TUBERCULOSIS EN EL ANCIANO

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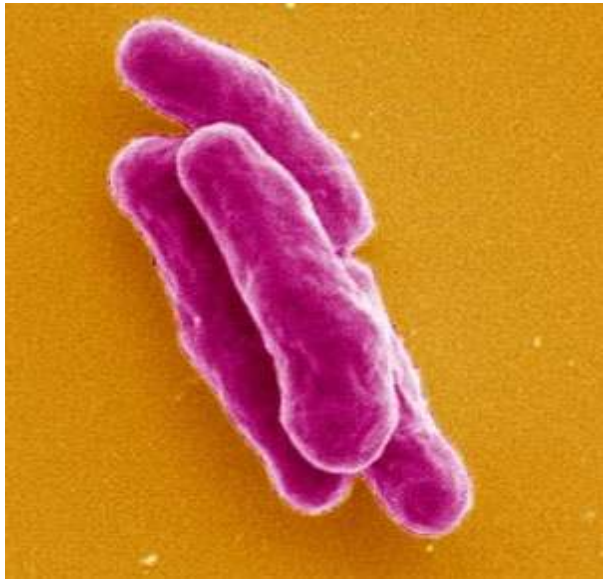
- PUBMED
- “TUBERCULOSIS “AND “AGING”
  - 250 REF

TUBERCULOSIS EN EL ANCIANO

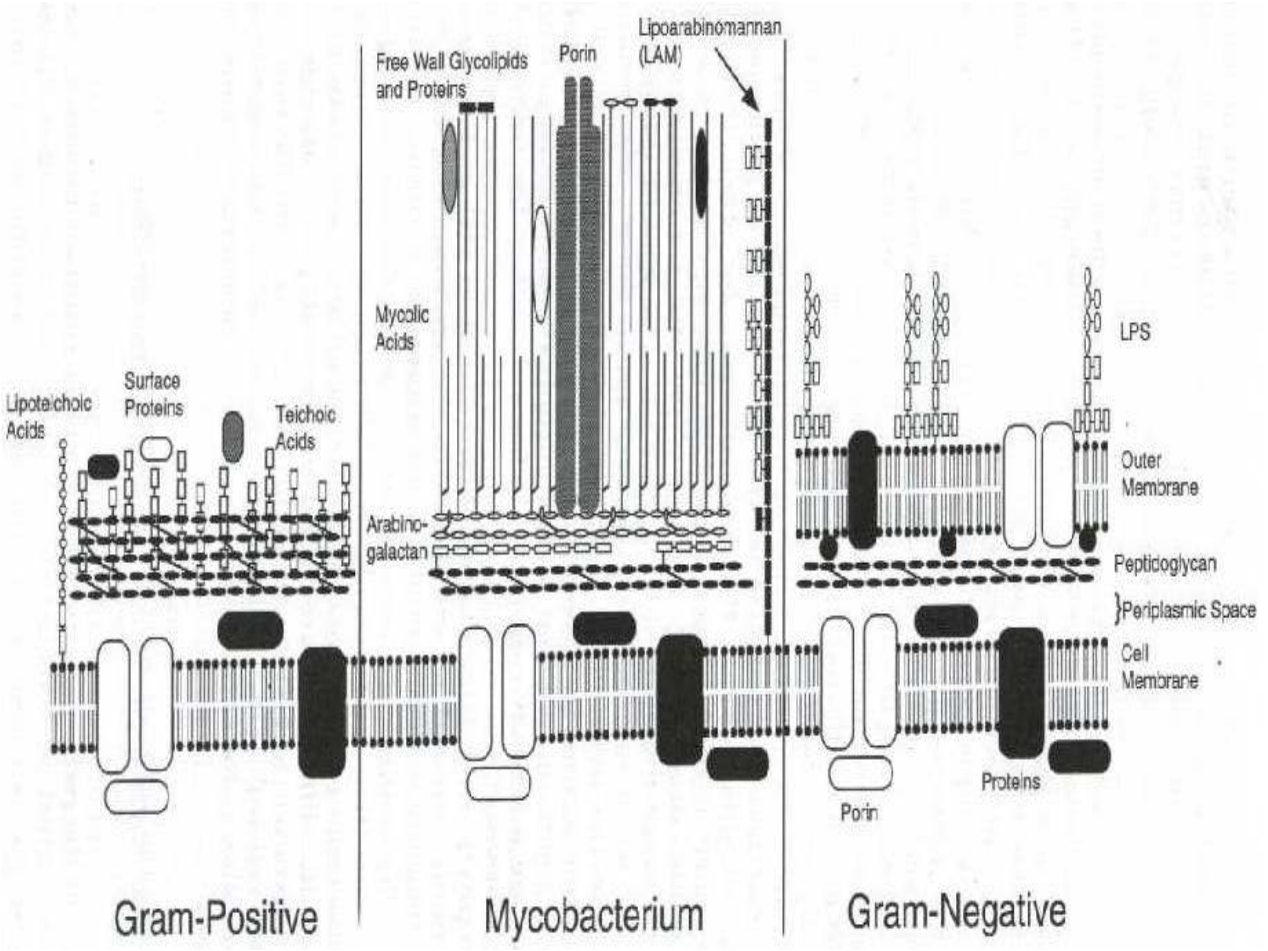
- Agente etiologico
- Epidemiología
- Predisposición biológica
- Manifestaciones clínicas y factores de riesgo
- Diagnostico
- Tratamiento
- Prevención

MORFOLOGIA DE LAS MICOBACTERIAS

- *Bacilo aerobio*
- *ZN (+) (baar) (+)*
- *No móvil*
- *No esporulado*
- *Clásicamente No encapsulado (*)*
- *Síntesis de ácidos micolicos*



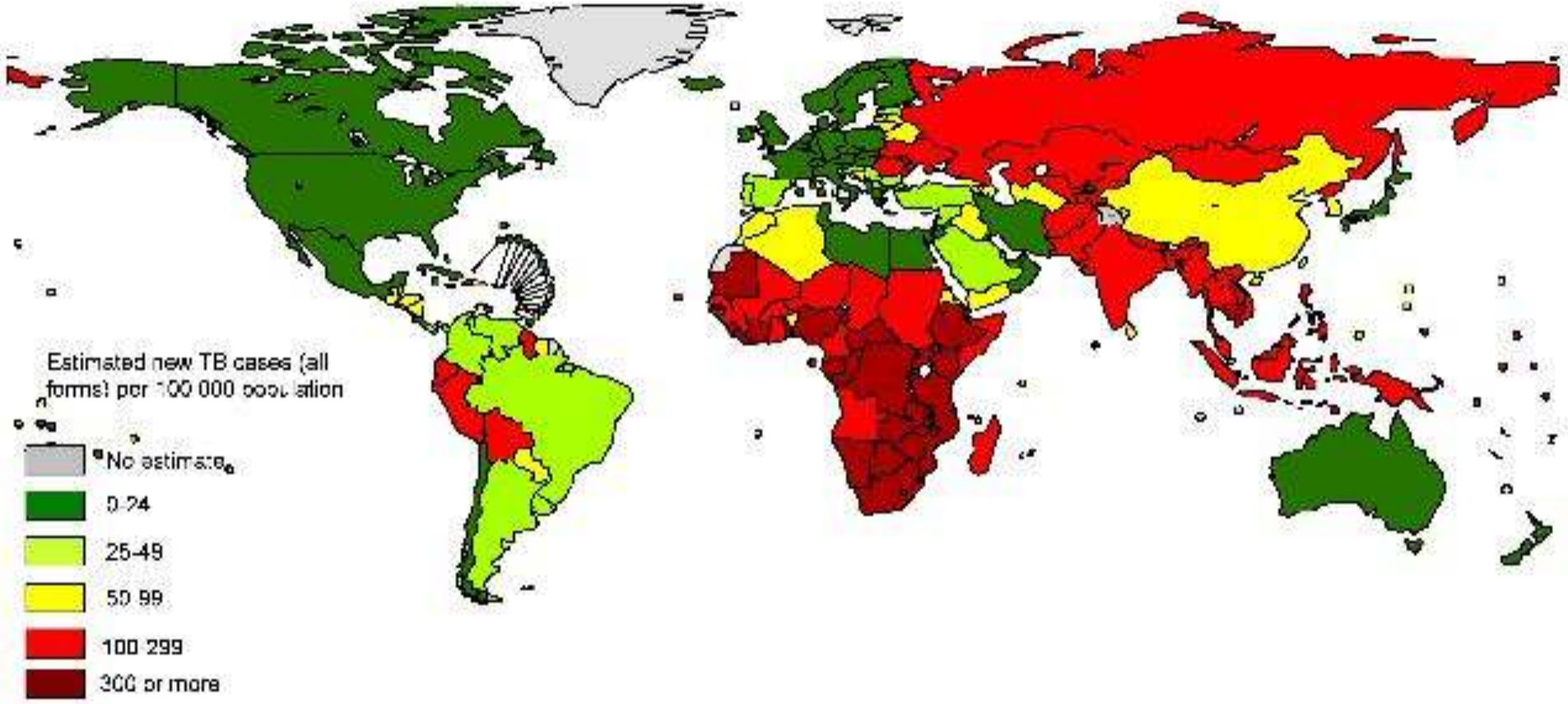
ESQUEMA DE LA PARED DE LAS MICOBACTERIAS



EPIDEMIOLOGIA

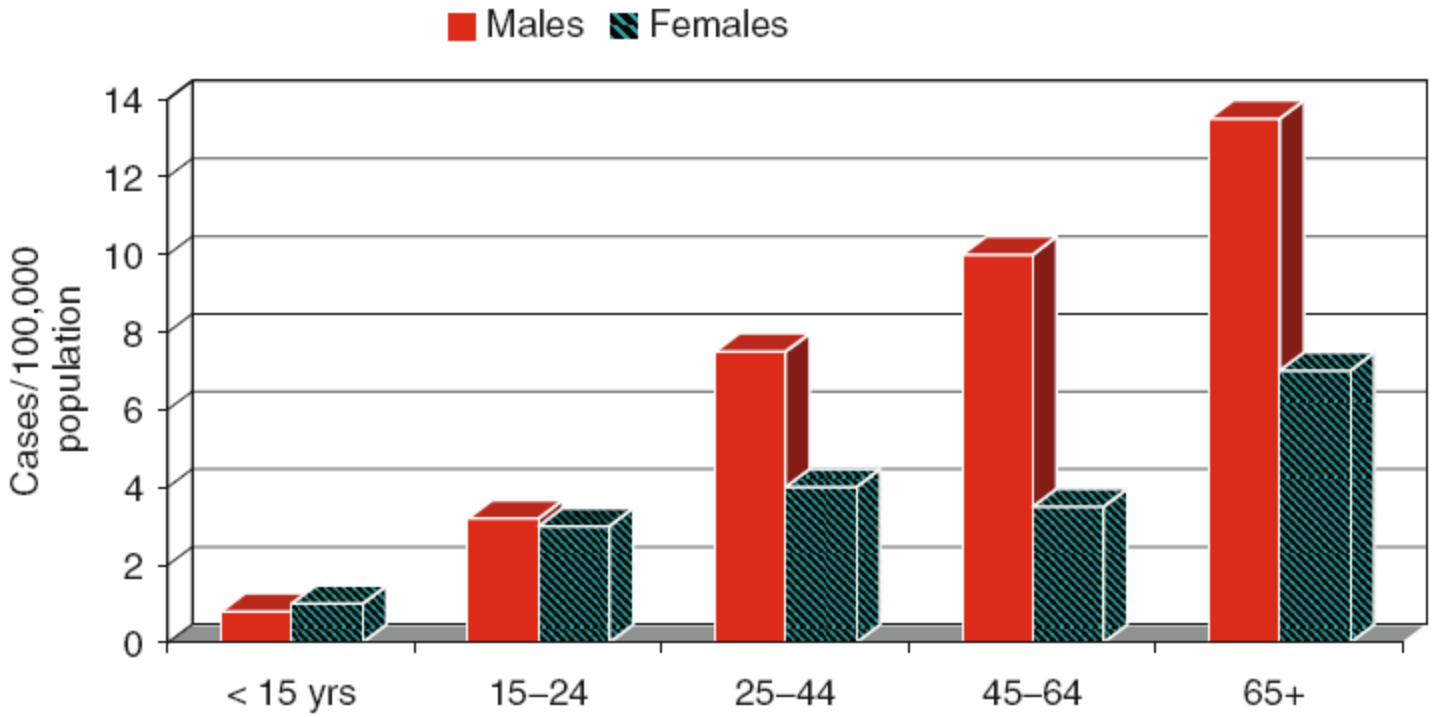


Estimated TB incidence rate, 2006



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.
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Países con casos confirmados de XDR-TB hasta la fecha
Organización
Mundial de la Salud



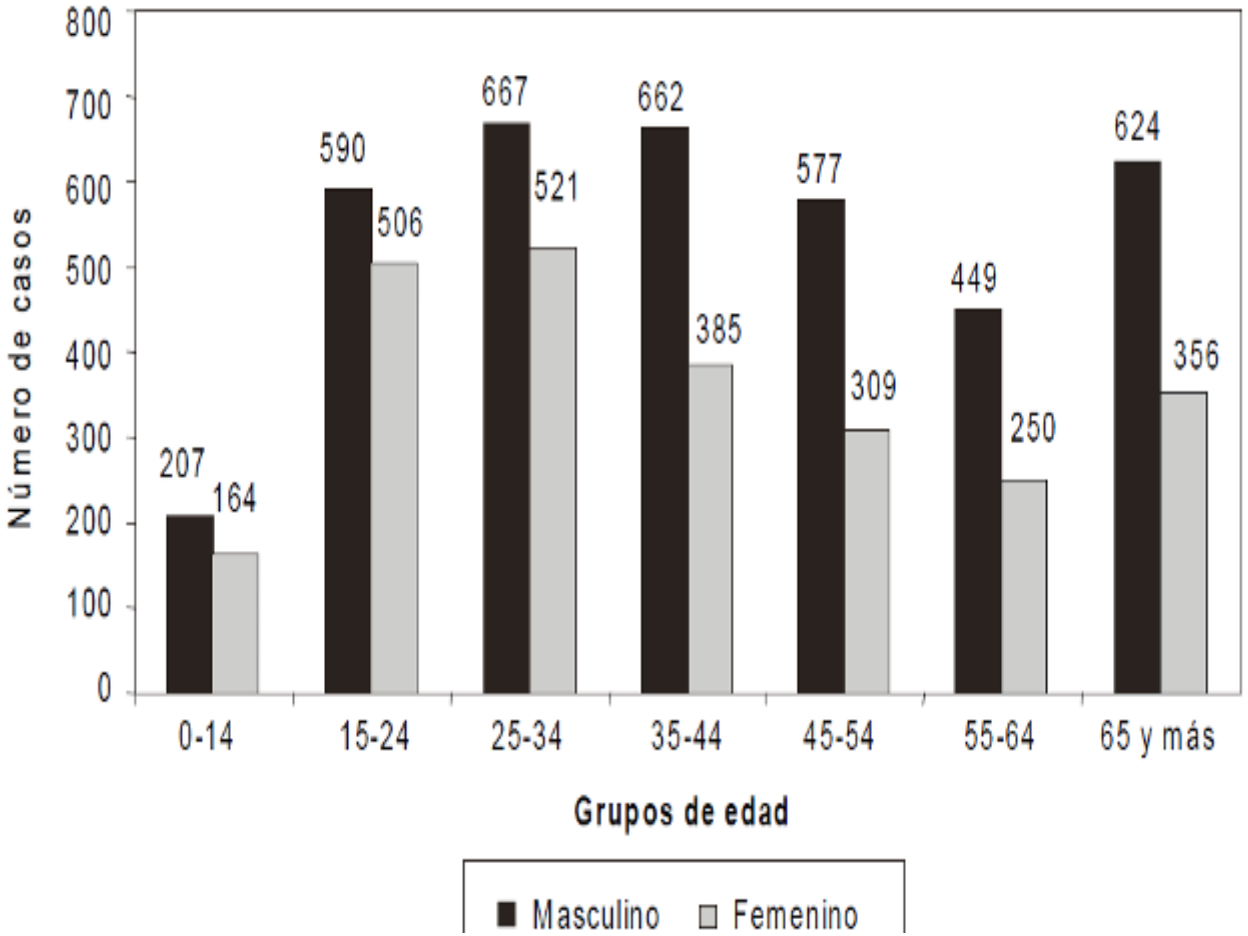
Zevallos, M., Justman, J.E. (2003). Tuberculosis in the elderly. *Clinics in Geriatric Medicine*, 19, 121–138.

INCIDENCE RATE OF TUBERCULOSIS PER 100,000 POPULATION AMONG THE ELDERLY (65+ YEARS) IN THE UNITED STATES IN 2001 BY RACE–ETHNICITY*

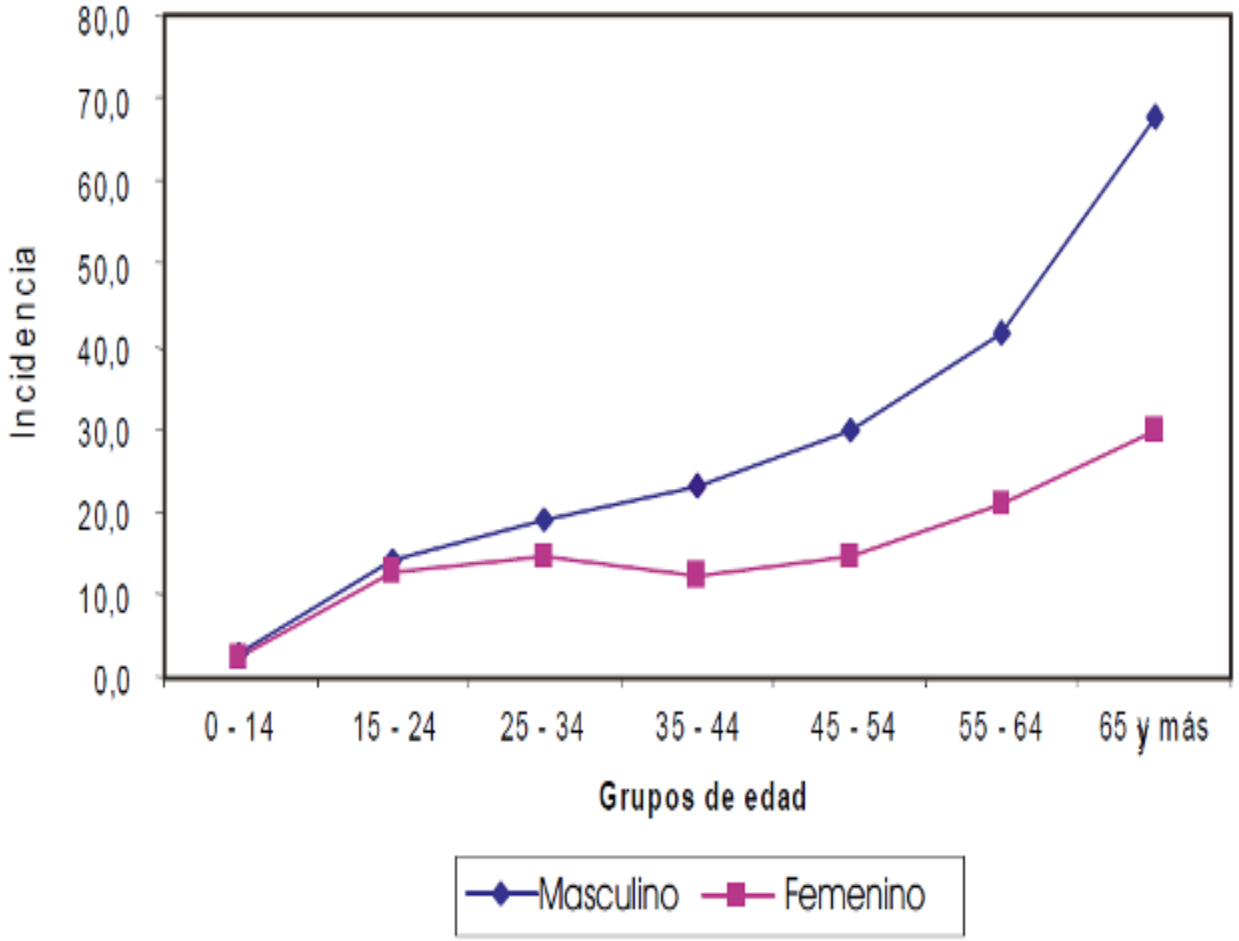
Race–Ethnicity	All Age Groups (Rate per 100,000)	Age 65+ y		
		No. of Cases		Rate per 100,000
White†	2	1,216	37	4
Black†	14	704	21	24
Hispanic	12	531	16	26
American Indian‡	11	66	2	42
Asian§	33	762	23	91
All cases	6	3,295	21	9

(*Infect Control Hosp Epidemiol* 2004;25:1097-1108)

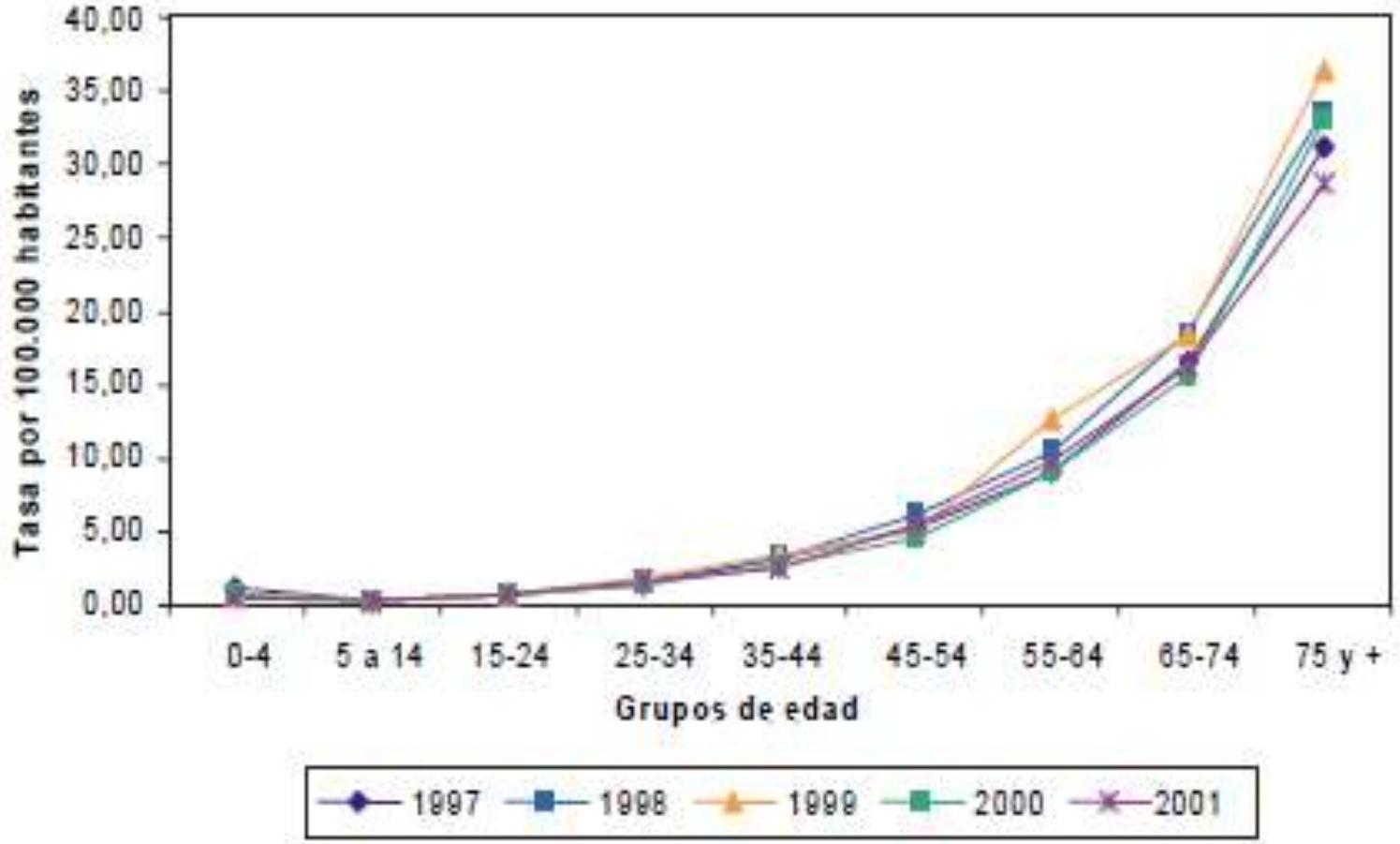
Evolución de la incidencia de tuberculosis de todas las formas, Colombia, 2001-2002.



Biomédica 2004;24(Supl.):102-14



Biomédica 2004;24(Supl.):102-14

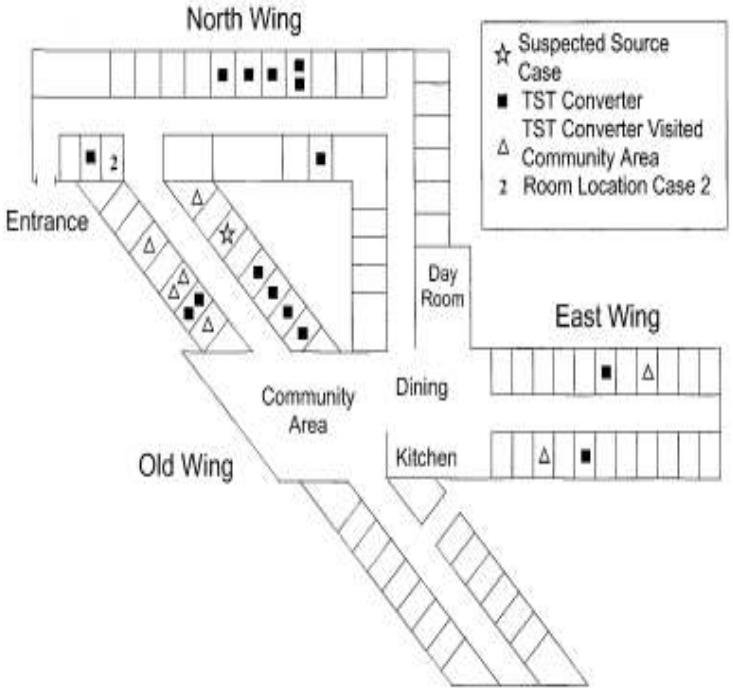


Biomédica 2004;24(Supl.):102-14

Unrecognized Tuberculosis in a Nursing Home Causing Death with Spread of Tuberculosis to the Community

Kashef Ijaz, MD, MPH,†† Jennifer A. Dillaha, MD,‡ Zhenhua Yang, MD, PhD,¶ M. Donald Cave, PhD,‖ and Joseph H. Bates, MD*†§*

JULY 2002–VOL. 50, NO. 7 JAGS



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Table 3. Tuberculosis Contact Investigation in the Local Hospital

Classification	Total n	TST Conversions n (%)	Tuberculosis Cases n
Exposed	178	14 (8)	1
Not exposed	33	1 (3)	0

TST = tuberculin skin test.

PREDISPOSICIÓN BIOLÓGICA

PREDISPOSICIÓN GENÉTICA

- Modelo animal ratón C5BL/6
- TBC primaria progresiva no reactivación
- El ratón no produce granulomas de caseificación.
- Modelo no optimo

FACTORES DE RIESGO EN LA POBLACIÓN GENERAL

- Sexo masculino OR 1,43
- HIV OR 2,07
- Historia familiar de TBC OR 3,24
- Edad menor a 5 años OR 6,88
- >18 H contacto con caso índice OR 2,39
- Enfermedad pulmonar cavitada OR 1,97
- BCG OR 0,51
- Asma OR 0,28

Immunological Reviews 2007
Vol. 219: 167–186

SUSCEPTIBILIDAD GENÉTICA EN HUMANOS

1. Estudios en gemelos homocigotos vs. Dicigotos 31,4 vs 14,9 x c! 100 casos $p < 0,05$
2. Inmunodeficiencias primarias ej: enfermedad crónica granulomatosa, inmunodeficiencia combinada común, hiper IG E)
3. Herencia poligenica (alelos en común con baja penetrancia) ej: 2q35 en Canadá, 17q11,2 en Brasil etc.)
4. Polimorfismo en común de genes involucrados en la respuesta inmune

Exp Gerontol. 2008 April ; 43(4): 275–285. doi:10.1016/j.exger.2007.12.004.

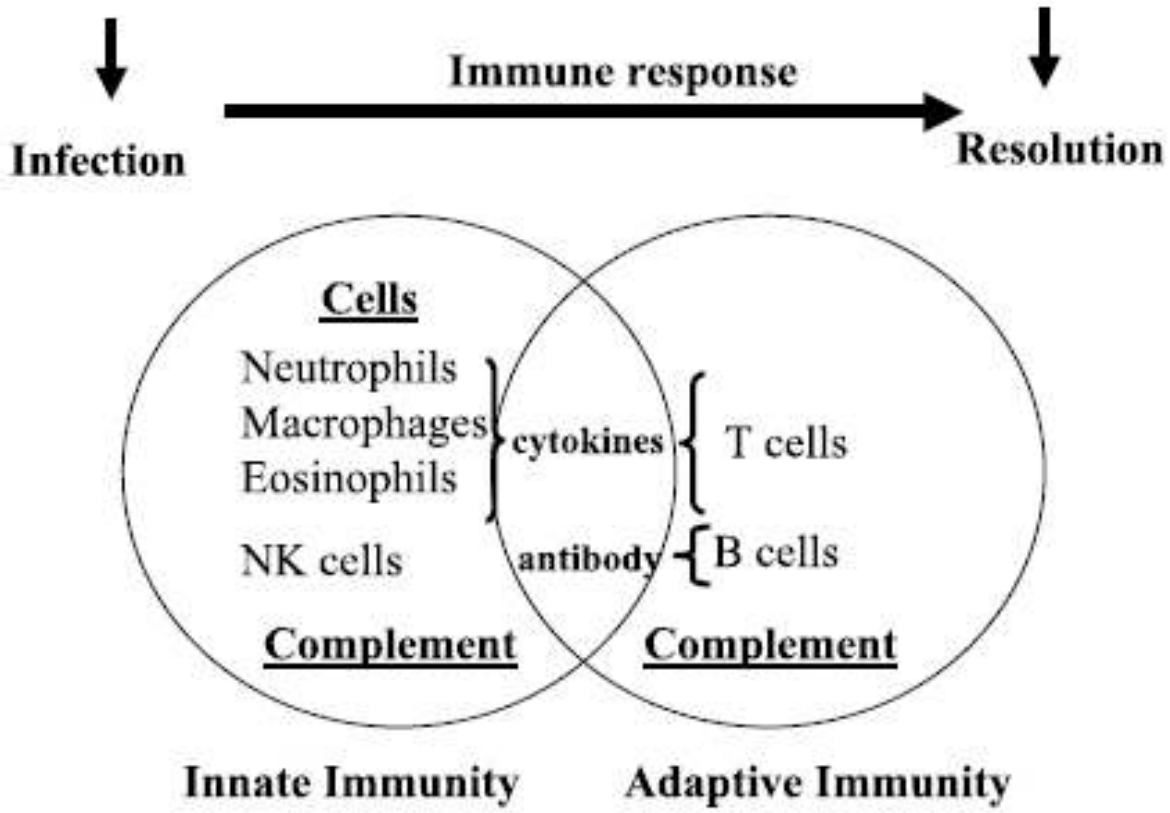
A model on the influence of age on immunity to infection with *Mycobacterium tuberculosis*

Avner Friedman[1,2], **Joanne Turner**[3], and **Barbara Szomolay**[1]

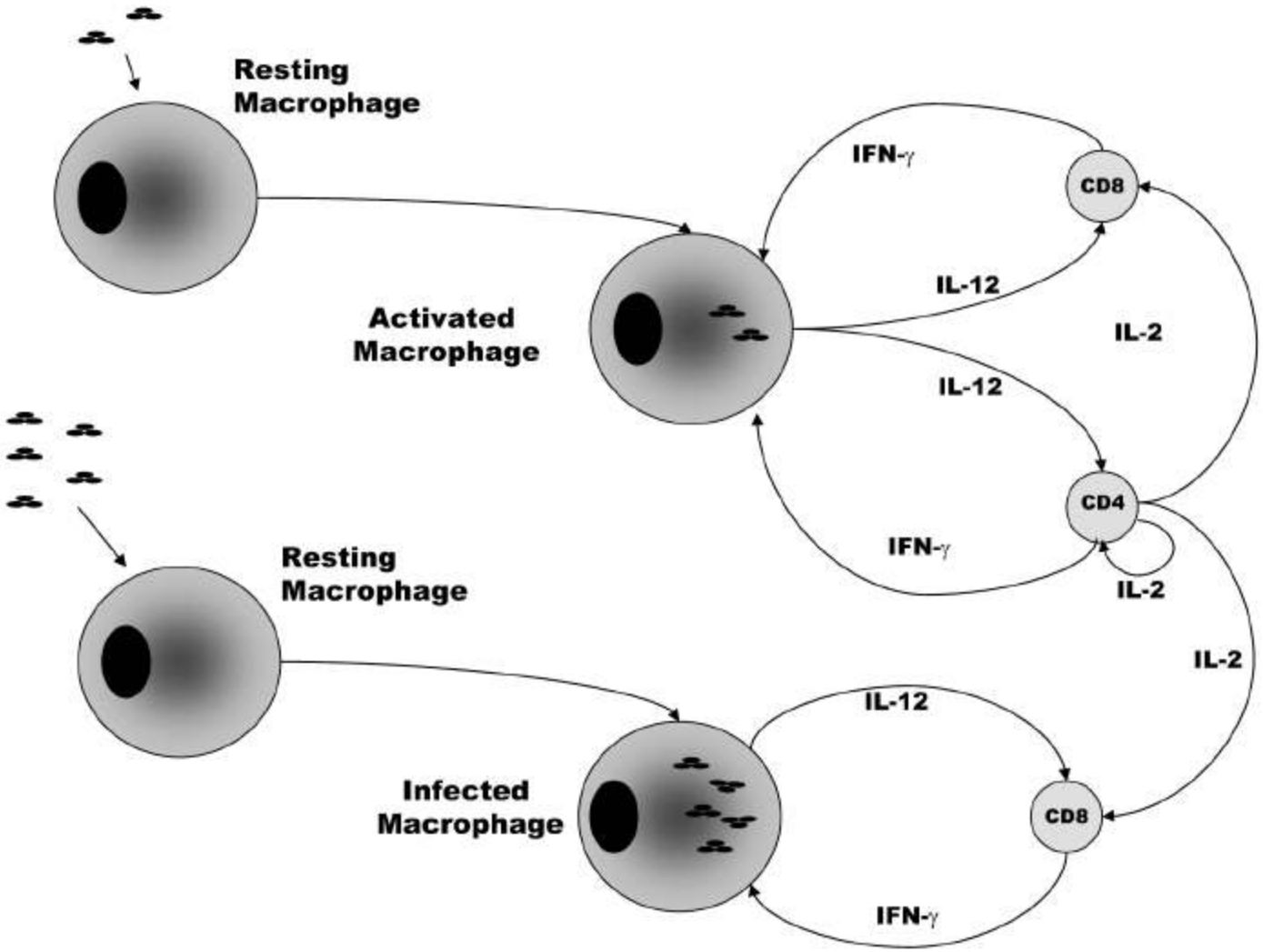
1 *Mathematical Biosciences Institute, The Ohio State University*

2 *Department of Mathematics, The Ohio State University*

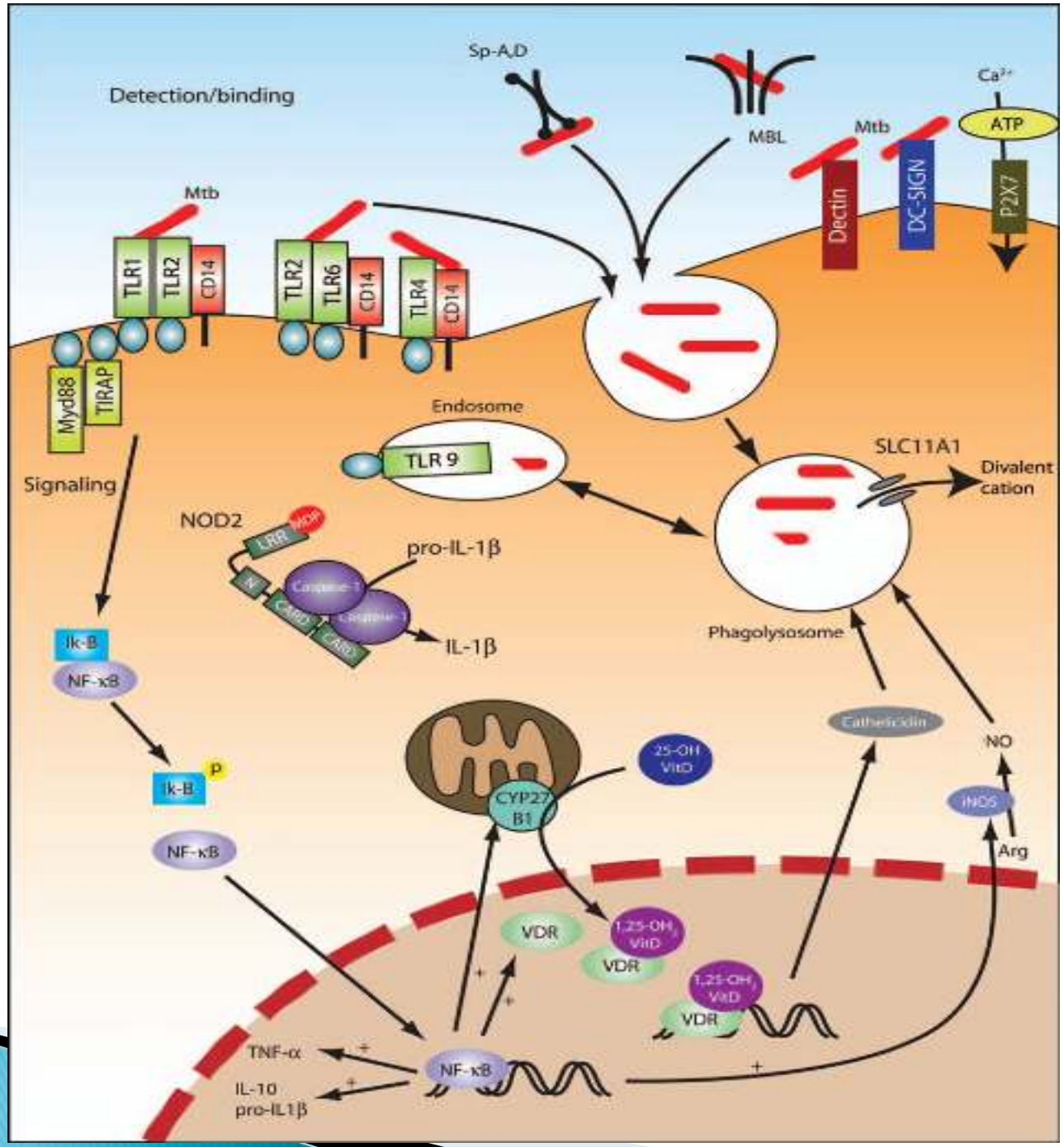
3 *Center for Microbial Interface Biology, Department of Internal Medicine, The Ohio State University*

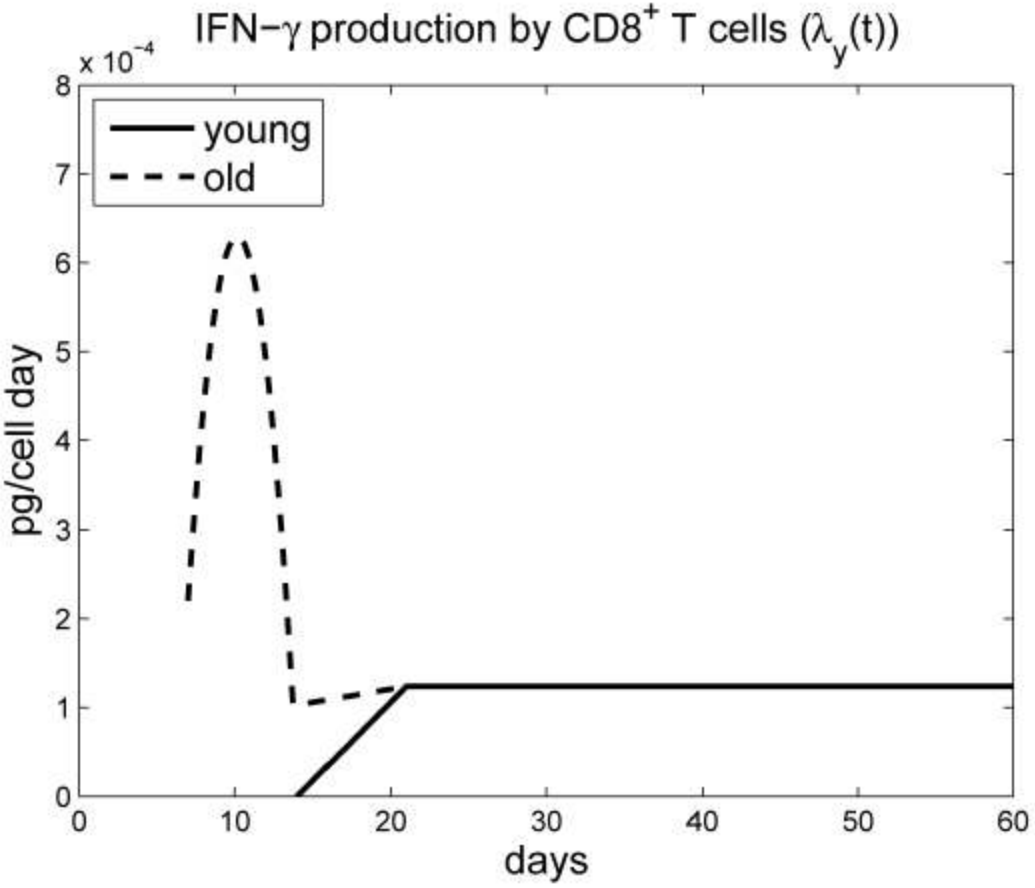


J.M. Lord et al. / Mechanisms of Ageing and Development 122 (2001) 1521–1535

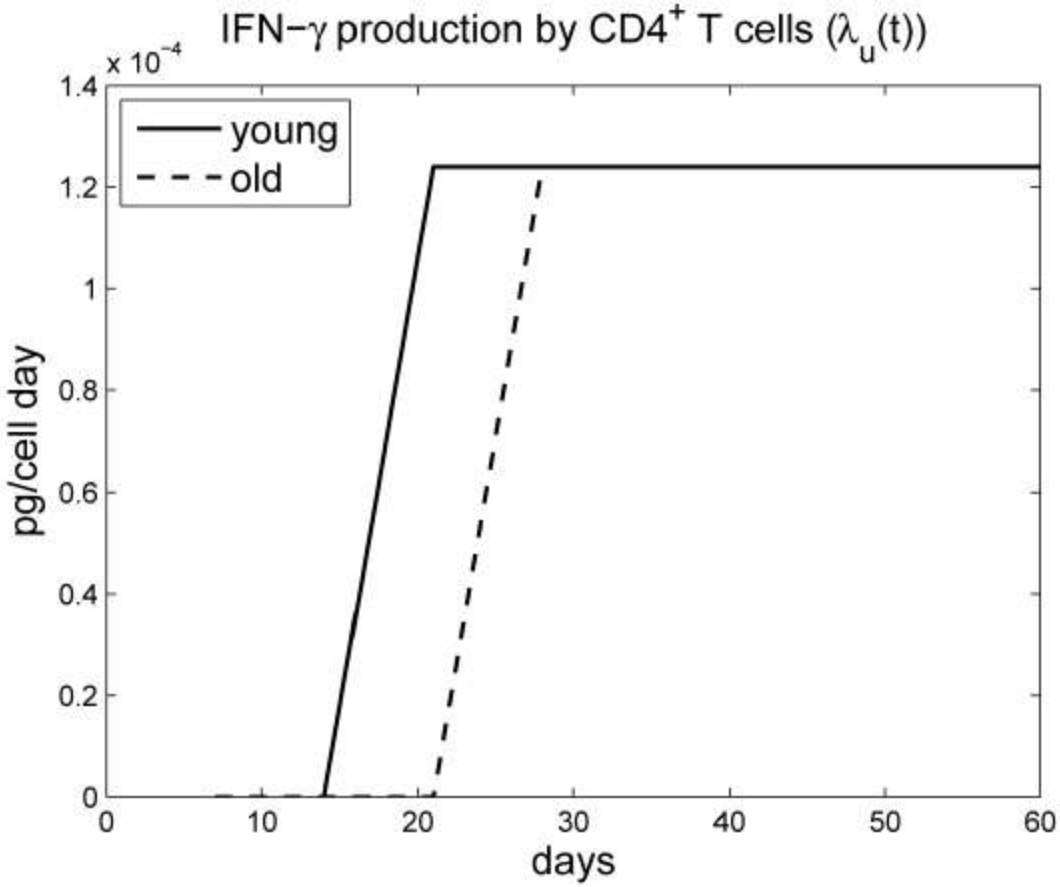


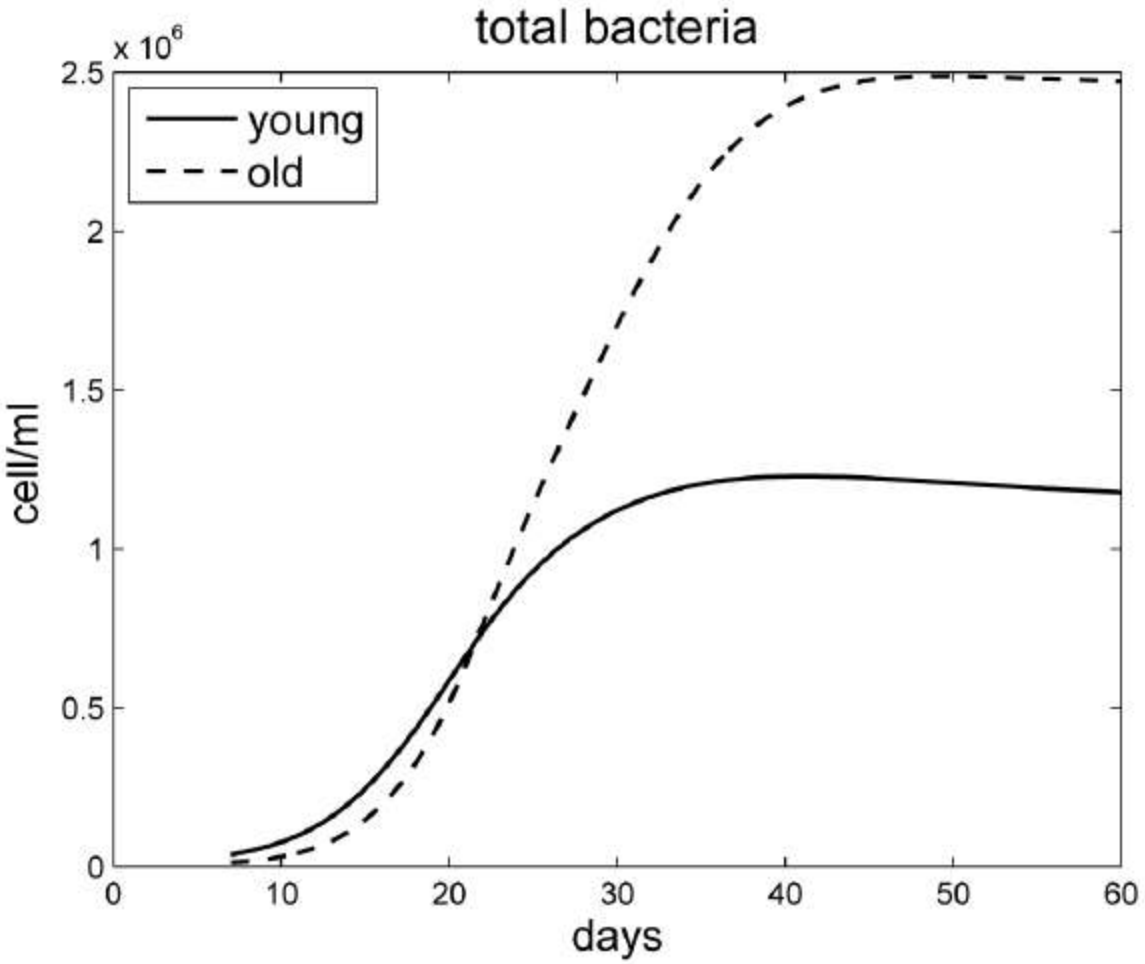
Exp Gerontol. Author manuscript; available in PMC 2009 April 1.


Detection/binding
Sp-A,D
MBL
Mtb
Dectin
DC-SIGN
Ca2+
ATP
P2X7
Mtb
TLR1
TLR2
CD14
TLR2
TLR6
CD14
TLR4
CD14
Myd88
TIRAP
Signaling
Endosome
TLR 9
SLC11A1
Divalent cation
NOD2
LRR
pro-IL-1β
IL-1β
Phagolysosome
Ik-B
NF-κB
Ik-B
P
NF-κB
CYP27 B1
25-OH VitD
Cathelicidin
NO
iNOS
Arg
VDR
1,25-OH2 VitD
VDR
1,25-OH2 VitD
VDR
TNF-α
IL-10
pro-IL1β
NF-κB

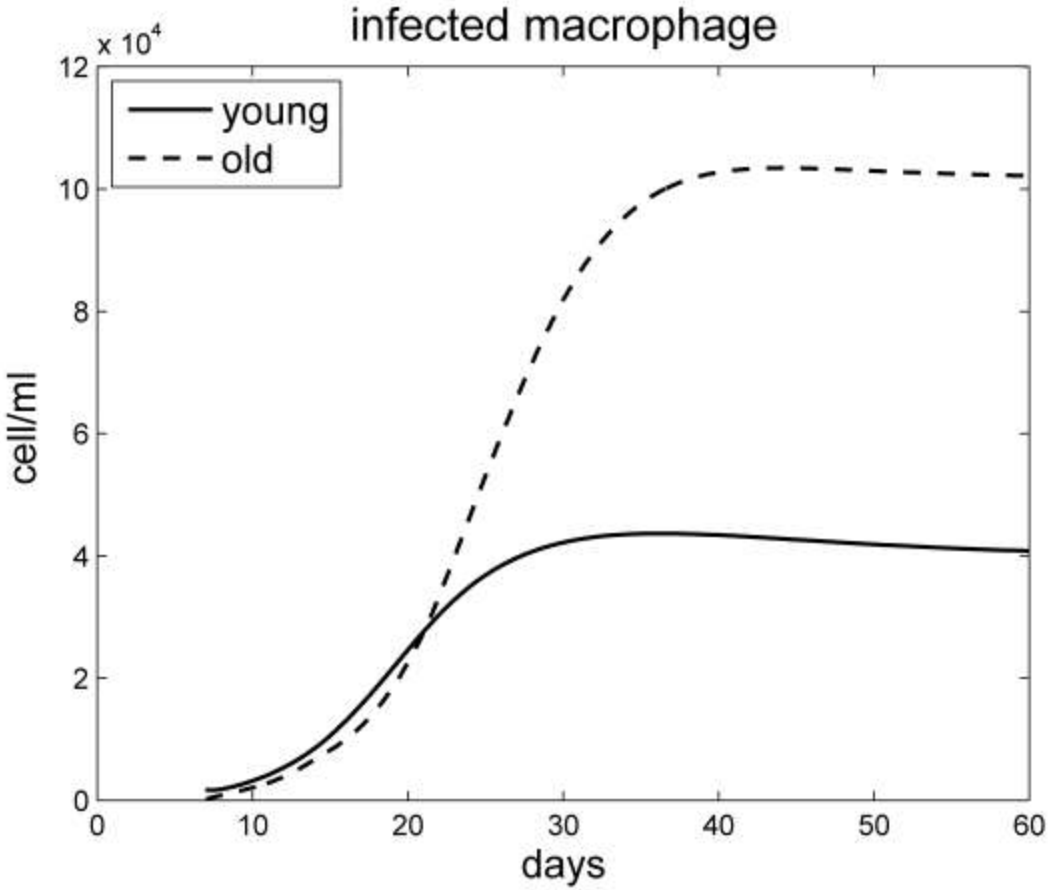


Exp Gerontol. Author manuscript; available in PMC 2009 April 1.

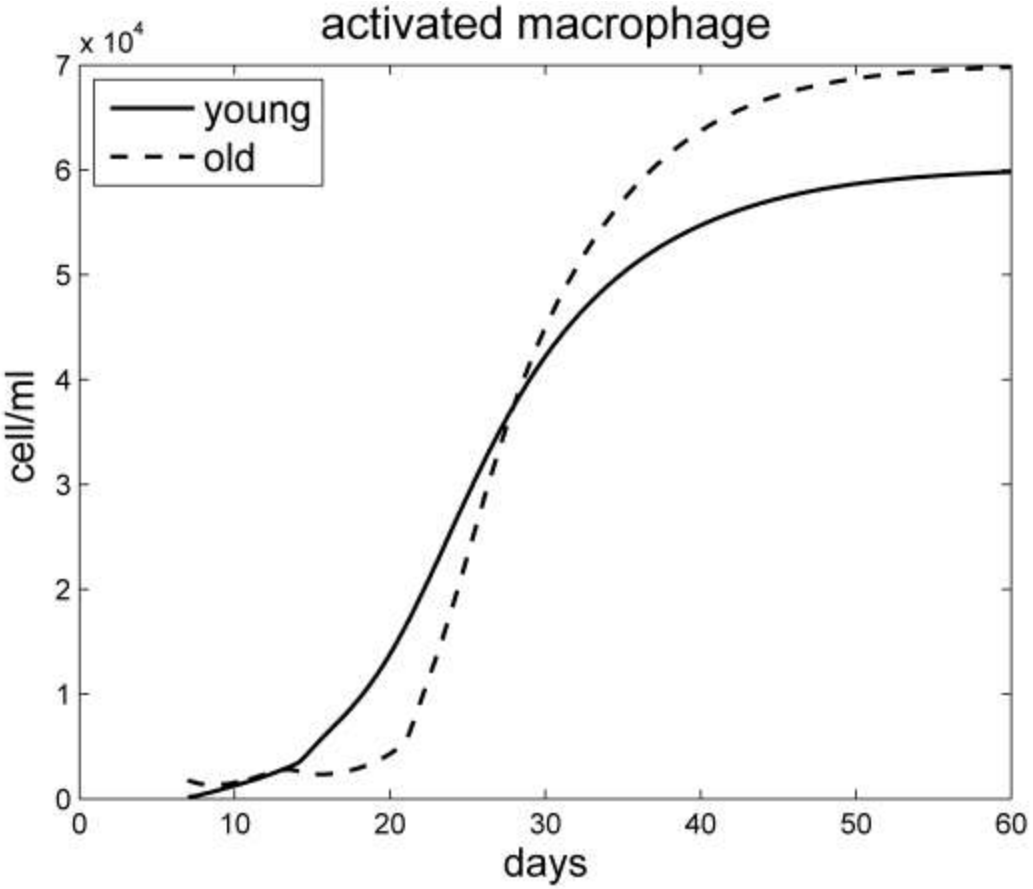

IFN−γ production by CD4+ T cells (λu(t))
x 10−4
1.4
1.2
1
0.8
0.6
0.4
0.2
0
young
old
pg/cell day
0
10
20
30
40
50
60
days



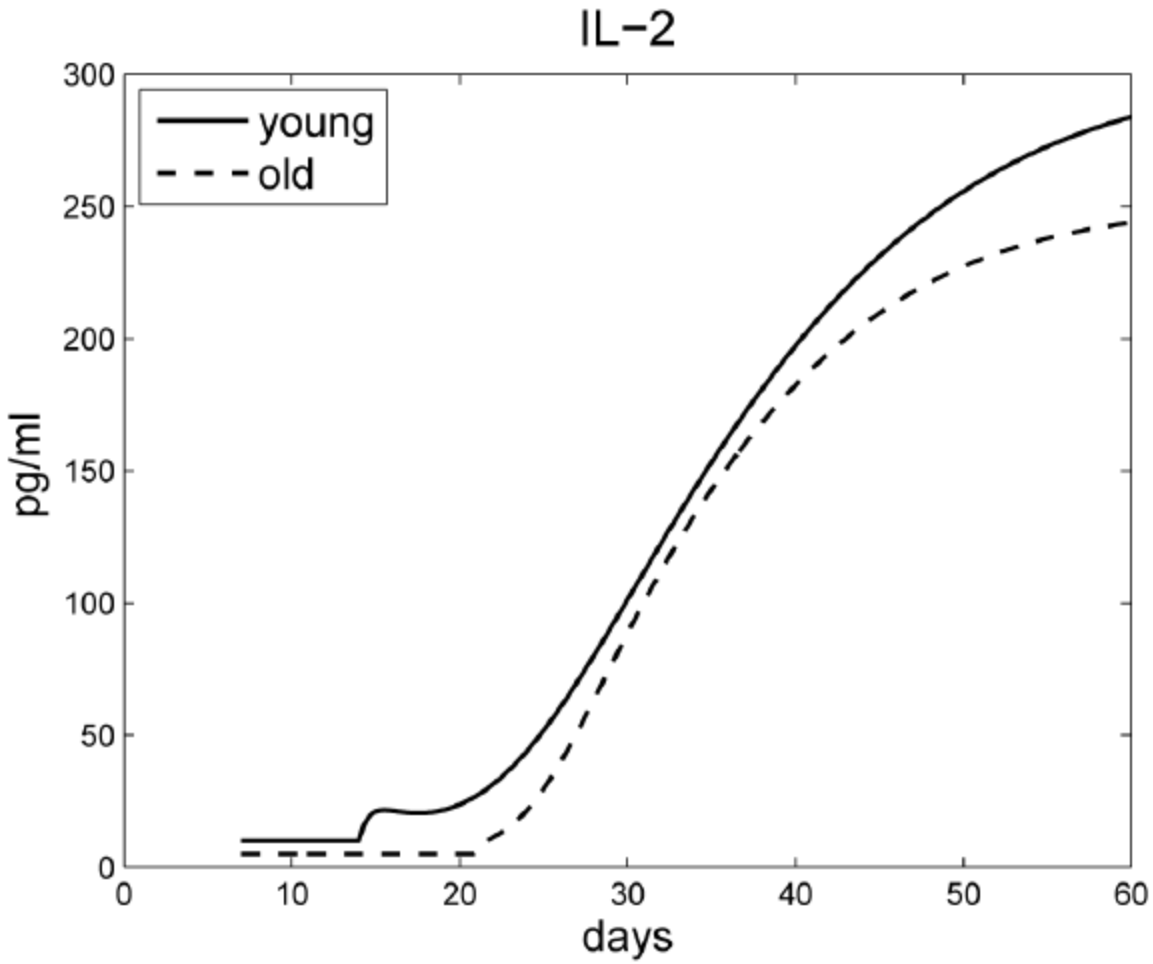
Exp Gerontol. Author manuscript; available in PMC 2009 April 1.



Exp Gerontol. Author manuscript; available in PMC 2009 April 1.



Exp Gerontol. Author manuscript; available in PMC 2009 April 1.


IL−2
young
old
pg/ml
days
0
50
100
150
200
250
300
0
10
20
30
40
50
60

Clin Exp Immunol 2000; **120**:267–273

Altered Th1/Th2 commitment in human $CD4^+$ T cells with ageing

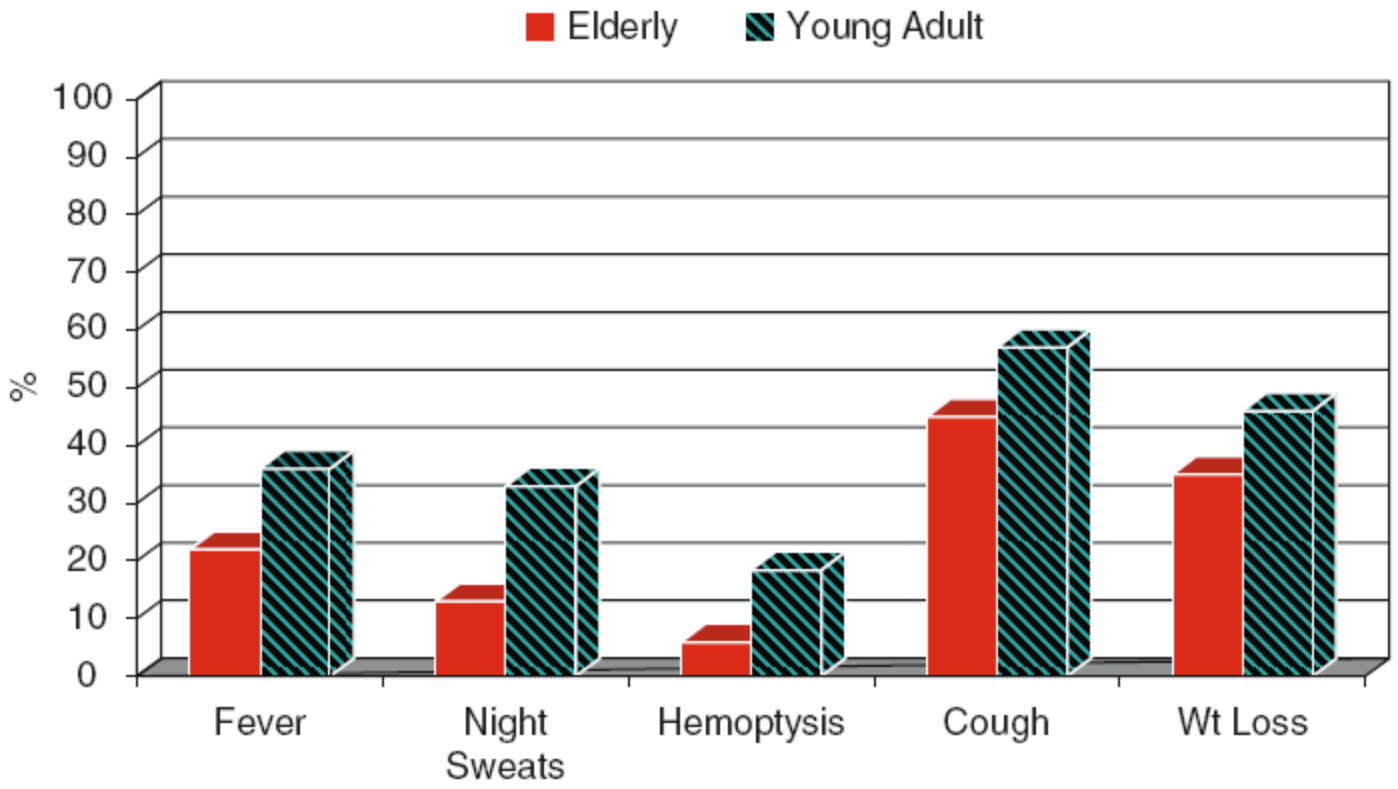
S. SAKATA-KANEKO, Y. WAKATSUKI, Y. MATSUNAGA, T. USUI & T. KITA *Department of Clinical Bio-regulatory Science, Graduate School of Medicine, Kyoto University, Kyoto, Japan*

Bridget Vesosky
Joanne Turner

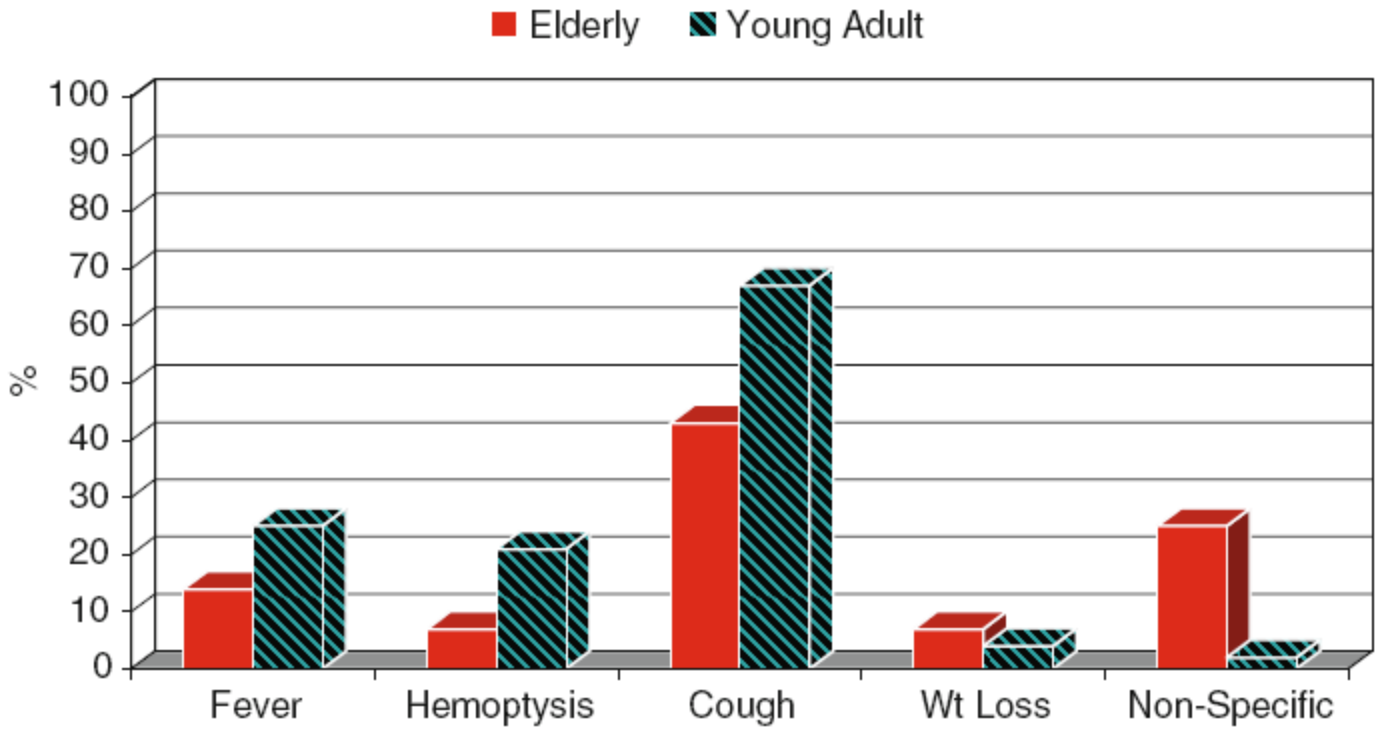
The influence of age on immunity to infection with *Mycobacterium tuberculosis*

Immunological Reviews 2005
Vol. 205: 229–243

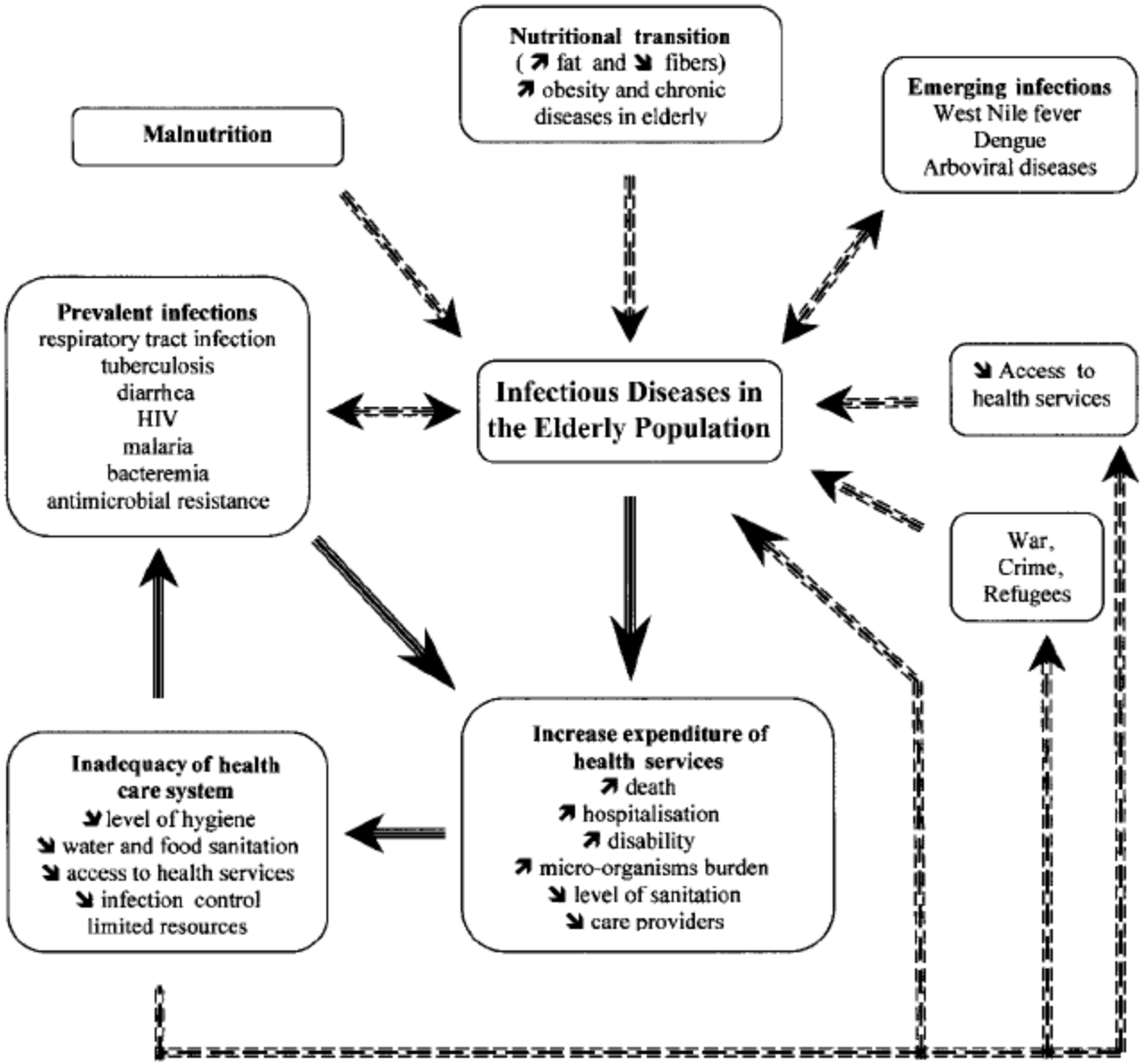
MANIFESTACIONES CLINICAS Y FACTORES DE RIESGO RELACIONADOS



Korzeniewska-Kozela, M., Krysl, J., Muller, N., Black, W., Allen, E., FitzGerald, J.M. (1994). Tuberculosis in young and old adults: A prospective comparative study. *Chest*, 106, 28–32.



Chan, C.H.S., Woo, J., Or, K.K.H., Chan, R.C.Y., Cheung, W. (1995). The effect of age on the presentation of patients with tuberculosis. *Journal of Tuberculosis and Lung Disease*, 76, 290–294.


Nutritional transition
(↗ fat and ↘ fibers)
↗ obesity and chronic
diseases in elderly
Malnutrition
Emerging infections
West Nile fever
Dengue
Arboviral diseases
Prevalent infections
respiratory tract infection
tuberculosis
diarrhea
HIV
malaria
bacteremia
antimicrobial resistance
Infectious Diseases in
the Elderly Population
↘ Access to
health services
War,
Crime,
Refugees
Inadequacy of health
care system
↘ level of hygiene
↘ water and food sanitation
↘ access to health services
↘ infection control
limited resources
Increase expenditure of
health services
↗ death
↗ hospitalisation
↗ disability
↗ micro-organisms burden
↘ level of sanitation
↘ care providers

Calcif Tissue Int (2000) 66:476–478

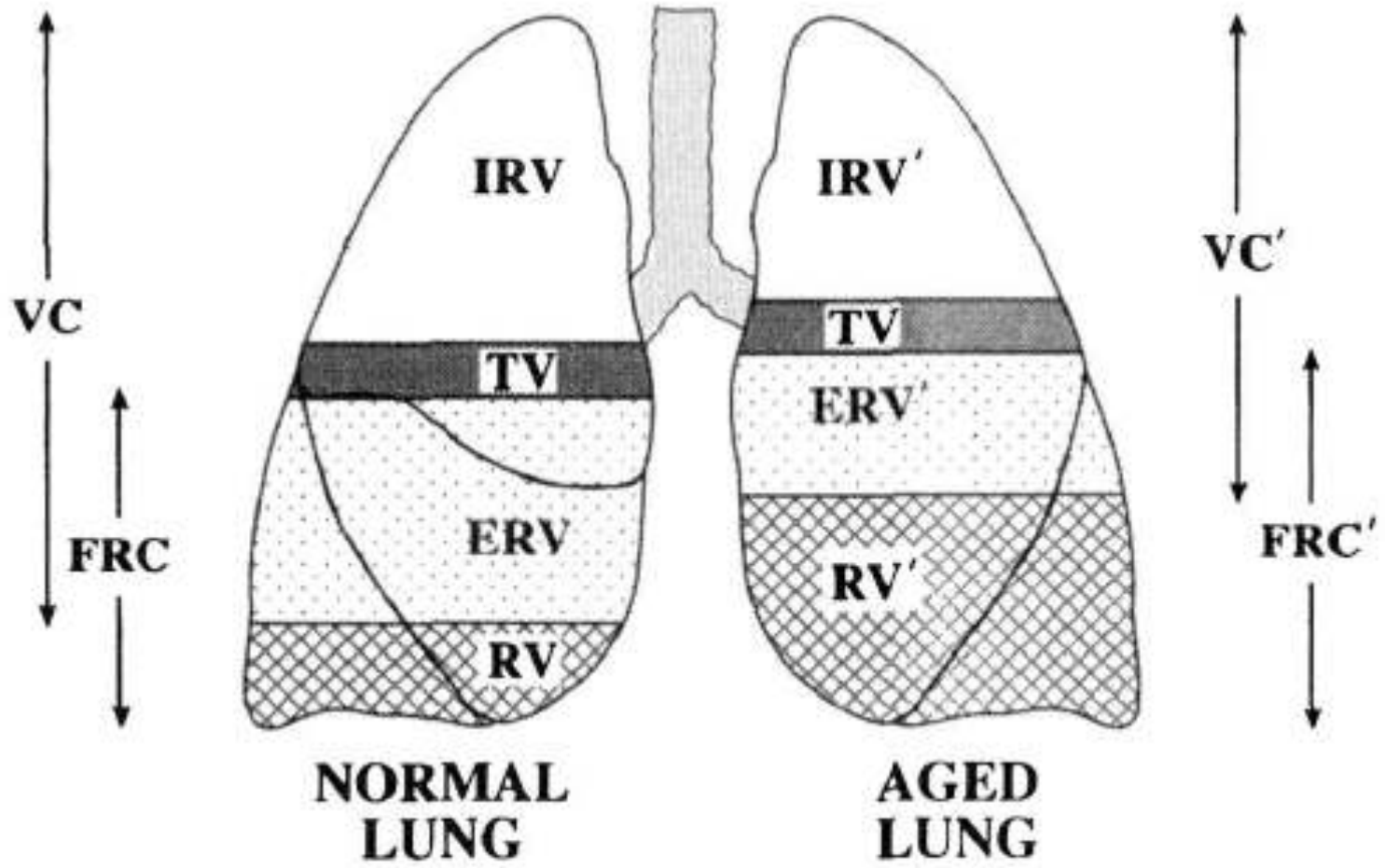
Calcified Tissue International
© 2000 Springer-Verlag New York Inc.

Comment

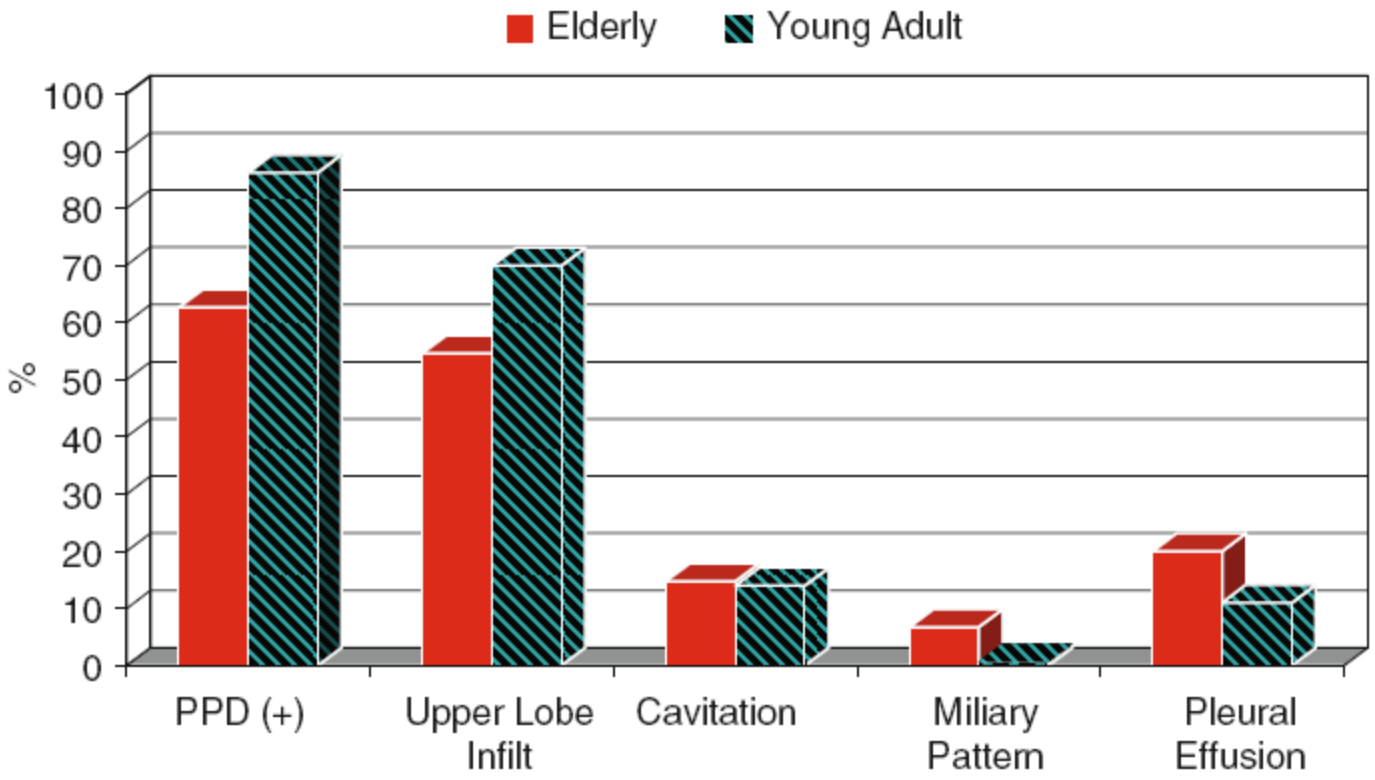
Vitamin D Deficiency and Susceptibility to Tuberculosis

T. Y. K. Chan

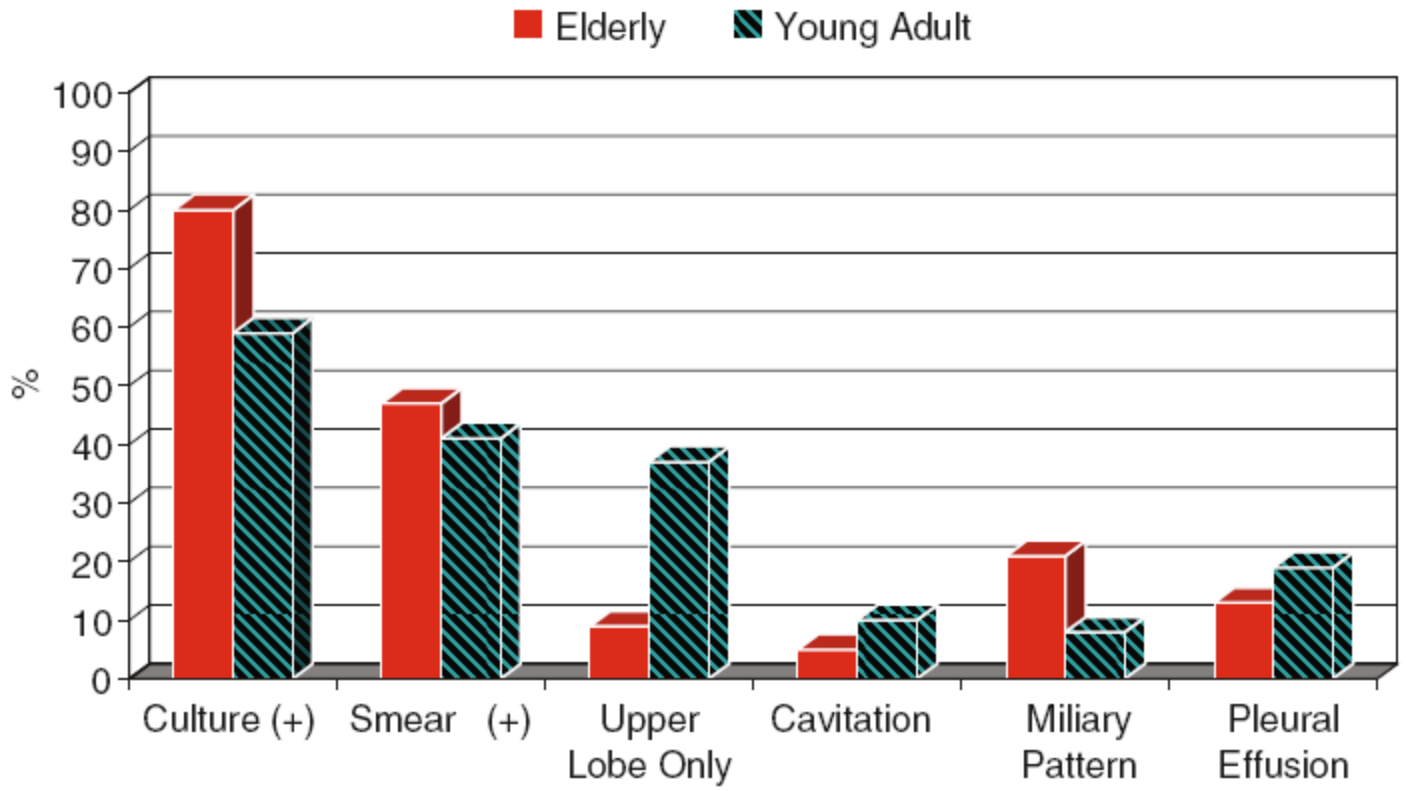
- La vitamina D es un modulador de la funcion de los macrofagos. Su deficit se asocia a un riesgo incrementado en ancianos de reactivacion o primoinfeccion por TBC.



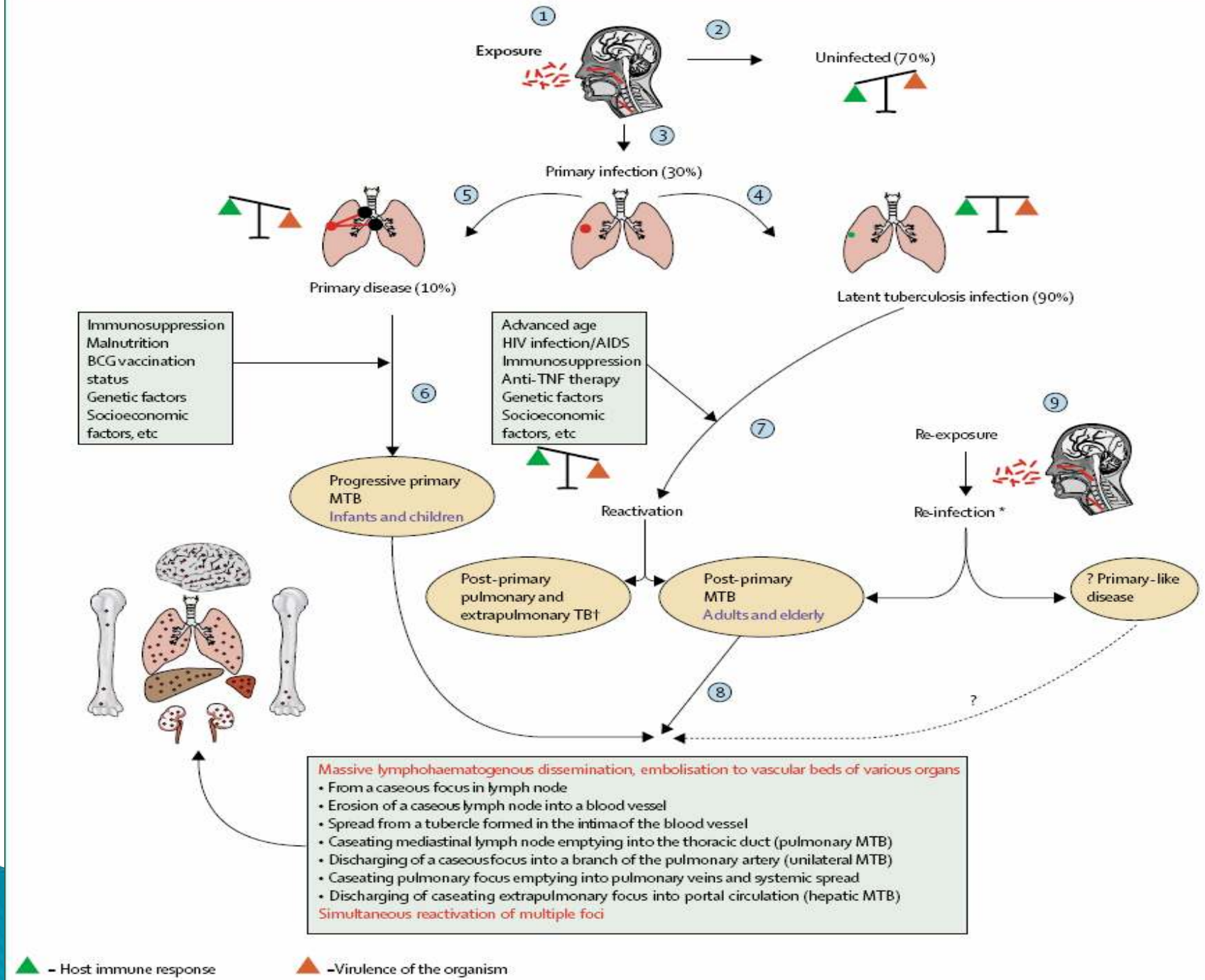
(CHEST 1998; 114:1704–1733)



Korzeniewska-Kozela, M., Krysl, J., Muller, N., Black, W., Allen, E., FitzGerald, J.M. (1994). Tuberculosis in young and old adults: A prospective comparative study. *Chest*, 106, 28–32.



Chan, C.H.S., Woo, J., Or, K.K.H., Chan, R.C.Y., Cheung, W. (1995). The effect of age on the presentation of patients with tuberculosis. *Journal of Tuberculosis and Lung Disease*, 76, 290–294.

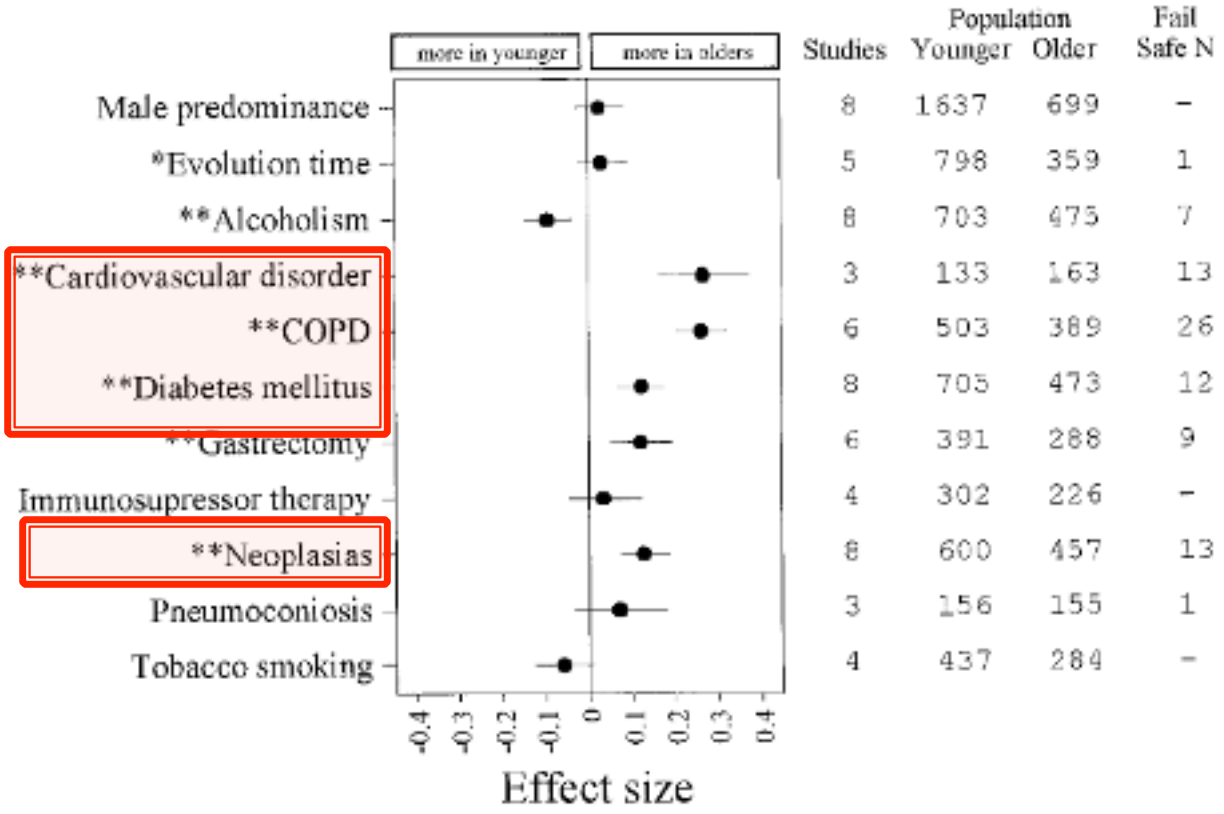

1
Exposure
2
Uninfected (70%)
3
Primary infection (30%)
5
4
Primary disease (10%)
Latent tuberculosis infection (90%)
Immunosuppression
Malnutrition
BCG vaccination status
Genetic factors
Socioeconomic factors, etc
6
Advanced age
HIV infection/AIDS
Immunosuppression
Anti-TNF therapy
Genetic factors
Socioeconomic factors, etc
7
9
Re-exposure
Re-infection *
Progressive primary MTB
Infants and children
Reactivation
Post-primary pulmonary and extrapulmonary TB†
Post-primary MTB
Adults and elderly
? Primary-like disease
8
?
Massive lymphohaematogenous dissemination, embolisation to vascular beds of various organs
• From a caseous focus in lymph node
• Erosion of a caseous lymph node into a blood vessel
• Spread from a tubercle formed in the intima of the blood vessel
• Caseating mediastinal lymph node emptying into the thoracic duct (pulmonary MTB)
• Discharging of a caseous focus into a branch of the pulmonary artery (unilateral MTB)
• Caseating pulmonary focus emptying into pulmonary veins and systemic spread
• Discharging of caseating extrapulmonary focus into portal circulation (hepatic MTB)
Simultaneous reactivation of multiple foci
– Host immune response
–Virulence of the organism

Does Aging Modify Pulmonary Tuberculosis?*

A Meta-Analytical Review

(CHEST 1999; 116:961–967)

Carlos Pérez-Guzmán, MD; Mario H. Vargas, MD, MS, FCCP; Alfredo Torres-Cruz, MD; and Héctor Villarreal-Velarde, MD



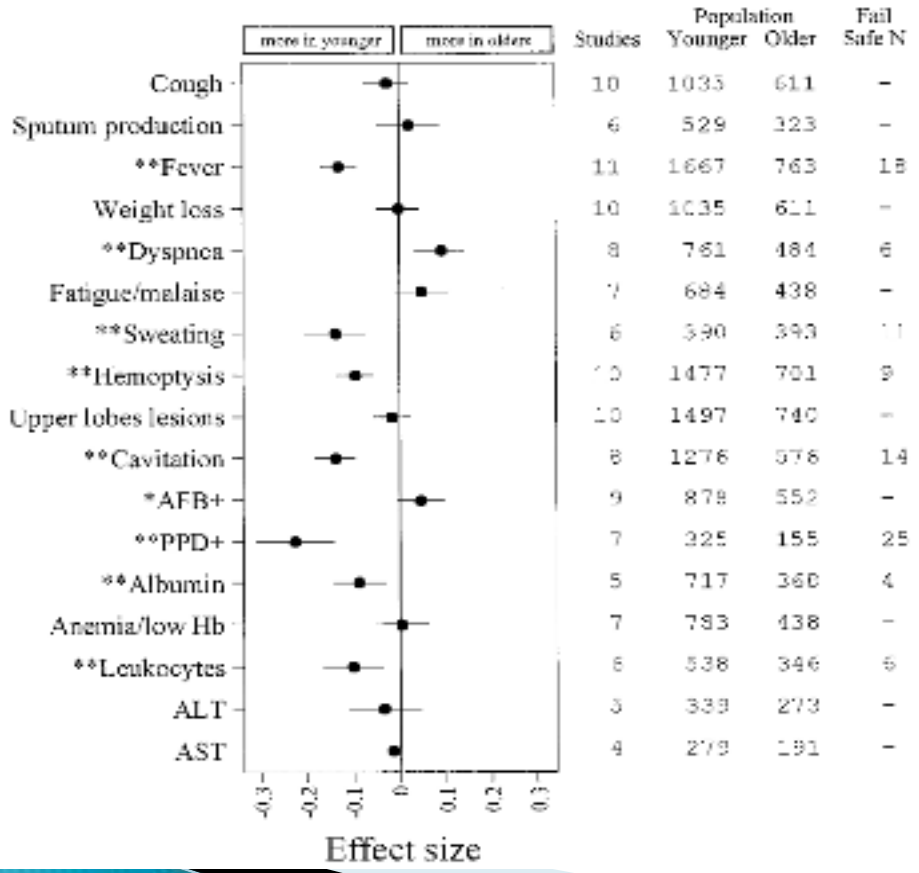
	Studies	Population Younger	Population Older	Fail Safe N
Male predominance	8	1637	699	-
*Evolution time	5	798	359	1
**Alcoholism	8	703	475	7
**Cardiovascular disorder	3	133	163	13
**COPD	6	503	389	26
**Diabetes mellitus	8	705	473	12
**Gastrectomy	6	391	288	9
Immunosupressor therapy	4	302	226	-
**Neoplasias	8	600	457	13
Pneumoconiosis	3	156	155	1
Tobacco smoking	4	437	284	-

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The Impact of Age on the Demographic, Clinical, Radiographic Characteristics and Treatment Outcomes of Pulmonary Tuberculosis Patients in Taiwan

C.-S. Wang, H.-C. Chen, C.-J. Yang, W.-Y. Wang, I.-W. Chong, J.-J. Hwang, M.-S. Huang

Infection 2008; 36: 335–340

Coexisting medical diseases in elderly and young patients with pulmonary TB[a].

	Age ≥ 60 year (n = 83)	Age < 60 year (n = 74)	OR (95% CI)	p-Value
Chronic obstructive lung disease	18 (21.7)	4 (5.4)	4.846 (1.558–15.074)	0.003
Diabetes mellitus	27 (32.5)	22 (29.7)	1.140 (0.579–2.244)	0.705
End-stage renal disease	2 (2.4)	1 (1.4)	1.802 (0.160–20.295)	1.000
Heart failure	6 (7.2)	0 (0.0)	1.078 (1.015–1.145)	0.030
Stroke	11 (13.3)	0 (0.0)	1.153 (1.060–1.254)	0.001
Neoplasm	7 (8.4)	3 (4.1)	2.180 (0.543–8.757)	0.336
Liver cirrhosis	2 (2.4)	5 (6.8)	0.341 (0.064–1.812)	0.256
Alcoholism	3 (3.6)	11 (14.9)	0.215 (0.057–0.803)	0.014

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Infection 2008; 36: 335–340

The initial presenting chest radiograph findings in elderly and young patients with pulmonary TB[a].

	Age ≥ 60 year (n = 83)	Age < 60 year (n = 74)	OR (95% CI)	p-Value
Right upper field	58 (69.9)	51 (68.9)	1.046 (0.530–2.065)	0.896
Right lower field	52 (62.7)	34 (45.9)	1.973 (1.043–3.734)	0.036
Left upper field	52 (62.7)	47 (63.5)	0.964 (0.503–1.845)	0.911
Left lower field	51 (61.4)	30 (40.5)	2.338 (1.231–4.437)	0.009
Normal	3 (3.6)	6 (8.1)	0.425 (0.102–1.764)	0.308
Nodule	39 (47.0)	34 (45.9)	1.043 (0.556–1.955)	0.896
Consolidation	66 (79.5)	56 (75.7)	1.248 (0.588–2.648)	0.564
Infiltration	73 (88.0)	63 (85.1)	1.275 (0.508–3.199)	0.605
Cavity	19 (22.9)	37 (50.0)	0.297 (0.150–0.589)	<0.001
Atelectasis	12 (14.5)	5 (6.8)	2.332 (0.781–6.969)	0.121
Pleural effusion	19 (22.9)	7 (9.5)	2.842 (1.119–7.215)	0.024

The Impact of Age on the Demographic, Clinical, Radiographic Characteristics and Treatment Outcomes of Pulmonary Tuberculosis Patients in Taiwan

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Infection 2008; 36: 335–340

Treatment outcomes after 1 year from the initiation of anti-TB treatment in elderly and young patients with pulmonary TB[a].

	Age ≥ 60 year (n = 83)	Age < 60 year (n = 74)	OR (95% CI)	p-Value
Cure	21 (25.3)	24 (32.4)	0.706 (0.352–1.413)	0.324
Treatment completed	33 (39.8)	40 (54.1)	0.561 (0.298–1.058)	0.073
Treatment failure	0 (0)	0 (0)		
Died	22 (26.5)	3 (4.1)	8.536 (2.436–29.907)	0.000
Default	2 (2.4)	4 (5.4)	0.432 (0.077–2.431)	0.422
Transfer out	4 (4.8)	1 (1.4)	3.696 (0.404–33.838)	0.371
Still on treatment	1 (1.2)	2 (2.7)	0.439 (0.039–4.943)	0.602

Progressive Age-related Changes in Pulmonary Tuberculosis Images and the Effect of Diabetes

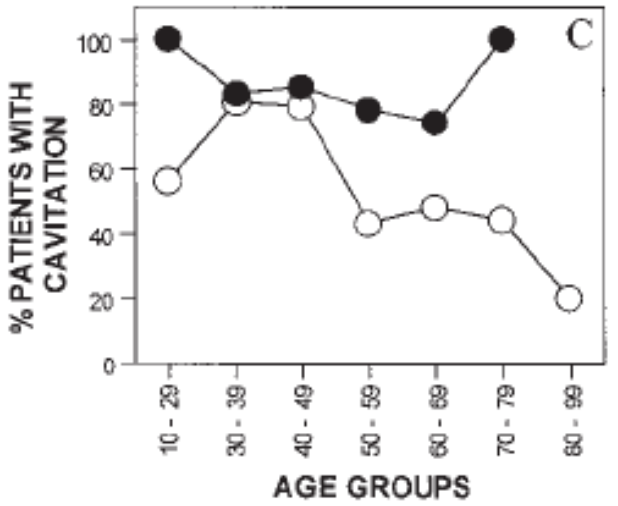
CARLOS PEREZ-GUZMAN, ALFREDO TORRES-CRUZ, HECTOR VILLARREAL-VELARDE, and MARIO H. VARGAS

Instituto Nacional de Enfermedades Respiratorias; Hospital General "Dr. Manuel Gea González"; Departamento de Neumología, Hospital General del Centro Médico Nacional La Raza, Instituto Mexicano del Seguro Social; and the Hospital de Pediatría, Centro Médico Nacional Siglo XXI, Instituto Mexicano del Seguro Social, México DF, Mexico

Am J Respir Crit Care Med Vol 162. pp 1738–1740, 2000

SEX, AGE, AND EVOLUTION TIME OF SYMPTOMS IN TUBERCULOUS PATIENTS WITH OR WITHOUT DIABETES MELLITUS*

	TBDM Group (*n* = 192)	TB Group (*n* = 130)	p Value
Male:Female	100:92 (1.1:1)	86:44 (1.9:1)	< 0.05
Age, yr	51.3 ± 0.9	44.9 ± 1.8	< 0.01
10–29	9	39	
30–39	22	28	
40–49	52	14	
50–59	63	7	
60–69	35	21	
70–79	10	16	
80–99	1	5	
Evolution of tuberculosis (yr)	1.87 ± 0.22	2.18 ± 0.34	NS
0–3 mo	42 (22%)	32 (25%)	
4–6 mo	34 (18%)	21 (16%)	NS
⩾ 7 mo	114 (60%)	77 (59%)	
Evolution of diabetes (yr)	8.1 ± 0.52	—	

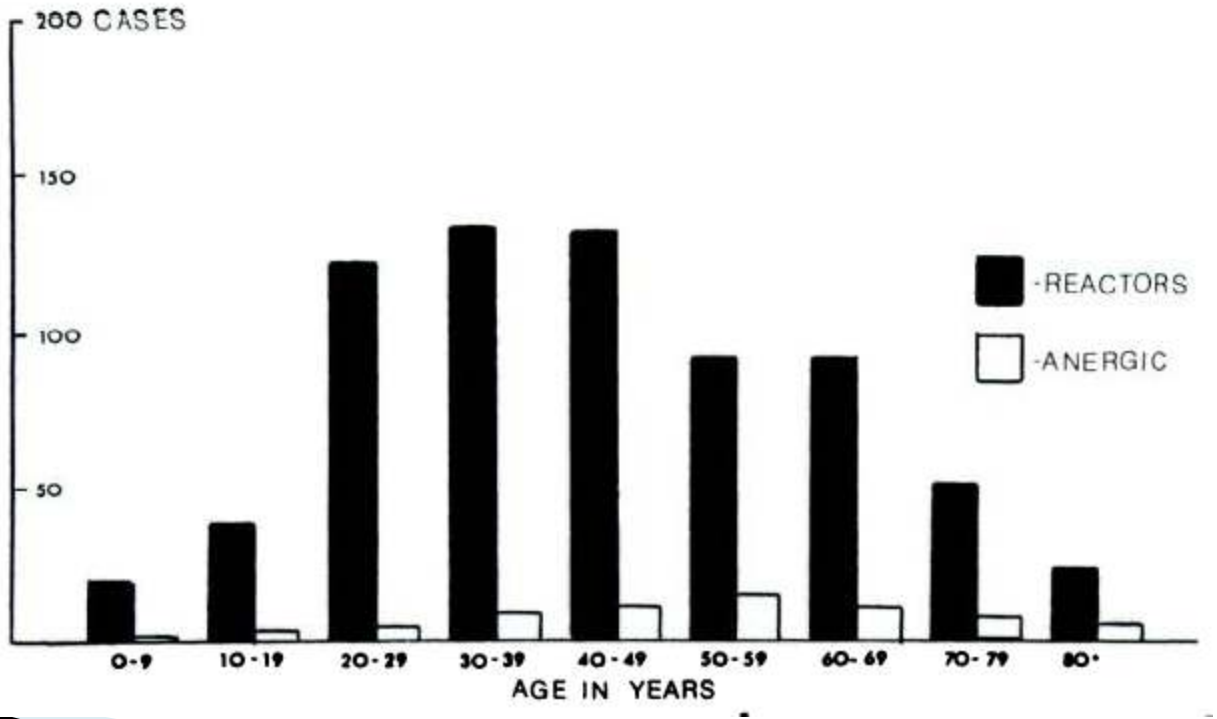


DIAGNOSTICO

Cutaneous Testing in the Elderly Patient with Tuberculosis*

CHEST, 77: 2, FEBRUARY, 1980

James H. Battershill, M.D.



Tuberculin Skin Test Reaction and Body Mass Index in Old Age Home Residents in Hong Kong

Moira Chan-Yeung, MB, David L. K. Dai, MBBS,† Amy H. K. Cheung, MSc,* Felix H. W. Chan, MBBCh, MSc,‡ Kai-Man Kam, MB,§ Cheuk-Ming Tam, MB,‖ and Chi-Chiu Leung, MB‖*

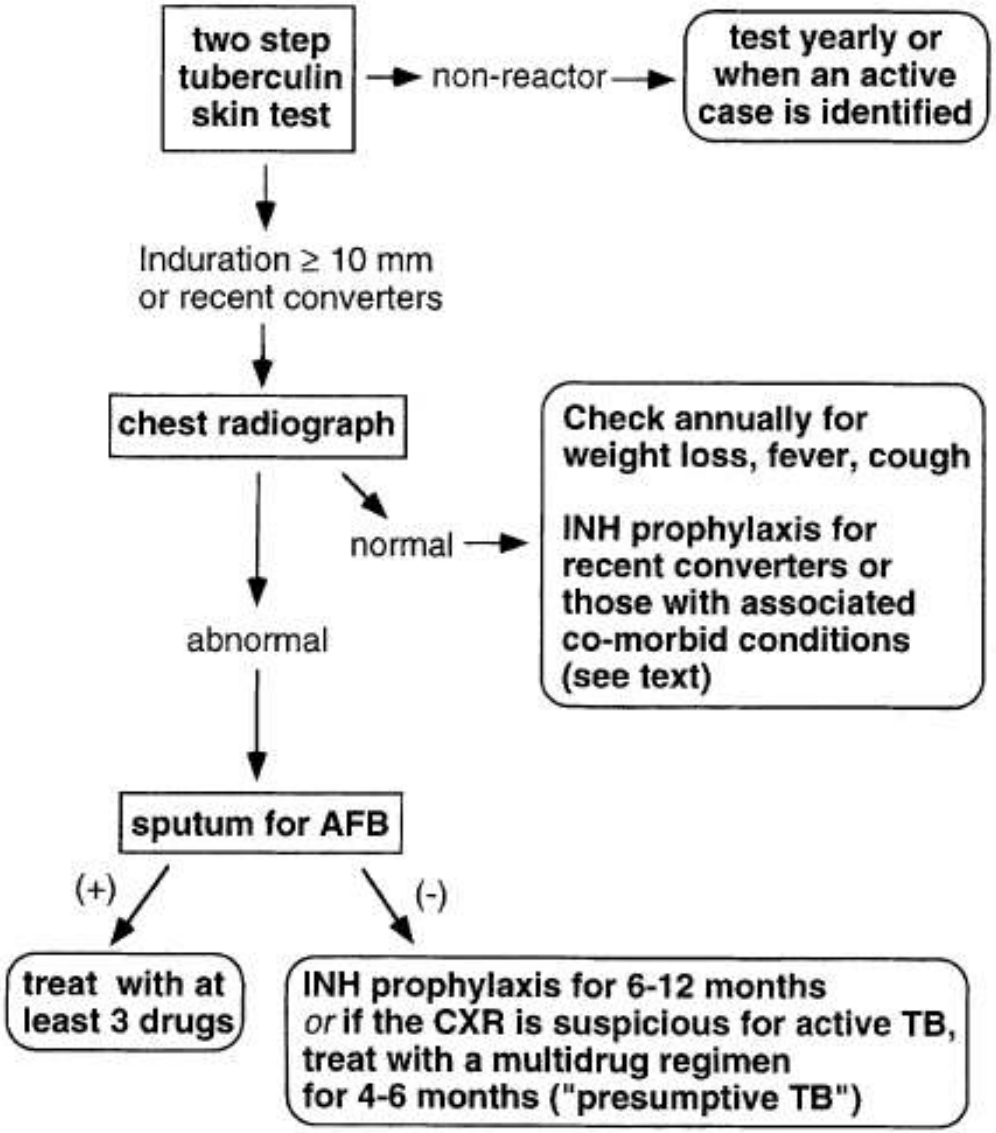
JAGS 55:1592–1597, 2007

BMI Category TST Cutoff Value	One-Step Testing		Two-Step Testing	
	Sensitivity	Specificity	Sensitivity	Specificity
	%			
Overall				
5 mm	70.4	38.5	88.5	17.8
10 mm	70.4	53.9	84.6	30.5
15 mm	55.6	70.3	72.7	49.2
BMI < 18.5				
5 mm	58.3	49.6	72.7	26.9
10 mm	58.3	63.4	63.6	41.5
15 mm	41.7	79.8	55.6	64.1
BMI ≥ 18.5				
5 mm	78.6	34.2	100	14.3
10 mm	78.6	50.2	100	26.4
15 mm	64.3	66.8	83.3	43.8

≥5 mm induration	≥10 mm induration	≥15 mm induration
HIV-infected persons	Recent immigrants (<5 years) from high-prevalence countries	Any person, including persons with no known risk factors for TB. However, targeted skin testing programs should only be conducted among high-risk groups
A recent contact of a person with TB disease	Injection drug users	
Persons with fibrotic changes on chest radiograph consistent with prior TB	***Residents and employees of high-risk congregate settings (includes long-term care facilities)***	
	Mycobacteriology laboratory personnel	
	Persons with clinical conditions that place them at high risk	
	Children <4 years of age	
	Infants, children, and adolescents exposed to adults in high-risk categories	
-Patients with organ transplants		
Persons who are immunosuppressed for other reasons (e.g., taking the equivalent of >15 mg/day of prednisone for 1 month or longer, taking TNF-α antagonists)		

Risk conditions common in older adults are highlighted by bold-italics. *TB* tuberculosis, *HIV* human immunodeficiency virus, *TNF-α* tumor necrosis factor alpha

http://www.cdc.gov/tb/publications/factsheets/testing/skintesting.htm



(CHEST 1998; 114:1704–1733)

Dual Skin Testing for Latent Tuberculosis Infection

A Decision Analysis

Adam L. Hersh, MD, PhD, Anna N. Tosteson, ScD, C. Fordham von Reyn, MD

Background: Recent data indicate that 10- to 14-mm *Mycobacterium tuberculosis* purified protein derivative (PPD) reactions are often due to prior infections with nontuberculous mycobacteria. Therefore, use of a 10-mm cutpoint to define latent tuberculosis infection (LTBI) results in false-positive diagnoses and unnecessary treatment for LTBI. A second skin test, *Mycobacterium avium* sensitin (MAS), has been shown to accurately identify false-positive PPD results.

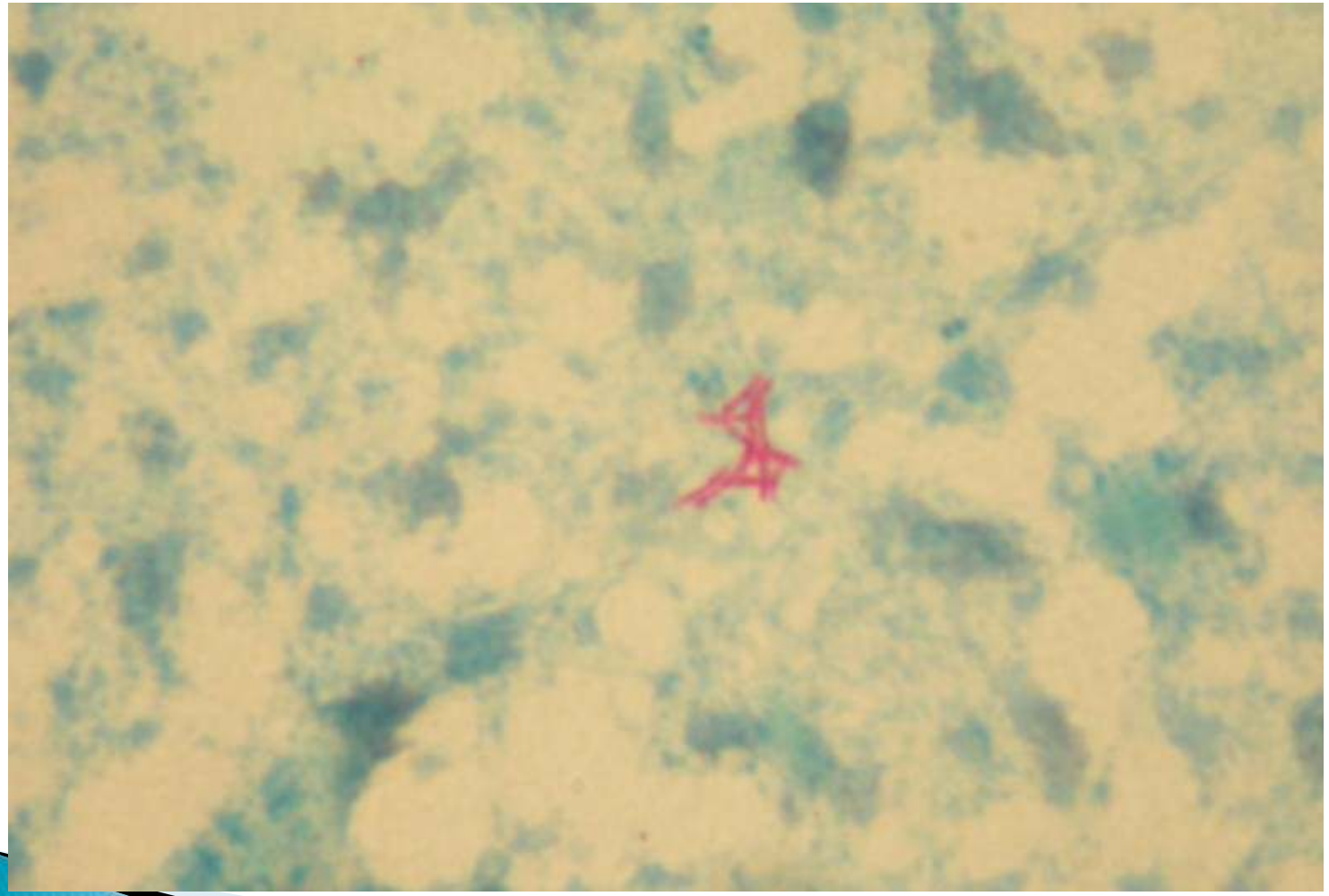
Objective: To compare the costs and accuracy of a single skin-test strategy (SST) with PPD alone with a dual skin-test strategy (DST) where 10- to 14-mm PPD results are also tested with MAS.

Methods: A decision analytic model was developed to evaluate the two strategies. The model accounted for the costs of skin testing, the costs of LTBI treatment, the costs of undetected LTBI, and the sensitivity and specificity of each strategy.

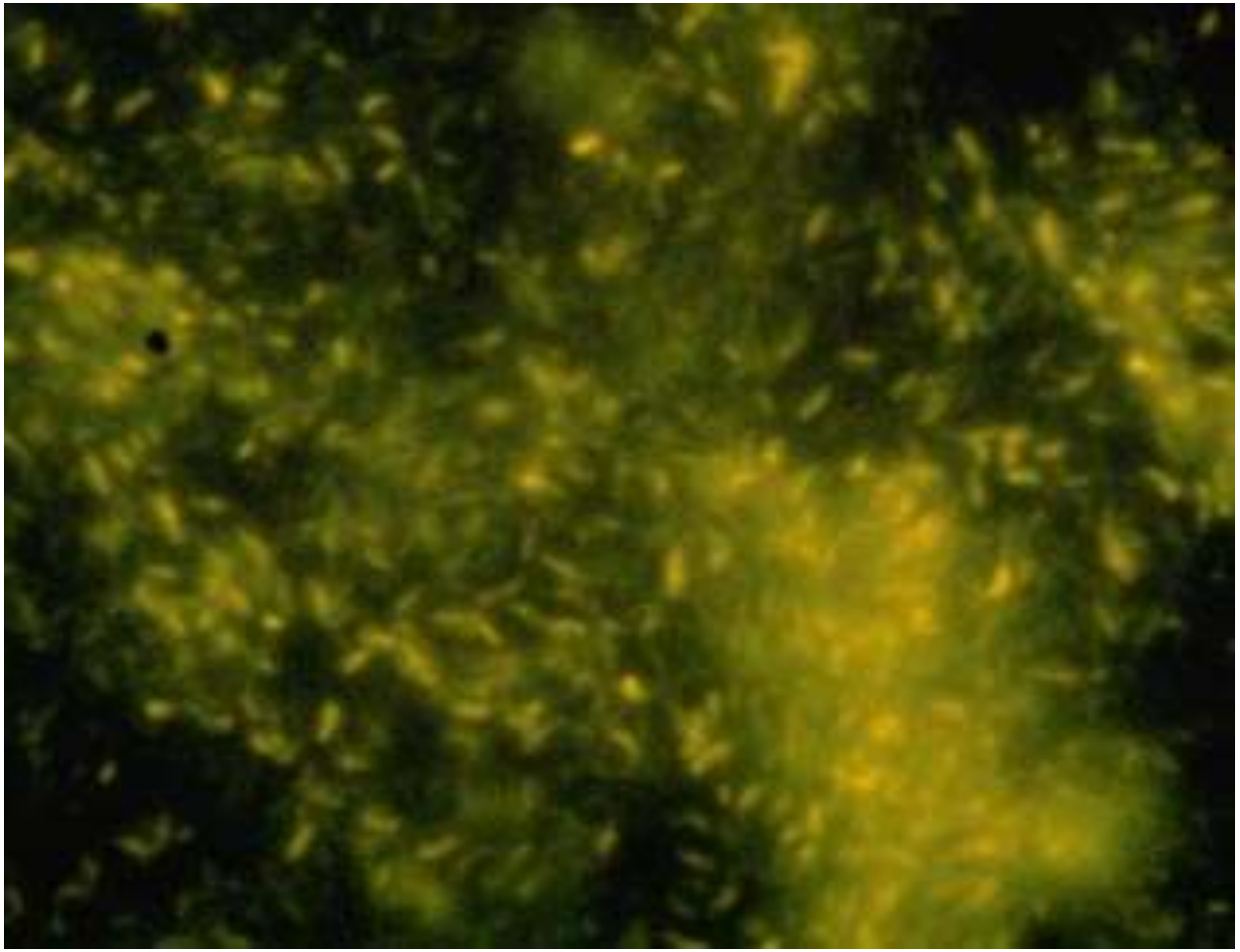
Results: We estimated that DST saved $3 per subject tested compared to SST. Savings were due to a reduction in false-positive PPD results and consequent reduction in unnecessary treatment for LTBI of >60%. The DST strategy was associated with a minimal increase in undetected LTBI (6% vs 7%). Results were stable for a broad range of parameter values.

Conclusion: DST is a promising approach to improving the specificity of LTBI testing when a 10-mm PPD cutpoint is used and would reduce costs and unnecessary drug treatment. (Am J Prev Med 2003;24(3):254–259) © 2003 American Journal of Preventive Medicine

COLORACION DE ZIEHL-NEELSEN



COLORACIÓN A AURAMINA-RODAMINA



Métodos para procesamiento del esputo que mejoren la sensibilidad del examen microscópico directo para diagnostico de tuberculosis: Revisión Sistemática
Steingart K, Viviente Ng, Henry M, et al . *Lancet Infect Dis 2006; 6; 664 – 74.*

- Examen directo
- Sensibilidad 60% Especificidad 100%
- LR (+) 60 LR (–) 0,4
- Esputo con procesamiento químico y físico
- Sensibilidad 60% + 18% = 78% Especificidad 100%
- LR (+) 78 LR (–) 0,22
- Sedimentación nocturna + procesamiento químico
- Sensibilidad 60% + 23% = 83% Especificidad 100%
- LR (+) 83 LR (–) 0,17
- **Un valor negativo de la prueba no descarta la infección .**

BACILOSCOPIA Y TINCIONES ACIDORRESISTENTES

TIPO DE TINCION	UNA MUESTRA	DOS MUESTRAS	TRES MUESTRAS
Fluorescencia	83%	83%	92%
Ziehl-Neelsen	61%	66%	80%

DIAGNOSTICO DE TBC POR METODOS TRADICIONALES

PROCEDIMIENTO	TECNICAS	TIEMPO PROMEDIO DEL REPORTE DESDE EL DIA EN QUE SE PROCESA LA MUESTRA
EXAMEN DIRECTO	Coloración de Kinyoun Coloración de Ziehl-Neelsen	24 HORAS
DETECCION DE CRECIMIENTO	Lowestein-Jensen Ogawa- Kudoh	20-25 DÌAS
IDENTIFICACIÓN DE LA ESPECIE	Pbas bioquímicas tradicionales (Niacina, Catalasa, Reducción de Nitratos etc)	50-55 DIAS

DIAGNOSTICO DE TBC POR METODOS RECOMENDADOS POR EL CDC

PROCEDIMIENTO	**TECNICAS**	**TIEMPO PROMEDIO DEL REPORTE DESDE EL DIA EN QUE SE PROCESA LA MUESTRA**
EXAMEN DIRECTO	Coloración Auramina/ Rodamina	24 horas
DETECCION DE CRECIMIENTO	BACTEC,	15 días
IDENTIFICACIÓN DE LA ESPECIE	BACTEC, Sondas de ADN, HPCL	18 días

DIAGNOSTICO DE TBC POR METODOS TRADICIONALES

PROCEDIMIENTO	TECNICAS	TIEMPO PROMEDIO DEL REPORTE DESDE EL DIA EN QUE SE PROCESA LA MUESTRA
PRUEBAS DE SENSIBILIDAD	Método de las proporciones múltiples	60 DIAS

DIAGNOSTICO DE TBC POR METODOS RECOMENDADOS POR EL CDC

PROCEDIMIENTO	TECNICAS	TIEMPO PROMEDIO DEL REPORTE DESDE EL DIA EN QUE SE PROCESA LA MUESTRA
PRUEBAS DE SENSIBILIDAD	BACTEC	30 días

OGAWA KUDOH





Kolonije Mycobacterium tuberculosis na čvrstoj Lovenstein-Jensen podlozi.

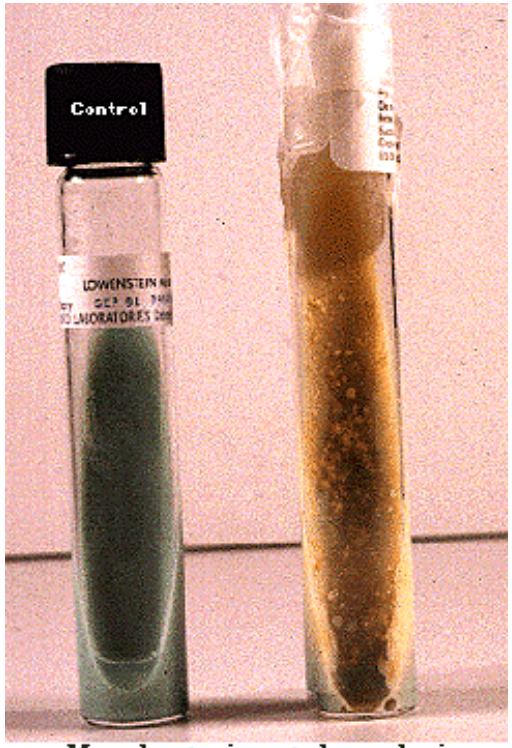
LOWESTEIN JENSEN



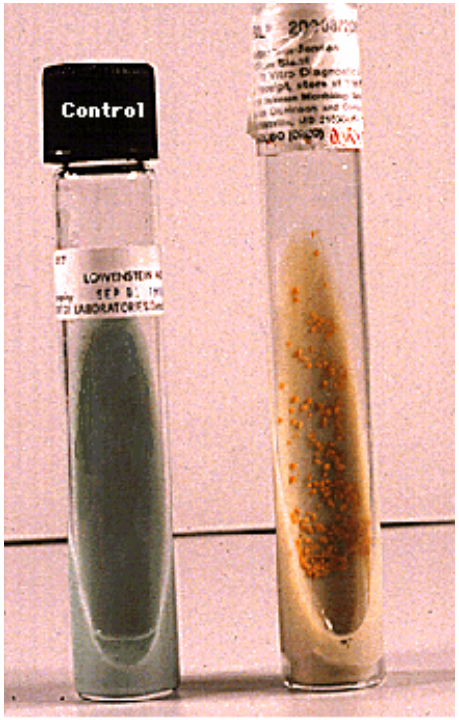




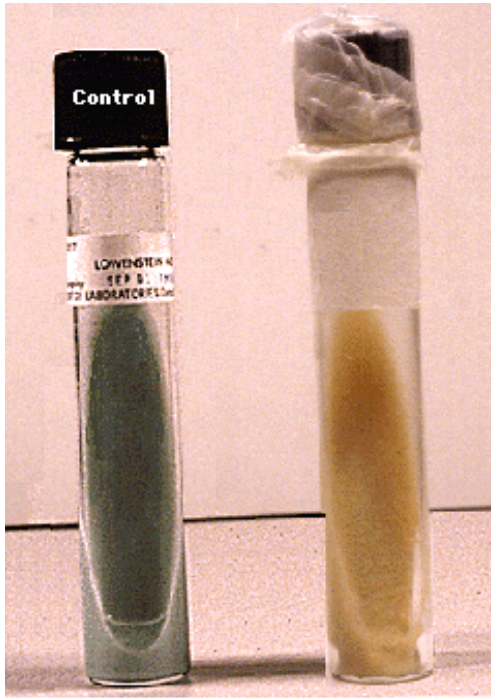
MORFOLOGIA DE LAS COLONIAS



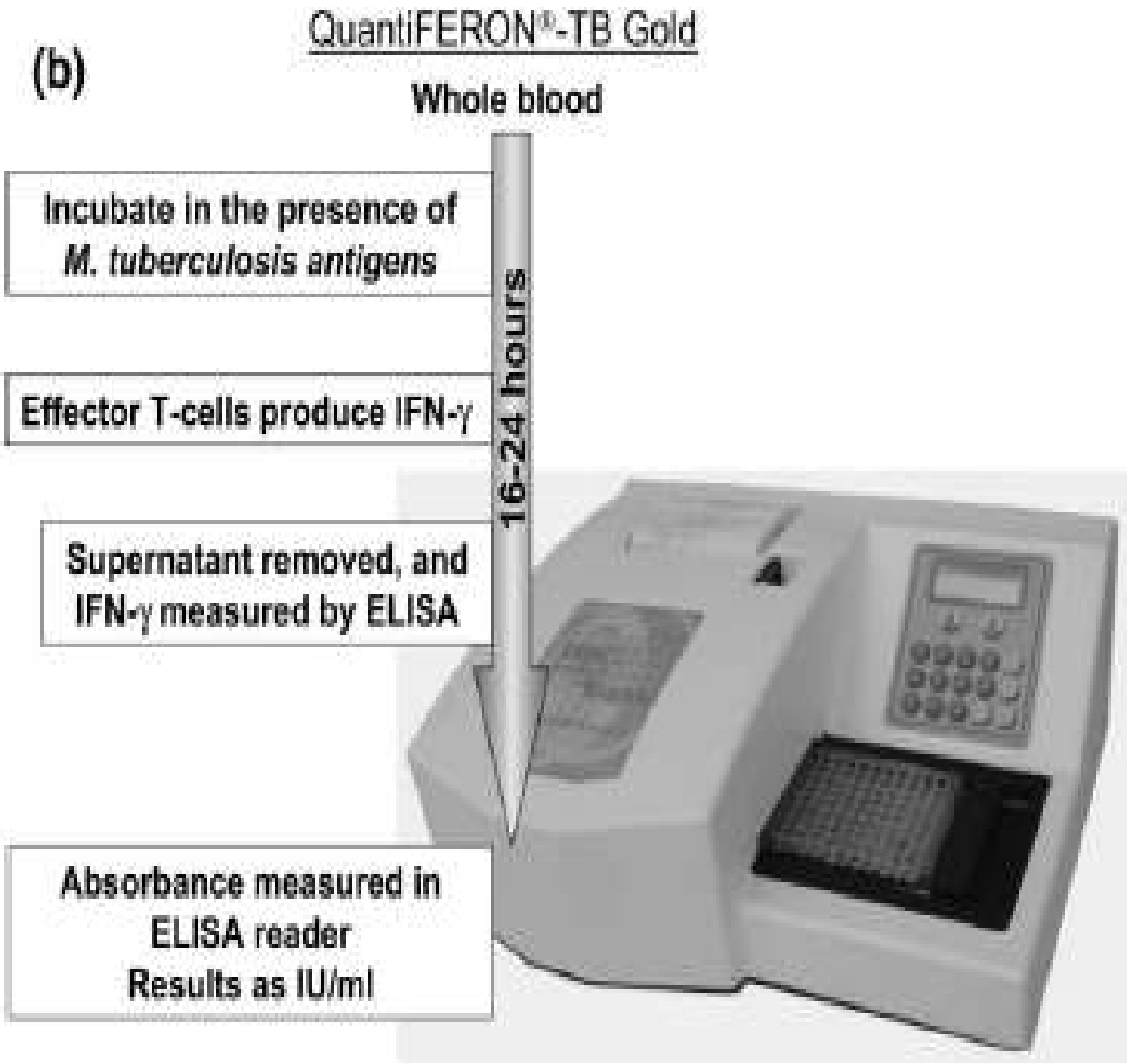
Mycobacterium tuberculosis
Lowenstein-Jensen media



Mycobacterium kansasii
Lowenstein-Jensen media



Mycobacterium avium
Lowenstein-Jensen media


(b)
QuantiFERON®-TB Gold
Whole blood
Incubate in the presence of
M. tuberculosis antigens
Effector T-cells produce IFN-γ
Supernatant removed, and
IFN-γ measured by ELISA
Absorbance measured in
ELISA reader
Results as IU/ml
16-24 hours

SISTEMA BACTEC





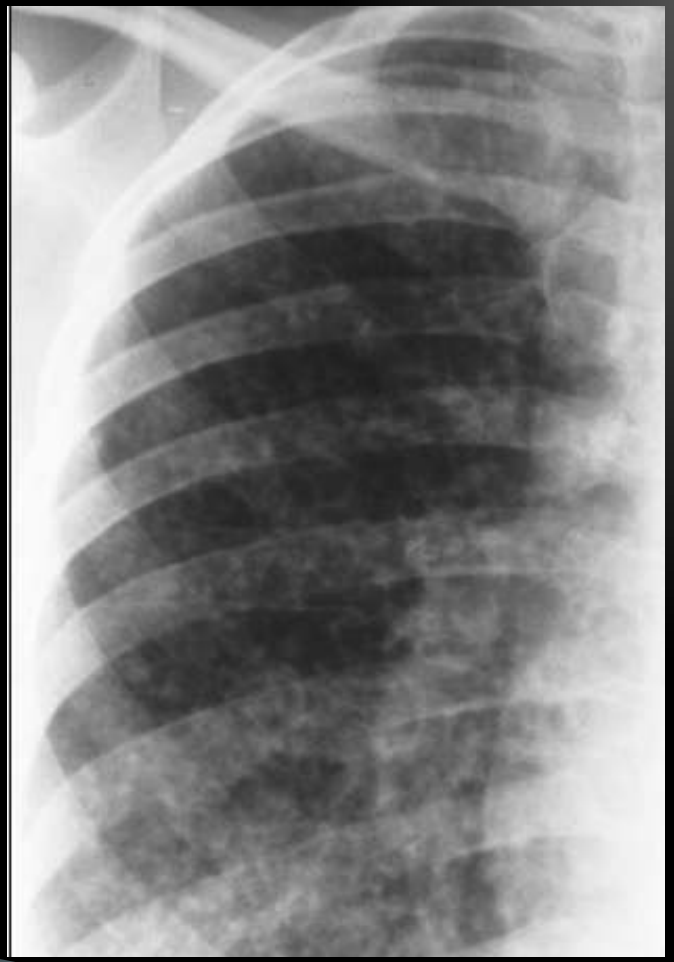


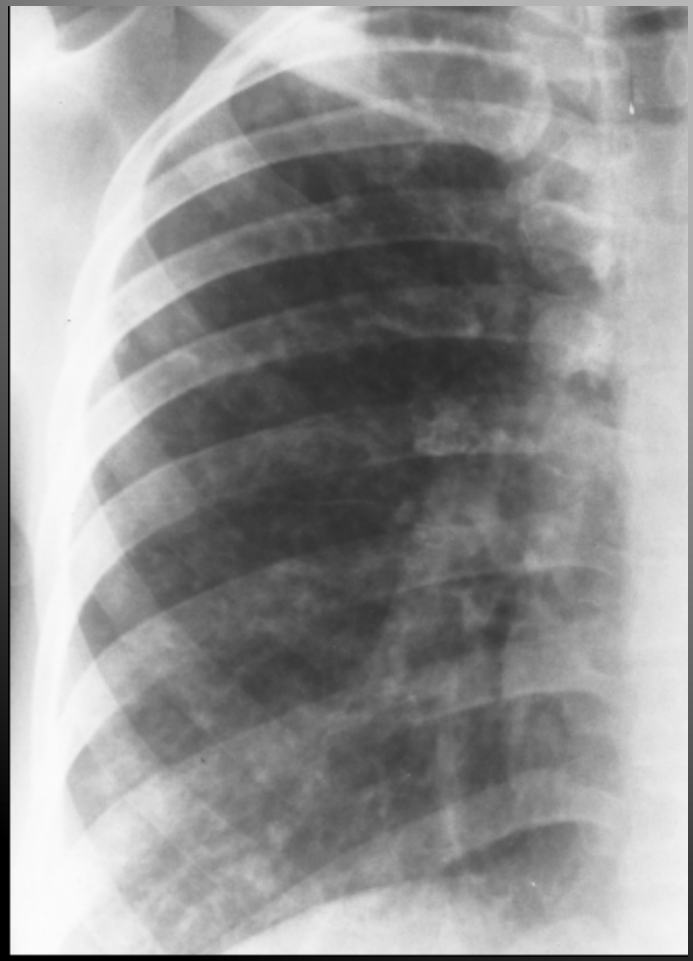
BACTEC 960 MGIT

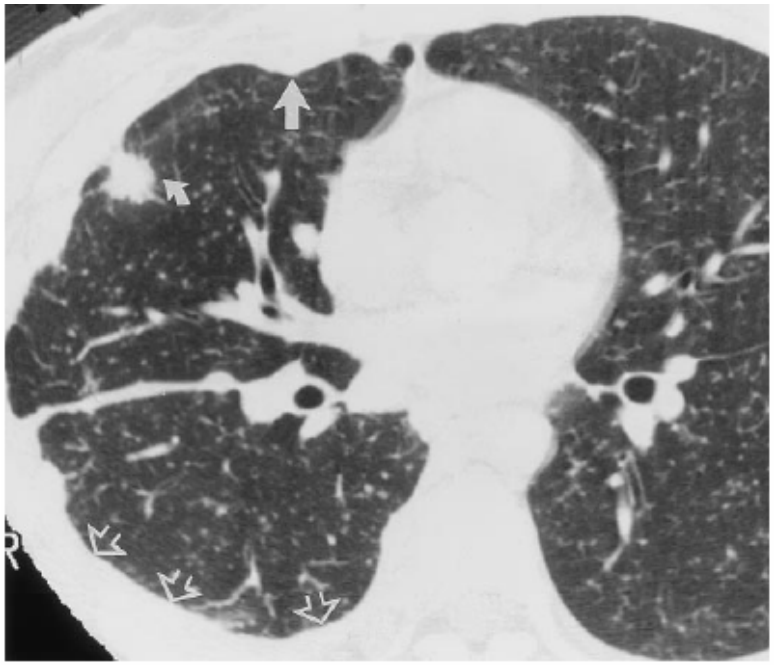


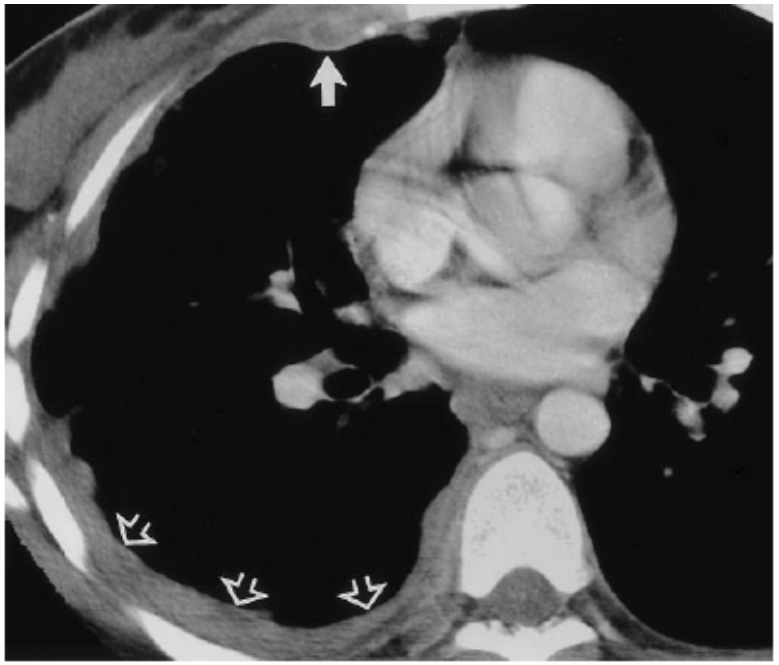


Rx torax

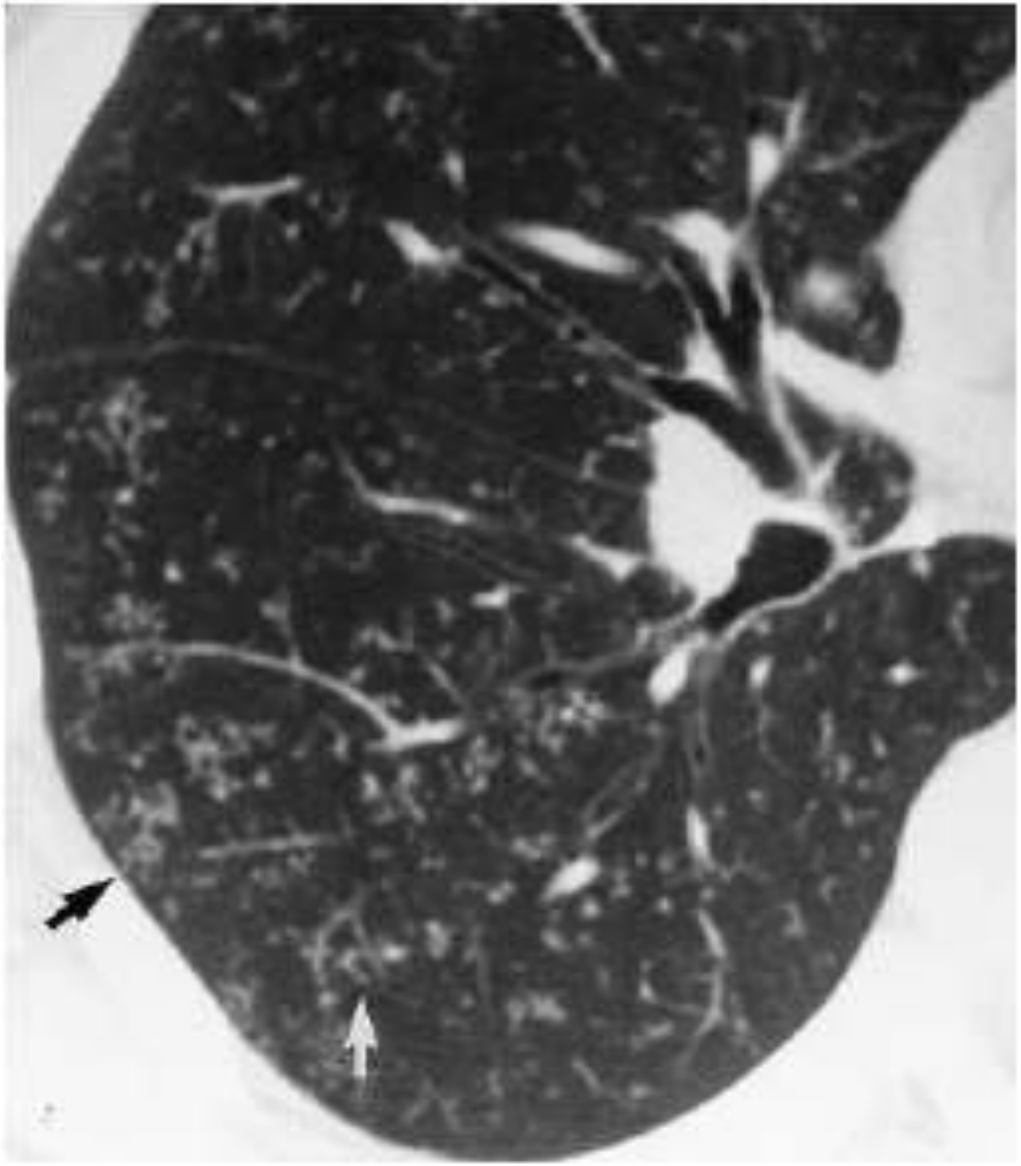












TRATAMIENTO

WHO
"Global Plan of Stop TB 2006 – 2015"



The World Health Organization has developed this strategy, which builds on the success of DOTS and addresses unmet needs.

Vision
A world free of TB

Goal
To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals and the Stop TB Partnership targets.

Objectives
- Achieve universal access to high-quality diagnosis and patient-centred treatment.
- Reduce the human suffering and socio-economic burden associated with TB.
- Protect poor and vulnerable populations from TB, TB/HIV and multidrug-resistant TB.
- Support development of new tools and enable their timely and effective use.

Targets
- MDG 6, Target 8 – Halt and begin to reverse the incidence of TB by 2015.
- Targets linked to the MDGs and endorsed by the Stop TB Partnership:
  - by 2005 – detect at least 70% of new sputum smear-positive cases and cure at least 85% of these cases;
  - by 2015 – reduce TB prevalence and death rates by 50% relative to 1990;
  - by 2050 – eliminate TB as a public health problem (1 case per million population).

http://www.stoptb.org/globalplan/docs_info.asp

Preferred regimen	Alternative regimen	Alternative regimen
Initial phase Daily INH (300 mg), RIF (600 mg), PZA, (15–30 mg/kg up to 2 g), and EMB[a] (15–20 mg/kg up to 1 g) for 8 weeks	Initial phase Daily INH, RIF, PZA, and EMB[a] for 2 weeks, then twice-weekly for 6 weeks	Initial phase Thrice-weekly INH, RIF, PZA, and EMB[a] for 8 weeks
Continuation phase Daily INH (300 mg) and RIF (600 mg) for 18 weeks or Twice-weekly INH (900 mg) and RIF (600 mg) for 18 weeks	Continuation phase Twice-weekly INH and RIF for 18 weeks	Continuation phase Thrice-weekly INH and RIF for 18 weeks

INH isoniazid, *RIF* rifampin, *PZA* pyrizinamide, *EMB* ethambutol

Incidence of Serious Side Effects from First-Line Antituberculosis Drugs among Patients Treated for Active Tuberculosis

Daphne Yee, Chantal Valiquette, Marthe Pelletier, Isabelle Parisien, Isabelle Rocher, and Dick Menzies

Respiratory Epidemiology Unit, McGill University; and Montreal Chest Institute, Montreal, Quebec, Canada

Am J Respir Crit Care Med Vol 167. pp 1472–1477, 2003

	n	Person-months	Side Effect	No. of Persons	No. of Events	Incidence*	95% CI
All drugs	429	8,488	All	37 (9%)	46	0.55	0.48 to 0.62
			Rash	18 (4%)	21	0.25	0.20 to 0.30
			Hepatitis	12 (3%)	12	0.14	0.10 to 0.18
			GI	8 (2%)	11	0.13	0.10 to 0.16
Isoniazid	427	2,747	All	17 (4%)	13.3	0.49	0.42 to 0.55
			Rash	4 (1%)	4	0.15	0.11 to 0.18
			Hepatitis	8 (2%)	5	0.18	0.14 to 0.22
			GI	5 (1%)	4.3	0.16	0.12 to 0.20
Rifampin	425	2,972	All	14 (3%)	12.83	0.43	0.37 to 0.49
			Rash	10 (2%)	9	0.30	0.25 to 0.35
			Hepatitis	0	0	0	—
			GI	5 (1%)	3.8	0.13	0.10 to 0.16
Pyrazinamide	405	1,336	All	24 (6%)	19.83	1.48	1.36 to 1.60
			Rash	9 (2%)	8	0.60	0.52 to 0.68
			Hepatitis	10 (2%)	7	0.52	0.45 to 0.59
			GI	4 (1%)	2.8	0.21	0.16 to 0.25
Ethambutol	329	1,433	Visual	1 (0.3%)	1	0.07	0.04 to 0.10

Efectos adversos

	Any Serious*		Rash/Fever†		Hepatitis‡		GI Upset§	
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
Female sex (versus male)	**2.5**	**1.3 to 4.7**	1.9	0.7 to 4.8	2.2	0.7 to 6.9	3.6	0.6 to 11.8
Age, yr								
35–59 (versus < 35)	1.7	0.8 to 3.8	1.0	0.3 to 3.1	4.8	0.9 to 25	2.1	0.3 to 14.9
60+ (versus < 35)	**2.9**	**1.3 to 6.3**	1.3	0.4 to 4.1	**7.7**	**1.5 to 40**	**6.4**	**1.2 to 36**
From Asia (versus all others)	**2.5**	**1.3 to 5.0**	**2.8**	**1.1 to 7.5**	2.2	0.7 to 6.9	3.6	0.8 to 15.2
Method of detection passive (versus active)	2.5	0.9 to 6.6	2.3	0.6 to 8.3	—‖	—	2.6	0.6 to 11.7
Smear positive (versus smear negative)	1.3	0.7 to 2.6	1.0	0.4 to 2.7	1.8	0.6 to 5.7	0.5	0.1 to 2.4
Drug resistant (versus pansensitive)	1.8	0.8 to 4.3	1.0	0.2 to 4.5	2.7	0.7 to 10.5	0.9	0.1 to 7.3
Abnormal baseline LFTs (versus normal)¶	1.6	0.6 to 4.2	2.3	0.6 to 8.0	—	—	3.9	0.8 to 19.5
HIV-positive (versus negative or NA)	**3.8**	**1.05 to 13.4**	**5.1**	**1.02 to 27**	4.3	0.5 to 38	—	—

Clin Chest Med. 2007 December ; 28(4): 773–vi.

Tuberculosis and Non-tuberculous Mycobacterial Infections in Older Adults

Neil W. Schluger, M.D.
Chief, Division of Pulmonary, Allergy, and Critical Care Medicine, Professor of Medicine, Epidemiology and Environmental Health Sciences, Columbia University

- MAC
- 1,8 X C/100.000 hab
- Mayor riesgo en países industrializados
- Reservorios medio ambientales

MANIFESTACIONES DE MICOBACTERIAS NO TUBERCULOSAS

- “Lady Windermere syndrome”

- “hot tub lung”–
  NEUMONITIS DE HIPERSENSIBILIDAD.

PREVENCION

Vol. 25 No. 12 INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY 1097

SHEA Position Paper

Tuberculosis Prevention and Control in Long-Term–Care Facilities for Older Adults

Lauri Thrupp, MD; Suzanne Bradley, MD; Philip Smith, MD; Andrew Simor, MD; Nelson Gantz, MD; Kent Crossley, MD; Mark Loeb, MD; Larry Strausbaugh, MD; Lindsay Nicolle, MD; the SHEA Long-Term–Care Committee*

PREVENCIÓN

- Uso de PPD mandatoria al ingreso a un hogar geriátrico.(también a los trabajadores de la salud que ingresen recientemente)
- Prueba en 2 pasos entre la 1 y 3 semana.
- PPD (+) sin evidencia de actividad de la enfermedad INH por 9 meses para tratamiento de TBC latente. (o RIF por 4 m)
- Repetir PPD en 1 año si el resultado es negativo

PREVENCIÓN

- Aislamiento por aerosoles de los pacientes con sintomatología compatible con reactivación hasta obtener reporte de bk de esputo seriado y se tome la conducta.

GRACIAS