EDITORIAL

School-based interventions to promote early diagnosis of TB: realising the promise of community-based screening?

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In this issue of *Public Health Action*, Kan and colleagues present results from a school-based intervention funded through FIDELIS (Fund for Innovative DOTS Expansion through Local Initiatives to Stop TB) and delivered in a rural province of China with mountainous areas.¹ The authors report on a highly structured training and implementation strategy, with school teachers trained to educate students on tuberculosis (TB). Students then screened family members for past TB treatment and current symptoms, followed by investigation with sputum smear microscopy if indicated. Quality checks (random repeat microscopy) and independent assessment of coverage (interview of diagnosed TB patients) are also reported.

The results are striking with respect to their massive scale (participation by 6.3 million students delivering an intervention with the potential to reach 40.8 million inhabitants), and also provide salient examples of the potential benefits of community-based early diagnosis of TB, as well as the current limitations. This simple approach increased the number of new smear-positive TB patients diagnosed in 24 counties selected on the basis of low case notification rates, geographical isolation and low socio-economic status. Smear-positive cases detected increased from 1432 pre-intervention to 5462 in the first year, an increase of 281%.

Thereafter, however, a scaled up implementation reported modest gains, and TB diagnoses increased also, to a similar extent, in non-intervention counties receiving only facility-based interventions ('DOTS expansion'). Also notable was that only one family member was investigated for every 92 children recruited (0.6–0.7% of individuals screened reported symptoms), whereas chronic cough is typically reported by 3–10% of prevalence survey participants.²

Can we agree, however, with the concluding recommendation that 'this mobilisation should be repeated every 3–5 years'? This would be difficult without a fuller impact evaluation and health economic analysis, as yield alone does not equate to benefit to individuals or communities, and the respective costs and benefits need to be compared with competing priority interventions.³ Evaluating the impact of TB screening is technically difficult as well as costly, and it is not surprising that Kan et al. cannot provide estimates of deaths, disabilities or new TB cases averted by their intervention.

A further cautionary note is provided by the negative results of one arm of the ZAMSTAR trial in Zambia

and South Africa, where a similar school-based approach was part of a combined community-level intervention that delivered services to 1 million residents without appreciably increasing smear-positive TB diagnoses or affecting underlying TB epidemiology.⁴

TB screening interventions are most obviously effective when delivered in the context of weak or non-existent routine health services, and when using methods with high sensitivity. In recent years China has made great gains in health systems strengthening for routine TB diagnosis, with major reductions in undiagnosed TB reported through serial prevalence surveys. Symptom screening and smear microscopy are both insensitive tools, although they may still provide effective interventions in some settings even with further dilution at the stage of identifying symptomatic individuals.⁵

Nonetheless, the sheer numbers support the conclusion that 'it was feasible to massively mobilise students'. Identifying affordable interventions that effectively deliver early diagnosis of TB will be a major focus of the next decade of TB control efforts.⁶ This makes the repeat intervention proposed by Kan et al. all the more intriguing—will there be ongoing evidence of effectiveness, or will we see the minimal gains shown by the end of the current study? To maximise accessibility for policy makers, all researchers should be encouraged (and funded) to report coverage, costs and treatment outcomes as well as yield.

References

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