

Supplementary webappendix

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Supplement to: Katharina Kranzer, Rein M G J Houben, Judith R Glynn, Linda-Gail Bekker, Robin Wood, Stephen D Lawn. Yield of HIV-associated tuberculosis during intensified case finding in resource-limited settings: a systematic review and meta-analysis. *Lancet Infect Dis* 2010; **10**: 93–102.

Search strategy

SET	Medline	Embase	Global Health
1	tuberculosis	tuberculosis	
2		TUBERCULOSIS	
3	Set 1 and 2 were combined with "or"		
4		screening	
5		MASS SCREENING	
6	screening	(active or enhanced or intensified) adj1 (case adj1 finding)	
7		CONTACT TRACING	
8		(household adj1 contact*) or (contact adj1 tracing)	
9	Set 4-8 were combined with "or "		
10		ISONIAZID	
11	Isoniazid	isoniazid	
12		(isoniazid adj1 preventive adj1 therapy) or ipt	
13	HIV/AIDS	AIDS-RELATED OPPOTUNISTIC INFECTION, PREVENTION	AIDS
14	Set 10-13 were combined with "or"		
15		PRISONS or PRISONERS	
16		inmate* or prison*	
17		MINING	
18		miner*	
19		REFUGEES	
20	subgroups at high risks of Hiv infection or in congregated settings	refugee* or (internally adj1 displaced)	
21	HOSPITALS, PSYCHIATRIC	psychiatric adj1 hospital	psychiatric adj1 hospital
22	SUBSTANCE ABUSE, INTRAVENOUS	INTRAVENOUS DRUG ABUSE	INJECTING DRUG ABUSE
23	(injecting adj1 drug adj1 user) or ivdu	(injecting adj1 drug adj1 user) or ivdu	(injecting adj1 drug adj1 user) or ivdu
24		PROSTITUTION	
25		prostitute* or csw or (commercial adj1 sex) or prostitution	
26		HOMOSEXUALITY, MALE	
27		msm or gay or homosexual*	
28		vct or (voluntary adj1 counselling adj1 testing)	
29	Set 15-28 were combined with "or"		
30	Set 29, 14 and 9 were combined with "or"		
31	Set 30 and 3 were combined with "and"		
32	set 31 was limited to years "1994-2009"		
33	set 32 and (search strategy "country") ¹ were combined with "and"		

Words written in capital letters were used as MeSH headings, the others were used as free text. Search terms which were the same for all databases are only mentioned once under the EMBASE heading

¹ search strategy "country" combined all middle and low income countries (MeSH heading and free text) with or

Congregate settings

Author	Year of Publication	Year of study	Country	N eligible	N screened	Symptom screen	Exam	TST	CXR	antibiotics	S	C	TB prevalence	Comments prevalence
<i>Prisons and correctional facilities</i>														
Aerts ²²	2000	1997-98	Georgia	7630	7473*	1			(2)		2(MMM)	3	5.99%	445 S+/C+; 3 S-/C+
Salek ²³	2001	1999	Iran	2212	2212	1	2		2		2		0.68%	10 S+; 5 clin
Askarian ²⁴	2001	1997	Iran	319	319			1 (10)	2		3	4	2.50%	4 S+/C+/CXR+; 4 S-/C-/CXR+
Yazdanpana ²⁵	1999		Iran	1634	1634		1		2		2		0.12%	1 S+; 1 clin
Rao ²⁶	2004	2002	Pakistan	4870	4870	1			2		2(SSS)		0.66%	1 S+/CXR+; 31 S-/CXR+
Shah ²⁷	2003	2002	Pakistan	386	386	1					2(SMS)		3.89%	9 S+; 6 clin
Noeske ²⁸	2006	2003-04	Cameroon	2830	2474*	1				3	2(MM)	4(MM)	2.43%	60 S+ or C+
Koffi ²⁹	1997	1990-02	Ivory Coast	1861	1861	1	1		3		2		7.20%	108 S+; 26 S-/CXR+
Wang ³⁰	2003	2002	Botswana	1173	1027*	1			(2)		2(XXX)	2(XX)	1.85%	8S+; 11 S-
Banerjee ³¹	2000	1997	Malawi	275	111*	1	1				2(XXX)		3.60%	4 S+
Nyangulu ³²	1997	1996	Malawi	1315	900*	1			4	3	2(SMS)		3.70%	18 S+; 15 S-/clin
Habeenzu ^{33 a}	2007	2000-01	Zambia	6118*	1069	(1)					2(MMM)	2(MMM)	4.00%	168 S+/C+; 77 S-/C+
Pillay ³⁴	2003		South Africa	7341	7341	1					2	(2)	1.82%	
Naranbat ³⁵	2001		Mongolia	4811	4021*				1		2		2.04%	
Jittimane ³⁶	2007	2004-05	Thailand	71594	71594	1					2(SSS)		0.35%	254 S+
Sretrirutchai ³⁷	2002	1998	Thailand	4751	4751	1			2		3	3	0.57%	27 S+/CXR+
Sanchez ³⁸	2007	2005	Brazil	1377	1372*				1		2(XX)	2(XX)	3.86%	36 S+/C+; 17 S-/C+
Abraham ³⁹	2006	2000-01	Brazil	1122	1052*	1 ^a		1 ^b (5)			2(X or XX)	2(X or XX)	2% ^c	8 S+/C+; 13 S-/C+
Fournet ⁴⁰	2006	2003	Brazil	789	581*	1			1		2(XX)	2(XX)	5.50%	17 S+; 12 S-/C+; 3 clin
Sanchez ⁴¹	2005	2002	Brazil	1171	1052*	1			1		2(XX)	2(XX)	4.09%	14 S+; 14 S-/C+; 15 clin
Ferreira ⁴²	1996	1992-93	Brazil	378	350*	1	1		2		1(XX)	1(XX)	5.71%	2 S+; 15 S-/C+; 3 clin
<i>Psychiatric hospitals</i>														
Van Duc ⁴³	2008	2005	Vietnam	300	300	1			1		2(XX)		0.33%	1 S+
<i>Mines</i>														
Steen ^{44 d}	1997	1994	Botswana	303	303		1		1		2		1.32%	4 S+
Fielding ⁴⁵	2008	2006-07	South Africa	13482	13482	1			1		2(X)	2(X)	1.16%	
Girdler-Brown ^{46 d}	2008	1999	South Africa	779	624*	1			1		2(XXX)	2(XXX)	4.97%	18 S+ or C+; 13 clin
Day ^{47 e}	2006	1999-01	South Africa	1310	899*	1	1		1		1(SS)	1(SS)	4.89%	35 C+; 4 C-/cli, 5 EPTB
Corbett ⁴⁸	2004	2000-01	South Africa	2248	1734*	1			1		1(XX)	1(XX)	2.70%	9 S+/C+; 36 S-/C+; 2 clin
Aungkasuvapala ⁴⁹	1995	1995	Thailand	676	676		1		1		1(XXX)		1.92%	8 S+/CXR+; 5 S-/CXR+

<i>Refugees and internally displaced</i>												
Weinstock ⁵⁰	2001	1999	Georgia	4000	931*	1	1 (10)	2	3(MMM)	3(MMM)	0.54%	2 C+; 1 C-/CXR+; 2 C?/CXR+
Nelson ⁵¹	2003	2002-03	Botswana	2777	1615*	1		3 ^f	2(XXX)		0.25%	

^asymptomatic prisoners were asked to present for screening, ^basymptomatic prisoners had 1 smear and culture symptomatic prisoners and prisoners with positive TST had 2 smears and cultures, ^c3 of the active TB cases were on TB treatment, ^dstudies in ex-miners, ^estudy of HIV+ miners attending an HIV clinic, ^fCXR were performed for those unable to produce sputum

VCT, PMTCT, high risk groups

Author	Year of Publication	Year of study	Country	N _(HIV+) eligible	N _(HIV+) screened	N _(HIV-) eligible	N _(HIV-) screened	Symptom screen	Exam	TS	CXR	antibiotics	S	C	TB prevalence	Comments prevalence
VCT																
Shetty ⁵²	2008	2003-04	India	4479	4479	5142	5142	1					2		HIV+ 0.81% HIV- 0.91%	51 S+; 20 S-; 12 EPTB
Shah ⁵³	2009	2005-06	Ethiopia	453	438*			1	1		1		1(SMS)	1(SMS)	7.31%	9 S+/C+; 18 S-/C+, 5 S+/C-
Mugisha ⁵⁴	2006	2001--03	Uganda	7453	6305*			1	1		4	3	2		4.65%	190 S+; 91 S-; 12 EPTB
Aisu ⁵⁵	1995	1991-92	Uganda	1524*	1424			1			2		2		5.60%	
Godfrey-Faussett ⁵⁶	1995		Zambia	181	90*			1	1		1		2	2	5.50%	
Naidoo ⁵⁷	2002	2000-01	South Africa	2261	1126*			1			2		2	2	9.77%	35 S+, 59 S+/C+, 39 clin PTB, 21 EPTB
Kanara, MMW ^{58, 59}	2008/2005	2001-03	Cambodia	1979	876*			1	1		(1)		1		23.63%	
Chheng ⁶⁰	2008	2005	Cambodia		124 ^a		372 ^a						1(SMS)	1(SMS)	HIV+ 16.13% HIV- 2.42%	19 S+; 10 C+
Espinal ⁶¹	1995	1991-93	Dom. Rep.	350	200*	364	200*	1	1	1 (5)	2		2(XX X)		HIV+ 14.50% HIV- 5.00%	29 S+; 4 S-/clin; 6 EPTB
Burgess ⁶²	2001	1997	Haiti	474	474	853	853	1	1		2		2(SM M)	2(SM M)	HIV+ 10.55% HIV- 3.05%	HIV+ 11 S+/C+; 14 S-/C+; 25 S-/C- HIV- 17 S+/C+; 9 S-/C-
PMTCT or postpartum care																
Gupta ^{63 b}	2007	2002-05	India	715	688*			1		1 (5)		2	2	2	3.49%	6 C+; 12 S+; 12 clin (16 pTB, 2 pTB/EPTB, 6 EPTB)
Kali ⁶⁴	2006	2003	South Africa	545	370*			1					2	2	2.12%	8 S-/C+
Nachega ⁶⁵	2003	2001	South Africa	438*	318			2		1 (5)		2	3(XX X)	3(XX X)	2.30%	6 C+; 5 S+; 2 clin (4 pTB, 9 EPTB)
High risk groups (MSM and IVDU)																
Khanani ¹⁰¹	2008		Iran	700 ^c	700 ^c			1					2(XX X)		6.00%	

^aThe total number of VCT clients eligible for screening=1220 (no break-down according to HIV status), ^bWomen were followed for a maximum of 12 months after giving birth 7 TB cases were found within the first 2 weeks of delivery, ^c300 IDUs and 200 MSMs (HIV positive and HIV negative) were screened

Hospital, clinic based, home based screening

Author	Year of Publication	Year of study	Country	Setting	N _(HIV+) eligible	N _(HIV+) screened	Symptom screen	Exam	TST	CXR	antibiotics	S	C	TB prevalence	Comments prevalence
Swaminathan ⁶⁶	2000	1989-93	India	STD clinic attendees	487	175*	1	1		1		2(XXXX)	2(XXXX)	9.71%	
Dhungana ^{67, 68}	2008	2004-05	Nepal	Out- and inpatients	100	100						1(SMS)	1(SMS)	7.00%	1 S+/C-; 4 S+/C+; 2 S-/C+
Khun ⁶⁹	2002	2001	Cambodia	Home-based	773	773	1	1		1		2	2	13.58%	29 S+; 29 S-/C+, 46 S-/C-/clin; 20 EPTB
Kimerling ⁷⁰	2002	2000	Cambodia	Home-based	787	441*						1(S)	1(S)	9.30%	29 S+/C+; 12 S-/C+
Ngowi ⁷¹	2008	2006-07	Tanzania	HIV/ARV clinic	233	233						1(S)	1(S)	8.58%	8 S+/C+; 12 S-/C+
Bakari/Mtei ^{9, 72 a}	2008/2005	2001-03	Tanzania	HIV clinic	1176	1176	1			1		1(XXX)	1(XXX)	11.56%	2S+/C-; 13 S+/C+; 23 S-/C+; 98 S-/C-/clin
Nakanjako ⁷³	2007	2005-06	Uganda	HIV clinic	2469	2469	1			2		2 (XXX)		7.78%	
Were/Moore ^{74, 75}	2007/2009	2003-05	Uganda	HIV/ARV clinic	1995	1995	1			4	3	2 (SMS)	4	3.56%	14 S+; 53 S-/clin; 4EPTB
Gasana ⁷⁶	2008	2006	Rwanda	HIV clinic	629	300*	1			2		2		3.67%	
Bassett ⁷⁷	2009	2007-08	South Africa	ARV clinic	824	824	1					1	1	19.30%	14 S+/C+, 145 S-/C+
Lawn ¹⁰	2009	2007-08	South Africa	ARV clinic	235	235	1					1(SS)	1 (SS)	24.68%	8 S+/C+, 50 S-/C+
Mohammed ⁷⁸	2004		South Africa	HIV clinic	140	129*	1			1		1(S)	1(S)	8.53%	6 S+/C+; 4S-/C+; 1 C-/clin
Reddy ⁷⁹	2008		Peru	HIV clinic	471	435*						1(XX)	1(XX)	6.21%	7 S+/C+, 20 S-/C+
Silva ⁸⁰	2004	2001-02	Brazil	Inpatients	547	547	1			1		2	2	1.83%	3 S+/C+; 7 S-/C+
Murcia ⁸¹	2001	1999-00	Colombia	HIV clinic	286	286						1	1	1.40%	2 pTB; 2 EPTB
Crespo ⁸²	1999		Colombia	social service	155	155				1		2	2	6.45%	1 pTB; 6 miliary TB 2 TB meningitis; 1 lymph node TB

^ainclusion criteria CD4 > 200

Contact tracing

Author	Year of Publication	Year of study	Country	N(index) eligible	N(index) included	N(contact) eligible	N(contact) screened	Symptom screen	Exam	TST	CXR	antibiotics	S	C	TB prevalence	Comments prevalence
Kuaban ⁸³	1996	1993-94	Cameroon	336	104	416	346*	1		1 (10)	1		2		14.45%	25 S+; 25 clin (25 cases in children <14)
Jackson-Sillah ⁸⁴	2007	2002-04	The Gambia	317	317	2381	2174*	1		1 (10)	2	4	3	3	1.52%	6 S+/C+; 18 S-/C+; 6 clin (16 cases in children <14)
Diatta ⁸⁵	2007	2003-04	Senegal	30	30	601	601	2	2	1 (8)	2		3		2.66%	16 S+ (2 cases in children <15)
Guwatudde ⁸⁶	2003	1995-99	Uganda	360	302	1206	1206	1	1		1		2(XXX)	2(XXX)	4.23%	13 S+/C+; 9 S-/C+; 9 S+/C-; 16 clin (34 cases in children <6)
Zachariah ⁸⁷	2003	2001-02	Malawi	87	87	461	461	1 ^a					2(SM)		1.74%	2 S+; 6 clin (4 cases in children <6)
Suggaravetsiri ⁸⁸	2003	2000-02	Thailand	499	459	1200	1192	1	1	1 (15)	2		2(MMM)	3	3.75%	
Becerra ⁸⁹	2005	1997-98	Peru	208	208	1094	1094	1					2(MM)	2(MM)	0.70%	
Bayona ⁹⁰	2003	1996-99	Peru	192	192	945	945	1					2		0.01%	
Carvalho ⁹¹	2003	1995-97	Brazil	191	86	371	360*	1		1(10/5) ^b	1		2	2	0.83%	
Teixeira ⁹²	2001	1994-98	Brazil	78 ^c	78	408*	364	1	1	1 (10)	2		2	2	4.17%	

^achildren were screened with CXR followed by antibiotics, ^bcut-offs for HIV- individuals 10mm, cut off HIV+ individuals 5mm, ^c26 of the index cases had MDR TB

Population based

Author	Year of Publication	Year of study	Country	N eligible	N screened	Symptom screen	Exam	TST	CXR	antibiotics	S	C	TB prevalence	Comments prevalence
Demissie ⁹³	2002	2001	Ethiopia	12149	12149	1					2(SMS)		0.17%	21 S+
Sekandi ⁹⁴	2009	2005	Uganda	1000	930	1					2(SMM)		3.50%	33 S+
Guwatudde ⁹⁵	2003	2001-02	Uganda	1142	1142	1			2		2(SMM)	2(SMM)	0.70%	
Corbett ⁹⁶	2007		Zimbabwe	10079	10079						1(SM)	1(SM)	0.65%	40 S+/C+, 26 S-/C+
Corbett ⁹⁷	2007	2001	Zimbabwe	4884	4668*	1			3		2(XXX)	2(XXX)	0.58%	6 S+/C+; 15 S-/C+; 6 clin
den Boon ^{98,99}	2006/2007	2002	South Africa	3971	2608*				1		1(S)	1(S)	1.11%	20 S+/C+; 7 S-/C+; 2 scanty smear
Wood ¹¹	2007	2005	South Africa	971	762*						1(MS)	1(MS)	1.57%	6 S+/C+; 6 S-/C+
Pronyk ¹⁰⁰	2001	1999	South Africa	38251*	38127	1					2(SM)	2(X)	0.02%	6 S+/C+

TST=Tuberculosis skin test, CXR= chest radiograph, S=sputum smear, C=sputum culture, clin=clinical, EPTP=extrapulmonary TB, pTB=pulmonary TB

Numbers indicate the order in which investigational screening tools were used in the screening process. For example the prison study by Aerts et al. performed symptom screening first indicated by a “1” in the symptom column. Individuals with symptoms had a CXR and sputum smears indicated by a “2” in these columns. All positive sputum smears were cultured indicated by a “3”.

Numbers in brackets in TST column indicate the cut-off for TST positivity. For example the study by Askarian et al. used a TST cut-off of 10mm.

A number in brackets in the CXR column indicates that CXRs were not performed on everybody (see prison study by Aerts et al.)

The number of letters in the smear and culture columns indicates the number of smears/cultures examined. “M” indicates early morning sputum, “S” indicates spot sputum and “X” indicates that the time when sputum was taken was unknown. In the prison study by Aerts et al. sputum smear examination were performed on 3 early morning sputum samples indicated by three “Ms”. Studies without alphabetical letters did not report the number or timing of sputum samples.

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