

REFERENCE INTERVALS FOR PLASMA POTASSIUM DRAWN INTO BECTON
 DICKINSON PST PLUS PLASTIC VACUTAINER TUBES FOR THE VITROS 950
 AND ADVIA 1650 (REGULAR CENTRIFUGATION) AND THE BECKMAN LX-20
 (BECKMAN POWER PROCESSOR PREANALYTICS CENTRIFUGATION)

G. S. CEMBROWSKI¹, G. B. BLAKNEY², T. N. HIGGINS², C. W. REVERS¹, K. L. PODLOSKY¹,
 T. L. HOFER¹, ¹UNIVERSITY OF ALBERTA HOSPITAL, EDMONTON, AB, CANADA,
²DYNACARE KASPER MEDICAL LABORATORIES, EDMONTON, AB, CANADA. PRESENTED AT
 THE ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF CLINICAL CHEMISTRY, LOS
 ANGELES, CALIFORNIA, JULY 2004. CLIN CHEM 2004, 50, A108, ABSTRACT D-6.

As part of a large regional reference interval study of general chemistry analytes and the eventual introduction of plastic Vacutainer blood drawing tubes (Becton Dickinson, Franklin Lakes, NJ), we drew multiple blood samples from 99 males and 102 females into 13x100 mm Plasma Separator Tubes (PST) gel tubes containing lithium heparin (Plus Plastic) and Serum Separator Tubes (SST) containing clot activator (Plus Plastic). The subjects were in good health and consisted largely of hospital employees and their immediate families. One set of PST and SST tubes was centrifuged with a regular laboratory centrifuge (2900 rpm for 10 minutes) with approximately the first 100 samples run offsite on the Advia 1650 (Bayer Diagnostics, Tarrytown NY) and the second set run offsite on the Vitros 950 (Ortho-Clinical Diagnostics, Raritan, NJ). One set of PST tubes was centrifuged with the Beckman Power Processor centrifuge system (3000 rpm for 4 minutes) and then run on the Beckman LX-20 (Beckman Coulter, Fullerton, CA). The Table summarizes our findings. Inspection of the plasma and serum histograms for the Advia and Vitros demonstrates that compared to the serum values, the majority of the plasma values have shifted downwards. We attribute the lower plasma LX-20 potassium range to the Power Processor centrifugation and more complete separation of the red cells and platelets from the plasma. When plastic PST tubes are used, the generally applied 3.5 or 3.6 mmol/L lower reference limit for potassium will cause unnecessary workups for hypokalemia. We believe that laboratories that analyze K in plastic PST tubes should re-examine their lower reference limit for potassium. Laboratories that are using both PST and SST tubes must develop a system to insure that the correct reference interval accompanies each potassium result.

Instrument	Plasma/Serum	2.0 Percentile	2.5 Percentile	97.5 Percentile	98 Percentile
Advia 1650	Plasma	3.38	3.40	4.20	4.22
Advia 1650	Serum	3.58	3.60	4.40	4.40
Vitros 950	Plasma	3.40	3.40	4.20	4.20
Vitros 950	Serum	3.60	3.60	4.50	4.50
LX-20	Plasma	3.29	3.30	4.20	4.20