

Early Ambulatory Therapy vs. Hospital Isolation

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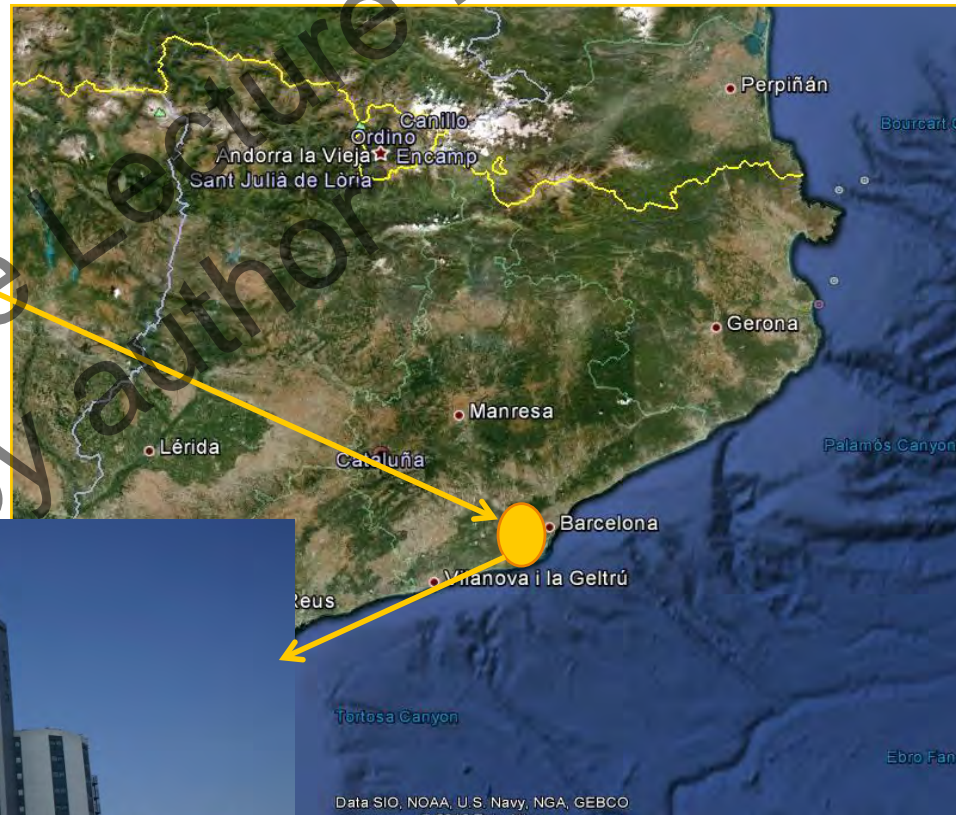
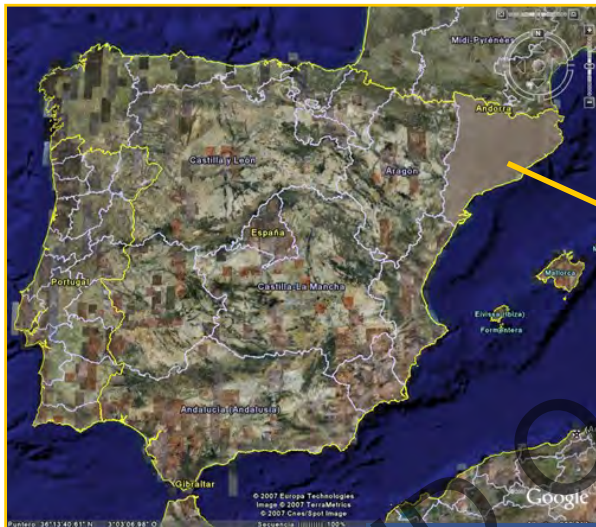
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ESCMID STUDY GROUP
FOR MYCOBACTERIAL
INFECTIONS

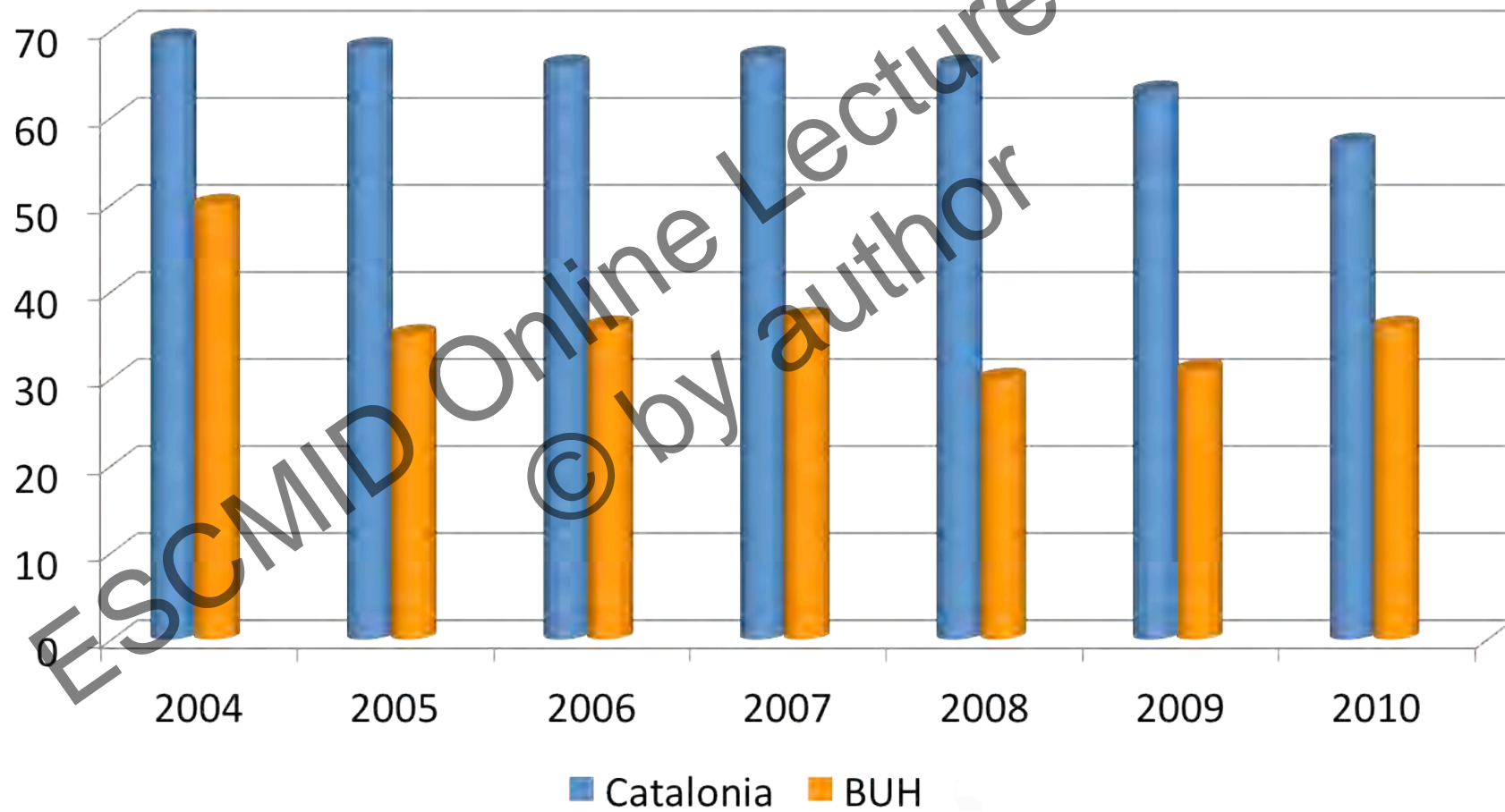
European Society of Clinical Microbiology and Infectious Diseases

**Gaining Expertise in Mycobacterial Infections
(Paris, 27-29 May 2013)**

Bellvitge University Hospital



Hospital Admissions of TB Patients (Catalonia vs. Bellvitge Hospital)



Rationale for Early Ambulatory (Domiciliary) Therapy of TB

- Effectiveness of ambulatory and hospital-based therapy are comparable.
 - Rates of infection and active TB among household contacts of patients treated in an outpatient or an inpatient basis are comparable.
 - Infectiousness of TB patients is rapidly reduced by effective anti-TB chemotherapy.
 - Avoiding hospitalisation prevents nosocomial transmission and saves resources and costs.
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Effectiveness of Ambulatory and Hospital-based Therapy According to Tx. Setting

("The Madras Study")

(12 months of treatment with PAS/INH)

	Sanatorium (n= 49)	Home (n= 50)
• Quiescent disease (end of tx.)	82%	78%
• Relapses (5-years)	7%	10%
• Quiescent disease (5-years)	89%	90%

TB Infection and Active TB Among Contacts According to Tx Setting of Source Case (“The Madras Study”)

	Sanatorium (n= 272)	Home (n= 256)
<ul style="list-style-type: none"> • Secondary TB cases (5-y. f-up) - 1st year 	14% 7.4%	9.4% 4.7%
<ul style="list-style-type: none"> • Tuberculin conversion (5-y. f-up) 	48%	46%
<ul style="list-style-type: none"> • Positive tuberculin in infants born during the 1st year of tx. 	15%	15%

INFECTIOUSNESS OF AIR FROM A TUBERCULOSIS WARD¹

Ultraviolet Irradiation of Infected Air: Comparative Infectiousness of Different Patients

R. L. RILEY,² C. C. MILLS, F. O'GRADY, L. U. SULTAN, F. WITTSTADT, AND D. N. SHIVPURI

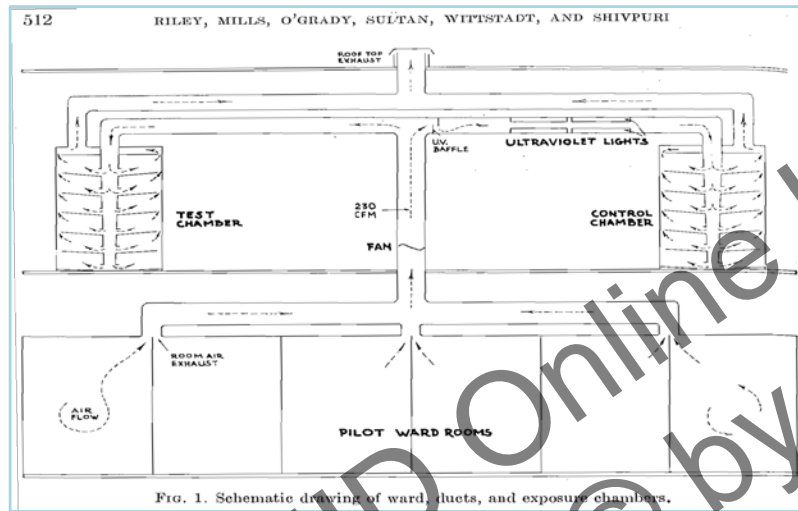


FIG. 1. Schematic drawing of ward, ducts, and exposure chambers.

TABLE 4
INFECTIONS BY DRUG-SUSCEPTIBLE ORGANISMS

Guinea Pigs Number Infected (1)	Number of Patients (2)	Time of Patients on Ward Per Cent of Total Possible Patient-Days (3)
0 29	Untreated 61	7
	Noninfectors 53	6
	Infectors 8	1
0 1	Treated 29	15
	Noninfectors 28	14.7
	Infector 1	0.3
Totals 30	90	22

TABLE 6
RELATIVE INFECTIVITY OF PATIENTS

	Number of Guinea Pig Infections (1)	Time of Patients on Ward Per Cent of Total Possible Patient-Days (2)	Guinea Pig Infections per Unit of Time (3)	Relative Infectivity of Patients (4)
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A. All Patients with Sputum Positive for Tubercle Bacilli Included

Susceptible organisms				
Untreated	29	÷ 7	=	4.14 × 100/4.14 = 100
Treated	1	÷ 15	=	0.07 × 100/4.14 = 2
Resistant organisms				
Untreated	14	÷ 12	=	1.17 × 100/4.14 = 28
Treated	6	÷ 27	=	0.22 × 100/4.14 = 5
Totals	50			61

Infectiousness of TB Patients is Rapidly Reduced by Effective Anti-TB Chemotherapy

- **Gunnels**

- 155 TB patients discharged after 1 month of tx. in hospital

- Group 1. Smear and culture (-)

- Group 2. Smear (-) and culture (+)

- Group 3. Smear and culture (+)

Infectiousness of TB Patients is Rapidly Reduced by Effective Anti-TB Chemotherapy

	Smear and culture status of source case on discharge		
	smear(-)/ culture (-)	smear (-)/ culture (+)	smear (+)/ culture (+)
• No. of patients	69	34	52
• No. of contacts	216	104	180
-Initially tuberculin (+)	50%	44%	54%
-Tuberculin conversion (- to +)	18%	19%	14%

Can Tuberculosis Be Transmitted from Smear-Positive Patients once Effective Tx. Has Been Initiated?

While the bacilli remain viable (cultivable), the potential for transmission exists.

Is a Systematic Short-Admission to Prevent TB Transmission Justified?

- Close contacts of TB patients treated in a domiciliary basis have no higher prevalence of infection or active TB than those of patients hospitalised.
 - No outbreaks with transmission of TB (drug-susceptible TB) from patients on treatment have been reported.
 - Measures can be taken to minimize the risk of transmission at home.
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Measures to Minimize the Risk of TB Transmission in Domiciliary Therapy

(Bellvitge TB Clinic)

- ✓ Limiting the time spent in common household areas.
- ✓ Sleeping in a separate room.
- ✓ Covering the mouth and nose with a tissue when coughing or sneezing.
- ✓ Evaluating immediately and putting on preventive treatment if indicated young children or immunosuppressed people living at home.
- ✓ Evaluating contacts living at home as early as possible.
- ✓ Avoiding visitors as far as possible.
- ✓ Avoiding public places or work (2-3 wks).

TB Clinic

(Bellvitge Hospital)



- ✓ Patients can be referred Mo-Fri.
- ✓ Staff: Two specialised nurses, infectious diseases and respiratory physicians.
- ✓ Lab.: Conventional Dx techniques, NAAs, DST, IGRA (QuantiFERON-TB Gold In-tube).
- ✓ DOT and specialized TB centre for inpatient treatment.
- ✓ Counselling, control of adherence and adverse events.
- ✓ Easy telephone contact and appointments.
- ✓ Contact study and preventive tx.

Exceptions to Home Isolation

(Bellvitge Hospital)

- MDR-TB suspected.
 - No stable residence.
 - Poor adherence and follow-up anticipated.
 - Drugs/alcohol abuse or unstable psychiatric disorder.
 - No willingness to observe risk-reduction behaviours.
 - Living in a congregate setting (shelter, correctional facility,...)
 - Living with children <5 years for whom short evaluation for LTBI and/or window period prophylaxis can not be warranted.
 - Home not suitable for effective isolation.
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Admission Policy for TB Patients

(Bellvitge Hospital)

- Severe TB (CNS TB, pericarditis,...).
 - Haemoptysis.
 - Decompensated chronic disease.
 - Major toxicity of TB drugs.
 - Home isolation is not feasible or contraindicated (exceptions to home isolation).
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Take-Home Message

Early ambulatory therapy for pulmonary TB patients is a safe practice providing that:

1. The patient is receiving an effective chemotherapy
 2. Home isolation can be guaranteed
 3. Close contacts can be evaluated soon
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