



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

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

MDR Tuberculosis in Switzerland

Münchenwiler 21/03/2013

Peter Helbling



Definition of MDR Tuberculosis

Multidrug resistance = Resistance to isoniazid and rifampicin (with or without additional resistances to other drugs)

Extensively resistant tuberculosis (XDR) = a subgroup of MDR-TB with additional resistances to:

- fluoroquinolones AND
- at least one of the injectable drugs amikacine, kanamycine or capreomycin



Topics

Epidemiology

Case management

Outcomes (treatment results)



TB in Switzerland – epidemiology 2007-2011

Average of 538 cases reported per year

72% foreign origin



TB in Switzerland – epidemiology 2007-2011

Any resistance to isoniazid:

12.6% if treated in the past, 4.5% if not

MDR: 2.1% of foreign and 0.2% of Swiss cases

5.6% if treated for TB in the past, 0.9% if never treated



Follow-up of MDR cases 2003-2010

Main objective: MDR treatment results (outcomes) at 24 months

FOPH (BAG/OFSP) and Swiss Pulmonary Association

Cohort: All MDR cases with positive culture reported to the Swiss national surveillance system 01-2003 to 07-2010

Follow-up: standardized questionnaire to physicians 2 years after diagnosis

Outcome categories: ~ Laserson KF, Int J Tuberc Lung Dis. 2005



Results

51 MDR cases reported 01-2003 to 07-2010

7 cases/year (range 4 to 10)

26 male, 25 female

Median age 26 years (range 3-56)

46 of foreign origin, 5 of Swiss origin



Foreign origins

46/51 patients

18 Asians (Tibet 8, Thailand 3, India 2, Mongolia 2, Vietnam 1, Philippines 1, S. Korea 1)

13 Africa (Somalia 4, Ethiopia 3, Eritrea 1, Sudan 1; Angola 1, Zaire 1, Cameroon 1, Ivory Coast 1)

8 Former Soviet Union (Russia 3, Ukraine 1, Georgia 2, Azerbaijan 1, Armenia 1)

4 Southeastern Europe (Romania 1, Serbia 1, Kosovo 1, Turkey 1)

3 Latin America (Brazil 1, Dominican Republic 1, Ecuador 1)



Foreign origin – categories

Status of residency or stay in Switzerland (n=46):

21 asylum seekers / refugees

8 with regular work contracts

9 “other” (“student”, “tourist”, “married to a Swiss”, “illegal alien”)

8 no information (but not asylum seekers)



Time from immigration to TB diagnosis

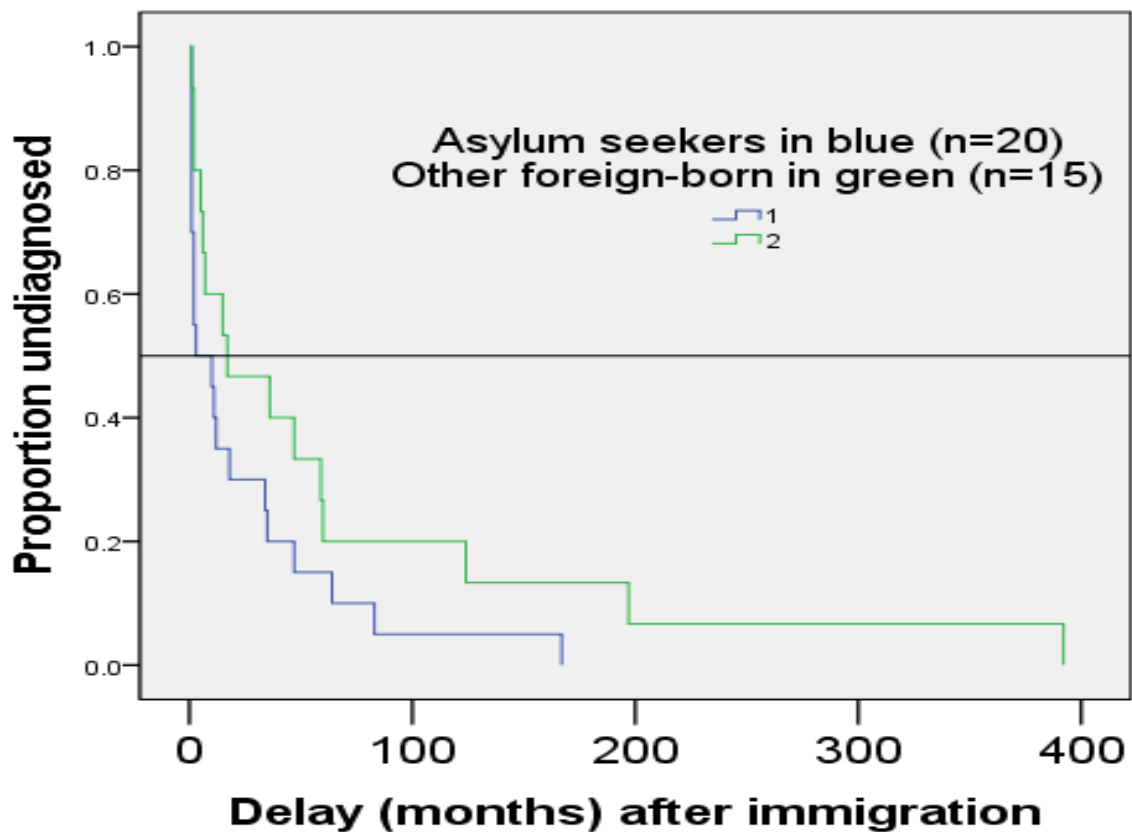
Information available on 35/45

- Asylum seekers/refugees (n=20):
Median 6.5 months (range 0 days to 14 years)

- Other patients born abroad (n=15):
Median 17 months (range: 2 weeks to 33 years)



Time from immigration to diagnosis





Previous treatment for TB

12 previously treated

24 never treated

15 unknown previous treatment status



Resistance patterns of MDR strains

2/51 strains tested: resistance to isoniazid and rifampicin only

29/51 to ethambutol

27/50 to pyrazinamide

19/50 to both ethambutol and pyrazinamide

42/51 to streptomycin

25/49 to ethionamide/prothionamide

6/51 to a fluoroquinolone

5/50 to amikacine

1/34 to capreomycine (and amikacine)

No XDR-TB identified



Site of disease

44 pulmonary cases (8 also extrapulmonary)

- sputum smear positive 25
- sputum smear negative 7
- smear status unknown 12

7 extrapulmonary only



Extrapulmonary sites (n=15)

- meningeal 1
- spinal 1, other bone 1
- disseminated 2
- abdominal 2
- pleural 4
- lymph nodes (intrathoracic 1, extrathoracic 3)



Molecular typing: Transmission?

3 pairs of identical strains (within cohort of 51)

- Tibetans (3 year old / adult visitor of the family)
- Tibetans (relatives)
- To be confirmed: Ethiopians



Clinical management

No start of treatment: 3 (2 died and 1 disappeared before)

Median delay from TB diagnosis to start of MDR treatment (n=48): 5.5 weeks (range 0 to 26)

Start on drugs for MDR at time of TB diagnosis: 10

Median duration of MDR treatment: 18 months (range 1-26)



Clinical management

Second-line drugs most often used

Quinolones (48 patients)

Amikacine (35) and/or capreomycine (3)

Ethionamide/prothionamide (23)

Linezolid (18)

Cycloserine (10)



Outcomes at 24 months after MDR diagnosis

- Satisfactory in 39 patients (76%)
 - Cured with negative culture/s (29)
 - Treatment completed as intended (10)
- Unsatisfactory in 12 patients (24%)
 - Death from TB (2)
 - Default from treatment (4, at months 0, 4, 8, 21)
 - Treatment terminated early: drug side effects (2), pregnancy (1)
 - Transfer out of the country and no information available (2)
 - Result unknown (1)



Outcomes at 24 months after diagnosis

No significant associations of unfavorable outcomes with:

- Age
- Sex
- Origin
- Previous TB treatments
- Delay to MDR treatment
- Resistance pattern
- Class of second-line drugs used

Results tended to be more favorable from 2008 onward.



Conclusions and recommendations

- Good outcomes also compared to other rich countries
- Improvement over time (tendency)
- WHO standards are mostly being followed
- Molecular tests for resistances (Hain, GenXpert):
~origin and ~previous TB treatment
- Follow-up: Involvement of public health authorities
- Discussion group for MDs treating MDR