

Evidence Update

Summary of a Systematic Review

Tuberculosis Series

In correctional facilities does treatment of latent tuberculosis (TB) with isoniazid prevent active TB in these patients and/or latent TB in their contacts?

There is inconclusive evidence to address this question.

Researchers conducted a review to address issues related to the initiation and completion of isoniazid preventative therapy (IPT) in correctional facility inmates, either within these settings or after release. 18 published studies were identified for inclusion in the review (10 prospective cohort studies, 5 cross-sectional studies and 3 randomised controlled trials (RCTs)). This evidence update summarises the key findings.

Why is this question important?

In low-middle income countries, TB is the main cause of death in correctional facilities (prisons, jails and detention camps).

Inmates are often exposed to fellow inmates with active TB, which can lead to infection and the development of latent TB. People with latent TB are asymptomatic but this can then progress to active TB if a person becomes immunocompromised. People with active TB are symptomatic and can become infectious.

The test used to detect active or latent TB is the tuberculin skin test (TST). Giving IPT to people with latent TB can prevent the progression to active TB. IPT is given for 6 months or more and is safe and inexpensive. IPT-related liver toxicity has been reported in 1-2% of people receiving treatment.

What does the research say?

Completion of treatment: The median proportion of participants who completed IPT therapy was 44% (range 3% - 87%) (16 studies including 2 RCTs conducted in the USA).

Prevention of active or latent TB: An RCT conducted in Spain with HIV-positive participants (n=133) compared two different drug regimens (isoniazid for 12 months and rifampicin and isoniazid combined for 3 months) and detected no difference in the number of cases with active TB in either regimen (OR 0.5, 95% CI 0.09, 2.8).

Three cohort studies (conducted in the USA, Singapore and Spain) reported fewer cases of active TB following IPT treatment compared to those who received no treatment. One study found fewer new cases of latent TB among contacts (i.e. people with active TB) if >65% of those with latent TB were treated.

Adverse events: Liver toxicity was the most common adverse effect. Information on the incidence of this was not clearly reported.

Is the research reliable?

This review was judged to be at high risk of bias due to limitations in the literature search, lack of explicit inclusion criteria and failure to appropriately consider study quality. This review only searched two databases and was restricted to published studies. The objective was broad and not clearly defined and the inclusion criteria was not specified. Study quality was not formally assessed or considered in the synthesis. A narrative synthesis was appropriate given the differences between studies.

Can the results of the research be applied to my setting?

The studies were conducted in high income countries (13 in the USA, 4 in Spain and 1 in Singapore). Study participants were mostly young (< 40 years) and male (90%). HIV and TB prevalence in the participants was varied (for HIV 1.1% to 32.7%, 9 studies, for active TB 0.1% to 1.1%, 7 studies, for latent TB <30% to 70%, 9 studies).

Is treatment of latent TB with IPT in correctional facilities effective in preventing active or latent TB?

Cohort studies	Incidence of active TB IPT >= 6 months	Incidence of active TB No treatment	What happens
Martin 2001 ¹ Spain	1/146	17/486	Inmates who have latent TB, but do not receive IPT may be at higher risk of developing active TB ¹
White 2005 ² USA	0/156 (completed IPT) 3 /381 (not completed IPT)	No control group of interest	People who complete IPT may be at lower risk of developing active TB
Chee 2005 Singapore	0/398 (completed IPT) 0/57 (not complete IPT)	4/241 (neg. screening test) 1/103 (unscreened contacts)	Contacts who screened positive for latent TB and received IPT, even if they did not complete IPT, may be less likely to develop active TB.
Cohort study	Incidence of latent TB IPT >= 6 months	Incidence of latent TB No treatment	
McIntyre 1997 ³ USA	-	-	If more than 65% of inmates with latent TB receive IPT, other inmates may have a reduced risk (60%) of acquiring latent TB.

¹RR 6.92, (95% CI 0.92 to 51.99), INH for 12 months in patients who were HIV positive or had an abnormal chest X ray

²The four TST screened contacts that were not started on IPT had negative. TSTs (2), a boosted TST reaction (1), and a positive. TST, but elevated liver enzymes (1) Table

³INH prophylaxis initiation rate for eligible inmates with latent TB (positive TST) > 65% reduced the risk of recent TST conversion (RR 0.4, 95%CI 0.3—0.7)

This question would best be answered by randomized controlled trials which compare

- IPT to other TB drug regimens
- IPT to placebo or no treatment

and which measure not only completion of treatment, but also the number of people per group who develop active TB and the number of contacts who develop latent TB.

More information

This summary is based on the following systematic review:

Al-Darraj H.A.A., Kamarulzaman A., F. L. Altice F. L., (2012) Isoniazid preventive therapy in correctional facilities: a systematic review . *Int. J. Tuberc. Lung. Dis.* 16(7):871–879 <http://dx.doi.org/10.5588/ijtld.11.0447>, E-published ahead of print 7 March 2012

Chee C.B.E. (2005) Contact screening and latent TB infection treatment in Singapore correctional facilities *Int. J Tuberc Lung Dis* 9(11): 1248-1252

Mac Intyre R.C. (1997) (Impact of Tuberculosis Control Measures and Crowding on the Incidence of Tuberculous Infection in Maryland Prisons *Clinical Infectious Diseases*; 24:1060–7

Martin V. (2001) Incidence of tuberculosis and the importance of treatment if latent tuberculosis infection in a Spanish prison population *Int. J. Tuberc Lung Dis* 5(10):926-932

White C.M. (2005) Incidence of TB in Inmates with latent TB Infection 5-Year Follow-up *Am J Prev Med* 2005; 29(4)