

ISPOR 2024 | CLARK – EE263 | SUPPLEMENTARY MATERIALS

Table S1. Pre-Match vs. Post-Match Comparison of Inpatient Demographics at Index Admission for KTP (Unweighted)								
Data Element	Pre-Match				Post-Match			
	Total Sample (N=1,851)	Cases (n=917)	Controls (n=934)	p value	Total Sample (N=1,544)	Cases (n=772)	Controls (n=772)	p value
Age at Admission, yrs.								
Mean (SD)	54.34 (12.29)	55.11 (10.76)	58.58 (13.60)	0.0076*	54.26 (12.49)	55.26 (10.70)	53.27 (13.99)	<0.0001*
Median (IQR)	55 (46-63)	55 (48-63)	55 (44-64)	0.2340	55 (46-64)	56 (48-63)	55 (43-65)	0.1123
Age Groups, n (%)								
18-34 yrs.	129 (6.97%)	28 (3.05%)	101 (10.81%)	<0.0001*	113 (7.32%)	21 (2.72%)	92 (11.92%)	<0.0001*
35-44 yrs.	261 (14.10%)	122 (13.30%)	139 (14.88%)		222 (14.38%)	103 (13.34%)	119 (15.41%)	
45-54 yrs.	491 (26.52%)	287 (31.30%)	204 (21.84%)		401 (25.97%)	240 (31.09%)	161 (20.85%)	
55-64 yrs.	551 (29.77%)	293 (31.95%)	258 (27.62%)		452 (29.27%)	250 (32.38%)	202 (26.17%)	
≥65 yrs.	419 (22.64%)	187 (20.39%)	232 (24.84%)		356 (23.06%)	158 (20.47%)	198 (25.65%)	
CKD Stage, n (%)								
CKD Stage 4 (Assumed Pre-Emptive KTP)	13 (0.70%)	10 (1.09%)	3 (0.32%)	<0.0001*	12 (0.78%)	9 (1.17%)	3 (0.39%)	<0.0001*
CKD Stage 5 (Assumed Non-Dialysis or Incident Dialysis [<4 -months])	81 (4.38%)	60 (6.54%)	21 (2.25%)		72 (4.66%)	53 (6.87%)	19 (2.46%)	
End-Stage Kidney Disease (Assumed Prevalent Dialysis ≥ 4 -months)	1,757 (94.92%)	847 (92.37%)	910 (97.43%)		1,460 (94.56%)	710 (91.97%)	750 (97.15%)	
Dialysis Status, n (%)								
Yes	1,310 (70.77%)	560 (61.07%)	750 (80.30%)	<0.0001*	1,102 (71.37%)	481 (62.31%)	621 (80.44%)	<0.0001*
No	541 (29.22%)	357 (38.93%)	184 (19.70%)		442 (28.63%)	291 (37.69%)	151 (19.56%)	
Transplant Type, n (%)								
Allogeneic	1,842 (99.51%)	912 (99.45%)	930 (99.57%)	0.1583	1,537 (99.55%)	769 (99.61%)	768 (99.48%)	0.1495
Syngeneic	3 (0.16%)	3 (0.33%)	0 (0.00%)		2 (0.13%)	2 (0.26%)	0 (0.00%)	
Zooplastic	6 (0.32%)	2 (0.22%)	4 (0.43%)		5 (0.32%)	1 (0.13%)	4 (0.52%)	
Transplant Anatomical Location, n (%)								
Right Kidney	1,253 (67.69%)	632 (68.92%)	621 (66.49%)	0.2633	1,049 (67.94%)	534 (69.17%)	515 (66.71%)	0.3002
Left Kidney	598 (32.31%)	285 (31.08%)	313 (33.51%)		495 (32.06%)	238 (30.83%)	257 (33.29%)	

Expected Primary Payer, n (%)								
Medicare	1,098 (59.32%)	460 (50.16%)	638 (68.31%)	<0.0001*	896 (58.03%)	381 (49.35%)	515 (66.71%)	<0.0001*
Medicaid	66 (3.57%)	21 (2.29%)	46 (4.82%)		56 (3.63%)	18 (2.33%)	38 (4.92%)	
Private Insurance	652 (35.22%)	413 (45.04%)	239 (25.59%)		564 (36.53%)	355 (45.98%)	209 (27.07%)	
Self-Pay	5 (0.27%)	4 (0.44%)	1 (0.11%)		5 (0.32%)	4 (0.52%)	1 (0.13%)	
Other	23 (1.24%)	15 (1.65%)	8 (0.86%)		17 (1.10%)	11 (1.42%)	6 (0.78%)	
Missing/Invalid	7 (0.38%)	4 (0.44%)	3 (0.32%)		6 (0.39%)	3 (0.39%)	3 (0.39%)	
Median Household Income per Patient Zip Code (by quartile), n(%)								
First quartile: \$1 - \$45,999	403 (21.77%)	163 (17.78%)	240 (25.70%)	<0.0001*	346 (22.41%)	135 (17.69%)	211 (27.62%)	<0.0001*
Second quartile: \$46,000 - \$58,999	459 (24.80%)	226 (24.65%)	233 (24.95%)		378 (24.48%)	183 (23.98%)	195 (25.52%)	
Third quartile: \$59,000 - \$78,999	471 (25.45%)	230 (25.08%)	241 (25.80%)		393 (25.45%)	199 (26.08%)	194 (25.39%)	
Fourth quartile: \$79,000+	496 (26.80%)	286 (31.19%)	210 (22.48%)		410 (26.55%)	246 (32.24%)	164 (21.47%)	
Missing/NA	22 (1.19%)	12 (1.31%)	0 (0.00%)		0 (0.00%)	0 (0.00%)	0 (0.00%)	
Patient Location, n(%)								
Large central metro areas (>=1 million population)	592 (31.98%)	254 (27.70%)	338 (36.19%)	0.0011*	482 (31.22%)	213 (27.59%)	269 (34.84%)	0.0182*
Large fringe metro areas (>=1 million population)	530 (28.63%)	273 (29.77%)	257 (27.52%)		459 (29.73%)	238 (30.83%)	221 (28.63%)	
Medium metro areas (250,000–999,999 population)	369 (19.93%)	185 (20.17%)	104 (19.70%)		307 (19.88%)	154 (19.95%)	153 (19.82%)	
Small metro areas (50,000–249,999 population)	146 (7.89%)	81 (8.83%)	65 (6.96%)		120 (7.77%)	66 (8.55%)	54 (6.99%)	
Micropolitan areas	119 (6.43%)	71 (7.74%)	48 (5.14%)		97 (6.28%)	58 (7.51%)	39 (5.05%)	
Rural areas	92 (4.97%)	50 (5.45%)	42 (4.50%)		76 (4.92%)	40 (5.18%)	36 (4.66%)	
Missing/Invalid	3 (0.16%)	3 (0.33%)	0 (0.00%)		3 (0.19%)	3 (0.39%)	0 (0.00%)	
Resident, n (%)								
Resident	1,569 (84.76%)	773 (84.30%)	796 (85.22%)	0.5785	1,311 (84.91%)	657 (85.10%)	654 (84.72%)	<0.0001*
Non-Resident	262 (14.15%)	144 (15.70%)	138 (14.78%)		233 (15.09%)	115 (14.90%)	118 (15.28%)	
Weekend Admission, n (%)								
Yes (Saturday - Sunday)	368 (19.88%)	167 (18.21%)	201 (21.52%)	0.0745	295 (19.11%)	135 (17.49%)	160 (20.73%)	<0.0001*
No (Monday - Friday)	1,483 (80.12%)	750 (81.79%)	733 (78.48%)		1,249 (80.89%)	637 (82.51%)	612 (79.27%)	

Elective, n (%)								
Elective Admission	814 (43.98%)	428 (46.67%)	386 (41.83%)	0.0223*	675 (43.72%)	352 (45.60%)	323 (41.84%)	0.1937
Non-Elective Admission	1,035 (55.92%)	487 (53.11%)	548 (56.67%)		868 (56.22%)	419 (54.27%)	449 (58.16%)	
Missing	2 (0.11%)	2 (0.22%)	0 (0.00%)		1 (0.06%)	1 (0.13%)	0 (0.00%)	
Evidence of ED Services, n (%)								
None	1,824 (98.54%)	903 (98.47%)	921 (96.61%)	0.2901	1,522 (98.58%)	759 (98.32%)	763 (98.83%)	0.4882
ED Revenue Code	17 (0.92%)	8 (0.87%)	9 (0.96%)		14 (0.91%)	8 (1.04%)	6 (0.78%)	
ED Charge Reported	4 (0.22%)	1 (0.11%)	3 (0.32%)		3 (0.19%)	1 (0.13%)	2 (0.26%)	
Other Indication (e.g., condition code P7, indication of ED admission, point of origin of ED, or admission source of ED)	6 (0.32%)	5 (0.55%)	1 (0.11%)		5 (0.32%)	4 (0.52%)	1 (0.13%)	
Disposition at Discharge, n (%)								
Discharged to Home or Self-Care	1,440 (77.80%)	731 (79.72%)	709 (75.91%)	0.0344*	1,204 (77.98%)	611 (79.15%)	593 (76.81%)	0.1103
Transfer to Other Type of Facility (e.g., skilled nursing facility, intermediate care, any other facility type)	19 (1.03%)	5 (0.55%)	14 (1.50%)		13 (0.84%)	3 (0.39%)	10 (1.30%)	
Home Health Care	392 (21.18%)	181 (19.74%)	211 (22.59%)		327 (21.18%)	158 (20.47%)	169 (21.89%)	
Rehabilitation Transfer, n (%)								
Yes	11 (0.59%)	5 (0.55%)	6 (0.64%)	0.7857	10 (0.65%)	5 (0.65%)	5 (0.65%)	<0.0001*
No	1,840 (99.41%)	912 (99.45%)	928 (99.36%)		1,534 (99.35%)	767 (99.35%)	767 (99.35%)	
Same-Day Events, n (%)								
Not Combined Transfer or Same-Day Stay Record	1,837 (99.24%)	911 (99.35%)	926 (99.14%)	0.2016	1,532 (99.22%)	766 (99.22%)	766 (99.22%)	0.2730
Combined Transfer Record (2 discharges at different hospitals)	1 (0.05%)	1 (0.11%)	0 (0.00%)		1 (0.06%)	1 (0.13%)	0 (0.00%)	
Combined Same-Day Stay Record (2 discharges at different hospitals)	2 (0.11%)	2 (0.22%)	0 (0.00%)		2 (0.13%)	2 (0.26%)	0 (0.00%)	
Combined Same-Day Stay Record (2 discharges at same hospital)	9 (0.49%)	3 (0.33%)	6 (0.64%)		7 (0.45%)	3 (0.39%)	4 (0.52%)	

Combined Same-Day Stay Record (3+ discharges at same or different hospitals)	2 (0.11%)	0 (0.00%)	2 (0.21%)		2 (0.13%)	0 (0.00%)	2 (0.26%)
<p><i>Significance= p<0.05*; Pre-match: Chi-Square test was conducted to compare the proportions of patients for binary and categorical variables (age groups, chronic kidney disease [CKD] stage, transplant type, transplant anatomical location, dialysis status, expected primary payer, patient location, median household income, disposition at discharge, elective, evidence of emergency department [ED] services, day of admission, rehabilitation transfer, resident, same-day events). Student's t-test was conducted to compare the means for continuous age variable. Wilcoxon Rank Sum test was conducted to compare the medians for continuous age variable; Post-match: McNemar's test was conducted to compare the proportions of patients for binary variables (dialysis status, resident, weekend admission, rehabilitation transfer). Cochran-Mantel-Haenszel test was conducted to compare the proportions of patients for ordinal categorical variables (age groups, CKD stage, median household income). Chi-Square test was conducted to compare the proportions for nominal categorical variables (transplant type, transplant anatomical location, expected primary payer, patient location, elective, evidence of ED services, disposition at discharge, same-day events). Paired Student's t-test was conducted to compare the means for continuous age variable. Wilcoxon Rank Sum test was conducted to compare the medians for continuous age variable.</i></p>							

Table S2. Pre-Match vs. Post-Match Comparison of Inpatient Severity of Illness, Risk of Mortality, and Charlson Comorbidities at Index Admission for KTP (Unweighted)								
Data Element	Pre-Match				Post-Match			
	Total Sample (N=1,851)	Cases (n=917)	Controls (n=934)	p value	Total Sample (N=1,544)	Cases (n=772)	Controls (n=772)	p value
APR-DRG Risk of Mortality, n (%)								
Minor Likelihood of Dying	359 (19.39%)	169 (18.43%)	190 (20.34%)	0.0483*	304 (19.69%)	122 (15.80%)	182 (23.58%)	0.0018*
Moderate Likelihood of Dying	996 (53.81%)	523 (57.03%)	473 (50.64%)		849 (54.99%)	449 (58.16%)	400 (51.81%)	
Major Likelihood of Dying	446 (24.10%)	203 (22.14%)	243 (26.02%)		357 (23.12%)	184 (23.83%)	173 (22.41%)	
Extreme Likelihood of Dying	50 (2.70%)	22 (2.40%)	28 (3.00%)		34 (2.20%)	17 (2.20%)	17 (2.20%)	
Charlson Comorbidity Index (CCI) Score								
Mean (SD)	3.04 (1.34)	2.60 (1.01)	3.48 (1.48)	<0.0001*	3.04 (1.33)	2.62 (1.02)	3.45 (1.47)	<0.0001*
Median (IQR)	2 (2-4)	2 (2-3)	3 (2-5)	<0.0001*	2 (2-4)	2 (2-3)	3 (2-5)	<0.0001*
Charlson Comorbidity Categories**, n (%)								
Myocardial Infarction	78 (4.21%)	34 (3.71%)	44 (4.71%)	0.2828	63 (4.08%)	29 (3.76%)	34 (4.40%)	N/A
Congestive Heart Failure	124 (6.70%)	60 (6.54%)	64 (6.85%)	0.7902	104 (6.74%)	55 (7.12%)	49 (6.35%)	N/A
Peripheral Vascular Disease	83 (4.48%)	38 (4.14%)	45 (4.82%)	0.4836	72 (4.66%)	35 (4.53%)	37 (4.79%)	N/A
Cerebrovascular Disease	40 (2.16%)	21 (2.29%)	20 (2.14%)	0.8279	35 (2.27%)	19 (2.46%)	16 (2.07%)	N/A
Dementia	1 (0.05%)	0 (0.00%)	1 (0.11%)	0.3216	1 (0.06%)	0 (0.00%)	1 (0.13%)	N/A
Chronic Obstructive Pulmonary Disease	168 (9.08%)	80 (8.72%)	88 (9.42%)	0.6013	147 (9.52%)	70 (9.07%)	77 (9.97%)	N/A
Connective Tissue / Rheumatic Disease	56 (3.03%)	4 (0.44%)	52 (5.57%)	<0.0001*	53 (3.43%)	4 (0.52%)	49 (6.35%)	N/A
Peptic Ulcer Disease	7 (0.38%)	2 (0.22%)	5 (0.54%)	0.2662	6 (0.39%)	2 (0.26%)	4 (0.52%)	N/A
Mild Liver Disease	91 (4.92%)	43 (4.69%)	48 (5.14%)	0.6544	72 (4.66%)	35 (4.53%)	37 (4.79%)	N/A
Diabetes without Complications	238 (12.86%)	48 (5.23%)	190 (20.34%)	<0.0001*	193 (12.50%)	40 (5.18%)	153 (19.82%)	N/A
Diabetes with Complications	472 (25.50%)	88 (9.60%)	384 (41.11%)	<0.0001*	387 (25.06%)	75 (9.72%)	312 (40.41%)	N/A
Paraplegia / Hemiplegia	3 (0.16%)	1 (0.11%)	2 (0.21%)	0.5742	3 (0.19%)	1 (0.13%)	2 (0.26%)	N/A
Kidney Disease	1,851 (100.00%)	917 (100.00%)	934 (100.00%)	N/A	1,544 (100.00%)	772 (100.00%)	772 (100.00%)	N/A
Cancer	20 (1.10%)	9 (0.98%)	11 (1.18%)	0.6830	14 (0.91%)	8 (1.04%)	6 (0.78%)	N/A
Moderate or Severe Liver Disease	7 (0.38%)	6 (0.65%)	1 (0.11%)	0.0551	7 (0.45%)	6 (0.78%)	1 (0.13%)	N/A
Metastatic Carcinoma	0 (0.00%)	0 (0.00%)	0 (0.00%)	N/A	0 (0.00%)	0 (0.00%)	0 (0.00%)	N/A
AIDS / HIV	5 (0.27%)	1 (0.11%)	4 (0.43%)	0.1859	4 (0.26%)	1 (0.13%)	3 (0.39%)	N/A

Significance= $p < 0.05^*$; ******Patients may fall into more than one Charlson Comorbid Medical Condition category, so column percentages will not add up to 100%.

Pre-match: Chi-Square test was conducted to compare the proportions of patients for categorical variables (APR-DRG Risk of Mortality, Charlson Comorbidity Categories). Fisher's Exact test was conducted to compare the proportions for comorbidities with observed/expected counts < 5 (peptic ulcer disease, paraplegia/hemiplegia, moderate to severe liver disease, AIDS/HIV). Student's t-test was conducted to compare the means for continuous CCI score variable. Wilcoxon Rank Sum test was conducted to compare the medians for continuous CCI score variable. **Post-match:** McNemar's test was conducted to compare the proportions of patients for binary Charlson comorbidity category variables. Cochran-Mantel-Haenszel test was conducted to compare the proportions of patients for ordinal categorical variables (APR-DRG Risk of Mortality). Paired Student's t-test was conducted to compare the means for continuous CCI score variable. Wilcoxon Rank Sum test was conducted to compare the medians for continuous CCI score variable.

Table S3. Pre-Match vs. Post-Match Comparison of Hospital Characteristics at Index Admission for KTP (Unweighted)

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Table S4. Pre-Match vs. Post-Match Comparison of Inpatient Resource Use Outcomes at Index Admission for KTP (Unweighted)

Data Element	Pre-Match				Post-Match			
	Total Sample (N=1,851)	Cases (n=917)	Controls (n=934)	p value	Total Sample (N=1,544)	Cases (n=772)	Controls (n=772)	p value
Length of Stay, cumulative number of days								
Mean (SD)	5.98 (4.37)	5.66 (3.53)	6.29 (5.04)	0.0018 *	5.81 (4.06)	5.77 (3.62)	5.84 (4.46)	<0.0001 *
Median (Q1-Q3)	5 (4-7)	5 (4-7)	5 (4-7)	0.0053 *	5 (4-7)	5 (4-7)	5 (4-6)	0.7562
Total Hospital Charges, \$USD								
Mean (SD)	\$264,711 (\$140,266)	\$253,512 (\$128,582)	\$275,705 (\$150,117)	0.0006 *	\$261,181 (\$136,045)	\$255,373 (\$128,950)	\$266,988 (\$142,635)	<0.0001 *
Median (Q1-Q3)	\$227,876 (\$173,305 - \$312,139)	\$220,781 (\$167,929 - \$300,587)	\$237,776 (\$179,215 - \$323,264)	0.0007 *	\$224,381 (\$172,009 - \$308,253)	\$221,361 (\$168,376 - \$302,780)	\$229,193 (\$175,686 - \$314,812)	0.1322
Total Hospital Service Delivery Costs**, \$USD								
Mean (SD)	\$64,035 (\$27,157)	\$62,671 (\$24,702)	\$65,373 (\$29,319)	0.0321 *	\$63,544 (\$25,211)	\$63,699 (\$24,617)	\$63,389 (\$25,806)	<0.0001 *
Median (Q1-Q3)	\$60,069 (\$46,618 - \$75,455)	\$59,216 (\$45,806 - \$75,181)	\$60,483 (\$47,098 - \$75,867)	0.1032	\$60,055 (\$46,776 - \$75,171)	\$60,668 (\$47,001 - \$75,789)	\$59,701 (\$46,328 - \$74,209)	0.5915
Significance= $p < 0.05$ *; **converted from total hospital charges with application of 2018 cost-to-charge ratios [CCRs].								
<p>Pre-match: Student's t-test was conducted to compare the means for continuous variables (length of stay [LOS], total hospital charges, and total hospital service delivery costs). Wilcoxon Rank Sum test was conducted to compare the medians for continuous variables (LOS, total hospital charges, total hospital service delivery costs). Post-match: Paired Student's t-test was conducted to compare the means for continuous variables (LOS, total hospital charges, total hospital service delivery costs). Wilcoxon Rank Sum test was conducted to compare the medians for continuous variables (LOS, total hospital charges, total hospital service delivery costs).</p>								