

Landscape of organ donation and transplantation activity in Canada

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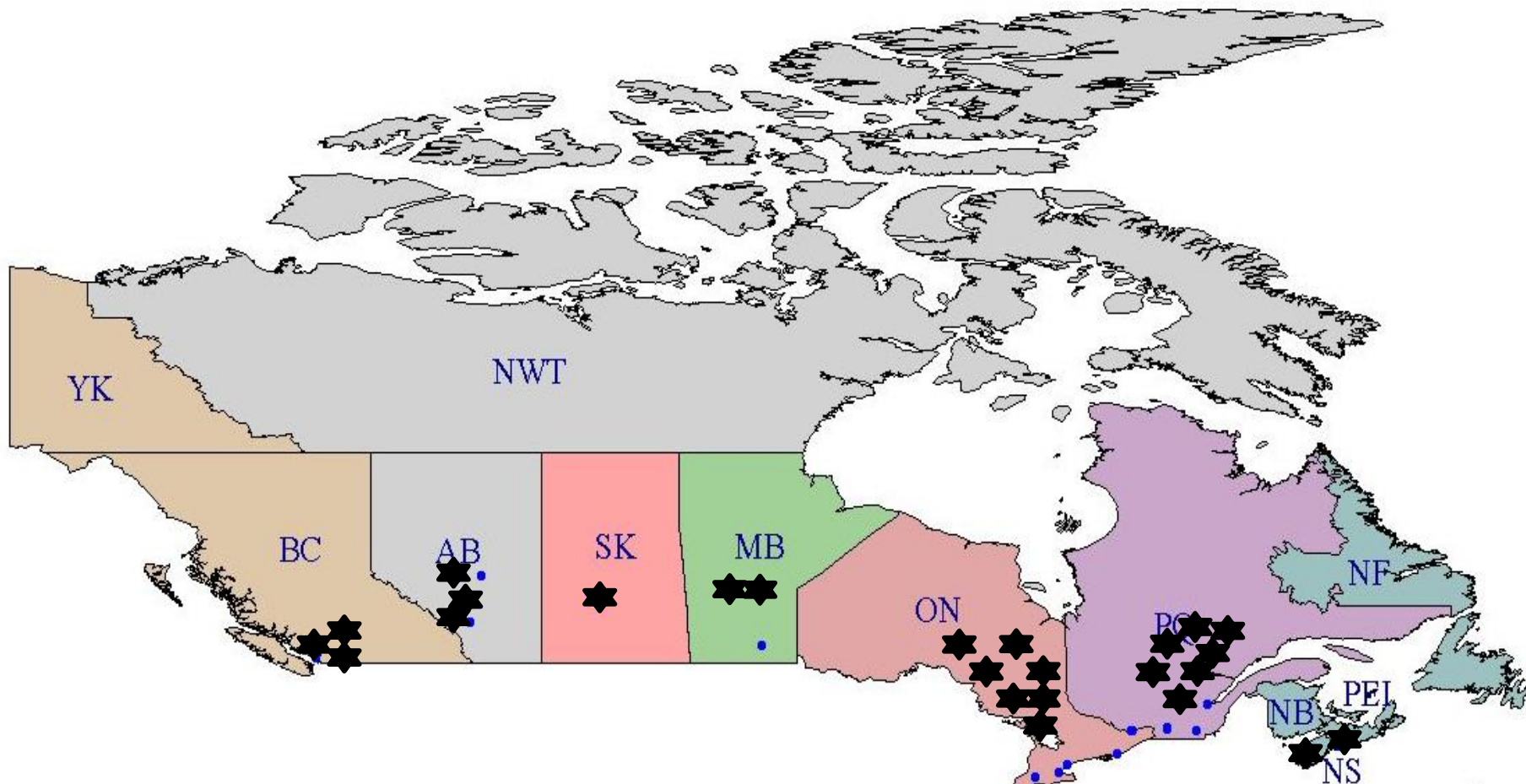
2017 CST Fellows Symposium, September 25, 2017

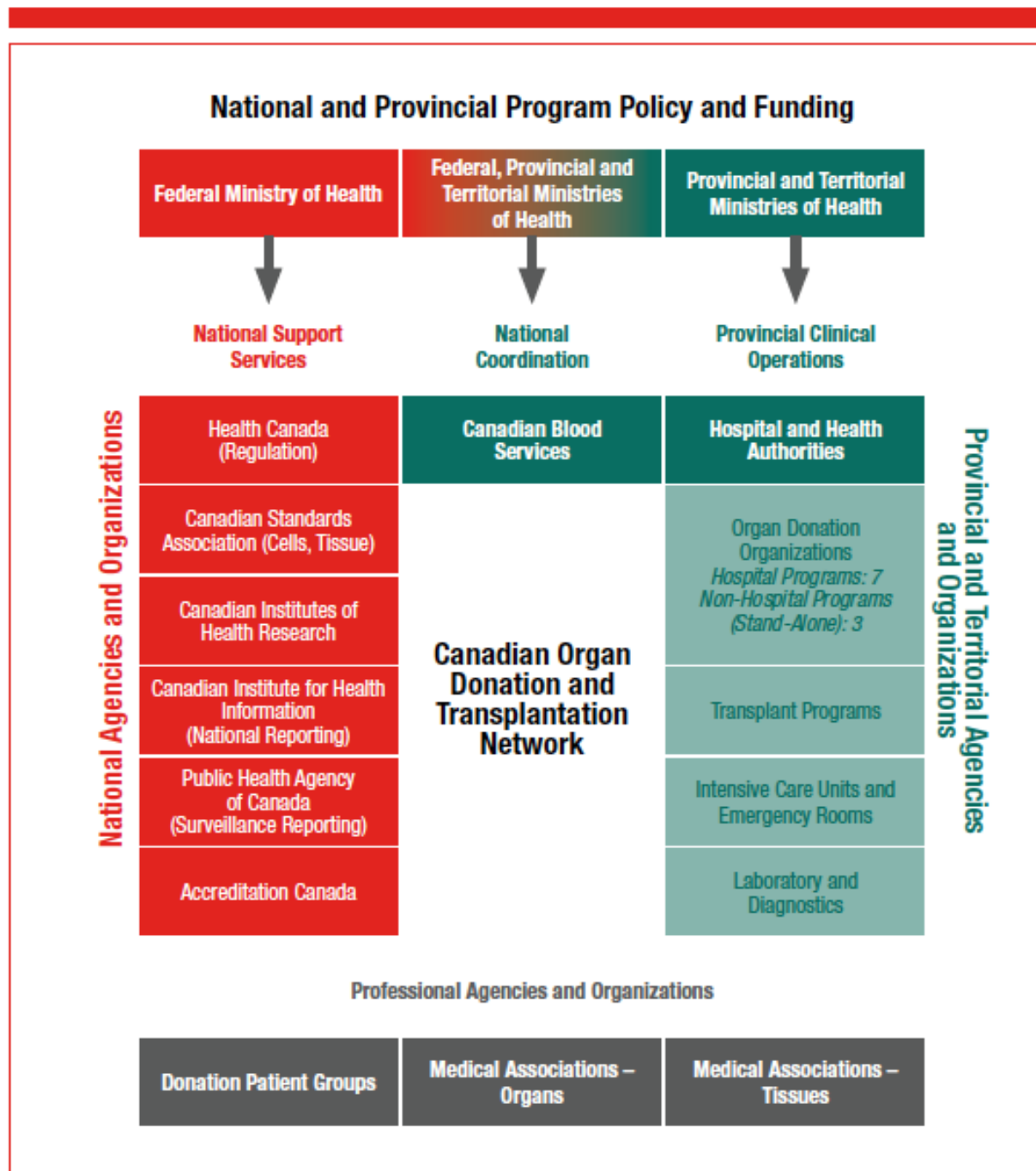
Overview

- **Delivery of donation and transplantation services in Canada**
- **Wait-list statistics**
- **Organ donation**
- **Transplant activity**
- **Outcomes**

Provincial delivery of OD and T related care

25 adult and pediatric programs perform transplantation
10 Organ donation organizations

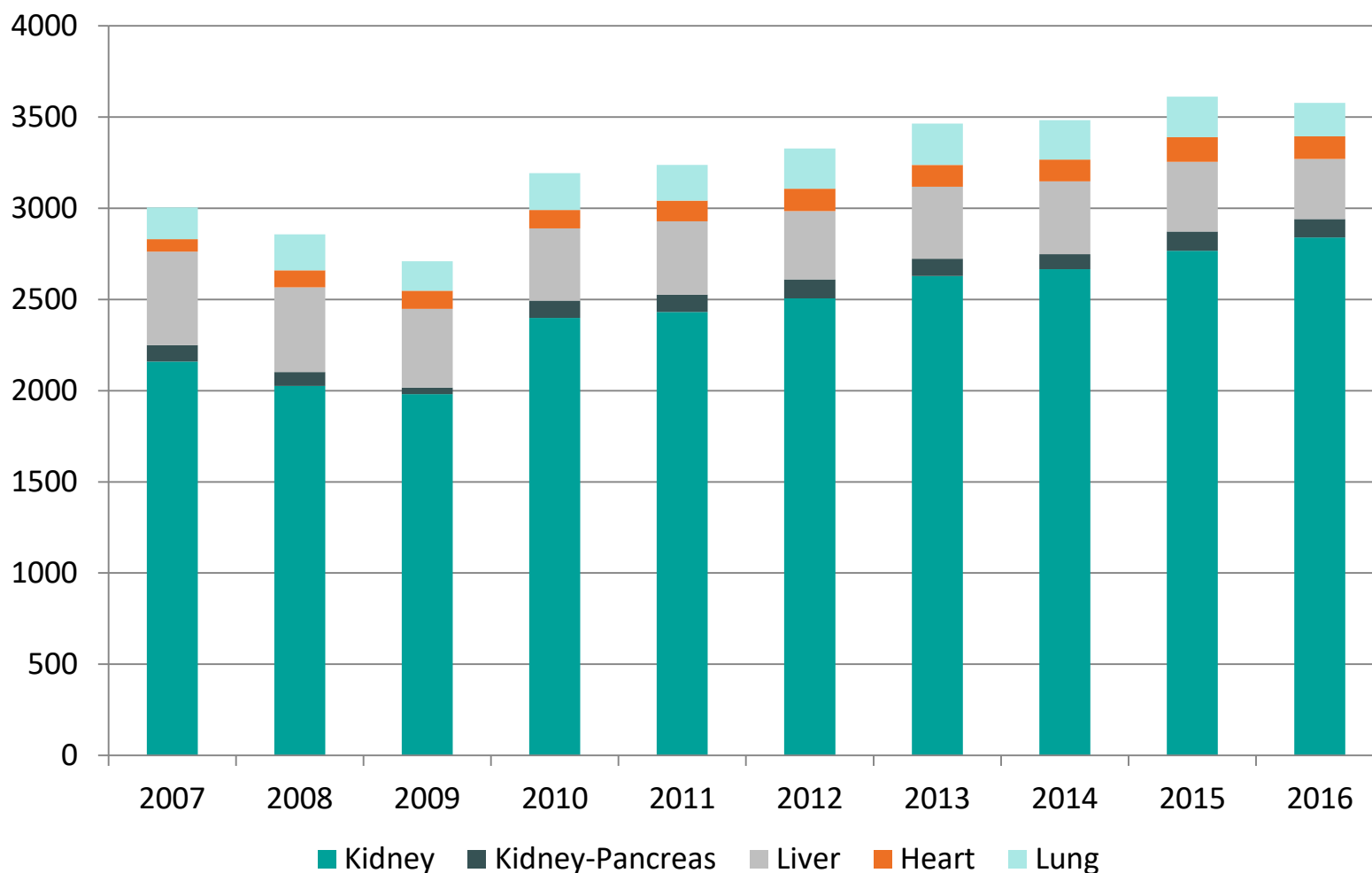




Waiting List Statistics



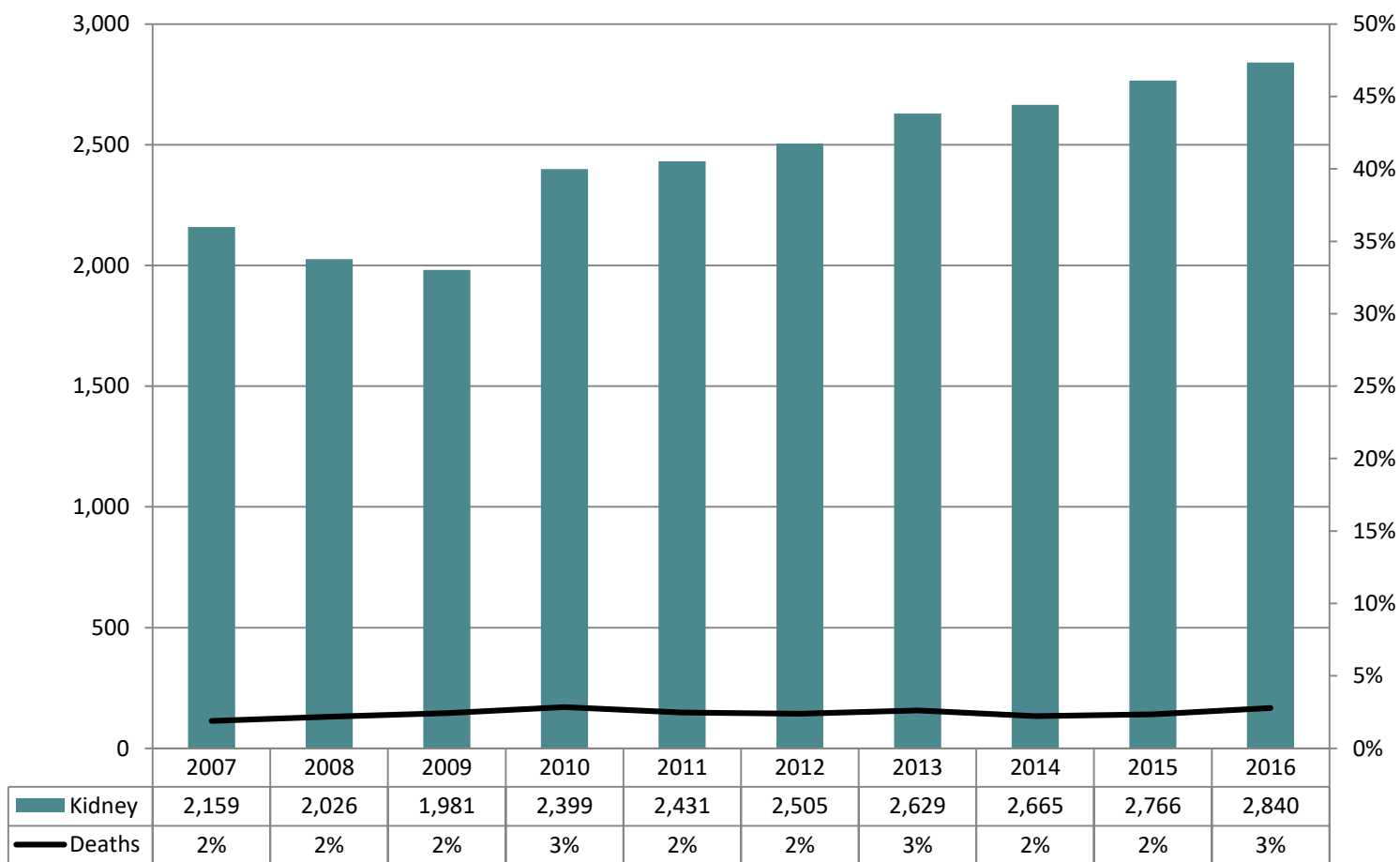
Number of Wait-Listed Transplant Candidates by Organ Type, 2007–2016, Canada (preliminary)



Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

Number of Kidney Transplant Candidates and Death Rates on the Waiting List, 2007–2016 (preliminary)



Note: Excludes Quebec because of under-reporting between 2011 and 2016
 Source: Canadian Organ Replacement Register, 2017, CIHI

Duration of Dialysis prior to first kidney transplant, Adults (18+) by Blood type, 2014 to 2016 (preliminary)

	Type A	Type AB	Type B	Type O	Total
Duration on Dialysis (Median Days), Deceased Donor	1,093	842	1,943	1,739	1,448
Duration on Dialysis (Median Days), Deceased Donor, No Pre-Emptive	1,112	961	1,967	1,744	1,468
Duration on Dialysis (Median Days), Living Donor	269	380	341	297	300
Duration on Dialysis (Median Days), Living Donor, No Pre-Emptive	525	548	642	553	551

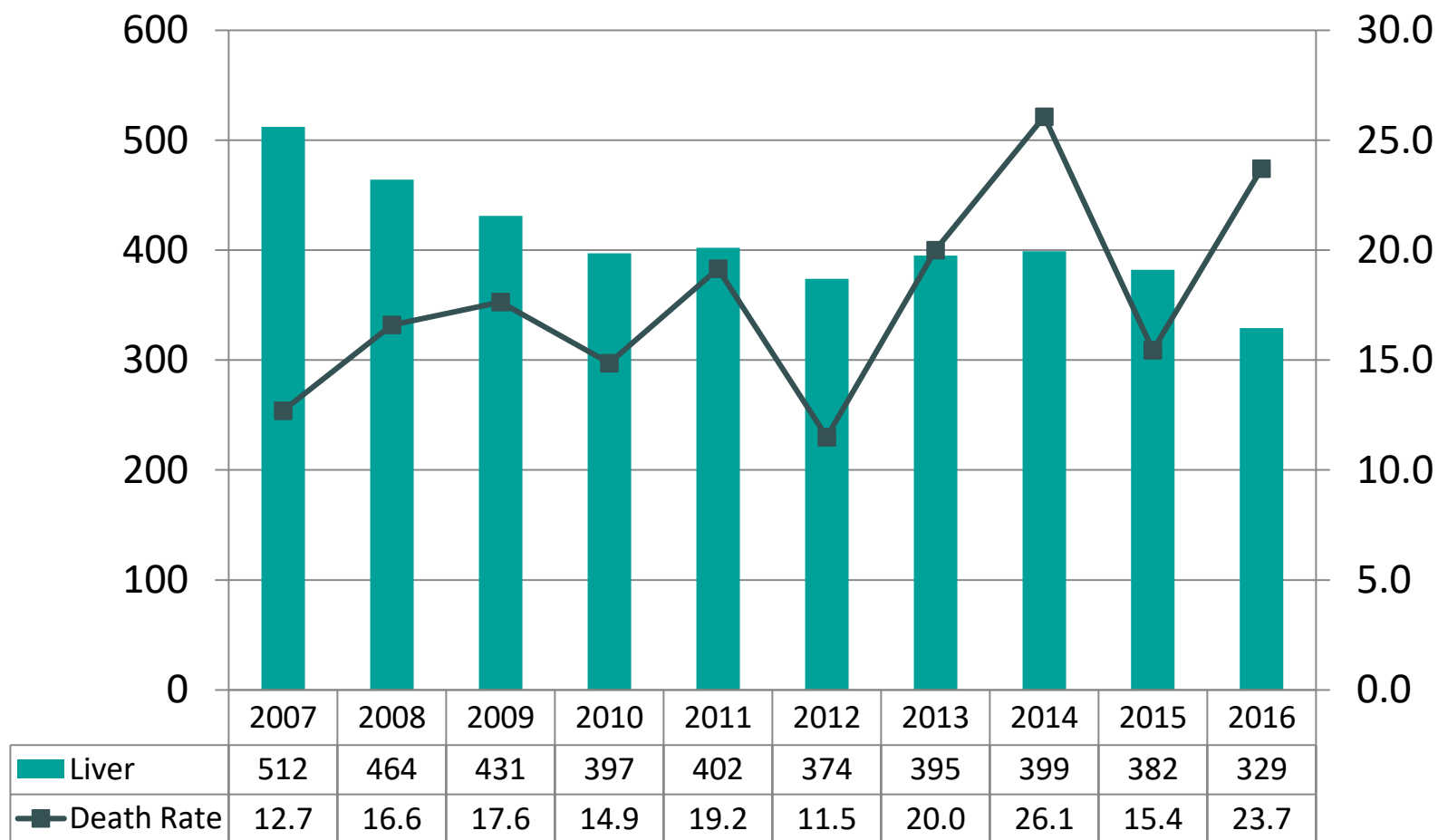
Duration of Dialysis Prior to First Kidney Transplant, Adults (18+), by Province, 2014 to 2016 (preliminary)

	B.C.	Alta.	Sask.	Man.	Ont.	N.S.	Canada
Duration on Dialysis (Median Days), Deceased Donor	1,420	1,281	1,851	2,114	1,476	1,089	1,448
Duration on Dialysis (Median Days), Deceased Donor, No Pre-Emptive	1,430	1,396	1,883	2,114	1,497	1,231	1,469
Duration on Dialysis (Median Days), Living Donor	202	331	621	562	273	490	297
Duration on Dialysis (Median Days), Living Donor, No Pre-Emptive	576	611	828	775	495	636	544

Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

Number of Liver Transplant Candidates and Death Rates on the Waiting List, 2007–2016, Canada (preliminary)



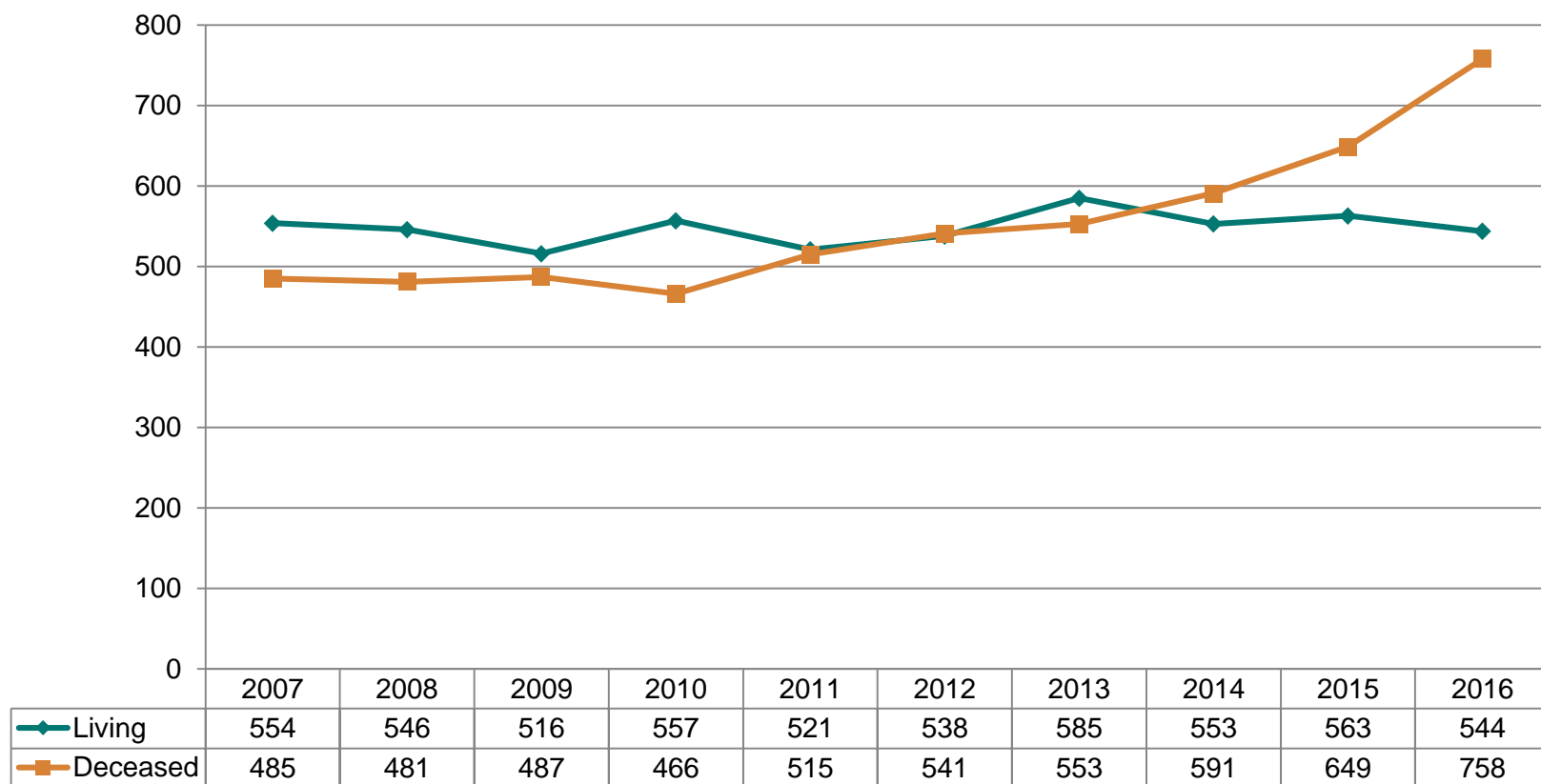
Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

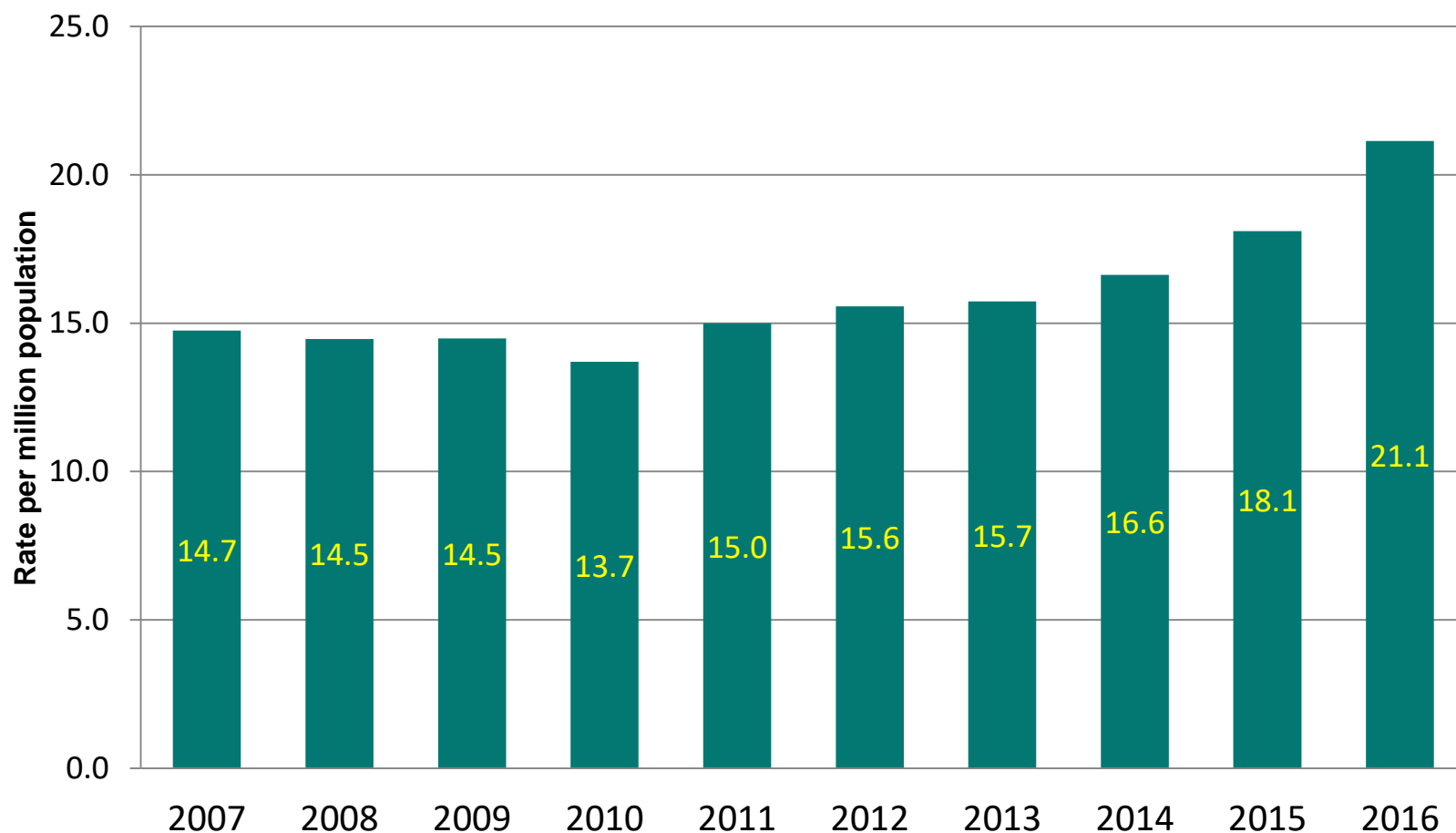
Donor Activity



Number of Canadian Organ Donors by Donor Source, 2007–2016, Canada (preliminary)

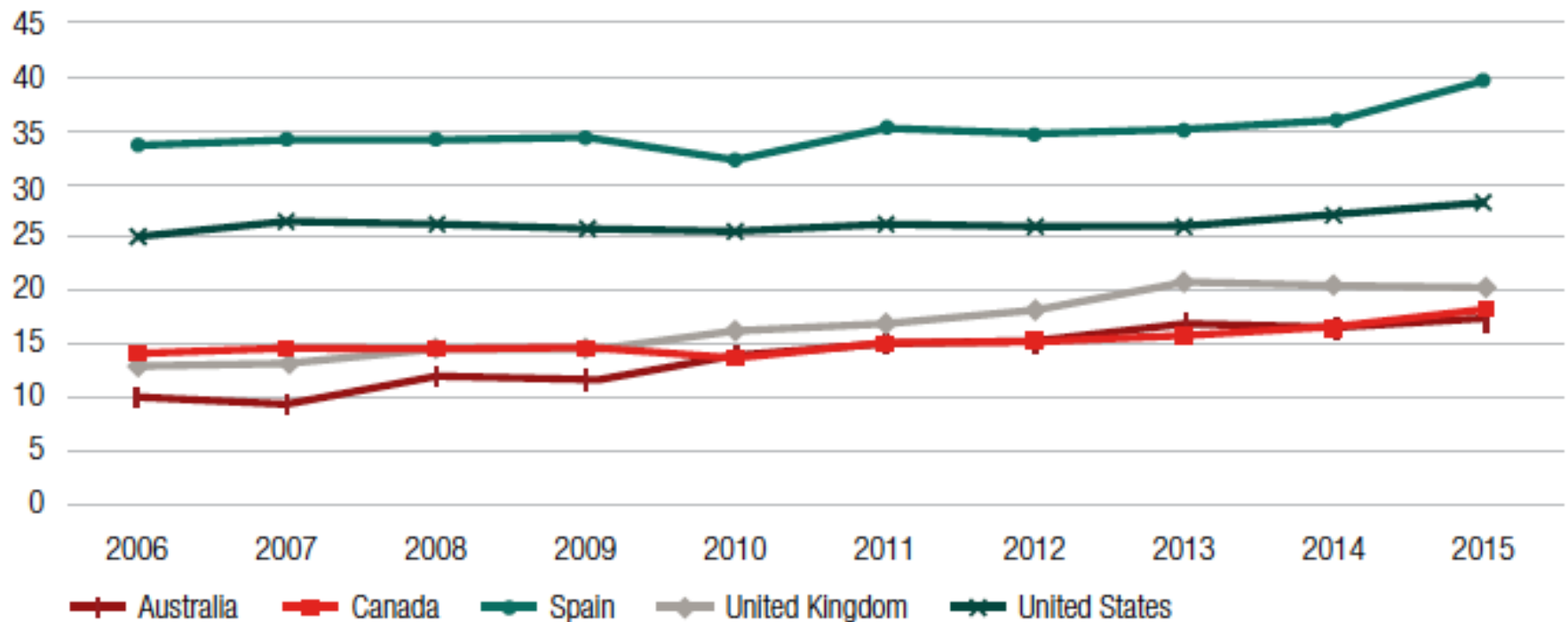


Deceased Donor Rate (PMP) by Year, 2007–2016, Canada (preliminary)

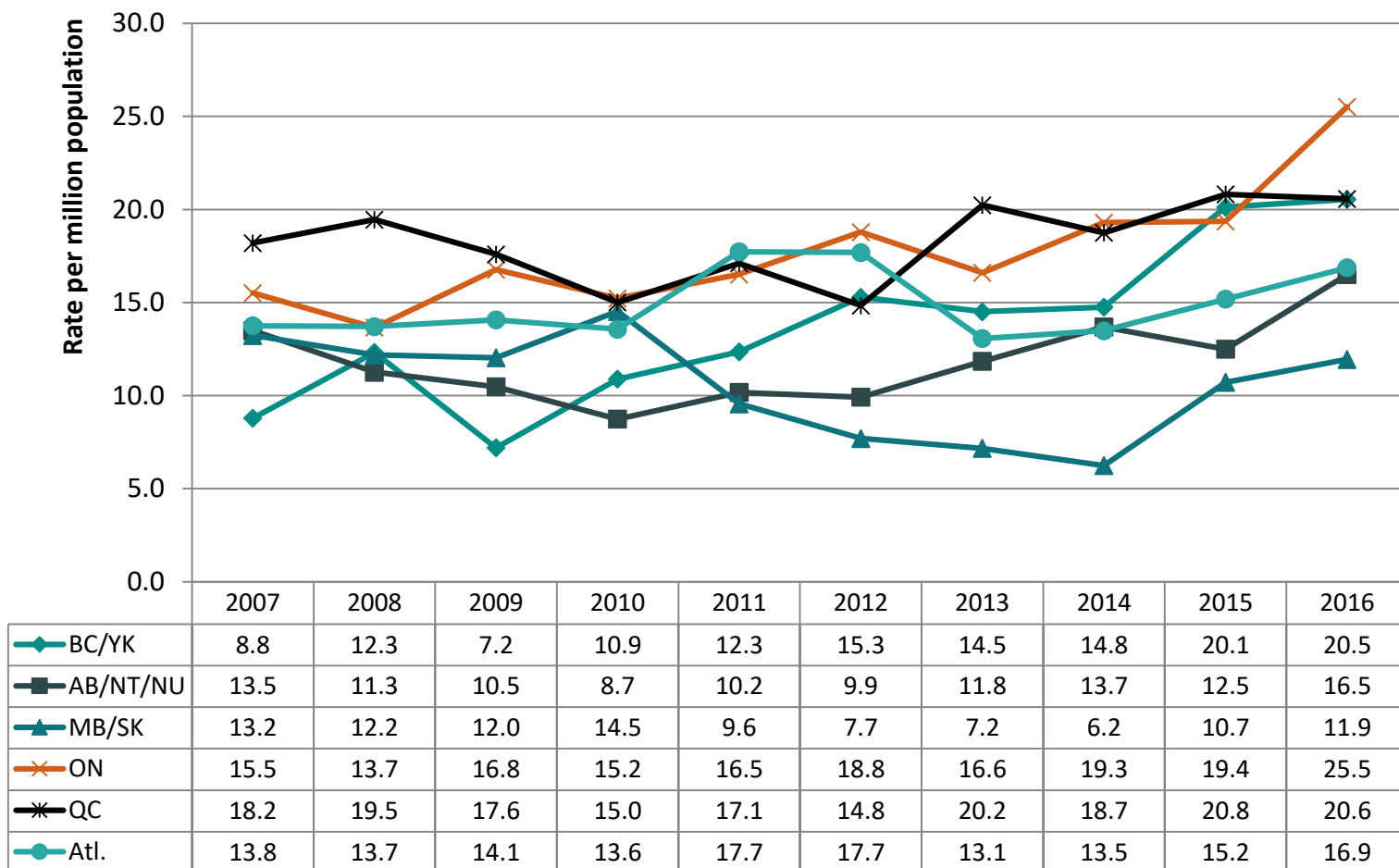


Deceased Donor Rate (PMP) by country

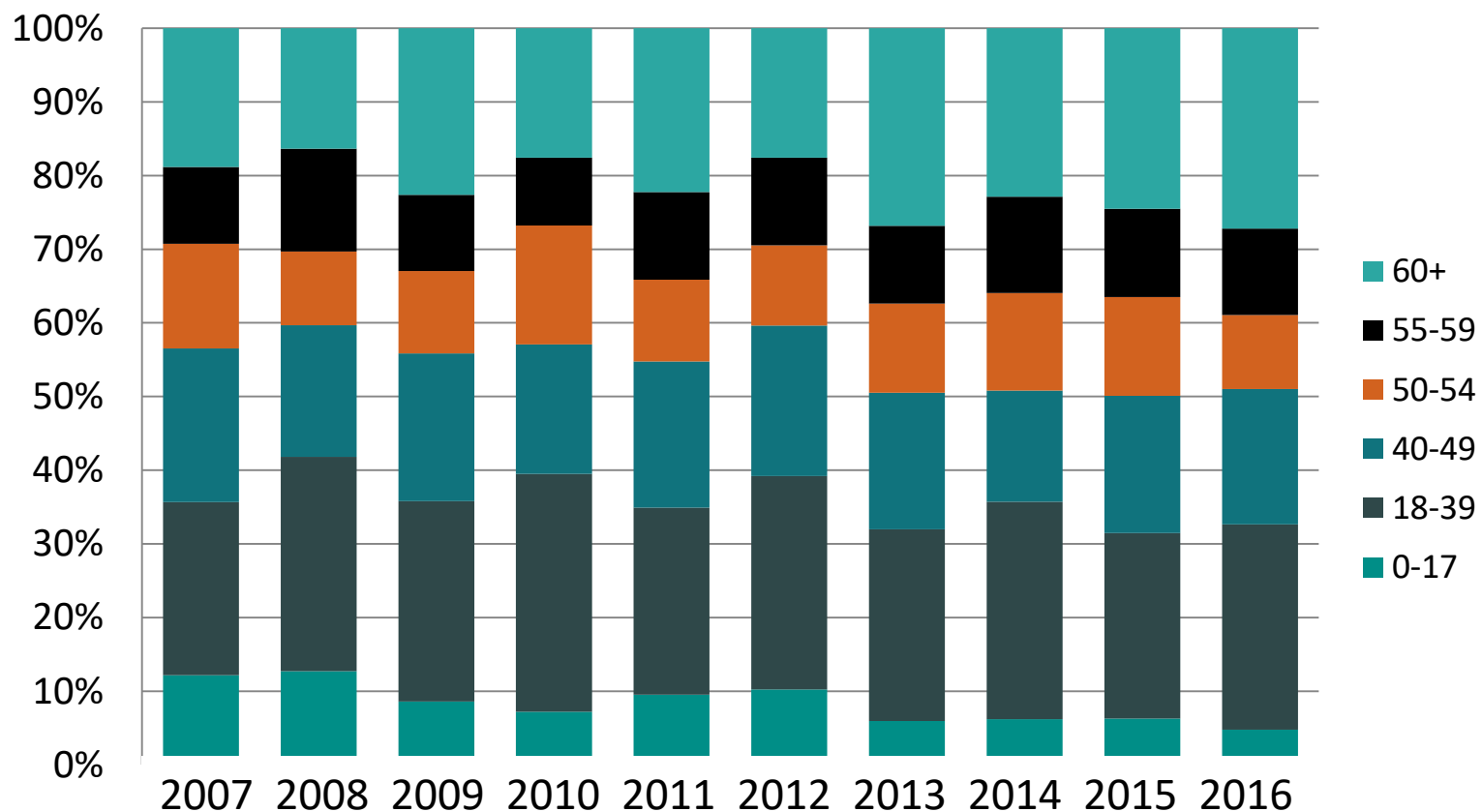
International deceased donation rates, 2006–2015 (DPMP**)



Deceased Donor Rate (PMP) by Region, 2007–2016, Canada (preliminary)



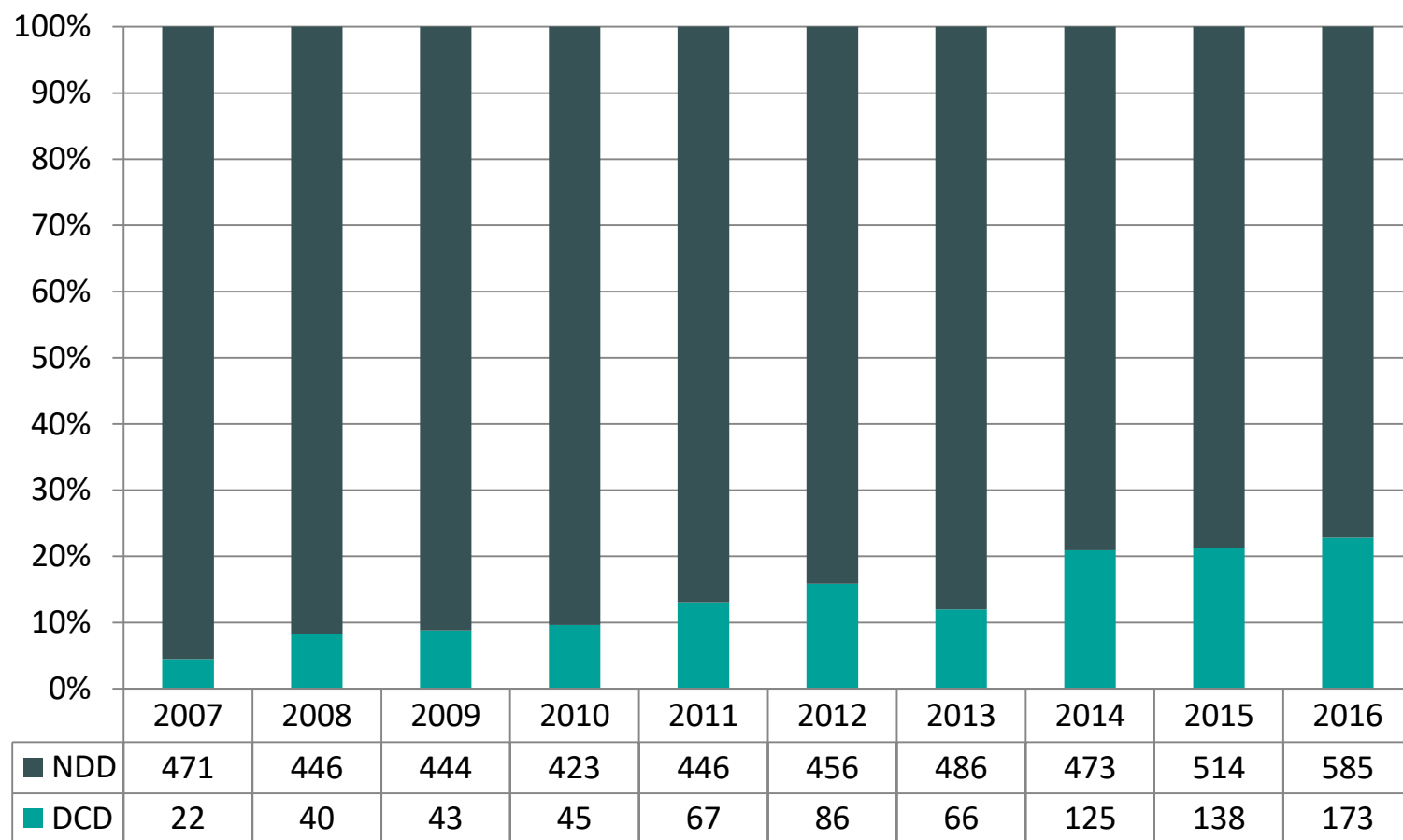
Proportion of deceased donors, by age, 2007-2016, Canada



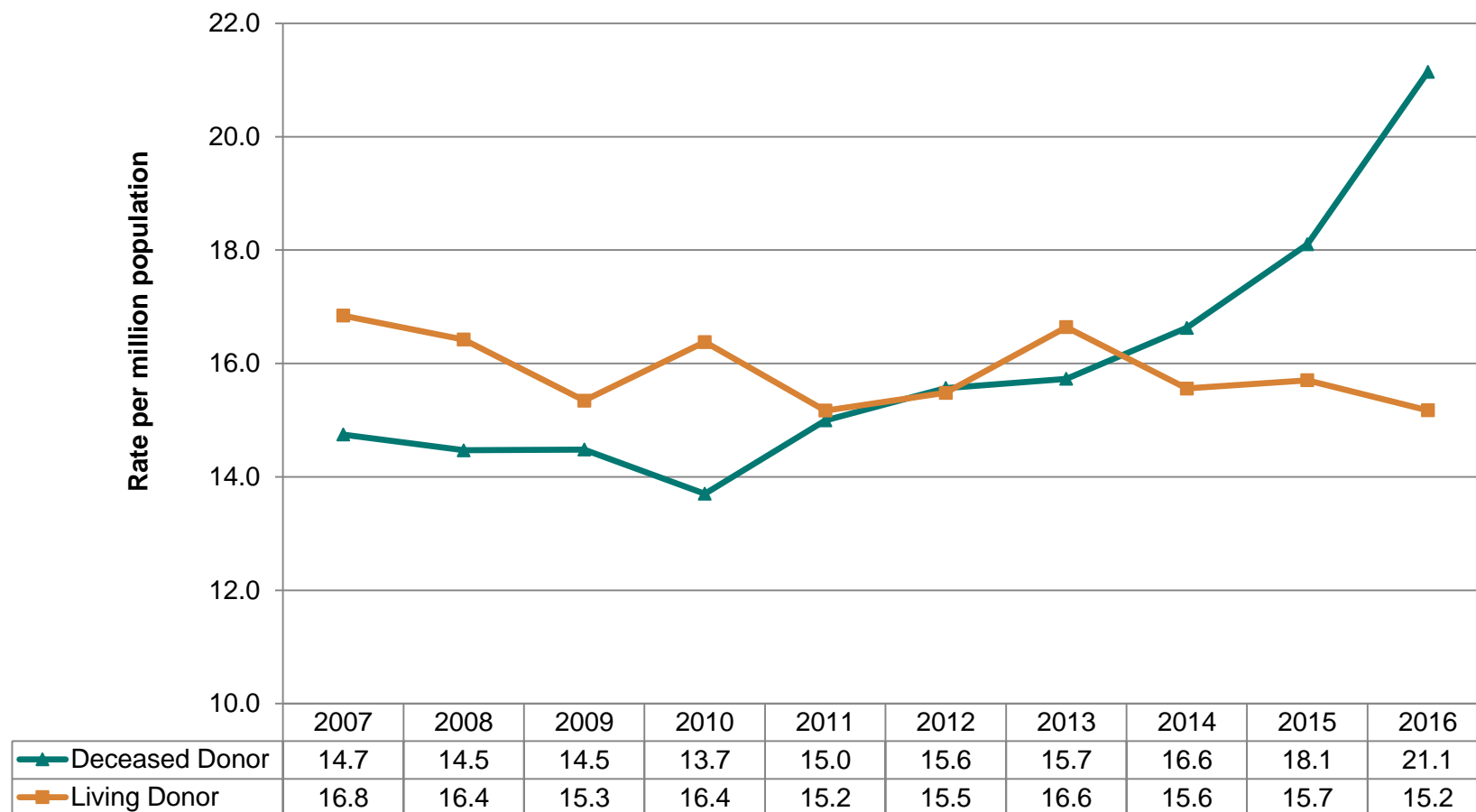
Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

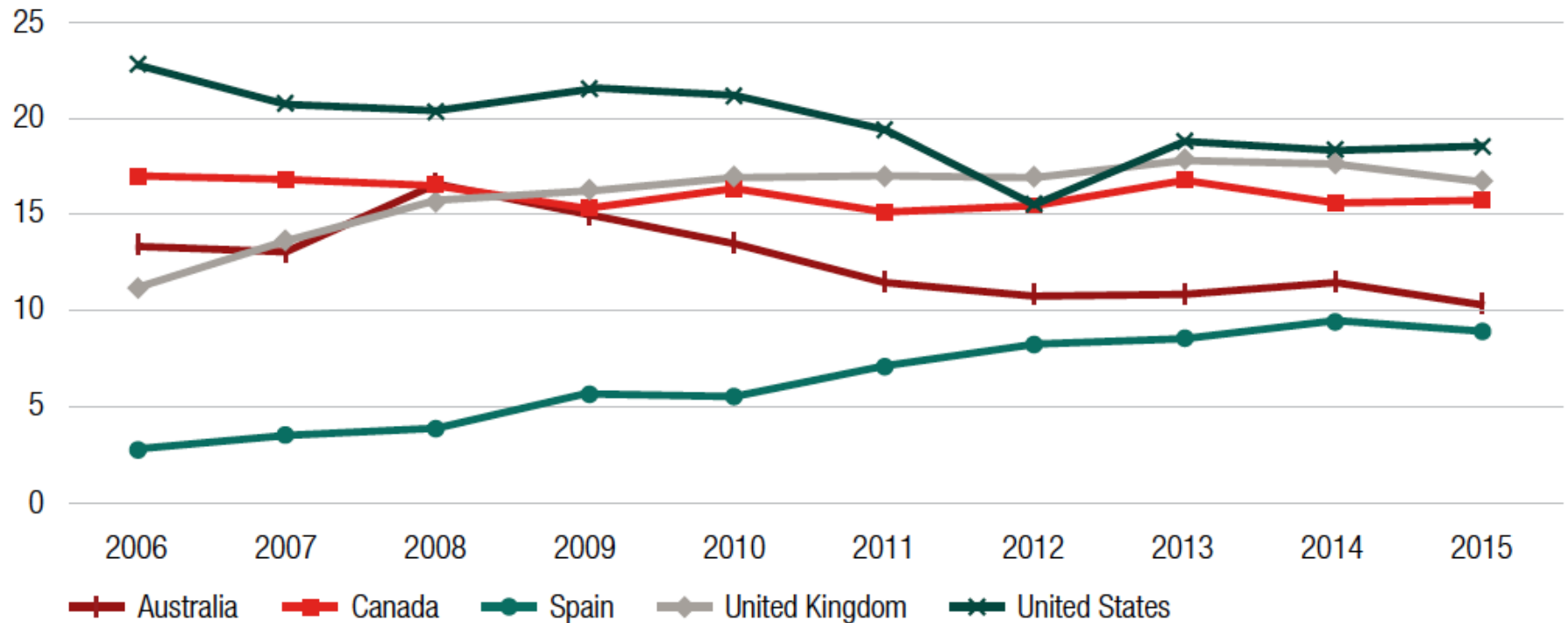
Proportion of DCD among all deceased donors, 2007-2016, Canada



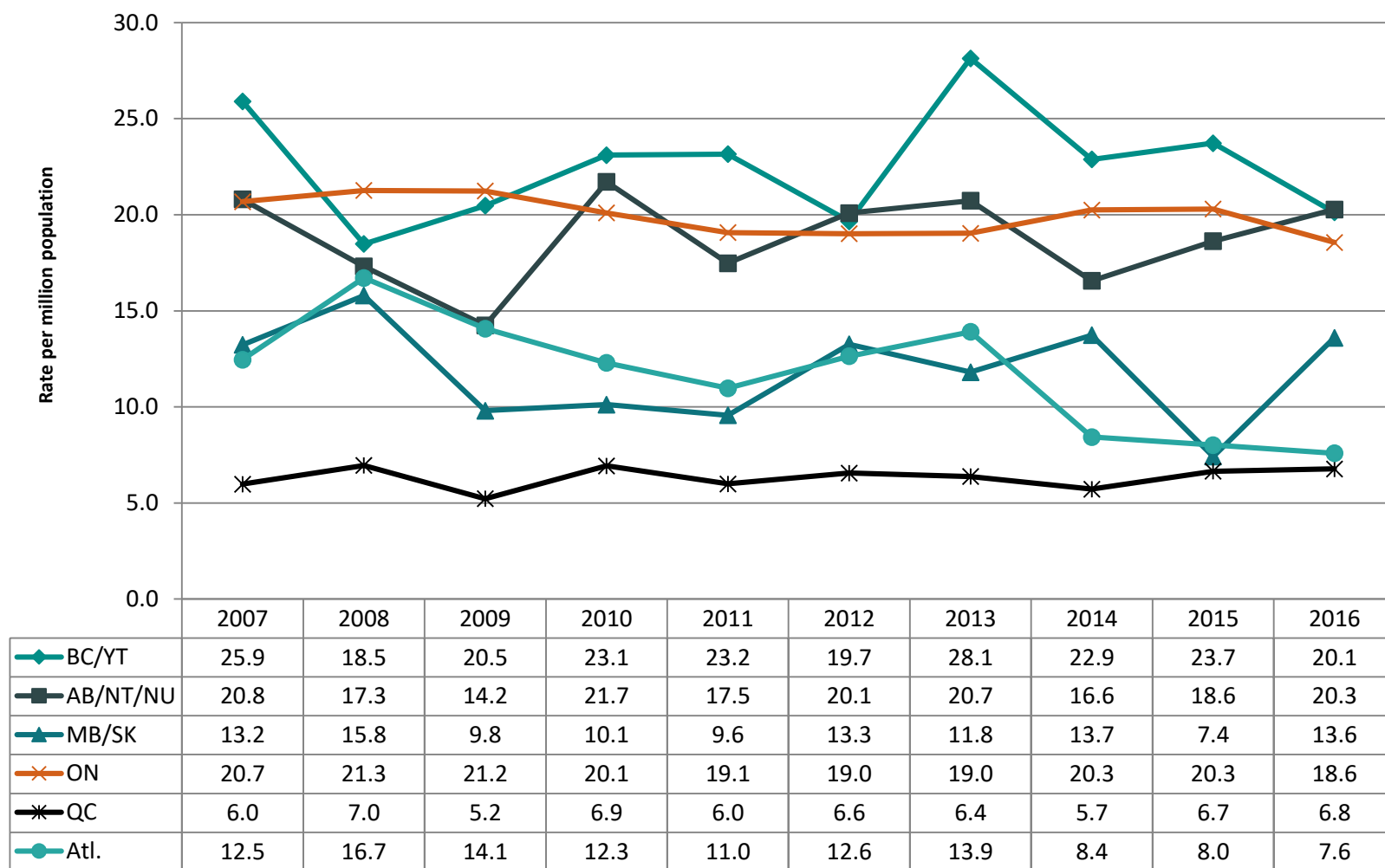
Donor Rate (PMP) by Donor Source (Deceased vs. Living), 2007–2016, Canada (preliminary)



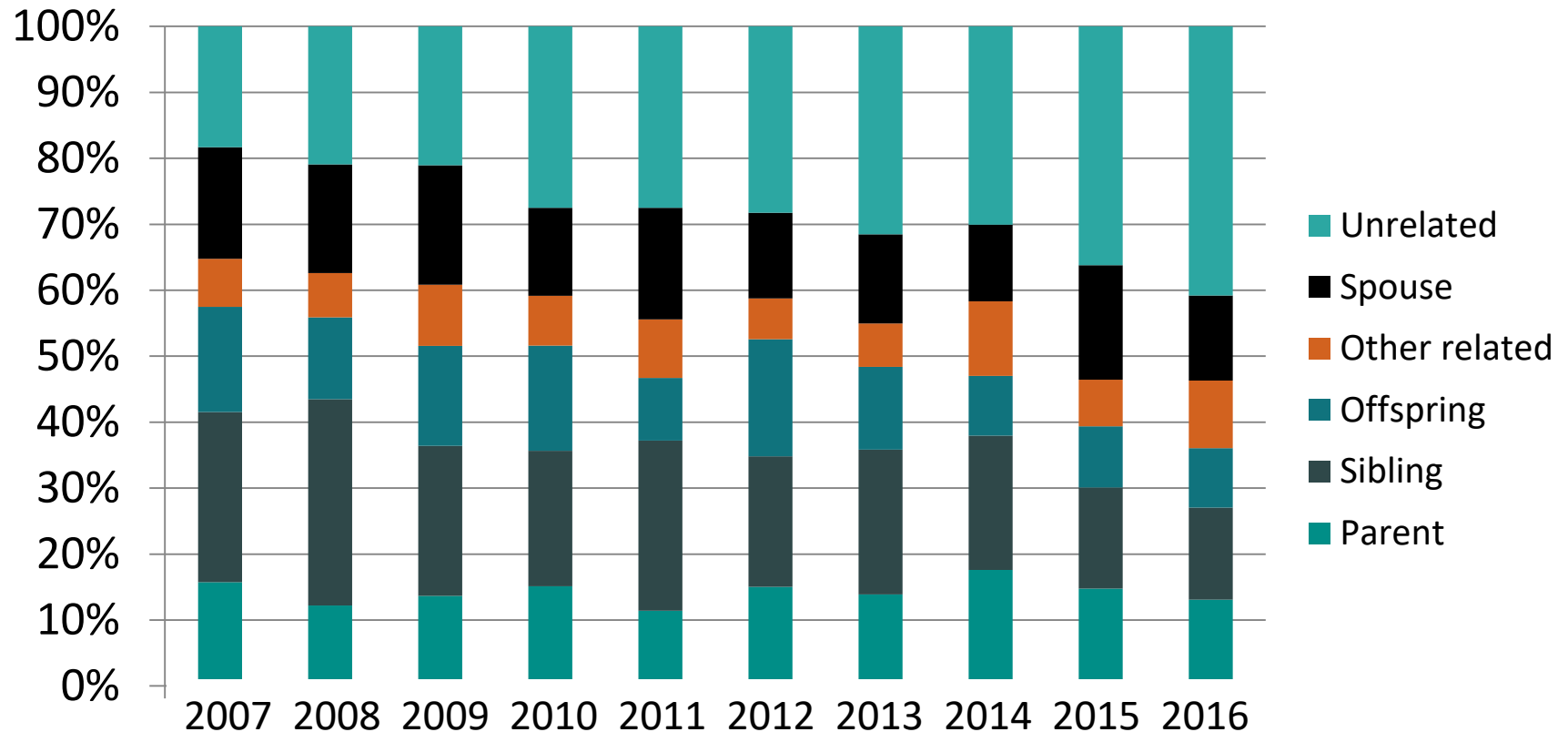
Living Donor Rate (PMP), by country



Living Donor Rate (PMP) by Region, 2007–2016, Canada (preliminary)



Proportion of living donors by relation, 2007-2016, Canada



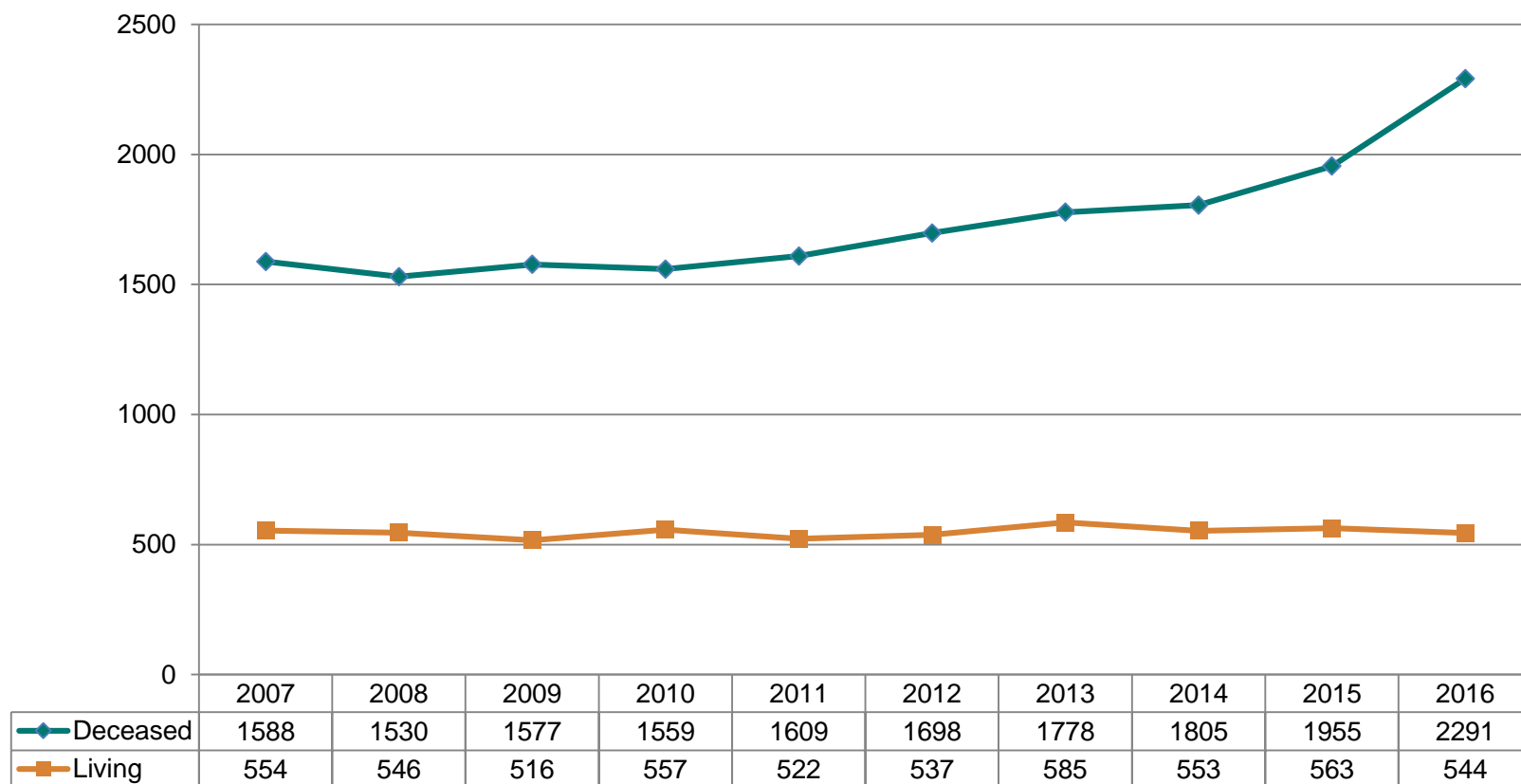
Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

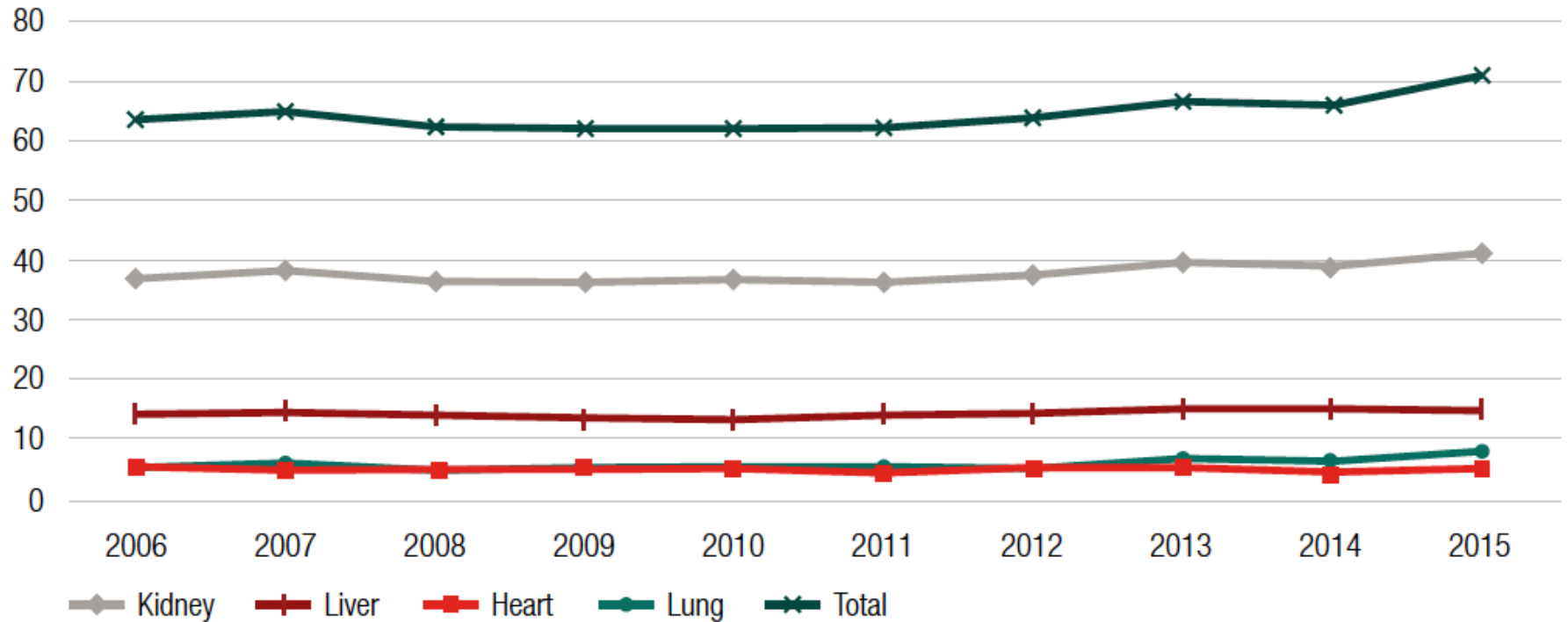
Transplant Activity



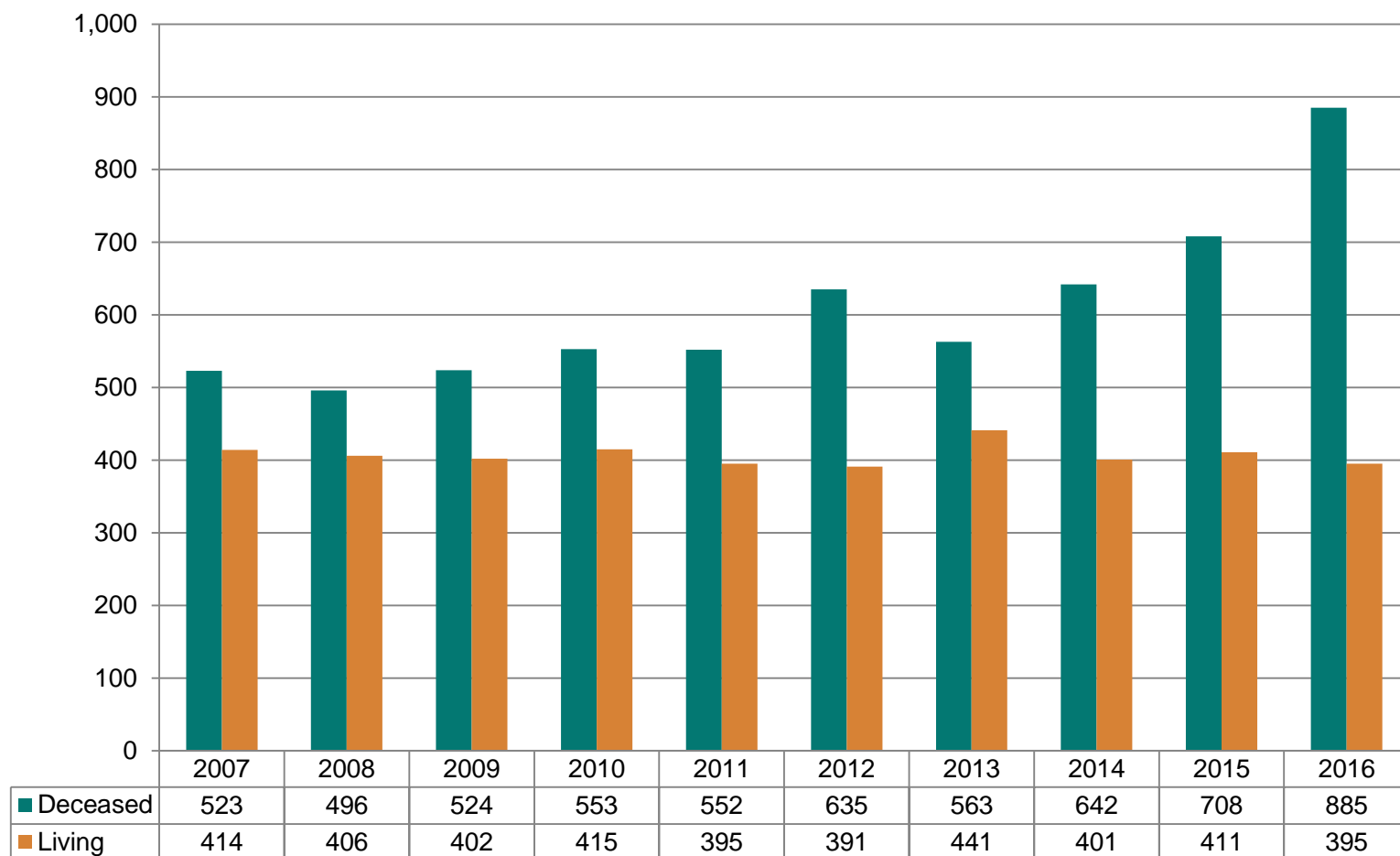
Number of Organ Transplants by Donor Source, 2007–2016, Canada (preliminary)



Transplant Rate (PMP), by organ

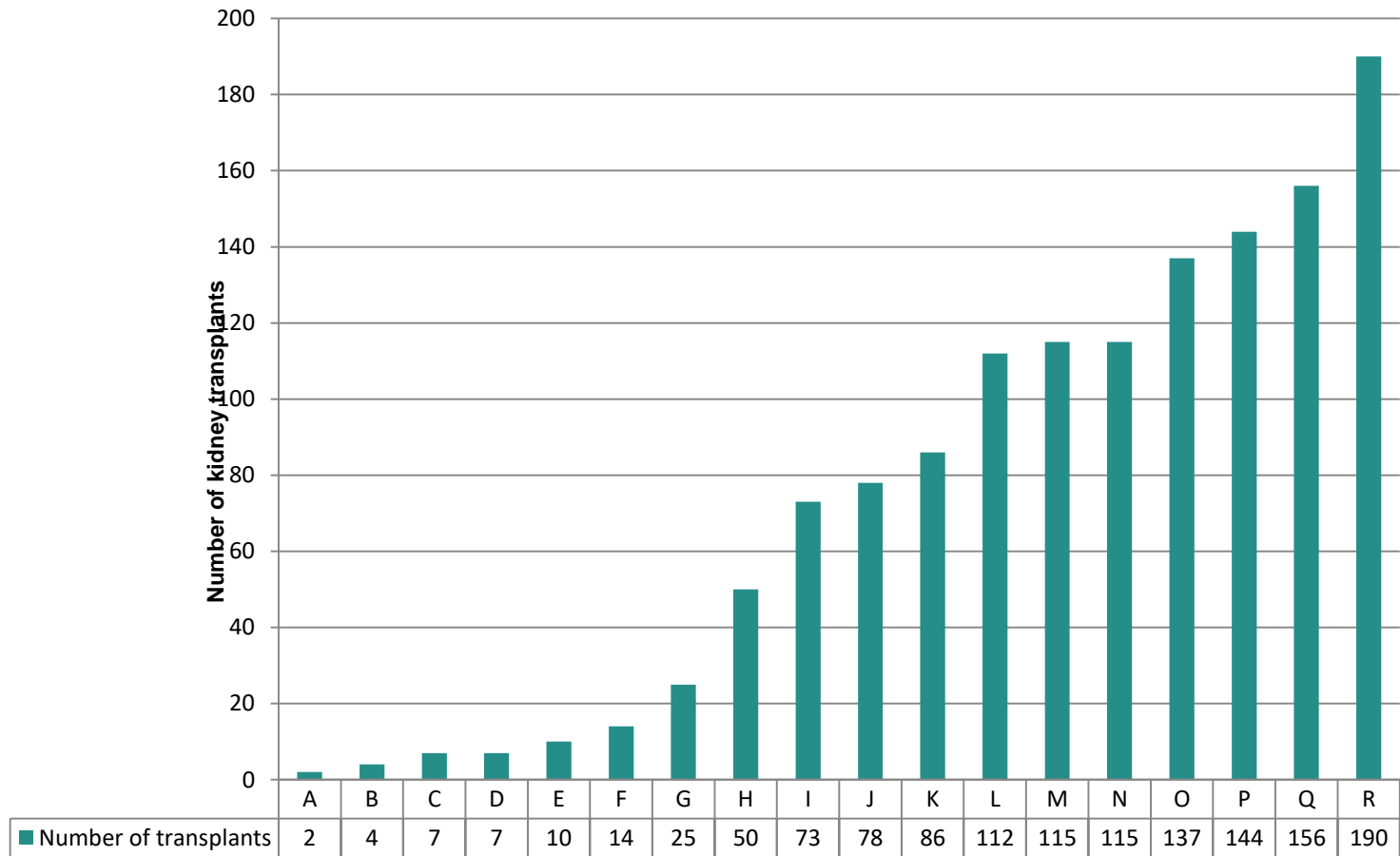


Number of Kidney Transplants by Donor Type, Adult (18+), 2006 to 2017 (preliminary)



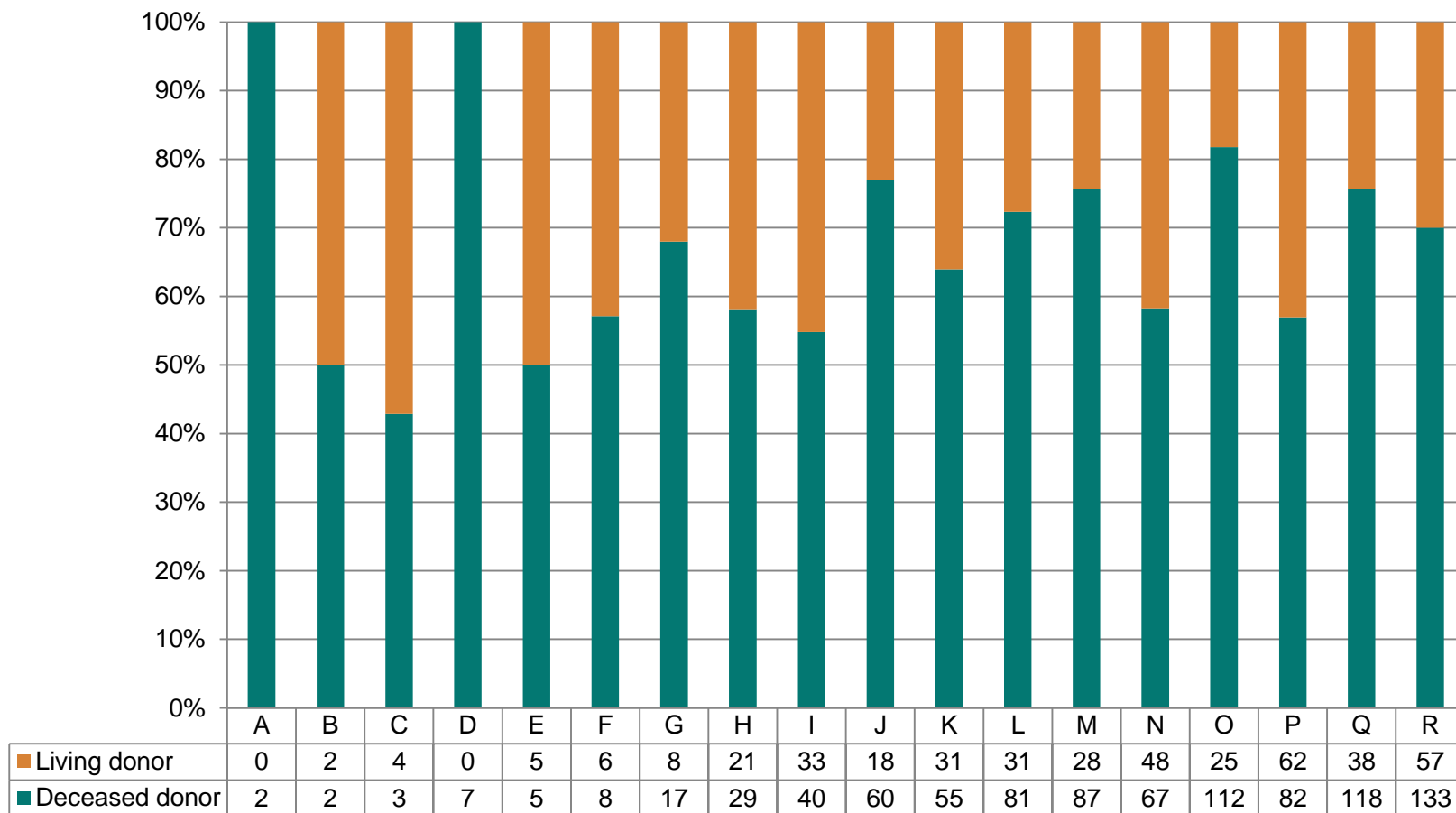
Note: Excludes Quebec because of under-reporting between 2011 and 2016
Source: Canadian Organ Replacement Register, 2017, CIHI

Number of Kidney Transplants by Centre, All Ages, 2016 (preliminary)



Note: Excludes Quebec because of under-reporting between 2011 and 2016
 Source: Canadian Organ Replacement Register, 2017, CIHI

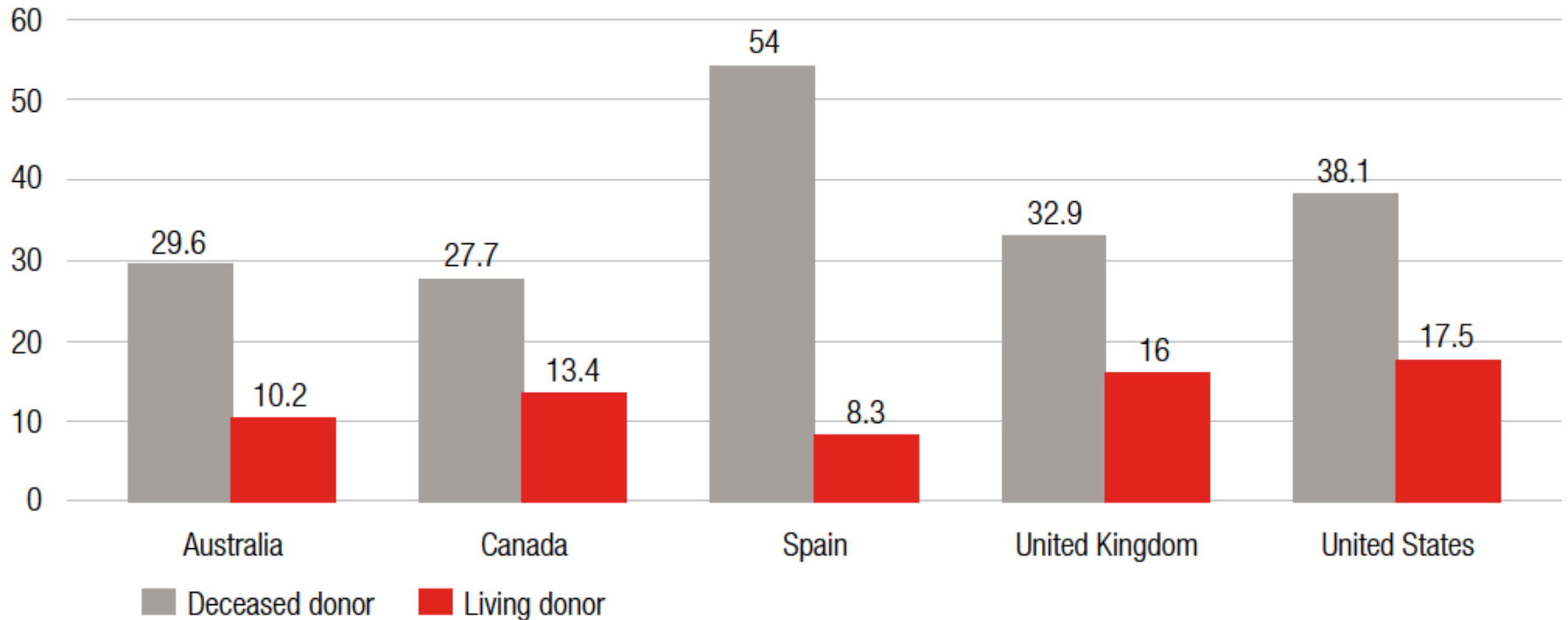
Proportion of Kidney Transplants from Deceased vs. Living Donors, by Centre, All Ages, 2016 (preliminary)



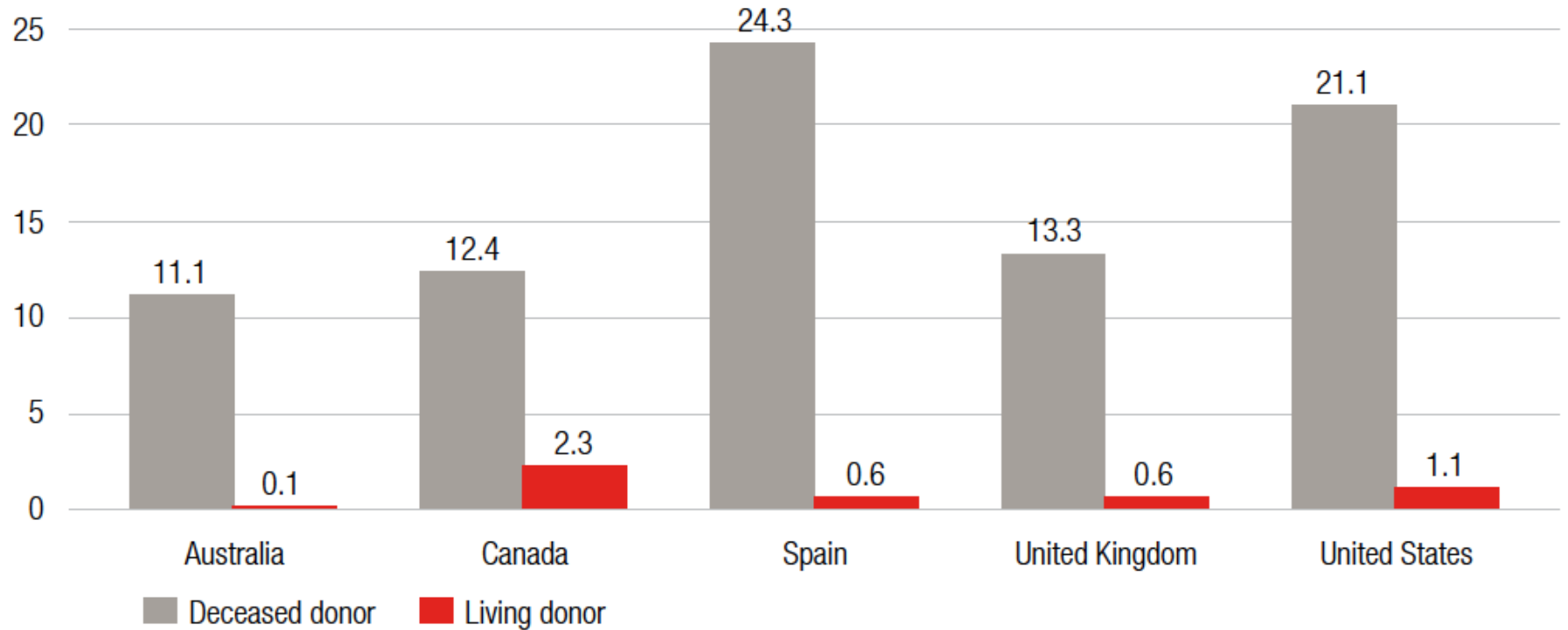
Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

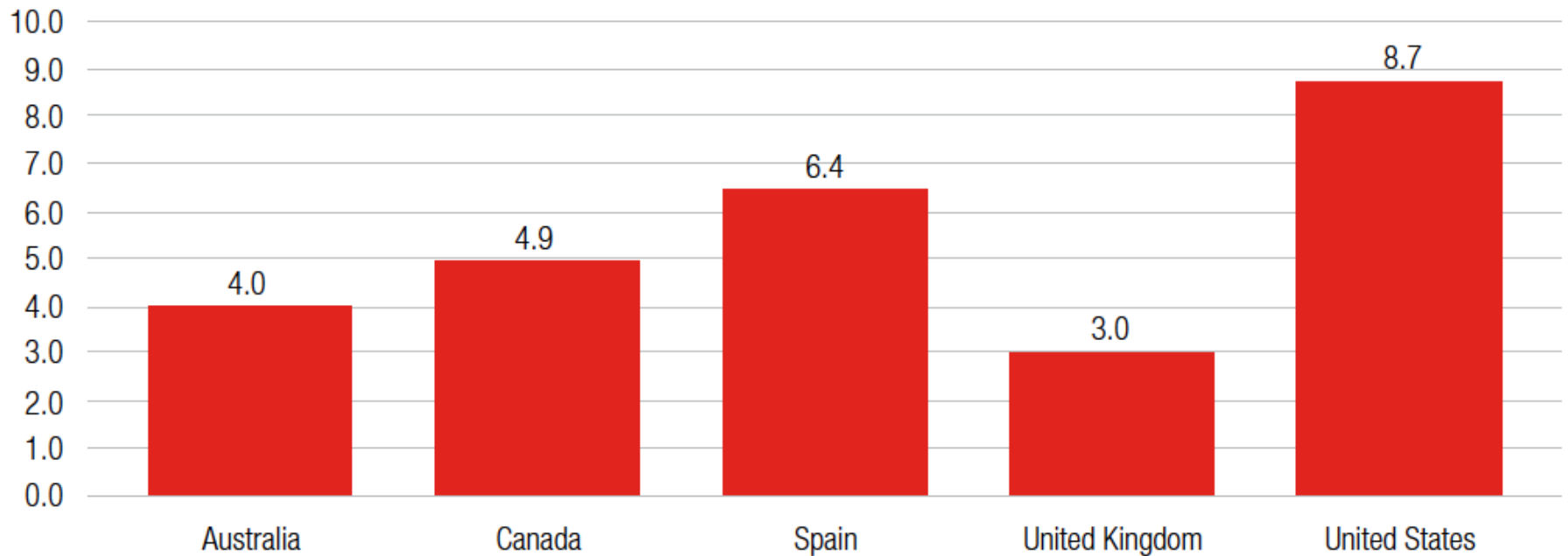
Kidney Transplant Rate (PMP), 2015, by country



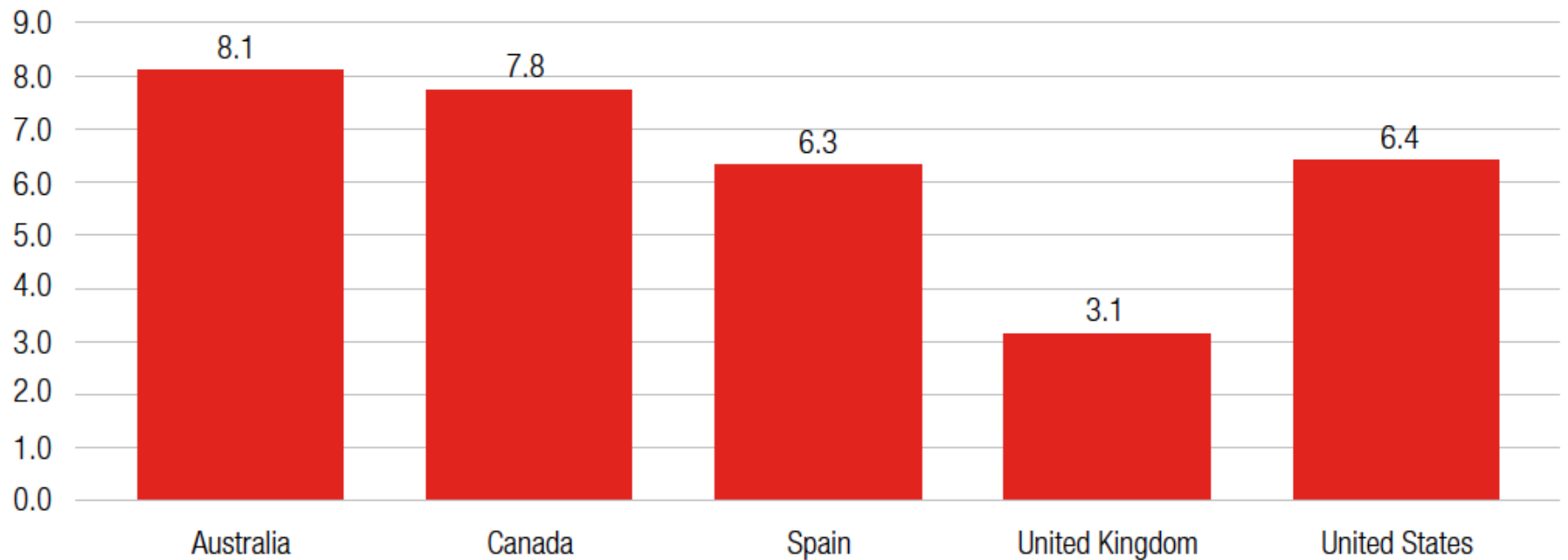
Liver Transplant Rate (PMP), 2015, by country



Heart Transplant Rate (PMP), 2015, by country



Lung Transplant Rates (PMP), 2015, by country



Outcomes



Unadjusted 3-month, 1-, 3- and 5-Year Graft Survival in Kidney Transplant Patients, All ages, by Donor type, Canada, 2007 to 2016

Donor type	Time Point	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Living	N	392	384	384	390	382	367	427	386	398	379
	At start	100.0	100.0	99.7	99.7	99.7	100.0	99.8	100.0	100.0	100.0
	3 Months	98.7	98.2	99.0	97.7	98.4	98.9	99.1	99.5	99.0	98.0
	1 Year	96.4	96.9	97.9	95.6	97.6	98.1	97.2	98.4	97.2	.
	3 Years	92.6	93.7	95.0	93.3	94.5	94.8	93.0	.	.	.
	5 Years	88.0	89.0	90.6	89.0	89.8	.	.	.	.	.
Deceased	N	482	460	505	520	526	592	523	596	624	818
	At start	99.8	99.8	100.0	99.8	99.6	100.0	99.2	100.0	99.8	99.8
	3 Months	96.7	96.5	96.2	98.3	97.1	97.3	96.0	95.3	97.3	96.9
	1 Year	93.2	92.8	92.9	95.4	93.2	94.6	93.9	92.6	94.2	.
	3 Years	86.5	86.5	88.1	91.1	88.2	88.3	89.3	.	.	.
	5 Years	79.9	81.5	81.6	83.4	82.5	.	.	.	.	.

Note: Excludes Quebec because of under-reporting between 2011 and 2016
Source: Canadian Organ Replacement Register, 2017, CIHI

Unadjusted 1-, 5-Year Graft Survival in Kidney Transplant Patients, All ages, by Donor type and Centre (blinded), Canada, 2007 to 2016

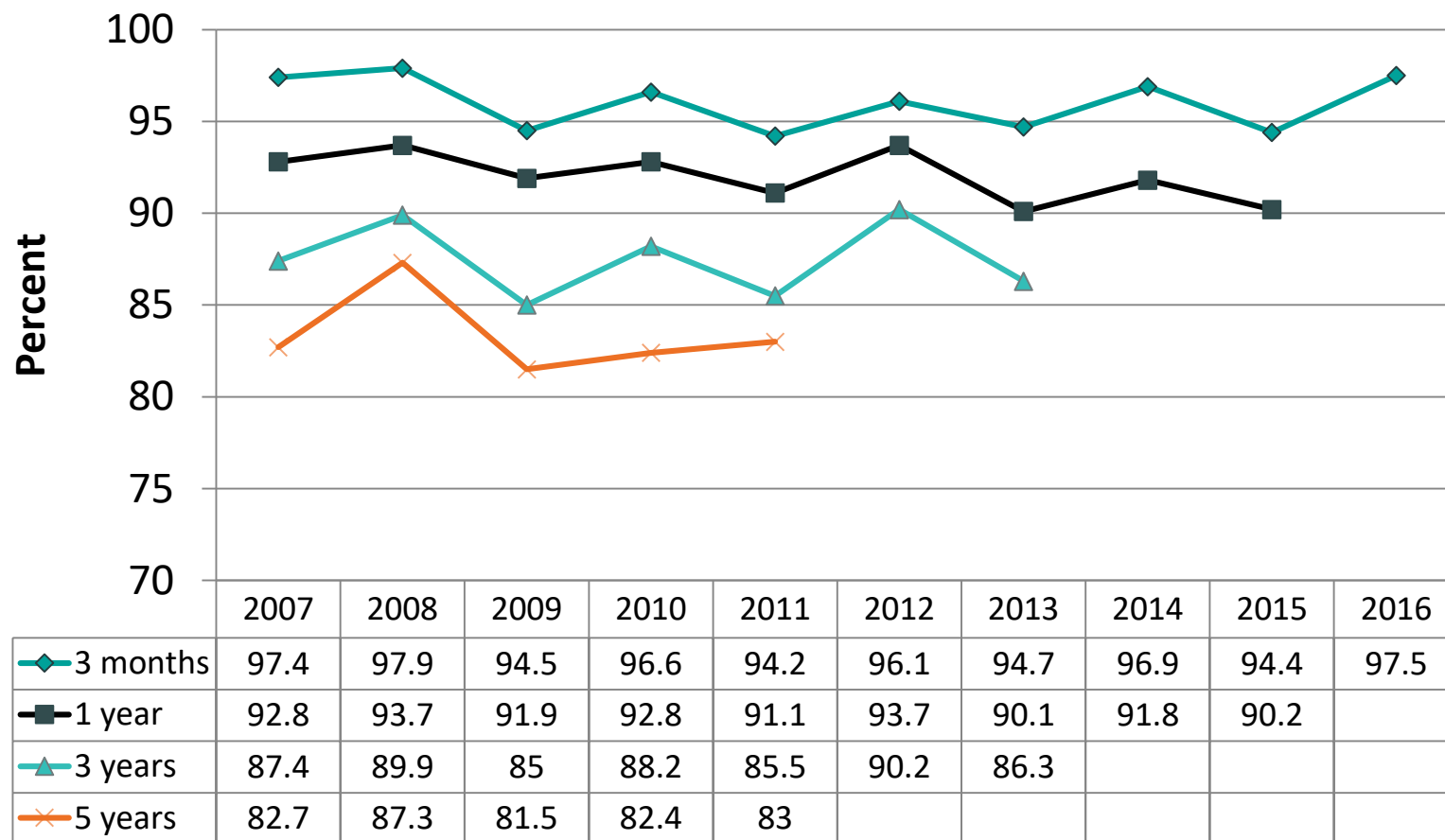
Centre		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Total N		20	25	34	59	72	162	190	390	475	718	723	730	766	785	842	1,002	1,152	1,390
Living	1 Year Survival	80.0	100.0	100.0	.	97.6	94.3	96.1	97.2	96.3	97.7	97.1	94.6	99.3	96.5	95.1	98.9	98.4	97.1
	5 Year Survival	80.0	100.0	91.7	.	90.8	88.6	93.7	90.5	91.4	90.6	93.6	85.8	95.4	87.6	86.1	87.3	90.6	88.6
Deceased	1 Year Survival	93.3	93.3	100.0	94.5	93.3	91.5	97.4	91.9	95.3	92.6	93.1	94.3	96.9	94.6	93.8	92.2	91.6	93.8
	5 Year Survival	93.3	84.8	90.9	81.8	73.8	75.7	82.4	77.1	80.7	79.0	80.3	83.5	86.2	84.4	83.4	81.7	80.7	83.1

Note: Excludes Quebec because of under-reporting between 2011 and 2016
Source: Canadian Organ Replacement Register, 2017, CIHI

Kidney Transplant Survival, by country

COUNTRY	FIVE-YEAR SURVIVAL RATE (%)	TEN-YEAR SURVIVAL RATE (%)
Australia	81	59
Canada	80	58
United Kingdom	78	56
United States	69	43

Unadjusted Three-Month and One-, Three- and Five-Year Patient Survival Rates for Deceased-Donor Liver Transplant Recipients, First Graft, 2007 to 2016, Canada



Note: Excludes Quebec because of under-reporting between 2011 and 2016

Source: Canadian Organ Replacement Register, 2017, CIHI

Summary

- The number of wait-listed patients outnumber the number transplant recipients
- Significant rise in deceased donation in Canada in recent years → increased transplantation rates in Canada
- Living donor (kidney) transplantation is declining despite new initiatives
- Canadian rates of donation and transplantation are lower than the US, but outcomes are better
- Regional variability in deceased and living donor transplantation indicate room for growth

Areas in Development

- **National collaboration and oversight**
- **Ongoing need for more granular and standardized provincial and national data**
- **Minimizing regional variability in practice**
- **Innovation in policy and research to expand access to and outcomes after transplantation**