Validations of New DBS Assays

EILEEN CRIMMINS, TERESA SEEMAN, ALAN POTTER, HEATHER MCCREATH, JUNG KI KIM, PERRY HU

USC/UCLA CENTER ON BIODEMOGRAPHY AND POPULATION HEALTH

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Dried Blood Spot Assays

- IL 6
- Vitamin D
- EBV
- CMV
- Link between EBV and CMV
Procedures

Blood collected in Los Angeles from a volunteer sample of about 90 people
  ◦ venous blood collected and DBS made at the same time
  ◦ Shipped frozen to Seattle, Washington

Assays done at the University of Washington lab.

Compare the assay values
IL-6 – Cytokine – Inflammatory marker

Moderately strong relationship Plasma and DBS

Correlation Coefficient - DBS and Plasma – 0.74

4 Plasma values >8 elim-Correlation Coefficient 0.43
Total Vitamin D – Strong relationship between Serum vs. DBS

Correlation coefficient - .84
First Determine Positivity to – EBV and CMV

Only look at antibody level among Positive Cases for CMV and EBV

EBV 92% positive in DBS

CMV 69% positive in DBS
EBV antibody level versus Serum level among positive cases – Strong relationship

Correlation Coeff = 0.94 (p<.0001)
CMV antibody level versus serum level among positives – Strong relationship

Correlation Coeff = 0.89 (p<.0001)
EBV and CMV antibodies – Serum and DBS
Weak relationship to each other in both Serum and DBS

**Serum**
Correlation Coefficient = 0.49

**DBS**
Correlation Coefficient = 0.33
• Options for DBS assay have increased

• More evidence that not all assays are equally reliable and valid in DBS

• Antibodies to EBV and CMV not very strongly related
Vitamin D – Two Components measures of Total Vitamin D versus DBS

Correlation Coefficient - .99

25-Hydroxyvitamin D2 (25-OH-VitD D2)
UCLA-USC Assay Validation 2015 Project
Serum vs. Serum-Matched DBS Samples (N=84, n=1)

\[ y = 0.841x - 0.483 \]
\[ R^2 = 0.988 \]

Correlation Coefficient - .88

25-Hydroxyvitamin D3 (25-OH-VitD D3)
UCLA-USC Assay Validation 2015 Project
Serum vs. Serum-Matched DBS Samples (N=86, n=1)

\[ y = 1.106x + 2.375 \]
\[ R^2 = 0.877 \]