**Supplemental Tables**

Supplemental Table 1 Characteristics of creatinine assays used by the 23 participating hospitals.

|  |  |  |  |
| --- | --- | --- | --- |
| Instrument manufacturer Platform/Numbering | Manufacturer of Cr-C assays | Calibrators of Cr-C assays | Traceability of Cr-C assays |
| Abbott a ArchitectC16000 | Sekisuib | Sekisui | NIST SRM 914a |
| Beckmanc AU5400-1 | Biosinod | Biosino | GBW09174 |
| Beckman AU5400-2 | Sekisui | Sekisui | NIST SRM 914a |
| Beckman AU5400-3 | Medical systeme | Medical system | NIST SRM 914a |
| Beckman AU5400-4 | Beckman | Beckman | NIST SRM 967a |
| Beckman AU5800-1 | Beckman | Beckman | NIST SRM 967a |
| Beckman AU5800-2 | Beckman | Beckman | NIST SRM 967a |
| Beckman AU5800-3 | Merit Choicef | Merit Choice | NIST SRM 909c |
| Beckman AU5800-4 | Wakog | Wako | NIST SRM 914a |
| Beckman AU5800-5 | Gcellh | Gcell | NIST SRM 909b |
| Beckman AU5800-6 | Kehuai | Kehua | NIST SRM 967a |
| Beckman AU5800-7 | Leadmanj | Leadman | NIST SRM 914a |
| Beckman AU5800-8 | Maccurak | Maccura | NIST SRM 967a |
| Beckman AU5800-9 | Merit Choice | Merit Choice | NIST SRM 914a |
| Beckman AU5800-10 | Reebiol | Beckman | NIST SRM 909c |
| Beckman AU5800-11 | Sekisui | Sekisui | NIST SRM 914a |
| Hitachim 7180 | Wako | Wako | NIST SRM 914a |
| Hitachi 7600-1 | Gcell | Randoxn | NIST SRM 909b |
| Hitachi 7600-2 | Maccura | Maccura | NIST SRM 967a |
| Rocheo Cobas 502 | Roche | Roche | ID/MS |
| Roche Cobas 701 | Roche | Roche | ID/MS |
| Roche Cobas 702-1 | Roche | Roche | ID/MS |
| Roche Cobas 702-2 | Roche | Roche | ID/MS |

Cr-C assays, the enzymatic method creatinine assays used in 23 participating hospitals

1. Abbott Diagnostics, Park City, IL, USA
2. Sekisui, Sekisui Chemical, Hitachi, Tokyo, Japan
3. Beckman, Beckman Coulter, Brea, CA
4. Biosino, Bio-Technology and Science, Beijing, China
5. Medical system Biotechnology, Ningbo, China
6. Merit Choice Bioengineering, Beijing, China
7. Wako Pure Chemical Industries, Japan
8. Beijing Strong Biotechnologies, Beijing, China;
9. Shanghai Kehua Bio-Engineering, shanghai, China
10. Leadman, Leadman Biochemistry, Beijing, China;
11. Maccura, Maccura Biotechnology, Chengdu, China
12. Ningbo Ruiyuan Biotechnology, Ningbo, China
13. Hitachi, Tokyo, Japan
14. Randox Laboratories, Switzerland
15. Roche, Hoffmann-La Roche, Basel, Switzerland

Supplemental Table 2 Passing-Bablok regression among each Cr-R assay and the reference method

|  |  |  |  |
| --- | --- | --- | --- |
| Instrument manufacturer Platform/Numbering | Passing-Bablok regression | Intercept A 95%CI a | Slope B 95%CI a |
| Abbott ArchitectC16000 | Y=-0.566+1.022X | -6.9684 to 2.6789 | 1.0031 to 1.0523 |
| Beckman AU5400-1 | Y=-3.291+0.993X | -11.6134 to 0.3148 b | 0.9662 to 1.0155c |
| Beckman AU5400-2 | Y=0.786+0.988X | -6.0529 to 10.4939 b | 0.9534 to 1.0059 c |
| Beckman AU5400-3 | Y=-5.264+1.016X | -10.6891 to -1.6336 | 0.9978 to 1.0306 c |
| Beckman AU5400-4 | Y=-6.565+1.009X | -11.6044 to -1.8280 | 0.9850 to 1.0209 c |
| Beckman AU5800-1 | Y=-6.355+1.016X | -10.3550 to -3.0636 | 1.0006 to 1.0308 |
| Beckman AU5800-2 | Y=-0.076+0.992X | -2.8246 to 2.2622 b | 0.9827 to 1.0000 c |
| Beckman AU5800-3 | Y=-4.091+0.993X | -9.9572 to -0.6970 | 0.9707 to 1.0182 c |
| Beckman AU5800-4 | Y=-2.949+1.076X | -8.4837 to 1.5903b | 1.0529 to 1.1026 |
| Beckman AU5800-5 | Y=-5.485+0.976X | -10.3088 to -3.0289 | 0.9601 to 0.9957 |
| Beckman AU5800-6 | Y=-0.207+1.048X | -6.1227 to 3.1702 b | 1.0315 to 1.0764 |
| Beckman AU5800-7 | Y=-2.352+0.962X | -11.5778 to 0.2973 b | 0.9456 to 1.0230 c |
| Beckman AU5800-8 | Y=-6.364+1.022X | -9.2237 to -3.7747 | 1.0088 to 1.0358 |
| Beckman AU5800-9 | Y=-6.835+1.019X | -17.0662 to -0.2575 | 0.9886 to 1.0809 c |
| Beckman AU5800-10 | Y=-6.103+1.048X | -14.1110 to 0.4205 b | 1.0099 to 1.0703 |
| Beckman AU5800-11 | Y=-6.075+0.999X | -9.2657 to -2.6216 | 0.9822 to 1.0079 c |
| Hitachi 7180 | Y=-7.018+0.996X | -11.6590 to -2.7447 | 0.9727 to 1.0090 |
| Hitachi 7600-1 | Y=-3.953+1.002X | -7.5594 to -1.3293 | 0.9851 to 1.0126 c |
| Hitachi 7600-2 | Y=-3.948+1.007X | -6.3369 to -1.4646 | 0.9912 to 1.0187 c |
| Roche Cobas 502 | Y=2.498+1.013X | -2.3585 to 6.4215 b | 0.9941 to 1.0294 c |
| Roche Cobas 701 | Y=-2.933+1.041X | -6.7543 to -0.7057 | 1.0298 to 1.0545 |
| Roche Cobas 702-1 | Y=-6.575+0.975X | -13.2566 to -2.0493 | 0.9490 to 1.0012 c |
| Roche Cobas 702-2 | Y=-1.519+1.011X | -5.9092 to 1.0837 b | 0.9943 to 1.0285 c |

a Bootstrap confidence interval (1000 iterations; random number seed: 978).

b 95%CI of Intercept A contains 0.

c 95%CI of Slope B contains 1.

Supplemental Table 3 Bias at the medical decision levels and 95% confidence interval (CI) of the individual Cr-R assay according to the 23 participating clinical laboratories

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Instrument manufacturer Platform/Numbering | Bias at medical decision level of 88.4 μmol/L (95CI) | Bias at medical decision level of 133 μmol/L (95CI) | Bias at medical decision level of 265 μmol/L (95CI) | Bias at medical decision level of 442 μmol/L (95CI) |
| Abbott ArchitectC16000 | 1.56% (-2.95% to 3.71%)b | 1.77% (-0.53% to 2.84%) b | 1.97% (0.99% to 3.37%) | 2.06% (0.74% to 3.82%) |
| Beckman AU5400-1 | -4.48% (-12.49% to -2.79%) | -3.18% (-7.64% to -2.35%) | -1.92% (-3.50% to -1.13%) | -1.41% (-3.46% to -0.44%) |
| Beckman AU5400-2 | -0.35% (-6.69% to 8.72%) b | -0.65% (-4.32% to 5.04%) b | -0.95% (-2.58% to 1.30%) b | -1.07% (-3.28% to 0.18%) b |
| Beckman AU5400-3 | -4.42% (-9.54% to -1.56%) | -2.35% (-5.24% to -0.94% ) | -0.35% (-1.34% to 0.16%) b | 0.44% (-0.75% to 1.04%) b |
| Beckman AU5400-4 | -6.73% a (-11.95% to -2.95%) | -4.10% (-7.22% to -1.83%) | -1.57% (-2.89% to -0.39%) | -0.57% (-2.14% to 0.34%) b |
| Beckman AU5800-1 | -5.77% a (-9.10% to -3.31%) | -3.25% (-4.90% to -2.01%) | -0.82% (-1.43% to -0.06%) | 0.14% (-0.72% to 0.99%) b |
| Beckman AU5800-2 | -0.87% (-3.49% to 1.10%) b | -0.84% (-2.38% to 0.32%) b | -0.81% (-1.45% to -0.18%) | -0.80% (-1.44% to -0.22%) |
| Beckman AU5800-3 | -5.50% (-10.68% to -3.46%) | -3.80% (-6.72% to -2.74%) | -2.30% (-3.57% to -0.76%) | -1.67% (-3.27% to 0.22%) b |
| Beckman AU5800-4 | 4.14% (0.53% to 7.17%) | 5.20% (3.59% to 6.98%) | 6.25% a (5.52% to 7.80%) | 6.66% a (5.52% to 8.32%) |
| Beckman AU5800-5 | -9.04% a (-13.02% to -7.70%) | -6.79% a (-8.79% to -6.16%) | -4.62% (-5.41% to -3.52%) | -3.76% (-4.90% to -2.40%) |
| Beckman AU5800-6 | 4.43% (0.49% to 6.53%) | 4.51% (2.81% to 5.70%) | 4.58% (4.09% to 6.16%) | 4.61% (3.70% to 6.44%) |
| Beckman AU5800-7 | -6.72% a (-12.32% to -4.82%) | -5.77% a (-7.92% to -3.74%) | -4.84% (-5.69% to -1.27%) | -4.47% (-5.61% to -0.02%) |
| Beckman AU5800-8 | -5.08% (-7.68% to -3.11%) | -2.58% (-4.01% to -1.37%) | -0.16% (-0.83% to 0.56%) b | 0.80% (-0.11% to 1.63%) b |
| Beckman AU5800-9 | -5.97% a (-12.78% to -0.90%) | -3.21% (-5.81% to 0.13%) b | -0.65% (-1.45% to 3.48%) b | 0.39% (-1.16% to 5.07%) b |
| Beckman AU5800-10 | -2.09% (-9.43% to 2.22%) b | 0.25% (-3.73% to 2.59%) b | 2.51% (1.01% to 3.60%) | 3.40% (1.03% to 4.52%) |
| Beckman AU5800-11 | -7.26% a (-10.21% to -4.47%) | -4.82% (-6.39% to -3.23%) | -2.46% (-3.16% to -1.55%) | -1.52% (-2.53% to -0.74%) |
| Hitachi 7180 | -8.73% a (-13.30% to -5.59%) | -5.87% a (-8.39% to -4.08%) | -3.13% (-4.05% to -2.28%) | -2.04% (-3.44% to -1.33%) |
| Hitachi 7600-1 | -4.37% (-7.84% to -2.89%) | -2.82% (-4.77% to -2.05%) | -1.31% (-2.25% to -0.87%) | -0.71% (-1.82% to -0.17%) |
| Hitachi 7600-2 | -3.81% (-5.67% to -2.29%) | -2.26% (-3.24% to -1.66%) | -0.76% (-1.64% to -0.23%) | -0.16% (-1.33% to 0.56%) b |
| Roche Cobas 502 | 4.03% (0.12% to 6.85%) | 3.11% (1.00% to 4.75%) | 2.20% (1.52% to 3.24%) | 1.83% (0.83% to 2.73%) |
| Roche Cobas 701 | 0.75% (-2.38% to 2.40%) b | 1.85% (0.18% to 2.72%) | 2.92% (2.19% to 3.36%) | 3.35% (2.65% to 4.01%) |
| Roche Cobas 702-1 | -10.47% a (-16.44% to -7.46%) | -7.74% a (-10.76% to -5.94)% | -5.12% (-6.10% to -3.48%) | -4.08% (-5.71% to -2.33%) |
| Roche Cobas 702-2 | -0.63% (-4.07% to 0.86%) b | -0.06% (-1.80% to 0.78%) b | 0.51% (-0.31% to 1.41%) b | 0.74% (-0.40% to 1.83%) b |

a Minimal bias specification of 5.6%.

b 95%CI of bias at medical decision level contains 0