



# GLOBAL PATHOLOGY OUTREACH

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# PRESENTATION OBJECTIVES

- Provide a working definition of “global health”
- Trace the path of my career in global health initiatives:
  - United Arab Emirates
  - Rwanda
  - Liberia
  - Senegal
- Provide practical lessons that I have learned related to clinical pathology practice internationally
- Provide personal observations on global pathology practice

# GLOBAL HEALTH

- Global health is the health of populations in a global context. (Am J Public Health, 2006)
- Global health is a discipline that advances efforts to improve the well-being of people and the planet. (Keith Martin, Consortium of Universities for Global Health)
- The area of study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. (Lancet, 2009)
- Global health is about worldwide health improvement, reduction of disparities, and protection against global health threats that disregard national borders. (J Public Health Policy, 2008)

# TRANSITION TO INTERNATIONAL PRACTICE

- 2004-2010: Short term medical mission trips to Central America; founding Medical Director of Esperanza Clinic
- In 2010, my wife and I were ready for international work
- Before we left, we obtained additional training:
  - Perspectives- a 15-week intensive missions course
  - Institute for International Medicine (INMED; Kansas City)- a 2-week hands-on training course in international medicine and public health
- Where should we go?
- A friend that we met through the Perspectives course introduced us to the CEO of a hospital in the United Arab Emirates; after a visit, we were ready to go

# UNITED ARAB EMIRATES (UAE)



# OASIS HOSPITAL

- Christian mission hospital begun at the request of the ruling family
- Local population dwindling due to extremely high infant (50%) and maternal (35%) mortality rates
- Now a 150-bed tertiary care hospital still focused on pediatrics and women's health + migrant health
- 500+ employees from 40 different countries



# OASIS HOSPITAL LABORATORY

- **Laboratory Sections:**

- Clinical Chemistry
- Clinical Microscopy
- Hematology/Blood Bank/Coagulation
- Microbiology

- **Medical Director Duties:**

- Clinical consultation
- Test result interpretation
- Technical direction
- Quality direction
- Personnel direction
- Information technology management



# OASIS HOSPITAL LABORATORY STAFF





# LESSONS LEARNED IN THE UAE

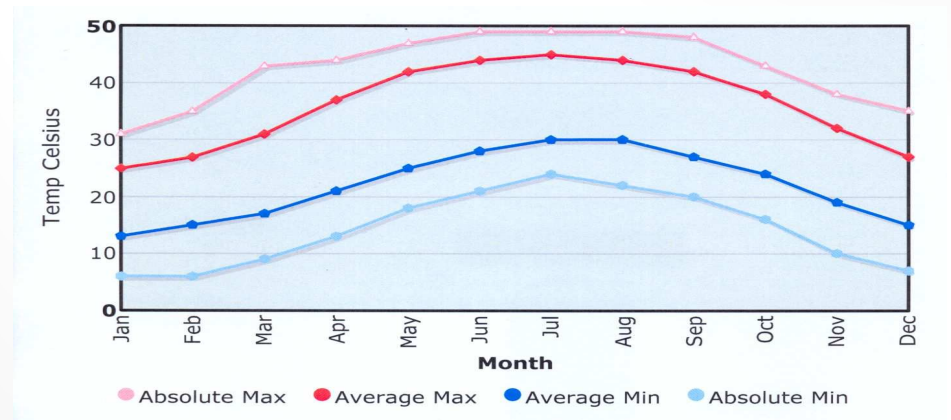
- Test Menu Development
  - It pays to be highly discerning in lab test selection (internal and referred)
- Instrument Platforms
  - Keep instruments to a minimum and have a back-up plan for down times
- Reagents
  - A vendor who can guarantee an uninterrupted reagent supply is critical
- Other Concerns
  - Consolidate as much as you possibly can (proficiency and referred testing)
  - Must become very familiar with local regulatory and accreditation issues

# A DESIRE TO LEAVE THE UAE

IT IS VERY DRY



IT IS VERY HOT

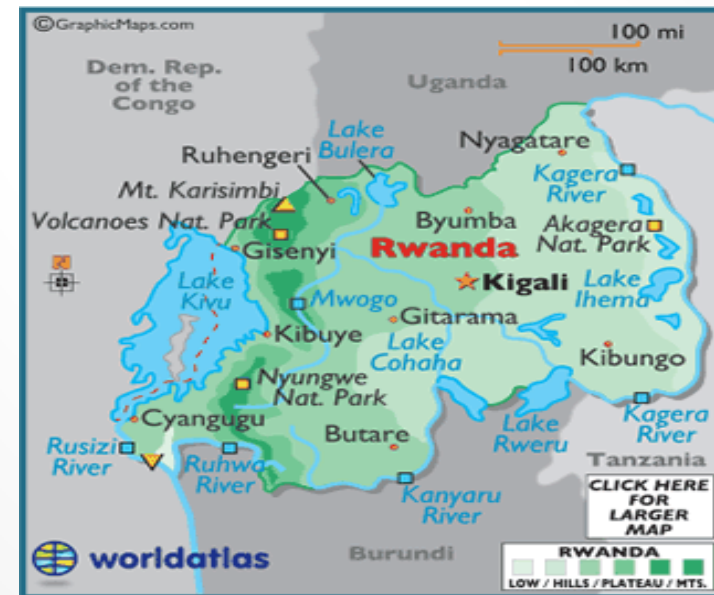


# WHERE WE ENDED UP

AFRICA



RWANDA



# RWANDA



# HUMAN RESOURCES FOR HEALTH (HRH)

- A project of the Clinton Health Access Initiative, which is a program of the Clinton Foundation
- HRH is a collaboration between the Rwandan Ministry of Health and a number of academic US healthcare institutions (~25)
- Goal: improve the healthcare and health education infrastructures in Rwanda by training Rwandan physicians in targeted specialty areas of medicine
- 7-year program: 2012-2019



# CENTRE HOSPITALIER UNIVERSITAIRE DE BUTARE



# CHUB





# CHUB



# CLINICAL LABORATORIES AT CHUB

- Clinical Chemistry
- Hematology
  - Coagulation
- Histopathology
  - Cytopathology/FNA
- Immunoserology
  - Blood Bank
  - Rapid Diagnostic Testing
  - ELISA
- Microbiology
  - Parasitology
- Molecular Testing:
  - HIV
  - TB



# MY PRIMARY ROLES

## CLINICAL WORK



## TEACHING



# GOALS FOR THE EFFORT IN RWANDA

- Hematology sign-out at CHUB and CHUK
- Work with the National Center for Blood Transfusion
  - Participate in clinical research projects
- Develop the transfusion service at CHUB:
  - Determine what is happening outside of the laboratory
  - Write procedures and train laboratory staff
  - Expand pre-transfusion testing
- Assist in the training of hospital staff and residents
- Develop curriculum for a residency training program in clinical pathology

# LESSONS LEARNED IN RWANDA

- “You can’t always get what you want”:
  - Reagent stock-outs
  - Blood product availability
  - Equipment maintenance and repair
  - Quality management
  - Discouraged laboratory staff
- Cultural issues:
  - A very “top-down” approach
  - Time is not of the essence
  - Relationships are all important
  - An appreciation for personal desperation





# MASTER OF PUBLIC HEALTH

JOHNS HOPKINS



BLOOMBERG SCHOOL OF PH



# MPH INTEGRATION

Academic Background

International Experience

MPH



Global Pathology Outreach

# GLOBAL HEALTH OUTREACH APPROACHES

- Global Health is a “hot” field, but also a relatively new field evolving out of international health
- In the past (and to this day), global health has been a humanitarian/mission-based endeavor
- Global medicine is maturing and becoming more academic in focus (e.g. objective-driven, cost-effective, result-oriented) → “precision global health”

# A HUMANITARIAN APPROACH



# A MORE SUSTAINABLE APPROACH

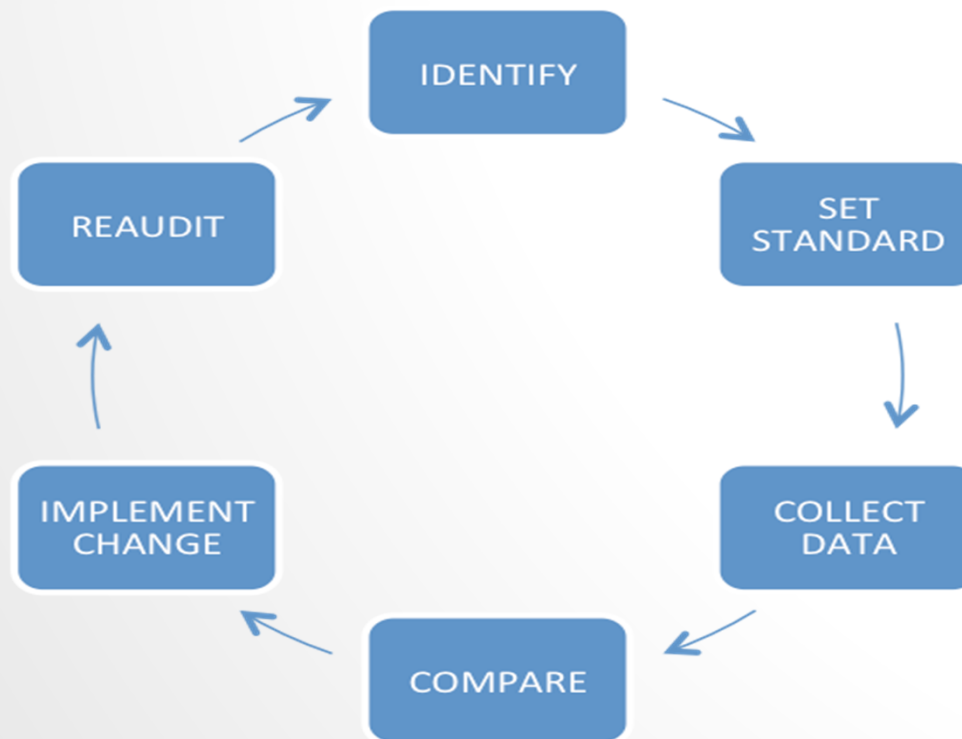




# MPH INTEGRATION: PROBLEM-SOLVING FRAMEWORK



# THE AUDIT CYCLE



# LIBERIA

AFRICA



LIBERIA



# LIBERIA CONSULTANCY

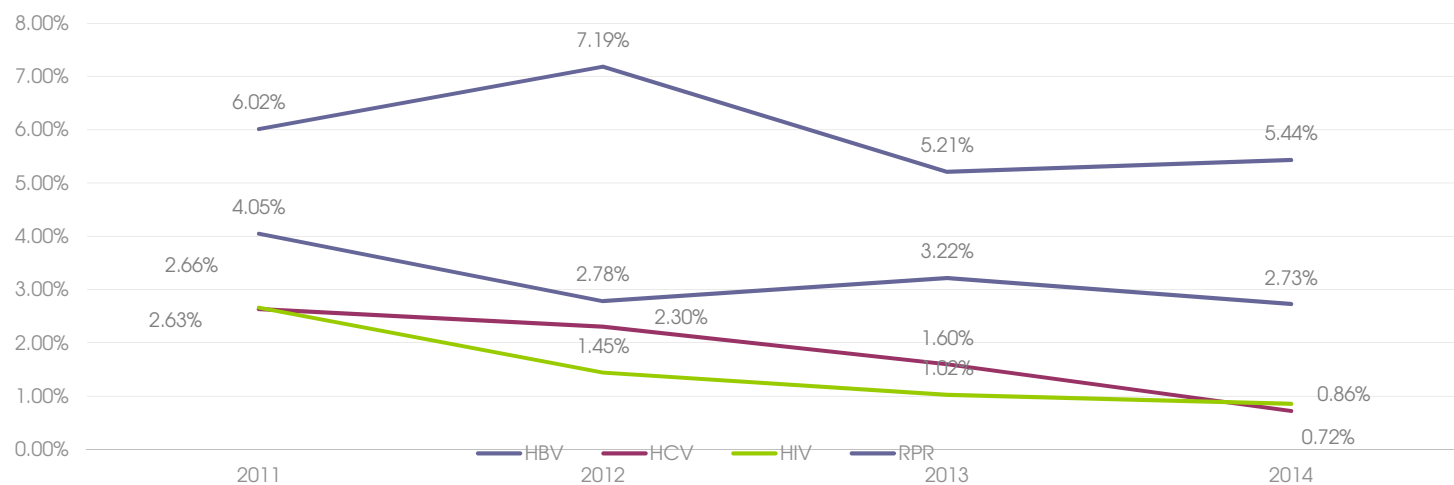
- Senior Pathology Consultant:
  - 20 million dollar CDC grant (2015 – 2017) administered by the University of Massachusetts School of Medicine
  - ACCEL: Academic Consortium Combating Ebola in Liberia:
    - University of Massachusetts School of Medicine
    - Boston Children's Hospital
    - Massachusetts Institute of Technology
    - Liberian College of Physicians and Surgeons
  - ACCEL is focused on post-Ebola health system strengthening:
    - Infection prevention and control
    - Public health laboratory network
    - National blood banking system

# PUBLIC HEALTH LABORATORY STRENGTHENING

- Diseases/pathogens with the highest priority for identification:
  - Meningitis
  - Shigella, cholera
  - Ebola, Lassa Fever
  - Measles
  - Diarrhea (under age 5), severe pneumonia
  - HIV/AIDS
  - Malaria
  - TB
  - Blood safety pathogens (HBV, HCV, HIV, malaria, syphilis)

# INFECTIOUS DISEASE PREVALENCE

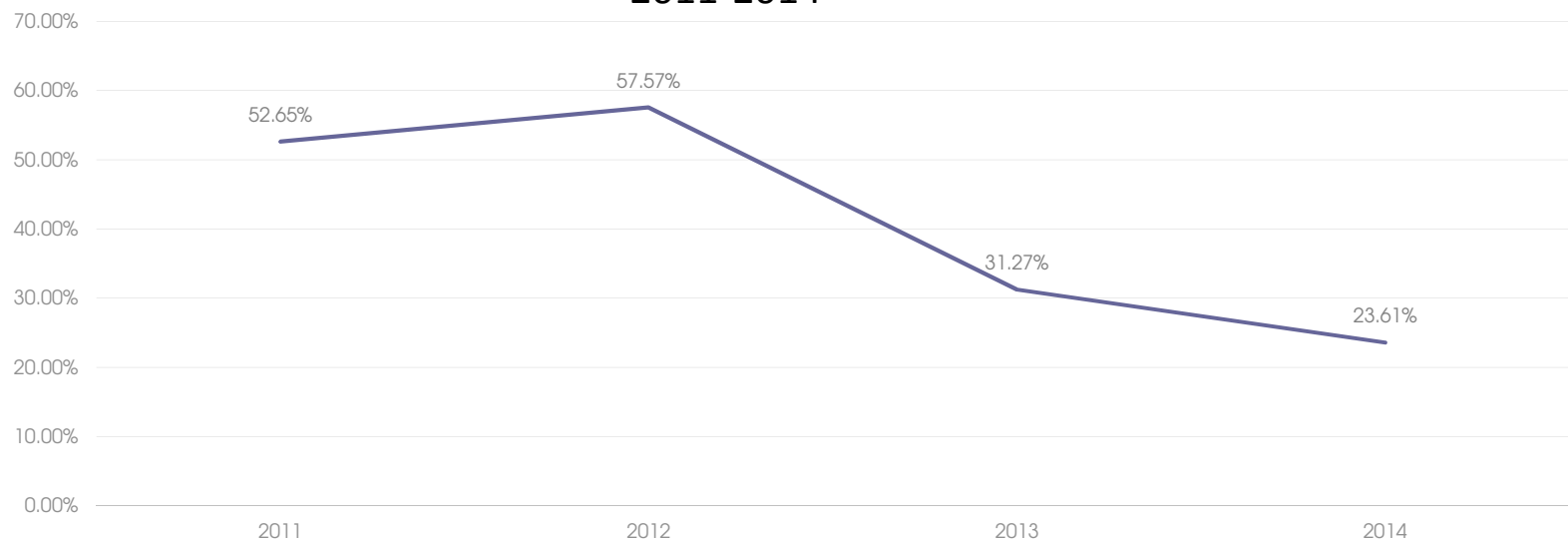
Prevalence of Positive RDTs for Hepatitis B, Hepatitis C, HIV, and RPR:  
Blood Donors in Liberia (2011-2014)





# INFECTIOUS DISEASE PREVALENCE

Prevalence of Positive RDTs for Malaria among Blood Donors in Liberia:  
2011-2014



# NATIONAL BLOOD BANKING SYSTEM

- Estimated need for ~35,000 units of blood each year
- < 20,000 units are collected at present
- Vast majority of units are from paid donors and replacement donors; very few volunteer donors
- No standardized mechanism for screening donors
- Donor unit testing: HBV, HCV, HIV, malaria, syphilis (by RDT, if available)
- All blood transfused as whole blood (no components)
- No standardized mechanism for transfusing blood and assessing patients for adverse reactions

## WORKSHOP COMMEMORATING WORLD BLOOD DONOR DAY JULY 13-14, 2016



# ACCEL'S SAFE BLOOD FOCUS

- Enhance volunteer blood donor recruitment
  - National survey on knowledge, attitudes, practices regarding blood donation
  - Develop and launch a mass media campaign focused on blood donation
- Develop and support regional blood centers (2)
  - Support blood donor drives
  - Support safe blood preparation and storage
- Support hospitals collecting/transfusing blood (36)
  - Equipment and supplies for collection, typing, crossmatching
  - Develop and implement transfusion safety protocols

HELLO, ST. LOUIS!



# ST. LOUIS UNIVERSITY

- Start Date: November 1, 2016
- Professor of Pathology
- Transfusion Service Medical Director
  - St. Louis University Hospital
- Laboratory Medical Director
  - Cardinal Glennon Children's Hospital
- Global Pathology Outreach
  - Where? Senegal!





# WHERE IS SENEGAL?



# SENEGAL IS IN WEST AFRICA



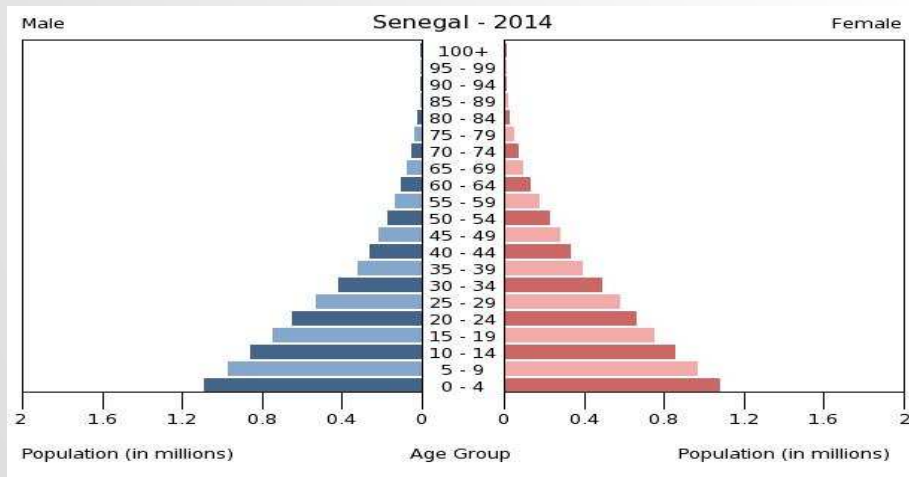
# SENEGAL FACTS

- Westernmost point in Africa
- Former French colony
- Capital is Dakar
- Slightly larger than Missouri
- Population= 16.2m
- Fertility Rate= 4.93
- Urban pop.= 45%
- HDI= 162/188
- Healthcare spending= \$100/capita
- Life expectancy= 66 years
- Under-5 mortality= 47/1000 live births
- Median age= 18.4

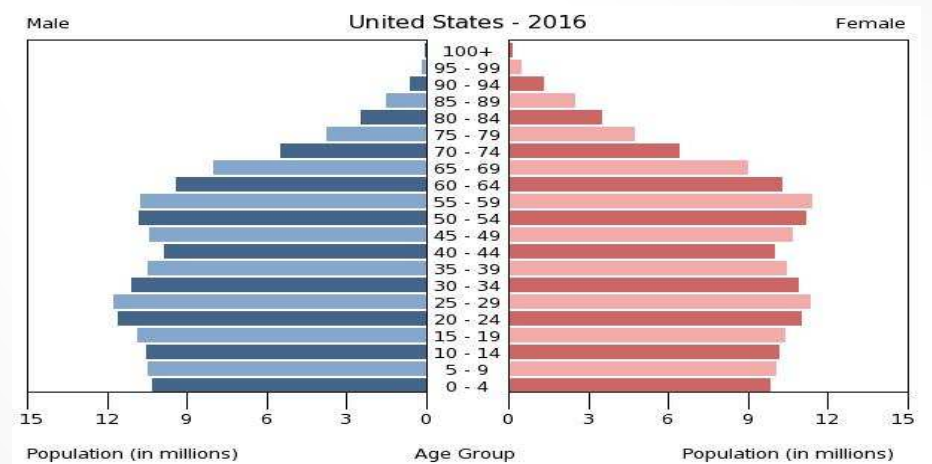


# POPULATION PYRAMIDS

## SENEGAL



## UNITED STATES



# AN OPPORTUNITY IN SENEGAL

- Dr. Abdoul Magib Cisse:
  - Chief of Pediatrics at M'Bour Hospital
  - Pediatric hematology-oncology fellowship in Morocco
  - Charged with developing a pediatric oncology program
  - Very limited resources, including no hospital anatomic pathology lab
- Primary Needs:
  - Supportive care equipment and medications
  - A guest house for patients and their families ("Ronald McDonald" type)
  - Enhanced laboratory services:
    - "There is a significant lag (often months) in the time it takes for biopsies to be analyzed by pathology. This results in more aggressive treatment than needed."
    - Ideas include telepathology (prepare slides locally, view remotely) or rapid shipping of specimens to the US for evaluation
    - Improved transfusion therapy

## GLOBAL PATHOLOGY PRACTICE

- Improve access to pathology services
- Improve quality of pathology services
- Provide service in a sustainable manner
- Provide service that is culturally appropriate and relevant
- Reduce disparities and achieve equity for the most vulnerable





# PERSONAL OBSERVATIONS FOR SUCCESS

- Obtain the education and training that you need
- Align yourself with organizations that fit best
  - Mission
  - Personal values
- Serve individuals for whom you have a heart
- Don't forget your significant other(s)
- Give yourself (and others) a break during the period of intense cultural adaptation
- Be flexible
  - Blessed are the flexible, for they will not be broken
- Be safe

# PERSONAL OBSERVATIONS FOR SUCCESS: GLOBAL HEALTH OR OTHERWISE

- Get comfortable with being uncomfortable
- Develop a tolerance for ambiguity
- Learn how to communicate
- Learn how to work across disciplines and cultures
- Learn how to be more efficient with fewer resources
- Learn how to generate opportunities
- Learn how to fail
- Fear is inevitable; panic is optional

THANK YOU!

