The Tuberculosis Control Assistance Program (TB CAP) has played an important role in global TB control efforts in over 30 countries and has provided support directed toward reaching the global targets of 70% case detection and 85% treatment success. TB CAP’s primary focus has been on expanding DOTS coverage in high burden countries as well as in other USAID priority countries.

The Tuberculosis Control Assistance Program (TB CAP) has developed and implemented operations research training courses and supported operations research design, data collection and analysis on various selected problems. The main objective of the courses is to build capacity for performing operational research. Furthermore, the research that is performed within these courses provides information that can be used to improve national TB control programs.

Typically, a course starts with a two-week workshop in which research protocols are developed. Thereafter, during a period of six- to 12-months, the participants collect data for their research project. Upon finalization of data collection and data entry, another two-week workshop occurs during which the data is analyzed and a report is written. The participants are encouraged to actively disseminate the results of their research projects by writing scientific publication and by presenting the results at (inter)national conferences.

This issue of TB CAP FOCUS is on six selected research projects supported by TB CAP in South Africa and Indonesia.

TB CAP strongly believes in applying operations research to TB control in order to support achieving global targets. By definition, “Operations Research (OR) is the use of mathematical models, statistics and algorithms to aid in decision-making, with the goal of improving or optimizing performance.”
This paper consists of a study of 11 primary health care facilities in and around Cape Town to determine the proportion of bacteriologically confirmed tuberculosis (TB) cases that did not start treatment (initial default) and identifies the reasons for the lag in treatment. Databases from centralised laboratories were compared with electronic TB treatment registers. Fourteen per cent of TB suspects were TB cases. The 18 subjects who were interviewed indicated reasons for initial default that were (56%) or were not (44%) directly linked to services. This TB CAP study found a high initial default rate in Cape Town and surrounding towns.

TB CAP notes that the proportion of initial defaulters among diagnosed TB patients is high and that the most frequent causal factors are related to the quality of the health services provided. The study suggests that these deficiencies and preventable deaths could be avoided by improved health services through obtaining correct addresses and additional contact information, encouraging TB suspects to keep PHC facilities informed of their movements, clearly communicating smear and culture results and actively following up initial defaulters. The study also recommends that facilities that use off-site laboratories should also keep a TB sputum register to help detect and avoid these problems.
Insufficient quality of sputum submitted for tuberculosis diagnosis and associated factors, in Klaten district, Indonesia

This study’s objective was to assess the quality of sputum in a district in Central Java and determine patient and health worker factors associated with the submission of three good quality sputum samples.

Information was collected on the quality of sputum submitted by TB suspects from 16 health centers. TB suspects were interviewed to assess their knowledge of TB, motivation to provide sputum and whether they were informed why and how to produce a sputum sample. Health workers were interviewed to assess what information they provided to TB suspects about the reason for sputum examination, methods to produce sputum and the characteristics of a good quality sputum sample. All health worker and patient factors were evaluated for association with sputum quality. Of 387 TB suspects, 76.0% could be traced and interviewed and 70.3% had information about sputum quality. A considerable number of TB suspects did not provide three sputum samples and a large number of sputum samples were of insufficient quality. Paramedics reported to often/always provide information on the importance of sputum examination, and when to produce sputum. Information on how to produce sputum and characteristics of a good sputum samples was provided less often. None of the studied patient characteristics or health worker factors was associated with providing good quality sputum.

TB CAP was able to conclude that the priorities of the TB program should be to train health workers to provide health education to TB suspects about the reason for sputum examination and how to produce a good quality sputum sample.
This paper follows up on a study undertaken in 2001 that described the process of managing tuberculosis (TB) at Chris Hani Baragwanath hospital in Johannesburg, South Africa and the poor outcomes of referring patients to clinics in adjacent sub-districts. It describes the intervention process (education and referral of TB patients) and the subsequent results over a two-year period from 2003 to 2005.

In the first two years of operation, August 2003 to July 2005, 13,138 patients were registered. Extrapulmonary tuberculosis (EPTB) was diagnosed in 34%. Of the 46% tested for human immunodeficiency virus (HIV), 93% were positive. Successful referral to clinics was achieved for 94% of patients.

Tuberculosis at Chris Hani Baragwanath hospital: an intervention to improve patient referrals to district clinics

This TB CAP paper exposed that very large numbers of patients are diagnosed with TB at Chris Hani Baragwanath Hospital. TB CAP assisted in the creation of a TB care center, which has successfully addressed important referral, education and registration requirements for the comprehensive management of TB with links to clinics. TB CAP received financial support, which was used to create a pleasant environment for both patients and staff, and additionally financed TBCC nurses’ attendance at TB meetings. This has directly encouraged their performance as they have acquired knowledge and skills, and it has also had an impact indirectly, as they recognize that their role is appreciated and valued. It is suggested that this model be applied at other hospitals.
The objective of this study was to document patient journeys toward TB diagnosis and treatment and factors that influence health care seeking behavior.

TB patients in Jogjakarta municipality (urban) and Kulon Progo district (rural) were recruited from health care facilities. Data was collected through in-depth interviews with TB patients and members of their family and through Focus Group Discussions (FGD) with community members. In total, 67 TB patients and 22 family members were interviewed and six FGDs were performed. Care seeking behavior patterns did not seem to be influenced by gender, place of residence and educational level. Factors that influenced care seeking behavior include income and advice from household members or friends. Family members based their recommendation on previous experience and affordability. FGD results suggest that the majority of people in the urban area preferred to go to a hospital or chest clinic for diagnosis and treatment of TB whereas in the rural area private practitioners were preferred. Knowledge about TB treatment being free of charge was better in the urban area. Many community members from the rural area doubted whether TB treatment would be available free of charge.

The study concluded that most TB patients took over a month to reach a DOTS facility after symptoms appeared and had consulted a number of providers. Through this work, TB CAP was able to identify that income and advice from household members and friends were factors that most influenced their care seeking behaviour. As such, TB CAP has recommended modifications to the current system.

Voluntary counselling and testing uptake and HIV prevalence among tuberculosis patients in Jogjakarta, Indonesia

This study aimed to establish HIV prevalence and uptake of unlinked anonymous testing and voluntary counselling and testing (VCT) among tuberculosis (TB) patients in Jogjakarta, Indonesia. TB CAP introduced unlinked anonymous HIV testing for TB patients attending directly observed treatment, short-course services between April and December 2006. Patients were additionally offered VCT services. Of 1269 TB patients who were offered unlinked anonymous testing, 989 (77.9%; 95% CI 75.6-80.1%) accepted. HIV prevalence was 1.9% (95% CI 1.6-2.2%). HIV infections were less frequently diagnosed among TB patients who attended a public health center rather than public hospital. They were more frequent in TB patients with a university education background or a history of HIV testing. Of the 989 patients who accepted unlinked anonymous testing, only 133 expressed interest in VCT. Of these, 52 attended VCT, but interest was higher among students and those offered VCT by public health centers. TB CAP researchers concluded that the HIV prevalence in Jogjakarta is higher than expected and needs to be monitored cautiously. Unlinked anonymous HIV testing is well accepted and can be implemented with modest additional efforts.

Journeys to tuberculosis treatment: a qualitative study of patients, families and communities in Jogjakarta, Indonesia

The objective of this study was to document patient journeys toward TB diagnosis and treatment and factors that influence health care seeking behavior.

TB patients in Jogjakarta municipality (urban) and Kulon Progo district (rural) were recruited from health care facilities. Data was collected through in-depth interviews with TB patients and members of their family and through Focus Group Discussions (FGD) with community members. In total, 67 TB patients and 22 family members were interviewed and six FGDs were performed. Care seeking behavior patterns did not seem to be influenced by gender, place of residence and educational level. Factors that influenced care seeking behavior include income and advice from household members or friends. Family members based their recommendation on previous experience and affordability. FGD results suggest that the majority of people in the urban area preferred to go to a hospital or chest clinic for diagnosis and treatment of TB whereas in the rural area private practitioners were preferred. Knowledge about TB treatment being free of charge was better in the urban area. Many community members from the rural area doubted whether TB treatment would be available free of charge.

The study concluded that most TB patients took over a month to reach a DOTS facility after symptoms appeared and had consulted a number of providers. Through this work, TB CAP was able to identify that income and advice from household members and friends were factors that most influenced their care seeking behaviour. As such, TB CAP has recommended modifications to the current system.
Obstacles for optimal tuberculosis case detection in primary health centers (PHC) in Sidoarjo district, East Java, Indonesia

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Detection of the most infectious cases of tuberculosis – sputum smear-positive pulmonary cases – by passive case finding is an essential component of TB control. The district of Sidoarjo in East Java, Indonesia reported a low case detection rate (CDR) of 14% in 2003. This study evaluated the diagnostic process for TB in primary health care centers (PHC) in Sidoarjo district to assess whether problems in identification of TB suspects or in diagnosing TB patients could explain the low CDR. Interviews were performed with the staff (general nurse, TB worker, laboratory technician, and head of health centers) of the 25 PHCs of Sidoarjo district to obtain information about the knowledge of TB, health education practices and availability of support services for TB diagnosis. The quality of the laboratory diagnosis was examined by providing 10 slides with a known result to the laboratory technicians for re-examination.

The researchers recommended that the quality of the diagnostic process for tuberculosis at PHC in Sidoarjo district should be improved on all levels (i.e., identification of TB suspects, collection of sputum samples, and examination of sputum samples). Moreover, it is suggested that training in TB control of all general nurses and the laboratory technicians who have not received training would be a good first step to enhance diagnosis of TB and to improve the case detection rate. The study also recommends that the quality of the laboratory diagnosis should be more thoroughly assessed and, if necessary, improved.