

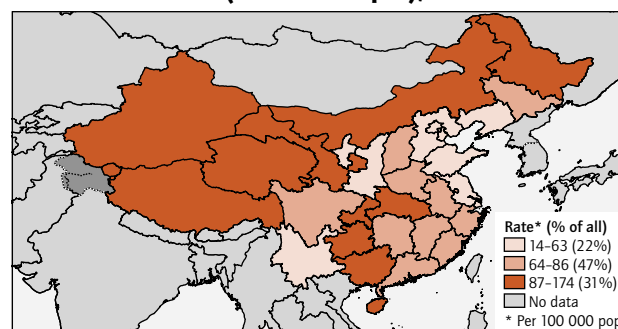
# China

China is maintaining high case detection and treatment success rates. Efforts to improve access to TB care are being accelerated in order to achieve faster reductions in prevalence and mortality. Capacity building to improve the quality of data and analysis will contribute to an improved understanding of TB epidemiology in the country and a better understanding of the situation of hard-to-reach populations such as migrants, ethnic minorities and the elderly. There is a need to plan for rapid scale-up of programmatic management of MDR-TB, including sustainable financing for human resources, quality-assured laboratories and second-line drugs. Collaboration and coordination between the public health sector and the general and specialized hospitals are a challenge given the financing arrangements for public health services in hospitals.

## SURVEILLANCE AND EPIDEMIOLOGY

|  |             |                |
|--|-------------|----------------|
| <b>Population</b> (thousands) <sup>a</sup>                   | 1 328 630   |                |
| <b>Estimates of epidemiological burden, 2007<sup>b</sup></b> | ALL         | IN HIV+ PEOPLE |
| <b>Incidence</b>   |             |                |
| All forms of TB (thousands of new cases per year)            | 1 306       | 25             |
| All forms of TB (new cases per 100 000 pop/year)             | 98          | 1.9            |
| Rate of change in incidence rate (%), 2006-2007              | <b>-1.0</b> | <b>-0.4</b>    |
| New ss+ cases (thousands of new cases per year)              | 585         | 8.6            |
| New ss+ cases (per 100 000 pop/year)                         | <b>44</b>   | 0.7            |
| HIV+ incident TB cases (% of all TB cases)                   | 1.9         | —              |
| <b>Prevalence</b>  |             |                |
| All forms of TB (thousands of cases)                         | 2 582       | 12             |
| All forms of TB (cases per 100 000 pop)                      | <b>194</b>  | 0.9            |
| 2015 target for prevalence (cases per 100 000 pop)           | <b>164</b>  | —              |
| <b>Mortality</b>   |             |                |
| All forms of TB (thousands of deaths per year)               | 201         | 6.8            |
| All forms of TB (deaths per 100 000 pop/year)                | <b>15</b>   | 0.5            |
| 2015 target for mortality (deaths per 100 000 pop/year)      | <b>12</b>   | —              |
| <b>Multidrug-resistant TB (MDR-TB)</b>                       |             |                |
| MDR-TB among all new TB cases (%)                            | 5.0         | —              |
| MDR-TB among previously treated TB cases (%)                 | 26          | —              |

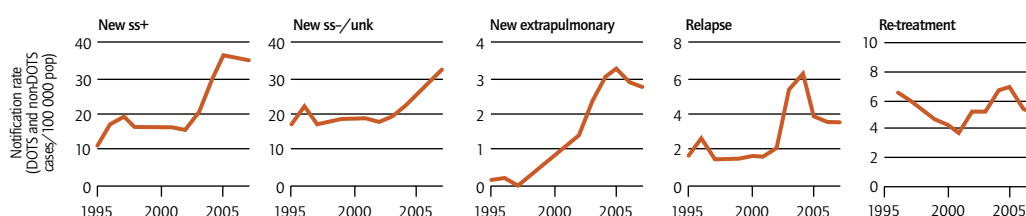
### TB notification rate (new and relapse), 2007



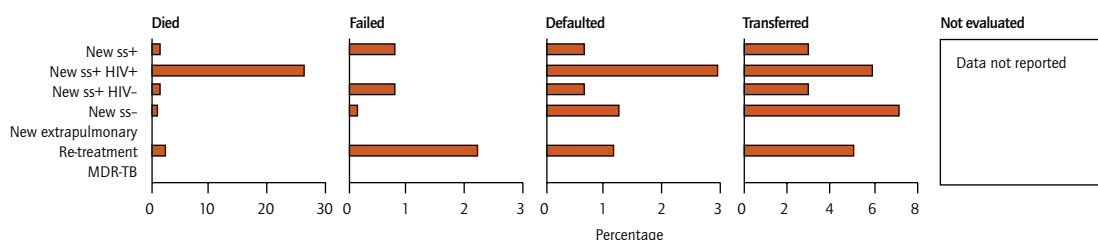
### Total notifications, 2007

|  |           |
|--|-----------|
| Notified new and relapse cases (thousands)                 | 980       |
| Notified new and relapse cases (per 100 000 pop/year)      | 74        |
| Notified new ss+ cases (thousands)                         | 466       |
| Notified new ss+ cases (per 100 000 pop/year)              | 35        |
| as % of new pulmonary cases                                | 52        |
| sex ratio (male/female)                                    | 2.4       |
| DOTS case detection rate (% of estimated new ss+)          | <b>80</b> |
| Notified new extrapulmonary cases (thousands)              | 37        |
| as % of notified new cases                                 | 3.9       |
| Notified new ss+ cases in children (<15 years) (thousands) | 2.1       |
| as % of notified new ss+ cases                             | 0.5       |

### Case notifications



### Unfavourable treatment outcomes, 2006 cohorts



|   | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|------|------|------|------|------|------|------|------|
| DOTS coverage (%)                                   | 68   | 68   | 78   | 91   | 96   | 100  | 100  | 100  |
| Notification rate (new & relapse cases/100 000 pop) | 36   | 37   | 36   | 47   | 61   | 68   | 71   | 74   |
| % notified new & relapse cases reported under DOTS  | 78   | 78   | 83   | 90   | 97   | 100  | 100  | 100  |
| Notification rate (new ss+ cases/100 000 pop)       | 16   | 16   | 15   | 21   | 29   | 36   | 35   | 35   |
| % notified new ss+ cases reported under DOTS        | 90   | 90   | 92   | 96   | 98   | 100  | 100  | 100  |
| Case detection rate (all new cases, %)              | 32   | 33   | 33   | 41   | 54   | 64   | 68   | 71   |
| Case detection rate (new ss+ cases, %)              | 34   | 34   | 33   | 45   | 65   | 80   | 80   | 80   |
| Treatment success (new ss+ patients, %)             | 93   | 95   | 92   | 93   | 94   | 94   | 94   | —    |
| Re-treatment success (ss+ patients, %)              | 89   | 92   | 88   | 89   | 89   | 90   | 89   | —    |

Note: notification, case detection and treatment success rates are for the whole country (i.e. DOTS and non-DOTS cases combined).

## DOTS EXPANSION AND ENHANCEMENT

## Overview of services for diagnosis of TB and treatment of patients

|   |   |
|---|---|
| Description of basic management unit                      | District TB dispensary                              |
| Number of units (DOTS/total), 2007                        | 2681/2681   |
| <b>Location of NTP services</b>                           |   |
| Rural   | Village health clinic                               |
| Urban   | Community health service station                    |
| NTP services part of general primary health-care network? | Yes   |
| <b>Location where TB diagnosed</b>                        |   |
| Rural   | County TB dispensary                                |
| Urban   | District TB dispensary                              |
| Diagnosis free of charge?                                 | Yes (all suspects)                                  |
| Treatment supervised?                                     | All patients in all units                           |
| Intensive phase   | Health-care worker, community member, family member |
| Continuation phase  | Health-care worker, community member, family member |
| Category I regimen  | 2HRZE3/4HR3   |
| Treatment free of charge                                  | All patients in all units                           |
| External review missions                                  | last: 2008<br>next: 2009                            |

## Political commitment

|  |                        |
|--|------------------------|
| National strategic plan?                         | Yes (2001–2010)        |
| Mechanism for national interagency coordination? | Yes (established 2002) |
| National Stop TB Partnership?                    | Yes (established 2002) |

## Financial indicators, 2009

|   |     |
|---|-----|
| (see final page for detailed presentation)                    | %   |
| Government contribution to NTP budget (incl loans)            | 77  |
| Government contribution to total cost TB control (incl loans) | 77  |
| Government health spending used for TB control                | 0.5 |
| NTP budget funded   | 96  |

## Per capita health financial indicators, 2009

|   |      |
|---|------|
|   | US\$ |
| NTP budget per capita                           | 0.2  |
| Total costs for TB control per capita           | 0.2  |
| Funding gap per capita                          | 0.01 |
| Government health expenditure per capita (2005) | 31   |
| Total health expenditure per capita (2005)      | 81   |

## Quality-assured bacteriology

|                                |     |
|--------------------------------|-----|
| National reference laboratory? | Yes |
|--------------------------------|-----|

## All TB laboratories performing EQA of smear microscopy or DST under the supervision of the National Reference Laboratory

|      | Smear  |             |       |             | Culture |               | DST    |                |     |             |
|------|--------|-------------|-------|-------------|---------|---------------|--------|----------------|-----|-------------|
|      | Number | per 100 000 | EQA   | % adeq perf | Number  | per 5 000 000 | Number | per 10 000 000 | EQA | % adeq perf |
| 2007 | 3 294  | 0.2         | 3 294 | 98%         | 327     | 1.2           | 187    | 1.4            | 13  | 100%        |
| 2008 | 3 294  | 0.2         | 3 294 | –           | 507     | 1.9           | 187    | 1.4            | 33  | –           |

Note: for routine diagnosis, there should be at least one laboratory providing smear microscopy per 100 000 population. To provide culture for diagnosis of paediatric, extra-pulmonary and ss-/HIV+ TB, as well as DST of re-treatment and failure cases, most countries will need one culture facility per 5 million population and one DST facility per 10 million population. EQA column shows number of laboratories for which EQA was done. Adeq perf; adequate performance for microscopy based on results of EQA.

## System for managing drug supplies and laboratory equipment

|   | Central level |      |      | Peripheral level |            |      |
|---|---------------|------|------|------------------|------------|------|
|   | 2005          | 2006 | 2007 | 2005             | 2006       | 2007 |
| Stock-outs of laboratory supplies?      | –             | Yes  | No   | –                | Some units | No   |
| Stock-outs of first-line anti-TB drugs? | No            | No   | No   | Yes              | No         | No   |

## Monitoring and evaluation system, and impact measurement

| NTP publishes annual report?              | Yes (since 2004) | Burden and impact assessment                   |                   | last      | next    |
|---|------------------|--|-------------------|-----------|---------|
| % of BMUs reporting to next level in 2007 |                  | In-depth analysis of routine surveillance data | Yes               | 2006      | 2008    |
| Case-finding                              | 100%             | Prevalence of disease survey                   | Yes, national     | 2000      | 2010    |
| Treatment outcomes                        | 100%             | Prevalence of infection survey                 | Yes, national     | 2000      | 2010    |
|   |                  | Drug resistance survey                         | Yes, sub-national | 1997–2005 | Ongoing |
|   |                  | Mortality survey                               | Yes               | 2000      | 2010    |
|   |                  | Analysis of vital registration data            | No                | –         | –       |

## MDR-TB, TB/HIV AND OTHER CHALLENGES

| Multidrug-resistant TB (MDR-TB)      | 2005                               | 2006   | 2007   |
|--------------------------------------|------------------------------------|--------|--------|
|                                      | Number (% of estimated ss+ MDR-TB) |        |        |
| Estimated incidence of ss+ MDR cases | 76 783                             | 76 471 | 76 154 |
| Diagnosed and notified               | – (–%)                             | – (–%) | – (–%) |
| Registered for treatment             | – (–%)                             | – (–%) | – (–%) |
| GLC                                  | 0                                  | 0      | 0      |
| non-GLC                              | –                                  | –      | –      |

**MDR-TB, TB/HIV AND OTHER CHALLENGES (continued)****Detection and treatment of HIV in TB patients, 2007**

|  |        |
|--|--------|
| TB patients for whom the HIV test result was known | 34 557 |
| as % of all notified TB patients                   | 3.3    |
| TB patients with positive HIV test                 | 1 187  |
| as % of all estimated HIV+ TB cases                | 4.8    |
| HIV+ TB patients started or continued on CPT       | 679    |
| as % of HIV+ TB patients notified                  | 57     |
| HIV+ TB patients started or continued on ART       | 519    |
| as % of HIV+ TB patients notified                  | 44     |

**Screening for TB in HIV-positive patients, 2007**

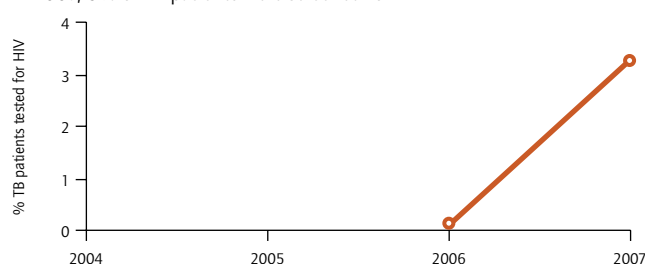
|  |        |
|--|--------|
| HIV+ patients in HIV care or ART register                    | 39 866 |
| Screened for TB  | 16 931 |
| as % of HIV+ patients in HIV care or ART register            | 42     |
| Started on TB treatment                                      | 899    |
| as % of HIV+ patients in HIV care or ART register            | 2.3    |
| Started on IPT   | 0      |
| as % of HIV+ patients without TB in HIV care or ART register | 0      |

**High-risk groups, 2007**

|  |         |
|--|---------|
| Number of close contacts of ss+ TB patients screened | 828 931 |
| Number of TB cases identified among contacts         | 43 577  |
| % of contacts with TB                                | 5       |
| Contacts started on IPT                              | –       |
| % of contacts without TB on IPT                      | –       |

**HIV testing for TB patients**

In 2007, 3% of TB patients were screened for HIV

**CPT and ART for HIV-positive TB patients**

In 2007 the proportion of HIV-positive TB patients receiving ART decreased while the proportion of those receiving CPT doubled

**CONTRIBUTING TO HEALTH SYSTEM STRENGTHENING**

A major challenge to strengthening health systems is the lack of coordination between disease-specific control programmes and the hospital sector, where the focus on public health is weak and where most revenue is generated through user charges. The NTP has started to bridge this gap by improving referral and notification linkages between general hospitals and TB dispensaries, building on the existing web-based electronic notification system for communicable diseases.

**Practical Approach to Lung Health (PAL), 2007**

|   |   |  |   |
|---|---|--|---|
| Number of health-care facilities providing PAL services | – | As % of total number of health-care facilities | – |
|---|---|--|---|

**ENGAGING ALL CARE PROVIDERS****Public-public and public-private approaches (PPM), 2007**

|                | Number collaborating with the NTP <sup>a</sup>   |           | % total notified TB |   |
|----------------|--|-----------|---------------------|---|
|                | Number collaborating (total number of providers) | Diagnosed | Treated             |   |
| Public sector  | 47 696 (47 696)                                  | –         | –                   | – |
| Private sector | – (–)  | –         | –                   | – |

**International Standards for Tuberculosis Care (ISTC)**

|  |    |
|--|----|
| ISTC endorsed by professional organizations? | No |
| ISTC included in medical curriculum?         | No |

**EMPOWERING PEOPLE WITH TB, AND COMMUNITIES****Advocacy, communication and social mobilization (ACSM)**

A national ACSM strategy that includes impact indicators has been developed. A major component of this strategy is a year-round national Stop TB campaign that is supported by an ambassador who is a well-known folk singer. The campaign coordinates a variety of activities including a TB knowledge contest organized through a prominent Chinese web portal; close collaboration with the mass media including TB-specific programming and public service announcements on television; campaigns to increase awareness about TB in schools and local communities; and public events on World TB Day featuring the vice minister and other senior officials of the Ministry of Health, the TB ambassador and NTP programme managers. Courses for training provincial health promotion staff about IEC materials, developing communication strategies, and monitoring and evaluation have also been held.

**Community participation in TB care and Patients' Charter**

Activities to raise community awareness are being implemented. Treatment support by community, township and village health workers is due to be introduced with funding from the Global Fund round 8 grant. No data on use of the Patients' Charter were reported.

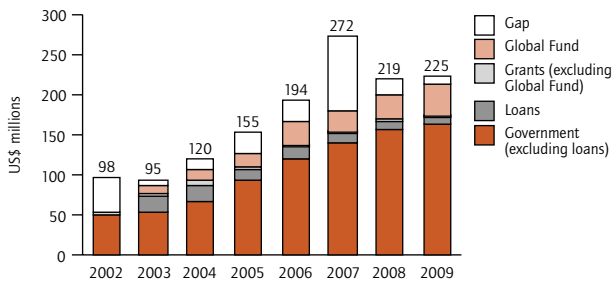
**ENABLING AND PROMOTING RESEARCH****Programme-based operational research, 2007**

|   |      |
|---|------|
| Operational research budget (% of NTP budget) | 0.4% |
|---|------|

FINANCING

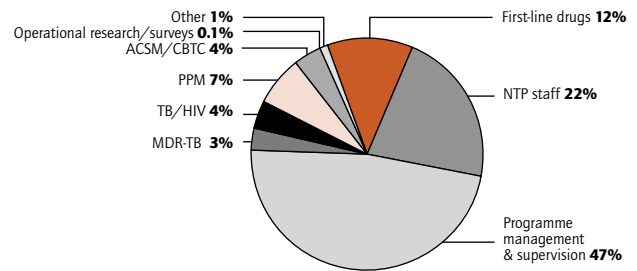
**a. NTP budget by source of funding**

NTP budget more than doubled since 2002 with minimal funding gap in 2009; now benefiting from Global Fund round 1 Rolling Continuation Channel



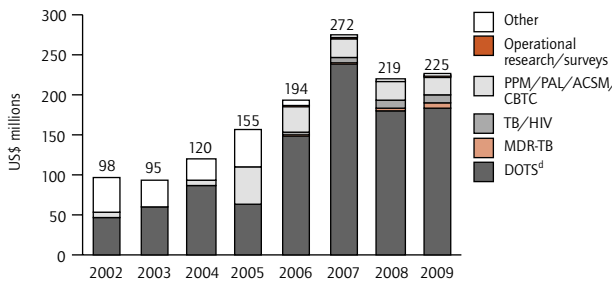
**b. NTP budget line items in 2009**

82% of budget is for DOTS; budget for MDR-TB relatively small



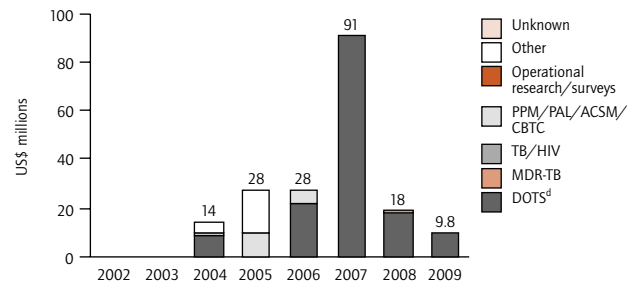
**c. NTP budget by line item**

Budget for MDR-TB diagnosis and treatment has more than tripled since 2007 but remains small; apart from DOTS, largest budget is for PPM



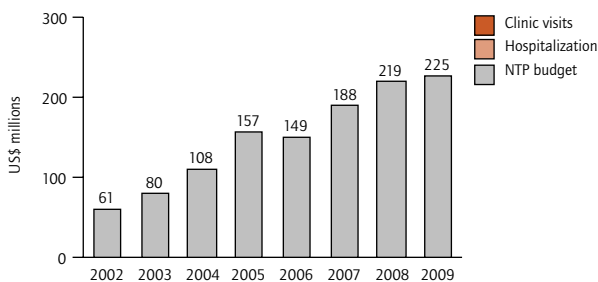
**d. NTP funding gap by line item**

Funding gaps within DOTS are for routine programme management and supervision



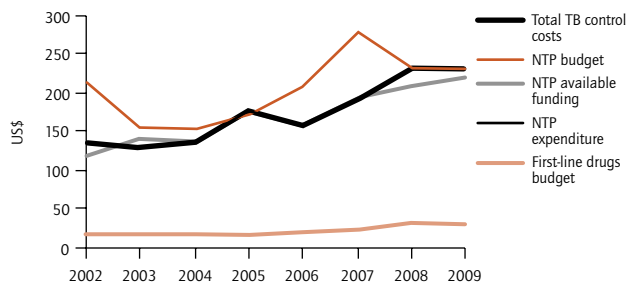
**e. Total TB control costs by line item<sup>1</sup>**

All costs for TB control are included in the NTP budget



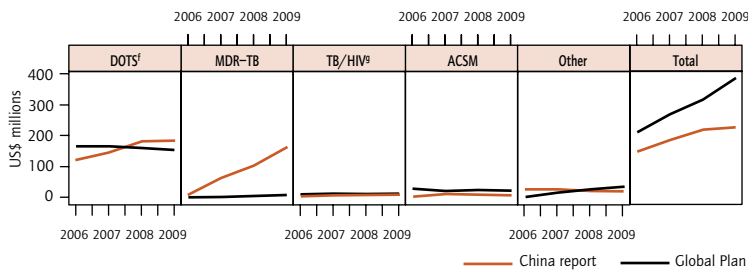
**f. Per patient costs, budgets and expenditures<sup>2,3</sup>**

Increased cost, budget and expenditure per patient since 2006 as more elements of the Stop TB Strategy are implemented; budgets, available funding and expenditures very similar



**g. Global Plan compared with country reports<sup>a</sup>**

Higher projections of patients to be treated mean country estimates of funding requirements for DOTS higher than Global Plan estimates; in contrast, plans and associated funding requirements for enrolment of patients on MDR-TB treatment are far below Global Plan targets



**h. NTP budget and funding gap by Stop TB Strategy component (US\$ millions)**

| Component                           | 2009 BUDGET | GAP |
|-------------------------------------|-------------|-----|
| DOTS expansion and enhancement      | 184         | 9.8 |
| TB/HIV, MDR-TB and other challenges | 16          | 0   |
| Health system strengthening         | 0           | 0   |
| Engage all care providers           | 16          | 0   |
| People with TB, and communities     | 7.9         | 0   |
| Research and surveys                | 0.3         | 0   |
| Other                               | 1.2         | 0   |

SOURCES, METHODS AND ABBREVIATIONS

<sup>a-g</sup> Please see footnotes page 169.

<sup>1</sup> Total TB control costs for 2002–2007 are based on expenditure, whereas those for 2008–2009 are based on budgets. Estimates of the costs of clinic visits and hospitalization are WHO estimates based on data provided by the NTP and from other sources. See Methods for further details.

<sup>2</sup> NTP available funding for 2004–2007 is based on the amount of funding actually received, using retrospective data; available funding for 2002–2003 and 2008–2009 is based on prospectively reported budget data, and estimated as the total budget minus any reported funding gap.

<sup>3</sup> Estimates of expenditure are based on received funding.

- indicates not available or not applicable; pop, population; ss+, sputum smear-positive; ss-, sputum smear-negative pulmonary; unk, pulmonary - sputum smear not done or result unknown.