



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Federal Department of Home Affairs  
**Federal Office of Public Health**  
Public Health Directorate

# Is Tuberculosis Elimination in Switzerland Possible?

Münchenwiler TB Symposium 20/03/2014

Peter Helbling



# Topics

„Is TB elimination in Switzerland possible?“

Definition and history of „TB elimination“

Epidemiology

The National TB Strategy of the FOPH

Implications of an elimination strategy

Conclusions



# Is TB elimination in Switzerland possible?

„No!“



# Is TB elimination in Switzerland possible?

Maybe?

A vision for the distant future?



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## Definition of „TB elimination“

< 1 incident TB case per million population per year  
(all cases, including the foreign-born)

[„Elimination phase“: <10 TB deaths per million population per year]



## „TB elimination“: USA 1989

CDC. A strategic plan for the elimination of tuberculosis in the United States. MMWR 1989;38(No. S-3).

### **Objective: TB Elimination by 2010**

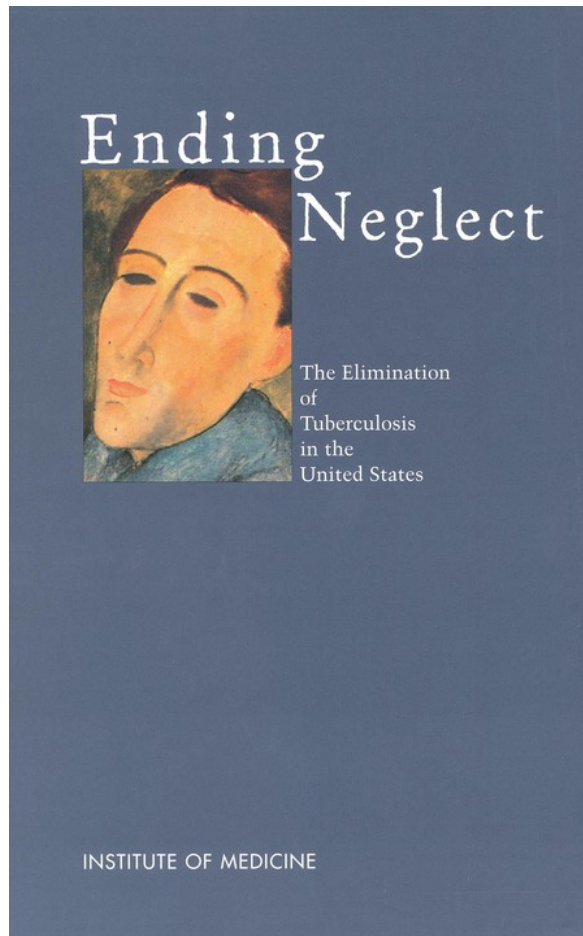
“A great nation such as ours can carry out this plan. It is time to commit to a tuberculosis-free society! “

**” refugees, immigrants, and entrants from high-incidence countries (...) should also be screened for tuberculous infection (without disease).”**

“(...) those with infection (without disease) should be started on preventive therapy (...)”



## „TB elimination“: USA 2000



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*Recommending a plan to eliminate tuberculosis in the USA by 2035*

### Strategies

1. Maintaining control of tuberculosis: find and **cure all persons with active TB**
2. Accelerating the decline of tuberculosis, advance toward the elimination of tuberculosis: **Finding and treating high-risk persons with latent TB infection before they become infectious.**
3. Developing the **tools** needed for the ultimate elimination of tuberculosis, new diagnostic tests, particularly for diagnosis of infection, new treatments, and an effective vaccine.
4. Increasing U.S. engagement in **global efforts** to control elimination.

(...)





# Implications of elimination strategy in the USA

“Finding and treating high-risk persons with latent TB infection before they become sick — and infectious”

Screening programs for populations at risk for infection

- Contacts of persons with infectious TB
- Persons with HIV or AIDS
  
- Recent immigrants [i.e. 5 years] from high-prevalence countries
- Prisoners
- The homeless
- Persons residing or working in hospitals, shelters, prisons

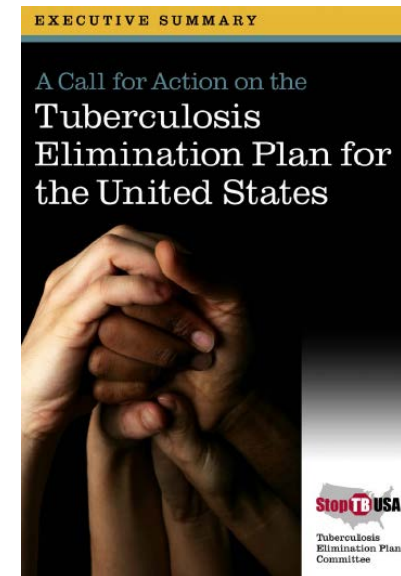


## „TB elimination“: USA 2007ff

Stop TB USA / TB Elimination Plan Committee (2007):

*“plan not fully implemented”*  
*“updated action plans”*

National Call for Action (2010)



# 3.2 TB cases per 100,000 persons in 2012

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## „TB elimination“: WHO

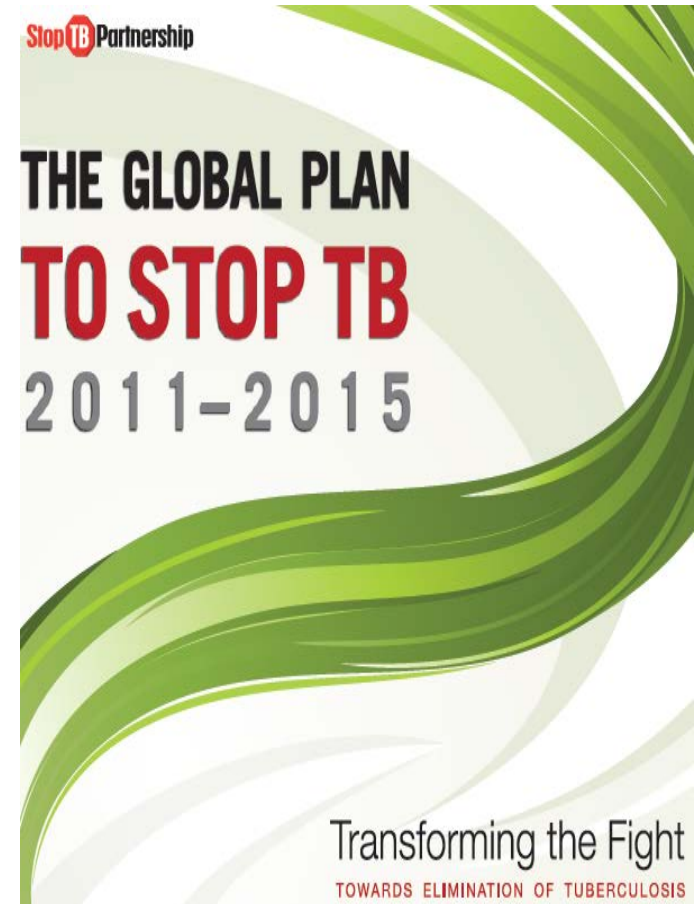
DOTS Strategy 1990s

Stop TB Strategy 2006 /

Global Plan to Stop TB 2006–2015

Global Plan to Stop TB 2011–2015

Draft post-2015 strategy





## „TB elimination“: WHO

WHO Global TB Report 2013:

2012 worldwide incidence estimate: 1220 per 1 million population

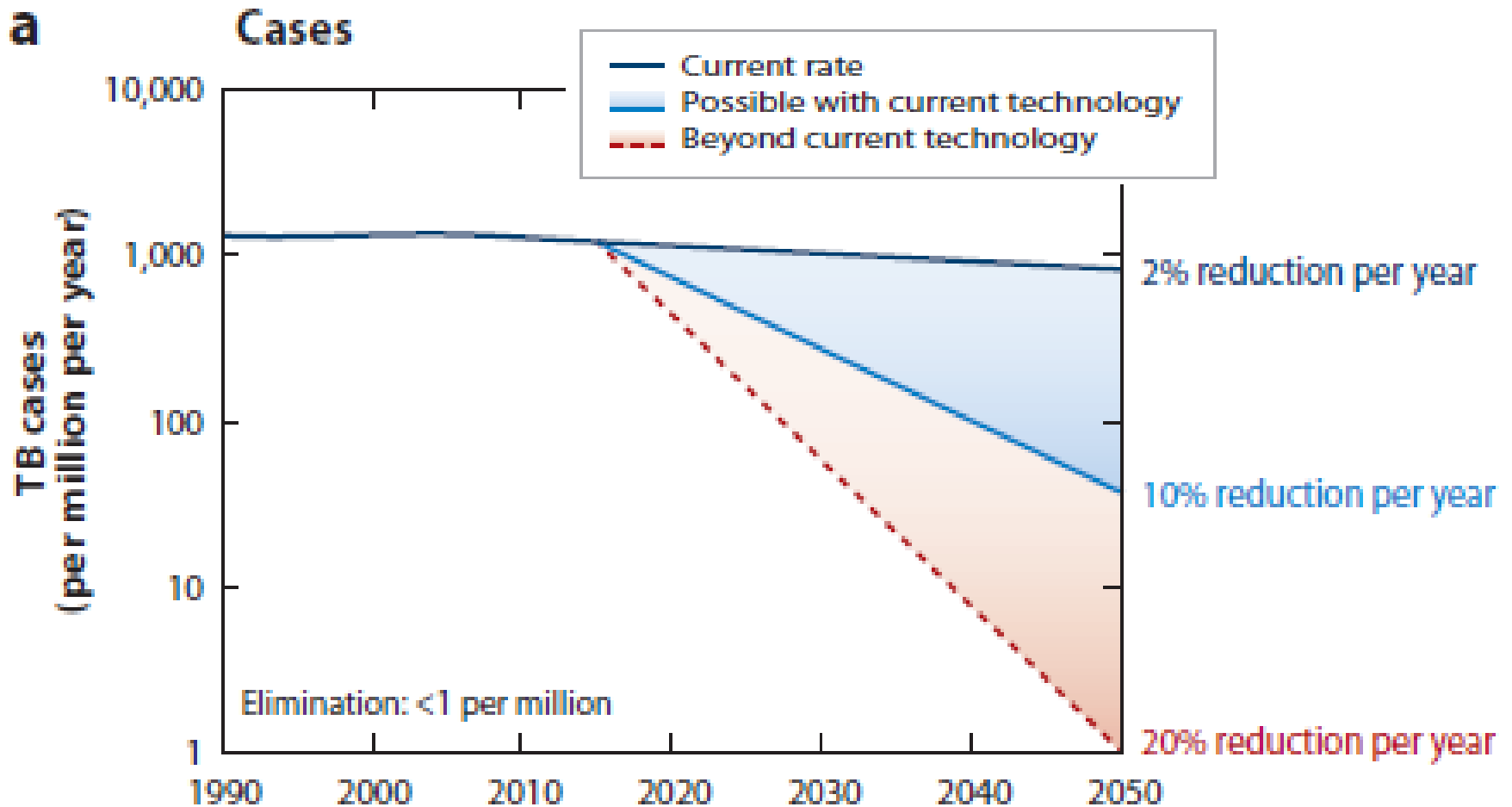
2050 target: eliminate TB as a public health problem

(defined as < 1 incident case per 1 million population per year)



# Projected decline of TB incidence

*Dye C. Annu Rev Public Health 2013;34:271*





## New technology needed

- New vaccines: pre- or post-infection (or both)
- New tests:
  - Biomarkers to identify viable infections
  - Tests to identify the risk of progression from infection to disease
- New regimens to shorten treatment of latent infection

*Dye C. Annu Rev Public Health 2013;34:271-86*



## **Strategies: ECDC**

### **Framework Action Plan to fight Tuberculosis in the EU (2008)**

### **Follow-up Report: Progressing towards TB elimination (2010)**

- Same definition, „TB control and elimination“ as standard expression
- Elimination dependent on global burden of TB
- Elimination unlikely until 2050
- National Plans are needed for basic TB control
- No focus on latent TB infection



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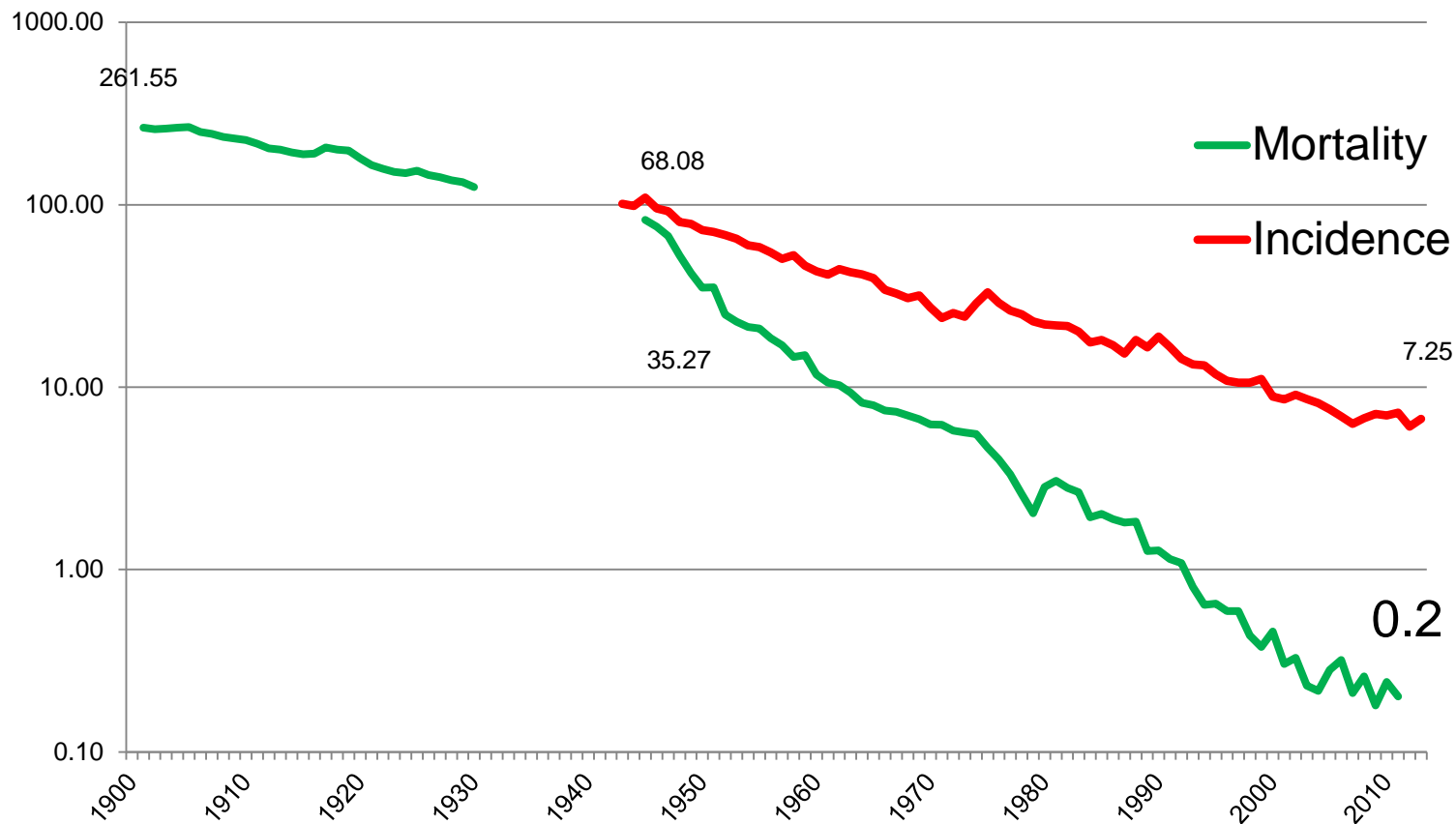
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# TB in Switzerland 1900-2013

## Incidence and mortality per 100,000 population

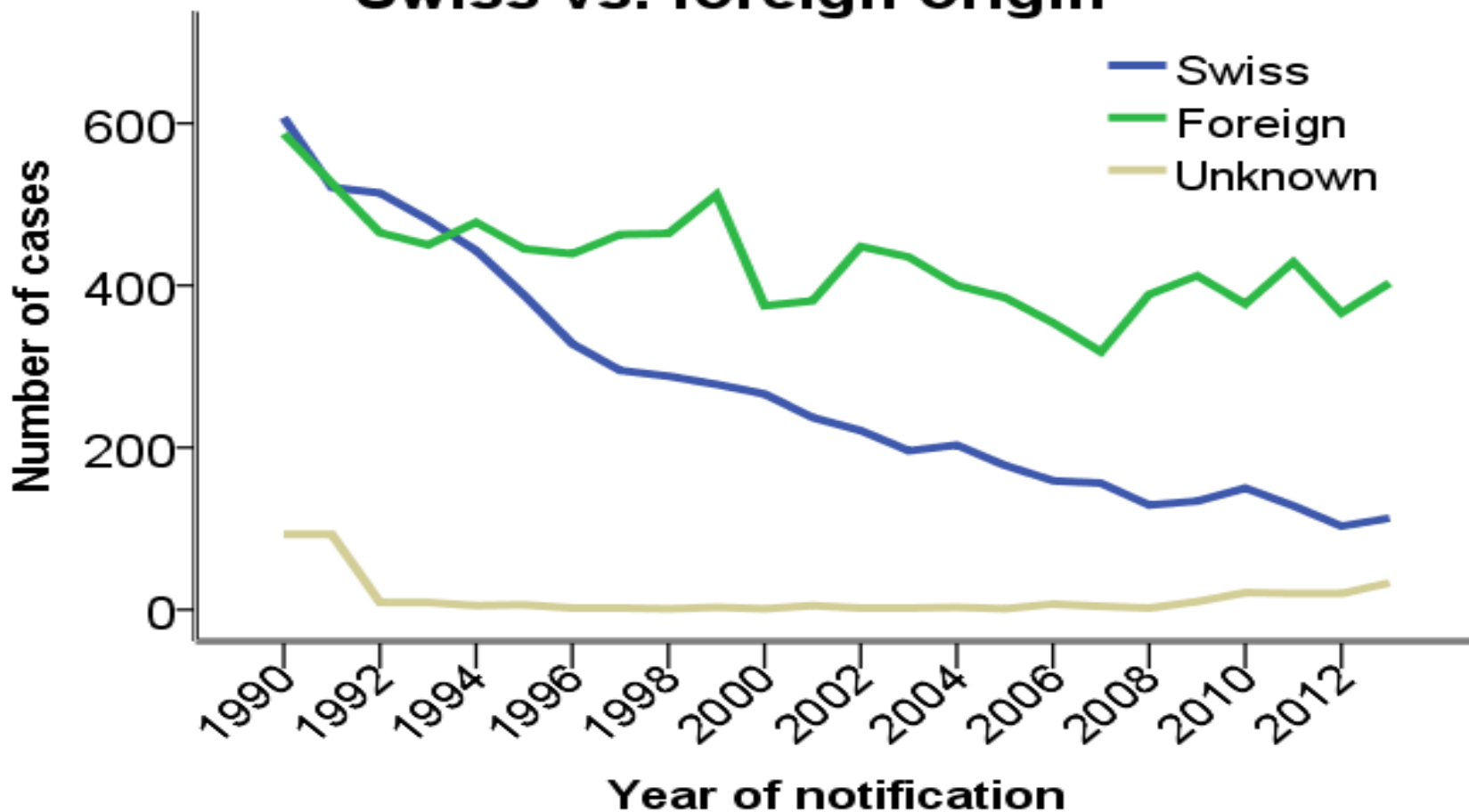


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## TB in Switzerland 1990-2013 Swiss vs. foreign origin



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# Should the objective of TB elimination in Switzerland be pursued?

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# National TB strategy (2012)

Stratégie nationale de lutte contre la  
tuberculose 2012–2017



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# National TB strategy: Objectives

- Early detection and treatment of symptomatic cases presenting to the health system
- Access to diagnosis and treatment
- Contact investigations
- Effective and appropriate measures



# National TB strategy (2012)

## Axes d'interventions

1. Dépistage et diagnostic
2. Traitement et mesures d'accompagnement
3. Enquête d'entourage
4. Surveillance épidémiologique
5. Information, formation et communication
6. Collaboration internationale



## Objectifs spécifiques

1. Détection précoce et traitement adéquat
2. Accès garanti
3. Enquêtes d'entourage selon standards
4. Efficience

La tuberculose, sa transmission et ses répercussions en Suisse sont contrôlées.



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## **Possible Public Health implications of an elimination strategy**

Expanded testing for latent TB infection, beyond persons likely to progress to TB disease if infected (i.e., recently exposed, immunosuppressed):

Public Health Programs (~accessibility)

- Asylum seekers?
- Prisoners at entry?
- School children??

Testing in everyday clinical practice:

- Persons from countries with elevated TB prevalence?



## Feasibility of expanded testing

Asylum seekers:

*Screening data FOPH 1993-2004 (N~200,000; age >14y):*

- 18% TST >14mm

*Sarivalasis A et al. [Swiss Med Wkly 2013],  
(N=373, adults):*

- 25% IGRA positive
- LTBI treatment completed:  
65% (of IGRA+ and intention to treat)



## Comparison with present indication to test and treat: LTBI treatment completion

Results of contact investigations (2011):

	N
Persons tested	3664
Diagnosed as "infected"	687

49% of "infected" start treatment  
37% of "infected" finish treatment

*Data collected by Swiss Lung Association (2013)*



## Testing asylum seekers for LTBI?

Estimated consequences of testing 1000 individuals:

250 IGRA positive

120 complete LTBI treatment

6 cases (5% progression) are prevented

-> Number needed to test to prevent 1 case: 166

-> Cost to prevent one case (occurring 1 to 70 years later):

166 tests and consultations, counseling

40 chest radiographs

20 complete LTBI treatments



# Resource implications

Tennessee Public Health Department Services (2002-2006):

Testing persons at risk (including the foreign-born) presenting to clinical services

Cost per case averted: \$35,000 (undiscounted)

*Cain KP et al. Moving toward tuberculosis elimination: implementation of statewide targeted tuberculin testing in Tennessee. Am J Respir Crit Care Med 2012;186(3):273*

*ATS / CDC. Targeted tuberculin testing and treatment of latent tuberculosis infection. Am J Respir Crit Care Med 2000;161(4 Pt 2):S221.*



## Ethical issues

Healthy individuals – remote infection – low risk of progression to disease

No test for assessment of risk of progression

Test for immunological memory, not for viable bacilli

Preventable TB is also treatable TB.

Risk of side effects of drugs: 4% for R, 1.6% for H  
*Menzies D et al. Ann Intern Med 2008;149(10):689*

Utilitarianism and „expertocracy“ vs. freedom of choice?



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# Conclusions

The goal of „TB elimination“ should not guide public health actions in Switzerland.

„TB elimination“ cannot be a national objective in the light of the actual state of TB control in the world and immigration.

The tools for an active implementation are not adequate yet.

High costs (especially if effects are discounted over time)

Ethical questions (risks, human preferences)