

Costs for attending diagnostic services are significant. The most significant expenses incurred were for clinic fees and transport. Many factors were associated with high expenditure. The main contributors across all settings were attending the services with company and rural residency. Costs for first and second day attendance were comparable. The score to identify patients at risk of high expenditure achieved 54% and 69% sensitivity and specificity across all settings but its performance varied across settings, performing better in Ethiopia and Yemen than in Nepal and Nigeria. The performance of the tool indicate that the approach has potential to screen individuals who may incur high expenditure to attend the services, but that further work is needed to increase the sensitivity to make it suitable for screening. These finding particularly highlight that stationary services at a relatively long distance from the patients' residency are a major obstacle to access TB diagnosis and that bringing the service in proximity to the patient may be as (if not more) important as a shorter diagnostic pathway. Furthermore, most participants (particularly women) attended the services with companions – considerably increasing the cost of diagnosis and patients were often unprepared for the duration of the process. Women were perceived to face particular difficulties to access health services, which is in agreement with surveillance reports that more men are diagnosed to have TB. Patients' reasons for defaulting diagnosis included the cost of the process, receiving negative but incomplete smear results (especially in Yemen) or having a clear chest X-ray on the first day and then receiving misleading or misinterpreting information given by staff. In some settings patients had to pay additional unofficial fees and were often referred to private services. Patients found non-TB medication and additional tests in the private sector prohibitive. Many patients highlighted opportunity costs for diagnosis and treatment as an important obstacle. In Ethiopia, the lure of attending private sector services and poor staff attitude featured strongly and staff was often perceived as unhelpful.

Patients in resource poor contexts face multiple barriers to attending and completing TB diagnosis. These barriers disproportionally affect women and are mediated by sociocultural norms. Although structural and health systems reform is needed to address many of these barriers, some could be resolved at local level with education, approaches that are patient-centred and respectful, free provision or clear charging policies and more flexible opening hours that minimise opportunity costs.

A same day smear microscopy process could assist patients by reducing direct and opportunity costs if diagnostic services could complete the diagnostic process the same day of consultation. Additionally, or alternatively, diagnostic services could be brought closer to the community. Efforts to bring services closer to communities are currently being explored through additional grants provided by the World Health Organisation (TB REACH) in Ethiopia, Yemen and Nigeria.