Fingerprinting of *Mycobacterium tuberculosis* (MtB) isolates from tuberculosis (TB) patients attended in Community Health Centers (CHCs) of Rio de Janeiro was performed to verify possible risk factors for TB transmission. We also sought to define the role of the, recently optimized, 24-loci MIRU-VNTR in this setting, where LAM family-spoligotypes account for approximately 50% of the isolates. A prospective community-based study was performed during a six-month period by collecting sputum samples of 489 patients in eleven CHCs in four planning areas (APs) of the city. Bacteriological, clinical and epidemiological information was collected and MtB genotypes defined after restriction fragment length polymorphism (IS*6110*-RFLP) and double-repetitive element (DRE-PCR) fingerprinting of RFLP-clustered cases. Risk factors for TB transmission were evaluated by using three levels of cluster stringency. An additional evaluation of the 24-loci MIRU-VNTR set and spoligotyping was performed with 120 isolates, randomly selected, from this collection. As epidemiological links could not be verified, cluster comparison was performed against RFLP-defined clusters. In this case, RFLP was used in the definition of hypothetical “true” clustering. Among 349 (71%) positive cultures, IS*6110*-RFLP typing could be performed on strains from 153 different patients. When using identity of RFLP patterns as cluster definition, 49 (32%) of the strains belonged to a cluster and none of the clinical or epidemiologic characteristics was associated with higher clustering levels. While similar clustering values were obtained for IS*6110*-RFLP and 24-loci MIRU-VNTR/spoligotyping (32 and 30.5%, respectively), divergent clusters were observed and need to be confirmed. In conclusion, higher clustering was observed in AP1 (48%), located downtown Rio de Janeiro, when compared to others. This result strongly suggests that more recent transmission occurs in AP1 and this may be related with higher incidence of TB and HIV in this region. The trends observed in this study encouraged the recent implementation of the DOTS program in this area.

Financial support: This work was supported by Oswaldo Cruz Foundation and CNPq; Brazil and INSERM and the Institut Pasteur de Lille, France. M.C.O held a sandwich-PhD fellowship from CAPES.