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Access to tuberculosis diagnosis in Itaboraí City, Rio de Janeiro, Brazil: the patient's point of view

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SUMMARY

SETTING—Itaboraí Municipality in Rio de Janeiro, Brazil.

OBJECTIVE—To evaluate access to tuberculosis (TB) diagnosis for users of the Family Health Program (FHP) and Reference Ambulatory Units (RAUs).

DESIGN—A cross-sectional study was conducted in Itaboraí City, Rio de Janeiro, Brazil. Between July and October 2007, a sample of 100 TB patients registered consecutively with the TB Control Program was interviewed using the primary care assessment tool. The two highest scores, describing ‘almost always’ and ‘always’, or ‘good’ and ‘very good’, were used as a cut-off point to define high quality access to diagnosis.

RESULTS—FHP patients were older and had less education than RAU interviewees. Sex and overcrowding did not differ in the two groups. Patient groups did not differ with regard to the number of times care was sought at a unit, transport problems, cost of attending units and availability of consultation within 24 h. Adequate access to diagnosis was identified by 62% of the FHP patients and 53% of the RAU patients ($P = 0.01$).

CONCLUSION—In Itaboraí, Rio de Janeiro, TB patients believe that the FHP units provide greater access to TB diagnosis than RAUs. These findings will be used by the Department of Health to improve access to diagnosis in Itaboraí.

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Keywords

primary health care; tuberculosis; access to health services; health sector reform; TB diagnostic delay

IN THE LAST TWO DECADES, developing countries have faced a progressive diminution in social budgets, and reliance on outdated and ineffective health systems,¹ resulting in a dramatic increase in neglected diseases, particularly tuberculosis (TB).

Access to appropriate TB services remains a problem for people with low socio-economic status living in developing countries. The community-based, patient-oriented DOTS strategy appears to be an appropriate way of addressing many of these issues.^{2,3} In regions where health sector reform and DOTS have been implemented, however, few reports have focused on access to diagnosis in primary health care services.⁴⁻⁶

Brazil ranks eighteenth among the 22 high-burden TB countries in terms of annual number of cases (92 000), and has an incidence rate of 48 cases per 100 000 population per year. The state of Rio de Janeiro has the highest TB incidence rate (100/100 000/year) and the lowest detection rate (67%).⁷ In 1986, health sector reform began in Brazil and included decentralization of TB services, with a slow transition from a vertical program to an integrated program.⁸ The Family Health Program (FHP) was launched in 1994 as the main strategy for basic health services in the country.⁹ Despite the regulatory measures to increase efficiency and reduce inequalities proposed by the Unified Health System (UHS) in 1998, delivery of health care services throughout the country remains extremely aleatory.¹⁰

The FHP is a strategy of (re)orientation of the health care model and a means of consolidating the UHS, presenting the notion that health care must focus on the family and community. At the same time, Brazil's traditional centralized Reference Ambulatory Units (RAUs), walk-in health care facilities for TB treatment, are still in operation.

The present study was conducted in Itaboraí City, Rio de Janeiro, Brazil, where the FHP was implemented in 2000 and DOTS in 2002, with coverage of respectively 70% and 100%. Assuming that an effective TB control program requires early diagnosis and treatment,^{2,11} access to health services is the main component of the program.¹² We evaluated access to TB diagnosis for users of the FHP and RAU.

METHOD

Itaboraí, located in the state of Rio de Janeiro, has a surface area of 428.6 km² and a population of 201 442 (source CITE 2004). The FHP, comprising 44 units, was implemented in 2002 and achieved 70% coverage. DOTS expansion occurred simultaneously, with a transfer of services to the health units. From 2000 to 2006, 1015 TB cases were notified, 75% of which were pulmonary TB.

In this cross-sectional study performed from July to October 2007, a sample of 100 TB patients consecutively registered with the TB Control Program of RJ City were interviewed. The sample sizes were the total population of patients under treatment in Itaboraí (in both RAUs and FHPs) that met the following inclusion criteria: age >18 years and being under treatment for at least 3 months. The primary care assessment tool (PCAT), developed by Starfield et al.¹³ and validated by Almeida and Macinko¹⁴ in Brazil, was adapted to evaluate TB services by two of the authors (TCSV and ARN). The tool presented closed questions using the Likert scale, with six options for answers ranging from 0 to 5. The value of zero was attributed to the categories 'do not know' or 'does not apply', 1 = always, 2 = almost

always, 3 = sometimes, 4 = almost never, and 5 = never. Seven indicators, one for each question (variable) in the questionnaire, correspond to the sum of the answer categories of the patients from each health unit divided by total patients, to obtain an average value.

Approval for the study was obtained from the Ethics Committee of the Anna Nery School of Nursing/São Francisco de Assis Hospital, Federal University of Rio de Janeiro. All patients provided written informed consent.

Statistical analysis

The third tertile of the Likert scale ('almost always' and 'always') determined high quality access to diagnosis. The analysis of variance (ANOVA) table was used to compare units with regard to access to diagnosis indicators, and the condition of homocedasticity was verified by the Bartlett test. Access to diagnosis, taking into account all variables, was evaluated using the χ^2 association test. Computer software statistics were used to analyze the data.

RESULTS

Patients accessing health services at the FHPs and RAUs did not differ by sex, educational level, age, number of rooms in the household, or the number of residents per room in the household (Table 1). Our findings show a predominance of males, incomplete elementary schooling, an average of 40 years of age, five rooms in the household and four or more residents per room in the household in Itaboraí.

The number of times TB patients sought health care at the health unit, difficulty in finding transport to the unit, money spent on travelling to the unit, the need for motorized transport to visit the unit, consultation available within 24 h, and the use of the closest unit from home, were similar for both FHP and RAU patients. Patients attending the RAU were more likely to miss a day of work due to a consultation ($P=0.006$; Table 2).

Access to diagnosis was found to be adequate for 62% of the FHP patients and for 53% of the RAU patients ($P=0.01$).

DISCUSSION

Health sector reform in Brazil based its Unified Health System on a dense body of administrative tools for organizing decentralized service networks and institutionalizing a complex decision-making arena. Despite the regulatory measures taken to increase efficiency and reduce inequalities, the delivery of health care services remains very uneven across the country,¹⁰ and people in lower income groups experience more difficulties in accessing health services. Utilization rates vary widely according to type of service among income groups, positions in the labor market and educational levels.

In the last few decades, major public health system issues identified in Rio de Janeiro State, Brazil, have been low DOTS coverage, poor detection and notification and a high default rate, resulting in the spread of TB. Health professionals do not follow guidelines, and greater political commitment is needed to ensure TB control both in the state and in the country.¹⁵

This study, carried out in Itaboraí City where DOTS has been implemented since 2002, showed that subjects who use the FHP consider access to TB diagnosis better than those using the RAU. This result reinforces the principles of the FHP, whose goal is to satisfy health needs with and within the community, as suggested by others.^{2,3,5,16,17}

In our study, there was no difference in health-seeking behavior between FHP and RAU patients regarding age, sex and educational level, as described in other studies,¹⁸⁻²¹ where women, the elderly and subjects with lower education levels are less likely to seek health care.

This study has the following limitations: we did not evaluate some variables associated with low access to health care, such as poor awareness of TB,^{19,22-25} low income,^{10,20,23,26} stigma,^{2,27,28} consultation with private practitioner, alcoholism and substance abuse,^{11,29} the sample size and the questionnaire.

One of the indicators for which a statistically significant difference was observed between the two groups studied was 'loses a day's work or misses an appointment due to a consultation'. We noticed here that the population that attended the RAU lost a day's work more frequently than those treated under the FHP. One explanation for this fact may be the proximity of homes to FHP units, whereby the patient spends a minimal amount of time travelling to the FHP unit. The RAU is centrally located, but is frequently far from the patients' homes, thus obliging them to miss an appointment or a day's work. The health service provides patients with a health certificate for the employer, but the patient nevertheless misses any previously scheduled appointments.

A possible solution to this problem would be to extend health center opening hours on weekdays and during weekends, as suggested elsewhere.³⁰ We know that this strategy demands more human resources and presents safety issues, both for the health professional and for the general population in the present scenario, where violence is an important factor that prevents patients and health workers from circulating.³¹ Another solution that has been discussed is the participation of the lay community³² as a partner in TB control and in improving access to TB health care. This strategy should be considered essential in the context of current public policies, where there seems to be an appraisal of the participation of the patient and civil society in decision-making on health.^{17,33}

Although Itaboraí City has high DOTS coverage and a low default rate, our findings indicate that an unsatisfactory 62% of FHP patients and 52.7% of RAU patients consider that access to TB treatment is adequate. Innovative strategies need to be implemented to improve the provision of health care services. We believe that a strategic framework, enabling the poor to inform policy makers and health professionals of their needs, and a strengthening of the interface between policy research and practice are required. The actions proposed should focus on intensive work with community health agents, aimed at identifying the needs of the population that impact on access to TB diagnosis indicators in Itaboraí, and including patients and/or their families, where indicated, in the decision-making process.^{11,19,33}

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References

1. Cassels A. Health sector reform: key issues in less-developed countries. *J Int Dev.* 1995; 7:329–347. [PubMed: 12290761]
2. Thomas C. A literature review of the problems of delayed presentation for treatment and non-completion of treatment for tuberculosis in less-developed countries and ways of addressing these

- problems using particular implementations of the DOTS strategy. *J Manag Med.* 2002; 16:371–400. [PubMed: 12463651]
3. Maher D. The role of the community in the control of tuberculosis. Elsevier Science. 2003; 83:177–182.
 4. Bosman MC. Health sector reform and tuberculosis control: the case of Zambia. *Int J Tuberc Lung Dis.* 2000; 4:606–614. [PubMed: 10907762]
 5. Hanson C, Kibuga D. Effective tuberculosis control and health sector reforms in Kenya: challenges of an increasing tuberculosis burden and opportunities through reform. *Int J Tuberc Lung Dis.* 2000; 4:627–632. [PubMed: 10907765]
 6. Hill PS, Tan Eang M. Resistance and renewal: health sector reform and Cambodia's national tuberculosis programme. *Bull World Health Organ.* 2007; 85:631–636. [PubMed: 17768522]
 7. World Health Organization. Global tuberculosis control: surveillance, planning, financing. WHO report 2009. WHO; Geneva, Switzerland: 2009.
 8. Kritski AL, Ruffino-Netto A. Health sector reform in Brazil: impact on tuberculosis control. *Int J Tuberc Lung Dis.* 2000; 4:622–626. [PubMed: 10907764]
 9. Elias PE, Ferreira CW, Alves MCG, Cohn A, Gomes A Jr, Bousquat A. Primary health care: a comparison of PSF and UBS units per stratum of socially excluded users in the city of São Paulo. *Ciência e Saúde Coletiva.* 2006; 11:633–641. Portuguese.
 10. Almeida C, Travassos C, Porto S, Labra ME. Health sector reform in Brazil: a case study of inequity. *Int J Health Serv.* 2000; 30:129–162. [PubMed: 10707303]
 11. Storla DG, Yimer S, Bjune GA. A systematic review of delay in the diagnosis and treatment of tuberculosis. *BMC Public Health.* 2008; 8:15. [PubMed: 18194573]
 12. Ramos DD, Lima MADS. Health care access and receptivity to users in a unit in Porto Alegre, Rio Grande do Sul, Brazil. *Cad Saúde Pública.* 2003; 19:27–34. Portuguese. [PubMed: 12700781]
 13. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. *Milbank Q.* 2005; 83:457–502. [PubMed: 16202000]
 14. Macinko, J.; Almeida, C. Validação de uma metodologia de avaliação rápida das características organizacionais e do desempenho dos serviços de atenção básica do Sistema Único de Saúde (SUS) em nível local. OPAS/OMS/MS; Brasília, Brazil: 2006. Portuguese
 15. Selig L, Belo MT, Teixeira EG, et al. The study of tuberculosis-attributed deaths as a tool for disease control planning in Rio de Janeiro, Brazil. *Int J Tuberc Lung Dis.* 2003; 7:855–859. [PubMed: 12971669]
 16. Segura AM, Rey JJ, Arbelaez MP. Trends of tuberculosis related mortality and hospital discharges before and after the implementation of the health sector reform, Colombia, 1985–1999. *Biomedica.* 2004; 24(Suppl 1):115–123. [PubMed: 15495579]
 17. Theobald S, Nhlema-Simwaka B. The research, policy and practice interface: reflections on using applied social research to promote equity in health in Malawi. *Soc Sci Med.* 2008; 67:760–770. [PubMed: 18403076]
 18. Thorson A, Johansson E. Equality or equity in health care access: a qualitative study of doctors' explanations to a longer doctor's delay among female TB patients in Vietnam. *Health Policy.* 2004; 68:37–46. [PubMed: 15033551]
 19. Wandwalo ER, Morkve O. Delay in tuberculosis case-finding and treatment in Mwanza, Tanzania. *Int J Tuberc Lung Dis.* 2000; 4:133–138. [PubMed: 10694091]
 20. Travassos C, Viacava F, Pinheiro R, Brito A. Utilization of health care services in Brazil: gender, family characteristics, and social status. *Rev Panam Salud Publica.* 2002; 11:365–373. [PubMed: 12162833]
 21. Xu B, Fochsen G, Xiu Y, Thorson A, Kemp JR, Jiang QW. Perceptions and experiences of health care seeking and access to TB care—a qualitative study in rural Jiangsu Province, China. *Health Policy.* 2004; 69:139–149. [PubMed: 15212861]
 22. Sherman LF, Fujiwara PI, Cook SV, Bazerman LB, Frieden TR. Patient and health care system delays in the diagnosis and treatment of tuberculosis. *Int J Tuberc Lung Dis.* 1999; 3:1088–1095. [PubMed: 10599012]
 23. Asch S, Leake B, Anderson R, Gelberg L. Why do symptomatic patients delay obtaining care for tuberculosis? *Am J Respir Crit Care Med.* 1998; 157:1244–1248. [PubMed: 9563746]

24. Kiwuwa MS, Charles K, Harriet MK. Patient and health service delay in pulmonary tuberculosis patients attending a referral hospital: a cross-sectional study. *BMC Public Health*. 2005; 5:122. [PubMed: 16307685]
25. Rajeswari R, Chandrasekaran V, Suhadev M, Sivasubramaniam S, Sudha G, Renu G. Factors associated with patient and health system delays in the diagnosis of tuberculosis in South India. *Int J Tuberc Lung Dis*. 2002; 6:789–795. [PubMed: 12234134]
26. Zhang T, Tang S, Jun G, Whitehead M. Persistent problems of access to appropriate, affordable TB services in rural China: experiences of different socio-economic groups. *BMC Public Health*. 2007; 7:19. [PubMed: 17288593]
27. Ahsan G, Ahmed J, Singhasivanon P, et al. Gender difference in treatment seeking behaviors of tuberculosis cases in rural communities of Bangladesh. *Southeast Asian J Trop Med Public Health*. 2004; 35:126–135. [PubMed: 15272755]
28. Dimitrova B, Balabanova D, Atun R, Drobniewski F, Levicheva V, Coker R. Health service providers' perceptions of barriers to tuberculosis care in Russia. *Health Policy Plan*. 2006; 21:265–274. [PubMed: 16728512]
29. Rojpibulstit M, Kanjanakiritamrong J, Chongsuvivatwong V. Patient and health system delays in the diagnosis of tuberculosis in Southern Thailand after health care reform. *Int J Tuberc Lung Dis*. 2006; 10:422–428. [PubMed: 16602407]
30. Joseph HA, Waldman K, Rawls C, Wilce M, Shrestha-Kuwahara R. TB perspectives among a sample of Mexicans in the United States: results from an ethnographic study. *J Immigr Minor Health*. 2008; 10:177–185. [PubMed: 17557205]
31. Souza FB, Villa TC, Cavalcante SC, Ruffino-Netto A, Lopes LB, Conde MB. Peculiarities of tuberculosis control in a scenario of urban violence in a disadvantaged community in Rio de Janeiro, Brazil. *J Bras Pneumol*. 2007; 33:318–322. [PubMed: 17906794]
32. Dudley L, Azevedo V, Grant R, Schoeman JH, Dikweni L, Maher D. Evaluation of community contribution to tuberculosis control in Cape Town, South Africa. *Int J Tuberc Lung Dis*. 2003; 7(Suppl 1):S48–S55. [PubMed: 12971654]
33. Arcêncio RA, Oliveira MF, Cardozo-Gonzales RI, Ruffino-Netto A, Pinto IC, Villa TC. City tuberculosis control coordinators' perspectives of patient adherence to DOT in São Paulo State, Brazil, 2005. *Int J Tuberc Lung Dis*. 2008; 12:527–531. [PubMed: 18419888]

Table 1

Patient characteristics

	FHP (n = 44) %	RAU (n = 56) %
Sex		
Male	65.9	64.3
Female	34.1	35.7
Education		
Elementary incomplete	70.5	60.7
Elementary completed or higher	29.5	39.3
Average age, years	42.1	37.7
Number of rooms in household		
1–2	9.1	5.4
3–4	34	35.7
>5	56.8	58.9
Number of residents per household		
1	6.8	3.6
2–3	34.1	35.7
4	59.1	60.7

FHP = Family Health Program; RAU = Reference Ambulatory Unit.

Table 2

Access to diagnosis indicators

Indicators	FHP			RAU			P value
	Median	SD	95%CI	Median	SD	95%CI	
Number of times health care sought at the unit	4.34	1.35	3.93-4.75	4.38	1.24	4.05-4.72	0.88
Transport problems	3.36	1.99	2.75-3.96	3.29	1.90	2.77-3.80	0.85
Loss of a day's work or appointment	3.88	1.70	3.36-4.40	2.87	1.85	2.37-3.37	0.01*
Need for motorized transport due to distance to unit	2.20	1.78	1.66-2.74	1.96	1.60	1.52-2.39	0.48
Money spent on transport to the unit	2.68	1.92	2.09-3.26	2.41	1.83	1.92-2.91	0.49
Consultation available within 24 h	4.36	1.43	3.92-4.79	3.98	1.75	3.50-4.45	0.25
Use of the nearest unit	3.90	1.69	3.39-4.42	3.58	1.91	3.06-4.09	0.38

FHP = Family Health Program; RAU = Reference Ambulatory Unit; SD = standard deviation; CI = confidence interval.

* $P < 0.05$.