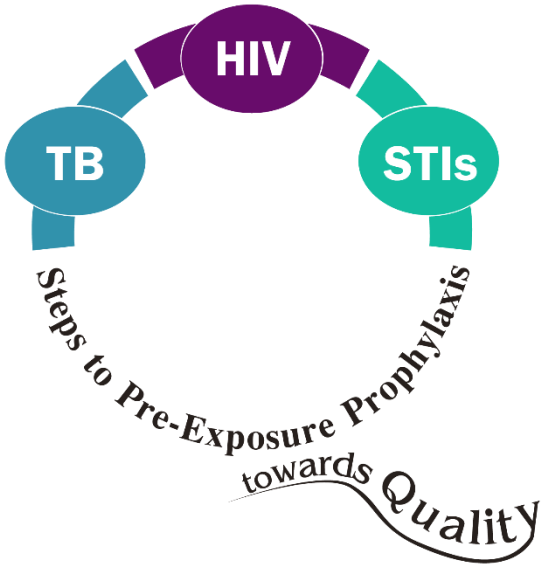

Respiratory Care of Adult HIV patients

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Respiratory Care of Adult HIV patients

- **Respiratory tract infection is very common in HIV infected patients.**
- **Viral infection of upper respiratory tract and bacterial infection of lower respiratory tract are very common.**
- **Because of immunocompromised condition of HIV infected patients, certain specific organisms which need CMI protection is increasing incidence such as mycobacteria, fungus, etc.**

Respiratory Care of Adult HIV patients

Respiratory tract infections in HIV/AIDS patients

Upper Respiratory Tract

* Rhinitis
* Pharyngitis
* Sinusitis (chronic cough)

Lower Respiratory Tract

Usual diseases

- Bronchitis
- Bronchiectasis
- Pneumonia
- Tuberculosis

Respiratory Care of Adult HIV patients

Unusual diseases

* Pneumocystis jirovecii pneumonia
* Nocardiosis
* Rhodococcosis
* Cryptococcosis
* Histoplasmosis
* Salmonellosis
* Aspergillosis
* Cytomegalovirus

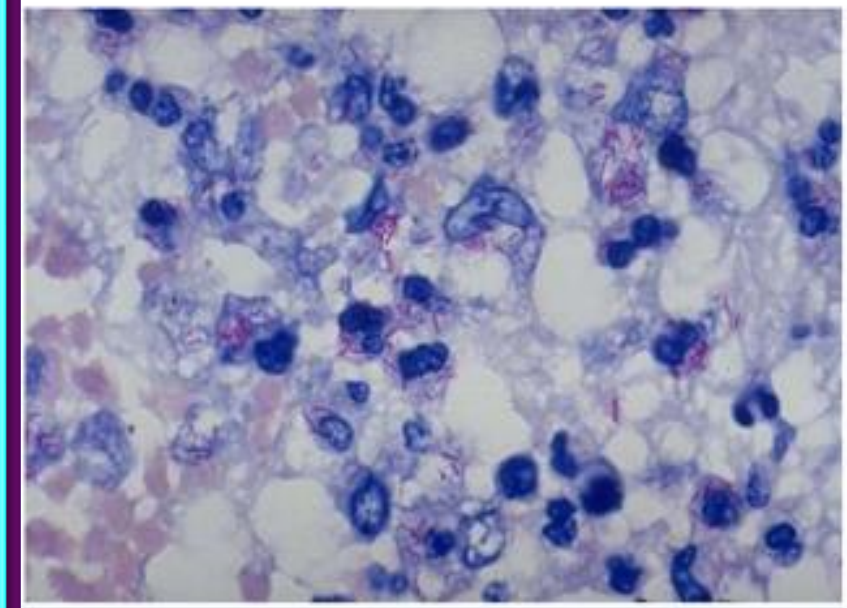
Respiratory Care of Adult HIV patients

Pulmonary

Non Infectious Diseases in HIV/AIDS Patients

* Kaposi sarcoma involved lung
* Lymphoid interstitial pneumonia (LIP)
* Non – specific interstitial pneumonia

Respiratory Care of Adult HIV patients

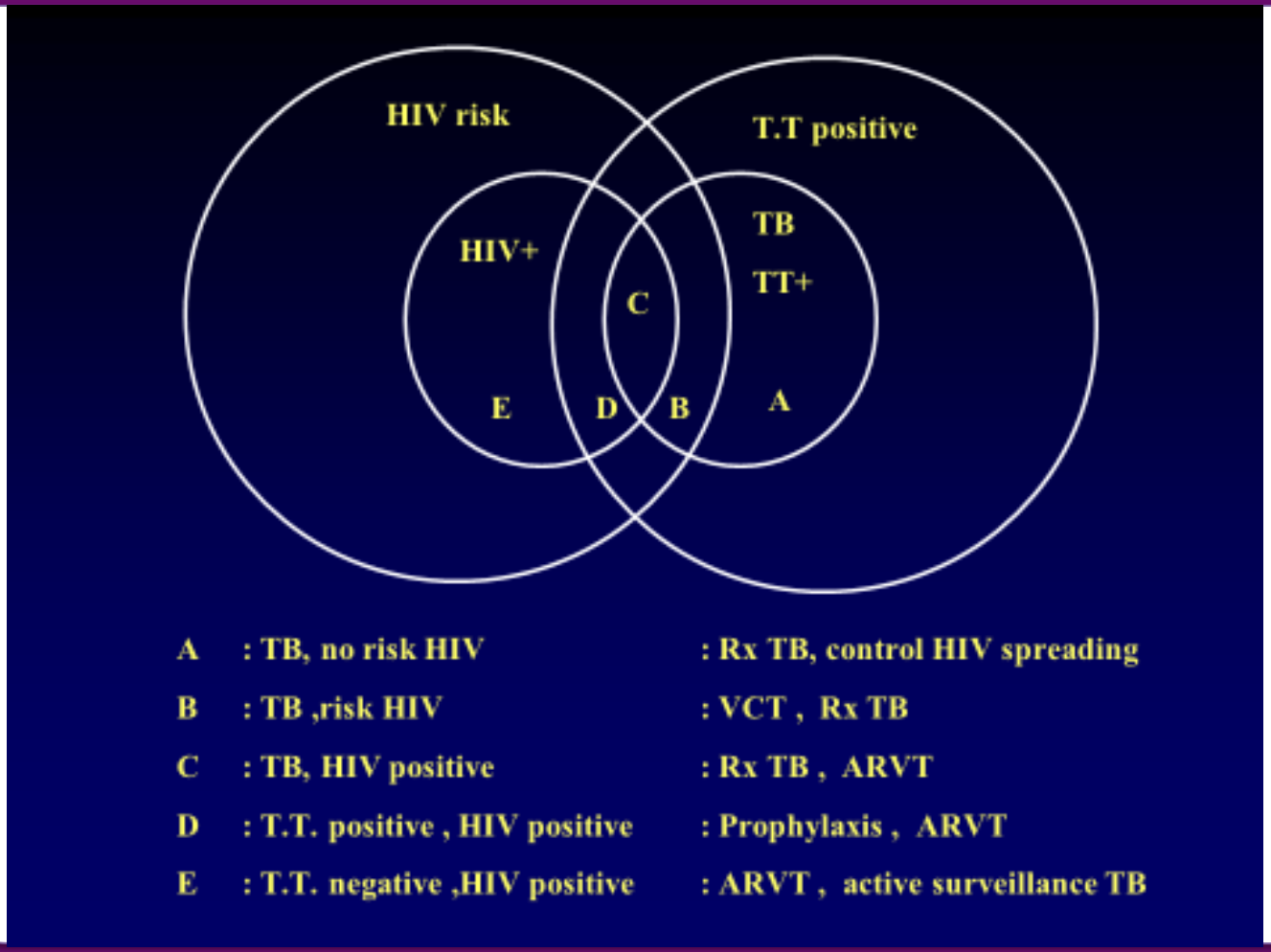


This is an acid fast stain of Mycobacterium tuberculosis (MTB). Note the red rods - hence the terminology for MTB in histological sections or smears: acid fast bacilli.

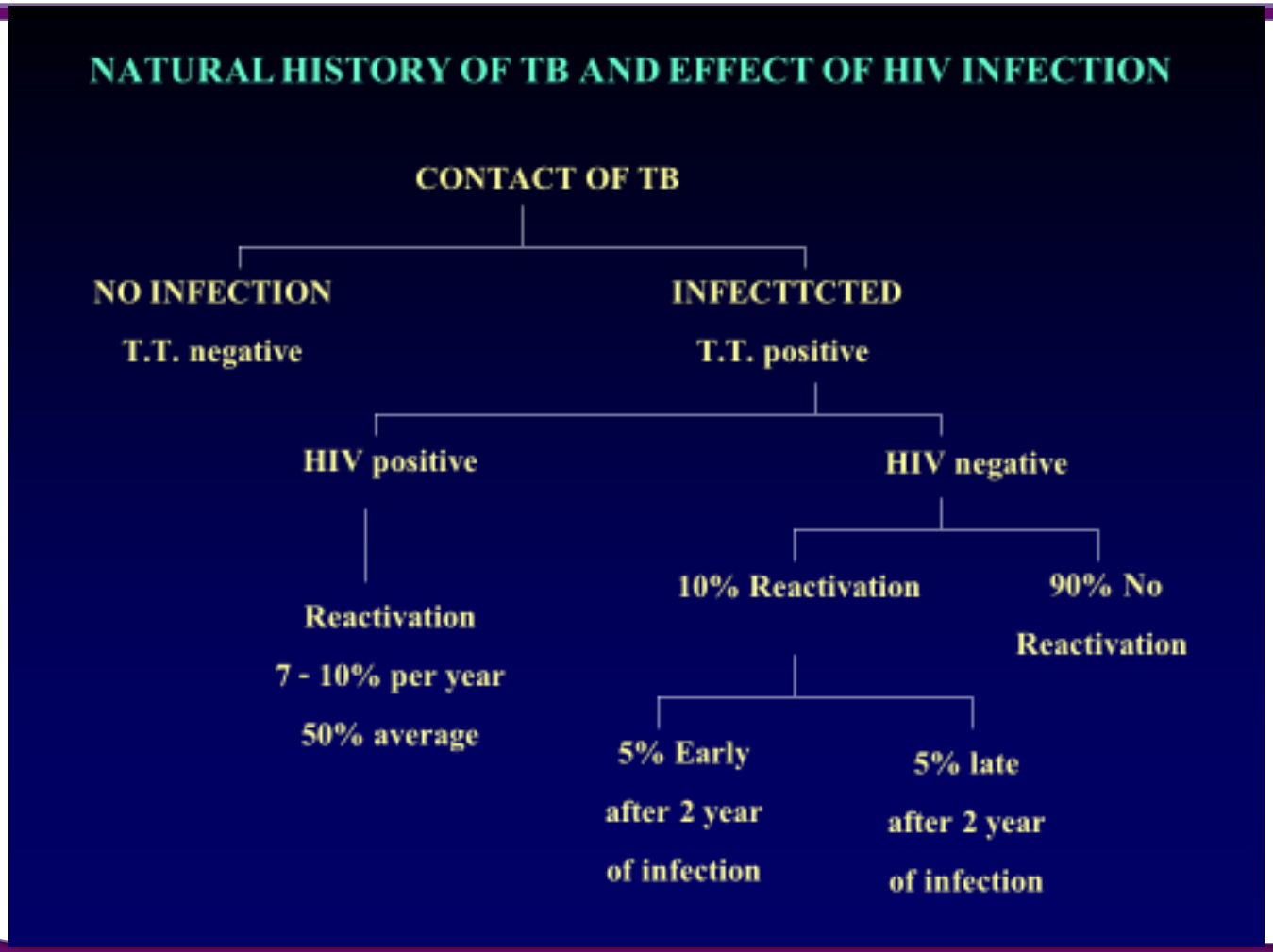
เชื้อวัณโรค

- เป็นเชื้อแบคทีเรีย มาใช่ไวรัส
- เชื้อวัณโรค ไม่สร้างสารพิษ ทำให้เมื่อมีการติดเชื้อ จะไม่มีอาการ
- เชื้อวัณโรคไม่ทนความแห้งแล้ง และอุณหภูมิที่สูง
- เชื้อวัณโรคจะก่อโรคได้เมื่อหายใจเข้าไปในปอด ไม่ติดต่อดดยการสัมผัส หรือรับประทาน
- เชื้อวัณโรค ก่อโรคที่ปอดบ่อยที่สุด แต่ก่อโรคในอวัยวะอื่นนอกปอดได้

Respiratory Care of Adult HIV patients



Respiratory Care of Adult HIV patients



Respiratory Care of Adult HIV patients

ความสำคัญของวัณโรคในผู้ป่วยที่มีการติดเชื้อโรคไวรัสโรคเอดส์

- เป็นโรคติดต่อที่พบบ่อยที่สุดในผู้ที่ติดเชื้อไวรัสโรคเอดส์
- เป็นโรคติดต่อที่สามารถติดต่อมาที่บุคคลากรได้ง่ายจากการพูดคุย ไอ จาม
- ผู้ป่วยวัณโรคที่มีการติดเชื้อไวรัสโรคเอดส์ร่วมด้วยจะมี ลักษณะของวัณโรคแปลกๆ ทำให้วินิจฉัยยาก
- ผู้ป่วยวัณโรคที่มีการติดเชื้อไวรัสโรคเอดส์ร่วมด้วยจะมี ภูมิต้านทานแย่ลงเร็วกว่าไม่มีวัณโรค
- ผู้ป่วยวัณโรคที่มีการติดเชื้อไวรัสโรคเอดส์ร่วมด้วยจะมี อัตราการดื้อยารักษาวัณโรคสูง
- ผู้ป่วยวัณโรคที่มีการติดเชื้อไวรัสโรคเอดส์ร่วมด้วยจะมี การแพ้ยาวัณโรคได้มากกว่าวัณโรคธรรมดา
- ผู้ป่วยวัณโรคที่มีการติดเชื้อไวรัสโรคเอดส์ร่วมด้วยจะมี การเสียชีวิตหลังการรักษาวัณโรคมากกว่า

การป้องกันไม่ให้ป่วยเป็นวัณโรค จะเป็นวิธีที่ดีที่สุด

Respiratory Care of Adult HIV patients

CLINICAL FEATURES OF TB IN HIV SEROPOSITIVE PATIENTS

	Early (less immune deficiency)	Late (advanced immune deficiency)
Signs/Symptoms	- Fever, weight loss are prominent	- Stigma of AIDS
	- Extrapulmonary lesion	- more extrapulmonary
Chest X - ray	- Apical disease with cavitation	- more Atypical disease
	- Adenopathy	- hilar adenopathy, lower lobe lesion, miliary, interstitial, pleural, normal
Tuberculin test	- Positive 80%	- Positive < 80%
Bacteriology	- less positive	- Less positive
	- Mycobacteremia	- Mycobacteremia is common

Respiratory Care of Adult HIV patients

YIELDS OF MICROSCOPIC SPUTUM EXZMINATION IN HIV INFECTED TUBERCULOSIS PATIENTS

	HIV positive (%positive smear)	HIV negative
Pitchenik 1987	36	35
Modilevsky 1989	83	-
Klein 1989	45	81
Thuer 1990	47	51
Long 1991	64	78
Nunn 1992	71	83

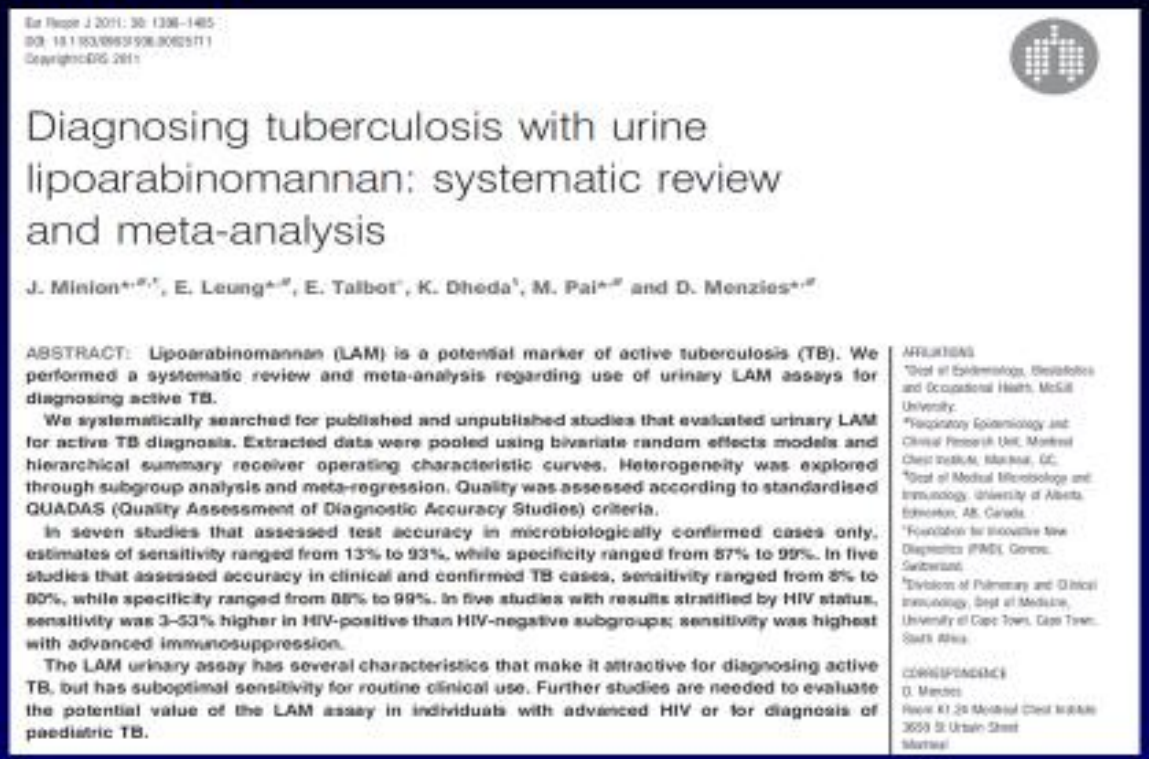
Respiratory Care of Adult HIV patients

CORRELATION BETWEEN CD_4 T- LYMPHOCYTE AND SPUTUM SMEAR RESULT IN HIV POSITIVE PATIENTS

	CD_4 cell count (cell/ l)			
	0 - 100	101 - 200	201 - 300	> 300
Jones, 1992	70%	85%	50%	56%
Smith, 1994	58%	60%	56%	-
Karstaedt 1998	76%	59%	36%	67%

Respiratory Care of Adult HIV patients

Detection of LAM antigen in Urine for Diagnosis of Tuberculosis



Eur Respir J 2011; 38: 1398–1405
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Diagnosing tuberculosis with urine lipoarabinomannan: systematic review and meta-analysis

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ABSTRACT: Lipoarabinomannan (LAM) is a potential marker of active tuberculosis (TB). We performed a systematic review and meta-analysis regarding use of urinary LAM assays for diagnosing active TB.

We systematically searched for published and unpublished studies that evaluated urinary LAM for active TB diagnosis. Extracted data were pooled using bivariate random effects models and hierarchical summary receiver operating characteristic curves. Heterogeneity was explored through subgroup analysis and meta-regression. Quality was assessed according to standardised QUADAS (Quality Assessment of Diagnostic Accuracy Studies) criteria.

In seven studies that assessed test accuracy in microbiologically confirmed cases only, estimates of sensitivity ranged from 13% to 93%, while specificity ranged from 87% to 99%. In five studies that assessed accuracy in clinical and confirmed TB cases, sensitivity ranged from 8% to 80%, while specificity ranged from 88% to 99%. In five studies with results stratified by HIV status, sensitivity was 3–53% higher in HIV-positive than HIV-negative subgroups; sensitivity was highest with advanced immunosuppression.

The LAM urinary assay has several characteristics that make it attractive for diagnosing active TB, but has suboptimal sensitivity for routine clinical use. Further studies are needed to evaluate the potential value of the LAM assay in individuals with advanced HIV or for diagnosis of paediatric TB.

AFFILIATIONS
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Respiratory Care of Adult HIV patients

Detection of LAM antigen in Urine for Diagnosis of Tuberculosis

TABLE 3 Summary of data comparing diagnostic accuracy in groups stratified by CD4 count in HIV co-infected tuberculosis (TB) suspects

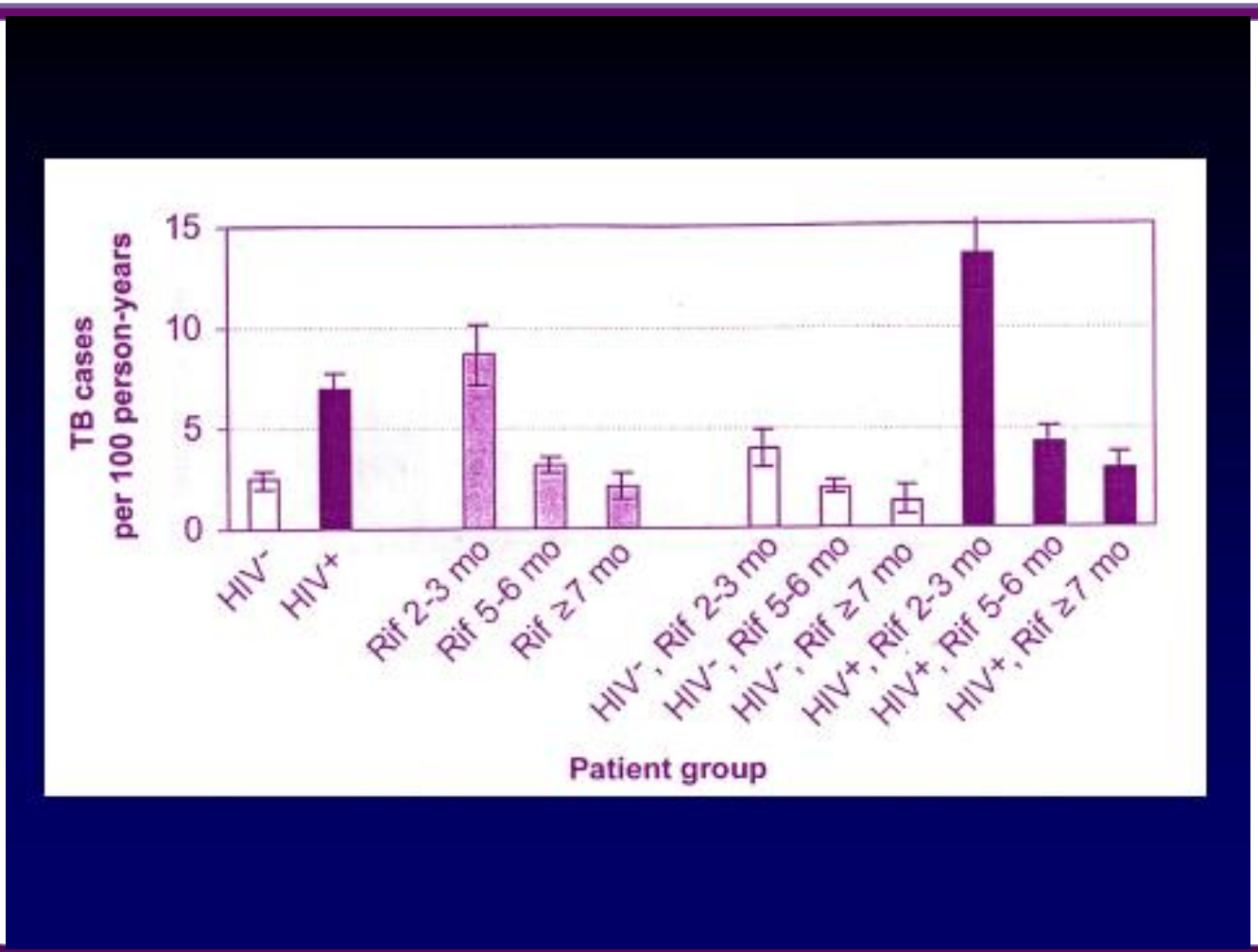
First author [ref.]	CD4 count cells·mm^{-3}	Sensitivity (95% CI) %	Specificity (95% CI) %
LAWN [22]#	<50	67 (41–87)	100 (94–100)
	50–100	35 (14–62)	100 (94–100)
	>100	4 (0–22)	100 (94–100)
DHEDA [25]¶	<200	37 (16–62)	100 (81–100)
	⩾200	0 (0–18)	100 (17–100)
SHAH [26]+	<50	85 (73–93)	NA
	50–100	71 (51–87)	NA
	101–150	56 (30–80)	NA
	>150	51 (38–64)	NA

Respiratory Care of Adult HIV patients

CONVERSION OF SPUTUM TEST TO NEGATIVE DURING SIX MONTHS OF CHEMOTHERAPY FOR TUBERCULOSIS

	HIV positive (%)	HIV negative (%)
Microscopy after		
2 months	87.6	88.5
4 months	99.2	98.9
6 months	99.2	98.9
Culture after		
2 months	98.2	93.3
6 months	92.9	92.1

Respiratory Care of Adult HIV patients



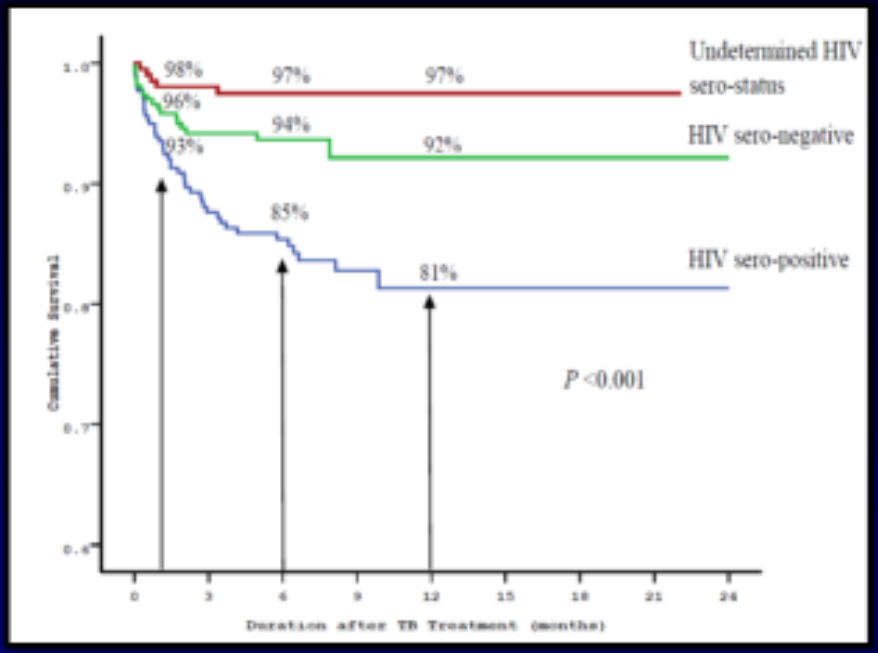
Respiratory Care of Adult HIV patients

TREATMENT OF HIV SEROPOSITIVE TUBERCULOSIS PATIENTS

* Same regimen as HIV seronegative patients
* Standard 2HRZE/4HR
* Directly observed therapy (DOT)

Respiratory Care of Adult HIV patients

Cumulative Survival after TB Treatment in 813 Patients in Bangkok and Nonthaburi



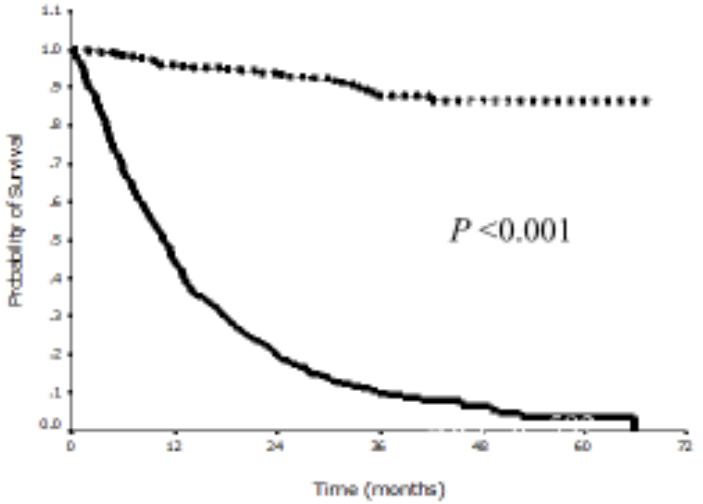
Death was associated with

1. TB/HIV co-infection (P=<0.001, HR=2.801)
2. Low body weight (P=0.001, HR=1.657)
3. Elderly (P=0.005, HR=1.439), and
4. Extrapulmonary/disseminated TB (P=0.021, HR=2.184)

Manosuthi W, et al. ECCMID 2011, Milan.

Respiratory Care of Adult HIV patients

Effect of ART on Survival Rate

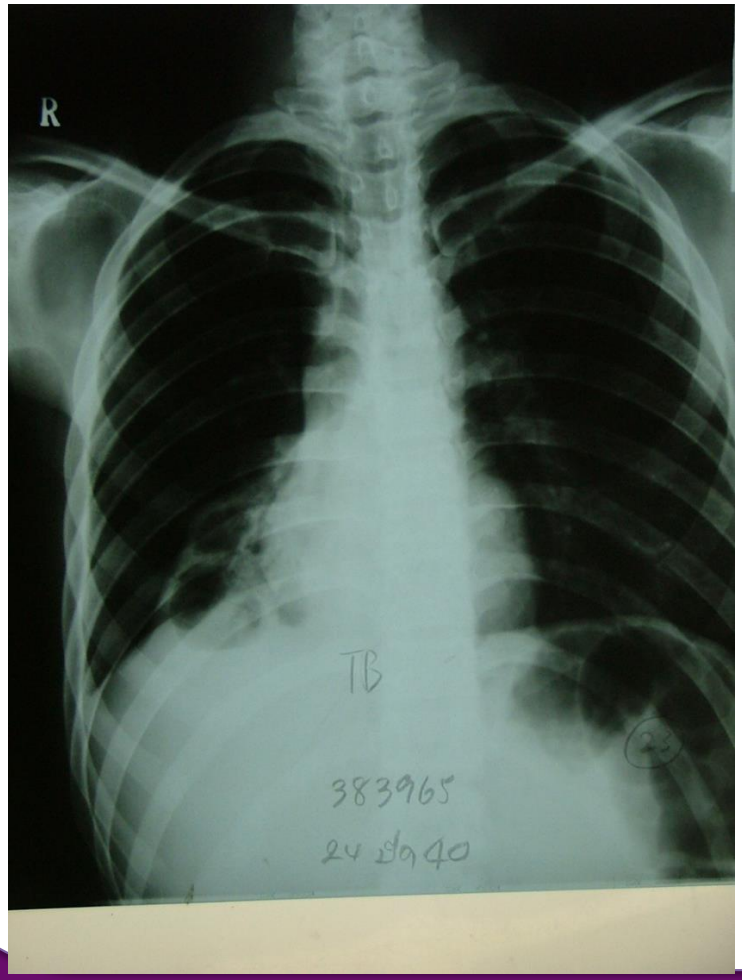


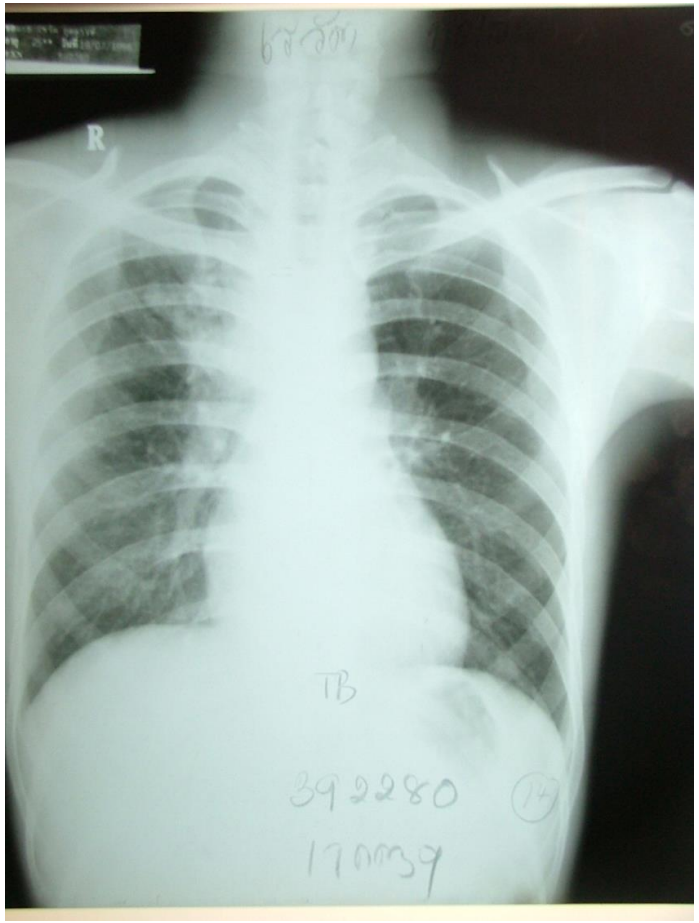
Possible risk factors for mortality in co-infected HIV and TB patients

Risk factors	HR	95% CI	P value
Not receiving ART	20.00	8.62-45.45	<0.001
MDR-TB	2.00	1.04-3.78	0.038
Gastrointestinal TB	9.22	1.10-78.02	0.042
Weight	0.99	0.96-1.01	0.349
Pulmonary TB	0.66	0.33-1.33	0.313
CNS TB	0.75	0.19-3.11	0.691

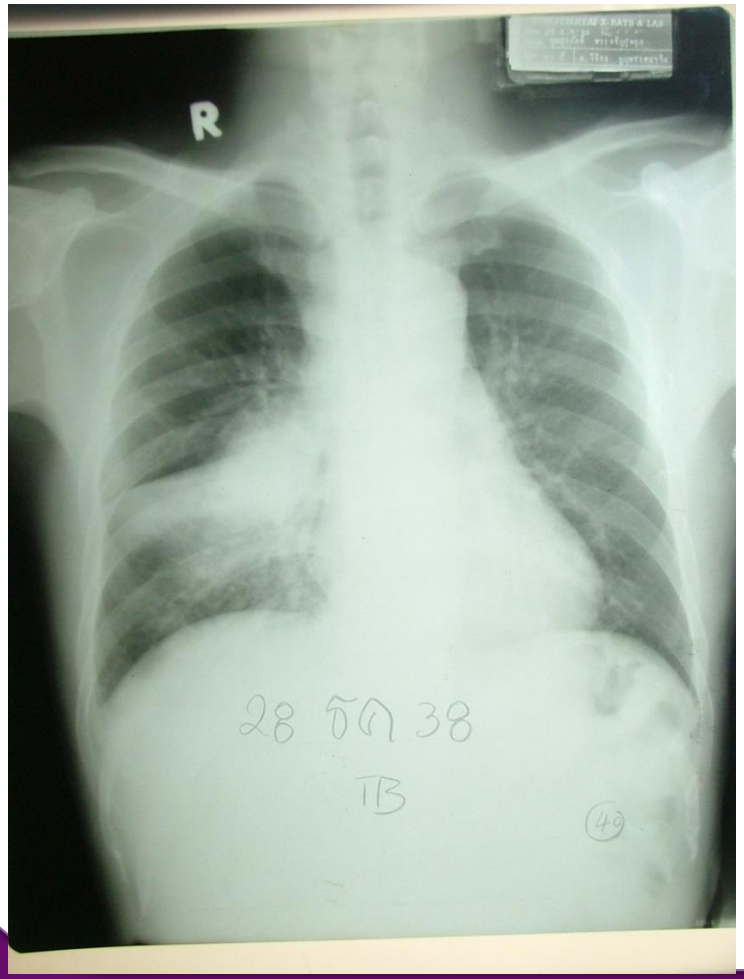
Manosuthi, W et al. JAIDS 2006, 43:42-46

Respiratory Care of Adult HIV patients





Respiratory Care of Adult HIV patients



Respiratory Care of Adult HIV patients

PARADOXICAL TUBERCULOUS REACTION

- Transient worsening of disease at a preexisting site or developing of new tuberculosis lesions following initiation of appropriate treatment
- Interaction between host immune response and mycobacteria product (or other organisms)
- In HIV infected tuberculosis patients, the reaction is associated with ARV treatment

Respiratory Care of Adult HIV patients

"Paradoxical IRIS"

OIs treatment--> start HAART --> clinical worsening

"Unmasking IRIS "

Start HAART --> develop OIs with atypical manifestation

Respiratory Care of Adult HIV patients

Entities to Exclude When Considering Paradoxical Reactions

- Drug non-compliance
- Acquired drug resistance
- Malabsorption of antituberculosis drugs
- Concurrent opportunistic infection
- Malignancy
- Drug reaction

Respiratory Care of Adult HIV patients

CD4 CELL COUNT AT TB DIAGNOSIS : CASE CONTROL STUDY (Punnotok J, IJTLD, 2000)

CD4 cell count	HIV positive	HIV negative
>500	10%	69%
200-499	31%	31%
<200	55%	0%

Respiratory Care of Adult HIV patients

CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

CAPRISA IS A UNAIDS COLLABORATING CENTRE FOR HIV PREVENTION RESEARCH

Addressing challenges in treating TB-HIV co-infected patients

The SAPiT Trial: Starting Antiretroviral therapy at three Points in TB

Dr Kogie Naidoo

Presented at the

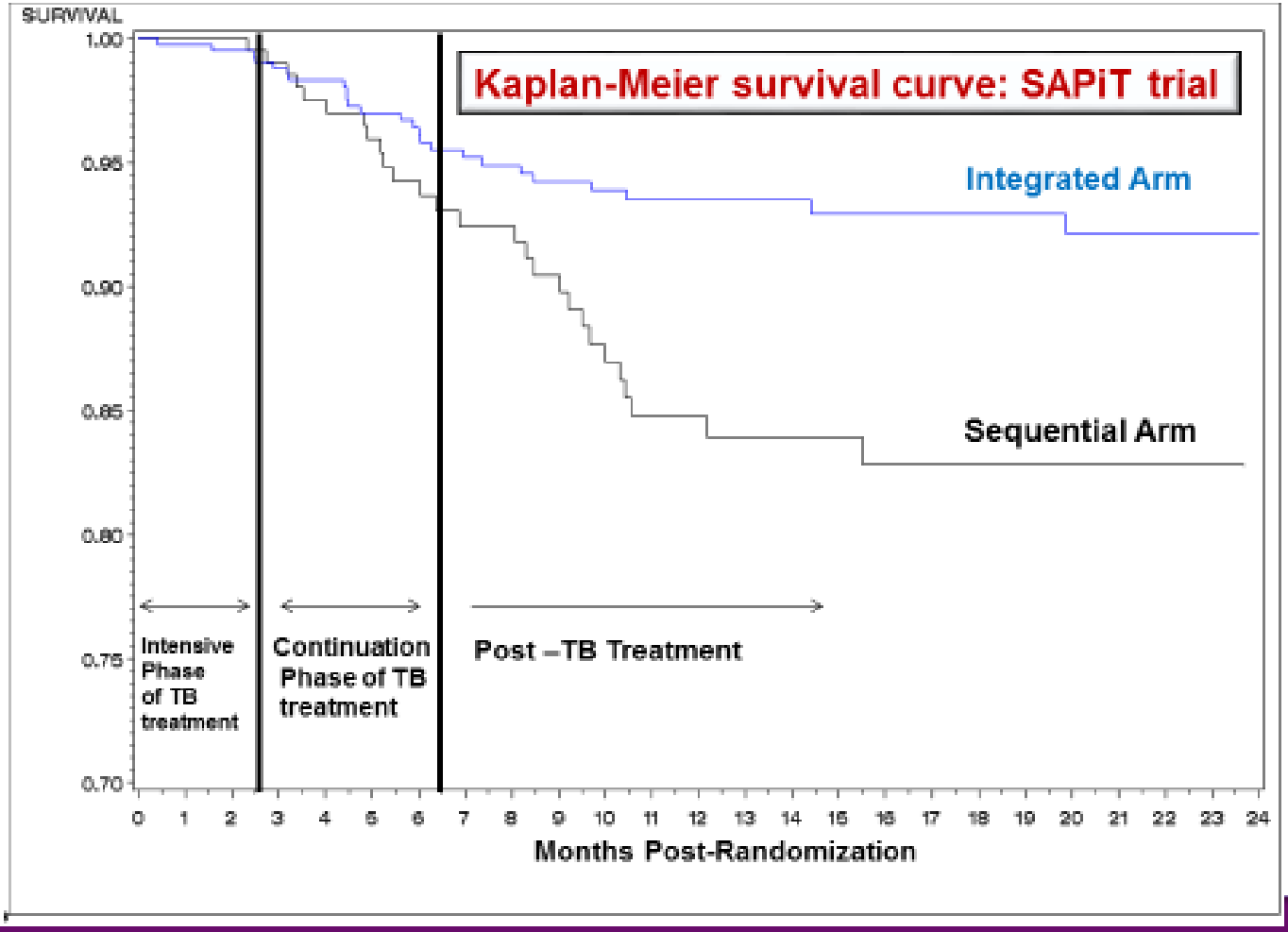
3rd ANNUAL WORKSHOP ON ADVANCED CLINICAL CARE (AWACC) – AIDS, DURBAN 2009, 1 October 2009

On behalf of :
Salim Abdool Karim, Anneke Grobler, Nesri Padayatchi, Andrew Gray, Jacqueline Pienaar, Tanuja Gengiah, Gonasagrie Nair, Sheila Bamber, Aarthi Singh, Munira Khan, Wafaa El-Sadr, Gerald Friedland and Quarraisha Abdool Karim

Columbia University MAILMAN SCHOOL OF PUBLIC HEALTH

UNIVERSITY OF KWAZULU-NATAL

Respiratory Care of Adult HIV patients



Respiratory Care of Adult HIV patients

TB patient who is co-infected with HIV should

- **Start treatment with anti-TB first**
- **Co-trimoxazole prophylaxis should be started concomitantly for prevention of PJP**
- **Anti-retroviral therapy should be started not later than 8 weeks after commencing anti-TB drugs**

Respiratory Care of Adult HIV patients

HIV infected patient

- TB has to be excluded.
- Subclinical opportunistic infections have to be excluded as well.
- INH prophylaxis is recommended but there was a controversy in Thailand because
  - Poor compliance of patient
  - High prevalence of INH resistance
  - Afraid to induce INH resistance

Respiratory Care of Adult HIV patients

"Think TB - Think HIV"

"Think HIV - Think TB"