Policlinique Médicale Universitaire CH-Lausanne

Social Marginality and Tuberculosis

18th Tuberculosis Symposium
Münchenwiller

March 26th 2009

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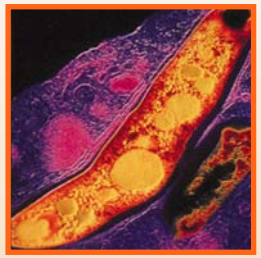
INTRODUCTION

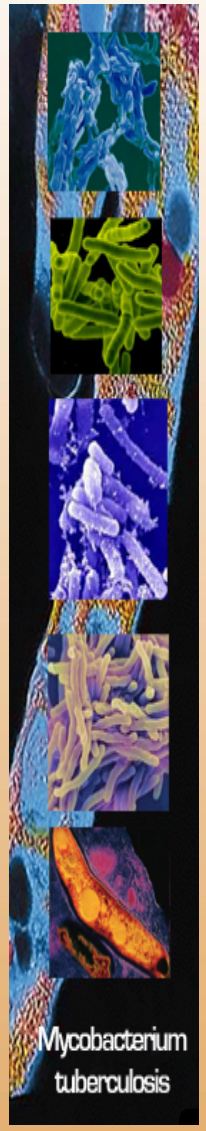


Myobacterium Tuberculosis → Tuberculosis → Treatment

SOCIAL FACTORS

MEDICAL FACTORS

AGENDA



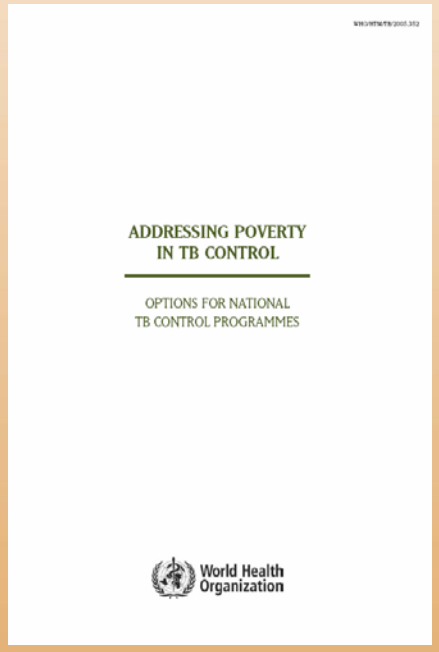
1. Addressing poverty in Tb control[1]
2. Social determinants of health
3. Social determinants of tuberculosis
4. The SUPPORT study[2]

1. **WHO (2005):** *whqlibdoc.who.int/hq/2005/WHO_HTM_TB_2005.352.pdf*
2. **Bodenmann et al (2009):** BMC Infectious Disease, 2009, 9: 34

1. The Story of Señorita E.

- 34 year old undocumented Equatorian women in Switzerland since 2000 doing housework for three different families.
- Encounter at the Department of Ambulatory Care and Community Medicine for cough, hemoptysis, loss of weight, chest pain, loss of apetite, and sweating.
- Diagnosis: **active tuberculosis**
- **Her perception of the disease**

1. ADDRESSING POVERTY IN TB CONTROL

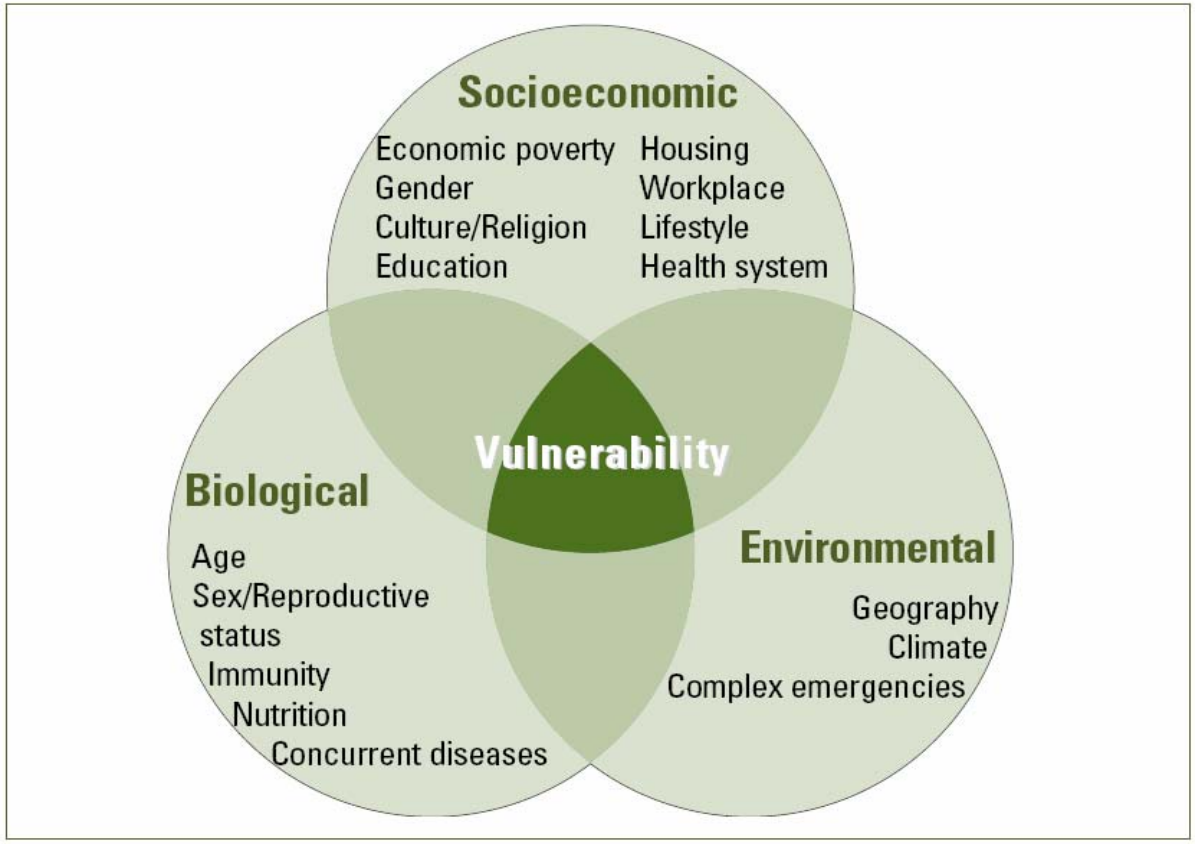


- "Disadvantaged social groups, poor and socially excluded people, impoverished minorities, marginalized groups, most disadvantaged"
- "**Social factors** including the effects of poverty account for the bulk of the global burden of disease and death and the largest share of health inequalities between and within countries"
- **Social determinants of health**

Chow & Evans (2005). WHO report. Preface p.4-5

1. ADDRESSING POVERTY IN TB CONTROL

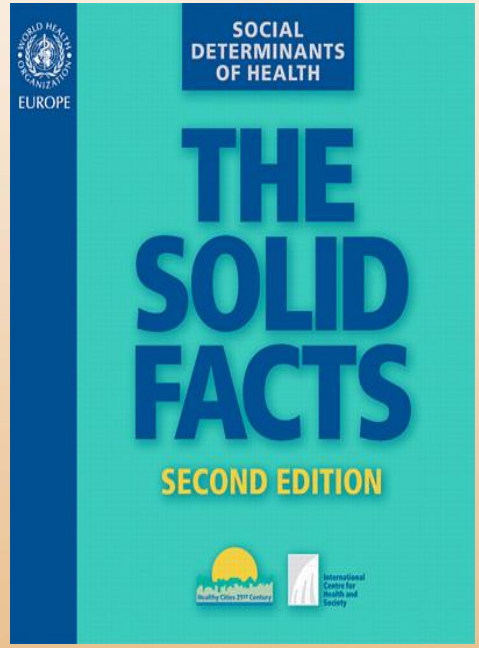
Figure 1. Factors influencing vulnerability to ill-health



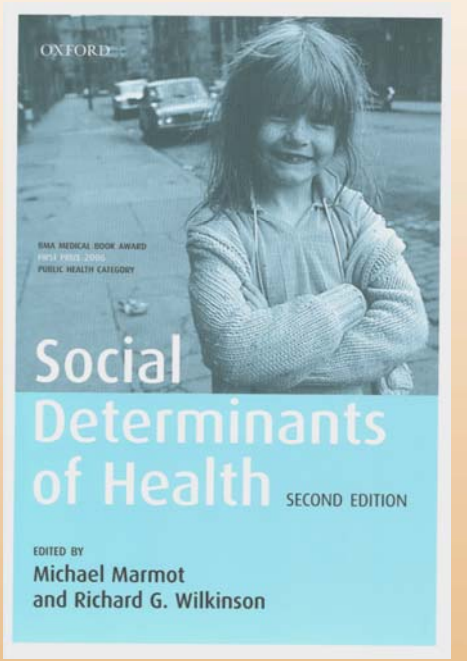
Source: Adapted from Bates I et al. Vulnerability to malaria, tuberculosis, and HIV/ AIDS infection and disease. Part I: Determinants operating at individual and household level. *Lancet Infectious Diseases*, 2004, 4:267–277.

WHO (2005). Addressing poverty in TB control. p.14

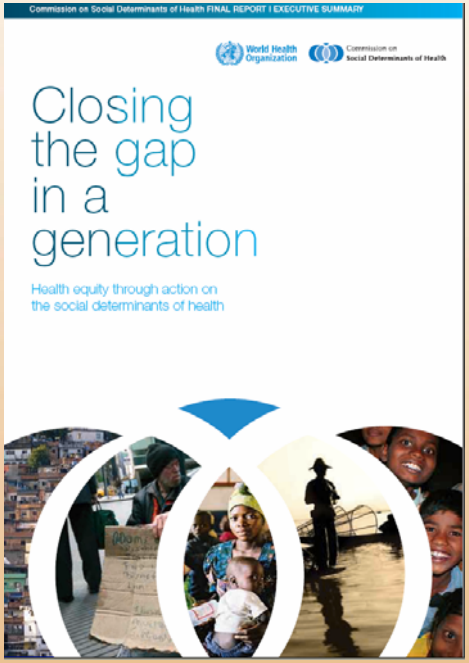
2. Social Determinants of Health



WHO, 2003



Marmot & Wilkinson, 2006



WHO, 2008

2. Social Determinants of Health

1. Early life
2. Social gradient
3. Work
4. Unemployment
5. Social support
6. Social exclusion
7. Transport
8. Food
9. Addiction
10. Stress

WHO, 2003

Early life

Education and work

Environment

Excess

4ES

STRESS

WHO, 2008

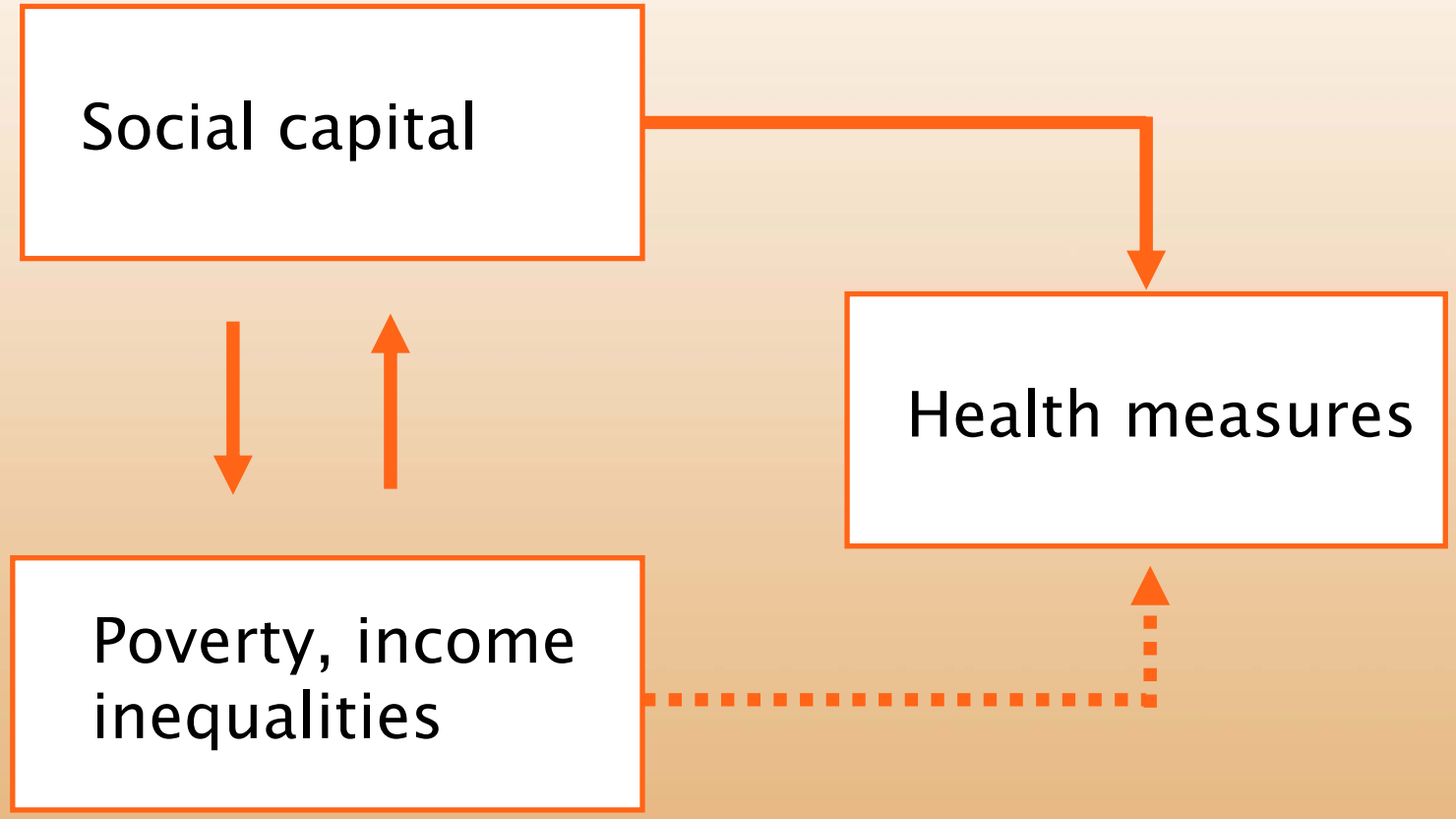
3. Social Determinants of TB

« Social capital is an indicator of the trust, reciprocity, and cooperation among members of a social network that aim to achieve common goals. »

- The more social capital, the better the public health measures
- Postulated mechanisms
    1. Social isolation
    2. Social norms
    3. Accessibility / services
    4. Mutual trust and respect
    5. Policies that protect all citizens
- Social capital and infectious diseases?

1. **Holtgrave et Crosby (2004):** Am J Prev Med 26(2) 159-162

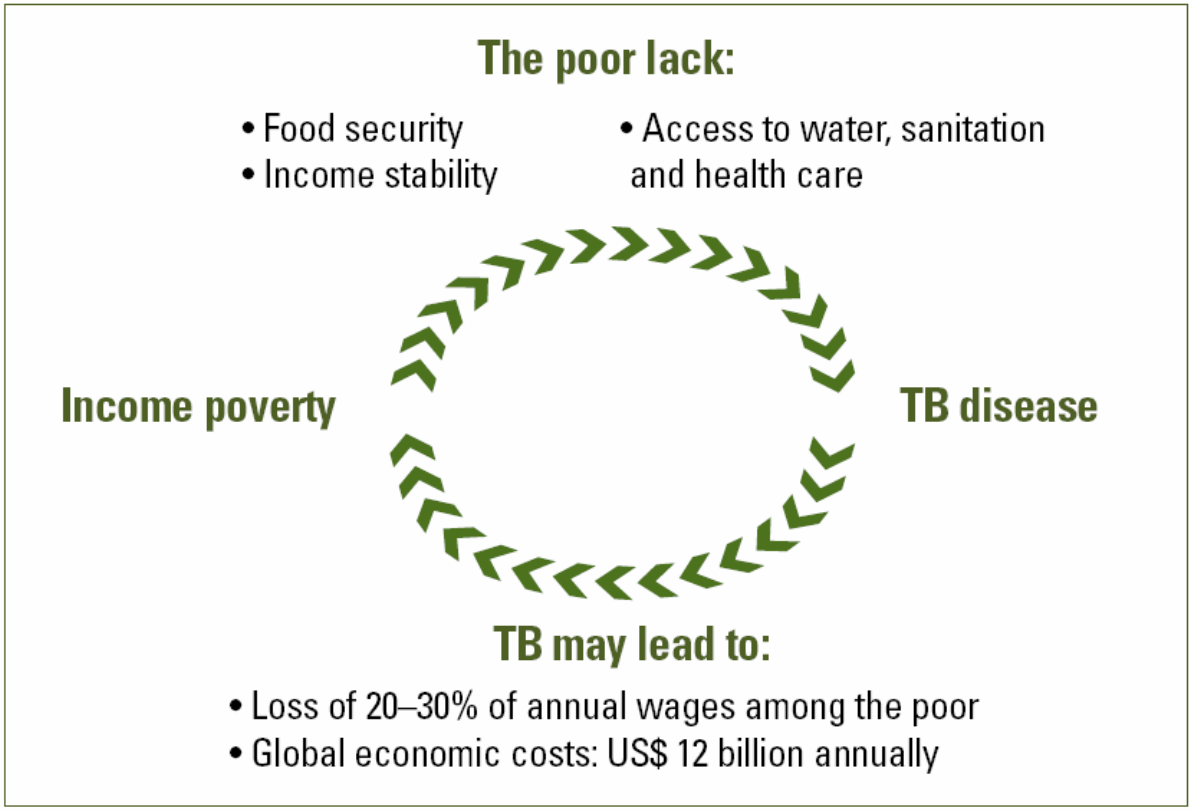
3. Social Determinants of TB



1. **Holtgrave et Crosby (2004):** Am J Prev Med 26(2) 159-162

3. Social Determinants of TB

Figure 2. Income poverty and TB



Source: Adapted from Hanson C. *Tuberculosis, poverty and inequity: a review of the literature*. Geneva, Stop World Health Organization, 2002 (unpublished document commissioned by the Stop TB Partnership).

WHO (2005): Addressing poverty in TB control. p.15

3. Social Determinants of TB

”Little epidemiological research into the pathway through which SES might increase the risk of TB“[1]

- USA[2] – UK[3]
- **Social epidemiology**:
  Importance of individual and group level socioeconomic risk factors in determining an individual’s health

  → Compositional effect

  → Contextual effect

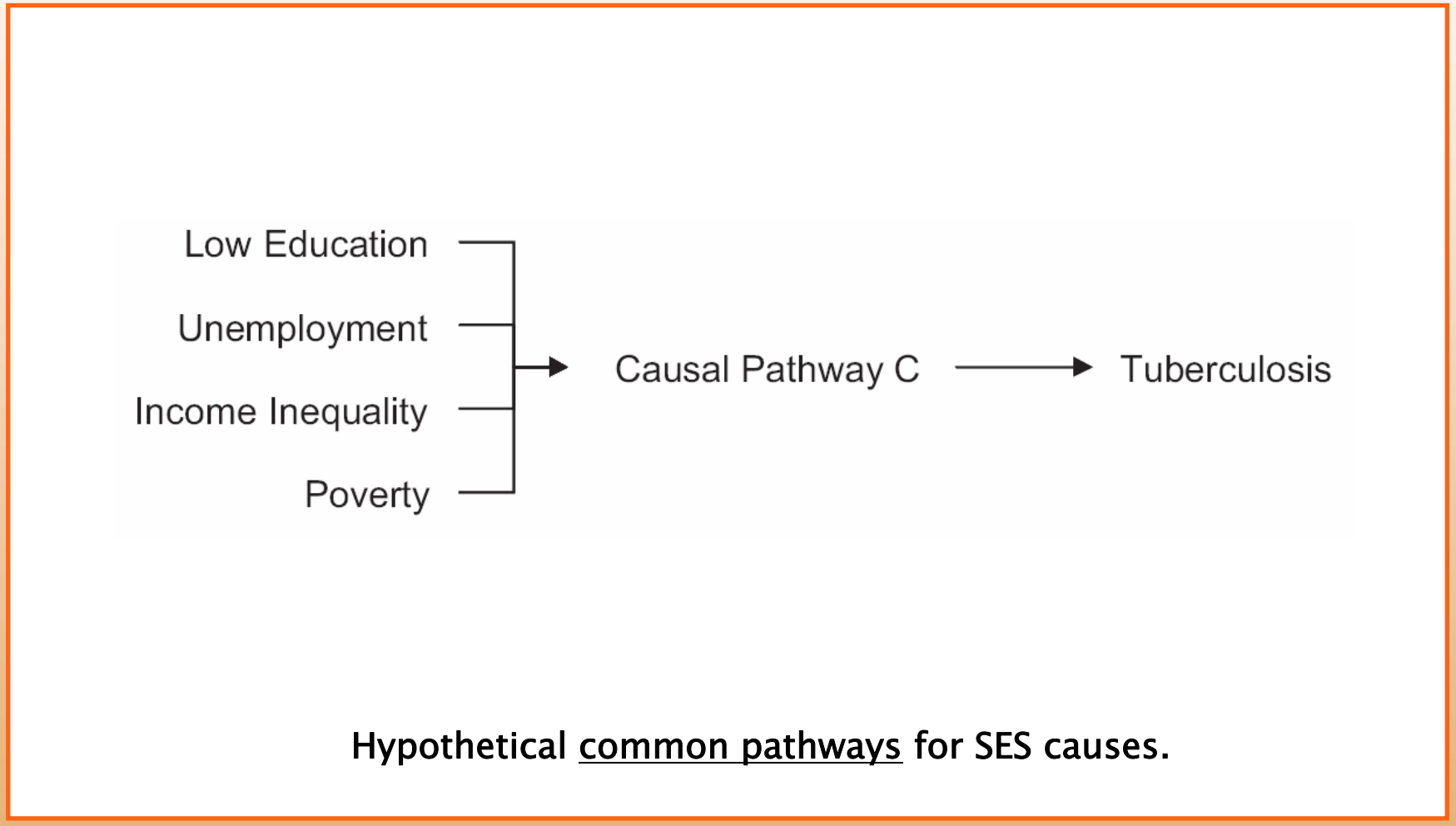
1. **Harling et al (2008):** Soc Science & Med 66; 492-505
2. **Holtgrave et Crosby (2004):** Am J Prev Med 26(2) 159-162
3. **Bennett et al (2001):** Int J Tuberc Lung Dis;5 158-63

3. Social Determinants of TB

	Lifetime TB	
• **Individual- level SES risk factors**	**OR**	**OR_{adj}**
→ Additional year of education	0.89	0.97
→ No work last 12 months	1.45	1.37
→ Ever worked in a gold mine	2.73	1.25
• **Household- level SES risk factors**		
→ Meals missed due to poverty	2.15	1.73
→ Asset score quintile		
Poorest	2.37	1.56
Richest	0.67	0.80
• **Community level SES risk factors**		
→ Gini coefficient quintile		
Most unequal	2.60	2.37
Least unequal	1.20	1.57
→ Robin Hood index quintile		
Most unequal	1.5	-
Least unequal	0.73	-

Harling et al (2008):
The social epidemiology of tuberculosis in South Africa.
Soc Science & Med 66; 492-505

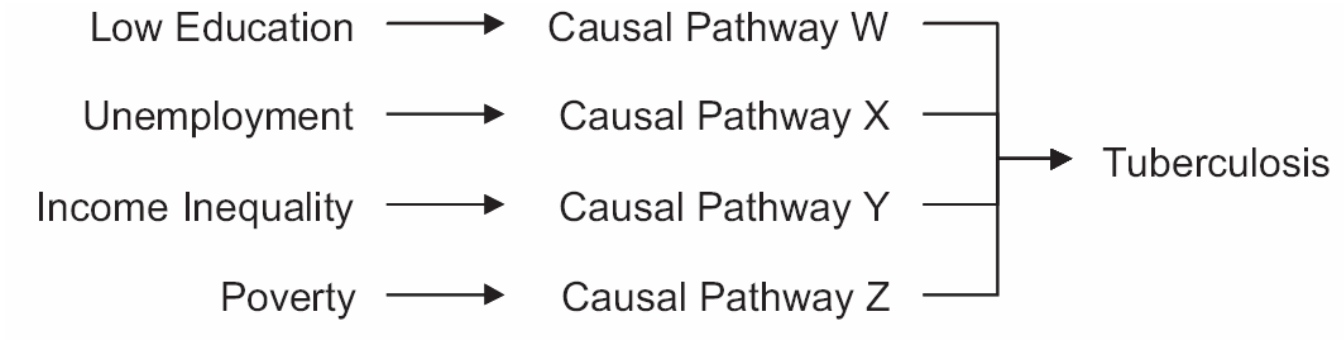
3. Social Epidemiology Framework



Hypothetical common pathways for SES causes.

Harling et al (2008): Soc Science & Med 66; 492-505

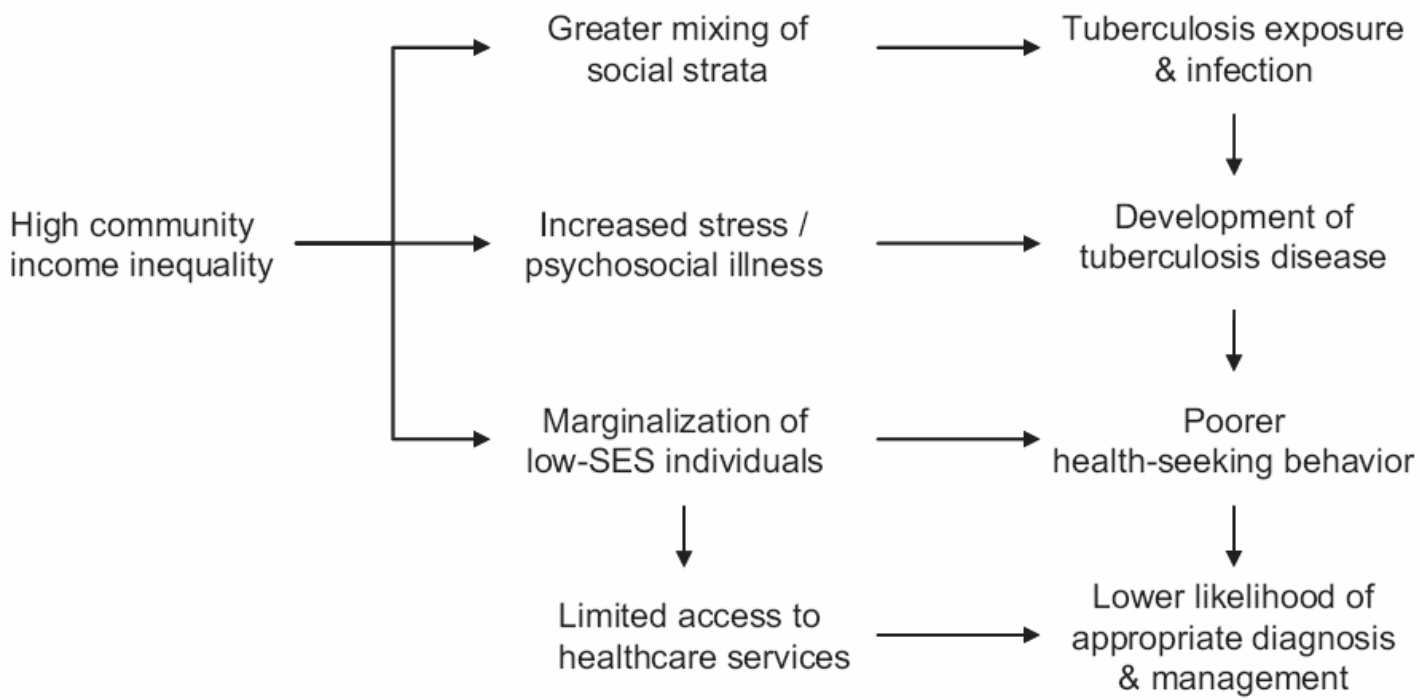
3. Social Epidemiology Framework



Hypothetical multiple pathways for SES causes.

Harling et al (2008): Soc Science & Med 66; 492-505

3. Social Epidemiology Framework



Exemple of possible causal pathways for the role of income inequality in tuberculosis etiology.

Harling et al (2008): Soc Science & Med 66; 492-505

3. Social Determinants of TB

- ***Social inequities and TB in developed countries***
  - *Is observable in USA[1] and GB.[2,3]*
- ***Knowledge and attitudes towards tuberculosis***
  - *Knowledge of tuberculosis decreased with lower education levels in both Croatia and Phillipines.[4,5]*
  - *Knowledge significantly improved with level of income in Phillipines but not in Croatia. [4,5]*

1. **Holtgrave et Crosby (2004):** Am J Prev Med 26(2) 159-162
2. **Bennett et al (2001):** Int J Tuberc Lung Dis;5 158-63
3. **Mangtani et al (1995):** BMJ (310) 963-966
4. **Portero Navio et al (2002):** Int J Tuberc Lung Dis 6(4):301-306
5. **Jurcev Savicevic et al (2008):** Int J Tuberc Lung Dis 12(7):780-785)

3. Social Determinants of TB

Six principle steps are recommended

1. Identify poor / vulnerable
2. Determine barriers → access to services
3. Assess actions vs. barriers to access
4. Review situation / population groups
   → special considerations
5. Explore possibilities for additional resources
6. Evaluation impact of pro-poor measures

1. **WHO (2005).** Addressing poverty in TB control

4. The Support Study

SCREENING FOR LATENT TUBERCULOSIS INFECTION AMONG UNDOCUMENTED IMMIGRANTS IN SWISS HEALTHCARE CENTRES:
A DESCRIPTIVE EXPLORATORY STUDY

Patrick Bodenmann, Paul Vaucher, Hans Wolff, Bernard Favrat, Fanny de Tribolet, Eric Masserey and Jean-Pierre Zellweger

Bodenmann et al (2009). *BMC Infectious Diseases* 2009, 9:34

4. The Support Study

- *Worldwide inequalities of tuberculosis* [1]
- *Global migrations: impact on high income countries* [2]
- *Public health policies: focus on active tuberculosis (TB), less on latent tuberculosis infection (LTBI)* [3]
- *Undocumented immigrants =*

no border control
+ from high incidence countries of TB
higher risk of LTBI + TB

- *Interferon-γ test: useful for LTBI, and cost-effective for populations highly at risk.* [4]

1. Dye et al. 1999. JAMA 282(7): 677-86.
2. MacPherson and Gushulak 2006 Public Health 120(8): 712-23
3. Helbling et al. 2006. Rev Med Suisse: 2276-81
4. Porco et al. 2006. BMC Public Health 6: 157.

4. Undocumented Immigrants

Estimated number of undocumented immigrants

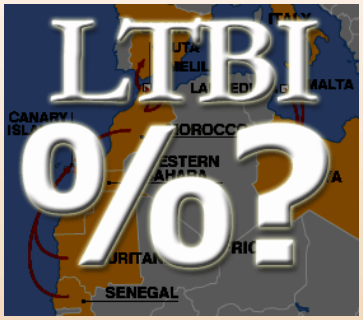
Switzerland:
90’000 – 300’000

Vaud[1]:
12’000 – 15’000

Lausanne[2]:
5’000 – 7’000

1. Longchamp et al. (2005). Gfs.bern. Berne
2. Valli (2003). Report. Ville de Lausanne. Lausanne

4. Objectives



- **Primary:**
  Estimate the prevalence of LTBI within a population of urban undocumented patients in Western Switzerland.

- **Secondary:**
  1) Evaluate acceptance to screening
  2) Evaluate adherence to prophylactic therapy.

4. Methods

- *Two urban outpatient medical care centres for vulnerable populations in Lausanne, Switzerland.*

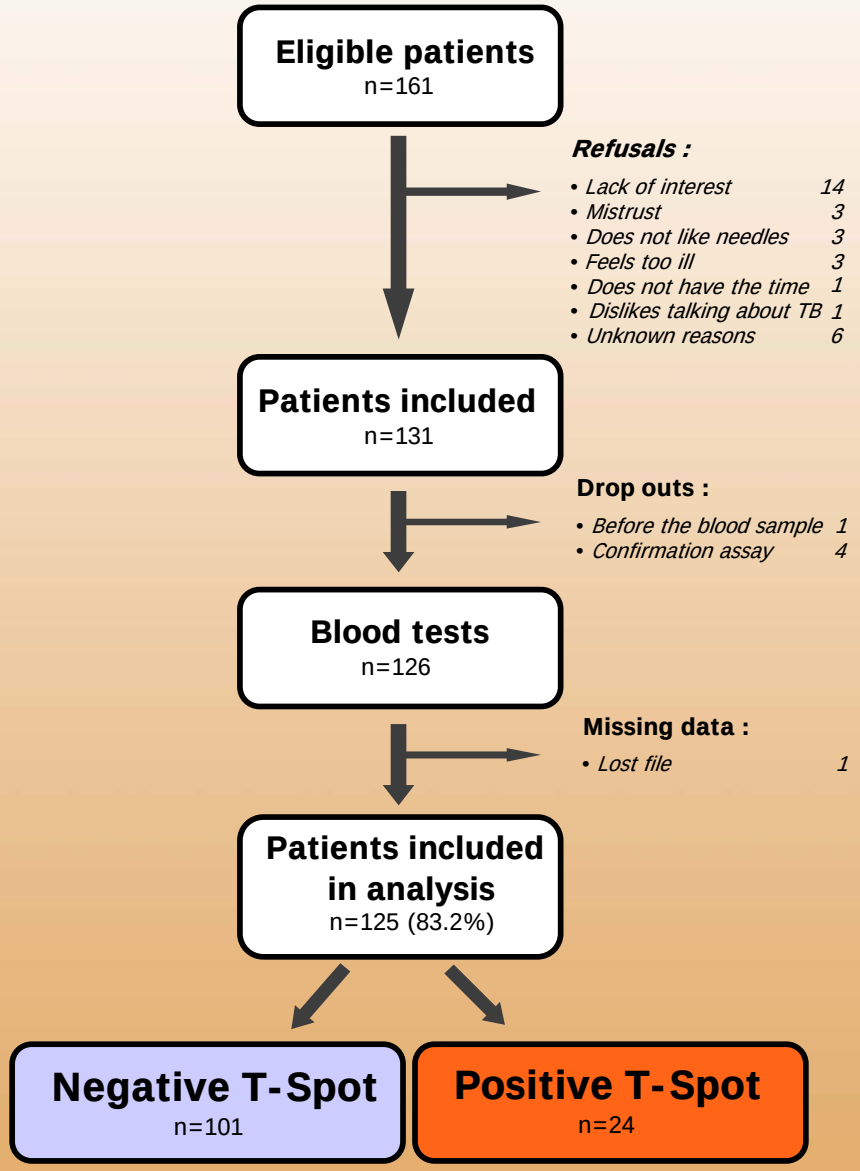
- *Enrollement proposed by clerical assistant or nurse practitioner / physician in three languages for 161 successive undocumented patients from February to July 2007*

- *Interferon-γ RD1 Elispot test (T-Spot.TB)*

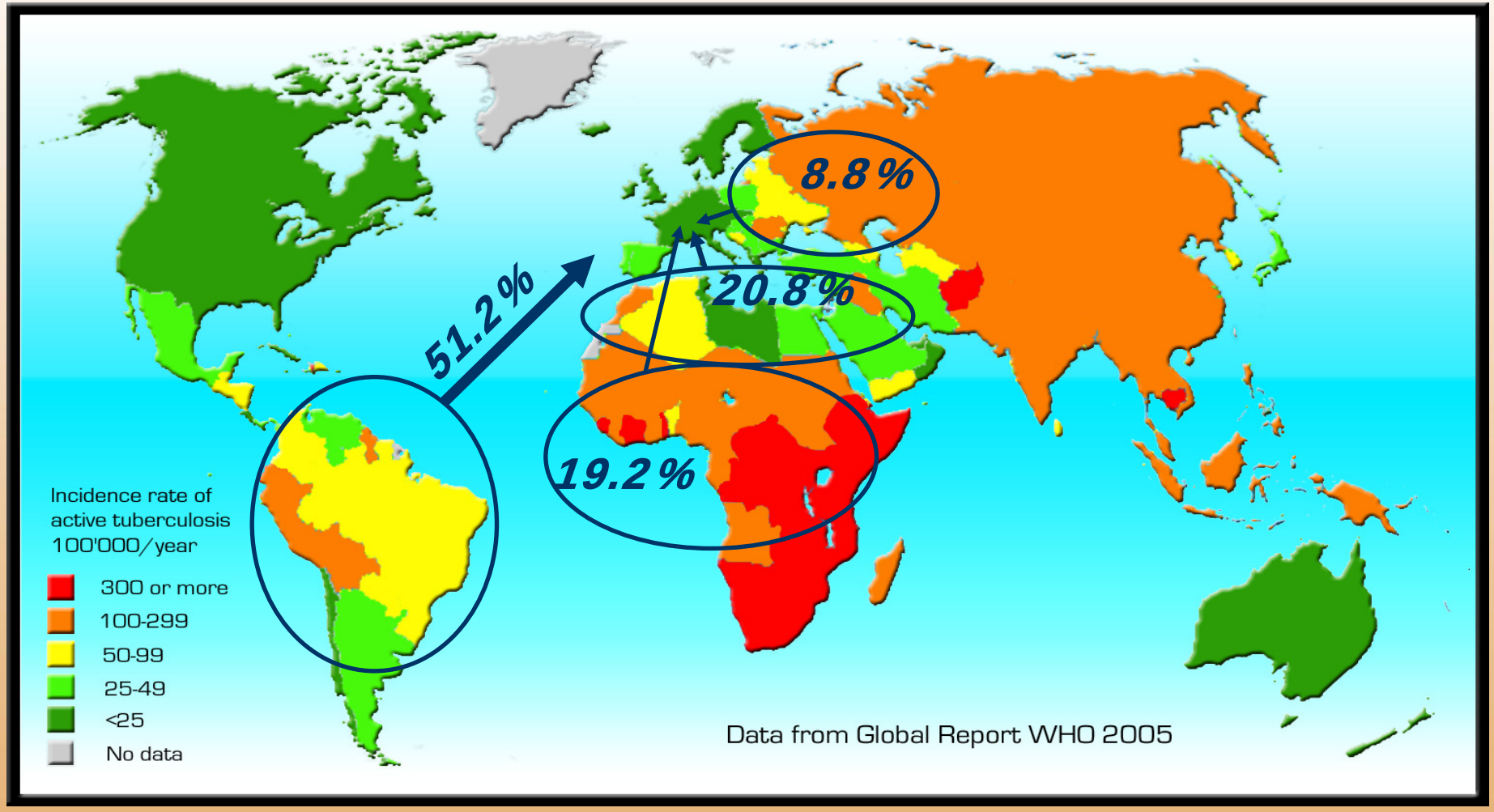
- *Clinical examination, X-ray chest, sputum bacteriology: distinction LTBI/TB*

- *Follow-up for usual care (6 months) by Tuberculosis Department*

4. Results


Eligible patients
n=161
Refusals :
• Lack of interest 14
• Mistrust 3
• Does not like needles 3
• Feels too ill 3
• Does not have the time 1
• Dislikes talking about TB 1
• Unknown reasons 6
Patients included
n=131
Drop outs :
• Before the blood sample 1
• Confirmation assay 4
Blood tests
n=126
Missing data :
• Lost file 1
Patients included in analysis
n=125 (83.2%)
Negative T-Spot
n=101
Positive T-Spot
n=24

4. Origin



Global Report WHO 2005.

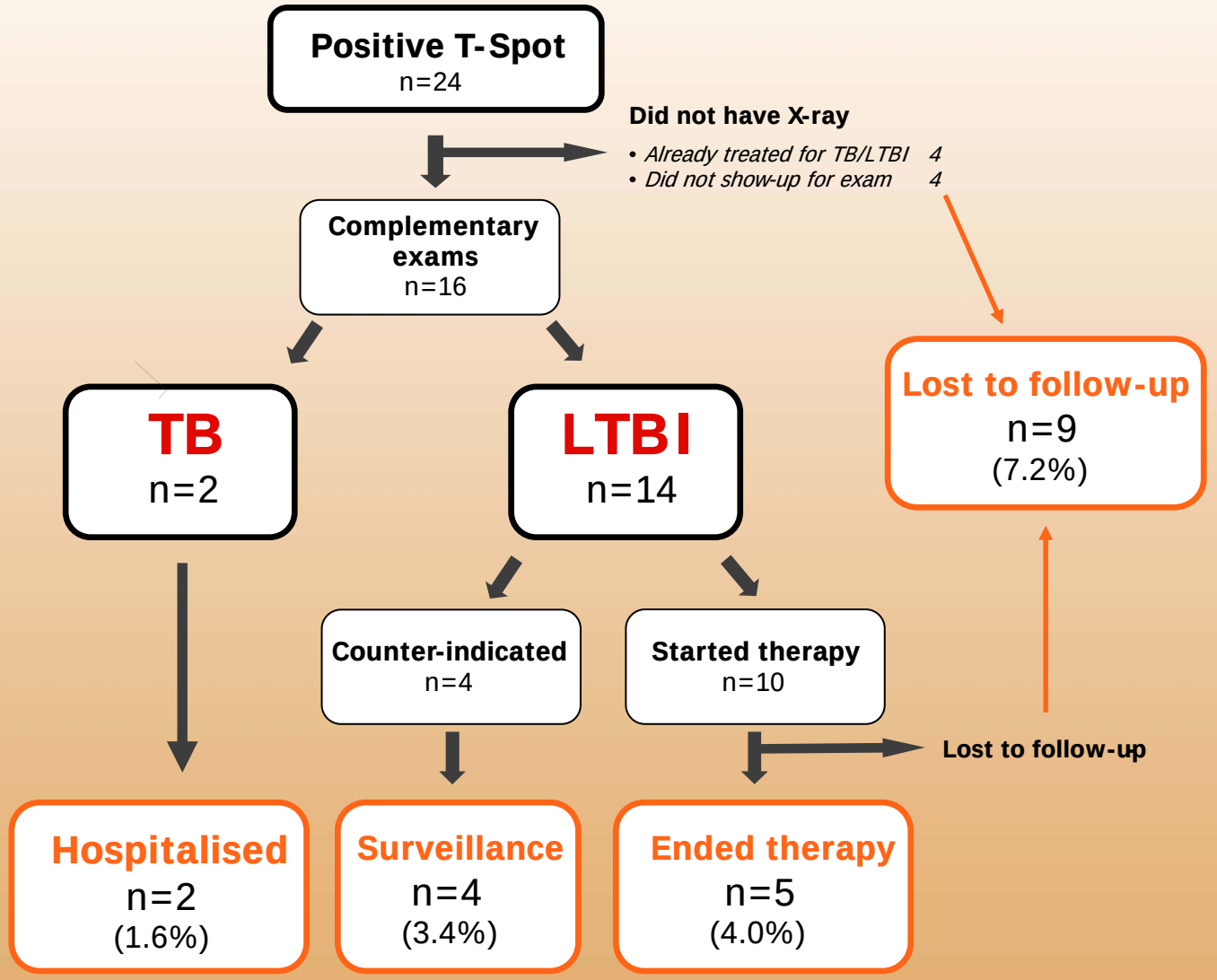
4. Other Risk Factors

No previous screening at arrival:	*83.2%*
Length of journey in CH:	*52.8% < 2years*
Smoking:	*39.2%*
Reported close having TB:	*16%*
Social contacts:	*72%*

4. Prevalence of LTB

Infectious Status	Patients n	(%)	CI95%
NegativeT-Spot.TB	101	(80.8%)	
Positive T-Spot.TB	24	(19.2%)	[12.7 ;27.2]
ATB already treated	3	(2.4%)	
LTBI already treated	1	(1.2%)	
LTBI	18	(14.4%)	[8.8 ;21.8]
TB	2	(1.6%)	[0.2 ;5.7]

4. ADHERENCE



* The 4 patients who did not have a Rx but most likely had a LTBI are not counted.

4. Discussion

1) ➢ *High prevalence compared to other population at risk* [1-4].

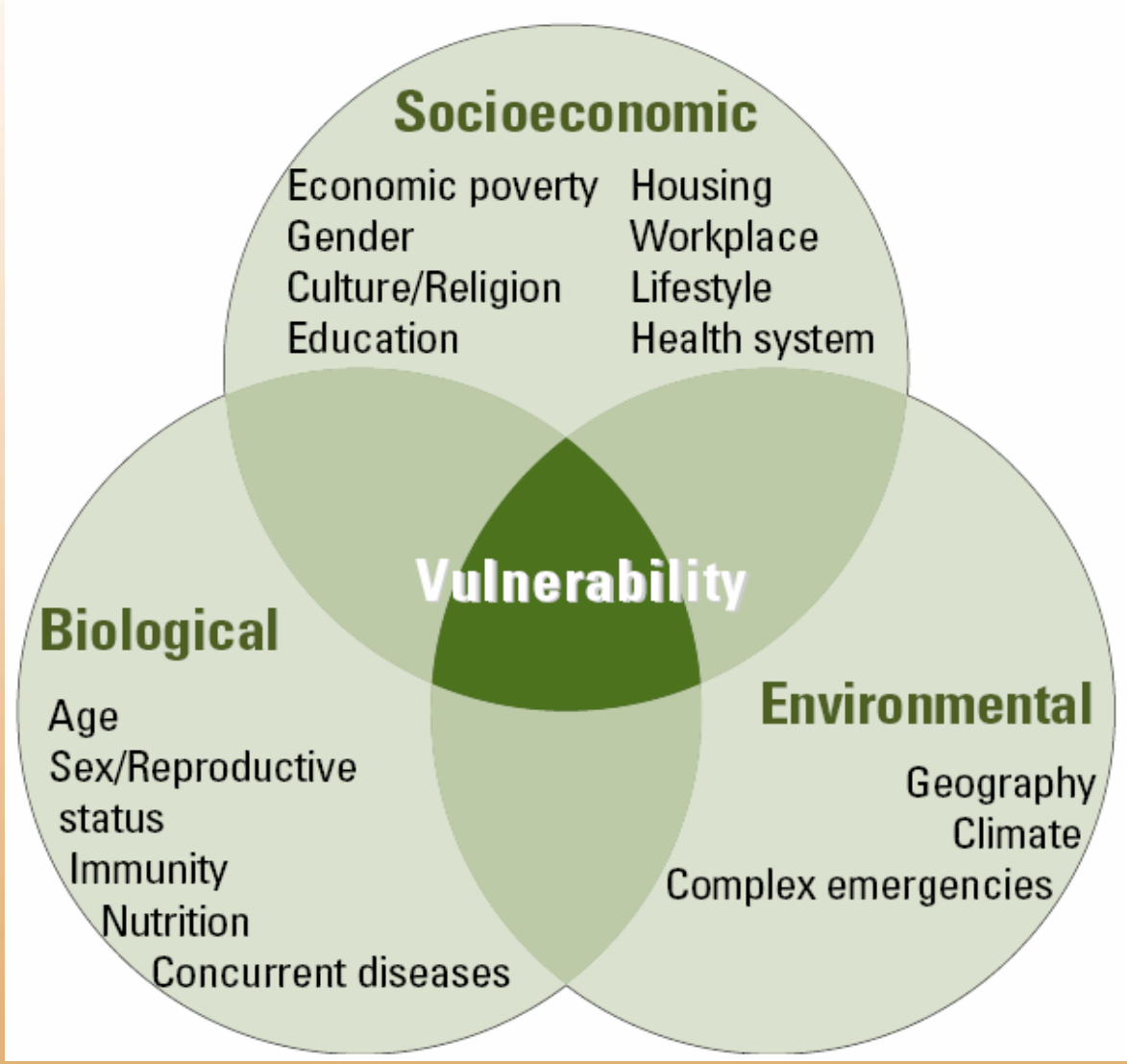
➢ *Risks of developing TB and risk of contaminating others* [5-7].

2) ➢ *Most patients are willing to be screened and start therapy.*

3) ➢ *Nevertheless adherence to treatment should be improved* [8].

1. Mazurek, Zajdowicz et al. 2007: Clin Infect Dis 45(7): 826-36
2. Diel, Nienhaus et al. 2006: Eur Respir J 28(1): 35-44
3. Soborg, Andersen et al. 2007: Scand J Infect Dis 39(6-7): 554-9
4. Carvalho, Pezzoli et al. 2007: J Infect 55(2): 164-8
5. Lillebaek, Andersen et al. 2001 J Clin Microbiol 39(3): 855-61
6. Patel, Parsyan et al. 2007 Chest 131(6): 1811-6.
7. Cohen and Murray 2005 Emerg Infect Dis 11(5): 725-8.
8. Marjanovic, Tuppin et al. 2002 Eur J Intern Med 13(3): 180-184.

4. UNDOCUMENTED IMMIGRANTS



WHO (2005). Addressing poverty in TB control. p.14

4. Undocumented Immigrants

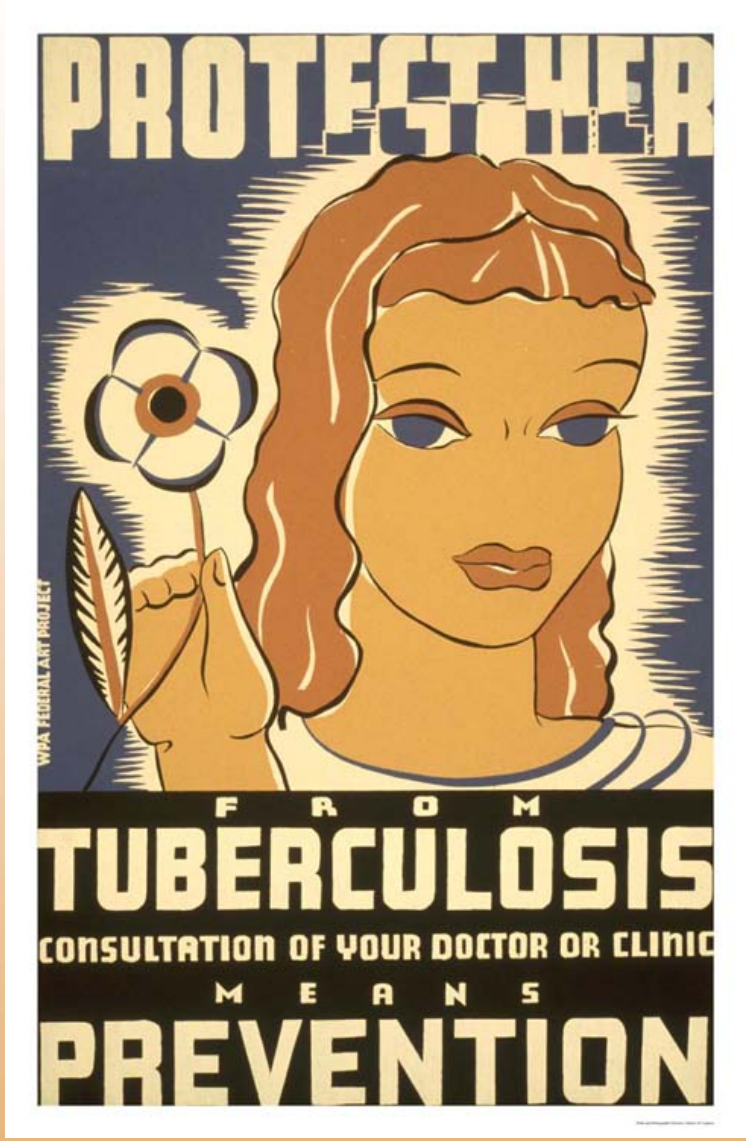
Six principle recommended steps

1. Identify poor / vulnerable ✓
2. Determine barriers → access to services ✓
3. Assess actions vs. barriers to access ✓
4. Review situation / population groups ✓
   → special considerations
5. Explore possibilities for additional resources ✓
6. Evaluation impact of pro-poor measures ✓

WHO (2005). Addressing poverty in TB control. p.14

Social Marginality and Tuberculosis

1. Addressing poverty in Tb control
2. Social determinants of health
3. Social determinants of TB
4. An example: undocumented immigrants in Lausanne



Thank you for your attention!