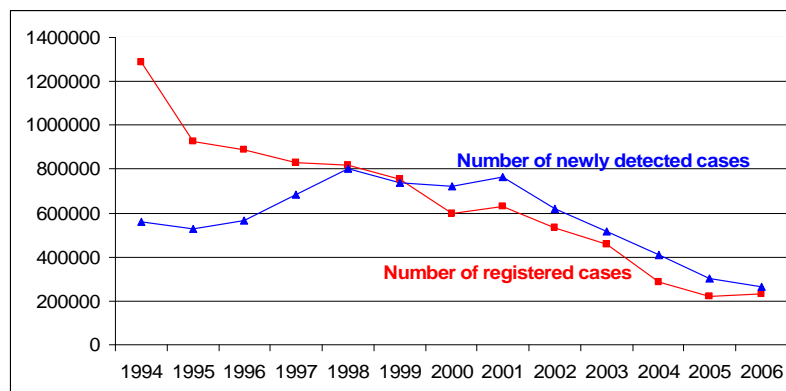


Risk of infection and its relevance to chemoprophylaxis

Etienne Declercq

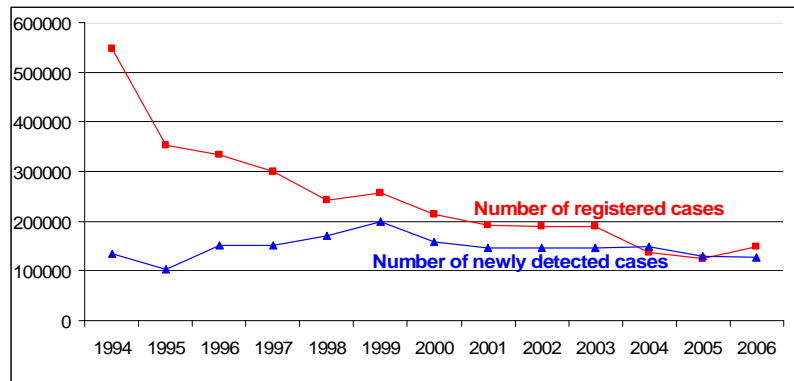
Trends in leprosy prevalence and detection

- Global



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Results of chemoprophylaxis trials

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- A single dose Rifampicin trial among household and other contacts of leprosy patients in Bangladesh gave a protection of 56 % after 2 years (H. Moet, et al.).
- A single dose Rifampicin trial among household contacts of leprosy patients in India gave a protection of 80 % after 4 years, but 50 % after 5 years (P. Vijayakumaran).

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- Sensitivity of serological tests are > 90 % to detect MB Leprosy, but only about 40 % for PB Leprosy.
- One study among household contacts in the Philippines showed that seropositive household contacts had a 24 times higher risk of developing MB Leprosy and a 3.8 times higher risk for PB Leprosy than seronegative contacts (J.T. Douglas, et al.).

Examples of simulations of chemoprophylaxis

Hypotheses :

- MB proportion : 50 %
- Sensitivity serology : MB Leprosy : 0.974
PB Leprosy : 0.4
- Specificity serology : 0.862
- Efficacy of chemoprophylaxis : 60 %.

1. General population : Leprosy incidence : 1/10,000/year

		MB Leprosy		
		YES	NO	
<u>Serology</u>	Positive	487	1,379,931	1,380,418
	Negative	13	8,619,569	8,619,582
		500	9,999,500	10,000,000

		PB Leprosy		
		YES	NO	
<u>Serology</u>	Positive	200	1,379,931	1,380,131
	Negative	300	8,619,569	8,619,869
		500	9,999,500	10,000,000

		<u>Leprosy all types</u>		
		YES	NO	
<u>Serology</u>	Positive	687	1,379,862	1,380,549
	Negative	313	8,619,138	8,619,451
		1,000	9,999,000	10,000,000

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Without serology : 16,667
With serology : 3,349

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Cases occurring annually in a theoretical population of 10,000,000 :

Without chemoproph. : 1,000
With chemoproph. :
without serology : 400
with serology : 588

2. Contacts of MB patients : Leprosy incidence : 8/10,000/year

		<u>Leprosy all types</u>		
		YES	NO	
<u>Serology</u>	Positive	7	1,724	1,730
	Negative	3	10,766	10,770
		10	12,490	12,500

NNT to prevent 1 case :

Without serology : 2,083
With serology : 420

Cases occurring annually in a theoretical contact population of 12,500 :

Without chemoproph. : 10
With chemoproph. :
without serology : 4
with serology : 6

3. Contacts of PB patients : Leprosy incidence : 2/10,000/year

		<u>Leprosy all types</u>		
		YES	NO	
<u>Serology</u>	Positive	2	1,725	1,726
	Negative	1	10,773	10,774
		3	12,498	12,500

NNT to prevent 1 case :

Without serology : 8,333
With serology : 1,675

Cases occurring annually in a theoretical contact population of 12,500 :

Without chemoproph. : 3
With chemoproph. :
without serology : 1
with serology : 1

4. Extremey high endemic area : Leprosy incidence : 1/100/year

		<u>Leprosy all types</u>		
		YES	NO	
<u>Serology</u>	Positive	344	6,831	7,175
	Negative	157	42,669	42,826
		500	49,500	50,000

NNT to prevent 1 case :

Without serology : 167
With serology : 35

Cases occurring annually in a theoretical contact population of 12,500 :

Without chemoproph. : 500
With chemoproph. :
 without serology : 200
 with serology : 294

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- Development of new tests with higher sensitivity and specificity, and capable of detecting all types of leprosy, might change the situation in future.
- When very high risk (sub-)populations can be selected, it might be useful to consider using more powerful regimens.

Thank you for your attention