**APPENDIX:** ROC ANALYSIS IN THE VALIDATION COHORT

Findings on ROC analysis in the Validation cohort were similar to those observed in the Training cohort. Neither CKDEPI nor MDRD was useful for predicting 1-year mortality with AUCs of 0.542 (0.451 – 0.633) for CKDEPI and 0.530 (0.438 – 0.622) for MDRD. Both equations performed more reliably for prediction of AKI with AUCs of 0.697 (0.607 – 0.787) for CKDEPI and 0.689 (0.594 – 0.784) for MDRD. Chi-square analysis demonstrated no significant advantage for any particular GFR measure ($p > 0.05$). ROC analyses performed to assess GFR as a predictor of CKD generated AUCs that are statistically indistinguishable when comparing MDRD to CKDEPI ($p > 0.05$).

**APPENDIX, TABLE 1: PATIENT CHARACTERISTICS INCLUDING VALIDATION COHORT**

| CHARACTERISTIC | ENTIRE SAMPLE | TRAINING COHORT | VALIDATION COHORT | P VALUE |
|---|---|---|---|---|
| | N (%) or Mean (SD) | N (%) or Mean (SD) | | T-test or Chisq[+] |
| **Number of Patients** | 517 (100) | 274 (100) | 243 (100) | |
| **Age of recipient,** Years | 55.7 (15.0) | 64.6 (7.9) | 45.6 (14.7) | <0.001* |
| **Female Gender** | 199 (38.5) | 73 (26.4) | 126 (51.9) | < 0.001* |
| **Caucasian Ethnicity** | 454 (87.8) | 251 (91.6) | 203 (83.5) | 0.005* |
| **Body Mass Index** | 23.9 (3.8) | 24.9 (2.8) | 23.0 (4.5) | <0.001* |
| **Radionuclide GFR,** mL/min per 1.73m$^2$ | NA | 84.6 (18.1) | NA | NA |
| **Diagnosis** | | | | <0.001* |
| *Obstructive disease* | 133 (25.7) | 80 (29.2) | 53 (21.8) | |
| *Restrictive disease* | 277 (53.5) | 176 (64.2) | 101 (41.6) | |
| *Cystic Fibrosis/bronchiectasis* | 76 (14.7) | 8 (2.9) | 68 (28.0) | |
| *Primary Pulmonary Hypertension* | 9 (1.7) | 5 (1.8) | 4 (1.7) | |
| *Other* | 22 (4.3) | 5 (1.8) | 17 (7.0) | |
| **Bilateral Transplant** | 407 (78.7) | 181 (66.1) | 226 (93) | < 0.001* |
| **Diabetes mellitus** | 99 (19.2) | 43 (15.7) | 56 (23.1) | 0.034* |
| **Congestive Heart Failure** | 44 (8.5) | 27 (9.9) | 17 (7.0) | 0.245 |
| **Age of donor,** Years | 34.8 (15.2) | 36.0 (15.1) | 33.5 (15.1) | 0.062 |
| **Ischemic time**, Hours (n = 417) | 7.0 (1.9) | 6.9 (2.0) | 7.2 (1.9) | 0.124 |
| **Lung Allocation Score** (n = 506) | 48.3 (16.8) | 48.8 (16.1) | 47.9 (17.5) | 0.188 |

* Significant at the 0.05 level; [+] T-test for continuous variables and Chisq for categorical variables

**APPENDIX, TABLE 2: CORRELATION AND HYPOTHESIS TESTING TO COMPARE RESULTS FROM DIRECT MEASURED GFR (RADIONUCLIDE STUDY) AND GFR EQUATIONS**

| | CORRELATION | | HYPOTHESIS TEST (PAIRED T-TEST) | |
|---|---|---|---|---|
| **EQUATION** | **PEARSON COEFFICIENT (R)** | **P-VALUE** | **T-STATISTIC** | **P-VALUE** |
| MDRD | 0.59 | <0.001* | 2.8 | <0.001+ |
| CKDEPI | 0.58 | <0.001* | 0.8 | 0.45 |
| Wright | 0.58 | <0.001* | 11.0 | <0.001+ |
| CG | 0.53 | <0.001* | 3.5 | <0.001+ |

MDRD – Modified Diet in Renal Disease, CKDEPI – Chronic Kidney Disease Epidemiology Collaboration, CG – Cockcroft-Gault

* Significant correlation at the 0.05 level

+ Significant difference at the 0.05 level

**APPENDIX, TABLE 3: LOGISTIC REGRESSION MODELS EVALUATING GFR MEASURES AS PREDICTORS OF OUTCOMES IN THE VALIDATION COHORT**

| ASSAY/EQUATION | BIVARIATE ANALYSIS P-VALUE (OR; 95% CI) | MULTIVARIABLE ANALYSIS* P-VALUE (OR; 95% CI) |
|---|---|---|
| **ACUTE KIDNEY INJURY** | | |
| MDRD | 0.014 (0.977; 0.958 – 0.995)[+] | 0.006 (0.975; 0.958 – 0.993)[+] |
| CKDEPI | 0.004 (0.971; 0.952 – 0.991)[+] | 0.002 (0.971; 0.954 – 0.989)[+] |
| **STAGE III CHRONIC KIDNEY DISEASE AT 6 MONTHS** | | |
| MDRD | <0.001 (0.981; 0.973 – 0.989)[+] | <0.001 (0.978; 0.968 – 0.988)[+] |
| CKDEPI | <0.001 (0.964; 0.953 – 0.976)[+] | <0.001 (0.967; 0.952 – 0.981)[+] |
| **DIALYSIS REQUIREMENT PRIOR TO DISCHARGE** | | |
| MDRD | 0.132 (0.982; 0.959 – 1.005) | NA[§] |
| CKDEPI | 0.080 (0.977; 0.952 – 1.003) | |
| **1-YEAR MORTALITY** | | |
| MDRD | 0.592 (0.998; 0.992 – 1.005) | NA[§] |
| CKDEPI | 0.488 (0.995; 0.982 – 1.009) | |
| **3-YEAR MORTALITY** | | |
| MDRD | 0.101 (1.007; 0.999 – 1.016) | NA[§] |
| CKDEPI | 0.052 (1.013; 1.000 – 1.027) | |
| **5-YEAR MORTALITY** | | |
| MDRD | 0.114 (1.012; 0.997 – 1.026) | NA[§] |
| CKDEPI | 0.068 (1.017; 0.999 – 1.036) | |

*Multivariate Analysis controlling for donor and recipient factors including age, sex, diagnosis, year of transplant, ischemic time and lung allocation score; The final models were selected using a backwards elimination process

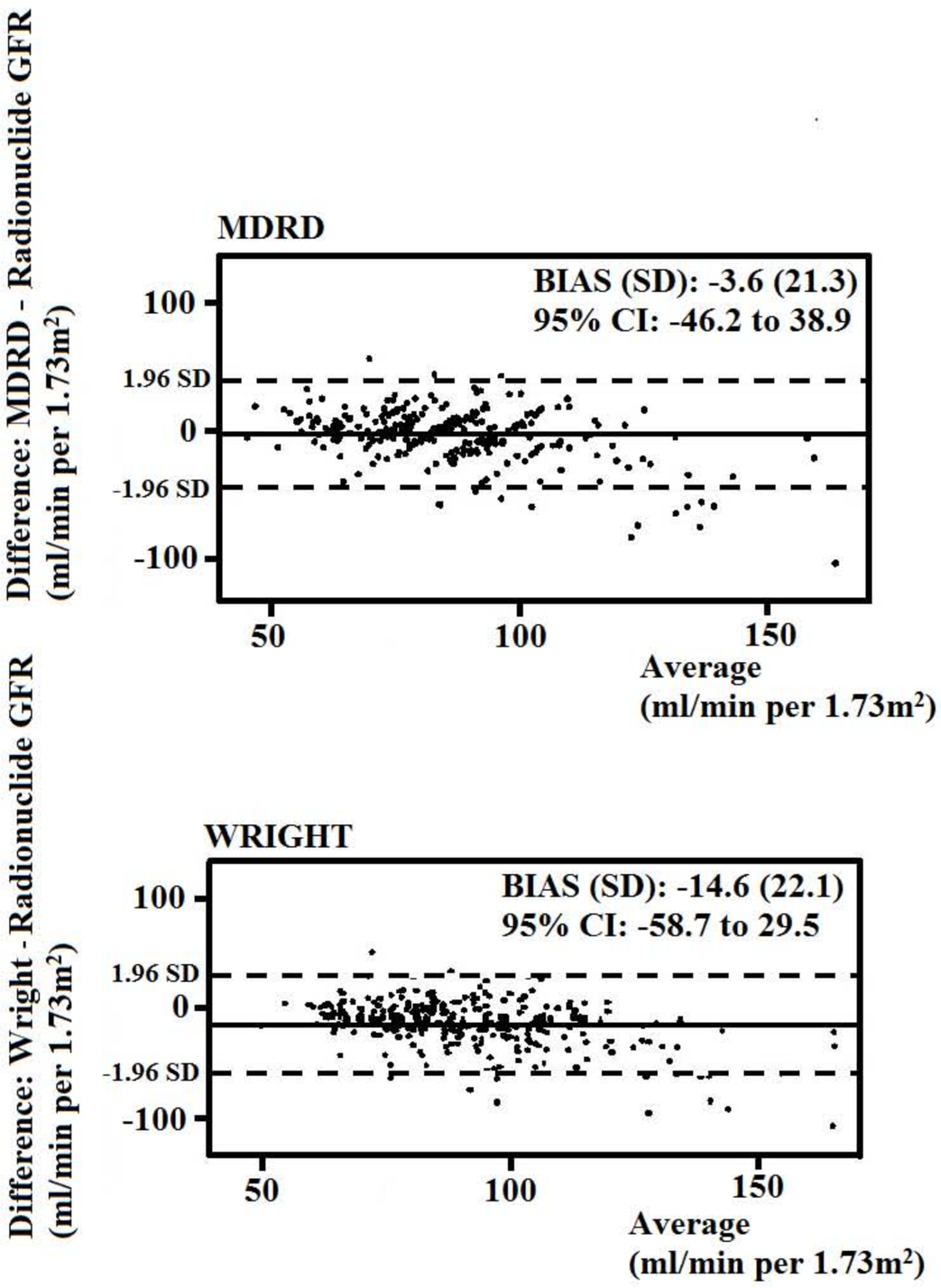
[+] Statistically significant at the 95% level

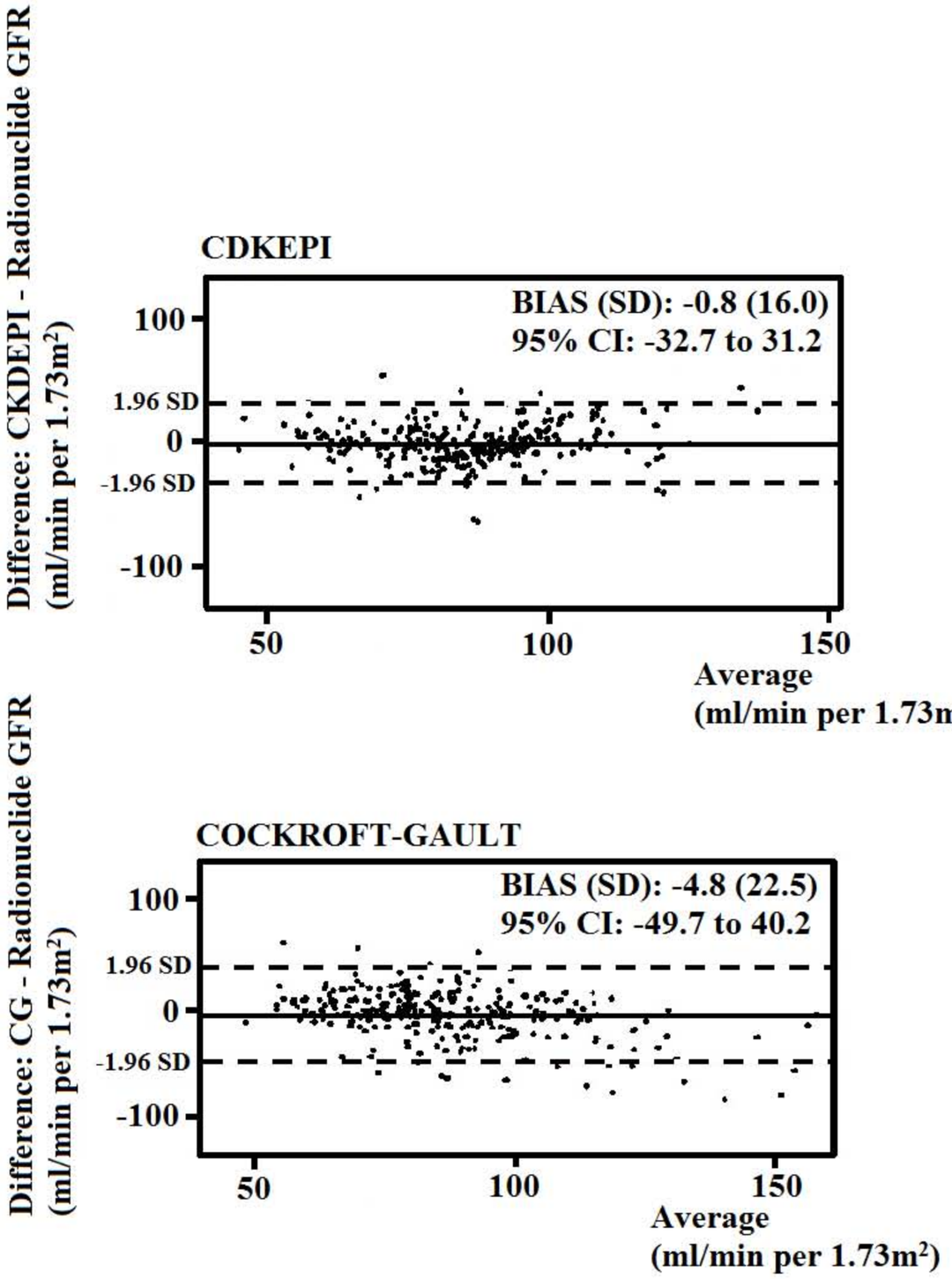
[§] Regression models not created given non-significance on bivariate analysis

**APPENDIX, TABLE 4: CONSIDERATION OF DIFFERENT CKDEPI SCREENING THRESHOLDS FOR PROMPTING FURTHER TESTING WITH THE RADIONUCLIDE ASSAY**

| **CUTOFF** ml/min per 1.73m$^2$ | **EXCLUDED FROM FURTHER TESTING, % (N)*** | **APPROPRIATELY EXCLUDED, % (N)*** | **IN-APPROPRIATELY EXCLUDED, % (N)*** |
|---|---|---|---|
| 50 | 94.9 (260) | 90.5 (248) | 4.4 (12) |
| 60 | 85.7 (235) | 81.8 (224) | 4.0 (11) |
| 70 | 73.0 (201) | 70.8 (195) | 2.2 (6) |
| 80 | 54.7 (150) | 52.9 (145) | 1.8 (5) |
| 90 | 37.2 (102) | 36.1 (99) | 1.1 (3) |
| 100 | 15.0 (41) | 14.2 (39) | 0.7 (2) |

*Percentages are relative to the overall sample size (N = 274)




**APPENDIX, FIGURE 1: BLAND-ALTMAN ANALYSIS COMPARING DIRECT MEASURED (RADIONUCLIDE) GFR TO GFR EQUATIONS.**
The means (solid lines) and 95% confidence intervals (dotted lines) of the bias are shown. For the MDRD, Wright and CG equations, correlation worsens significantly for higher values of average GFR. Correlation is much more consistent with the CKDEPI equations.