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Title: Transmission of drug-susceptible and drug-resistant mycobacterium tuberculosis among households contacts

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Body: The increase of multidrug-resistant Mycobacterium tuberculosis strains and the advent of the extensively drug-resistant tuberculosis (M/XDR-TB) are alarming the health-care providers about their active transmission in the communities. The aim of this study was to estimate the ability of drug-resistant (DR) M. tuberculosis -mainly M/XDR-TB- to be transmitted among households contacts, comparing this capability with that from drug-susceptible strains (DS). Methods. Patients' clinical and epidemiological data were collected as well as the drug-susceptibility and genetic patterns of the isolates. Relative fitness (RF) was also calculated for each one of the isolates. MDR was detected and/or confirmed by molecular methods. The BACTEC MGIT960™ system with the Epicenter™ software was used to perform fitness experiments. A combination of bacterial plus clinical and epidemiological data was used to estimate the probable transmission sense. A total of 38 households and 169 cases were identified: 96 (56.8%) men; HIV+: 25 (14.8%); 107 (63.3%) never treated cases. A total of 405 contacts (average: 3.1/case, range: 2-12) from M/XDR (162), DR (60) and DS (183) were investigated for TB. M/XDR was found in 78 (46.2%) patients from 23 households; 21 (27.0%) MDR considered as index cases generated 33 (42.3%) secondary cases (rate: 1.6) while 5 DR (no MDR) and 15 fully drug-susceptible index cases produced 15 (rate: 3.0) and 46 (rate: 3.1) secondary cases respectively. From 24 (30.7%) MDR no secondary cases were found. An average RF drop of 16.7% was found for MDR strains. MDR, DS and DR strains were transmitted to 20.4%, 25.1% and 25.0% of their respectively studied household contacts.