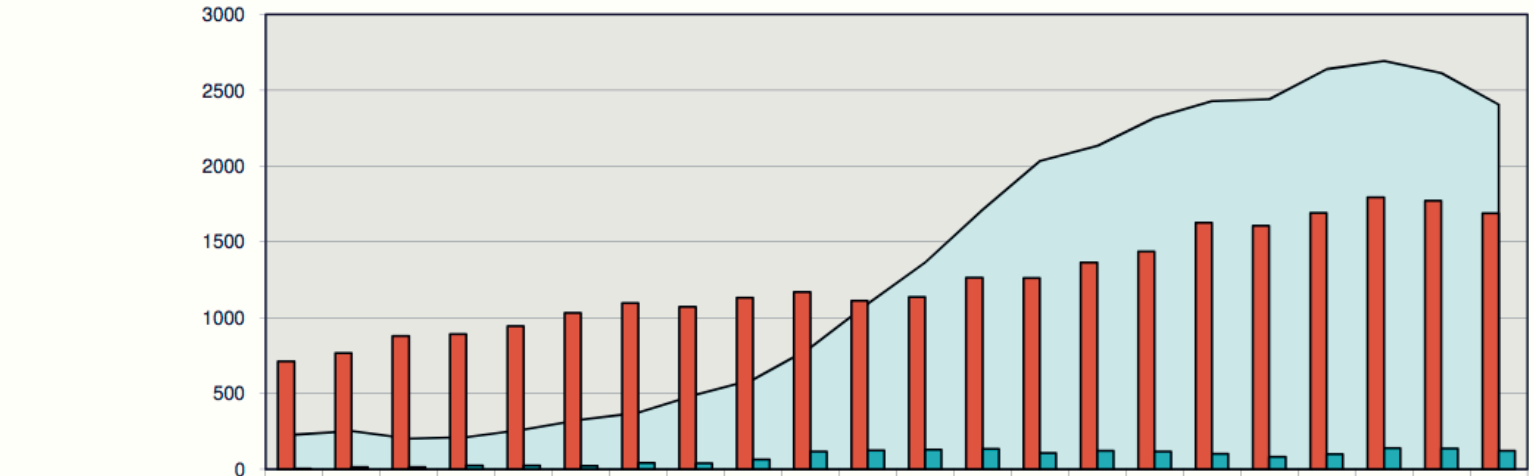
Eurotransplant liver waiting list

Figure 7.5 **Dynamics of the Eurotransplant liver waiting list and liver transplants between 1991 and 2012**



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Liver waiting list	229	253	203	212	263	327	374	492	593	803	1093	1366	1714	2035	2134	2319	2429	2442	2641	2695	2614	2406
Deceased donor transplants	710	765	878	892	944	1032	1097	1071	1132	1168	1112	1136	1264	1262	1364	1436	1625	1606	1692	1793	1770	1689
Living donor transplants*	5	15	14	24	25	22	41	38	64	116	124	129	133	106	121	116	101	82	99	138	135	121

CONTROLLED DCD DONATION IS PART OF THE SOLUTION TO LIVER GRAFT SHORTAGE, REGARDLESS OF DONOR AGE

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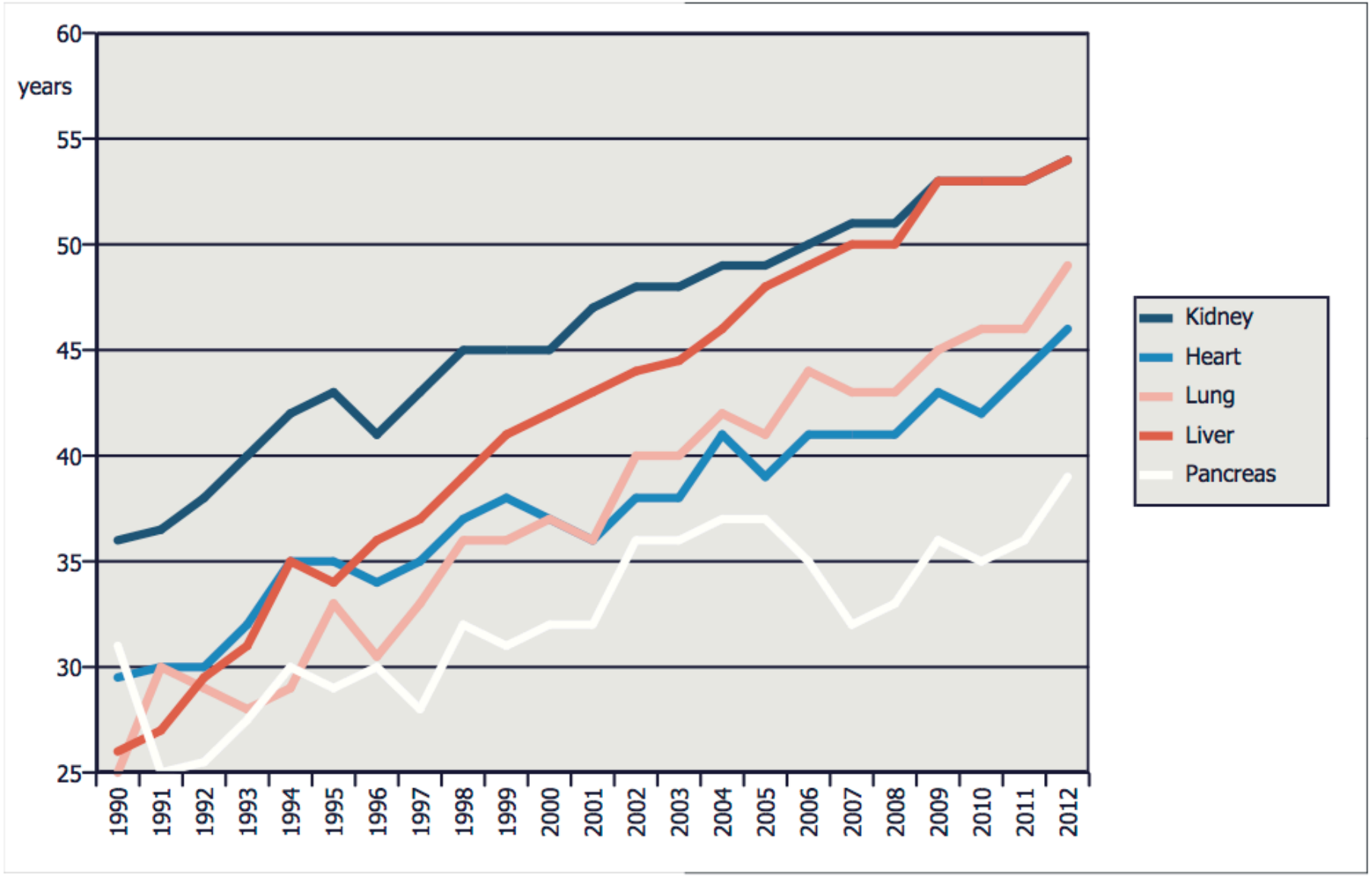
Belgian Week of Gastroenterology asbl / vzw

XXVIth BelgianWeek of Gastroenterology

Liver graft shortage: solutions?

- No missing of cadaveric brain dead donors
  - education of the population
  - education of the medical teams
  - marginal donors (or Extended Criteria Donors)
    - age
    - steatosis
    - tumors, infectious diseases…
- Splits or Living Donors LT
- NHBD or DCD

Figure 4.2 Median age of deceased donors in Eurotransplant, used for a transplant



DCD in liver transplantation

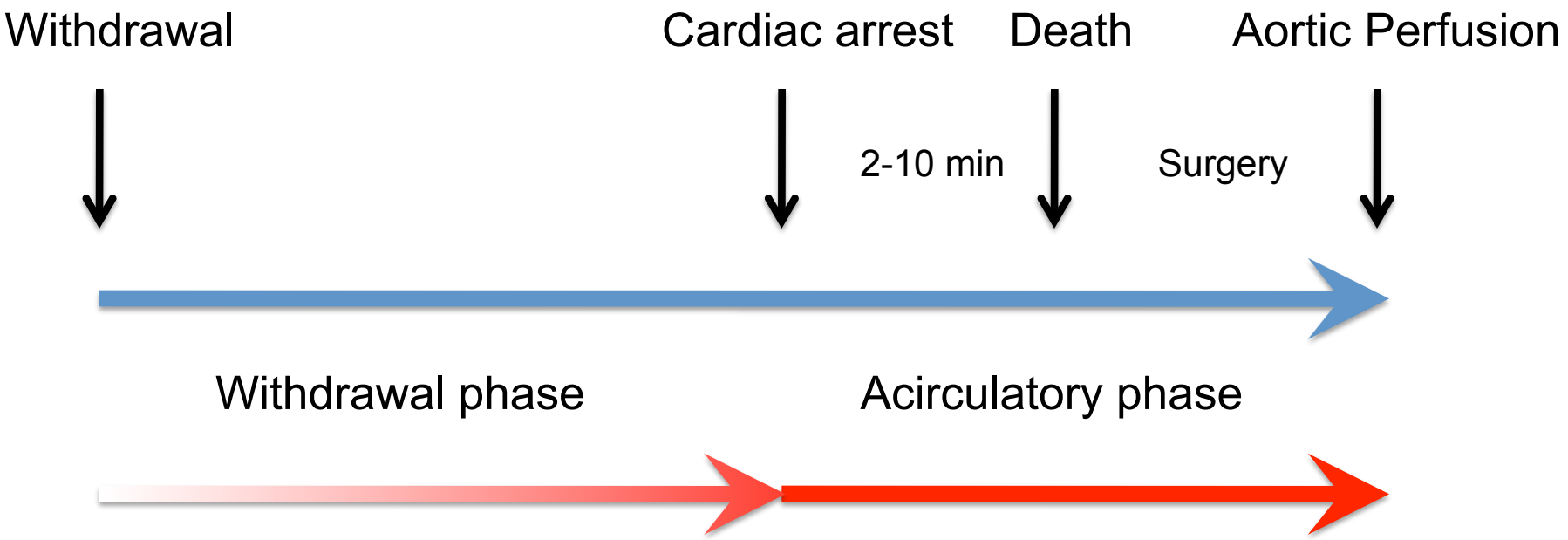
- Increased risk of PNF
- Increased risk of non-anastomotic stenoses (NAS)

- Decreased graft and patient survival
- Increase risk of retransplantation

- Interest?
- Net gain of liver grafts?

- DCD donor age limit: 50-55 years

Controlled DCD: WI



Arterial pressure < 60, 50, 35 mmHg ?
pO2 < 70, 65, 35% ?

DCD-LT in Liège

- Active procurement & Tx programs
- Mainly local donors
- Procurement WI < 30 min
- Minimizing cold ischemia

- Recipients: - low chance to receive a graft
  - cancer (HCC, neuroendocrine)

Methods

- 70 DCD-LT between 2003 & 2012
- No criteria of age for DCD donors
- Minimum follow-up: 1 year
- Median follow-up: 43 months (12-127)
- Divided in 3 groups:
    - ≤ 55 years
    - 56-69 years
    - ≥ 70 years

Recipients' characteristics

	Group A (n=32)	Group B (n=20)	Group C (n=18)	*P*
Age (years)	58 (51.2-63)	59.5 (50.7-64)	58.5 (51.7-64.2)	0.929
Female (n/%)	3/9.3	4/20	3/16.6	0.536
Lab MELD	14.5 (11.2-17.7)	12.5 (9.2-17.7)	17 (14-25.2) #	0.032
Liver disease (n)				
HCC on cirrhotic liver	11	11	3	
Other cancers	2	1	1	
Cirrhosis without cancer	17	8	14	
reTx for HAT	2	0	0	

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Age (years)	44 (35.5-50.7)	62.5 (59-66.7)	73 (70-77)	<0.0001
DRI	1.8 (1.5-2.1)	2.3 (2.1-2.4)	2.6 (2.5-2.7)	<0.0001
Female (n/%)	10/31.2	3/15	6/33.3	0.347
CPR (n/%)	18/56.2	12/60	8/44.4	0.601
Causes of death (*n*)				
Anoxia	17	12	8	
Trauma	7	1	3	
Cerebrovascular Accident	7	7	7	
Other (euthanasia)	1	0	0	

Donors' characteristics

	Group A (n=32)	Group B (n=20)	Group C (n=18)	*P*
BMI (kg/m²)	25 (23-29)	25 (24-29)	26 (23-28)	0.740
Intensive care stay (days)	5 (4-8)	6.5 (5-8.7)	6.5 (3.7-9.2)	0.541
Urinary output (mL/day)	2 100 (1 550-3 200)	2 100 (1 550-3 250)	1 775 (1 234-2 060)	0.096
Pressors (n/%)	12/37.5	3/15	5/27.7	0.216
Na (mmol/L)	145 (139-149)	143 (139-147)	141 (136-148)	0.422
Total bilirubin (mg/dL)	0.38 (0.3-0.66)	0.3 (0.3-0.67)	0.44 (0.3-0.82)	0.275
AST (U/L)	39.5 (24.7-59.7)	38 (23.5-69)	36 (26-69)	0.993
GGT (U/L)	40 (27-118)	67 (39-118)	39 (24-92)	0.362

Procurement and Transplantation Characteristics

	Group A (n=32)	Group B (n=20)	Group C (n=18)	*P*
HTK (n/%)	30/93.7	15/75	17/94.4	0.078
Heparin use (n/%)	30/93.7	20/100	17/94.4	0.530
DWIT (min)	20 (15-22)	21 (17-28)	19 (15.5-26.7)	0.382
Withdrawal phase (min)	10 (7-12)	13 (8-19)	9 (5.7-17.2)	0.300
Acirculatory phase (min)	9 (8-10)	8 (7.2-10.7)	9 (7-10.2)	0.603
Hepatectomy time (min)	23 (20.7-27.5)	24.5 (17.2-30.7)	22.5 (18.2-23.5)	0.206
CIT (min)	236 (212-287)	245 (204-323)	210 (187-270)	0.395
Suture time (min)	41 (36-47)	42 (38-46)	39 (33-44)	0.339
Total ischemia (min)	299 (274-348)	306 (280-382)	277 (246-332)	0.277

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	Group A (n=32)	Group B (n=20)	Group C (n=18)	*P*
Peak AST (U/L)	1 163 (715-2 693)	1 416 (587-2 825)	1 068 (699-3 078)	0.990
Peak total bilirubin (mg/dL)	2.7 (1.9-5.3)	3.1 (1.2-6.3)	4.5 (2.6-6.5)	0.289
PNF (n)	0	0	0	
HAT (n)	1	0	0	
Biliary Complications (n)	5	4	5	0.587
Fistula	0	1	2	
AS	5	2	3	
NAS	0	1	0	
Graft loss due to NAS	0	0	0	

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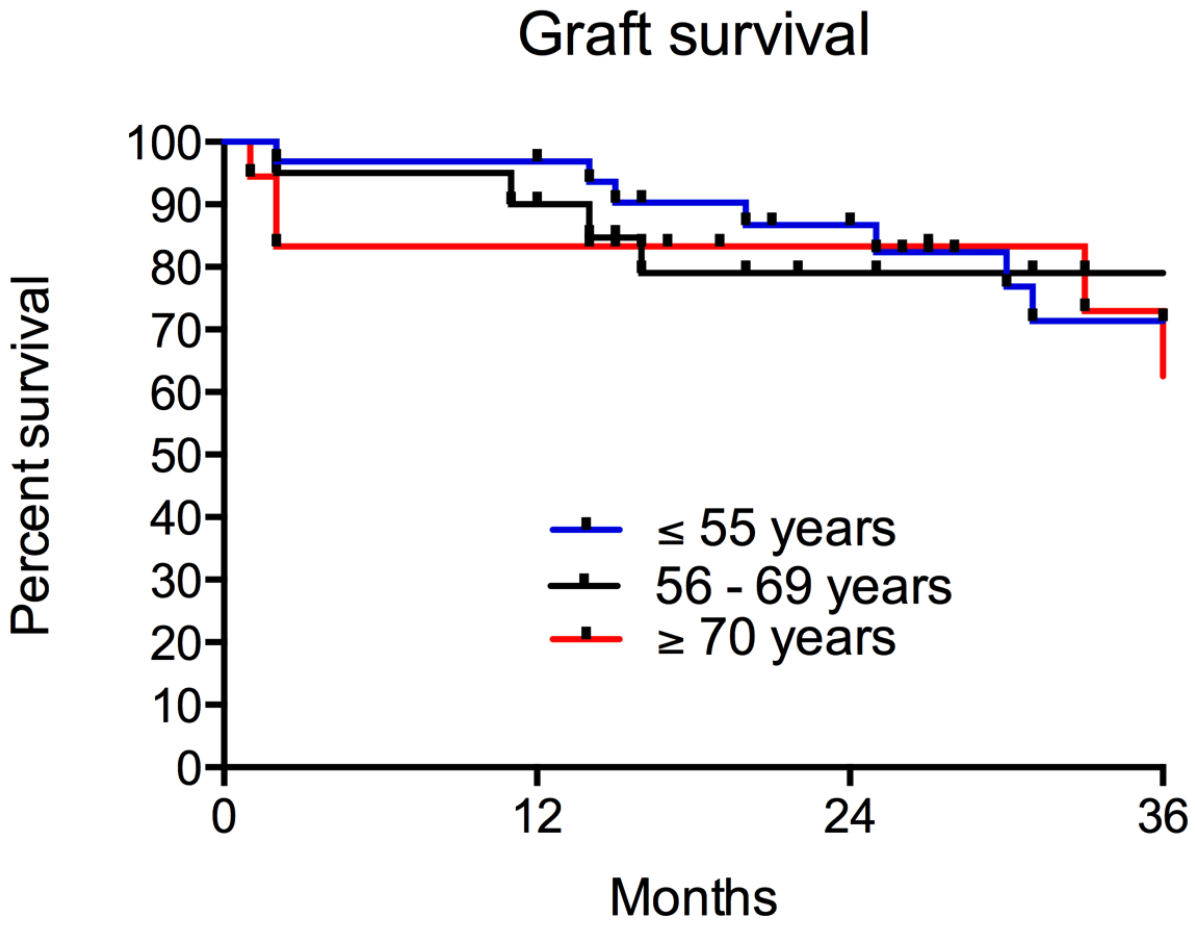
NAS	0	1	0	
Graft loss due to NAS	0	0	0	

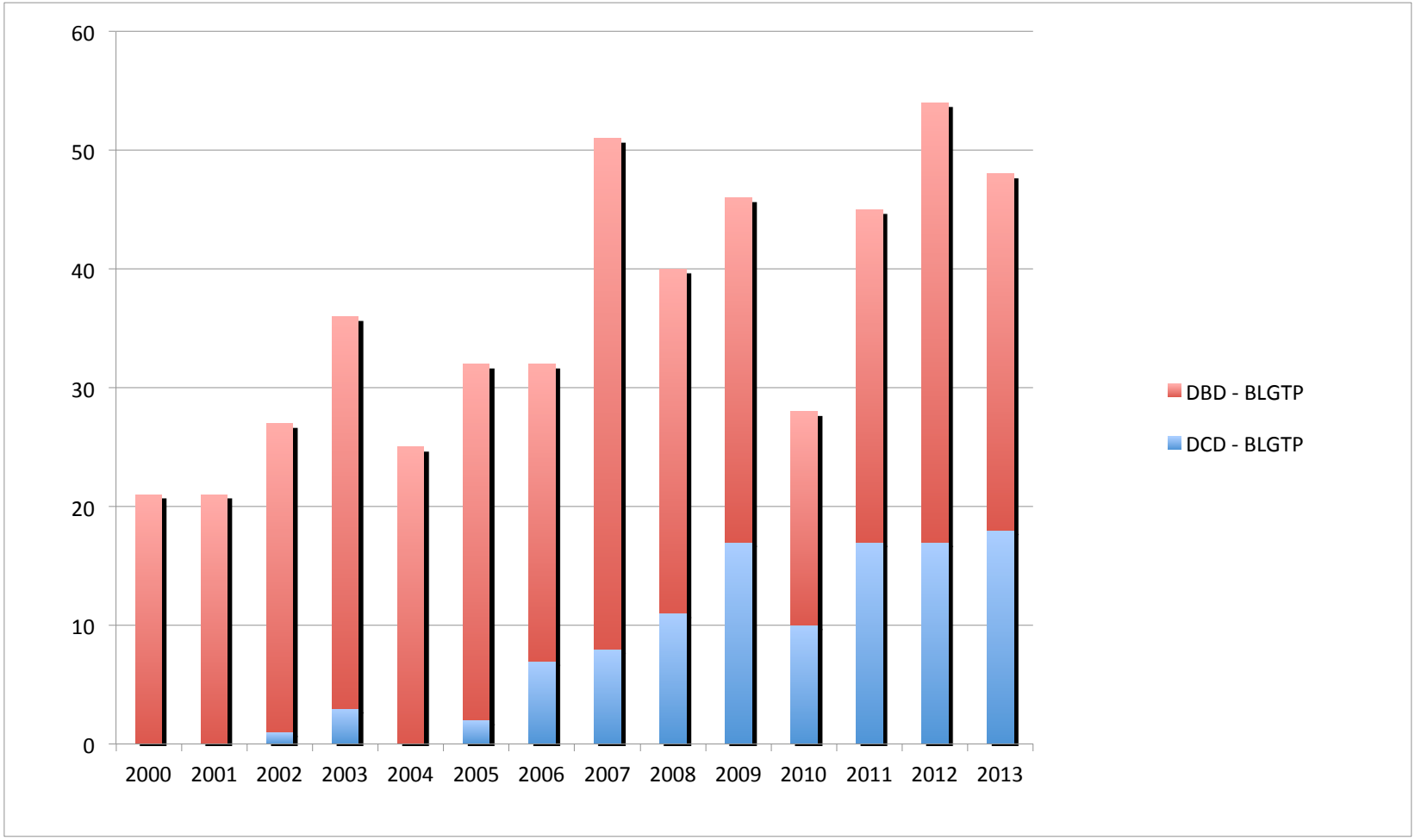


No. at risk:				
≤ 55 years	32	31	22	12
56-69 years	20	18	13	9
≥ 70 years	18	17	10	8

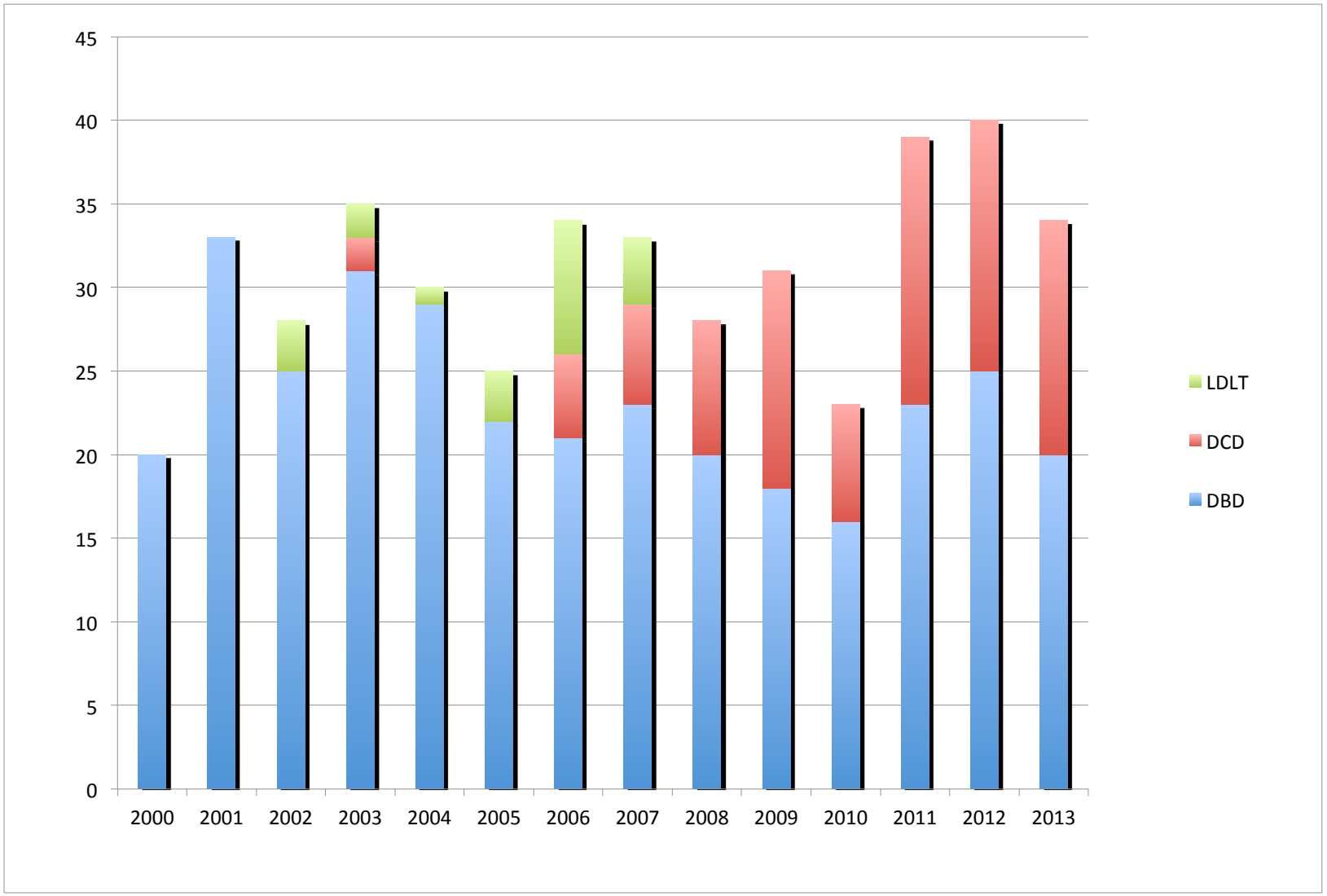
Discussion

- DCD may provides good liver grafts, if WI and CI are kept short
- Donor age > 55 years is not per se a contra-indication to DCD liver donation

DCD procurement activity



LT activity


45
40
35
30
25
20
15
10
5
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
LDLT
DCD
DBD

Conclusions

- DCD procurement increased donor pool and available grafts
- No PNF and no graft loss due to NAS
- Age > 55 y not a contra-indication for DCD donation
- Aged DCD may be part of solution of organ donor shortage