

Table S1. Donor characteristics

	Continent			Type of transplantation		
	North America (n=697)	JDRF Sites (n=320)	<i>p</i> value	ITA (n= 856)	IAK/SIK (n=161)	<i>p</i> value
Age (yrs)	42.7 ± 11.9	45.4 ± 13.3		42.9 ± 12	44.9 ± 13.4	
Donor Gender —% (n)						
Female donor only	37.4 (n=261)	36.9 (n=118)		36.9 (n=316)	39.1 (n=63)	
Mixed-gender multiple-donor infusion	3.6 (n=25)	4.1 (n=13)		3.3 (n=28)	6.2 (n=10)	
Male donor only	59 (n=411)	59.1 (n=189)		59.8 (n=512)	54.7 (n=88)	
Body weight (kg)	91.2 ± 21.6	79.3 ± 14.6	<0.001	88.3 ± 20.3	83.9 ± 21.1	<0.05
Height (cm)	173.8 ± 10.1	172.5 ± 9		173.5 ± 10	172.7 ± 8.5	
BMI (kg/m²)	30.2 ± 6.6	26.7 ± 4.8	<0.001	29.3 ± 6.2	28.1 ± 6.8	<0.05
Ethnicity —% (n)						
Non-hispanic	88.4 (n=410)	100 (n=128)		91.1 (n=469)	89.6 (n=69)	
Mixed-ethnicity multiple-donor infusion	2.4 (n=11)	-		1.6 (n=8)	3.9 (n=3)	
Hispanic	9.3 (n=43)	-		7.4 (n=38)	6.5 (n=5)	
Donor race —% (n)						
White	87.6 (n=436)	98.5 (n=128)		89.3 (n=494)	93.3 (n=70)	
Cause of death —% (n)						<0.05
Trauma	34.5 (n=223)	30.4 (n=85)		34.1 (n=268)	28.6 (n=40)	
Cerebrovascular/stroke	56.6 (n=366)	62.5 (n=175)		56.8 (n=447)	67.1 (n=94)	
History —% (n)						
Hypertension	36.7 (n=224)	31.3 (n=70)		35.8 (n=256)	31.7 (n=38)	
Alcohol use	21.5 (n=119)	11.4 (n=26)		18.3 (n=121)	20.3 (n=24)	
Laboratory results						
Creatinine (mg/dl)	1.1 ± 0.6	1.1 ± 0.7		1.1 ± 0.7	1 ± 0.4	
BUN (mg/dl)	15.4 ± 8.8	14.9 ± 8.9		15.3 ± 8.9	15.1 ± 8.7	
Bilirubin (mg/dl)	0.9 ± 0.7	0.8 ± 0.6		0.9 ± 0.7	0.8 ± 0.6	
AST (U/L)	74.7 ± 218.3	80.9 ± 162.8		73.7 ± 198.6	88.9 ± 215.9	
ALT (U/L)	62.7 ± 173.6	65.1 ± 143.4		61.6 ± 165	71.8 ± 166.1	
Lipase (U/L)	1.2 ± 2.1	0.7 ± 0.8		1.1 ± 2	1.1 ± 1.5	
Amylase (U/L)	2.9 ± 5.8	2 ± 2.9		2.7 ± 5.4	2.3 ± 3.6	
Pre-insulin glucose (mg/dl)	124.2 ± 37.5	130.8 ± 40.5		125.4 ± 38.2	126.5 ± 38.4	
Maximum blood glucose (mg/dl)	240.5 ± 84.7	201.1 ± 72.4	<0.001	228.4 ± 82.5	243.4 ± 88.5	
Max-Min donor glucose (mg/dl)	119.3 ± 86.6	74.6 ± 73.2		109.5 ± 85.6	117.2 ± 88	
HbA1c (%)	5.5 ± 0.5	5.5 ± 0.4		5.5 ± 0.5	5.3 ± 0.4	<0.05
Treatment at last admission —% (n)						
Vasopressors	97.2 (n=581)	95.5 (n=235)		96.4 (n=695)	98.4 (n=121)	
Steroids	70.6 (n=279)	23.3 (n=30)	<0.05	61 (n=268)	48.2 (n=41)	<0.05
Insulin	48.2 (n=284)	22.4 (n=37)	<0.05	44.5 (n=291)	30 (n=30)	<0.01
Transfusion pre-recovery	35.3 (n=198)	25.6 (n=46)		33.6 (n=211)	29.2 (n=33)	
Transfusion intra-operatively	6.4 (n=32)	6.7 (n=9)		6.3 (n=34)	7.5 (n=7)	

Table S2. Pancreas preservation and recovery

	Continent			Type of transplantation		
	North America (n=697)	JDRF Sites (n=320)	<i>p</i> value	ITA (n= 856)	IAK/SIK (n=161)	<i>p</i> value
Procurement/transplant centers related —% (n)	56.9 (n=340)	70.8 (n=211)	<0.001	60.3 (n=444)	66.9 (n=107)	
Pancreas Preservation —% (n)			<0.001			
UW only	45.6 (n=318)	35 (n=112)		41 (n=351)	49.1 (n=79)	
TLM only	23 (n=160)	14.7 (n=47)		21.4 (n=183)	14.9 (n=24)	
HTK only	10.2 (n=71)	-		8.3 (n=71)	-	
Celsior	-	7.2 (n=23)		1.9 (n=16)	4.3 (n=7)	
UW+TLM	4.2 (n=29)	3.1 (n=10)		4.1 (n=35)	2.5 (n=4)	
Combinations/Other	2.7 (n=19)	9.4 (n=30)		4.7 (n=40)	5.6 (n=9)	
Missing/Unknown	14.3 (n=100)	30.6 (n=98)		18.7 (n=160)	23.6 (n=38)	
Time (hours)						
Admission to brain death	49.6 ± 63.5	52.8 ± 52		49.8 ± 63.1	53 ± 50.9	
Death to cross-clamp	20.4 ± 8.3	13.1 ± 5.5	<0.001	18.9 ± 8.2	15.7 ± 8.7	<0.001
Cross clamp to pancreas recovery	0.7 ± 1.3	1 ± 0.5	<0.01	0.8 ± 1.2	0.9 ± 0.4	
Death to pancreas recovery	21.2 ± 8.8	13.7 ± 5.5	<0.01	19.3 ± 8.4	16.3 ± 9.1	<0.05
Cold ischemia time	7.5 ± 3.5	8.1 ± 10.3		7.7 ± 5.3	7.3 ± 9.3	
Recovery to transplant	33.8 ± 20.6	33 ± 20.4		33.6 ± 20.3	33.2 ± 21.7	
Death to transplant	55.1 ± 23.5	47.2 ± 23.1	<0.001	53 ± 23	52.4 ± 26.8	

Table S3. Islet processing

	Continent			Type of transplantation		
	North America (n=697)	JDRF Sites (n=320)	<i>p</i> value	ITA (n= 856)	IAK/SIK (n=161)	<i>p</i> value
Digestion Enzyme —% (n)			<0.001			<0.001
Collagenase						
Liberase HI alone	61.5 (n=429)	49.7 (n=159)		57.6 (n=493)	59 (n=95)	
Serva NB1 alone	6.5 (n=45)	15.6 (n=50)		8.9 (n=76)	11.8 (n=19)	
ServaGMPColl+ServaNeutProtease	4.7 (n=33)	4.7# (n=15)		5.6 (n=48)	-	
CollagenaseP alone	0.1 (n=1)	4.4 (n=14)		1.6 (n=14)	0.6 (n=1)	
Liberase MTF	0.3 (n=2)	0.3 (n=1)		0.4 (n=3)	-	
Liberase-collagenase blend	6.9 (n=48)	-		5.6 (n=48)	-	
Other/other combination	5.7 (n=40)	6.3 (n=20)		5.1 (n=44)	9.9 (n=16)	
Not yet reported	14.2 (n=99)	19.1 (n=61)		15.2 (n=130)	18.6 (n=30)	
Thermolysin (in addition to other)	10.3 (n=62)	0.4 (n=1)	<0.001	7.6 (n=55)	6 (n=8)	
Pulmozyme (in addition to other)	46.1 (n=277)	43.7 (n=114)		46.4 (n=338)	9.6 (n=53)	
Purification Gradient Type —% (n)						<0.01
Discontinuous	4.9 (n=28)	7.8 (n=21)		4.8 (n=34)	11.2 (n=15)	
Continuous	84.8 (n=485)	81.7 (n=219)		84 (n=593)	82.8 (n=111)	
Both	10.1 (n=58)	10.4 (n=28)		11 (n=78)	6 (n=8)	
Islet Culture (hours)						
Culture time (0-max)	18.2 ± 19.2	16.2 ± 16.1		17.6 ± 18.3	18.5 ± 19.5	
Islets cultured >=6 hrs —% (n)	24.5 (n=171)	30.6(n=98)	<0.001	27 (n=231)	23.6 (n=38)	

Table S4. Islet product characteristics

	Continent			Type of transplantation		
	North America (n=697)	JDRF Sites (n=320)	<i>p</i> value	ITA (n= 856)	IAK/SIK (n=161)	<i>p</i> value
Islet Mass						
Total IEQs (x10 ³) at time of particle count	446.9 ± 162.7	360.1 ± 128.2	<0.001	421.5 ± 153.4	383.8 ± 173.3	<0.05
IEQ/islet particle ratio	1.2 ± 0.5	1 ± 0.6	<0.001	1.2 ± 0.6	1 ± 0.4	
IEQs infused (x10 ³)	456.2 ± 161.5	361.8 ± 125	<0.001	432.3 ± 159.2	395.8 ± 142.5	<0.05
Packed Cell Volume Infused (mL)	3.9 ± 2.3	3.9 ± 2.1		3.9 ± 2.2	4.4 ± 2.6	<0.05
Islet Quality						
Purity (%)	65.9 ± 16.5	53.4 ± 19.1	<0.001	62.6 ± 18	58 ± 19.4	<0.01
Embedded islets (%)	15.5 ± 18.7	16.3 ± 18.8		15.7 ± 19	15.4 ± 15.3	<0.01
Stimulation Index	3.5 ± 3.5	2.6 ± 2.8	<0.01	3.4 ± 3.5	2.4 ± 1.8	
Islet viability (%)	91.2 ± 6.5	91 ± 5		91 ± 6.3	92 ± 5.2	
Total Donor Beta Cells (x10 ⁶)	239.5 ± 199.7	173.3 ± 106.3		228.3 ± 192.7	273.8 ± 172.9	
Total Donor Beta Cells (x10 ⁶) /kg recipient	3.6 ± 3.1	3 ± 2.2		3.5 ± 3	5 ± 3.4	
Total insulin content of islets (mg)	3.2 ± 2.1	4.3 ± 2.6	<0.05	3.5 ± 2.3	3 ± 1.9	
Total endotoxin infused (EU)	29 ± 61.4	2.7 ± 11.9 ***		23 ± 57	20.3 ± 40.5	
Total endotoxin (EU) /kg recipient	0.4 ± 0.9	0 ± 0.1 ***		0.4 ± 0.8	0.3 ± 0.7	

Table S5. Islet infusion

	Continent			Type of transplantation		
	North America (n=697)	JDRF Sites (n=320)	<i>p</i> value	ITA (n= 856)	IAK/SIK (n=161)	<i>p</i> value
Recipient infusion sequence # —% (n)			<0.05			
1 st	54.7 (n=381)	48.8 (n=156)		53 (n= 454)	51.6 (n=83)	
2 nd	35.9 (n=250)	37.5 (n=120)		36.2 (n=310)	37.3 (n=60)	
3 rd	8.9 (n=62)	11.9 (n=38)		9.9 (n=85)	9.3 (n=15)	
4th -6th	0.6 (n=4)	1.9 (n=6)		0.8 (n=6)	1.9 (n=3)	
Total donors/infusion —% (n)			<0.05			
1	92 (n=641)	86.3 (n=276)		90.7 (n=776)	87.6 (n= 141)	
2	7.5 (n=52)	13.4 (n=43)		9 (n=77)	11.2 (n=18)	
3	0.6 (n=4)	0.3 (n=1)		0.4 (n=3)	1.2 (n=2)	
Any positive crossmatch —% (n)	4.8 (n=18)	0.8 (n=2)		3.5 (n=18)	1.6 (n=2)	

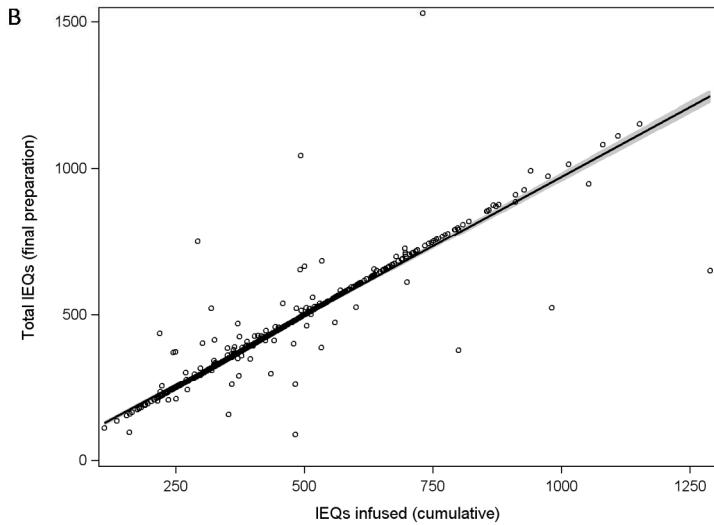
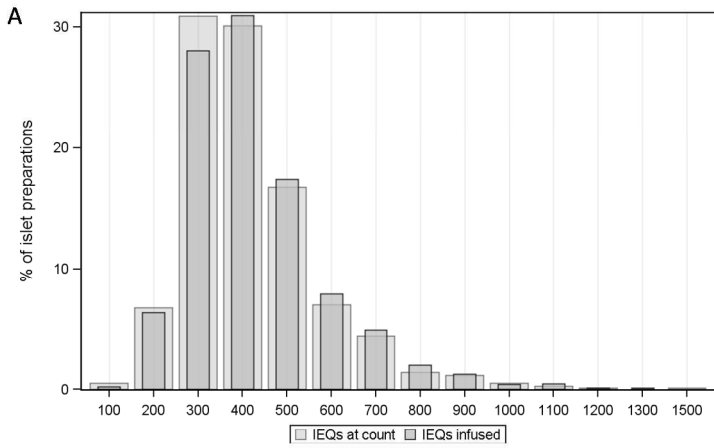


Figure S1. Distribution of islet yields processed and infused. Percent distribution of total islet yield (A) and the correlation between those at count and infusion (B) are shown. Data are based on 1,017 clinical products in NIDDK-sponsored North American and JDRF European and Australian CITR sites participating in the Collaborative Islet Transplant Registry, 1999-2010. Linear regression ($r=0.93$, $p<0.0001$) is shown (B).