

Supplementary Materials

List of Supplementary Materials:

Supplemental Table 1: Checklist of recommendations for reporting of observational studies using the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement

Supplemental Table 2: Administrative data codes used to identify cohort of individuals receiving acute dialysis during their hospital episode of care

Supplemental Table 3: Administrative data codes used to define hospital discharge

Supplemental Table 4: Administrative data codes used to define baseline characteristics

Supplemental Table 5: Administrative data codes used to define outcome measures

Supplementary Table 6: Baseline characteristics of propensity score matched cohort

Supplemental Figure 1: Cumulative incidence function curves for all-cause mortality amongst non-transferred and transferred patients for acute kidney injury receiving dialysis (adjusted for primary model covariates)

Supplemental Figure 2: Cumulative incidence function curves for dialysis dependence amongst non-transferred and transferred patients for acute kidney injury receiving dialysis (adjusted for primary model covariates)

Supplemental Table S1: Checklist of recommendations for reporting of observational studies using the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement [18]

	Item No	STROBE items	RECORD items	Reported
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract. (b) Provide in the abstract an informative and balanced summary of what was done and what was found.	(1.1) The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included. (1.2) If applicable, the geographic region and time frame within which the study took place should be reported in the title or abstract. (1.3) If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract.	Title and Abstract
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported.		Introduction
Objectives	3	State specific objectives, including any prespecified hypotheses.		Introduction
Methods				
Study design	4	Present key elements of study design early in the paper.		Methods: Study Design and Participants
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection.		Methods: Study Design and Participants, Data sources, Exposure&Outcomes
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up. (b) For matched studies, give matching criteria and number of exposed and unexposed.	(6.1) The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided. (6.2) Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided. (6.3) If the study involved linkage of databases, consider use of a flow diagram or other graphical display to demonstrate the data linkage process, including the number of individuals with linked data at each stage.	Methods: Study Design and Participants, Propensity & Score Matched Analysis Figures: Figure 1 Supplemental: Supplemental Table 2
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.	(7.1) A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be	Methods: Exposure&Outcomes Supplemental: Supplemental

			reported, an explanation should be provided.	Tables 3, 4, and 5
Data sources/ measurement	8	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group.		Methods: Data Sources Supplemental: Supplemental Tables 2, 3, 4, and 5
Bias	9	Describe any efforts to address potential sources of bias.		Methods: Study Design and Participants
Study size	10	Explain how the study size was arrived at.		Methods: Study Design and Participants Figures: Figure 1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why.		Statistical Analyses
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding. (b) Describe any methods used to examine subgroups and interactions. (c) Explain how missing data were addressed. (d) If applicable, explain how loss to follow-up was addressed. (e) Describe any sensitivity analyses.		Statistical Analyses: Subgroup Analyses, Sensitivity and Post Hoc Analyses, Propensity Score Matched Analyses&Alternative Transfer Definitions
Data access and cleaning methods	N/A		(12.1) Authors should describe the extent to which the investigators had access to the database population used to create the study population. (12.2) Authors should provide information on the data cleaning methods used in the study.	Methods: Study Design and Participants Data Access/Access to Data Analysis Protocol
Linkage	N/A		(12.3) State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided.	Methods: Data Sources
Results				
Participants	13	(a) Report numbers of individuals at each stage of study--e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed. (b) Give reasons for non-participation at each stage. (c) Consider use of a flow diagram.	(13.1) Describe in detail the selection of the persons included in the study (i.e., study population selection), including filtering based on data quality, data availability, and linkage. The selection of included persons can be described in the text and/or by means of the study flow diagram.	Methods: Study Design and Participants Figures: Figure 1

Descriptive data	14	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders. (b) Indicate number of participants with missing data for each variable of interest. (c) Summarize follow-up time (e.g. average and total amount).	Statistical Analyses: Baseline Characteristics&Outcomes Tables: Table 1
Outcome data	15	Report numbers of outcome events or summary measures over time.	Tables: Table 2
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g. 95% confidence interval). Make clear which confounders were adjusted for and why they were included. (b) Report category boundaries when continuous variables were categorized. (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period.	Statistical Analyses: Outcomes Tables: Table 2
Other analyses	17	Report other analyses done (e.g. analyses of subgroups and interactions, and sensitivity analyses).	Statistical Analyses: Subgroup Analyses& Sensitivity Analyses, Tables: Tables 4 and 5
Key results	18	Summarize key results with reference to study objectives.	Discussion
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	(19.1) Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they pertain to the study being reported. Discussion: Strengths and Limitations
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	Discussion, Conclusion
Generalizability	21	Discuss the generalizability (external validity) of the study results.	Discussion
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based.	Funding
Accessibility of	N/A	(22.1) Authors should provide information on how to	Data Access/Access to Data

protocol, raw
data, and
programming
code

access any supplemental information such as the study
protocol, raw data, or programming code.

Analysis Protocol

Supplemental Table 2: Administrative data codes used to identify cohort of individuals receiving acute dialysis during their hospital episode of care

Database	Variable	Code or Algorithm
Inclusion Criteria		
Hospital Admission		
CIHI-DAD	Admdate	N/A
Acute Dialysis		
OHIP	Fee code	"G082", "G083", "G085", "G090", "G091", "G092", "G093", "G095", "G295", "G294", "R849", "R850", "G323", "G325", "G326", "G862", "G863", "G866"
Exclusion Criteria		
Invalid or missing sex, age, or unique identifying number, non-Ontario resident		
RPDB		% getdemo ICES macro
Death on or before index date		
RPDB	Dthdate	N/A
Dialysis in the year prior to index date		
OHIP	Fee code	"R849", "R850", "G323", "G325", "G326", "G330", "G331", "G332", "G333", "G083", "G091", "G085", "G295", "G082", "G092", "G093", "G094", "G860", "G861", "G862", "G863", "G864", "G865", "G866", "G090", "G095", "G096", "G294"
CORR RECIPIENT_TREATMENT	Treatmeny_Code	not equal to "171", "181"
Kidney transplant prior to index date		
CORR RECIPIENT_TREATMENT	Treatmeny_Code	"181"
	Transplanted_ Organ_Type_Code	"10", "11", "12", "18", "19"
Cardiac surgery with evidence of dialysis and no subsequent dialysis code during episode of care		
OHIP	Fee code	"E646", "E647", "E650", "E651", "E652", "E656", "E658", "E660", "E661", "E670", "E671", "E682", "M134", "M137", "R700", "R709", "R710", "R711", "R712", "R713", "R714", "R715", "R716", "R717", "R718", "R720", "R721", "R722", "R723", "R724", "R725", "R726", "R727", "R728", "R729", "R730", "R733", "R734", "R735", "R736", "R737", "R738", "R741", "R742", "R743", "R746", "R747", "R748", "R749", "R755", "R758", "R759", "R762", "R768", "R769", "R770", "R771", "R772", "R773", "R774", "R863", "R870", "R874", "R876", "R920", "R921", "R922", "R923", "R924", "R925", "R926", "R927", "R928", "R929", "R930"
Vascular access creation codes in the 5 years prior to index date		

OHIP	Fee code	"R827", "R840", "R850", "R851", "R946"
CIHI- DAD	CCI code	"1KY76LA", "1KY76LASJ", "1KG76MZXXN", "1JM76NC", "1JM76NCXXN"
	CCP code	"5127"

Abbreviations- CIHI-DAD: Canadian Institutes for Health Information's Discharge Abstract Database, CCP: Canadian Classification of Procedures, CCI: Canadian Classification of Interventions, CORR: Canadian Organ Replacement Registry, OHIP: Ontario Health Insurance Plan, RPDB: Registered Persons Database

Supplemental Table 3: Administrative data codes used to define hospital discharge

Database	Variable	Code
CIHI-DAD	DISPDATE	"01"

Abbreviations- CIHI-DAD: Canadian Institutes for Health Information's Discharge Abstract Database

Supplemental Table 4: Administrative data codes used to define baseline characteristics

Database/Software	Variable	Code
Characteristics of Hospital Admission		
<i>Teaching Hospitals</i>		

CIHI-DAD	Instnum	"1097", "1100", "1339", "1406", "1423", "1428", "1431", "1444", "1452", "1455", "1459", "1464", "1497", "1500", "1502", "1657", "1676", "1972", "1982", "1983", "1994", "2003", "3174", "3562", "3618", "3702", "3850", "3853", "3878", "3910", "3936", "4046", "4048", "4050", "4059", "4064", "4067", "4164", "4359", "4601", "4602"
ICU admission		
OHIP	Fee code	"G557", "G558", "G559", "G400", "G401", "G402", "G405", "G406", "G407"
CIHI-DAD	CCI	"1GZ31CAND", "1GZ31CRND", "1GZ31GPND"
Mechanical ventilation		
OHIP	Fee code	"G557", "G558", "G559", "G405", "G406", "G407"
Sepsis		
CIHI-DAD	ICD10	"A0821", "A394", "A403", "A409", "A412", "A413", "A414", "A4151", "A4152", "A4158", "A418", "A419"
Non-ruptured aortic aneurysm		
OHIP	Fee code	"R799", "R800", "R801", "R802", "R803", "R816", "R817", "R875"
Cardiac surgery		
OHIP	Fee code	"E646", "E647", "E650", "E651", "E652", "E656", "E658", "E660", "E661", "E670", "E671", "E682", "M134", "M137", "R700", "R709", "R710", "R711", "R712", "R713", "R714", "R715", "R716", "R717", "R718", "R720", "R721", "R722", "R723", "R724", "R725", "R726", "R727", "R728", "R729", "R730", "R733", "R734", "R735", "R736", "R737", "R738", "R741", "R742", "R743", "R746", "R747", "R748", "R749", "R755", "R758", "R759", "R762", "R768", "R769", "R770", "R771", "R772", "R773", "R774", "R863", "R870", "R874", "R876", "R920", "R921", "R922", "R923", "R924", "R925", "R926", "R927", "R928", "R929", "R930"
Comorbid Conditions		
Acute Myocardial Infarction		
Johns Hopkins ACG	ADG	"CAR12"
Congestive Heart Failure		
Johns Hopkins ACG	ADG	"CAR05"
Cerebrovascular disease		
Johns Hopkins ACG	ADG	"NUR05"
Diabetes with and without complications [Type 1 and 2]		
Johns Hopkins ACG	ADG	"END06", "END07", "END08", "END09"
Malignancies		
Johns Hopkins ACG	ADG	"MAL01", "MAL02", "MAL03", "MAL04", "MAL05", "MAL06", "MAL07", "MAL08", "MAL09", "MAL10", "MAL11", "MAL12", "MAL13", "MAL14", "MAL15", "MAL16", "MAL18"
Chronic Liver Disease		

Johns Hopkins ACG	ADG	"GAS05"
Peripheral Vascular Disease		
Johns Hopkins ACG	ADG	"GSU11"
Chronic Renal Failure		
Johns Hopkins ACG	ADG	"REN01"
Acute Renal Failure		
Johns Hopkins ACG	ADG	"REN03"
Cardiac Arrhythmia		
Johns Hopkins ACG	ADG	"CAR09"
Ischemic Heart Disease		
Johns Hopkins ACG	ADG	"CAR09"
Emphysema, Chronic Bronchitis, COPD		
Johns Hopkins ACG	ADG	"RES04"
HIV/AIDS		
Johns Hopkins ACG	ADG	"INF04"
Hypertension with and without major complications		
Johns Hopkins ACG	ADG	"CAR14", "CAR15"
Gastrointestinal Hemorrhage		
CIHI-DAD	ICD10	"I850", "I9820", "I983", "K2210", "K2211", "K2212", "K2214", "K2216", "K226", "K228", "K250", "K252", "K254", "K256", "K260", "K262", "K264", "K266", "K270", "K272", "K274", "K276", "K280", "K282", "K284", "K286", "K290", "K2921", "K2941", "K2951", "K2961", "K2971", "K2981", "K2991", "K3180", "K31811", "K3182", "K6380", "K920", "K921", "K5520", "K625", "K922"
Health Care Utilization		
Nephrologist Consult		
OHIP	Fee code	"A135", "A161", "A163", "A164", "A165", "A166", "A168", "C132", "C101", "C138", "G860", "G323", "G333", "E083", "C137", "C135", "C132", "C139", "H540"
Emergency Department Visit		
NACRS	Regdate	N/A
Hospitalization		
CIHI-DAD	Admdate	N/A

Abbreviations- ACG: Adjusted Clinical Groups, ADG: Aggregated Diagnostic Groups, CIHI-DAD: Canadian Institutes for Health Information's Discharge Abstract Database, CCP: Canadian Classification of Procedures, CCI: Canadian Classification of Interventions, NACRS: National Ambulatory Care Reporting System, OHIP: Ontario Health Insurance Plan, RPDB: Registered Persons Database

Supplemental Table 5: Administrative data codes used to define outcome measures

Database/Software	Variable	Code
<i>Death</i>		
RPDB	Death	N/A

<i>Chronic Dialysis Dependence</i>		
OHIP	Fee code	"R849", "R850", "G323", "G325", "G326", "G330", "G331", "G332", "G333", "G083", "G091", "G085", "G295", "G082", "G092", "G093", "G094", "G860", "G861", "G862", "G863", "G864", "G865", "G866", "G090", "G095", "G096", "G294"
CORR RECIPIENT_TREATMENT	Treatmeny_Code	not equal to "171", "181"
<i>Kidney Transplant</i>		
CORR RECIPIENT_TREATMENT	Treatmeny_Code	"181"
	Transplanted_ Organ_Type_Code	"10", "11", "12", "18", "19"

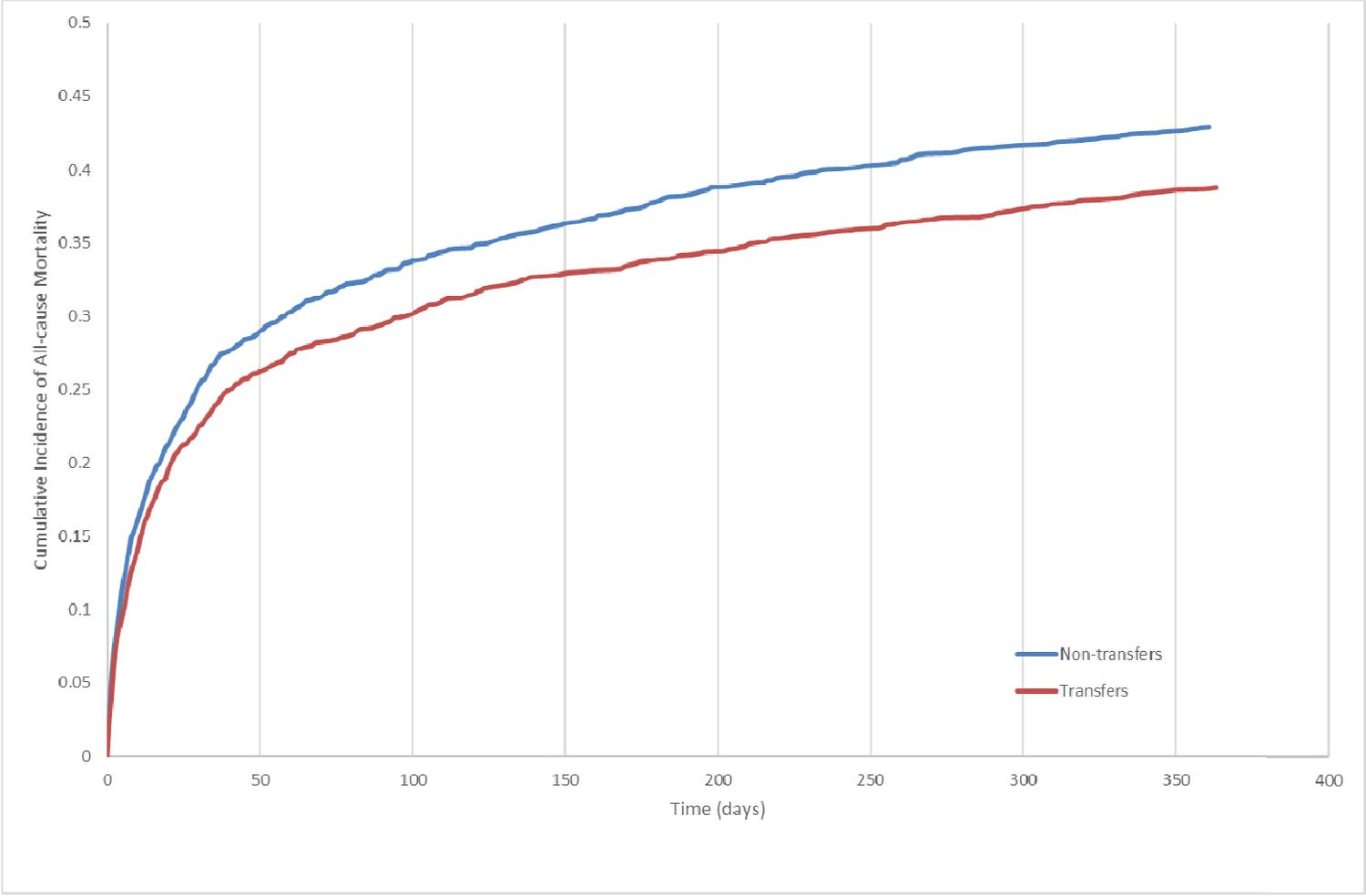
Abbreviations- CORR: Canadian Organ Replacement Registry, OHIP: Ontario Health Insurance Plan, RPDB: Registered Persons Database

Supplementary Table 6: Baseline characteristics of propensity score matched cohort

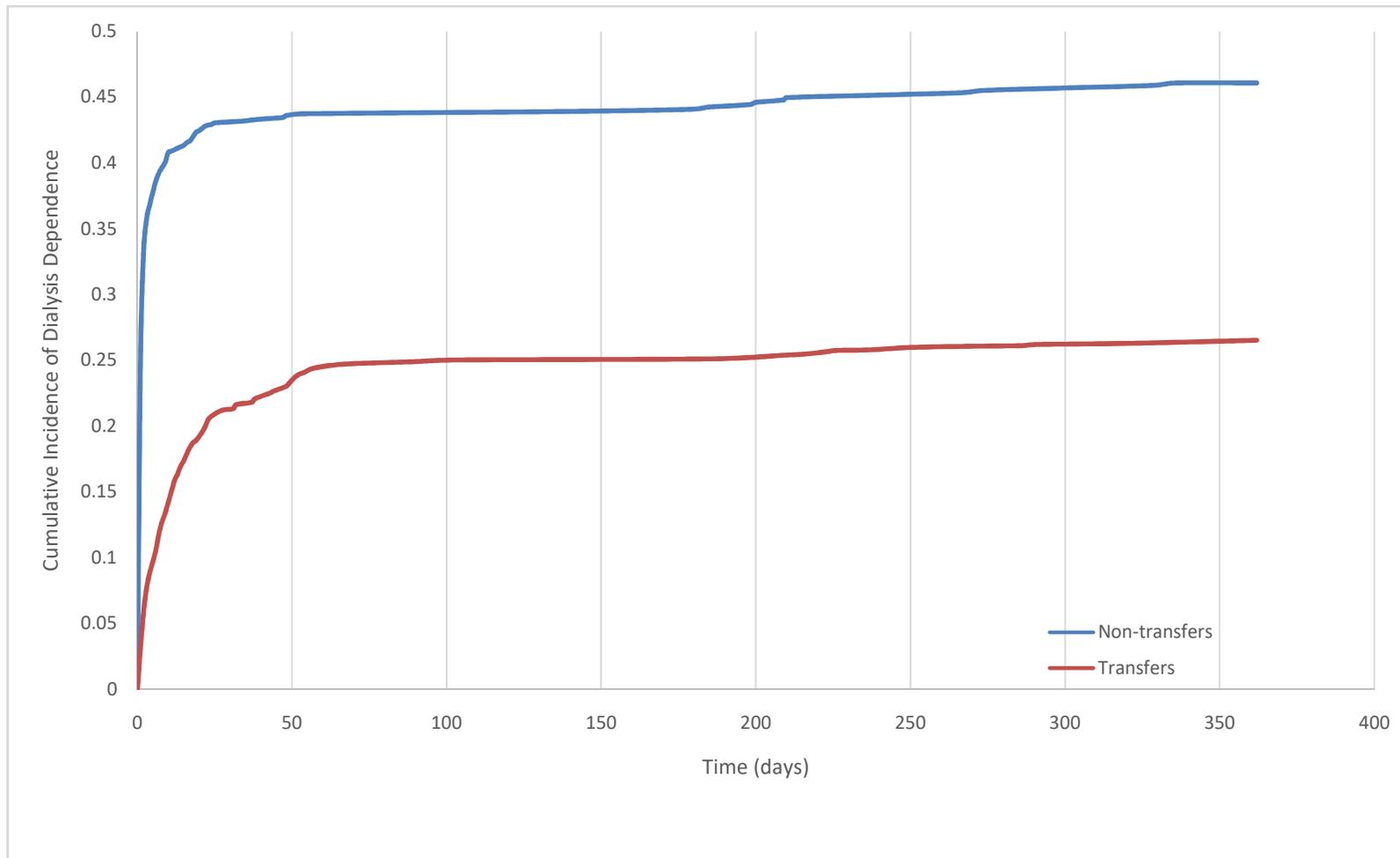
		Non-transfers	Transfers	Standardized difference	Total cohort N =4,080
		N = 2,040	N = 2,040		
		n (%)	n (%)		
Age at index date	Mean ± SD	65 ± 14.35	65 ± 14.35	0.0	65.45 ± 14.35
	Median (IQR)	68 (57-77)	68 (57-77)		68 (57-77)
Sex (Female)		825 (40)	825 (40)	0.0	1,650 (40)
Income quintile	1 (low)	405 (20)	416 (20)	0.01	821 (20)
	2	489 (24)	469 (23)	0.02	958 (23)
	3 (mid)	436 (21)	430 (21)	0.01	866 (21)
	4	412 (20)	415 (20)	0	827 (20)
	5 (high)	298 (15)	310 (15)	0.02	608 (15)
Rural residence		429 (21)	463 (22)	0.04	892 (22)
Long-term care residence		31 (2)	26 (1)	0.02	57 (1)
Distance from patient's home to index hospital (km)	Mean ± SD	19 ± 41.33	17 ± 61.93	0.03	17.91 ± 52.05
	Median (IQR)	6 (3-18)	6 (3-14)		6 (3-16)
Distance from patient's home to transferred hospital	Mean ± SD		48 ± 85.92		
	Median (IQR)		23 (12-51)		
Distance from first hospital to transferred hospital	Mean ± SD		45 ± 76.47		
	Median (IQR)		21 (12-44)		
Teaching hospital as initial admission hospital		18 (1)	18 (1)	0.0	36 (0.9)
Teaching hospital as transferred hospital			902 (44)		
Specialty of physician billing for dialysis	Nephrology	587 (29)	654 (32)	0.07	1,241 (30)
	Internal Medicine	1,401 (69)	1,322 (65)	0.08	2,723 (67)
	Other	52 (3)	64 (3)	0.04	116 (3)

Nephrology consult in 7 days prior to index dialysis		1,500 (75)	1,631 (80)	0.15	3,131 (77)
Nephrology consult in 1 year prior (outpatient or inpatient)		1,064 (52)	1,021 (50)	0.04	2,085 (51)
Number of previous nephrology consults in 1 year prior	Mean \pm SD	5 \pm 10.99	4 \pm 9.37	0.08	4.46 \pm 10.22
	Median (IQR)	1 (0-5)	0 (0-4)		1 (0-4)
Number of ER visits prior to hospital encounter in 1 year prior	Mean \pm SD	3 \pm 2.71	3 \pm 3.23	0.09	2.85 \pm 2.99
	Median (IQR)	2 (1-3)	2 (1-4)		2 (1-4)
Number of hospitalizations prior to hospital encounter in 1 year prior	Mean \pm SD	1 \pm 1.46	1 \pm 1.30	0.1	1.23 \pm 1.38
	Median (IQR)	1 (0-2)	1 (0-2)		1 (0-2)
Charlson Comorbidity Index	Mean \pm SD	3 \pm 2.33	2 \pm 2.25	0.06	2.46 \pm 2.29
	Median (IQR)	2 (0-4)	2 (0-4)		2 (0-4)
	.	725 (35)	739 (36)	0.01	1,464 (36)
	0	347 (17)	359 (18)	0.02	706 (17)
Charlson Comorbidity Index categories	1	169 (8)	174 (9)	0.01	343 (8)
	2	224 (11)	222 (11)	0.04	446 (11)
	3	182 (9)	186 (9)	0.01	368 (9)
	4	393 (19)	360 (18)	0.04	753 (19)
Johns Hopkins Aggregated Diagnosis Groups (ADG) score	Mean \pm SD	10 \pm 4.49	10 \pm 4.35	0.03	9.67 \pm 4.42
	Median (IQR)	10 (7-13)	10 (6-13)		10 (7-13)
	Acute Myocardial Infarction	181 (9)	179 (9)	0.00	360 (9)
	Congestive Heart Failure	583 (29)	581 (29)	0.00	1,164 (29)
	Cerebrovascular disease	199 (10)	218 (11)	0.03	417 (10)
	Diabetes mellitus	951 (47)	1,016 (50)	0.06	1,967 (48)
	All Malignancies	522 (26)	499 (25)	0.03	1,021 (25)
	Chronic Liver Disease	122 (6)	96 (5)	0.06	218 (5)

Peripheral Vascular Disease	166 (8)	182 (9)	0.03	348 (9)
Chronic Kidney Disease	679 (33)	624 (31)	0.06	1,303 (32)
Previous Acute Kidney Injury	498 (24)	487 (24)	0.01	985 (24)
Cardiac Arrhythmia	452 (22)	478 (23)	0.03	930 (23)
Ischemic Heart Disease	452 (22)	478 (23)	0.03	930 (23)
COPD	306 (15)	311 (15)	0.01	617 (15)
HIV/AIDS	0 (0)	8 (0)	0.04	12 (0.3)
Hypertension	1,172 (58)	1,211 (59)	0.04	2383 (58)
<hr/>				
Characteristics of hospital admission				
ICU admission during hospitalization	1,501 (74)	1,485 (73)	0.02	2,986 (73)
Mechanical ventilation within 14 days of admission	941 (46)	939 (46)	0.00	1,880 (46)
Sepsis within 14 days of admission	519 (25)	518 (25)	0.00	1,037 (25)
Non-ruptured aortic aneurysm within 14 days of admission	66 (3)	61 (3)	0.01	127 (3)
Cardiac surgery with 14 days of admission	29 (1)	24 (1)	0.02	53 (1)



Supplemental Figure S1: Cumulative incidence function curves for all-cause mortality amongst non-transferred and transferred patients for acute kidney injury receiving dialysis (adjusted for primary model covariates)



Supplemental Figure S2: Cumulative incidence function curves for dialysis dependence amongst non-transferred and transferred patients for acute kidney injury receiving dialysis (adjusted for primary model covariates)