global kidney exchange with buying kidneys (which is illegal everywhere except Iran—a ‘repugnant transaction’)
Repugnance

1. “the plan is really not about the international recipient (nor...about the international donor), but only about getting organs for US citizens. So it is exploitative."

2. “Lets solve problems at home first...We should encourage programs that allow Americans to help Americans."

3. “There is an exploitation of a social condition (being destitute in a foreign country) that kidney transplantation should not be the remedy of resolving social inequities."
• Repugnance Concerns:
  – Inadequate post-surgical care
    • Escrow funds for immunosuppressive drugs and post surgical care (in Philippines)
    • Basic infrastructure (in Nigeria)—USAID?
  – Inappropriate/illega/unethical donor solicitation (how can we ensure that foreign donors aren’t selling their kidney?)
    • Family requirement?
    • For non-directed donors too?
Fertility tourism

• The urge to have kids is strong.

• Some fertility services are repugnant in some places but not in others.

• non-border crossing: womb transplants
  (Womb transplants in Sweden (where surrogacy is illegal))
German Surrogacy Law

Surrogacy contracts in which a woman declares her readiness to undergo artificial or natural insemination or to have an embryo, which is not hers, transferred to her or to carry a baby otherwise to the full term are viewed as unethical and therefore treated as void in Germany. Pursuant to the Embryo Protection Act and the Adoption Placement Act, the activities performed by those arranging surrogate mothers and by physicians in connection with surrogacy are punishable offences. Under German law, the woman who commissions a child in such a way (commissioning mother) is not the mother of the child. The mother of the child is the woman who gave birth to him/her, that is, the surrogate mother and not the commissioning mother.

...For this reason, German authorities cannot recognize the maternity of a commissioning mother even if a foreign birth certificate confirms her as the ostensible mother.

Surrogate child denied German passport
09 May 2011

By Nisha Satkunarajah  Appeared in BioNews 606
A child born to a surrogate mother in India has been refused a German passport despite the commissioning German parents being named on the birth certificate.
The German couple made the application to the German Embassy in India but a passport was refused after the embassy said it had doubts over the child's German citizenship. The place of birth on the child's birth certificate was stated as an agency which specialises in surrogacy.
A court in Berlin ruled the embassy was entitled to refuse the application. ...
'The phenomenon is widespread in India where many childless Germans go to fulfil their wish to have babies', a spokesman for the court said. 'They think it is possible without any problems to take the child to Germany. But that's not the case'. 

- **Payment for surrogacy:** 6. (1) *No person shall pay consideration to a female person to be a surrogate mother,* offer to pay such consideration or advertise that it will be paid.

- **Acting as intermediary:** (2) No person shall accept consideration for arranging for the services of a surrogate mother, offer to make such an arrangement for consideration or advertise the arranging of such services.

- **Surrogate mother — minimum age:** (4) No person shall counsel or induce a female person to become a surrogate mother, or perform any medical procedure to assist a female person to become a surrogate mother, knowing or having reason to believe that the female person is under 21 years of age.
Surrogacy

• market design/rule of law "Black market" surrogacy in England, and subsequent legal complications

• Rule of law is a work in progress

• California law: escrow accounts:
http://www.leginfo.ca.gov/cgi-bin/displaycode?section=fam&group=07001-08000&file=7960-7962

• India is attractive to some for other contracting capabilities—e.g. supervision of the surrogate’s behavior regarding nutrition, sleep, exercise (not to mention drinking and drugs)
Migration by refugees and others:

• Steps: Qualification (for refugee status, etc.), Determination of country of asylum, settlement in that country.

• Settlement: Alex and Will --settling refugees who have already been granted asylum somewhere has some strong similarities with—and differences from--school choice. Tommy Andersson and Lars Ehlers: matching refugees to housing/landlords.

• Determination of country: that has some elements that resemble school choice (refugee preferences will be informative) but also has a much bigger political element involving country quotas—Hillel and Jesús Fernández-Huertas Moraga have interesting ideas on choosing country capacities.

• But qualifying for refugee status is a different kind of problem, more akin to police investigation, since there are some kinds of information (e.g. foreign fighter) that it may never be safe for applicants to admit... and this is potentially a first order problem, now that security is such a high profile political issue with far-reaching consequences.
Brexit: Anti EU/anti-immigrant posters

- "What does the EU ‘tourist deal’ mean?"
- "Britain’s new border is with Syria and Iraq"
- "FACT"
- "Vote Leave, take back control"

- "BREAKING POINT"
- "The EU has failed us all"
- "We must break free of the EU and take back our borders."
Designing procedures for eliciting and verifying information

• Dominant strategy mechanisms—powerful but rare.
  – “Do you speak English?”
  – Do you speak Bulgarian?
  – Did you carry a gun?

• Police style investigations are going to be easier for migrants who are part of an accessible network