

**Table S1: Codes for exclusion of potential healthy nondonor controls for matching**

Diagnosis or procedure	Database	Type of code	Codes						
Dialysis	OHIP	feecodes	"R849" "G323" "G336" "G325" "G326" "G860" "G862" "G863" "G865" "G866" "R825" "R826" "R827" "R833" "R840" "R851" "G330" "G331" "G332" "G861" "G864" "R852" "G082" "G083" "G085" "G090" "G091" "G092" "G093" "G094" "G095" "G096" "G294" "G295" "G333" "H540" "H740"						
		ICD-9	"V451" "V560" "V568" "36104"						
	CIHI	ICD-10	"T824" "Y602" "Y612" "Y622" "Y841" "Z49" "Z992" "N180" "E1022" "E1023" "E1122" "E1123" "E1322" "E1323" "E1422" "E1423"						
		procedure codes	"5127" "5195" "6698"						
		intervention codes	"7SC59QD" "1KY76" "1PZ21"						
Hypertension	OHIP	diagnosis codes	"401" "402" "403" "404" "405"						
	CIHI	ICD-9	"401" "402" "403" "404" "405"						
		ICD-10	"I10" "I11" "I12" "I13" "I15"						
Cancer	OHIP	diagnosis codes	"140" "141" "142" "143" "144" "145" "146" "147" "148" "149" "150" "151" "152" "153" "154" "155" "156" "157" "158" "159" "160" "161" "162" "163" "164" "165" "170" "171" "172" "173" "174" "175" "179" "180" "181" "182" "183" "184" "185" "186" "187" "188" "189" "190" "191" "192" "193" "194" "195" "196" "197" "198" "199" "200" "201" "202" "203" "204" "205" "206" "207" "208"						
			ICD-9	"V10" "140" "141" "142" "143" "144" "145" "146" "147" "148" "149" "150" "151" "152" "153" "154" "155" "156" "157" "158" "159" "160" "161" "162" "163" "164" "165" "170" "171" "172" "173" "174" "175" "176" "179" "180" "181" "182" "183" "184" "185" "186" "187" "188" "189" "190" "191" "192" "193" "194" "195" "196" "197" "198" "199" "200" "201" "202" "203" "204" "205" "206" "207" "208" "209" "210" "211" "212" "213" "214" "215" "216" "217" "218" "219" "220" "221" "222" "223" "224" "225" "226" "227" "228" "229" "230" "231" "232" "233" "234"					
				CIHI	ICD-10	"80003" "80006" "80013" "80023" "80033" "80043" "80102" "80103" "80106" "80113" "80123" "80203" "80213" "83123" "87202" "87203" "959" "965" "966" "967" "968" "969" "970" "971" "980" "982" "984" "985" "986" "987" "988" "989" "990" "991" "993" "C00" "C01" "C02" "C03" "C04" "C05" "C06" "C07" "C08" "C09" "C10" "C11" "C12" "C13" "C14" "C15" "C16" "C17" "C18" "C19" "C20" "C21" "C22" "C23" "C24" "C25" "C26" "C30" "C31" "C32" "C33" "C34" "C37" "C38" "C39" "C40" "C41" "C43" "C44" "C45" "C46" "C47" "C48" "C49" "C50" "C51" "C52" "C53" "C54" "C55" "C56" "C57" "C58" "C60" "C61" "C62" "C63" "C64" "C65" "C66" "C67" "C68" "C69" "C70" "C71" "C72" "C73" "C74" "C75" "C76" "C77" "C78" "C79" "C80" "C81" "C82" "C83" "C84" "C85" "C90" "C91" "C92" "C93" "C94" "C95" "C96" "C97" "D00" "D01" "D02" "D03" "D04" "D05" "D06" "D07" "D09"			
						OHIP	feecodes (procedure)	"Z434" "R742" "R743" "N220" "R792" "R802" "R816" "R817" "R783" "R784" "R785" "R814" "R787" "R780" "R797" "R804"	
								CIHI	procedural codes
	ICD-10	"I"							
	intervention codes	"4802" "4803" "4809" "481" "5024" "5034" "5125"							
	intervention codes	"1IJ50" "1IJ76" "1KA76" "1KG76"							

Human Immunodeficiency Virus	OHIP	diagnosis codes	"042" "043" "044"
		ICD-9	"042" "043" "044" "V08" "176"
	CIHI	ICD-10	"B24" "C46" "Z21",
Nephrectomy	OHIP	feecodes	"E762" "S435" "E769" "S434" "E771" "Z631" "G347" "G348" "G412" "G408" "G409"
		ICD-9	"V420" "99681"
		ICD-10	"T861" "N165" "Z940"
	CIHI	procedural codes intervention codes	"6743" "675" "1PC85"
Renal biopsy	OHIP	feecodes	"Z601",
		procedural codes	"6781" "6782"
	CIHI	intervention codes	"1PC87"
Gout	OHIP	diagnosis codes	"274"
		ICD-9	"274"
	CIHI	ICD-10	"M10"
Pulmonary disease		ICD-9	"46" "47" "48" "49" "50" "51"
	CIHI	ICD-10	"J"
Liver disease		ICD-9	"57"
	CIHI	ICD-10	"K7"
Systemic lupus erythematosus		ICD-9	"7100"
	CIHI	ICD-10	"M32"
Rheumatoid arthritis		ICD-9	"714"
	CIHI	ICD-10	"M05" "M06"
Genitourinary disease		ICD-9	"58" "59" "60" "61" "62"
	CIHI	ICD-10	"N"
Alcoholism		ICD-9	"303" "3050"
	CIHI	ICD-10	"E24" "E512" "F10" "G312" "G621" "G721" "I426" "K292" "K70" "K860" "T510" "X45" "X65" "Y15" "Y573" "Z502" "Z714" "Z721"

OHIP - Ontario Health Insurance Plan; CIHI - Canadian Institute for Health Information (same-day surgery and discharge abstract database); ICD - International Statistical Classification of Diseases and Related Health Problems medical classification (ICD-9 before 2002)

**Table S2: Healthcare utilization patterns of the most common procedures determined from OHIP billing codes**

**Quantity utilized by living donors who started the evaluation as early as March 31, 2000 until 1-year follow-up postdonation, entire cohort**

Procedure	Evaluation		Perioperative		Follow-up	
	N (%)	mean (SD) <sup>a</sup>	N	mean (SD) <sup>a</sup>	N	mean (SD) <sup>a</sup>
<b>Number of donors<sup>b</sup></b>	<b>1256 (100%)</b>	<b>–</b>	<b>1240 (99%)</b>	<b>–</b>	<b>1223 (97%)</b>	<b>–</b>
Nephrology consult	1256 (100%)	1.91 (1.74)	483 (40%)	4.17 (3.98)	935 (76%)	2.03 (1.70)
Surgery/urology consult	1256 (100%)	1.40 (1.00)	842 (70%)	2.80 (2.15)	790 (65%)	1.28 (0.76)
Chest x-ray	1210 (96%)	1.40 (0.70)	164 (14%)	2.24 (2.19)	119 (10%)	3.18 (2.71)
Electrocardiogram	1177 (94%)	1.61 (0.98)	88 (7%)	1.69 (1.08)	149 (12%)	3.38 (2.72)
Computed tomography	1163 (93%)	1.08 (0.30)	33 (3%)	2.76 (1.12)	50 (4%)	2.26 (1.10)
Biochemistry test (bloodwork)	1038 (83%)	3.32 (2.20)	118 (10%)	5.11 (6.96)	921 (75%)	11.7 (11.3)
Cytology	1061 (84%)	3.34 (2.18)	228 (19%)	1.67 (1.43)	967 (79%)	3.51 (2.82)
Urinalysis	954 (76%)	2.55 (2.53)	103 (9%)	1.67 (0.96)	640 (52%)	2.47 (2.18)
Intermediate assessment	890 (71%)	3.44 (3.36)	434 (36%)	1.37 (0.67)	817 (67%)	3.25 (2.93)
Ultrasound	875 (70%)	1.42 (0.79)	91 (8%)	2.47 (1.70)	242 (20%)	4.28 (2.83)
Nuclear medicine	805 (64%)	1.12 (0.37)	0 (0%)	–	<6 (<1%)	–
General consult	646 (51%)	2.19 (2.09)	159 (13%)	1.20 (0.43)	524 (43%)	1.94 (1.70)
Echocardiogram	578 (46%)	1.09 (0.31)	<6 (<1%)	–	14 (1%)	4.36 (1.08)
Cardiology evaluation	527 (42%)	1.89 (1.43)	47 (4%)	1.53 (1.69)	186 (15%)	1.81 (1.33)
Stress test	498 (40%)	1.11 (0.33)	<6 (<1%)	–	13 (1%)	3.54 (2.96)
Counseling/psychiatry	486 (39%)	2.42 (4.81)	60 (5%)	1.23 (0.62)	193 (16%)	3.39 (6.97)
Cancer screen (pap)	401 (32%)	1.64 (0.64)	<6 (<1%)	–	235 (19%)	2.62 (1.18)
Immunohematology test	397 (32%)	1.07 (0.27)	0 (0%)	–	15 (1%)	2.73 (1.49)
Cancer screen (breast)	243 (19%)	1.23 (0.52)	<6 (<1%)	–	118 (10%)	2.57 (1.60)
Pulmonary function test	224 (18%)	1.09 (0.38)	<6 (<1%)	–	32 (3%)	6.66 (6.18)
Cancer screen (colorectal)	207 (16%)	1.51 (0.93)	<6 (<1%)	–	57 (5%)	1.18 (0.54)
General surgery consult	111 (9%)	1.22 (0.68)	52 (4%)	2.02 (1.32)	55 (4%)	1.67 (1.50)
Cystoscopy	78 (6%)	1.03 (0.16)	<6 (<1%)	–	10 (1%)	1.10 (0.32)
Magnetic resonance	67 (5%)	1.15 (0.40)	<6 (<1%)	–	29 (2%)	2.62 (2.27)
Gastroenterology consult	67 (5%)	1.28 (0.57)	29 (2%)	1.21 (0.49)	69 (6%)	3.96 (2.36)
Renal biopsy	54 (4%)	1.02 (0.14)	0 (0%)	–	0 (0%)	–
Pathology consult	39 (3%)	1.05 (0.22)	<6 (<1%)	–	57 (5%)	2.05 (0.93)
Pyelogram	31 (2%)	1.03 (0.18)	0 (0%)	–	0 (0%)	–
Hematology consult	30 (2%)	1.57 (1.04)	<6 (<1%)	–	<6 (<1%)	–
Neurology consult	27 (2%)	1.37 (0.84)	<6 (<1%)	–	15 (1%)	1.60 (1.55)
Plastic surgery consult	26 (2%)	2.15 (1.32)	<6 (<1%)	–	20 (2%)	2.40 (1.93)
Respirology consult	21 (2%)	1.57 (0.93)	<6 (<1%)	–	35 (3%)	1.60 (1.26)
Endocrinology consult	13 (1%)	1.08 (0.28)	0 (0%)	0 (–)	<6 (<1%)	–
Musculoskeletal consult	10 (1%)	1.10 (0.32)	0 (0%)	0 (–)	<6 (<1%)	–
Rheumatology consult	8 (1%)	1.38 (0.52)	0 (0%)	0 (–)	<6 (<1%)	–

costs presented only for more common procedures (present in >10% of donors)

<sup>a</sup> mean (standard deviation, SD) number of procedures per donor, restricted to those who had the procedure during the specified period of coverage.

<sup>b</sup> restricted to donors with an OHIP billing code in the specified period

<sup>c</sup> estimated (not measured) number of hours spend with a donor

## Table S3 Healthcare utilization patterns

### Evaluation period

Common consultations: Several donors had more than one nephrology [mean 1.93 (SD 1.74)] and surgery [mean 1.40 (SD 1.00)] consultation. Other common consultations included intermediate assessments (a detailed donor examination performed by a physician in a family practice or pediatric services), which were utilized by 71% of donors during the evaluation period, general consultations (51%), cardiology consultations (42%), a psychosocial assessment (39%), and a general surgery consultation (9%).

Preliminary and diagnostic tests: Chest x-ray, electrocardiography and computed tomography (CT) exams were used by at least 93% of donors. With respect to laboratory tests, cytology, biochemistry and urinalysis was used by 76-83% of donors. A nuclear medicine exam was used by 64% of donors. CT and nuclear renograms were repeated infrequently: mean 1.08 (SD 0.30) and 1.12 (SD 0.37) exams per donor.

Other diagnostic tests and consultations: Cancer screening was used by 32% of donors for a pap smear, 19% for a breast exam, and 16% for a colorectal exam. Other procedures, including echocardiograms (46%), stress tests (40%), pulmonary function tests (18%), cystoscopy (6%), magnetic resonance (MR) exams (5%), renal biopsy (4%), and pyelography (2%), were also considered important parts of the donor evaluation and were infrequently used (mean 1.02-1.15 per donor). Other consultations, including gastroenterology (5%), pathology (3%), neurology (2%), hematology (2%), plastic surgery (2%), respirology (2%), endocrinology (1%), musculoskeletal (1%), and rheumatology (1%) were also retained since they may be necessary components of the evaluation (eg, incidental findings, clearance from the perspective of preexisting conditions).

## **Postdonation follow-up period**

During the follow-up period, some healthcare procedures were utilized by most donors, including nephrology consultation (76%), surgery consultation (65%), blood and urine tests (52-79%), and intermediate assessments (67%). For small subgroups of donors, the frequency of certain healthcare procedures more than doubled after donation. For example, a mean 3.18 chest x-rays were conducted for 10% of donors during follow-up period compared with a mean 1.40 images among 96% of donors during the evaluation period. Similar observations were found for electrocardiograms, CT scans, renal ultrasound, echocardiograms, stress tests, immunohematological tests, breast cancer screening, pulmonary function tests, MR scans, and gastroenterology consults.

**Table S4: Average cost of common procedures calculated from billing codes in Apr 1 2010 – Mar 31 2014**

Procedure**	Cost per unit for selected procedures (2017 Canadian dollars)*		
	N	Median (IQR)	Mean (SD)
<b>Number of donors</b>	<b>589</b>	<b>–</b>	<b>–</b>
donation	511	\$2,167 (\$1,663-\$2,839)	\$2,168 (\$835)
Nephrology consult	739	\$165 (\$83-\$170)	\$137 (\$60)
Surgery/urology consult	642	\$87 (\$85-\$161)	\$102 (\$47)
Chest x-ray	541	\$36 (\$34-\$36)	\$35 (\$4)
Electrocardiogram	649	\$18 (\$12-\$18)	\$20 (\$21)
Computed tomography	436	\$149 (\$126-\$197)	\$172 (\$57)
Biochemistry test (bloodwork)	1069	\$25 (\$12-\$76)	\$51 (\$53)
Cytology	1139	\$8 (\$8-\$8)	\$8 (\$4)
Urinalysis	748	\$3 (\$3-\$4)	\$3 (\$1)
Intermediate assessment	593	\$38 (\$37-\$40)	\$39 (\$10)
Ultrasound	348	\$89 (\$84-\$149)	\$120 (\$58)
Nuclear medicine	392	\$253 (\$203-\$272)	\$220 (\$95)
General consult	261	\$25 (\$23-\$32)	\$38 (\$29)
Echocardiogram	214	\$254 (\$244-\$278)	\$247 (\$53)
Cardiology evaluation	304	\$41 (\$10-\$88)	\$72 (\$82)
Stress test	198	\$112 (\$107-\$115)	\$158 (\$138)
Counseling/psychiatry	262	\$85 (\$67-\$205)	\$128 (\$69)
Cancer screen (pap)	212	\$20 (\$20-\$49)	\$42 (\$40)
Immunochemistry test	146	\$11 (\$11-\$11)	\$13 (\$4)
Cancer screen (breast)	86	\$71 (\$67-\$77)	\$76 (\$29)
Pulmonary function test	70	\$4 (\$4-\$4)	\$33 (\$64)
Cancer screen (colorectal)	73	\$44 (\$14-\$285)	\$150 (\$178)
General surgery consult	43	\$98 (\$95-\$101)	\$94 (\$19)
Cystoscopy	27	\$77 (\$75-\$78)	\$84 (\$28)
Magnetic resonance	28	\$274 (\$246-\$329)	\$267 (\$82)
Gastroenterology consult	36	\$169 (\$133-\$208)	\$187 (\$110)
Renal biopsy	21	\$156 (\$152-\$156)	\$155 (\$6)
Pathology consult	7	\$83 (\$71-\$138)	\$100 (\$33)
Pyelogram	<6	–	–
Hematology consult	13	\$165 (\$162-\$168)	\$140 (\$53)
Neurology consult	13	\$186 (\$79-\$193)	\$144 (\$64)
Plastic surgery consult	15	\$29 (\$28-\$86)	\$44 (\$26)
Respirology consult	13	\$165 (\$85-\$166)	\$141 (\$75)
Endocrinology consult	<6	–	–
Musculoskeletal consult	<6	–	–
Rheumatology consult	9	\$126 (\$37-\$168)	\$115 (\$62)

costs presented only for more common procedures (present in >10% of donors), estimated from costs accrued from April 1, 2010 through March 31, 2014

IQR – interquartile range; SD – standard deviation

\*costs calculated as of 2010 and later to account for any changes in cost over time

\*\*the cost for a given procedure was calculated by summing the costs of all relevant Ontario Health Insurance Plan billings performed on the same day (see reference 21 appendix)