A cross-sectional study of factors associated with tuberculosis diagnostic delay for smear microscopy in Namibia

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Background

Namibian TB policy states that results of sputum smears should be available to those with presumptive TB within 2 days. A review in one region revealed a turn-around time (TAT) of 5 to 8 days for patients to receive a result. A study was needed to determine the extent and causes of delays in TB diagnosis using sputum smear microscopy in advance of the scale-up of rapid diagnostics in public health institutions of Namibia.

Methods

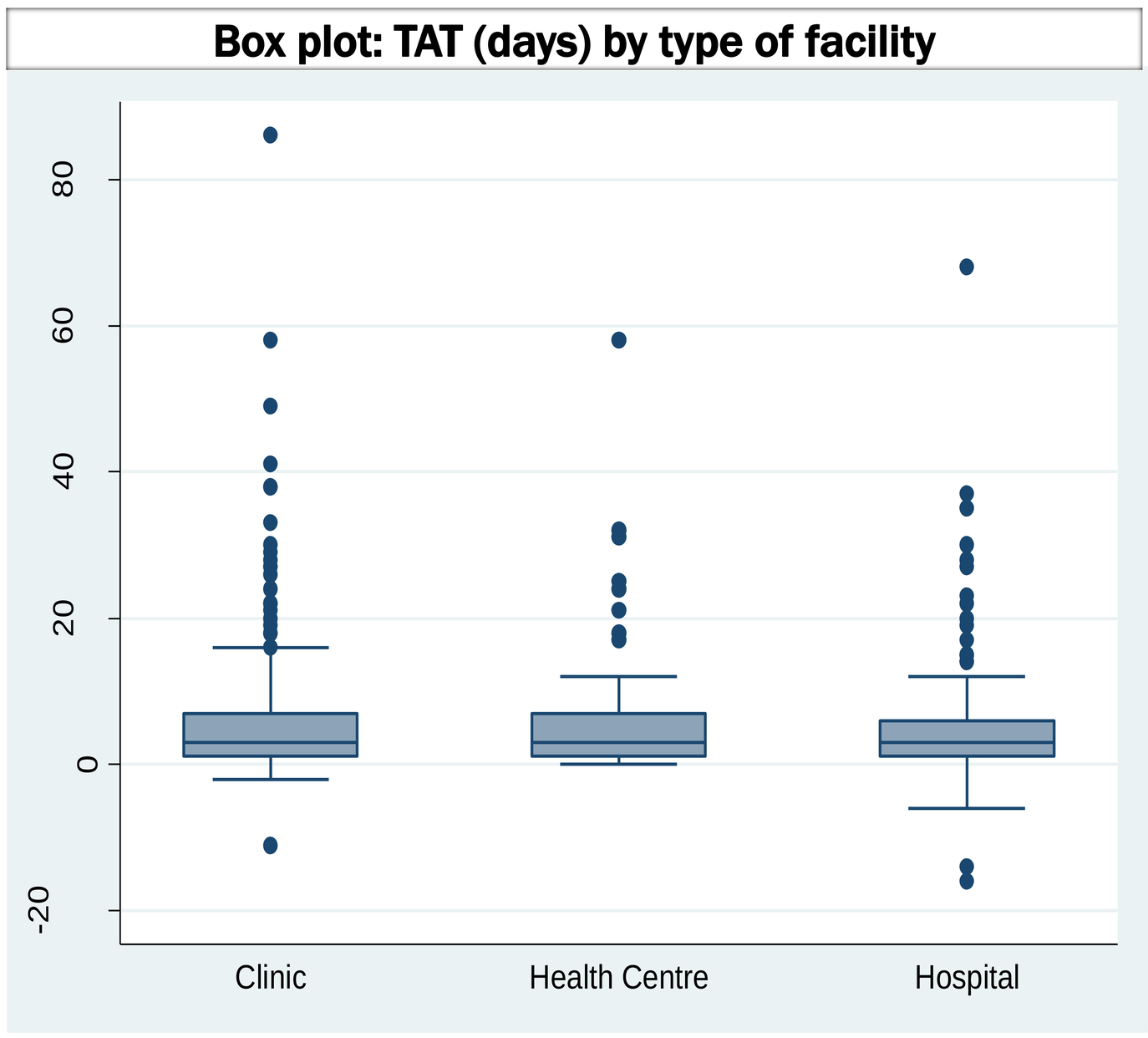
A cross-sectional study was conducted in a nationally representative sample of public health facilities using records from April to June 2012. TAT was defined as the time from sputum collection to decision to treat for TB. Stratified random sampling was used to recruit a sample size of 110 facilities (64 clinics, 15 health centres and 31 hospitals). A total of 153 point-of-service interviews were first conducted. TAT was calculated for 505 persons with presumed TB consecutively applying quota sampling within the randomly selected facilities. Data were double entered and analysis done using STATA version 12. Ideal TAT (defined as TAT of ≤2days) was compared with prolonged TAT (defined as TAT >2days) using Pearson Chi Square. Furthermore using Chi-square the associations of Ideal TAT with specific factors were determined. In addition multinomial logistic regression was used to determine factors that significantly prolonged TAT ($p<0.05$).

Results

Clinics, health centres and hospitals had median TAT of 3 days with interquartile ranges (IQR) of 1-7, 1-7 and 1-6 respectively. The median TAT for smear microscopy results was 5 days (IQR 2-23) among smear negative cases and 3 days; (IQR 1 to 7) in smear positive cases. The overall median TAT was 3 days (IQR 1-7 days) implying that in more than 50% of the cases evaluated, the TAT fell short of the NTLP benchmark of two days.

Non-availability of a vehicle for TB control (OR 1.6, CI 1.1-2.4) and not having lab SOPs (OR 0.2, CI 0.0-0.9) were associated with prolonged TAT for smear microscopy. Facility work-load of more than ten patients a day, distance from the lab, and not having been trained in past year did not have an effect on TAT.

Surprisingly, good practices such as training of health care workers and linking laboratory computers to health facilities were not associated with rapid TAT



Conclusions

In Namibia TAT for smear microscopy is fairly "acceptable" across all levels of care. Prolonged TAT is primarily due to inadequacies in the health system: there is need to address transport issues as well as strengthening the use of laboratory SOPs to improve TAT for smear microscopy in Namibia. These health systems related factors can be addressed by the ministry and the laboratory services. This study provides a national baseline to measure efficiencies gained via scale up of rapid diagnostics.

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