2018 MID-ATLANTIC
CONFERENCE

8th ANNUAL CURRENT CONCEPTS IN
VASCULAR THERAPIES

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KIDNEY TRANSPLANT UPDATE

Changes in Deceased Donor Kidney Allocation

December 2014

- June 24-25, 2013 – OPTN/UNOS Directors approved substantial amendments to Policy for allocation of deceased donor kidneys
- Goals of changes
  - Maintain access to transplantation
  - Enhance post-transplant survival benefit
  - Increase utilization of donated kidneys
  - Increase transplant access for biologically disadvantaged candidates

WHY WAS CHANGE NEEDED ?

- Variability in **access to transplantation** by candidate blood type and geographic location
- Higher than necessary **discard rates** of kidneys that could benefit some candidates
- Many kidneys with long potential longevity being allocated to recipients with shorter potential longevity and vice-versa leading to increased need for **retransplants**

WHAT IS NEW IN ALLOCATION SYSTEM

- Expanded definition of waiting time
- Sliding scale for sensitization points
- Broader sharing for extremely high PRA
- Expanded access for blood type B
- Longevity matching of some kidneys
- Regional sharing of kidneys with highest discard rates

8,380 additional life years achieved annually

Improved access for highly sensitized and minority candidates

WAITING TIME DEFINITION

- **OLD SYSTEM**

  Waiting time starts day of listing (GFR < 20)

- **NEW SYSTEM**

  Waiting time starts day patient began dialysis or day GFR < or = to 20, regardless of date of listing

LONGEVITY MATCHING

- **KDPI** – **K**idney **D**onor **P**rofile **I**ndex

  Clinical formula, based on KDRI, incorporating 10 donor factors effecting estimated graft survival

- **EPTS** – **E**stimated **P**ost **T**ransplant **S**urvival

  Simplified version of Life Years from Transplant (LYFT)

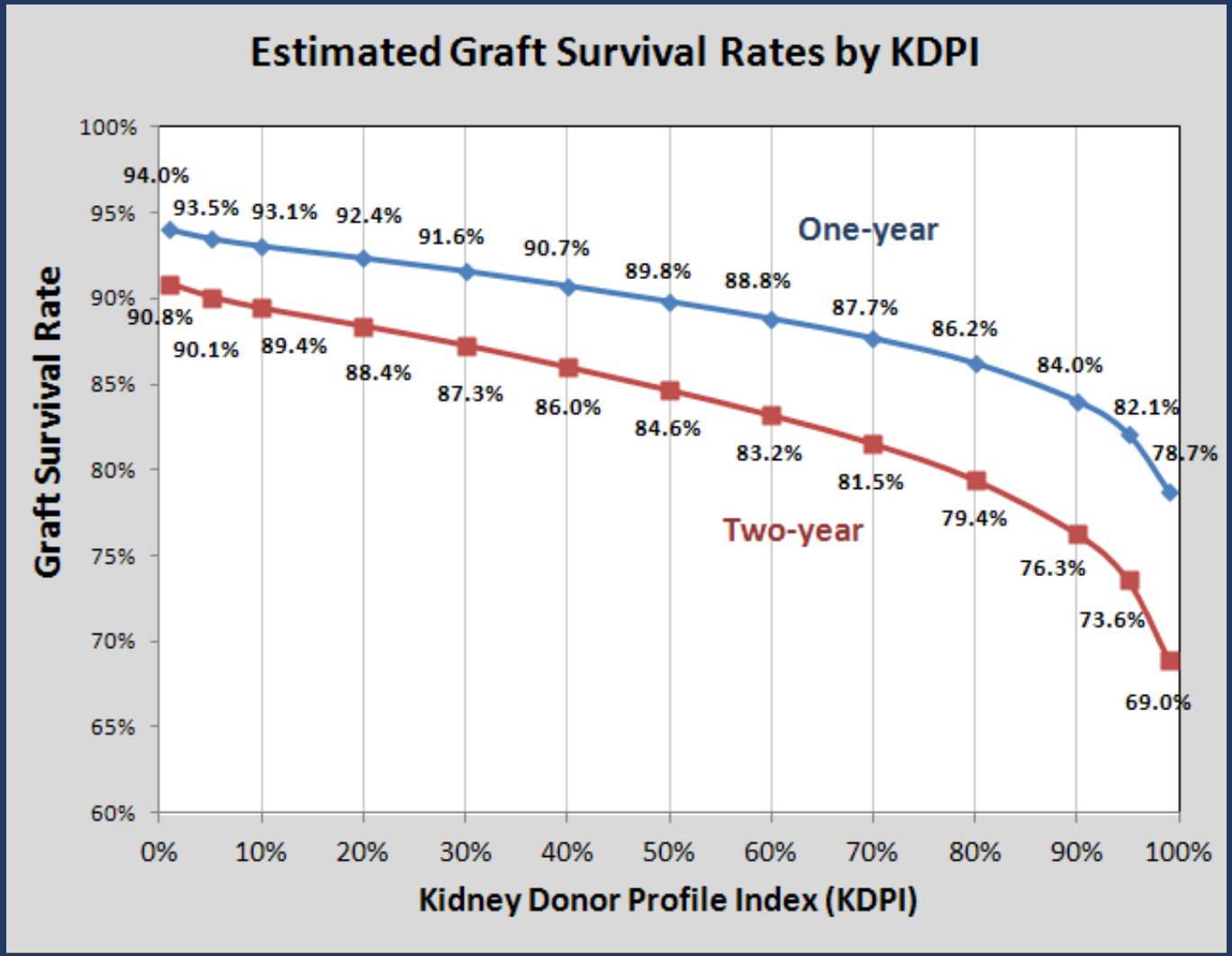
KDPI COMPONENTS

- **AGE** – **< 18** lowers KDPI, **> 50** raises KDPI
- **HEIGHT** – (height – 170) / 10
- **WEIGHT** – **< 80 kg**, (weight – 80) /5
- **ETHNICITY** – increased KDPI for AA
- **HTN** – increases KDPI
- **DIABETES** – increases KDPI
- **CAUSE OF DEATH** – CVA increases KDPI
- **CREATININE** – rising creatinine increases KDPI
- **HCV** – increases KDPI for HCV+
- **DCD** – increases KDPI for DCD donor

KDPI

- **KDRI** based on multivariable Cox proportional hazards regression model using graft outcomes from nearly 70,000 adult, solitary, first time deceased donor kidney recipients in U.S. 1995 – 2005.
- **KDPI** is simply a mapping of the KDRI from a relative risk scale to a cumulative percentage scale
- e.g. Kidney from a donor with a KDPI of 85% has a higher risk of graft failure than 85% of kidneys recovered from donors the previous year

KIDNEY DONOR PROFILE INDEX



E P T S

- LYFT felt to have too many variables
- EPTS – four variables, objective* and easily obtained
  - **Candidate age**
  - **Diabetes status**
  - **Length of time of dialysis**
  - **Previous transplant**
- Higher EPTS associated with lower expected patient survival

* *Cardiovascular health lacked objective metric*

LONGEVITY MATCHING

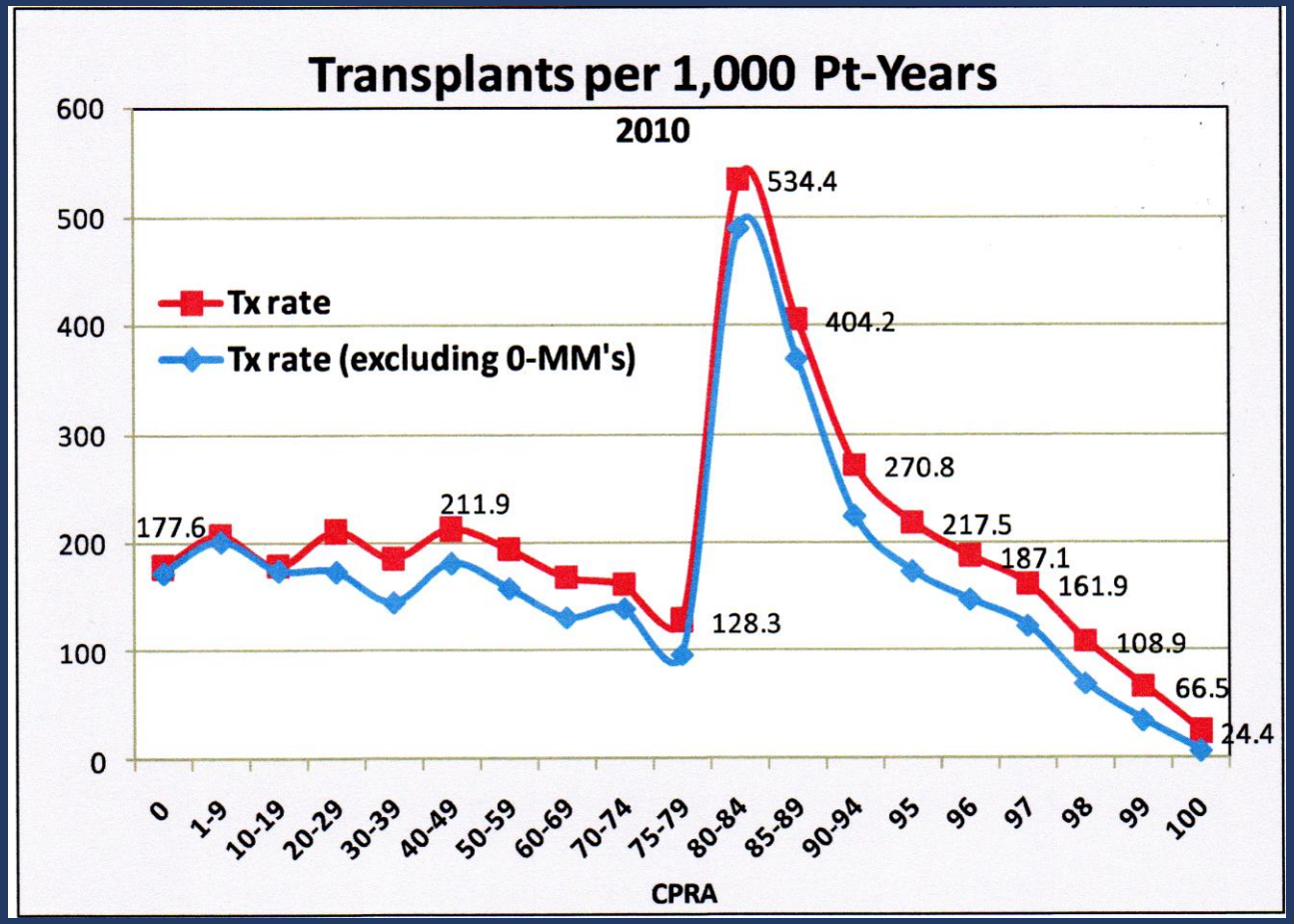
- Incorporating **EPTS** allows for better matching of candidates and donated grafts so that individuals with very long EPTS do not receive kidneys with very short survival, thus **reducing need for re-transplant**
- To start, the use of EPTS in allocation was limited to only the **20%** of donated kidneys with the lowest KDPI being offered first to the **20%** of candidates with the longest EPTS before other candidates

IMPROVING ACCESS FOR B CANDIDATES

- Kidneys from donors who are A2 or A2B will be offered first to B candidates
- To be eligible, candidates must have two consecutive quarterly anti-A titers of less than 1:8
- 9 OPO's had trialed this with comparable survival rates and shortened waiting times for B recipients

EFFECT OF CPRA ON TRANSPLANT RATE

PRIOR TO NEW ALLOCATION SYSTEM



CPRA SLIDING SCALE

CPRA	Points	CPRA	Points
20 - 29	0.08	85 – 89	4.05
30 – 39	0.21	90 – 94	6.71
40 – 49	0.34	95	10.82
50 – 59	0.48	96	12.17
60 – 69	0.81	97	17.30
70 – 74	1.09	98	24.40
75 – 79	1.58	99	50.09
80 – 84	2.46	100	202.10

BROADER SHARING FOR HIGHLY SENSITIZED CANDIDATES

- Local CPRA – 100
- Regional CPRA – 100
- National CPRA – 100
- Local CPRA – 99
- Regional CPRA – 99
- Local CPRA – 98
- Zero mismatch classifications
- Prior living donor

Transplant MD and HLA Director must approve unacceptable antigens listed for the candidate

ALLOCATION SEQUENCES

Doc, where am I on the waiting list?

- **A** – KDPI </= to 20%
- **B** – KDPI > 20, < 35%
- **C** – KDPI > 35, </= 85%
- **D** – KDPI > 85%

PHS INCREASED RISK DONORS
" A BIRD IN HAND"

- **20+%** of deceased donors now classified as IRD
- *Am J Transplant. 2018:617-624. Bowring MG, et al*
  - 104,998 candidates offered IRD kidney which was ultimately accepted by someone – 12/25/09 to 1/6/15 SRTR data
  - After 5 yrs, patients who declined IRD offer
    - **31%** non-IRD DDKT, **6%** IRD DDKT, **8%** LDKT
    - **20%** died, **18%** removed wait list, **15%** still on wait list
    - KDPI declined IRD – **21** vs. KDPI of accepted non-IRD – **52**
    - 5 year post-decision crude mortality was **14%** for those who accepted IRD kidney, vs. **22.5%** for those who declined

RISK OF DISEASE TRANSMISSION

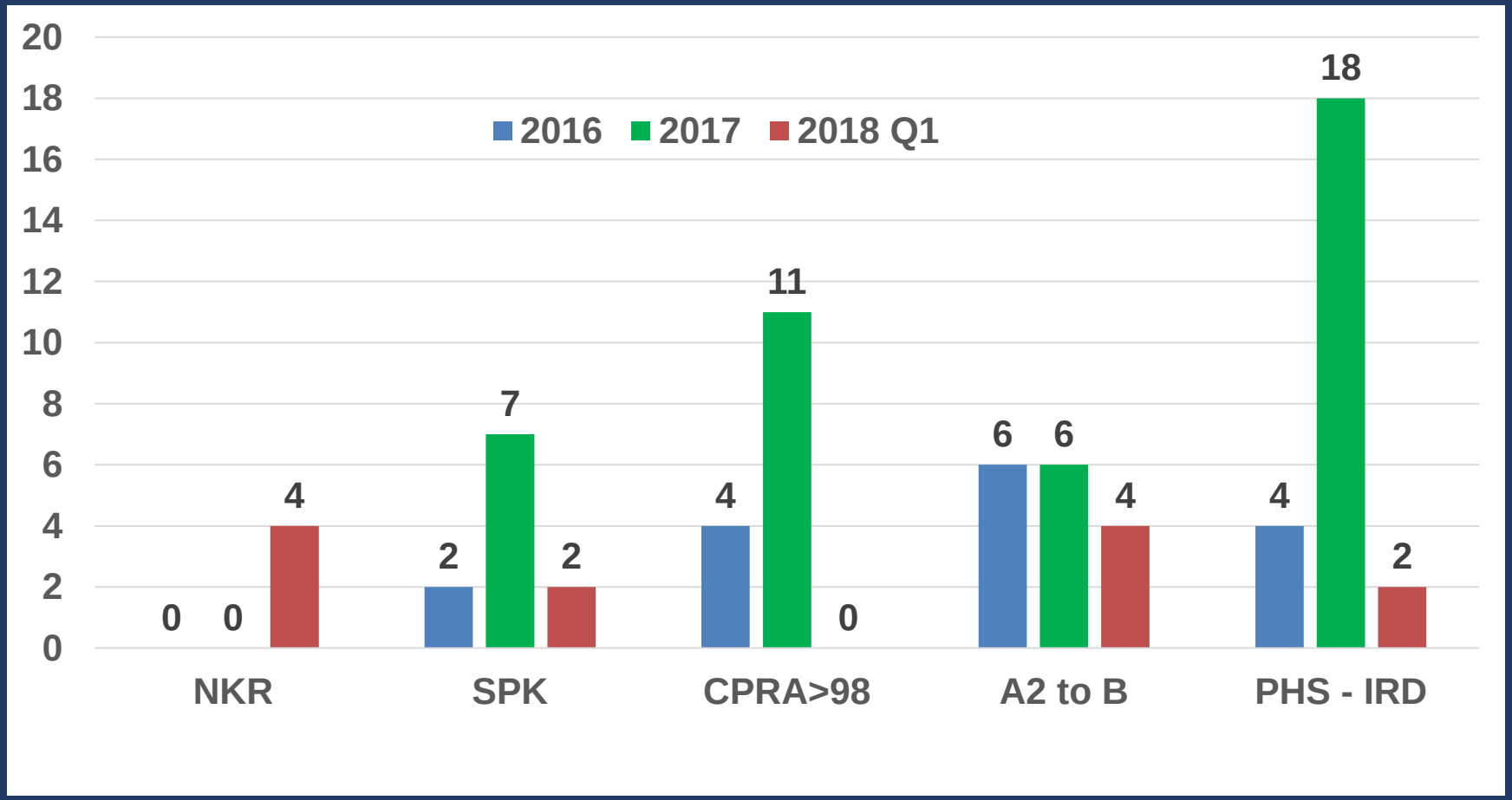
RISK BEHAVIOR	HIV RISK	%HIV RISK	HCV RISK	%HCV RISK
IV drug use	1:2000	0.05% risk	1:313	0.3% risk
Men having sex with men	1:2500	0.04% risk	1:333	0.03% risk
Commercial sex worker	1:3333	0.03% risk	1:833	0.12% risk
Incarcerated	1:10,000	0.01% risk	1:12,500	0.008% risk
Blood transfusion	1:20,000	0.005% risk	1:25,000	0.004% risk

Additional risk categories: hemodilution, poor historian, STD, sex with someone with risk factors

NATIONAL KIDNEY REGISTRY

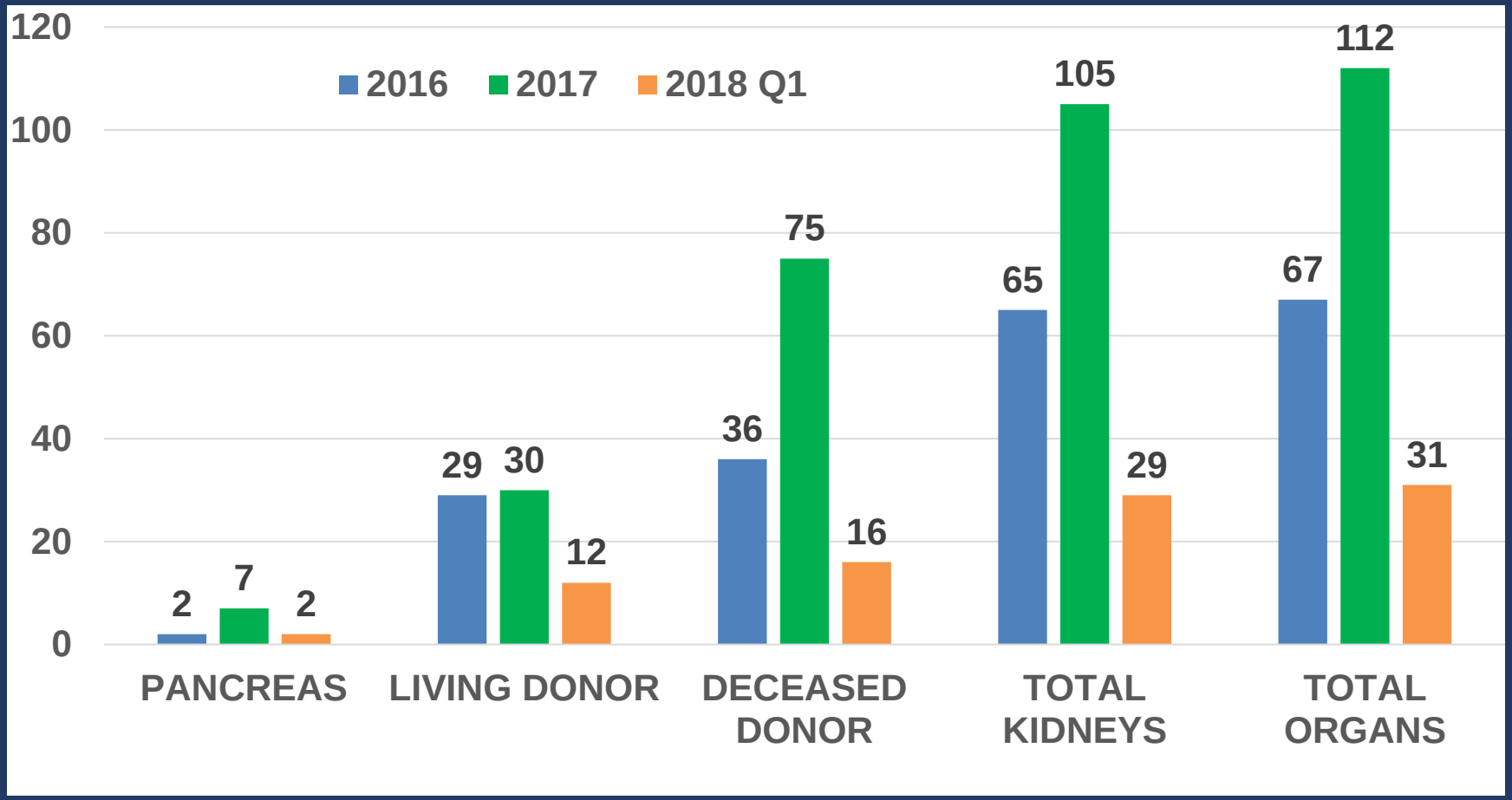
- Incompatible pairs
- Non-directed donors
- Voluntary system
- Priority for matches which result in the longest chain
- Center of origin of non-directed donors gets additional points for their patients and receives end of chain kidney for allocation to center's wait listed patients

IMPACT OF KAS CHANGES & PROGRAM INITIATIVES ON VOLUMES



PROGRAM VOLUMES

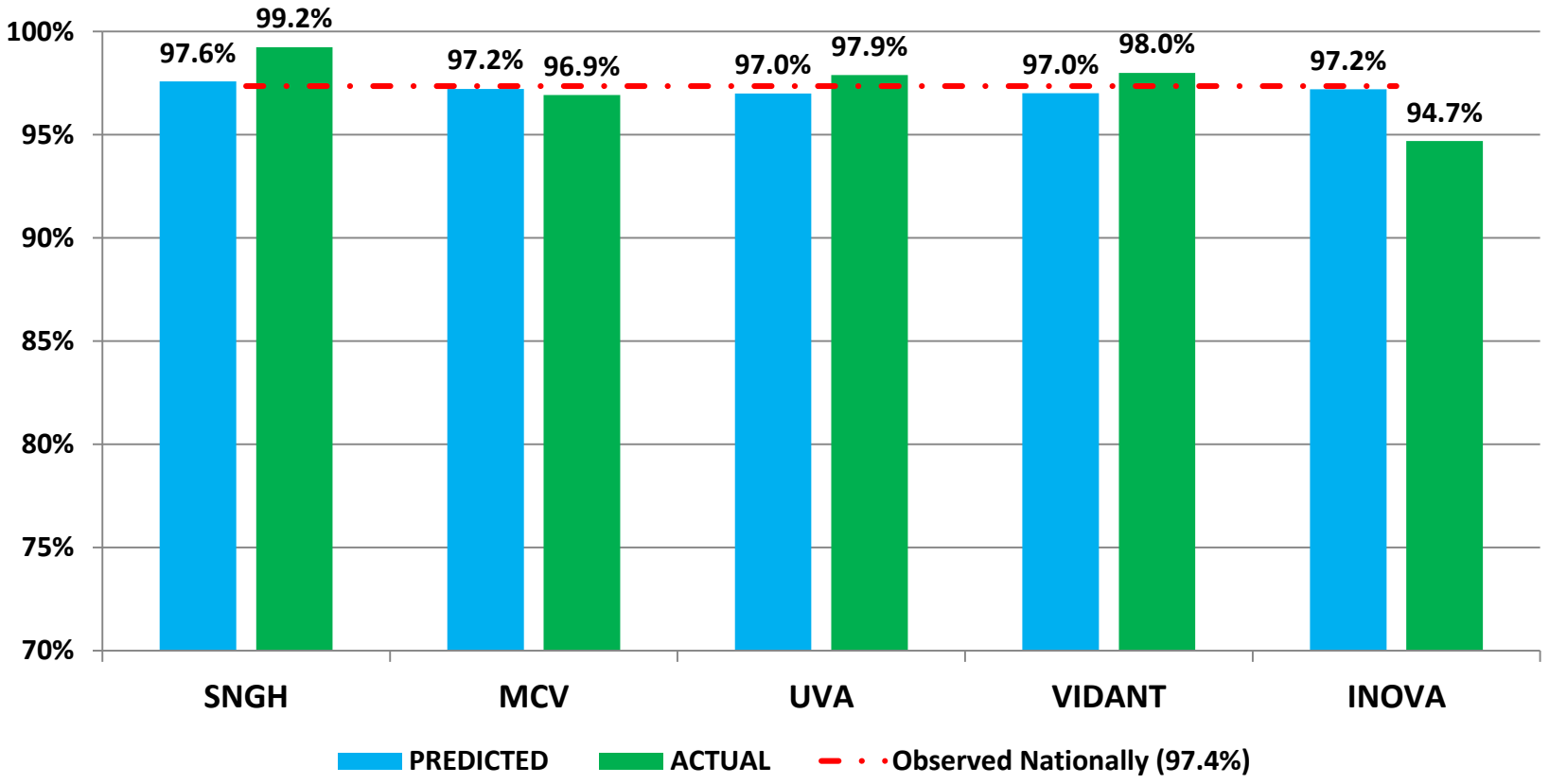
SNGH + CHKD



Scientific Registry of Transplant Recipients

Kidney Transplants 7/1/14 - 12/31/16

One-Year Patient Survival



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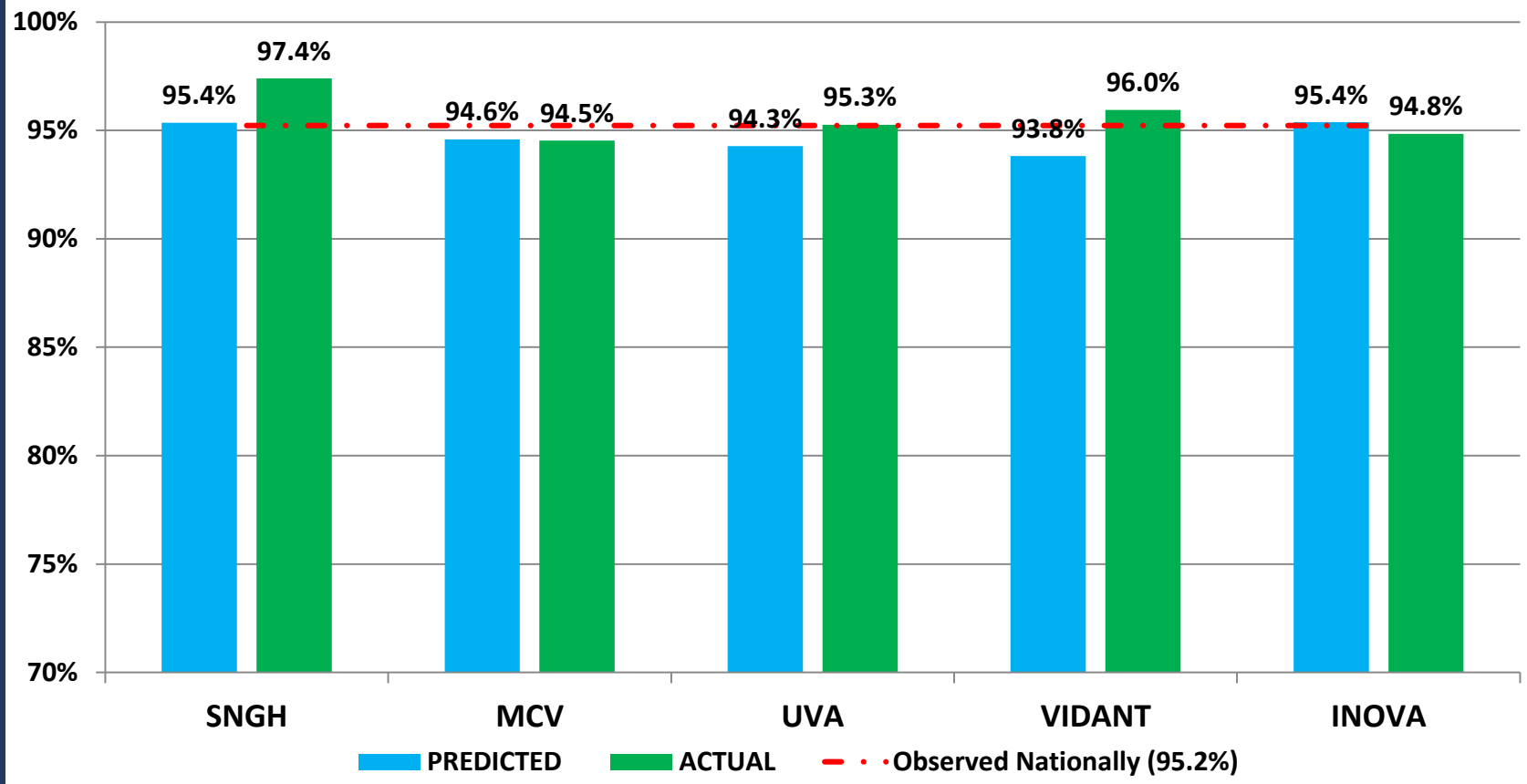
Kidney Transplants 7/1/14 - 12/31/16

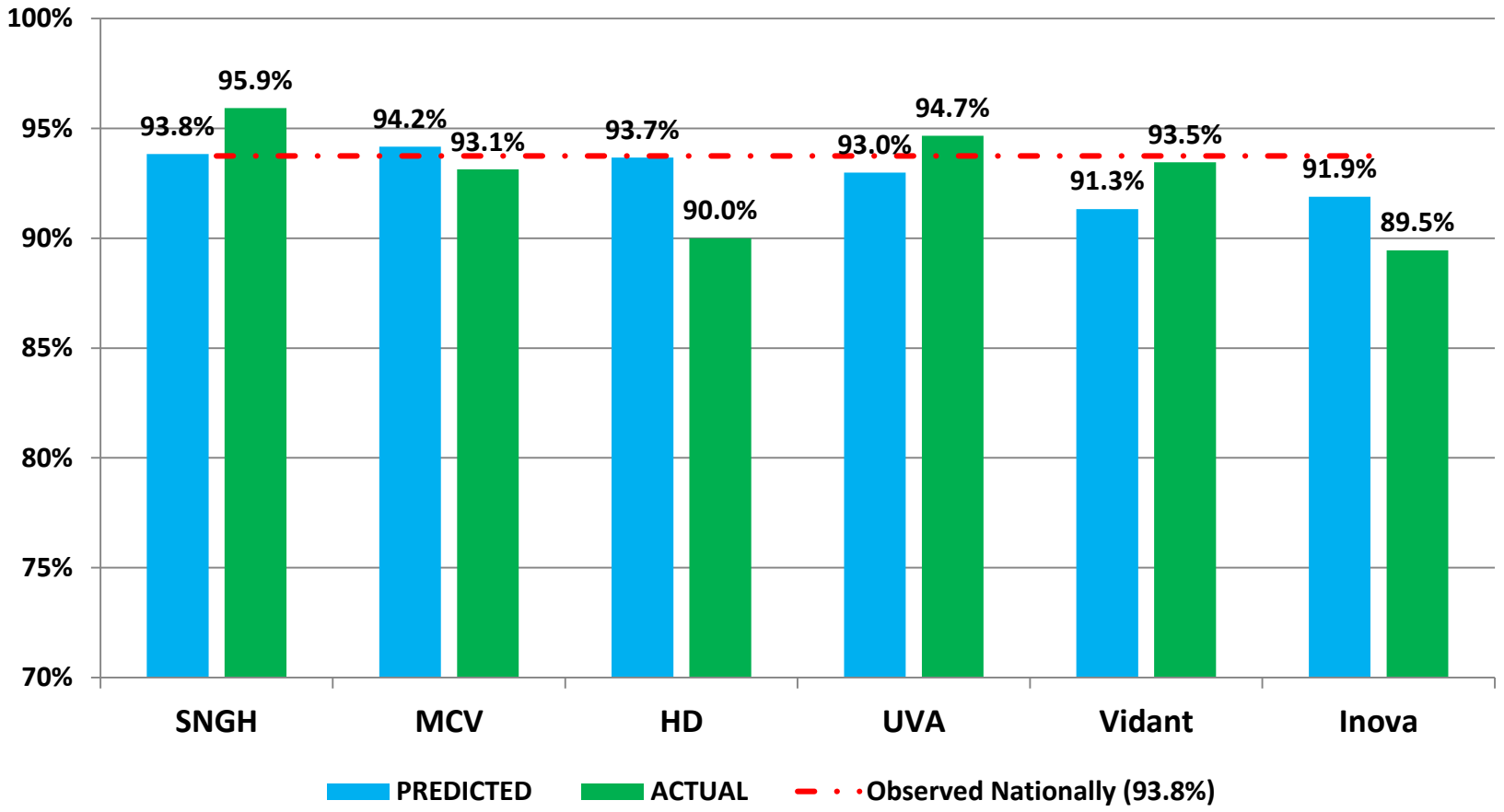
One-Year Graft Survival



Scientific Registry of Transplant Recipients

Kidney Transplants 1/1/12 - 6/30/14

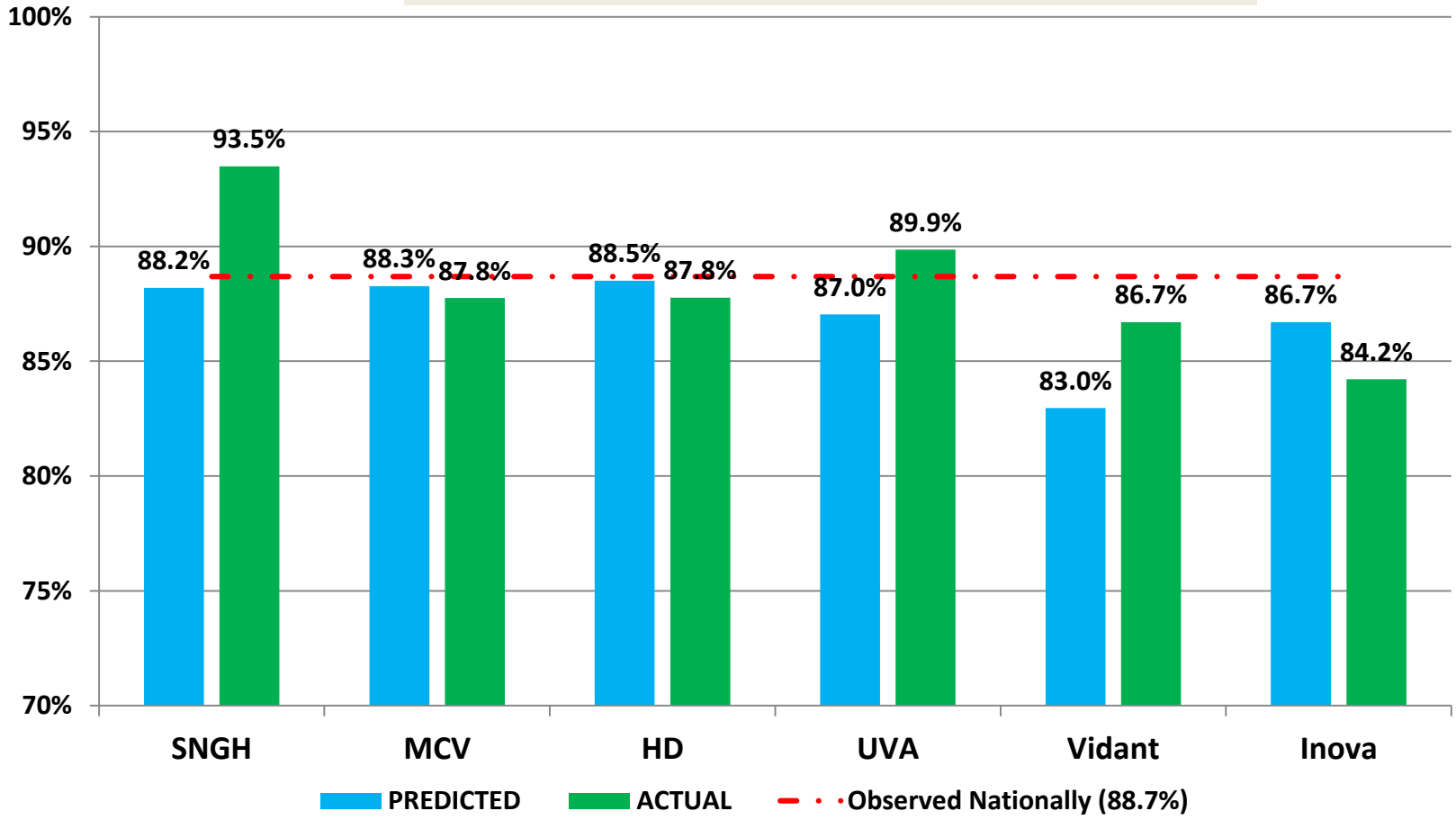
Three-Year Patient Survival



Scientific Registry of Transplant Recipients

Kidney Transplants 1/1/12 - 6/30/14

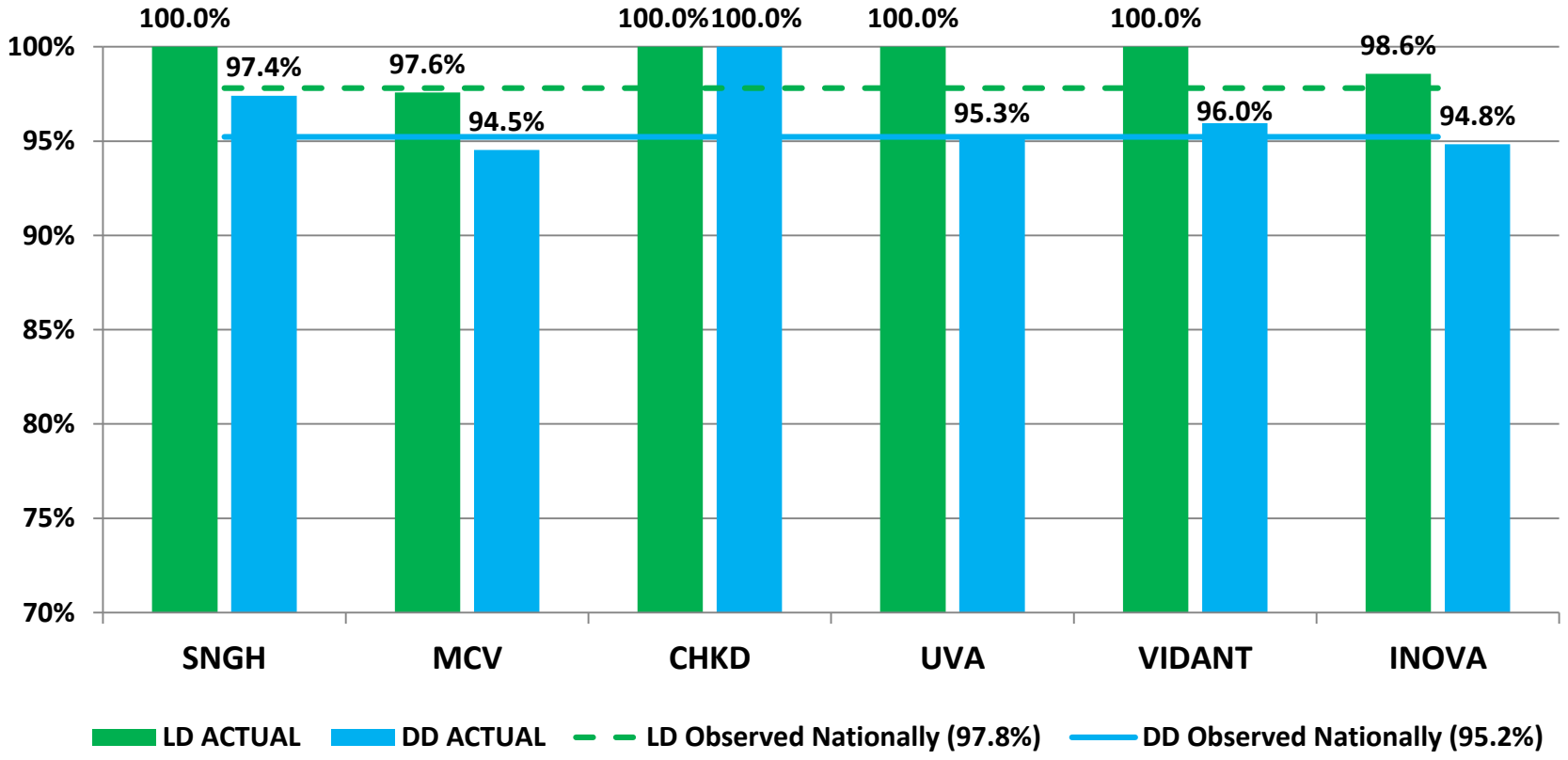
Three-Year Graft Survival



Scientific Registry of Transplant Recipients

Living vs. Deceased Donor Kidney Transplants 7/1/14 - 12/31/16

One-Year Graft Survival



Scientific Registry of Transplant Recipients

Living Donor vs. Deceased Donor Kidney Transplants 1/1/12 - 6/30/14

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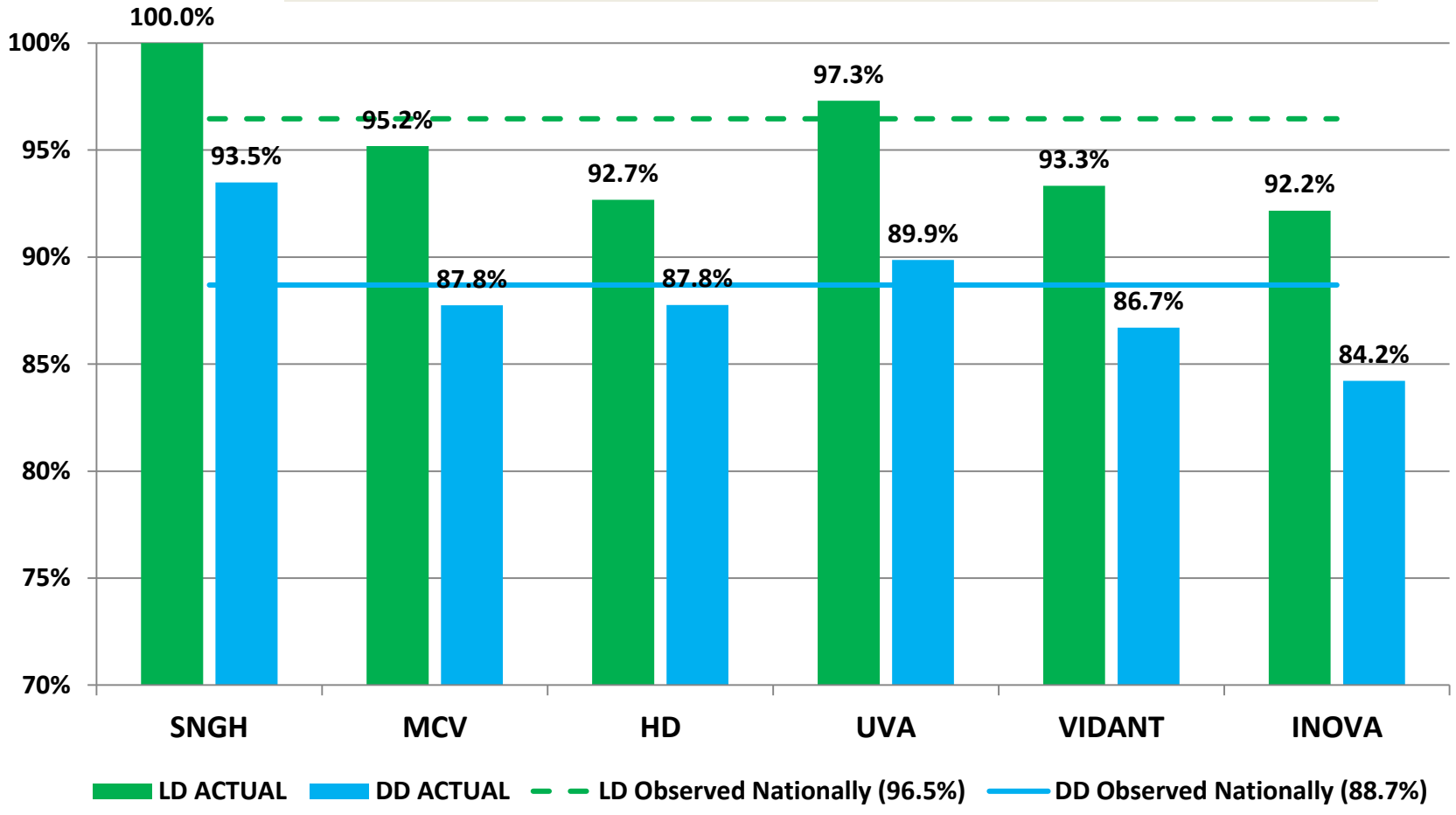

SUMMARY

- Changes in the Kidney Allocation System and Program Initiatives have dramatically increased kidney and pancreas transplant volumes at Sentara Norfolk General Hospital
- Clinical outcomes exceed our predicted results
- Patient and graft survivals are superior to those of our in-state and nearby centers as well as national averages