The Role of the Coordinating Centers for Biometric Research in West African Biomedical Research

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The CCBR

- Group of about 50 biostatisticians, data managers and protocol managers
- Started out conducting cardiovascular and pulmonary health research in the 1970's
- Branched out to HIV/AIDs research in the 1980's
- Moved into the study of other infectious diseases about 10 years ago (H1N1 pandemic of 2009)

HIV/AIDS Research

- SMART Trial: International clinical trial of the impact of drug conservation strategies (N Engl J Med 2006; 355:2283-2296)
  - CD4 guided, antiretroviral drug “holidays” are associated with increased morbidity and mortality
- START Trial: International clinical trial of the impact of initiating antiretroviral drugs immediately versus delay (N Engl J Med 2015; 373:795-807)
  - Antiretroviral treatment should be initiated immediately upon diagnosis

Ebola Research

- August 2014: WHO declares the West African outbreak a public health emergency
  - The Liberian Minister of Health reaches out to the US director of Health and Human Services
- February 2, 2015: First patient randomized in a phase 2/3, double-blind controlled vaccine trial (n=27,000)
  - Resource limitations: physical randomization, paper case report forms, unreliable electricity and internet
  - Research during an epidemic: impossible?

Redemption Hospital

Global Health Day, 2018

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Ebola Research

- The trial, called PREVAIL I, was stopped early for futility for the primary efficacy endpoint
  - We did demonstrate safety and immunogenicity (N Engl J Med 2017; 377:1438-1447)
- We also implemented a treatment trial of Zmapp, but that too was stopped prior to its enrolment goal due to futility (N Engl J Med 2016; 375:1448-1456)
- A cohort study of survivors, PREVAIL III, was initiated in June 2015

Ebola Research

- PREVAIL III distinguishing features:
  - Largest cohort of Ebola survivors ever studied (over 1100 survivors)
  - Matched group of contacts during infection (over 2700 contacts, which serve as controls)
  - Serologic data available for all participants
    - Allows us to see who mounted an immune response
  - Follow-up visits every 6 months for 5 years
  - Extensive laboratory data and physical exams
  - Numerous sub-studies (e.g. ophthalmological, neurological and a birth cohort)

Ebola Research-still enrolling

- PREVAIL IV: a double-blind, randomized controlled trial of an antiviral compound with the potential to clear Ebola RNA from the urogenital tract of male survivors
- PREVAIL V/PREVAC: a double-blind, randomized controlled vaccine trial (in Liberia, Sierra Leonne, Guinea and Mali)
- PREVAIL VI: a genome-wide association study of the impact of host genetic factors on the clinical course of Ebola infection

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