

# Two Diseases, One Patient Designing TB/HIV Care Systems: Experience from Eldoret, Kenya

E. Jane Carter, MD  
Assistant Professor of Medicine  
Alpert School of Medicine at Brown University  
TB/HIV Technical Consultant  
USAID AMPATH Partnership, Eldoret, Kenya



# Eldoret, Kenya 2001

- Incidence TB: 213/100,000 smear positive
- Incidence HIV: 9-25% incidence in prenatal clinics dependent on region
- Establishment of AMPATH – Academic Model for the Prevention of HIV/AIDS
  - Collaboration of Moi University School of Medicine, Moi Teaching and Referral Hospital, Assante Consortium (IU and Brown)



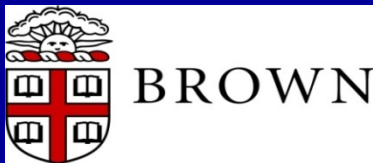
# AMPATH Site

- November 2001
  - First clinics opened
- Currently
  - 18 main clinics
  - 8 satellite clinics
  - Over 75,000 patients
  - Monthly new enrollment averages 2000 new patients
  - 50% on cART
  - Comprehensive Program



# The Problems

- Community Transmission Affects All
  - HIV negative infectious patients transmit to HIV positive patients in the community- must address ALL TB patients
- HIV related TB presents more commonly with Smear Negative disease
- Standard country guidelines do not address specific issues of TB/HIV co-infection, ex. TB/HIV/Acute hepatitis
- TB drug resistance has implications for both HIV negative and HIV positive patients- but the effect on HIV positive patients is more immediate



# Intensified Case Finding Eldoret, Kenya

- Collaborative Project
  - Moi University Faculty of Health Sciences, Moi Teaching and Referral Hospital, USAID AMPATH, and DLTLD
- Cough Monitor Model
  - Lay individual trained in community sensitization regarding TB, cough questionnaire to screen for suspects, and sputum collection
  - Hospital based and Field based



# CM Model

- Initiated in 2004 (original funding Fidelis – IUATLD)
  - Now funded through USAID AMPATH partnership and Global Fund
- Original design:
  - cough questionnaire screening of symptomatics in the community
  - Smear diagnostics lab strengthening through retraining and infrastructure support such as microscope repair.
- Modified first to include case holding (CM responsible for follow-up sputa collection at month 2,5,8)
- Modified again to include cough questionnaire screen for all household contacts of smear positive cases



# Results

- 2004-5 Uasin Gishu District
  - Screened > 16,000 symptomatics
  - Identified 1657 smear positive cases
  - 90% cure rate (smear negative at 8 months)
- 2006-7 North Rift and western Provinces
  - Screened > 42,000 symptomatics
  - Identified 4132 smear positive cases
- USAID AMPATH encachment (QTR 2 2008)
  - Screened > 2315 symptomatics
  - Identified 411 smear positive cases



# Diagnostic Testing and Counseling

- 2005 Kenya NASCOP adopted DTC
- Immediate adoption into the TB Clinic at Moi Teaching and Referral Hospital
- Immediate referral to AMPATH HIV Care Program
- 67% of all patients registered HIV +
- Barriers: resistance by the health care staff

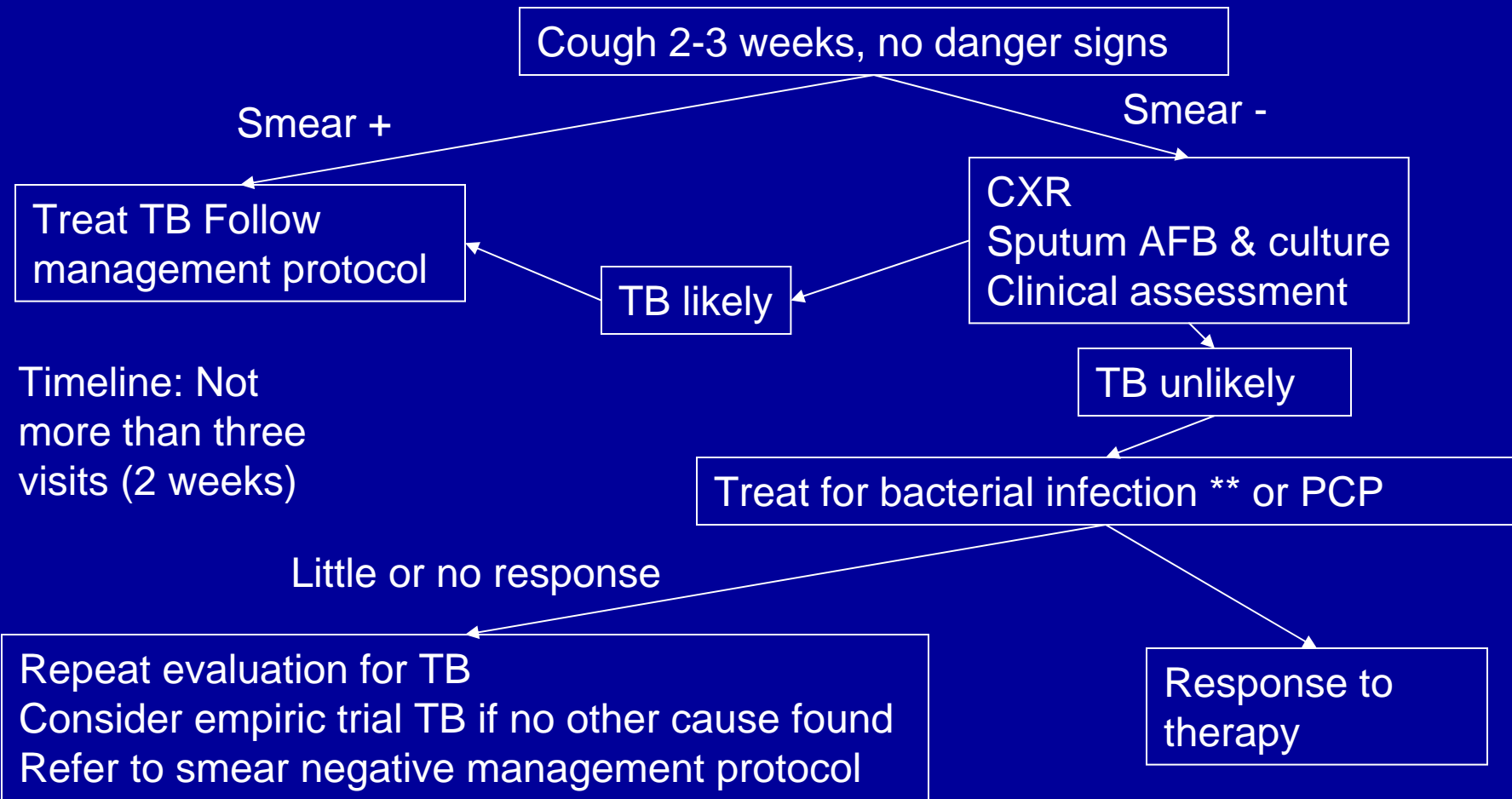


# TB/HIV Care Protocols

- Combined TB care at all 18 AMPATH sites
- January 2006 TB/HIV training of entire staff (>150 CO, nurses, consultants)
  - Included the TB staffs of all health centers as well
- All care protocols approved by the DLTLD
  - Even where they differed, ex. TB/HIV with acute hepatitis
- DLTLD head opened the training and PTLC participated throughout the program

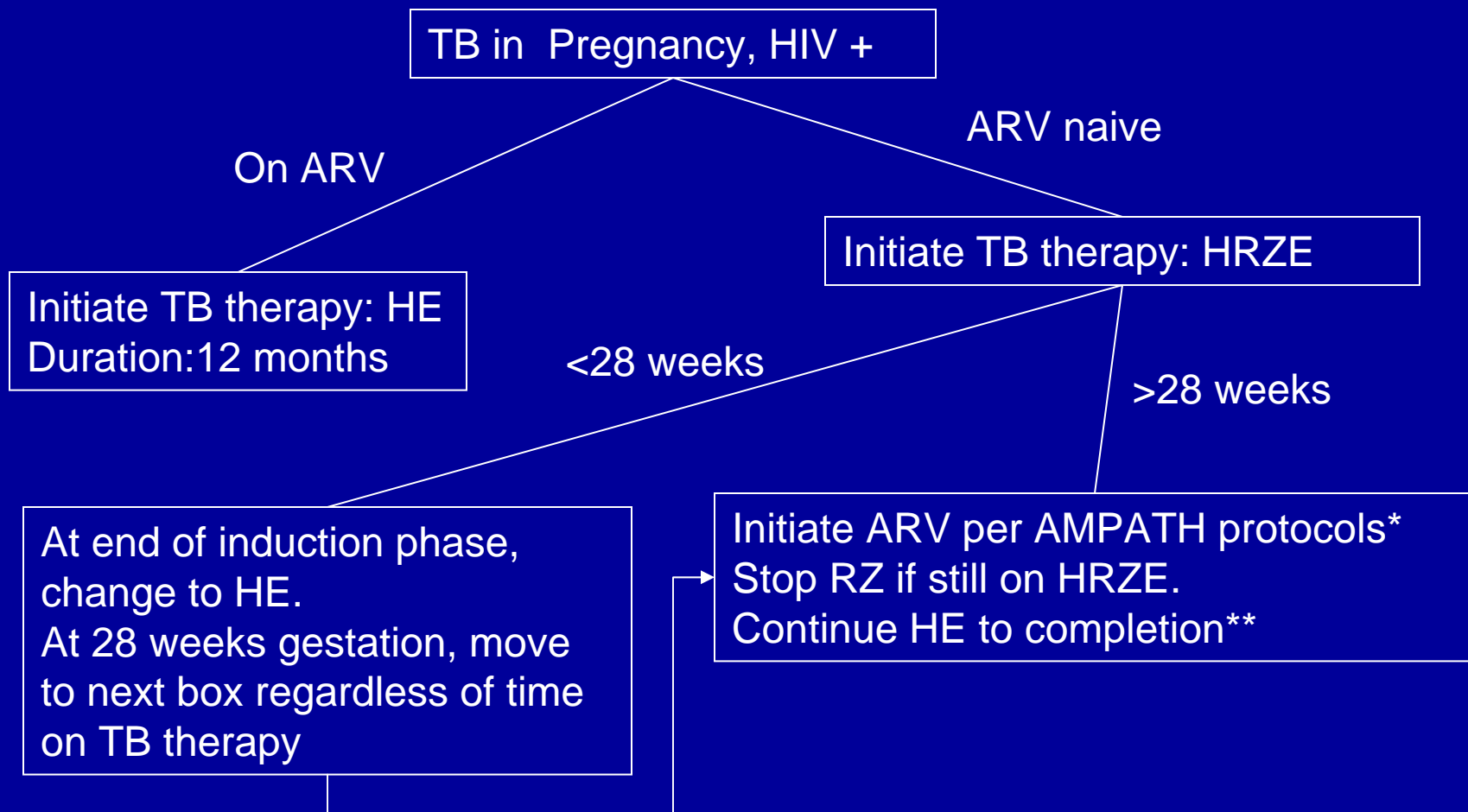


# Evaluation of the Ambulatory Patient with no danger signs\*



Timeline: Not more than three visits (2 weeks)





\* CD4 <250, Nevirapine/Stavudine/Lamivudine  
CD4 >250, Nelfinavir/Combivir (Stavudine/Lamivudine if anemic)

\*\*if received HRZE > 2 months, complete 6 months HE  
if received HRZE < 2 months, continue HE to complete 12 months



# Isoniazid Preventive Therapy

- Protocol: At enrollment HIV patient have a chest radiograph, history and physical exam
- If all are normal, IPT given for 9 months
- Results to date ( presented IAS August 08)
  - September 2004 - February 2007
    - IPT initiated in 9633 of 29,197 adults (33%)
    - 7096 patients met end points
      - 5387 (76%) completion
      - 1709 (24%) premature termination

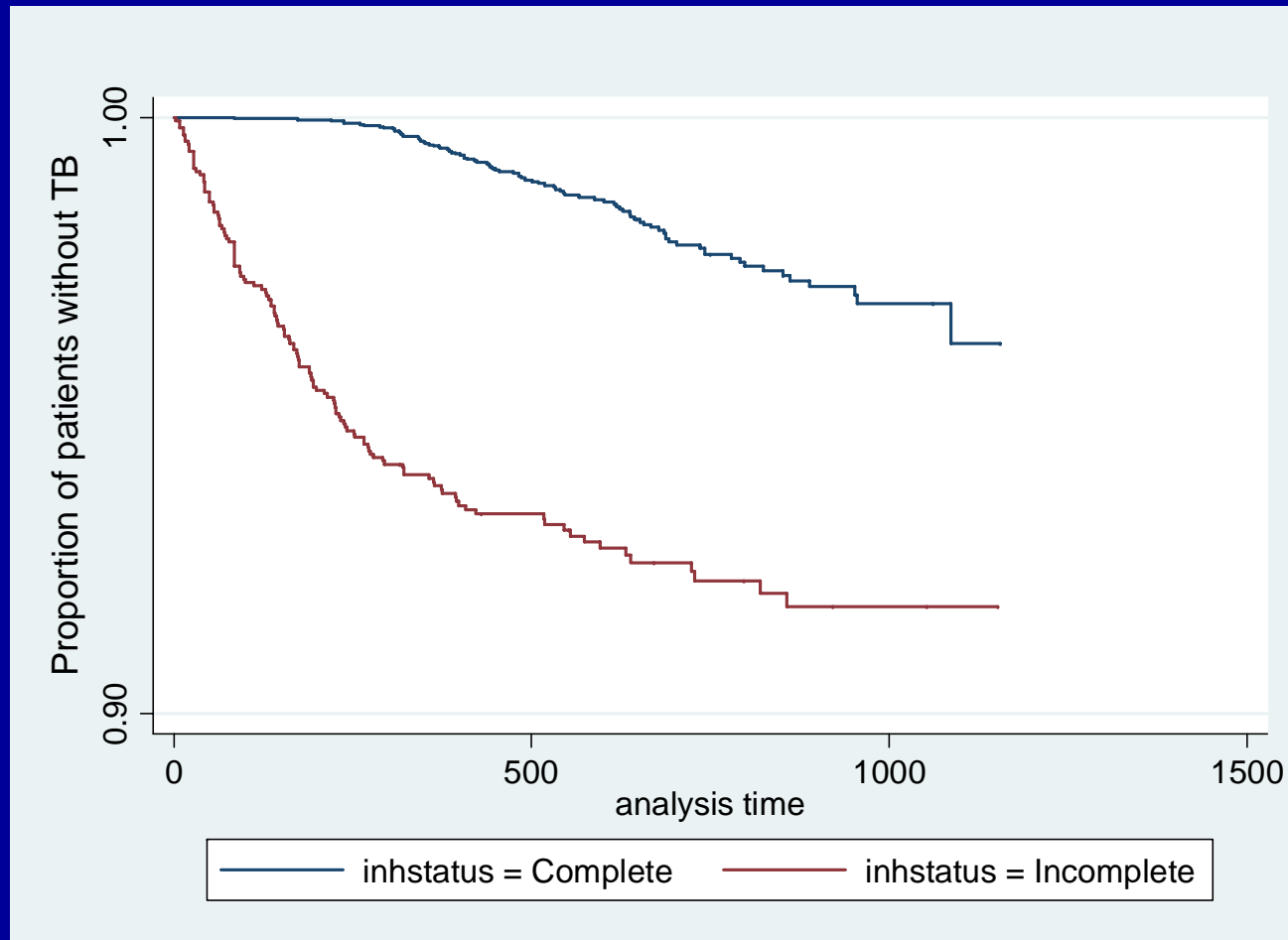


# Development of TB

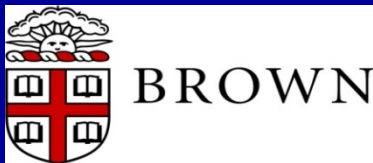
- **Non-Completers (1709)**
  - 53 (3%) stopped INH due to incident TB
  - 73 (4.3%) developed active TB after INH termination
    - 1-year incidence 4.6%
    - 2-year incidence 7.7%
- **INH completers (5387)**
  - 87(1.7%) developed active TB after INH completion
    - 1-year incidence 2.1%
    - 2-year incidence 4.6%



# Completion of INH



Log rank p-value <0.001



# Mycobacterial Reference Lab

- 2005 FIND Demonstration project
- MOU – Find, MTRH, MUSOM, AMPATH
- Smear reagents from the DLTLD
- 1 tech from MTRH, 3 techs from AMPATH
- Equipment and reagents from FIND
- All smear negative specimens patients receive a free culture



# Mycobacterial Reference Lab

	April	May	June	July
Number of cultures	280	382	268	246
Number Culture positive	10%	9.9%	13%	12%
Number MTB on speciation	90%	80%	90%	91%
Contamination rate	6.1%	13%	11%	11%



# MDR Surveillance Project

- Retreatment and failure patients are eligible for a free DST at the CRL, Nairobi
- Protocol: chest clinic packaged and sent
  - Problems- no tracking, no system for reporting
- AMPATH encachment area
- AMPATH cars travel daily to the HIV clinics bringing drugs, food, and labs



# MDR Surveillance Project

- Retreatment program: any specimen goes onto the AMPATH car to the MRL
- Ascessioned and tracked by the MRL Any drug resistance is called to the clinician as well as sent to the clinic
- Retraining of each site with verification of necessary materials- lab slips, bottles, etc.
- Averaging 30 specimens per month



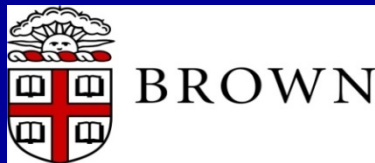
# Community Based DOTS plus Program

- As of November 2007 notified of 3 MDR patients in AMPATH area
- Contact tracing of the patients performed to assess extent of possible transmission
  - One patient had died prior to therapy
    - School teacher in an elementary school – over 50 children exposed in the last 6 months of life
    - Wife ( nurse) had already moved to Nairobi to take a new job prior to screening



# Community Based DOTS plus Program

- DLTLD focused all efforts on an in patient model of care centered in Nairobi
- No in patient “safe” facility in Eldoret
- Community based DOTS plus program designed
- Capreomycin donated by Lilly and oral drugs donated by DLTLD
- Philanthropy funds staffing and laboratory screening pending an agreement between the DLTLD and the MTRH/MUSOM/AMPATH



# Community Based DOTS plus Program

- 10 patients identified
  - 2 died before therapy
  - 1 finished induction phase with sputa culture conversion
  - 1 pregnant woman
  - 1 child
- 60% are HIV infected



# Conclusions

- TB- HIV integration is feasible
- Communication between the programs is critical but the time spent to do so is invaluable
- Programs can be built in a stepwise fashion
- The perfect should not be the enemy of the good
  - When you start, you usually do not build the perfect program on the first try.
  - Although we should demand the perfect....



# Acknowledgements

Funding: FIDELIS Rd 3  
FIDELIS Rd 5  
FIND diagnostics  
USAID AMPATH Partnership  
(Pepfar)  
Global Fund  
DLTLD  
Philanthropy



# Acknowledgements

- DLTLD
  - Dr J. Chakaya
  - Dr. J. Sitienei
  - Dr. B. Langat
  - Dr. B Adalla
- TB Projects Office
  - Lydia Kamle
  - Lucy Watetu
  - Timothy Mjete
  - Paul Park
  - Nickhill Bhakta
  - Monica Kumar
  - MRL Staff
  - 190 Cough Monitors
- Moi Teaching and Referral Hospital
  - Dr. H. Mengech
  - Dr. Kwa Otsyula
  - Dr. F. Esimai
  - Dr. N. Buziba
  - Dr. L. Diero
- USAID AMPATH
  - Dr. S. Kimaiyo
  - Dr. J. Mamlin
  - Dr. Dennis Onentia
- Health Clinics Staff of North Rift and Western Provinces

