Update on Biomarker Data Collection: CHARLS Wave 3

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Collection

• Field work: July 2015 – September 2015
• Type of specimen collected
  – Venous blood was collected by nurses or phlebotomists from local hospitals
  – 2 mL tube for complete blood cell count (CBC) test
  – 2 mL tube for glycosylated hemoglobin (HbA1c) test
  – 6 mL tube, processed to obtain plasma anduffy coat
Collection

• Location for blood collection
  – Centralized locations: 94%
  – Home: 6%

• Response rate for venous blood collection: 63%

• Fasting specimens: 85%
Processing

• Venous blood specimens were processed into plasma and buffy coat in a median of 78 minutes, then frozen under -20ºC until shipment

• Whole blood for HbA1c was stored under 4ºC until shipment
Shipping

- Plasma, buffy coat, and whole blood specimens were picked up by a cold chain company within a median of 5 days and shipped to the central storage facility in Beijing with dry ice
- Median shipping duration: 2 days
- Independent temperature monitoring during shipment
  - 92.0% were consistently below -40°C
  - 5.4% had highest temperature between -40°C and -20°C
Bioassay Selection

• Specific biomarkers measured
  – Whole blood
    • Complete blood cell counts (CBC)
    • Glycosylated hemoglobin (HbA1c)
  – Plasma
    • Glucose
    • Lipid panel (total, HDL-C, LDL-C, triglyceride)
    • High sensitivity C-reactive protein (hsCRP)
    • Blood urea nitrogen (BUN) and creatinine
    • Cystatin C
    • Uric acid
CBC Test

• CBC Test
  – Measured on automated analyzers at local hospitals or town/village health centers
  – Median duration from blood collection to testing was 107 minutes
Other Bioassays

- Laboratory for other bioassays: KingMed Diagnostics
  - Largest third-party clinical laboratory system in China
  - Alliance partnership with Quest Diagnostics
  - CAP and ISO 15189 certifications
- Bioassay work: July 2015 – October 2015 (compared to 10 months for CHARLS wave 1)
- Specimen storage time in -80°C freezers before assays
  - Median for HbA1c assay: 34 days
  - Median for plasma-based assays: 53 days
- Specimens were shipped to KingMed laboratory via a cold chain
Other Bioassays

• The KingMed laboratory conducts quality control daily
• Inter-assay CVs were 2% to 3% for HbA1c, lipid panel, BUN, creatinine, and uric acid
• Inter-assay CVs were approximately 5% for hsCRP, cystatin C, and glucose
Thank You!