

Evidence Assessment: Summary of a Systematic Review

Who is this summary for?

For Doctors and Health Personnel, Administrators and Managers of health facilities, Community Health Workers and the partners involved in the prevention and the care of tuberculosis.

Interventions to increase tuberculosis case detection at primary healthcare or community-level services

Key findings

- Tuberculosis outreach screening (with and without health promotion) to encourage presumptive tuberculosis patients to attend healthcare services may increase tuberculosis case detection in settings where the prevalence of undiagnosed tuberculosis disease is high.
- Regular tuberculosis diagnostic outreach clinics may increase tuberculosis case detection.
- There is insufficient evidence to determine if sustained improvements in case detection impact on long-term tuberculosis prevalence, as the only controlled study to evaluate this found no effect after four years of contact tracing plus intensive health promotion intervention.

Background

Pulmonary tuberculosis is usually diagnosed when symptomatic individuals seek care at healthcare facilities, and healthcare workers have a minimal role in promoting health-seeking behaviour. However, some policy specialists believe the healthcare system could be more active in tuberculosis diagnosis to increase tuberculosis case detection.

Questions

What is the effectiveness of different strategies to increase tuberculosis case detection through improving access (geographical, financial, educational) to tuberculosis diagnosis at primary healthcare or community-level services?

Tuberculosis case detection in Cameroon:

Case detection and treatment of TB in Cameroon is managed by a network of basic management units (BMUs). According to the WHO, the TB case detection rate in Cameroon in 2014 was 52% (95% CI 46–59). While the number of cases diagnosed but not notified can be considered to be fairly low, there is undoubtedly a number of undiagnosed TB cases in Cameroon.¹

¹ Noeske J, Nana Yakam A, Abena Foe JL: **Epidemiology of tuberculosis in Cameroon as mirrored in notification data, 2006-2014**. *Int J Tuberc Lung Dis* 2016, **20**(11):1489-1494.

Table 1: SUMMARY OF THE SYSTEMATIC REVIEW

| | What the review authors searched for | What the review authors found |
|---|--|---|
| Studies | Randomized controlled trials (RCTs) for which the unit of randomization is the individual or cluster, and non-randomized studies with parallel control groups. | Nine cluster-randomized trials, one individual randomized trial, and seven non-randomized controlled studies. |
| Participants | People living in areas with moderate to high tuberculosis prevalence (tuberculosis notification rate of greater than 10 tuberculosis cases per 100,000 population per year). | People living in areas with moderate to high tuberculosis prevalence (tuberculosis notification rate of greater than 10 tuberculosis cases per 100,000 population per year). |
| Interventions | Any intervention that aims to improve access to a tuberculosis diagnosis by providing diagnostic services at primary health care or community level. This included educational or health promotion activities, and outreach services using formal and informal health staff through clinics, mobile clinics, and house-to-house screening. | <ul style="list-style-type: none"> • Tuberculosis outreach screening versus no intervention; • Health promotion activities versus no intervention; • Training interventions compared to no intervention; • Outreach tuberculosis screening versus health promotion; • Outreach tuberculosis screening versus house-to-house screening. |
| Controls | No intervention (standard care) or an alternative intervention for improving access to a tuberculosis diagnosis. | |
| Outcomes | <p>Primary outcomes</p> <ul style="list-style-type: none"> • Tuberculosis cases detected <p>Secondary outcomes</p> <ul style="list-style-type: none"> • Tuberculosis cases starting treatment • Time to diagnosis • False-positive results • Default within the first two months • Treatment completion • Tuberculosis cured • Tuberculosis mortality • Population tuberculosis mortality • Programme cost • Long-term tuberculosis | <p>Primary outcomes</p> <ul style="list-style-type: none"> • Tuberculosis cases detected <p>Secondary outcomes</p> <ul style="list-style-type: none"> • Default within first 2 months • Treatment success • Treatment failure • Tuberculosis mortality • Long-term tuberculosis prevalence |
| Date of the most recent search: 19 December 2016 | | |
| Limitations: This is a good quality systematic review, AMSTAR = 10 /11 | | |
| Citation: Mhimbara FA, Cuevas LE, Dacombe R, Mkopi A, Sinclair D. Interventions to increase tuberculosis case detection at primary healthcare or community-level services. Cochrane Database of Systematic Reviews 2017, Issue 11. Art. No.: CD011432. DOI: 10.1002/14651858.CD011432.pub2. | | |

Table 2: SUMMARY OF FINDINGS FOR THE MAIN COMPARISON

| Tuberculosis outreach screening (with or without health promotion) to encourage presumptive tuberculosis patients to attend health services | | | | | |
|---|--|---|-------------------------|---|--|
| Patient or population: all age groups | | | | | |
| Settings: countries with moderate or high tuberculosis prevalence (>10 tuberculosis cases per 100,000 population per year) | | | | | |
| Intervention: tuberculosis outreach screening with and without health promotion activities | | | | | |
| Comparison: no screening | | | | | |
| Trial design: cluster-RCTs only (non-randomized studies are commented on in the footnotes) | | | | | |
| Outcomes | Illustrative comparative risks*(95%CI) | | Relative effect (95%CI) | No. of participants (studies) | Quality of the evidence (GRADE) |
| | Assumed risk | Corresponding risk | | | |
| | No intervention | Tuberculosis outreach screening± health promotion | | | |
| Tuberculosis cases detected (microbiologically confirmed) | 90 per 100,000 | 112 per 100,000 (77 to 161) | RR1.24 (0.86 to 1.79) | 163,043 participants in 297 clusters (4studies) | Low Due to imprecision and inconsistency |
| Default within first 2 months | 16 per 100 | 12 per 100 (8 to15) | RR0.67 (0.47 to 0.96) | 849 patients (3 cluster-RCTs) | Low due to imprecision |
| Treatment success | 78 per 100 | 83 per 100 (78 to 90) | RR1.07 (1.00 to 1.15) | 849 patients (3cluster-RCTs) | Low Due to imprecision and indirectness |
| Treatment failure | 1.3 per 100. | 2.0 per 100 (0.3 to 6.4) | RR1.57 (0.50 to 4.92) | 849 patients (3 cluster-RCTs) | Very low due to imprecision and indirectness |
| Tuberculosis mortality | 3 per 100 | 3 per 100 (1.3 to 6.75) | RR 0.99 (0.43 to 2.25) | 849 patients (3 cluster-RCTs) | Low due to imprecision |
| Long-term tuberculosis prevalence | 773 per 100,000 | 881 per 100,000 (502 to 1546) | RR 1.14 (0.65 to 2.00) | 556,836 participants in 12 clusters (1 cluster-RCT) | Low due to imprecision and indirectness |
| The basis for the assumed risk is the median control group risk across studies. The corresponding risk (and its 95% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). Abbreviations: CI: confidence interval; RCT: randomized controlled trial; RR: risk ratio | | | | | |

Applicability

Nine studies were conducted in sub-Saharan Africa (Ethiopia, Nigeria, South Africa, Zambia, and Zimbabwe); six in Asia (Bangladesh, Cambodia, India, Nepal, and Pakistan); and two in South America (Brazil and Colombia); which are all high tuberculosis prevalence areas. These findings are likely to be applicable to Cameroon.

Conclusions

The available evidence demonstrates that when interventions are used in high-burden settings, active case-finding approaches may increase tuberculosis case detection in the short term in moderate- to high-tuberculosis prevalence settings. However, it is unclear from the available evidence if active case-finding interventions may improve treatment success and reduce tuberculosis treatment failure, mortality, and default.

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