計畫編號：DOH95-DC-1112

行政院衛生署疾病管制局九十五年度科技研究發展計畫

國家型結核病策略的國際比較分析與台灣結核病全國防治策略中英文文件開發

研 究 報 告

執行機構：台灣健康資訊交換第七層協定協會

計畫主持人：Dr. Michael J. Hsieh

協同主持人：楊世仰

研究人員：潘美連

執行期間： 95 年 3 月 15 日至 95 年 12 月 31 日

目錄

中文摘要

關鍵詞：傳染疾病; 結核病; 結核病防治策略; 疾病防治評估

結核病不只是台灣最嚴重的傳染病，也是世界上公認的危機之一。台灣在結核病防治的工作已有五十多年的歷史，雖然疫情比起許多先進國家尚有一段距離，但回顧過去里程碑，不難看出努力的成果。結核病已經不再列於台灣十大死因之內。

1994 年實施第一期結核病五年計畫，分別於 1999 年、2004 年繼續實施第二期及第三期五年計畫,在 2006 年擴大開辦結核病十年減半全民動員計畫」
、大力投資，希望早日使台灣成為一個沒有結核病的家園。

因為台灣不是世界衛生組織的會員，不但無法積極參與全球性的防疫工作，國際人士對台灣結核病防治策略，大都陌生或欠缺相關資料。為此，疾病管制局特別委託編撰本中英文文件，提供國內外人士參考。本文件內容以台灣目前的防治策略資料為主，國際防癆趨勢及台灣過去防癆措施的回顧為輔。文件的架構參考多種國際結核病出版物，包括其他國家結核病防治策略。希望讀者能因閱讀本文件，進而參閱更多其他疾病管制局的相關文獻，並積極參與全國結核病防治動員的行列。

本文件主要內容包括：

(A)、全球結核病流行與防治合作之現狀與趨勢

(B)、台灣結核病防治的歷史性回顧

(C)、台灣結核病流行之現況與未來的挑戰

(D)、「結核病十年減半全民動員計劃」

第六章的內容，以重點方式，從(1)公共衛生與行政，(2)結核病發現與診斷，(3)結核病治療，三方面，扼要的列出各項挑戰。 第七章也以類似的標題，描述目前相對的策略。

政府為執行結核病防治十年減半計劃，在前五年編列了共計新台幣 8,371,351 千元（不含人事費）。

附件欄內提供了某些策略的執行綱要，讀者如需要更詳細的資料，請直接與疾病管制局接洽。結核病防治的理論與科技不斷進步，疾病管制局隨時收集最新資料，適度調整因應措施。本文件的主旨之一，在於提供給讀者結核病防治策略的基本資訊。醫護人員如需執行方面的指引，敬請參考疾病管制局最新的文件。

Executive Summary

Keyword: communicable disease, tuberculosis, tuberculosis control strategy, disease control assessment

Tuberculosis is considered as not only a severe infectious disease in Taiwan, but also a major threat to public health worldwide. Taiwan has been fighting tuberculosis for more than 50 years. To a great extent, the prevalence of TB in Taiwan is still more server than most industrialized countries. While continued efforts are still required, what has been done to date proves to be fruitful as tuberculosis is no longer among the top ten leading causes of death in Taiwan.

In 1994, the first 5-year plan in TB control was initiated. This national program was followed by the second 5-year plan in 1999. With major investment and commitment, a national campaign "Tuberculosis Reduction by Half in 10 Years" was introduced recently aiming to make Taiwan a country without tuberculosis in the future.

Without a membership in the World Health Organization (WHO), Taiwan has not been able to participate in TB control and prevention internationally and to share information about the status and activities of tuberculosis control in Taiwan. This project, with a grant from Center for Disease Control, is to produce a document describing Taiwan's current TB control strategy, supplemented by an overview of international collaboration and a review of milestones of TB control in Taiwan. The objective is to provide an overall introduction to those who are interested in learning more about the subject matter. A document analysis study of national TB control strategies in other jurisdictions helps develop the framework for this document. We hope that readers of this document will gain a basic understanding of tuberculosis and, even better, take an active role in the national campaign.

This document includes the following key elements:

A. An overview of epidemiology worldwide and global partnership in tuberculosis control
B. TB control in Taiwan: a historical overview
C. Epidemiology and future challenges of TB in Taiwan
D. "Reduction by Half in 10 Years National Campaign"

Chapter 6 depicts major challenges in three areas, i.e. (1) public health and associated public administration, (2) detection and diagnosis, and (3) intervention of TB. Chapter 7 provides respective strategies corresponding to these challenges.

The Government of Taiwan has invested 8,371,351 thousand New Taiwanese dollars as the budget for the first 5 years of the national campaign. This amount excludes the costs of required human resources.

Details on specific strategies are in the appendices. Readers are encouraged to seek further information by contacting Taiwan Center for Disease Control directly. In order to take advantage of new technologies and knowledge in TB control, Taiwan CDC will continue to improve or adjust its programs and services. This document provides only basic information on tuberculosis control and should not be used by healthcare professionals, as part of the protocol and guidelines.

一、 前言

傳染病目前仍然是世界上最大死因，其中結核病是傳染病中死亡人數最多的。每年，有 5400 萬人感染結核菌(Mycobacterium tuberculosis)； 680 萬發展臨床的疾病，240 萬人死於結核病。結核病占全世界的死亡數的 5%。結核病的病例死亡率很高的，如果沒有接受適當的治療,大約 50%的病例死於該疾病。

雖然隨著生活水準的提高、衛生環境的改善，以及抗結核藥物的發明、短程化學治療的迅速發展，結核病的發生率有逐漸下降的趨勢。但是自從「後天免疫缺乏症候群」(Acquired Immunodeficiency Syndrome, AIDS)逐漸流行，AIDS 患者在結核病的發生率和死亡率都很高，使得原本逐漸受到控制的結核病又有所變化。

結核病一直是台灣最嚴重的傳染疾病，雖然國民每年平均所得如今已超過一萬三千美元，每年仍有將近約一萬五千名的新發個案，其嚴重性比所有其他傳染病的總和還大。94 年度結核病的確定病例為 16,472 人，比前一年(17,142 人)減少 3.9%，其中 10,649 人為開放性肺結核，占 64.65%。民國 94 年台灣結核病死亡率為每十萬人口 4.27，佔總死亡 0.70%，在死亡原因中排名第 13 位，同時死亡率隨著年齡的增加而增高，且有男性結核病死亡高於女性的現象。台灣初發病患多重抗藥性結核的比率已自 1990 年代的 0.2%增加到目前的 2.1%，不斷增加的多重抗藥性結核，將使結核病的治療越來越困難，也使結核病防治工作面臨重大的挑戰。

結核病不但危害民眾健康及生命，耗損社會生產力，更嚴重影響國家競爭力。台灣地狹人稠，人口密集且流動性大。病人的發現及管理較農業社會困難許多。近年來，結核病在全球有捲土重來之勢，台灣的結核病防治工作受到開放觀光、外勞引進、國際往來頻繁、多重抗藥性結核以及愛

滋病併發結核病例數急遽增加等因素影響，亦面臨了高度挑戰，亟應採取更積極主動的介入措施，突破防治工作的瓶頸，以保障民眾健康。

由於結核病的高死亡率，台灣疾病管制局優先進行預防、治療和減少結核病(肺結核)的工作。為了全面性的根除結核病，政府積極推動「加強結核病防治-十年減半全民動員計畫」實施期間自民國 95 年 1 月 1 日起至 104 年 12 月 10 日止，共計 10 年（分兩期，第一期自 95 年 1 月 1 日起至 99 年 12 月 31 日止、第二期自 100 年 1 月 1 日起至 104 年 12 月 31 日止。）充份反映出台灣政府的決心和對肺結核的特別的關注。

2006-2015 根除肺結核的全球計畫包含由世界衛生組織協調超過 400 個組織，其中包含世界銀行和加拿大和美國外國援助機構。計畫要求公共和私人組織在接下來的十年花費 560 億美元開支跟肺結核作戰，增加到目前的三倍。

結核病防治過去較注重治療，現在配合公共衛生角度出發進行結核病防治的工作，除了積極執行都治計畫治療已經罹病的病患，更積極發掘新個案，加強個案管理，達到早期發現、規則治療之外，加強預防工作更是重要的做法，所有民眾對於結核病防治的認知，也需要有所調整，防治結核病不只是政府單方面的工作。對於民眾的衛生教育，提供更多預防措施，對於目標族群如兒童、ＨＩＶ感染者、老人以及原住民增加健康教育，宣導預防的方法，養成良好的衛生習慣，也是很重要的策略。

台灣不是世界衛生組織的會員，不但無法積極參與全球性的防疫工作，國際人士對台灣結核病防治策略，大都陌生或欠缺相關資料。台灣在結核病防治的工作已有五十多年的歷史，雖然疫情比起許多先進國家尚有一段距離，但回顧過去里程碑，近幾年結核病已經不再列於台灣十大死因之內，不難看出努力的成果。

縱觀世界其他國家，諸如英國、印度、加拿大、歐盟等等，很多都具備一國家型結核病防治策略文件，內容包括短、中、長期策略。台灣政府在世界衛生工作中積極貢獻及參與各項活動，台灣疾病管制局在 2006 年 2 月 8 日宣佈參與根除肺結核的全球計畫，因此更需要有一份且詳細、完整具體的國家型結核病防治策略文件。參閱其他國家範例，深入研究發展一符合國際標準的全國結核病防治策略文件，將有助台灣加入國際結核病防治行列及宣揚台灣在這方面的成就與挑戰。

二、 材料與方法

策略發展 (STRATEGY DEVELOPMENT)是專案管理上重要的一環,所謂的策略文件 (STRATEGY DOCUMENT) 是一份深入描述這策略的重要文件。本計劃引用計劃主持人多年在加拿大政府機構及國際顧問工作上的經驗，以下列方法執行本計劃。

第一階段：專案背景研究與專案執行之策劃 (第一次到台北實地作業)

- 在撰寫企劃書之前，專家顧問群已進行背景研究分析及策劃。
- 辦理簽約及其他相關行政事宜。
- 專案正式開始執行，我們與疾病管制局第三組及相關人員做一全面性的規劃，並以此階段規劃的進行方式完成研究計劃的全部工作。
- 與疾病管制局進行實地訪談，蒐集現有資料，澄清任何可能的疑問，明確列述此研究計劃的目標，執行方法等重要項目。
- 開發一符合國際標準的策略性文件，需要成立一專案諮詢小組 (PROJECT ADVISORY GROUP) 以確保最終文件的內容充份表達疾病管制局及國家對結核病防治的策略。小組成員由疾病管制局提出建議名單，邀請局外專家擔任。
- 疾病管制局提供所有與本專案相關之資料及文獻，借此機會與相關業務主管更進一步地討論及說明已開發國家相關資訊的蒐集細節。

第二階段：文獻收集與分析

- 以嚴謹的文獻收尋方法(LITERATURE SEARCH)系統性的廣泛收集研究報告，各國政府與 NGO 之相關網頁。資料的搜尋以結核病策略

為主，其他相關衛生政策策略為輔。

- 目標國家的相關資訊收集與選擇條件

  廣泛的透過網站與其他文獻收集方式，收集所需的資料。目標國家初選，主要的考量的選擇條件為

  - 是否為結核病盛行的國家? 其發生率與台灣接近或高於台灣者；
  - 是否有一已經公開發表的英文版的國家型結核病防治策略？

    採用上述條件的原因為：

    1. 本計劃的預期成果之一是要為台灣疾病管制局開發一份中英文版的結核病防治策略文件，採用英文版的國際性文件為範本是適當的。
    2. 本研究計劃以中、英文為主要運作語言，無法解讀、分析其他語言的文件。
    3. 本計劃受經費的限制，無法聘請中、英文以外的語言專家。
  - 是否為全球性結核病防治活動的成員之一？

    採用上述條件的原因為

    1. 因為參與全球性結核病防治有與其他國家溝通、分享的需求，在文件的撰寫、版面的設計、出版的管道上，可能有較多值得台灣借鏡的部份。
    2. 可能已有吸取他國經驗的成果。
    3. 重點將在於該國家是否登錄在 GLOBAL STOP TB PARTNERS' DIRECTORY 內。
  - 是否具有中、長期的有效期限？ 亦即是否為策略性文件，而非短期的執行細節。

- 是否有明確的防治方針與預期的目標？

- 目標國家名單的確定
  - 初選名單與圈選過程

    經過比較分析的後，研究團隊將向疾病管制局第三組提出一份初選國家名單，附加相關比較分析的資料。本研究團隊與疾病管制局協調並且共同確認目標國家的名單。
  - 目標國家總數

    目標國家數建議最低應有三個目標國家供下階段的研究。
  - 疾病管制局建議目標國家應包括新加坡、日本、韓國。

    因此本團隊的初期重點將放在研究、推薦另外兩個目標國家。
- 研究分析其他國家型策略文件的特點及架構。
- 研究分析其他國家編製國家衛生策略文件的基本程序。
- 開發台灣本國策略文件的基本要點。

第三階段：策略文件基本架構及內容大綱(TOC)的開發

- 綜合所有初步研究成果，準備期中報告內容。
- 準備未來台灣本國策略文件的基本架構及內容大綱草案。
- 針對每一目標國家的結核病防治策略文件作深入的比較分析。以各國文件共通部份為基礎，附加各國文件中特別突出的部份，完成未來台灣文件的基本架構草案。
- 各國文件分析將著重在下列各點：
  - 文件主導、負責單位
  - 文件協辦單位
  - 國家策略發展方法

- 章節總數
- 總頁數
- 章節類別(亦即文件涵蓋的臨床課題範圍)
- 中、長期目標
- 有效年限
- 出版年度
- 文件發行語言
- 發行量
- 發行方法、管道
- 文件編修頻率
- 版面、美工設計

- 確認可能必須新開發的資訊部份。

第四階段：期中報告(第二次到台北實地作業)

- 正式向疾病管制局提出期中報告。
- 成立的專家咨詢小組。
- 確認文件基本架構及內容大綱草案經疾病管制局認同核准。
- 與疾病管制局以及其他專家開發所需的新資料。

第五階段：正式文件的開發 (草稿第一、二、三版)

- 整合前述四階段的成果，開始編撰正式文件。
- 以疾病管制局以台灣結核病十年減半計劃的文件為主，其他結核病防治文件為輔，開始依照上述發展的文件內容大綱，開始編撰策略草案第一版。
- 《台灣結核病全國防治策略文件內容大綱草案》第一版提交疾病管制局內部審核。

- 《台灣結核病全國防治策略文件內容大綱》經由疾病管制局確認、定稿。
- 按照上述文件內容大綱，詳細列出疾病管制局已有及尚待新開發的資訊。
- 與疾病管制局相關業務單位協調、決定新資訊開發的方法與時程。
- 本研究團隊根據疾病管制局對草案第一版的回應，修改完成《台灣結核病全國防治策略文件內容大綱草案第二版》。
- 準備第二版草稿，提交專案諮詢小組審核。
- 依照專家咨詢小組的回應，編撰完成《台灣結核病全國防治策略草案中英文第三版》，並送交疾病管制局確認、定稿。
- 準備第三版草稿，提交專案諮詢小組審核。
- 依照疾病管制局及專案諮詢小組審核意見修改定稿後，進行英文翻譯工作。
- 請疾病管制局協助協調衛生署長及疾病管制局長為文件寫序。

第六階段：版面設計及印刷發行

- 配合疾管局文件印刷發行程序，協調版面設計及其他相關事項。
- 協調疾病管制局相關單位，遵循局內文件出版、發行法規，協助辦理美工設計及發行工作。

註: 本階段僅為協助工作，所需經費並不包含在研究計劃範圍內.

第七階段：期末報告 (第三次到台北實地作業)

- 準備並提出研究計劃期末報告。
- 處理研究計劃相關行政細節。
- 與局內相關人員回顧檢討計劃執行的得失。

三、結果

(一)　專案背景研究與專案執行之策劃

計畫通過後，於 95 年 4 月 12 日與疾病管制局第三組相關人員討論計畫執行及合作的方式，討論內容以及結論詳如會議紀錄(附件一)，並以此規劃的進行方式完成研究計劃的全部工作。

(二)　相關文獻資料收集、整理及分析

以嚴謹的文獻收尋方法(LITERATURE SEARCH)系統性的廣泛收集研究報告，各國政府與 NGO 之相關網頁。資料的搜尋以結核病策略為主，其他相關衛生政策策略為輔。

全部收集分析的文件來自下列各國或組織：台灣、日本、新加坡、印度、中國、英國、埃及、南非、美國、加拿大、世界衛生組織等等。

內容方面的分析，重點在下列各種結核病相關文件：

(1)　國家型結核病防治策略

(2)　結核病防治執行方案

(3)　結核病防治執行手冊

(4)　結核病大眾宣導資料

(5)　結核病相關網站資料

(6)　電子郵件

文件格式的分析研究，除結核病相關的策略外，另外參考其他主題的大型策略文件：

(1)　蘇格蘭國家自殺防治策略與執行計劃

(2)　美國國家自殺預防策略

(3)　美國國家健康資訊策略

文件分析(Document Analysis)方面參考的資料包括：

(1)　美國國家檔案及記錄管理署出版的「文書分析工作清單」

(2)　美國布朗大學有關文件分析方法的資訊

針對每一目標國家的結核病防治策略文件做深入的比較分析，研究分析其他國家型策略文件的特點及架構，以各國文件共通部份為基礎，附加各國文件中特別突出的部份，完成未來台灣文件的基本架構草案。各國文件分析將著重在下列各點：

- 文件主導、負責單位
- 文件協辦單位
- 國家策略發展方法
- 章節總數
- 總頁數
- 章節類別(亦即文件涵蓋範圍)

- 中、長期目標
- 有效年限
- 出版年度
- 文件發行語言
- 發行量
- 發行方法、管道
- 文件編修頻率
- 版面、美工設計

陸續蒐集台灣的結核病相關之現有資料，資料收集主要以衛生署以及疾病管制局等官方網站公告之資訊為主，其他結核病相關網站如醫學會、醫院網站，或新聞報導等為輔，並且進行評估、分析、整理，擷取與國家結核病策略有關的文件。

研究計劃審查委員建議包括新加坡、韓國、日本三國之結核病防治策略。除詳細分析三國有關結核病防治的網站，並以電子郵件與相關部門聯繫。結論如下:

1. 新加坡: 該國的防治策略在 1997 年公佈實施後，尚無新版。
2. 日本: 只取得該國國際合作署的結核病防治援外策略的文件。
3. 韓國：經與該國參與 STOP TB PARTNERSHIP 之 NGO 以及該國之

疾病管制局聯繫，均無結果。政府網址亦無可用之資料。

4. 台灣疾病管制局也無法有關上述三國的資料。

（三） 訂定防治策略文件樣版及大綱

綜合所有文獻收集以及分析成果，準備台灣的國家型策略文件的基本架構及內容大綱草案，文件目錄包含六大項：

1. Executive Summary ［摘要］
2. Global Profile and Current International Efforts

   ［全球結核病流行與防治合作之現狀與趨勢］
3. TB in Taiwan: A Historical Perspective

   ［台灣結核病防治的歷史性回顧］
4. TB in Taiwan: Current Status and Future Challenges

   ［台灣結核病流行之現況與未來的挑戰］
5. National Campaign 2006- 2015: TB Reduction by Half in 10 Years

   『結核病十年減半全民動員計劃』
6. References ［參考文獻］

文件基本架構及內容大綱草案經疾病管制局第三組在五月中旬同意內

容後，開始進行文件內容的編輯。

（四） 撰寫並修訂防治策略初稿

整合前述各階段的成果，開始編撰正式文件內容。以疾病管制局台灣結核病十年減半計劃的文件為主，其他結核病防治文件為輔，並且參考自其他網站收集到相關資料，開始依照上述發展的文件內容大綱，開始編撰《台灣結核病防治策略》文件草案中文版第一版。

《台灣結核病防治策略》文件草案中文版第一版於六月初完成，並提交疾病管制局第三組進行內部審核。第一版內有少數章節因為沒有收集到現成可用的資料，由疾病管制局第三組同仁協助尋找相關資料或開發新的內容。後續依照疾病管制局對第一版的回應，編撰完成《台灣結核病防治策略》文件草案中文版第二版，並提交第二版給為本計劃成立的專家咨詢小組審核。

第二版文件於七月中旬提交給專家咨詢小組審核，並於七月底收到各委員回覆意見，並依此回覆意見修改文件內容及綱要，其中文件架構修改如下：

致謝

疾病管制局局長　序

衛生署署長　前言

1. 摘要

2. 全球結核病流行趨勢與防治合作之現狀

3. 台灣結核病防治的歷史回顧

4. 台灣結核病流行之現況

5 結核病防治未來的挑戰

6. 『結核病十年減半全民動員計劃』

7. 結語

8. 參考文獻

9. 附錄

並且依照各委員意見針對統計數字以及詞彙的使用進行統一校正，完成文件第三版草稿。

第三版文件於八月下旬提交給疾病管制局第三組及各審查委員審核，並於九月份陸續收到各委員及疾病管制局的回覆，依照回覆意見修改中文版文件，部分審查意見涉及政策內容修訂，非本計劃研究團隊所能決定者，提交疾病管制局第三組招開工作會議討論外審專家意見的處置方式，依照疾病管制局第三組意見進一步修改文件內容，同時於會中決議有關邀請局長、署長撰寫序與前言，待文件正式發行前再進行，計畫結案不需完成，因此序與前言的部份暫時先刪除。此外，英

文翻譯主要以讓國際人士閱讀並了解台灣結核病防治策略為目標，並非鉅細靡遺的逐字翻譯，在中文文件定稿後開始進行英文文件的翻譯工作。

至於收集、分析與參考的，與各國結核病防治策略的背景文獻，也在附錄(一) 內有所描述。最後完成定稿的中英文文件詳見本結案報告的附錄(二) 。

四、 討論

1. 大多數的國家都有不同程度的結核病防治方案，根據結核病在該國的嚴重程度與政府重視的程度，而有所不同。國家型的結核病防治策略不一定有一特別的文件表述。

2. 各國對所謂 (a) 策略 strategy、(b)執行計劃 action plan、(c) 方案 program、(d) 手冊 manual、(e) 標準 standards 等，似乎採取不同的看法與做法。一策略內可包含該策略的執行計劃、一大型執行計劃可能有完成該計劃的策略。我們採取的方式將結核病防治的大方向以簡潔、明顯的字眼描述、繼之將每一目標執行的細節、分段以附件 (appendix)方式詳細描述。

3. 各國的結核病防治文件的結構雖然不盡相同，但是防治內容的方向與要點有很多類似的地方，例如：

   (a) (病情盛行地區之)一般生活、經濟水準的提昇

   (b) 通報與監控

   (c) 人力與財力資源

   (d) 特殊族群

   (e) 醫療系統與設施

   (f) 跨組織（政府與非政府）與國際間的合作

(g) 大眾教育

(h) 醫、病、公共衛生間的密切合作

(i) 科學新知（MDR-TB、HIV/TB、LTBI）

(j) 其他

上述各項，將以疾病管制局之《結核病十年減半全國動員計劃》為主，其他國家對這些課題的考量為輔，充份納入本計劃編纂的全國防治策略文件。

4. 結核病防治策略必須有詳盡、符合實際、可行性高的監控與評估的指標(monitoring& evaluation indicators)的方法才能確定策略執行的狀況是否與預期的相同或相近。

5. 各國的結核病防治策略最主要的目的在於針對自己國內病情，在特定期間達到消除結核病的目標。但是結核病的防治，在世界衛生組織與國際非政府組織共同推動 Global Stop TB Partnership 下，也多少成為各國向世界展示其對結核病防治的重視，投資與成果的管道。在這情況下，一符合國際水準的中英文文件，將對於台灣的醫療衛生外交工作上有所助益。這份文件的用字、文章脈絡希望能盡力以國際讀者為取向。

五、 結論與建議

1. 本計畫主要目的是收集、整理疾病管制局現有的結核病防治策略，提供給國內外對於本國的結核病防治工作有興趣的讀者有關結核病防治策略的基本資訊，並非開發或設計新的結核病防治策略。
2. 結核病防治的理論與科技不斷進步，建議疾病管制局隨時收集最新資料，並且建立適當的政策發展或調整的制度，適時且適度調整或是發展新的結核病防治策略。
3. 在文件開發過程中，諮詢的專家提出：「有關『基礎管理單位』的建置，台灣將設置 300 個 BMU，以目前的資源分配及指定醫院的規劃，這個策略恐怕會有執行上的困難。如結核病防治較差的地區可能無足夠的醫療資源，成立符合標準的 BMU。建議依台灣各地區結核防治的現況做較合理的設計」，建議疾病管制局列入未來策略修改的參考意見。
4. 本文件中英文定稿、發行後，建議在結核病十年減半執行期間，逐年按實際運作情況，審查、編修本文件的內容。

六、 計畫重要研究成果及具體建議

1.計畫之新發現或新發明

各國的結核病防治文件的結構雖然不盡相同，但是防治內容的方向與要點有很多類似的地方。

2.計畫對民眾具教育宣導之成果

疾病管制局有一份且詳細、完整具體的國家型結核病防治策略文件，有助台灣加入國際結核病防治行列及宣揚台灣在這方面的成就與挑戰。

3.計畫對醫藥衛生政策之具體建議

本計畫產出之國家型結核病防治策略文件中英文定稿、發行後，建議在結核病十年減半執行期間，逐年按實際運作情況，審查、編修本文件的內容，以符合當時的需求。

「結核病十年減半計劃」是一需要國家長期投資的重大計劃，對每年執行的情況，若能詳細評估與回顧、彙集成一 Annual Status Report，不但能確保執行方向正確，並能對參與的各類公私機構與一般民眾有所交代。

七、 參考文獻

1. Written document analysis worksheet. Washington, DC. National Archives and Records Administration. http://www.archives.gov/education/lessons/worksheets/document.html Accessed April 30, 2006
2. 行政院衛生署疾病管制局「結核病十年減半全民動員計劃」核訂本，中華民國 95 年 7 月。
3. 行政院衛生署疾病管制局網站各項與結核病相關的資料
4. Guide to Tuberculosis in Taiwan
5. 結核病患納入 DOTS 作業事項
6. TB Half World TB Day 2005 Commitment and Action!
7. Government (TB) Strategies
8. Ma, K., New Plan to Stop TB. http://english.www.gov.tw/Taiwanheadlines Accessed April 28, 2006
9. Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programs. World Health Organization 2004
10. 中華人民共和國《全國結核病防治規劃 (2001-2010 年) 》。
11. 中華人民共和國 《結核病防治管理辦法》。1991 年 9 月 12 日衛生部發佈施行。
12. 中國《結核病防治規劃，實施工作指南》。衛生部疾病控制司。2002 年 3 月.
13. Revised National Tuberculosis Control Program. Ministry of Health and Family Welfare. Government of India.
14. Chauhan, L. S., Agarwal, S. P.: Revised National Tuberculosis Control Program. *Tuberculosis Control in India, Chapter 3.*
15. Sarin, R., Dey, L.B.S.: Indian National Tuberculosis Programme: Revised Strategy. *Ind. J. Tub., 1995,42,95*
16. *Policy and Strategies on Tuberculosis Control*. Japan International Cooperation Agency. February 2002.

17. *An HIV/TB Strategy for the Eastren Mediterranean Region 2006-2010*. Regional Office for the Eastern Mediterranean, World Health Organization. (WHO-EM/STD/088/E; WHO-EM/TUB/247/E)
18. *Actions for Life: Toward a World Free of Tuberculosis. Global Plan to Stop TB 2006-2015*. Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35)*The Stop TB Strategy: Building on and Enhancing DOTS to Meet the TB-related Millennium Development Goals.* Geneva, World Health Organization, (WHO/HTM/STB/2006.37).
19. *Stopping Tuberculosis in England: An Action Plan from the Chief Medical Officer*. Department of Health, UK, October 2004
20. *Tuberculosis Strategy for the North West Region of England.* Department of Health, U.K., March 2006.
21. A Strategic Plan for the Elimination of Tuberculosis in the United States. *Morbidity and Mortality Weekly Report.* April 24, 1989 / 38(S-3);1-25. Centers for Disease Control.
22. Tuberculosis Coalition for Technical Assistance. *International Standards for Tuberculosis Care (ISTC).* The Hague: Tuberculosis Coalition for Technical Assistance, 2006
23. National Tuberculosis Control Programme. http://www.emro.who.int/STB/egypt/AboutNTP.htm Accessed May 1, 2006
24. *Tuberculosis in First Nations Communities, 1999.* Government of Canada. http://www.hc-sc.gc.ca/msb/fnihp
25. Prevention and Control of Tuberculosis (TB) in Singapore. A document provided by Department of Health, Singapore.
26. DOTS-Plus and Greenlight Committee. http://www.who.int/tb/dots/dotsplus/management/en/print.html Accessed August 17, 2006
27. 台灣防癆工作回顧，索任，感染控制雜誌，第 13 卷，第 3 期。
28. 千禧年以後的結核病，曹世明，http://www.csh.org.tw/%E4%B8%AD%E5%B1%B1%E9%86%AB%E5%88%8A/30.2/%E5%8D%83%E7%A6%A7%E5%B9%B4%E4%BB%A5%E5%BE%8C%E7%9A%84%E7%B5%90%E6%A0%B8%E7%97%85.htm
29. 台灣防癆體系重建及運作之願景 (2002 年 2 月)

30. 臺灣地區法定傳染病病患人數統計，行政院衛生署疾病管制局，http://www.cdc.gov.tw/index_info_info.asp?data_id=2426，Accessed Auguest 7, 2006
31. 九十四年死因統計，行政院衛生署，http://www.doh.gov.tw/statistic/data/死因摘要/94 年/94.htm，Accessed Auguest 7, 2006
32. 傳染病疫情指標監視現況表，行政院衛生署疾病管制局，http://www.cdc.gov.tw/index_info.asp?p_data_id_3=844&act=init，Accessed Auguest 11, 2006
33. Fedotov I. *Outline for a National Programme for the Elimination of Silicosis.* International Labor Office (ILO), Geneva, Switzerland.
34. *National Strategy for Suicide Prevention: Goals and Objectives for Action.* U.S. Department of Health and Human Services. 2001.
35. *Health Information: A National Strategy.* Department of Health and Children. Government if Ireland. http://www.dohc.ie/publications/pdf/nhis.pdf Accessed May 21, 2006.
36. *Strategic Framework for Child Protection 2003-2006: Action Plan.* Queensland Government, Australia, August 2003.
37. *Joint Accommodation and Care Strategy for Older People in South Gloucestershire: Draft for Consultation.* South Gloucestershire Council.
38. *Choose Life: A National Strategy and Action Plan to Prevent Suicide in Scotland.* Ministry of Health and Community Care. Edinburgh, Scotland, 2002.

八、 附錄 (一)：國家型結核病防治策略比較

一、　前言

根據疾病管制局建議本研究計劃收集分析其他國家的結核病防治策略的部份包括日本、韓國與新加坡三個國家。文獻收集與分析階段，對各國現有的國家型策略的現狀，在本報告第三章：研究結果結果內有所描述。收集之文獻顯示各國並不一定具有所謂「國家型」的結核病防治策略，對相關名詞「策略」、「指引」、「執行手冊」等，也有不同的定義與用法。有些國家，例如美國與加拿大，目前並沒有一分類似我國「十年減半」的全國性策略。對各國防治策略的研究，主要的目的在與協助研究團隊對一國家型策略文件所應具有的要素有所了解。對各國防治策略做優缺點的比較與學術性的分析，並非本研究報告的目的。因此，研究的方向著重文件的結構。為增加本報告的完整性，謹按研究過程中所收集到的相關資料做適當的描述，以利疾病管制局同仁與未來相關課題研究學者參考之便。

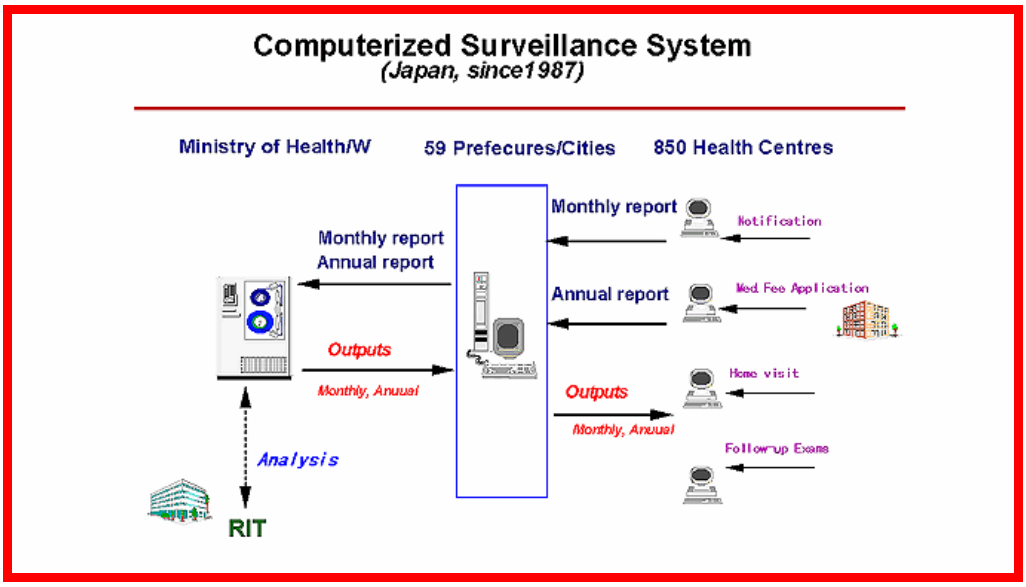
二、　各國結核病防治策略文件的概括性描述

本節的內容以研究小組收集到的資料為基礎。因為各國的資料格式及內容差別很大，表格式的分析比較相當困難。因此謹就各國文件分開描述，並標示其特點及資料來源，以便讀者參考。為了方便讀者，本章的參考文獻出處，尤其是網站站址，直接包括在內文中。

(A)　日本 (Japan)

日本主管結核病防治為厚生勞動省的健康局。一般民眾從網站上可以直接取得與結核病防治直接相關的(英文)官方文獻似乎很少。厚生勞動省網站 http://www1.mhlw.go.jp/english/wp_5/vol1/p2c6s2.html 上備有 1998-1999 年年報。本報告內有一章描述結核病防治的方案 Measures against Tuberculosis Entering a New Phase。

日本結核病學會 (The Japanese Society for Tuberculosis; http://www.kekkaku.gr.jp) 與結核病預防會 (Japan Anit-tuberculosis Association; http://www.jata.or.jp) 是日本兩大結核病防治的機構。結核病預防會並設立「結核研究所」(The Research Institute of Tuberculosis)，根據結核研究所的資料，目前日本全國的監控系統是在 1987 年啟用、延用至今。本系統的作業程序，可尋下列網址取得：http://www.jata.or.jp/rit/re/epro1_top.htm



醫學期刊上有數篇出版文章提及日本的 NTP，但是都是評估性或側面描述的著作。這類出版物包括下列幾項 (原作是日文 #1 - #4)：

1. Mori, T. Reform of Japan's NTP and its technical perspectives. *Kekkaku*. 2004 Oct;79(10):587-604. Research Institute of Tuberculosis, Japan Anti-Tuberculosis.

2. Aoki M. Tuberculosis control strategy in the 21st century in Japan--for elimination of tuberculosis in Japan. *Kekkaku*. 2001 Jul;76(7):549-57.

3. Mori, T. The new Tuberculosis Control Program of Japan. Kansenshogaku Zasshi. 2006 Jul;80(4):345-52. [日本傳染病學會期刊]

4. Ushio, M. Amendment of tuberculosis prevention law and prospect of tuberculosis control program. *Kekkaku*. 2005 Jul;80(7):541-6

5. Seita, A. Think PHC, Do TB -- Integration-based scale up of tuberculosis control in Japan. http://www.hsph.harvard.edu/takemi/RP217.htm

美國 CDC 出版的 Emerging Infectious Diseases; Vol 6, No 6, Nov-Dec 2000 上刊了一份有關日本結核病防治狀況的報告 Recent Trends in Tuberculosis, Japan。http://0-www.cdc.gov.mill1.sjlibrary.org/ncidod/eid/vol6no6/mori.htm 該報告的作者是 Toru Mori。雖然文中提及日本結核病近年來有增加的趨勢，厚生省也宣佈結核病的緊急狀況，但是該文章沒有描述政府的因應策略內容。

日本國際協力機構 (Japan International Cooperation Agency) 網址：http://www.jica.go.jp，JICA 在 2002 年發佈該機構援助其他國家防治結核病的政策與策略 (Policy and Strategies on Tuberculosis Control) 。這文件雖然不是針對日本國內結核病防治工作，但在某一程度上顯示日本國內對結核病防治的認知與思考方向。這文件可在下列網站上取得：http://www.jica.go.jp/english/resources/publications/study/topical/tuberculosis/pdf/tuberculosis.pdf 這文件的機構相當完整包括下列各主要章節：

1. Summary
2. Context of TB and global efforts for its control
3. TB control in Japan fo rthe past half-century
4. Policy and strategies of JICA for TB control
5. Future perspective of Japanese collaboration with developing countries and international organizations for TB control

Annex 1: JICA's cooperation related to TB in various developing countries
Annex 2: Tuberculosis control training courses

這文件內詳述日本如何支援開發中國家進行結核病防治，其方式與重點有值得國內借鏡之處。在防治策略上，JICA 提出下列重點。這些重點大多數已經涵蓋在本報告的附錄 (二) 文件內。

1. Institution-building
2. Human resource development through in-service training and referesher courses
3. Capacity building of health systems related to TB control
   - Adminstration and management
   - Diagnostic skills
   - DOTS
   - Regular drug supply
   - Operational research
   - Monitoring and evaluation (M & E)
   - Health information
4. Importance of support for IEC activities
5. Strenghening curative services
6. Pharmaceuticals
7. Tackling other social and health issues affecting TB control
8. Collaboration with other organizations, including UN organizations and international and domestic NGOs

(B) 新加坡 (Singapore)

研究小組與新加坡衛生部聯繫，請求提供有關該國的資料。其衛生部官員 Jerome LEE 先生[Jerome_LEE@moh.gov.sg] 指出該國的結核病防治策略是在 1997 年訂定的，也就是「新加坡結核病革除計劃」(STEP: Singapore Tuberculosis Elimination Programme) 。計劃當時擬定由下列方法消除結核病：

(a) 透過傳染病疫情監視及個案發現，診斷與治療所有結核病例。
(b) 確認所有和結核病人接觸的人；對可能已經有潛伏性感染的人給予適當治療。
(c) 防止多重抗藥性結核病的發生。
(d) 防止境外移入的結核病源
(e) 大眾教育與專業的指引。

新加坡自 1997 年來，因結核病已經從 1960 年每一萬人口 310 例降低到 2004 年的每一萬人 31 例，對 STEP 本身並沒有做進一步的修改。

卡介苗預防注射在 2001 年七月以日停止使用卡介苗，主要的依據是下列三點：
i) There was no scientific basis for the protective effect of BCG revaccination.
ii) WHO had recommended discontinuation of this practice in 1995.
iii) BCG re-vaccination confounded the interpretation of the TST, which is used for the identification of people with LTBI amongst close contacts of TB index cases.

關於新加坡的 STEP，有一學術性評估文章，刊載於 Bulletin of the World Health Organization 2003;81:217-221.

The Singapore Tuberculosis Elimination Programme: the first five years
Cynthia B.E. Chee[1] & Lyn James[2]

除國家衛生部以外，非政府機構新加坡抗結核病協會(Singapore Anti-Tuberculosis Association. http://www.sata.com.sg) 成立於 1947 年，60 年來是新加坡防癆工作的主要動力。近年來因結核病防治成效顯著，其服務重點已經轉移至一般性的呼吸系統相關的保健與社區醫療。

(C) 韓國 (South Korea)

本計劃研究人員無法取得韓國政府有關結核病的正式文件。只能搜尋 secondary information，主要的資訊來自韓國的新聞報導。韓國時報 (The Korea Times) http://search.hankooki.com/times/times_view.php?term=tuberculosis++&path=hankooki3/times/lpage/nation/200609/kt2006092619483411980.htm&media=kt 報導韓國的疾病管制與預防局 (KCDC: the Korea Centers for Disease Control and Prevention) 計劃在 2030 年全面革除結核病。

2004 年韓國的結核病發生率是 OECD 國家內最高的，雖然過去幾年結核病在韓國已有逐漸降低的趨勢。根據韓國報紙 The Korea Times 2006 年 3 月 23 日 (http://search.hankooki.com/times/times_view.php?term=tuberculosis++&path=hankooki3/times/lpage/nation/200603/kt2006032318063111960.htm&media=kt)的報導，2003 年韓國全國有 155,000 結核病患。該新聞報導引用 KCDC 的統計數字顯示，2004 新發現的個案總數是 31,503 人，其中 38.7%是 20 多歲和 30 多歲的年輕人。2003-2004 年成長率是 11.6%；2004 年有 2,948 人死於結核病。

INT J TUBERC LUNG DIS 7(10):912–919

REVIEW ARTICLE

The treatment of tuberculosis in South Korea

K. J. Seung,*† G. H. Bai,‡ S. J. Kim,§ W. J. Lew,‡ S. K. Park,¶ J. Y. Kim*†

* Partners In Health, Boston, † Brigham and Women's Hospital, Division of Social Medicine and Health Inequalities, Boston, Massachusetts, USA; ‡ Korean Institute of Tuberculosis, Korean National Tuberculosis Association, Seoul, Republic of Korea; § Tuberculosis Strategy & Operations, Stop TB, World Health Organization, Geneva, Switzerland; ¶ Chest Surgery Department, National Masan Tuberculosis Hospital, Masan, Republic of Korea

韓國的國家結核病防治方針文獻載很少，上述這篇 2003 年世界抗癆聯盟期刊出版的論文有部份的描述。這文件全文可從 http://www.ingentaconnect.com/content/iuatld/ijtld/2003/00000007/00000010/art00002 網頁上下載。自 2000 年開始，韓國啟用一新結核病監控系統 the Korean Tuberculosis Surveillance System (KTBS) 。全國各地有所謂「國家結核病防治中心」(National Tuberculosis Program Health Centers) ，總數在 2000 左右。新發現的個案由這些中心通報與治療。另外有兩家國立結核病專科醫院，但是這兩家醫院獨立作業並不是「國家結核病方案」的一部份。全國的結核病防治策略由韓國衛生福利部內的傳染病管制單位主導，但是結核病防治技術上(臨床與檢驗)的支援來自一半官方稱作 KIT 的機構。

研究小組人員嘗試和韓國衛生福利部官員 Ms. Mi-Kyoung Kang, Director,

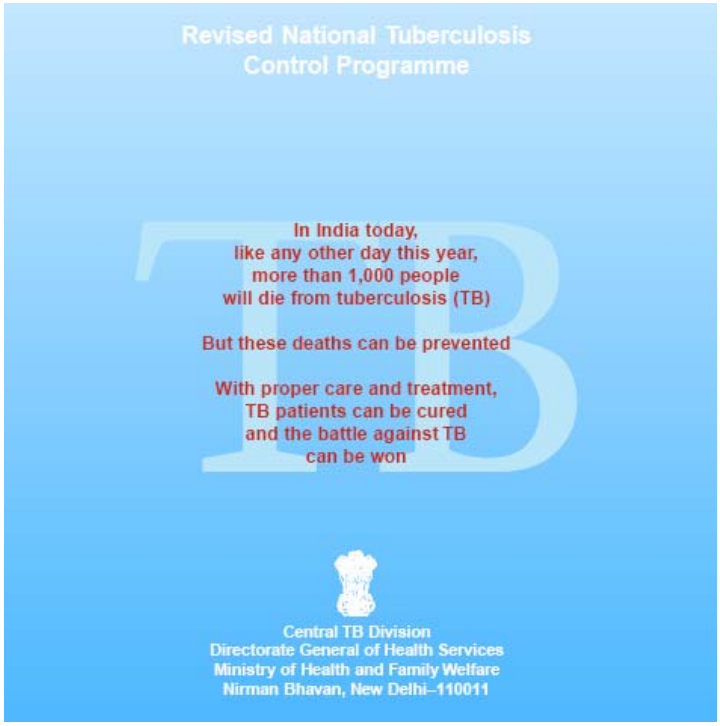
Department of International Cooperation. (E-Mail: mikkang56@hanmail.net & mkkang@knta.or.kr) 聯繫。但是沒有接到任何回應。

(D) 印度 (India)

印度的結核病患佔全球總數的三分之一，大約是東南亞地區的三分之二。印度人口有百分之四十受結核病菌感染，每年的新個案為 180 萬人，其中 80 萬是高傳染性的痰陽肺結核。每天有 1000 人，也就是相當每分鐘兩人，因結核病致死。

印度在 1962 年公佈實施第一版的國家結核病方案 (National TB Programme) 。經過評估後發現，這方案缺乏資金、管理不完善、診斷過度依賴 X 光片、治療沒有標準化、完治率低。平均的完治率在 30%左右。

在 1992 年印度對這防治計劃做全面性的重整，在 1993 年以 RNTCP (Revised National Tuberculosis Control Programme) 的新計劃面貌，由印度衛生與家庭福利部公佈實施。www.trc-chennai.org/Rntcp/blue.pdf



事實上，印度的 RNTCP 就是以實施 DOTS 為主軸的結核病防治策略。文件的

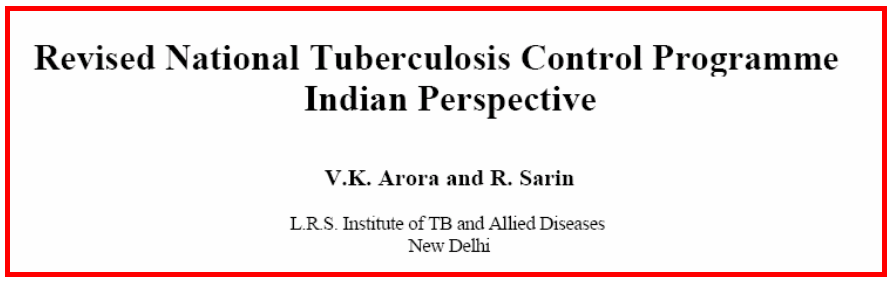
本身很簡單明瞭，包括的主要章節為：

Directly Observed Treatment, Short-course (DOTS)
DOTS is a systematic strategy which has five components:

Political and administrative commitment
Good quality diagnosis.
Good quality drugs.
The right treatment, given in the right way.
Systematic monitoring and accountability.

DOTS in India
HIV
Multidrug-Resistant Tuberculosis (MDRTB)
The Future of DOTS in India
Tuberculosis—Key facts

下列這篇論文是對 RNTCP 評估性論文，讀者可以從這論文獲得更多 RNTCP 的資料。
http://lrsitbrd.nic.in/publication/Revised%20national%20tuberculosis%20control%20programme%20indian%20persp.pdf



Revised National Tuberculosis Control Programme
Indian Perspective

V.K. Arora and R. Sarin

L.R.S. Institute of TB and Allied Diseases
New Delhi

本論文提及 RNTCP 的策略包括：

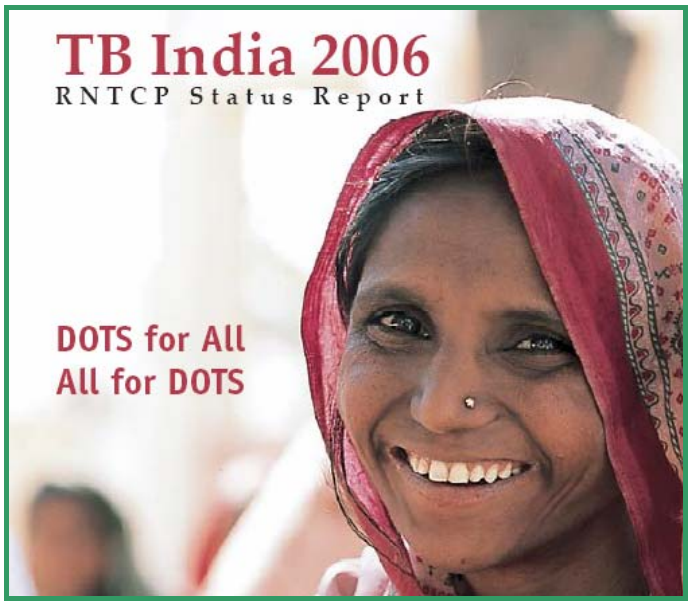
1. Strategies Relating to Case-finding
2. Strategies Related to Treatment and Case-holding
3. Strategies Related to Operational Management
4. Strategy for Other Key Areas

在執行上，印度面對的重大挑戰為：

1. Expansion
2. Private Sector Involvement

3. IEC and Health Education.
4. Multiplicity of Programmes

IEC 代表結核病防治的 Information, Education, Communication.
最值得參考的部份是每年印度對結核病防治有一年度報告。 2006 年的報告已經出版。 http://www.tbcindia.org/pdfs/Annual%20Report%20TB%202006.pdf



(E) 美國 (USA)

美國結核病防治的重要策略，臨床指引、執行方針，等等，是有數個重要的機構商討後公佈實施。美國疾病管制中心 CDC 的網站上刊載有關美國結核病防治的文件是早在 1989 年公佈的一文：
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5509a1.htm

A Strategic Plan for the Elimination of Tuberculosis in the United States
MMWR 38(S-3);1-25
Publication date: 04/21/1989

這文件是由美國疾病管制局和 Advisory Council for the Elimination of Tuberculosis (ACET) 聯合公佈實施的。這文件包括下列各章節，結構上可參考。至於內容，因文件已經十五年以上，從方法、科技的細節上看，可能有不

適用於目前狀況的地方。但是大的方向與課題似乎仍有其重要性，雖然該策略當時是針對著美國結核病再度盛行而擬定的對策。本文附件一欄提到一些執行時應考慮的條件與假設。

INTRODUCTION

BACKGROUND INFORMATION

STEP 1：MORE EFFECTIVE USE OF EXISTING PREVENTION AND CONTROL METHOD

- Improving Surveillance
- Improving Case Prevention
- Improving Disease Containment
- Program Assessment and Evaluation
- Conclusion

STEP 2：DEVELOPMENT AND EVALUATION OF NEW PREVENTION, DIAGNOSTIC, TREATMENT TECHNOLOGIES

- Improving Methods for Preventing Disease in Infected Persons
- Improving Methods for Identifying Infected Persons at Risk of Diseas
- Improving Methods for Preventing Infection or the Establishment of
- Improving Methods for Treating Disease
- Improving Methods for Diagnosing Disease
- Conclusion

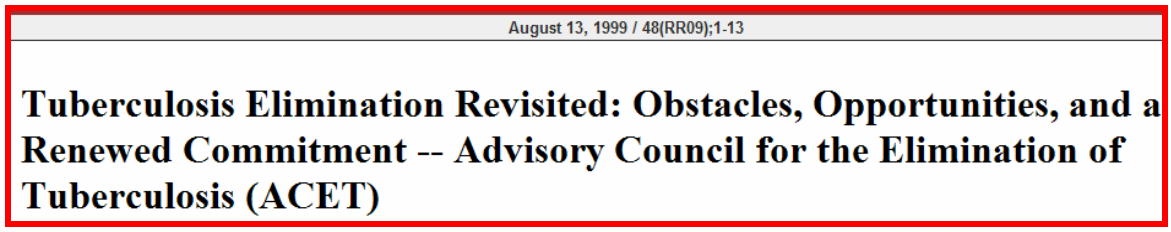
STEP 3 -- TECHNOLOGY ASSESSMENT AND TRANSFER

- Technology Assessment and Transfer in General
- Special Technology Transfer Issues
- Transfer of Communication Technologies
- Conclusion

References

Appendix: Planning Assumptions

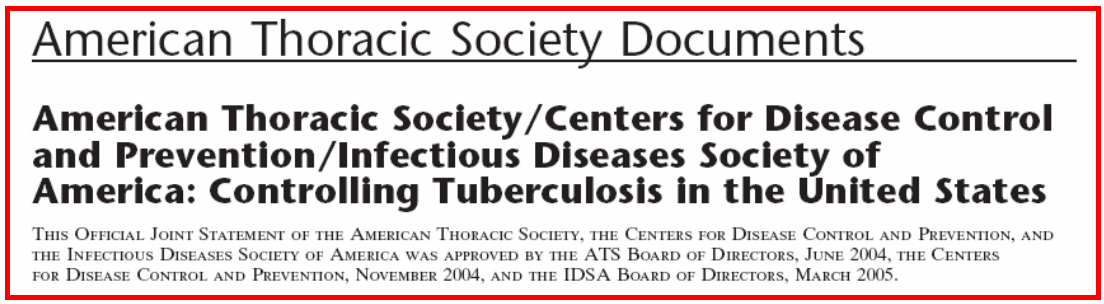
十年後，ACET 針對上述的策略做了一回顧與探討。下列這文件就是相關的論文。http://www.cdc.gov/MMWR/preview/mmwrhtml/rr4809a1.htm



文中明確提出數個新的建議。雖然這些建議本身也有近八年的歷史，但是仍然與目前很多國家的結核病防治策略要點相近。

1. Tailor Prevention, Control, and Elimination Strategies Based on Local Epidemiology
2. Establish New Strategic Partnerships and Reach New Stakeholders
3. Enhance the Use of Current Tools for TB Prevention and Control
4. Develop New Tools for Elimination
5. Recommit to the Global Battle Against TB
6. Support Broad-Based Efforts for TB Prevention and Control at National, State, and Local Levels

研究小組收集到的第三個重要文件是美國胸腔學會、美國疾病管制局、美國傳染病學會在 2005 年聯合公佈一美國結核病防治的論文全文 59 頁。



http://www.thoracic.org/sections/publications/statements/pages/mtpi/controlling-tuberculosis.html (Am J Respir Crit Care Med Vol 172. pp 1169–1227, 2005 DOI: 10.1164/rccm.2508001。Internet address: www.atsjournals.org)

這是一兼俱策略與執行細節的文件，取代過去 CDC 和 ATS 以前共同發佈的文件。這是美國結核病防治重要的參考文件之一，因為文件的內容也得到美國傳染病學會 (Infectious Disease Society of America) ，美國小兒科學會 (American Academy of Pediatrics) 。內容的制定是由一特別組成的專家小組根據實證醫學為基礎發展出來的。小組的專家成員包括美國小兒科學會及國立結核防治官協會 (National Tuberculosis Controllers Association) 的代表。內容如下：

Control of TB among Children and Adolescents
Control of TB among Foreign-born Persons
Control of TB among Persons with HIV Infection
Control of TB among Homeless Persons
Control of TB among Detainees and Prisoners

Control of TB in Health Care Facilities and Other High-Risk Environments

Control of Transmission of M. tuberculosis in Other High-Risk Settings

Research Needs to Enhance TB Control

Graded Recommendations for the Control and Prevention of TB

Recommendations for TB Laboratory Services
Recommendations for TB Case Detection
Recommendations for Contact Investigations and for Outbreak Prevention and Response
Recommendations for the Public Health Aspects of Targeted Testing and Treatment of LTBI
Recommendations for TB Control among Children and Adolescents
Recommendations for TB Control among Foreign-born Persons
Recommendations for TB Control among HIV-infected Persons
Recommendations for TB Control among Homeless Persons
Recommendations for TB Control among Detainees and Prisoners
Recommendations for TB Control in Health Care Facilities and Other High-Risk Settings
Recommendations on Research for Progress toward Elimination of TB

文中提及目前美國結核病的挑戰包括：

1. 在美國境外出生、目前居住在美國的結核病患。
2. 肺結核個案發現與通報的延遲。
3. 對受傳染人的保護不足及對疫情爆發的防止與反應上的缺乏。
4. 目前存在的大量潛伏性感染的民眾、有可能病情惡化成結核病。
5. 如何在結核病日漸減少的情況下維持結核病防治的臨床與公共衛生方面的專門技術與知識。

在確認結核病菌傳播考量的因素 (Factors determining transmission)，文中提及

下列幾點：

Characteristics of the source-case

- Concentration of organisms in sputum
- Presence of cavitary disease on chest radiograph
- Frequency and strength of cough

Characteristics of the exposed person

- Previous M. tuberculosis infection
- Innate resistance to M. tuberculosis infection
- Genetic susceptibility to M. tuberculosis infection or disease or both

Characteristics of the exposure

- Frequency and duration of exposure
- Dilution effect (i.e., the volume of air containing infectious droplet nuclei)
- Ventilation (i.e., the turnover of air in a space)
- Exposure to ultraviolet light, including sunlight

Virulence of the infecting strain of M. tuberculosis

要達到降低結核病病情 (morbidity) 及死亡 (mortality) 的目標，應該注意下列各點：

1. Early and accurate detection, diagnosis, and reporting of TB cases
2. Prompt initiation of effective treatment and completion of a full course of therapy for patients with TB
3. Identification of contacts of patients with infectious TB and other persons with latent TB infection who are at substantial risk for progressing to TB disease and treatment of those persons with a standard regimen
4. Identification of settings in which a high risk exists for transmission of M. tuberculosis and application of effective infection-control measures

另一美國結核病防治策略上的重要文件是 2000 年 5 月，Institute of Medicine，發佈的有關美國當時結核病防治情況的論文，論題為：Ending Neglect: The Elimination of Tuberculosis in the United States，內容探討結核病防治需要美國加以重視與投資，並提出如何革除美國境內結核病的見解。美國聯邦結核病專案小組 (Federal TB Task Force) 與美國疾病管制局都曾分別提出回應。

http://www.iom.edu/CMS/3793/5522.aspx

Ending Neglect: The Elimination of Tuberculosis in the U.S.

Released On: May 01, 2000

(F) 加拿大 (Canada)

結核病的防治屬於醫療的一部份。加拿大的醫療服務是省政府的職責，聯邦政府只做全國行政協調的工作。全國有一所謂 Tuberculosis Elimination Strategy。Tuberculosis Elimination Strategy 是早在 1992 年制定的。當時的期望是在 2010 年能把加拿大境內的結核病降到每十萬人中只有 1 例。這策略的目標包

1. Prevent further occurrence of TB disease and infection
2. Prevent the emergence of drug resistance
3. Achieve lifetime control of the patient's TB
4. Support ongoing program evaluation and information collection to inform policy and strategy enhancement

主要到工作則涵蓋下列各項：

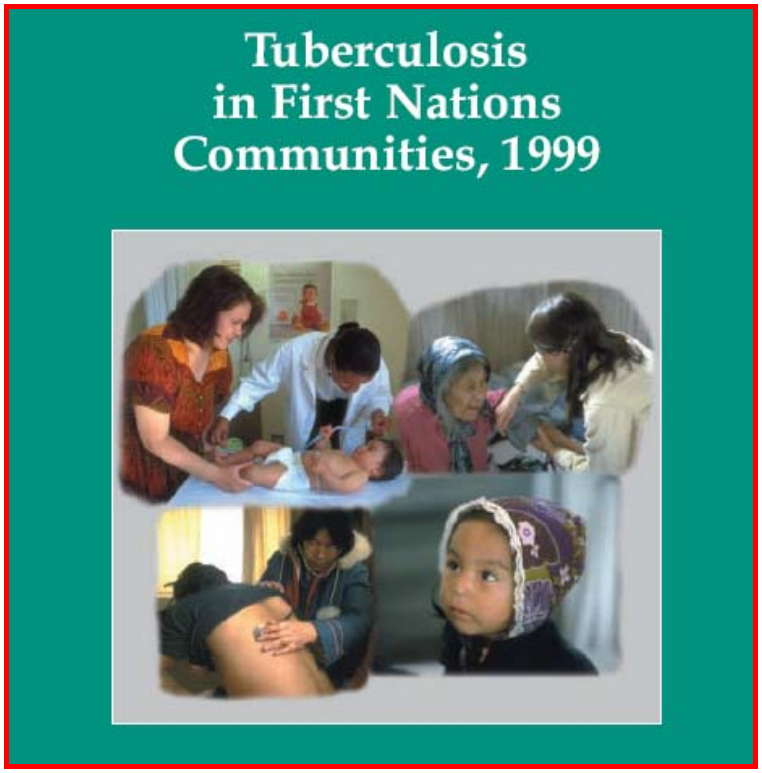
1. Case Finding and Case Holding
2. Contact Tracing and Chemoprophylaxis
3. Surveillance
4. Health Education and Training
5. Research

根據加拿大聯邦公共衛生署 (Public Health Agency of Canada) 主管結核病防治的 Dr. Edward Ellis 在 2006 年 5 月 1 日的一電子郵件中提到：

”For Canada as a whole, our current goal is to reduce the number of new TB cases by 5% annually. This is not being achieved and may not be realistic at present. Our advisory Canadian Tuberculosis Committee will be considering a proposal this fall to establish a target national incidence rate of 3.6/100,000 general population

for 2015. This is in keeping with the Global Plan 2006-2015 to reduce the 1990 TB prevalence rate by 50% by 2015."
由此可見，加拿大目前的策略尚需進一步發展。

加拿大境內結核病患者主要是原住民和在加拿大國境外出生的後移住加國的民眾。聯邦衛生部主管原住民健康衛生的單位在 1999 年曾訂定一針對原住民的結核病防治計劃。但是因為內容大部份只適用與加拿大境內的原住民，因此對本研究計劃沒有太大的參考價值。
http://www.hc-sc.gc.ca/fnih-spni/pubs/tuberculos/1999_commun/index_e.html



(G) 中國 (People's Republic of China)

中國的《結核病防治管理辦法》在 1991 年 9 月 12 日由衛生部發佈實施。經與中國衛生部國際司國際組織處長邢軍先生取得聯繫，並獲得提供的結結核病防治文件《全國結核病防治規劃 (2001-2010 年) 》。本規劃由國務院辦公廳在 2001 年 10 月 13 日發文各级疾病管制機構實施後，並已經印刷成冊以擴大發行。本文件可從 http://www.tb123.org/Viep_Policy.asp?ID=1 取得。這是中國大陸實行

的第二個結核病防治十年計劃。1992-1999 年，利用世界銀行貸款在新疆等 13 個省（自治區）開展了"中國結核病控制專案"，利用內部經費在河南等 15 個省（自治區）實施了"衛生部加強與促進結核病控制專案"。

本文件因另有《中國結核病防治規劃 - 實施工作指南》，內容多為策略與方針性的文字，不包括繁瑣的執行細節。文件的主要章節包括下列數項。

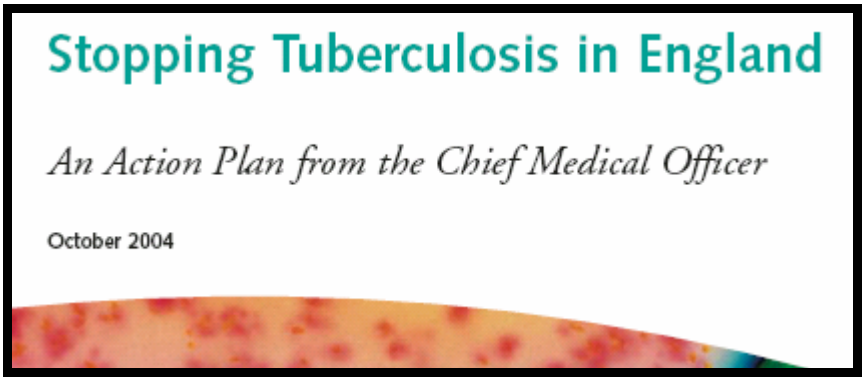
一、結核病流行與防治工作現狀
二、指導原則
三、總體目標
四、工作指標
五、主要措施
六、組織保障
七、考核與評價

「主要措施」包括下列各重點：
一、加強結核病防治能力建設，健全服務體系
二、積極發現和治療肺結核病患者
三、完善結核病報告資訊系統
四、加強人員培訓，提高業務素質
五、加強宣傳教育，增進全民結核病防治意識
六、加強應用性研究
七、加強國際間的交流與合作

同時中國衛生部並設立結核病臨床防治中心 (http://www.tb123.org/) 。這機構原為衛生部結核病控制中心原名 "全國結核病防治研究中心"，成立於 1981 年，1991 年更名為"衛生部結核病控制中心"。2001 年更名為“中國疾病預防控制中心結核病防治臨床中心” 。

(H) 英國 (England) ： 全國性與區域性策略

英國衛生部長 (Secretary of State for Health) 在 2004 年十月公佈由國家首席衛生官(Chief Medical Officer) 擬定的國家抗結核行動計劃 (Stopping Tuberculosis in England: An Action Plan from the Chief Medical Officer)。本文件可從網址 http://www.dh.gov.uk/assetRoot/04/10/08/60/04100860.pdf 上取得。為增加發行量，英國衛生部特別表示，本文件可以不必事先取得同意即可自行印制供個人與機構內部使用。文件只有 21 頁，是一份簡明扼要的國家型結核病防治策略文件。很明顯的，本文件的主旨在於以清晰、簡易的文字，列出結核病在英國的歷史背景、現況，以及未來防治的要點。主要的讀者對象為醫療機構的高級管理人，醫護人員，護理主任，家庭醫生，結核病防治護士，傳染病專科醫生，胸腔科醫生，等等。衛生部希望本文件能提供給專業人員最佳的臨床指引 (Best Practice Guidance) 。

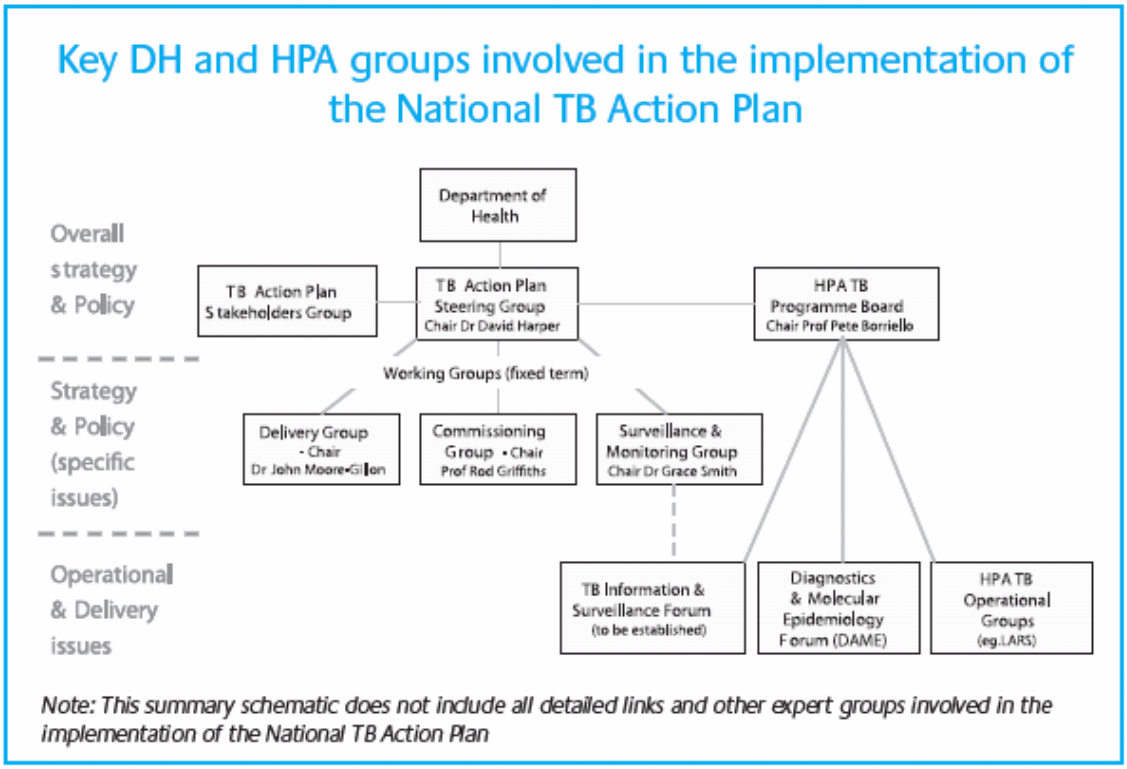


衛生部長寫的「序」出現在第一頁，本文件其他章節如下：

TB Action Plan
Factfile: Tuberculosis in England
Rising to the challenge: a can-do philosophy
The TB Programme goals
What will success look like?
Regaining the upper hand
Recommended actions:
- Action 1: Increased awareness
- Action 2: Strong commitment and leadership
- Action 3: High quality surveillance

Action 4: Excellence in clinical care
Action 5: Well organized and co-ordinated patient services
Action 6: First class laboratory services
Action 7: Highly effective disease control at population level
Action 8: An expert workforce
Action 9: Leading edge research
Action 10: International partnership

下圖是執行本策略的相關單位與流程。2006 年 3 月份的結核病的期刊有較詳細的描述，http://www.hpa.org.uk/infections/topics_az/tb/pdf/newsletter_2006.pdf



英國衛生部內的 Health Protection Agency (HPA) 扮演重要的執行角色。除了衛生部的全國結核病防治行動計劃外，另有針對某一課題或區域性的策略。在此謹舉兩例：

(a). The Prevention and Control of Tuberculosis in the United Kingdom: UK Guidance on the Prevention and Control of Transmission of (1) HIV-related tuberculosis, (2) Drug-resistant, including Multiple-drug resistant, Tuberculosis. 這是英國衛生部一份針對上述兩個結核病相關問題而提出的防治指引。全文可自 http://www.dh.gov.uk/assetRoot/04/11/52/99/04115299.PDF 下載。

(b). 英國除了全國性的防治行動計劃外尚對某些醫療行政區而發佈特定的區域性防治策略。英格蘭西北地區 (North West Region) 有其自己的 Tuberculosis Strategy for the North West Region of England. 該文件可在下列網址取得。http://www.hpa-nw.org.uk/TB/Regional%20TB%20Strategy.pdf 發行單位是該區內傳染病管制委員會下的結核病小組。雖然全文只有十頁，但是清楚的列出該區結核病防治的方向、目標、與重點。內容包括：

Introduction
Background and Key Documents and Links to Other Streategies
The Basis of TB Control
Aims of National and Regional Strategy
Key Players
Priority Actions
- Clincial Services
  - Specialist Staffing and Care Pathway
  - NICE Clinical Priorities
  - Management of Multidrug Resistant (MDR) TB
  - Children with TB
  - Hospital Infection Control for Patient with TB
- Laboratory Services
- Public Health
  - Surveillance of TB
  - Awareness Raising
  - TB in Healthcare Environment
  - TB in Prisons
  - TB in New Entrants from High Incidence Countres
- BCG Immunization
- TB Nurse Public Health Function
- Research and Development
- Taking the Work Forward

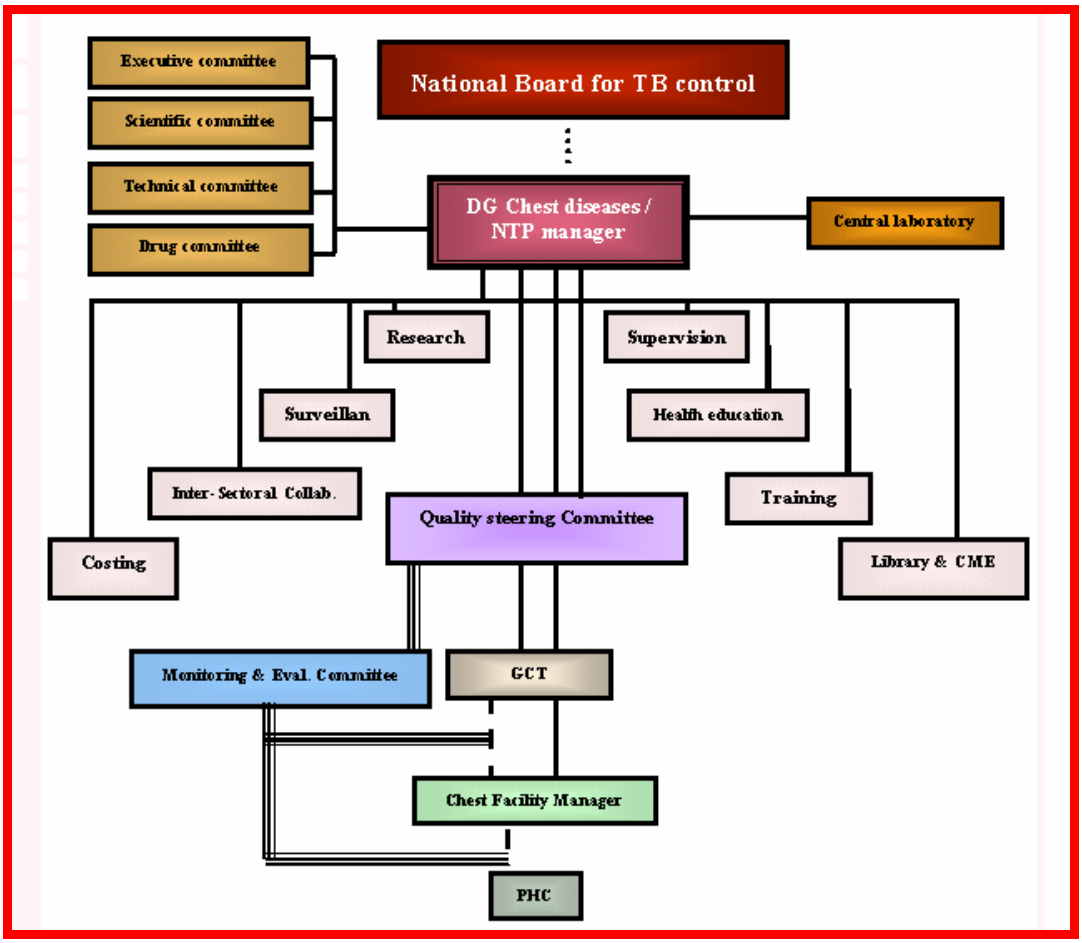
(I) 埃及 (Egypt)

埃及的國家衛生與人口部 (Ministry of Health and Population) 在 1979 年開創一全國性的結核病防治方案 (The National Tuberculosis Control Programme). 但是這方案的到 1989 年才開始有系統的執行。醫療技術上得到荷蘭 the Royal Tropical Institute of Amsterdam 的協助。方案的重點類似很多其他的國家，也就是廣泛實施 DOTS。埃及是在 1990 年開始實施 DOTS。

這方案的內容在網址：http://www.emro.who.int/stb/egypt/AboutNTP.htm 上有相當詳細的描述。要點包括：

1. Philosophy of the NTP
2. A New Strategy for TB Control: DOTS
3. Organizational Principles of the DOTS Strategy
4. Overall Objectives of TB Control
5. Strategy for TB Control
6. Targets for TB Control
7. TB Control Policy Package
8. Key NTP Features
9. Indicators to Measure Progress in TB Control
10. Applying DOTS in Egypt
11. Co-ordination and Integration with Other Sectors

下列圖示主要的防治單位及相互間的關係。



執行面則分三個層級：中央 (Central level) 、中級或省級 (Intermediate or governorate level) 、地區級 (Peripheral level: district and health unit). 執行成效的評估，以下列為主要的指標：

1. 是否有「國家結核病防治方案」的手冊
2. 全國「都治」的覆蓋率
3. 完治率 (Cure Rate)
4. 個案發現率

在各部門的聯繫合作方面，埃及的 NTP 特別強調與健康保險、資訊部、社會服務部、宗教部、大學、監獄、非營利/非政府組織，密切合作。

防治方案以外，收集到相關的文件中，比較重要的是「結核病指引」 (TB Guidelines) 這文件在下列網址上可取得。

http://www.emro.who.int/stb/egypt/TBtablecontent.htm

其主要的章節包括：

Preface
Foreword
Acknowledgements
List of Abbreviations

The National Tuberculosis Control Programme
Epidemiology of Tuberculosis
Pathogenesis of Tuberculosis
Case Detection in Pulmonary Tuberculosis
Diagnosis of Tuberculosis
Case Definition
Management of Patients with Tuberculosis
Tuberculosis in Children
Recording and Reporting
Drug Supply Management
Contacts of Tuberculous Patients
Preventive Measures For Tuberculosis
Health Education
Supervision
Tuberculosis and HIV
Research
Annex　Drug Supply Management

(J) 其他國家或機構與結核病防治策略相關的參考文獻

研究小組收集到其他相關的文獻，對本研究計劃也有某一程度的助益。

(a)　An HIV/TB Strategy for the Eastern Mediterranean Region 2006-2010. 世界衛生組織東地中海區域辦公室 2006 年在埃及開羅出版。
www.emro.who.int/asd/pdf/**Strategy_HIV-TB**_06-10.pdf

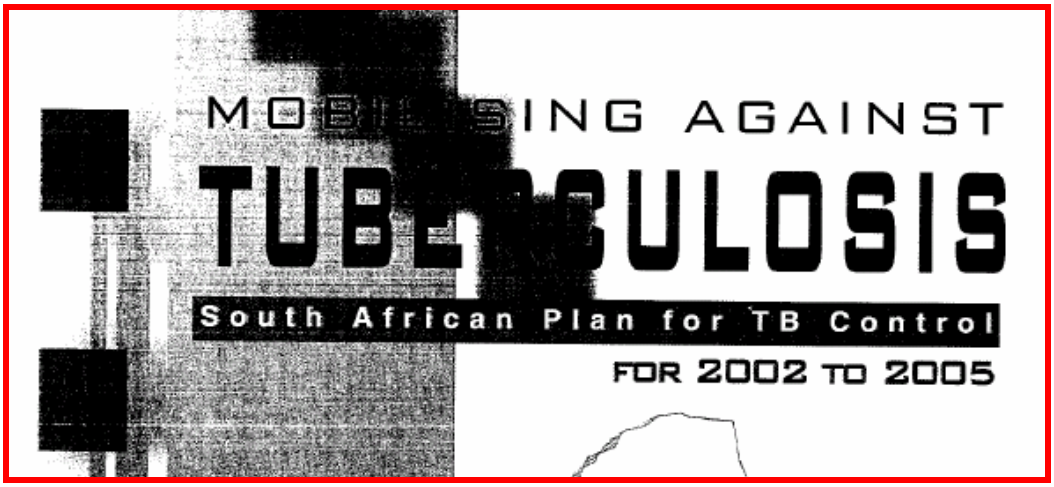
(b) Actions For Life

www.stoptb.org/globalplan/assets/documents/GlobalPlanFinal.pdf

全球結核病防治計劃：The Global Plan to Stop TB 2006-2015.

(c) 南非的結核病防治策略 (2002 – 2005)

http://www.capegateway.gov.za/Text/2003/mobilising_against_tb.pdf



九、 附錄 (二)：台灣結核病防治策略文件

台灣結核病防治策略

(2006 – 2015)

Taiwan National TB Strategy

(2006-2015)

December 15, 2006

目錄
Table of Contents

致謝

我們誠摯的感謝下列人士與機構，由於他們積極的參與無私的奉獻，這文件才得以產生：

- 五十年來，在台灣爲結核病防治而奉獻的所有工作人員。
- 衛生署疾病管制局核准本研究計劃與經費的補助。
- 衛生署疾病管制局局長郭旭崧博士對本計劃的期許與支持。
- 衛生署疾病管制局與結核病防治有關的同仁，特別是直接參與本計劃的第三組組長楊世仰先生，張雍敏科長，王貴鳳科長，曾俊華先生。
- 楊祥麟科長和衛生署疾病管制局第五組及其他與結核病防治相關的工作人員。
- 國立陽明大學周碧瑟教授、中華民國防癆協會索任醫師、台北榮民總醫院蘇維鈞醫師三位專家的客觀與建設性的指導。
- 「台灣健康資訊交換第七層協定協會」承辦研究計劃合約管理。

Canadian Allied Development Services International
結核病策略專案小組工作人員敬上

Acknowledgment

We sincerely thank the following individuals and organizations, for their active participation and selfless contribution, for the creation of this document.

- All of those who have participated in the TB prevention and control in Taiwan since 1950.

- Center for Disease Control, Department of Health for funding support to this research project.

- Dr. Steve H. S. Kuo, Dirctor General, Center for Disease Control, Department of Health, Taiwan

- Staff members of CDC Taiwan Division III, especially, Director, Mr. Y. S. Yang; Section Chief Ms.Yung-Min Chang, Section Chief Ms. Gui-Feng Wang and Mr. Jun-Hua Cheng.

- Staff members of CDC Taiwan Division V, particularly, Section Chief Mr. Hsiang-Ling Yang.

- Pesus Chou, Dr.P.H. (Professor, National Yang-Ming University), Jen Suo, MD (National Tuberculosis Association), Wei-juin Su, MD, MPH, FCCP (Veteran General Hospital) for reviewing 2 drafts of this document and their constructive and insightful recommendations.

- *Health Level Seven Taiwan* for contract management service.

NTS Document Development Team
Canadian Allied Development Services International (CADSI)

1. 摘要

結核病不只是台灣最嚴重的傳染病，也是世界上公認的危機之一。台灣在結核病防治的工作已有五十多年的歷史，雖然疫情比起許多先進國家尚有一段距離，但回顧過去里程碑，不難看出努力的成果。結核病已經不再列於台灣十大死因之內。

1994 年實施第一期結核病五年計畫，分別於 1999 年、2004 年繼續實施第二期及第三期五年計畫，在 2006 年擴大開辦結核病十年減半全民動員計畫」 、大力投資，希望早日使台灣成爲一個沒有結核病的家園。

因爲台灣不是世界衛生組織的會員，不但無法積極參與全球性的防疫工作，國際人士對台灣結核病防治策略，大都陌生或欠缺相關資料。爲此，疾病管制局特別委託編撰本中英文文件，提供國內外人士參考。本文件內容以台灣目前的防治策略資料爲主，國際防癆趨勢及台灣過去防癆措施的回顧爲輔。文件的架構參考多種國際結核病出版物，包括其他國家結核病防治策略。希望讀者能因閱讀本文件，進而參閱更多其他疾病管制局的相關文獻，並積極參與全國結核病防治動員的行列。

本文件主要內容如下：
(A)、全球結核病流行與防治合作之現狀與趨勢
(B)、台灣結核病防治的歷史性回顧
(C)、台灣結核病流行之現況與未來的挑戰
(D)、「結核病十年減半全民動員計劃」

第六章的內容，以重點方式，從(1)公共衛生與行政，(2)結核病發現與診斷，(3)結核病治療，三方面，扼要的列出各項挑戰。 第七章也以類似的標題，描述目前相對的策略。

政府爲執行結核病防治十年減半計劃，在前五年編列了共計新台幣 8,371,351 千元（不含人事費）。

附件欄內提供了某些策略的執行綱要，讀者如需要更詳細的資料，請直接與疾病管制局接洽。結核病防治的理論與科技不斷進步，疾病管制局隨時收集最新資料，適度調整因應措施。本文件的主旨之一，在於提供給讀者結核病防治策略的

基本資訊。醫護人員如需執行方面的指引，敬請參考疾病管制局最新的文件。

本文件是Canadian Allied Development Services International (CADSI)爲執行台灣疾病管制局 2006 年研究計劃成果之一。

Executive Summary

Tuberculosis is considered as not only a severe infectious disease in Taiwan, but also a major threat to public health worldwide. Taiwan has been fighting tuberculosis for more than 50 years. To a great extent, the prevalence of TB in Taiwan is still more server than most industrialized countries. While continued efforts are still required, what has been done to date proves to be fruitful as tuberculosis is no longer among the top ten leading causes of death in Taiwan.

In 1994, the first 5-year plan in TB control was initiated. This national program was followed by the second 5-year plan in 1999. With major investment and commitment, a national campaign “Tuberculosis Reduction by Half in 10 Years” was introduced recently aiming to make Taiwan a country without tuberculosis in the future.

Without a membership in the World Health Organization (WHO), Taiwan has not been able to participate in TB control and prevention internationally and to share information about the status and activities of tuberculosis control in Taiwan. This project, with a grant from Center for Disease Control, is to produce a document describing Taiwan’s current TB control strategy, supplemented by an overview of international collaboration and a review of milestones of TB control in Taiwan. The objective is to provide an overall introduction to those who are interested in learning more about the subject matter. A document analysis study of national TB control strategies in other jurisdictions helps develop the framework for this document. We hope that readers of this document will gain a basic understanding of tuberculosis and, even better, take an active role in the national campaign.

This document includes the following key elements:

A. An overview of epidemiology worldwide and global partnership in tuberculosis control.
B. TB control in Taiwan: a historical overview.

C. Epidemiology and future challenges of TB in Taiwan.
D. “Reduction by Half in 10 Years National Campaign”.

Chapter 6 depicts major challenges in three areas, i.e. (1) public health and associated public administration, (2) detection and diagnosis, and (3) intervention of TB. Chapter 7 provides respective strategies corresponding to these challenges.

The Government of Taiwan has invested 8,371,351 thousand New Taiwanese dollars as the budget for the first 5 years of the national campaign. This amount excludes the costs of required human resources.

Details on specific strategies are in the appendices. Readers are encouraged to seek further information by contacting Taiwan Center for Disease Control directly. In order to take advantage of new technologies and knowledge in TB control, CDC Taiwan will continue to improve or adjust its programs and services. This document provides only basic information on tuberculosis control and should not be used by healthcare professionals, as part of the protocol and guidelines.

This document is produced by Canadian Allied Development Services International in partial fulfillment of project DOH95-DC-1112.

2. 全球結核病流行趨勢與防治合作之現狀

Epidemiology, Global Trend and International Partnership of TB Conrol

2.1 國際趨勢

結核病是由結核菌（Mycobacterium tuberculosis）引起的傳染病，過去由於缺乏有效的治療藥物，病患約有半數死亡、四分之一成爲慢性傳染源。1944 年後，結核藥物陸續問世，各國結核病的流行已有顯著的改善。但自 1980 年代起，多重抗藥性結核的產生、愛滋病的盛行及全球人口的快速流動，全球普遍面臨結核病回升的威脅。

世界衛生組織有鑑於結核病疫情日益惡化，於 1993 年宣布結核病爲「全球緊急危機」，呼籲各國重視結核病防治工作，嚴密防範結核病的全面反撲。1995 年世界衛生組織開始推動「都治」的新治療概念。

根據世界衛生組織的統計，全球每秒鐘有一人新感染結核菌，每年約有 1%人口新感染結核菌，目前合計約有 20 億人已感染結核菌，占全球人口的三分之一，這些已受到感染的人，終其一生都有 10%的發病機會。每年全球約有 900 萬新病人，而現有結核病人總數高達 1,620 萬。以病人數而言，東南亞是全球疫情最嚴重的地區，每年約有 300 萬新病人。每年全球約有 300 萬人死於結核病。

在開發中國家，結核病的威脅更加嚴重，開發中國家結核病人數占了全球結核病人數的 95%，死亡數則占了全球結核病死亡數的 99%。結核病高度耗損了社會及經濟的活力，開發中國家 75%的結核病人屬於 15 歲到 54 歲的生產年齡人口，成年的結核病人因病平均損失三到四個月工作時間，家庭年收入因而減少 20-30%；而若患者死亡，平均會損失 15 年的生產收入。結核病更造成連鎖性的社會問題，在印度，每年有 30 萬兒童因爲父母罹患結核病而失學，10 萬婦女因罹患結核病而遭到家庭遺棄。

世界衛生組織估計 2000 年全世界約有結核病新案 974 萬人（發生率爲每十萬人口

144 人），當年會員國通報新案總數 367 萬人（發生率爲每十萬人口 61 人），發現率爲 42%；痰塗片陽性新案估計有 384 萬人（發生率爲每十萬人口 63 人），當年會員國通報痰塗片陽性新案總數 153 萬人（發生率爲每十萬人口 25 人），發現率爲 40%。

目前新發現的結核病人數仍在上升中，2005 年全球結核病新案將超過 1,000 萬人，如果不能有效加強全球的結核病防治工作，估計在 2000 年到 2020 年間將有 10 億人新受到結核菌感染，2 億人發病，3 千 5 百萬人死於結核病。

世界銀行爲配合全球結核病防治的策略，也承諾在政策的訂定，國際貸款的程序上，與各借貸國家商討如何加強該國的醫療與疾病防治方針，以便早日消除結核病對人類的禍害。

聯合國兒童基金會將結核病認定爲，當今最被忽視與低估的健康、人權與貧窮的問題。唯有全球同心協力才能擊敗這危險的疾病。每年因結核病死亡的人中，兒童佔有相當高的比例。

Global Trend

TB is an infectious disease caused by Mycobacterium Tuberculosis. In the past, more than 50% of TB infected patients would die from TB and 25% became chronic contagious source due to a lack of effective medications and treatments. Since 1944, anti-tuberculosis medications have been developed and contributed to the decline of TB epidemic around the world. However, the emergence of Multidrug-Resistant TB (MDR-TB), the acquired immune deficiency syndrome (AIDS) epidemic and movement of the global population resulted in the global rebound of TB in the 1980s.

In light of the worsening of tuberculosis in the world, the World Health Organization declared TB as a global emergency in 1993 and urged every country to strenghen TB conrol to prevent its rebound. In 1995 the WHO initiated a new program, “Directly Observed Therapy Shortcourse (DOTS)” .

Based on statistics from WHO, for each second, one new person is infected by TB. Approximately 1% of the world population is infected each year. Currently, 2 billion people are infected with TB that account for one third of the global population. Of those individuals, there is a 10% of likelihood of onset during their lifetime. It is

estimated there are 9,000,000 newly diagnosed TB cases annually. The total number individuals with a confirmed diagnosis is around 16,200,000. Southeast Asia has the most TB cases with around 3 million new TB diagnosed cases each year. Every year almost 3 million people died from TB in the world.

In developing countries, the threat of TB is more severe. 95% of global TB cases and 99% of deaths by TB occur in the developing world. TB negatively impacts on the productivity and economic development of these countries because 75% of cases fall between age 15 to age 34. Adult TB patients can lose on average of 3 to 4 months of work time causing reduction of household income of 20 to 30%. If the patient dies from TB it would result in 15 years of lost income. TB can cause a series of societal problems as well. In India, 300,000 children are forced to leave school because their parents' tuberculosis and100,000 women are abandoned by their families as a result of their disease.

In 2000, the WHO estimated the number of newly diagnosed TB cases was around 9,740,000 with an incidence rate of 144 cases per 100,000 population. However, the number of newly diagnosed TB cases reported by member countries was about 3,670,000, with an incidence rate of 61 cases per 100,000 population and a detection rate of 42%. The number of new smear-positive TB cases was estimated to be 3,840,000 with an incidence rate of 63 cases per 100,000 population, but the actual number of new cases of smear-positive TB reported was 1,530,000 with an incidence rate of 25 cases per 100,000 population and a detection rate of 40%.

The number of newly discovered TB cases is on the rise. In 2005, the estimated number of new cases was more thann 10 million. Without effective TB control, the number of new cases between 2000 and 2020 is estimated to be 1 billion with 20 million developing the disease and 35 million deaths.

The World Bank indicated its commitment to responding to the global TB epidemic through policy dialogue/advice and country-specific lending for strengthening of health systems and disease.

UNICEF has called tuberculosis "one of the most seriously neglected and underestimated health, human rights and poverty problems of our era." Children are accounted for a high percentage of TB deaths each year. To combat this killer disease requires global collaboration.

2.2 全球結核病防治夥伴計劃

Global STOP TB Partnership

公元 2000 年七月琉球舉行的世界 8 強 (G8) 高峰會議中，一致認定結核病是危害世界經濟的傳染病，應該緊急加以防治。「全球結核病防治夥伴計劃」 (Global STOP TB Partnership) 因此而誕生，積極促成世界結核病盛行國家、外援國家、重要的國際非政府組織間的密切合作夥伴關係。公元 2006 年世界衛生組織特別以 “Action for Life: towards a world free of tuberculosis” (全民動員，創造無結核病的家園) 爲全球宣導的主軸。

Stop TB Partnership 國際組織主要的任務是支援全球各地消弭結核病，讓病患獲得有效的診斷、治療，避免傳播，以及發展有效的策略、研發新的診斷及治療方式，尤其在落實都治計畫、降低多重抗藥性、減少愛滋及結核合併感染都是該組織積極努力的工作目標，目前全球共有 463 個會員體（國）加入該組織。該組織於 2001-2005 年推動第一個全球結核病防治計畫，有超過 400 個抗結核組織、國家、公共或私人捐款者、政府及非政府組織、個人加入參與，並且已提供抗結核藥物給全球六百萬個病人及降低死亡率 2.5%。該組織亦發布全球結核病防治計畫，結合了國家層級結核防治計畫及基金會的支持（包括產業界如微軟鉅子比爾蓋茲、G8 工業國及各國政府），將集資 560 億美元，其中 90 億美元用於研究發展，470 億美元用於支援更積極的介入措施（如提供藥物、都治計畫等），以達到世界衛生組織千禧年發展目標：結核發現率達 70%、成功率(successful rate)達 85%，並宣示自 2006 年至 2015 年間，全球結核盛行率及死亡率將減爲 1990 年的一半，十年間同時發展，15 種新的檢驗試劑、25 種新藥、12 種疫苗，及治療 5 千萬病人、減少 1,400 萬人的死亡；長程目標希望達到在 2050 年消除全球結核病，結核病發生率達到百萬分之一以下。

At the July 2000 G8 Okinawa Summit, TB was recognized as a disease that threatens the world economy and as a major infectious disease that must be controlled with priority. The *Global STOP TB Partnership* initiative was later developed to promote and strengthen collaboration between TB burden countries, donor countries and other important international organizations, In 2006, the WHO promotes “Action for Life: towards a world free of tuberculosis” as a major theme for global TB campaign.

With 463 members, the primary objectives of Stop TB Partnership are to support the

world to stop TB, to provide the patients with effective diagnosis and treatment, to control spread of the infection, to develop effective strategies, new diagnostic and treatment methods, particularly in implementing DOTS, reducing MDR-TB and TB/HIV. This organization initiated its first global TB control initiative from 2001 to 2005. More than 400 associations, nations, public and private donors, governmental and nongovernmental organizations, as well as individuals participated in this campaign. This initiative provided TB medication 6 million patients worldwide resulting in a reduction of 2.5% in death rate.

This organization issued the global TB control strategy that is supported by various national TB control programs, foundations, Bill Gates, G8 Groups, and other government organizations. It aims to raise 56 billion US with 9 billion US dollars for research and development, 47 billion US dollars for more effective intervention such as providing medication and “DOTS”. This can help achieve the Millennium Development Goals identified by the WHO: 70% TB case detection rate, 85%. In the period from 2006 to 2015, it aims to reduce TB prevalence rate and mortality rate by half comparing to those of 1995. For the same period, it has a goal to develop 15 new diagnostic tests, 25 new drugs, 12 new vaccines, and to treat 50 million people and prevent 14 million deaths. The ultimate goal is to eliminate TB by 2050 and to reduce TB incidence rate to be under 1 per 1,000,000 population.

3. 台灣結核病防治的歷史回顧

Historical Review of TB Control in Taiwan

3.1 前言

臺灣過去五十多年來結核病的防治成績斐然，公元 1987 年以後肺結核就不在十大死因之中，但近十年來仍穩居第十三位，依據疾病管制局統計，目前三十八種報告傳染病中，結核病的病人數約占了 70%，而每年結核病的死亡數約有 1,000 人，約是其他所有法定傳染病死亡數總和的五倍。結核病是台灣境內最嚴重的傳染病，也是最緊急的防疫問題。公元 2005 年結核病發生率爲每十萬人口 72.47 人，死亡率爲每十萬人口 4.27 人，每九小時有一個人死於結核病，每 32 分鐘新增一個結核病人；結核疫情居高不下，是日本的兩倍、美國的十倍。爲遏阻此一趨勢繼續惡化，衛生署決定加強結核病防治工作，將結核病防治體系和其他防疫體系整合在一起，建構結核病診療網。2001 年 7 月已將結核病防治體系轉由疾病管制局掌控，此後我們所熟悉的『防癆局』或『結核病防治院』將走入歷史，民眾可以在全國各級醫療院所就醫，藉由各地區結核病中心實驗室檢查。

Introduction

Taiwan made significant progress in preventing and treating TB over the past 50 years. Although TB ceased to be one of the top ten causes of death in 1987, it still ranks as high as the 13th cause of death. Statistics from CDC Taiwan show 70% of the total 38 reportable infectious diseases are tuberculosis cases. Approximately 1,000 people die from TB disease every year. The number of TB deaths is five times of the combined total of the rest of the reportable infectious diseases. Tuberculosis is the most serious infectious disease in Taiwan. As a result, its TB control is high on the government's priority.

In Taiwan, the TB incidence rate of 2005 was 72.47 per 100,000 population and the TB mortality rate was 4.27 per 100,000 population. One person dies from TB disease every 9 hours and one person is infected every 32 minutes. The condition remains serious. Comparing with other countries, Taiwan's TB incidence rate is about twice of the rate in Japan and ten times of rate in the United States. Historically, TB control

operated independently as special programs. In order to provide better control of the disease, Department of Health decided to integrate the TB control with the surveillance system of the other diseases under the mandate the CDC Taiwan. A TB diagnostic and treatment network was created as one of the major programs under the direct control of CDC Taiwan. The historical Bureau of TB Prevention and Control and the TB Prevention and Treatment Hospital ceased to exist. Everyone can access TB treatment in various hospitals across the country with diagnostic tests performed by qualified laboratories in the district TB control centers.

3.2 結核病防治里程碑

台灣地區結核病的防治自日據時代開始，已有將近 90 年的歷史。

1915	前日據時代成立錫口養生院（1925 年改名爲松山療養所，1946 年再改名爲台灣省立松山療養院）。
1950	成立台灣省立台北結核病防治院，並逐步強化防癆體系，並進入一個新治療時代。
1951	世界衛生組織支援下推動卡介苗接種工作。
1952	台灣省防癆協會成立（1958 改組爲中華民國防癆協會）。
1954	成立 X 光巡檢隊開始胸部 X 光巡迴檢查。
1955	開始於各縣市成立結核病防治所，開展榮民結核病防治工作。
1956	第一次教育人員胸部 X 光普查（每二年一次）
1957	結核病中心登記及免費藥物治療；第一次結核病盛行率調查。
1965	配合牛痘之接種，同時接種卡介苗。
1967	台灣省防癆局成立，負全省防癆工作之全責。
1971	退出聯合國，世界衛生組織的支援中斷。
1972	成立衛生署。
1978	開始使用包含 Rifampin 的十個月免費初次短程治療。
1979 年 9 月	勞保開始提供結核病免費醫療，勞保結核病人的費用改由勞保負擔。
1984	開始使用電腦協助病人登記及管理。
1989	衛生所防癆工作開始納入基層綜合保健模式。
1989 年 3 月	結核病防治單位改名爲慢性病防治局、院、所。
1990	開始使用 2HERZ/4HER 的 6 個月免費初次短程治療。
1995	全民健康保險開辦；結核病人治療費用由健保局給付，部分負擔費

	用由省市政府支付。開始「山地鄉病人住院治療補助計畫」及「慢性開放性病人收容管理計畫」。
1997 年 3 月	山地鄉實施直接觀察治療法計畫。
1997 年 7 月	健保對未通報之活動性結核病個案不予給付抗結核病藥費用。
1997 年 10 月	健保給付結核病例發現診療費及完成治療費。
1999 年 7 月	精省，台灣省慢性病防治局改名行政院衛生署慢性病防治局，隸屬中部辦公室。
2001 年 7 月	新結核病防治體系由疾病管制局主導正式運作。
2001 年 9 月	全面辦理高危險族群免費 X 光巡迴篩檢。
2002 年	署立胸腔病院南遷。
2002 年 2 月	慢性病防治局改制爲從事專科醫療、教學、研究的胸腔病院。
2002 年 8 月	開始推動建構結核菌檢驗室評鑑制度。
2004 年	健保給付結核病個案管理照護費。
2004 年 3 月	編纂完成台灣地區結核病診治指引，於疾病管制局各分局成立「結核病診療諮詢委員會」，著手推動結核病醫療品質改善。
2004 年 8 月	開辦補助無健保結核病人抗結核全額醫療費用。
2004 年 9 月	編纂完成「結核病院內感染控制指引」，全面推動院內結核病感染控制防護。
2005 年 2 月	開始性抗結核二線藥品管理輔導作業。
2006 年	公務預算結合健保資源共同負擔結核病醫療費用。
2006 年	開辦全國性結核病十年減半動員計劃。
2006 年 3 月	實施痰陽病人直接觀察治療（DOT）。

Milestones in Taiwan’s TB prevention and control

1915	During the Japanese occupation, Sikou Sanatorium was established (renamed Songshan Sanatorium in 1925 and renamed again in 1946 as Taiwan Provincial Songshan TB Sanatorium).
1950	Provincial Taipei TB Prevention and Control Hospital was founded to strengthen TB control network.
1951	With support from the WHO, initiated a vaccination program using Bacilli Calmette-Guérin (BCG) vaccine.
1952	Taiwan Provincial Tuberculosis Association was established. (It was reorganized to become National Tuberculosis Association in 1958).

1954	A circuit X-ray screening team was formed.
1955	Established local TB clinics in at the county and municipal level to begin special programs focusing on veterans.
1956	Initiated the first chest X-ray TB screening for personnel in education (once every two years).
1957	TB Disease Center started TB registry and provided free medication for TB treatment. The first TB prevalence rate survey was conducted.
1965	Started administering BCG vaccine and smallpox vaccine concurrently.
1967	Taiwan Provincial Bureau of Tuberculosis Prevention was established and given the full responsibility for TB prevention and treatment for the whole province.
1971	Taiwan withdrew from the United Nations and the WHO support ceased to continue.
1972	Department of Health was established.
1978	Started the initial free of charge, short course treatment using medications, including Rifampin to treat TB for the first 10 months.
1979 Sept.	The Labour Insurance started free TB treatment therapies for its subscribers.
1984	Computerization of TB patient registry and case management.
1989	Integration of TB control into the public health model at the local health unit level.
1989 Mar.	Tuberculosis Prevention and Treatment agencies at different levels were renamed as Chronic Disease Prevention and Treatment.
1990	Introduction of 6-month short course treatment using 2HERZ/4HER, free of charge.
1995	Establishment of National Health Insurance which covers treatment fees with co-payment paid by municipal governments. Two programs were initiated: “Hospitalization Assistance Program for TB Patients in Mountainous Regions” and “Chronic Open Type TB Case Management”.
1997 Mar.	Introduction of Directly Observed Therapy Short Course (DOTS) in mountainous (remote) regions.
1997 Jul.	National Health Insurance discontinued reimbursement for drugs for unreported open type TB cases.
1997 Oct.	National Health Insurance started paying special fee for case detection and treatment completion.

1999 Jul.	As part of provincial government downsizing, Provincial Bureau of Chronic Disease Prevention and Treatment was changed to the Bureau of Chronic Disease Prevention and Treatment under the Department of Health, Executive Yuan.
2001 Jul.	TB prevention and treatment system officially became part of Center for Disease Control.
2001 Sept.	Nation wide implementation of circuit X-ray screening for groups at high risk.
2002	Department of Health Chest Hospital relocated to southern Taiwan.
2002 Feb.	The Bureau of Chronic Disease Prevention and Treatment was restructured to become a chest hospital focusing on specialty medical care, teaching and research.
2002 Aug.	Introduction of TB laboratory accreditation system.
2004	National Health Insurance started paying for TB case management fee.
2004	Completion of TB Prevention and Treatment Guideline. Established “TB Treatment Consultation Committee” in each of the CDC branch, promoting quality of care in tuberculosis.
2004 Aug.	Assistance Program for TB Patients with National Health Insurance coverage.
2004 Sept.	Completion of “Hospital TB Infection Control Guideline” to promote better infection control within hospitals.
2005 Feb.	Introduction of TB Control Second Line Drug Treatment Program.
2006	Integration of CDC and National Health Insurance budget in TB treatment.
2006	Commencement of the national campaign of “TB Reduction by Half in 10 Years” project.
2006 Mar.	Provision of DOTS to smear positive patients.

3.3 結核病防治重大成就

1955	在世界衛生組織支援協助下，開始建立一套嚴密防結核病防治與病人管理機制
1970 年代	除台北高雄兩市各有結核病防治單位外，「台灣省防癆局」轄下 22 縣市，建置相當完整之基礎管理單位（BMU）。
1985	結核病死亡順位首度降到十大死因外.

1986	結核病死亡率降至十萬分之十以下。
1997	全民健保開辦後兩年，結核病人在一般醫院就診率由原來的 20% 提昇到 70%左右。
2001 年 7 月	建置結核菌檢驗網絡。
2001 年 11 月	啓用結核病個案通報管理全球資訊網系統，開放衛生局、所、醫療院所，上網登錄個案資料，增加通報點，方便衛生機關、醫療院所掌握個案狀況。

Significant achievements in TB prevention and control

1955	With WHO support, Taiwan started to develop a comprehensive system of TB prevention, control and case management.
1970s	In addition to the TB agencies in Taipei City and Kaohsiung City, Taiwan Provincial Bureau of Tuberculosis Prevention and Treatment established an excellent network covering 22 counties and municipalities in its jurisdiction.
1985	TB ceased to be one of the top ten leading causes of death in Taiwan.
1986	TB mortality rate dropped below10 per 100,000 population.
1997	2 years after the commencement of the National Health Insurance Program, TB patients being treated in regular hospitals rose to 70% from 20%.
2001 Jul.	Commencement of TB Laboratory Network with a pilot project engaging seven hospital laboratories.
2001 Nov.	Rollout of internet-based case reporting system, open to local health bureaus, health units, hospitals, clinics for uploading case information, strengthening surveillance reporting.

4. 台灣結核病流行之現況

本章統計數字採用政府公告之生命統計資料。有關山地鄉的統計則採用疾病管制局資料。

Current Condition of TB Epedemic in Taiwan

Statistics cited in this chapter are based on officially published data. Information regarding remote mountainous areas is from Center for Disease Control publications.

4.1 發生率

2005 年經通報之結核病個案計 22,663 人，經確診爲結核病確定病例者 16,472 人，結核病發生率爲十萬人口 72.47 人。在所有報告傳染病中，結核病是目前病人數最多的應報告傳染病，平均每 32 分鐘就新發現一名結核病人。

2005 年結核病確定病例 16,472 人中，開放性肺結核有 10,649 人，占 64.65%。依年齡區分，結核病發生率隨年齡增加而明顯上升，新發現結核病人中 51.04% (8,408 人)屬於 65 歲以上老年人。

在縣市差異上，新發生結核病數有集中於都會區的趨勢，2005 年新發生數最高的前四名縣市計占台灣地區 38.22%，其分別爲台北縣 2,371 案（14.39%）、台北市 1,386 案（8.41%）、高雄縣 1,300 案（7.89%）、高雄市 1,238 案（7.52%）；結核病發生率有東部較西部高，南部較北部高的趨勢。2005 年以花蓮縣發生率最高，達十萬人口 137.84 人，台東縣、屏東縣、高雄縣亦超過十萬人口 100 人。在所有山地鄉中，以高雄縣茂林鄉十萬人口發生率 451.47 人爲最高，其次爲宜蘭縣南澳鄉及花蓮縣秀林鄉；在山地鄉中，以臺東縣蘭嶼鄉最低，每十萬人口 26.96 人。

Incidence Rate

In 2005, reported TB cases totaled 22,663 and confirmed TB cases were 16,472. The TB incidence rate was 72.47 per 100,000 population. Among all notifiable communicable diseases, TB is by far the most reported disease. One TB patient is detected in every 32 minutes in Taiwan.

Among the 16,472 confirmed TB cases in 2005, 10,649 cases were open pulmonary TB, which accounted for 64.65%. Based on age groupings, TB incidence rate increases with age. 51.04%, i.e. 8,408 cases, of the newly detected TB patients were those age 65 or over.

Differences in incidence rates exist between cities and counties, many newly detected TB cases were found in metropolitan areas. In 2005, 38.22% of the total newly detected cases came from the four areas with the highest incidence rates: Taipei County: 2,371 cases (14.39%); Taipei City: 1,386 cases (8.41%); Kaohsiung County: 1,300 cases (7.89%); Kaohsiung City: 1238 cases (7.52%). Eastern Taiwan had a higher TB incidence rate than western Taiwan; the rate in southern Taiwan was higher than northern Taiwan. In 2005, Hualien County had the highest TB incidence rate of 137.84 per 100,000 population. The TB incidence rate of Taitung County, Pintung County and Kaohsiung County also exceeded 100 per 100,000 population. In all mountainous areas, Maolin Village of Kaohsiung County had the highest TB incidence rate of 451.47 per 100,000 population, followed by Nanao village in I-lan County, and Hsiulin village in Hualien County. The Orchid Island (Lanyu village) of Taitung County had the lowest TB incidence rate in all mountainous areas of 26.96 per 100,000 population.

4.2 感染率

由於台灣早已普遍對嬰幼兒接種卡介苗，無法獲得確切的結核病感染率，目前係針對國小一年級尚未接種卡介苗的學童，全面實施結核菌素皮膚測驗普查，根據其陽性反應比率推估年感染率。由於近年來卡介苗接種率已高達 98%，檢驗樣本數逐年減少，漸已失去其代表性，故推估年感染率更行困難。

前揭調查 2004 學年度結果，無卡介苗疤 (induration)者計 2,593 人（無疤率 1.06%，即接種率 98%），結核菌素皮膚測驗反應陽性率 7.02%，推估年感染率爲 1.11%（PPD RT23 2TU）。 [Mantourx method]

Infection Rate

Because of Taiwan's universal BCG vaccination program, it is difficult to calculate TB infection rate accurately. Currently, all Grade One students who have not received BCG vaccines will have a mandatory tuberculin skin test. The number of positive skin tests is used to estimate the infection rate. However, the BCG vaccination rate has reached 98% in recent years. The testing samples have diminished over time making this estimation even more difficult.

In 2004 school year, 2,593 students had no BCG indurations representing 1.06 of the student population. In other words, the BCG vaccination rate was 98%. The rate for positive skin test, using a dosage of Tuberculin PPD RT/23 2TU, was 7.02%. The infection rate was estimated to be 1.11%. [Mantourx method]

4.3 死亡率

2005 年台灣結核病死亡率爲十萬人口 4.27 人，死亡人數 970 人，占總死亡 0.70%，居死亡原因第 13 位。與過去比較，結核病死亡率在 1947 年到 2004 年的 56 年間下降了 98.6%；在 1991 年到 2004 年的 13 年間下降了 53.2%。

在 2005 年的結核病死亡總數中，92.7%死於肺結核，其餘 7.3%則爲肺以外其他器官的結核病：依性別區分，男性死於結核病之人數爲 741 例，約爲女性死於結核病人數 229 例的 3.24 倍，每十萬人口死亡率男性 6.40，女性 2.0，死亡率男性則約爲女性的 3.2 倍；依年齡區分，結核病死亡率隨年齡增加而增高，在全部死於結核病的 970 人中，有 81% (788 人)屬於 65 歲以上的老年人，顯示台灣地區結核病死亡年齡分布主要集中於老年人口。

在縣市差異上，結核病死亡率與發生率有平行的趨勢：東部較西部高、南部較北部高，及省轄市及都市普遍較低。2005 年結核病死亡率以台東縣最高，達十萬人口 12.52 人，其次爲屏東縣、花蓮縣。

Mortality Rate

In 2005, TB mortality rate in Taiwan was 4.27 per 100,000 population, with 970 deaths. This accounted for 0.70% of the overall mortality rate. TB was listed as the number 13 leading cause of death. TB mortality has dropped by 98.6% during the period from 1947 to 2004 and by 53.2% during the period from 1991 to 2004.

Among the total mortality of TB disease, 92.7% died from pulmonary tuberculosis, and the remaining 7.3% died from other types of tuberculosis. Grouping the number of deaths by gender, 741 were male which was 3.24 times higher than female. The number of female died from TB was 229. The TB mortality rate by gender showed 6.4 per 100,000 population for male and 2.0 per 100,000 population for female. The mortality rate of male was 3.2 times higher than that of female. Stratified by age, the mortality rate increased with age. Among the total number of 970 TB deaths, 81% (788 people) was seniors over 65 years old. The elderly TB patients were more likely to die of the disease.

With variances existed among different counties and cities, the TB mortality rate appeared to parallel with the TB incidence rate in 2005. Eastern Taiwan was higher the western region and southern Taiwan higher that northern region. Metropolitan areas had lower TB mortality rate. Taitung County had the highest TB mortality rate in 2005, reaching 12.52 per 100,000 population, followed by Pingtung County and Hualien County.

5 結核病防治未來的挑戰

面對結核病目前在台灣地區的現狀，我們必須對各方面的挑戰有深入的認識，才能能提出合理、有效的策略。 未來的挑戰可從下列三方面探討：

(A)、公共衛生與行政系統方面的挑戰
(B)、結核病發現與診斷方面的挑戰
(C)、結核病治療方面的挑戰

Future Challenges of TB prevention and control in Taiwan

Considering the current TB situation in Taiwan, we must understand the pertinent challenges in depth in order to develop a reasonable and effective strategy. We recognize there are three major challenges:

(A) Challenges in the public health and the administrative system
(B) Challenges in TB detection and diagnosis
(C) Challenges in TB treatment

5.1 公共衛生與行政系統方面的挑戰

Challenges in the public Health and the administrative system

5.1.1 民眾對結核病的認知

由於社會沿襲過去的經驗，認爲結核病是一個極具傳染性又無藥可治的痼疾，普遍抱持著烙印般的禁忌（stigma）：排斥結核病患，萬一得到結核病也希望儘量掩飾。如何透過衛生教育除去結核病的污名、防止來自病人本身的延誤，進而促進早期發現、早期治療。在治療過程中，必須長期服藥，否則會產生抗藥性的問題。

Public awareness towards TB

In the past, TB was considered as an untreatable infectious disease branded with social stigma. TB patients were discriminated and tried to avoid being identified. How to eliminate the stigma, to help patients seek medical care and to adhere to treatment plan, to prevent the possibility of developing MDR-TB, to enhance early detection and treatment are all important issues to be addressed by public health education.

5.1.2 個案發現通報與管理

如何早期發現、早期通報、一次完治是結核病防治的關鍵工作。初發病者的症狀不典型，發燒、咳嗽、體重減輕等症狀都不明顯，痰液也不一定驗得出結核菌。因此誤診的發生會影響到病人的管理。

台灣人口密集且流動性大，醫療資源普及造成個案就醫自由，病人的發現及管理比以往困難許多。再加上實驗室驗痰品質良莠不齊、地方動員防治工作尚不足、以及社區傳染源尚未有效控制，皆有可能造成結核病繼續擴散。

Case detection, reporting and management

Early detection, early treatment, completion of treatment are critical factors in TB control. The initial signs and symptoms of TB, such as fever, coughing, weight loss, are not very obvious. Even sputum smear microscopy may not show any sign of the bacterium. Any misdiagnosis will have a negative impact.

Taiwan is a nation with high population density and mobility. Patients can freely select where they will receive medical care. This makes it more difficult for case detection and management than when patients were treated in specialized TB clinics or hospitals. Inconsistent quality of medical laboratories, shortage of TB control personnel in the community, lack of effective infection control in the community continue to cause the spread of tuberculosis.

5.1.3 基層醫護人力缺乏

基層醫護人力的不足是結核病防治的困難之一，病人的治療管理需要有專業醫護背景，目前的病人管理多由衛生所的公共衛生護士負責，公共衛生護士的職責不只是照顧結核病患。衛生所負責業務也是相當龐雜且多樣性。

在人力資源缺乏的情況下，執行「都治計畫」，往往無法達到讓病人在醫護人員的目睹下，按時服藥。實際執行的情況多是公衛人員打電話督促患者按時吃藥，部分患者並非能夠按規定服藥，因此病人的管理相當困難。且個案合作程度也不盡相同。

結核病人的特殊性也是一項考驗，如居無定所的遊民、山地鄉居民及貧困獨居者等占多數比例，往往需要耗費非常大的心力、時間去進行管理的工作。這也加深醫護人力缺乏的情況。

Shortage of primary healthcare professionals

Shortage of trained healthcare professionals in the field is one of the difficulties in TB prevention and control. TB patient needs to be attended by specially trained healthcare professionals. Currently, public health nurses look after most of the TB patients from local health units. However, public health nurses have to shoulder many other tasks at the same time. In addition to TB control, local health units have as well many other complex responsibilities.

Shortage of human resources makes DOTS implementation difficult, where direct supervision of dosage is required. In most cases, healthcare providers can only telephone to remind patients to take medication on time. The level of patient compliance varies and some patients do not follow the instruction.

As well, we need to recognize that each patient is unique and different. Many of the TB patients are homeless, living in remote mountainous regions, poor and alone. These factors contribute to a greater demand for healthcare resources.

5.1.4 外籍勞工與國際人士

近年台灣從國外引進的勞工以及因國際商務或觀光來台灣的人士，特別是來自結核病盛行國家的，都有可能影響台灣境內結核病防治。 如何防止有結核病的外籍人士進入國境，以及如何就已入境外籍旅客或勞工進行防治工作，都是未來需要面對的問題。

Foreign workers and international visitors

Many workers and visitors have entered Taiwan in recent years form other countries. Travellers from those countries where TB is prevalent could impact on Taiwan's TB control. How to prevent TB infected foreigners from entering Taiwan and how to assist those who are currently in Taiwan are challenges to be dealt with.

5.1.5 國內高危險族群

結核病的統計數字很清楚的顯示出，台灣境內有六類國民屬於所謂的高危險族群：

(A) 老年人
(B) 原住民
(C) 偏遠地區居民
(D) 愛滋病個案
(E) 人口密集機構住民
(F) 監所

老年人，伴隨其他慢性疾病、抵抗力較弱等因素，是結核病感染率最高的族群。台灣近兩萬多個疑似結核通報病例中，50.57%是六十五歲以上的老人。

原住民，雖然人數只占台灣總人口的百分之一，但是結核病通報數卻在 3%至 5%之間。

偏遠地區, 亦即山地鄉，居民，基於生活環境較差、醫療服務可近性較低、就醫

順從性低等等原因，這類居民呈現較高的結核病高盛行率和死亡率。雖然山地鄉與原住民的結核病發生率與死亡率比台灣地區要高，但是這兩類民眾在總人口數中所占的比例不高。

Domestic population groups at high Risk of TB

Statistics of TB show that six population groups in Taiwan are at higher risk in contracting TB.

(A) Elderly people
(B) Aboriginal people
(C) Residents in remote areas
(D) People with HIV/AIDS
(E) Residents or workers in high density areas
(F) Prison inmates

Older people, with chronic diseases, weaker immunity and other health factors, are most susceptible to TB. 50.57% of the 20,000 suspected TB cases reported are those age 65 or over.

Only 1% of the total Taiwan population is aboriginal people, they accounts for 3% to 5% of the reported TB cases.

With poor social infrastructure, low accessibility to health care, low treatment compliance, etc., residents in rural and mountainous areas have higher TB prevalence rate and mortality rate. While mountainous residents and aboriginal people have higher TB incidence and mortality rate than the rest of the population in Taiwan they represent a small percentage of the overall population.

5.2 結核病發現與診斷方面的挑戰

Challenges in TB detection and diagnosis

5.2.1 一般醫療院所對結核病的診治品質

過去，70%以上的結核病患由結核病專責醫療機構發現及治療，自全民健康保險在 1995 年開辦後，由於醫療制度的改變，結核病患大多就近前往一般醫療院所治療。醫療可近性雖然因全民健保而提高，但是也面臨一般醫療院所診療品質不一，結核病的診斷治療能力、困難個案治療及轉介、院內感染等問題都需要改善。

Quality of TB diagnosis and treatment in general hospitals

In the past, TB specialty clinics and hospitals were responsible for over 70% of the TB cases. With the introduction of the National Health Insurance in 1995, most TB patients go to general clinics or hospitals of their choice for treatment. Although the universal health insurance program provides better access to healthcare, the quality and capacity of TB care vary from hospital to hospital. The ability to diagnose correctly and treat appropriately, referral of difficult cases, and nosocomial infection control are just a few items to improve.

5.2.2 院內感染及聚集感染

近來結核病的感染事件，經實驗室診斷證實爲院內感染者，僅少數醫院。然而院內感染發生的原因很多，院內感染議題對於健康醫療體系與國人健康的影響甚鉅。一般醫院對結核病及多重抗藥性結核病的警覺性和診治經驗都不夠，易發生延誤診斷延誤治療、甚至診治不當的問題，使院內結核菌及多重抗藥性結核菌感染的風險大增。已爆發的院內感染事件雖然不多，未爲人知的院內感染事件才是更大的隱憂。醫療院如何在平時就建立減少或消除院內感染的因應措施，將是未來防治重點之一。

民眾對結核病的認知不知，病患遭受歧視，甚至於諱疾忌醫。近而傳播給更多人或因此造成社區的聚集感染。

Nosocomial and cluster infection

Confirmed by laboratory tests, TB outbreaks caused by nosocomial infection occurred only in very few hospitals. Many factors can cause infection to spread within the hospital. Such infection can impact significantly on the healthcare system. The awareness and treatment capacity of TB and MDR-TB in hospitals are generally lacking causing misdiagnosis and delay in proper treatment. Unreported or undetected outbreaks within the hospital are of true concerns. Hospital infection control is a key element in future TB control activities.

With insufficient understanding of the disease, TB patients are often excluded from the society. Some patients try to hide their illness and avoid seeking medical care, creating a vicious cycle to spread TB through clusters within the community.

5.2.3 實驗室的質與量

1995 年全民健保開辦後，結核病診治由專責的慢性病院擴及一般醫療院所後，由於 85%的地區醫院、50%以上的區域醫院沒有結核菌培養的設備與人力，結核病的確診能力大大受到影響。 建立一個全國性的結核病檢驗機制，充份提供實驗室的質與量將是未來結核病防治的挑戰。

Quality and quantity of laboratories

With the introduction of the National Health Insurance program in 1995, TB patients can go to general hospitals for TB diagnosis and treatment instead of having to go to the TB specialty hospitals. Because 85% of the district hospitals, 50% of the regional hospitals have no specially trained TB laboratory technicians or TB culture equipment, accurate diagnosis is a challenge.

5.3 結核病治療方面的挑戰

Challenges Associated with TB Treatment

5.3.1 病人治療順從性

病人的治療順從性主要是有關病人對結核病醫療人員在治療方面指示的遵照程度。包括治療期間不規則服藥、自行停藥、服藥不足等等。這些現象都會影響治療的成效。

在台灣的社會中，結核病往往成爲一個烙印，民眾常認爲得到結核病是可恥的事，病患往往遭到疏遠、排斥、拒絕上學、工作等不公平的對待，也會減低病人的治療順從性。

Patient Compliance towards TB Treatment

Patient compliance refers to how closely patients follow healthcare professional's treatment instruction. Patient's certain behavior, such as taking medications irregularly, stop taking medication altogether, not taking enough medication, etc affects the effectiveness of TB treatment.

Stigma, shame, avoidance, neglect, rejection, refusal to work or schooling, unfair treatment are all characteristics of TB disease and contribute to patients' noncompliance.

5.3.2 病人失落

民眾因工作或其他各種原因而離開一般居住的地方的可能性很高。結核病人在離開居住地之前沒有向防治單位報備或者防治過程中因病人遷居他處無法繼續，治療無法銜接，都會造成病人失落。未完治的病人，不但有繼續傳染他人的可能性，未來的藥物治療也可能因此變得更困難。

1997 年至 2001 年在山地鄉試辦實施都治計畫，當時參與都治計畫者計 2,150 人，18 個月失落率爲 7.81%。同一期間、同一地區，未接受都治者 395 人，18 個月失落率高達 14.43%，顯示在台灣實施都治確實可以有效的降低結核病個案治療的失落率。

Patients defaulted in treatment

TB patients can easily move to a different place to live due to job needs or other reasons. These patients often do not notify the TB control agency before moving. Consequently, treatment and follow-up cannot continue and the chance of infecting other people increases. It can also make future treatment more difficult.

From 1997 to 2001, the" DOTS" program was implemented in mountainous areas. 2,150 people participated, 7.81% of them defaulted on treatment after 18 months. Meanwhile, the treatment default rate was 14.43% in the same period and in the same area for the non "DOTS" participants (395 people). This seems to suggest "DOTS" program can effectively reduce treatment defaulter rate of TB patients.

5.3.3 多重抗藥性結核病

一般而言，凡至少對 Isoniazid 及 Rifampicin 具抗藥性的結核病患者，則稱爲多重抗藥性結核病。產生多重抗藥性結核病的原因如下：
1. 病患一開始即感染具抗藥性的菌株；
2. 病患的服藥順從性較差：如不規則服藥、服藥期間不足及自行停藥等。

依據一項疾病管制局研究檢驗中心針對九家代檢實驗室收到的檢體進行分析，結果顯示多重抗藥性結核病人約 4%；另一衛生署胸腔病院的報告顯示，有多重抗藥性的初次治療病患約爲 1.2～2.4%，但重開案的病患，有抗藥性的，卻高達 15.1%～45.2%；治療中斷及治療失敗的病人，多重抗藥性的比例則分別爲 19.3%及 66.7%。

初發病患多重抗藥性結核的比率，已自 1990 年代的 0.2%增加到目前的 2.1%，十年間增加十倍。可見抗藥性結核的問題嚴重程度，以後可用的有效結核藥物可能越來越少。

Multidrug-Resistance TB (MDR-TB)

General speaking, TB patients who have drug resistance at least to Isoniazid and Rifampicin are considered to have multi-drug resistance-TB. The causes of MDR-TB include the following:

1. TB patients are infected by bacteria strain with medication resistance;
2. TB patients with low compliance in taking medication resulting in irregular dosage, insufficient dosage, or no medication.

According to a CDC study on nine laboratories on contract, 4% of the TB patients tested were MDR-TB patients. One study on chest hospitals conducted by the Department of Health found multiple drug resistance in 1.2% to 2.4% of newly infected TB patients, 15.1% to 45.2% in relapsed TB patients, and 19.3% for those with disrupted treatment, and 66.7% for those with treatment failure.

The ratio of MDR-TB patients at initial onset has increased from 0.2% in 1990 to the current 2.1%, a 10 folds increase in 10 years. The statistics show the severity of MDR-TB and that fewer effective drugs for these patients.

5.3.4 人類免疫不全病毒／愛滋病合併結核病

一般而言，結核病會加深人類免疫不全病毒與愛滋病患者的致命情況。相對的，人類免疫不全病毒／愛滋病也會加速結核病的發病速度與嚴重程度。根據世界衛生組織的估計，全球人類免疫不全病毒／愛滋病患有三分之一同時有結核病。人類免疫不全病毒／愛滋病盛行的國家，大都位於非洲南部，其結核病發生率顯著增加。雖然在台灣流行情況，不像許多其他國家那麼嚴重，但是鑒於國際病情發展的趨勢，但是這也是一項未來可能的挑戰。

TB co-infected with HIV/AIDS

TB disease will compromise the health of HIV/AIDS patients. Similarly, HIV/AIDS also would fasten the TB disease development and severity. According to the WHO,

1/3 of the HIV/AIDS patients are co-infected with TB. Many HIV/AIDS epidemic countries are in southern Africa where TB incidence rate has been increasing. Although HIV/AIDS is not as serious at that in other regions, TB patients co-infected with HIV/AIDS do present challenges based on the global trend of TB disease.

5.4 時機的優勢

面對上述及其他相關的挑戰，2005 年 3 月 24 日，政府宣佈在 5 年內集資台幣 140 億，全力撲滅結核病。

衛生署爲與國際同步，乃積極加入 Stop TB Partnership 國際組織推薦之全球結核病防治計畫「The Global Plan To Stop TB 2006-2015」。 在 2006 年 3 月 21 日，成立 Taiwan Stop TB Partnership 希望結合廣大之民間力量，號召國內醫療、護理、檢驗、公共衛生、宗教、學會等 20 家民間團體，共同推動結核防治計畫。

未來結核病防治固然有很多挑戰，但是客觀環境、政府的重視、資金的編列、國際的趨勢，都充份顯示時機的優勢。

Advantage of timing

To address the challenges mentioned above, Government of Taiwan decided to provide 14 billion Taiwan dollars in 5 years towards TB control.

To keep pace with the international activities in TB control, the Department of Health participates in “The Global Plan to Stop TB 2006-2015”, which is highly recommended by the international organization - Stop TB Partnership. On March 21st, 2006, the Taiwan Stop TB Partnership was established aiming to collaborate with more than 20 non-government agencies and professional organizations in medicine, nursing, laboratory science, public health, religion, and academia to promote TB prevention and control strategy.

Undoubtedly, future challenges exist in TB prevention and control. The commitment from the government, funding availability and international trend also present excellent opportunities in fighting TB.

6. 『結核病十年減半全民動員計劃』

“Reduce TB by Half in 10 years” National Campaign

6.1 前言

結核病一直是台灣最嚴重的傳染疾病。雖然國民所得已超過一萬三千美元，每年仍有將近約一萬五千名的新發個案，其嚴重性比所有其他傳染病的總和還大。 台灣推展結核病防治工作已逾半世紀，在防疫人員長期的努力下，疫情雖已有很大的進展，但相較於先進國家，仍有相當的差距。

自 1994 年度起，行政院核定實施「加強結核病防治方案」，爲期五年，1999 年度起，復核定實施「加強結核病防治方案第二期五年計畫」，執行期間至 2003 年度止。2004 年度起，復核定實施「加強結核病防治方案第三期五年計畫」。經衡酌結核病流行現況及評估過去執行成效，以及結核病在全球造成的危機，並配合國際結核病防治的趨勢與活動，政府核定執行「結核病十年減半全民動員計畫」。

1980 年代和 1990 年代初期，結核病再度在美國造成危機。但是在一全國策略的指引下，地方、州、聯邦各層級密切合作，終於扭轉乾坤。在 1992 至 2002 年間，美國境內結核病降低 45%，發生率減半至每十萬人口 5 人，達到美國歷史上的最低記錄。如果我們也能全國動員以類似美國的決心面對挑戰，相信我們也可以達到結核病防治的目標。

本章內容主要採自「結核病十年減半計劃」核訂版，並參考疾病管制局其他相關文件，以及本計劃三位專家的意見，彙編而成。 防治策略的執行仍以疾病管制局公佈之原始文件爲最終依據。

我們謹將結核病防治策略分爲三類描述：

(A)、公共衛生與行政體系方面的策略
(B)、結核病發現與診斷方面的策略
(C)、結核病治療方面的策略

Introduction

TB has been the most severe infectious disease in Taiwan. Although Taiwan's GDP has already exceeded US$13,000 per person, there are still nearly 15,000 new TB cases reported every year. The impact of TB is more than the sum of all the other infectious diseases. Taiwan has worked on TB prevention and control for more than 50 years and has shown the result of hard working public health professionals. However, there is still much to be done comparing with more advanced countries.

In 1994, the Executive Yuan introduced the first 5-year "TB Prevention and Control Enhancement Strategy". The second 5-year plan was initiated in 1999 and ended in 2003. The third plan, i.e. "TB Prevention and Control Enhancement Strategy III" started in 2004. After a careful assessment of the current TB condition in Taiwan and considering the global TB emergency, the government decided to launch a national strategy, i.e. "Reduce TB by Half in 10 Years" echoing the international trend in TB control.

In 1980s and early 1990s, TB again became a crisis in the United States. However, under the guidance of a national strategy, states, counties, and the federal government closely worked together and successfully turned the situation around. From 1992 to 2002, the TB prevalence rate in the US dropped by 45% and TB incidence rate downed by half to 5 per 100,000 population. This was the lowest record in the American TB history. We can achieve the same as the US did if we have the same resolve as a nation.

This chapter's contents are taken from the "Reduce TB by Half in 10 Years" document supplemented with other information from the Center for Disease Control. Recommendations from three experts have been carefully considered. The original source document officially approved by the government of Taiwan should continue to serve as the ultimate guidance in controlling TB.

We hereby, present the TB prevention and control from three aspects, namely,

(A) Strategy on the public health and the administrative system
(B) Strategy on TB detection and diagnosis
(C) Strategy on TB treatment

6.2 法源依據

2004 年 1 月 20 日華總一義字第 09300010081 號令修正公布傳染病防治法。

Legislation Basis of the Strategy

The “Reduce TB by Half in 10 Years”strategy is based on the *Infectious Disease Act* with amendment proclaimed on January 20, 2004.

6.3 實施期間

自 2006 年 1 月 1 日起至 2015 年 12 月 10 日共計 10 年

- 第一期自 2006 年 1 月 1 日起至 2010 年 12 月 31 日止
- 第二期自 2011 年 1 月 1 日起至 2015 年 12 月 10 日止

Implementation Timeline

This strategy is to be implemented during the period from January 1st 2006 to December 10th 2015 (a total of 10 years)

- Phase I: January 1st 2006 to December 31st 2010.
- Phase II: January 1st 2011 to December 10th 2015.

6.4 指導原則

Guiding Principles

下列三點是本計劃的最高指導原則。

The following three points are the most important guiding principles.

6.4.1 引用國際標準與最佳臨床指引

台灣多年來被拒於世界衛生組織外，無法得到會員國家享有的結核病防治、醫療方面的最新科技知識。未來的方向將繼續

- 尋求各種加入全球結核病防治的活動
- 全面的尋求及實施國際防癆標準及最佳臨床指引

To adopt international standards and best evidence-based clinical practice guidelines.

For years, Taiwan has been excluded from the WHO and unable to access the most updated knowledge and technologies in TB prevention and control. The future direction of TB prevention and control in Taiwan includes the following two points:

- To explore different ways to participate in global TB prevention and control activities;
- To research best clinical practice guidelines and follow the international TB prevention and treatment standards.

6.4.2 擴大與各行業及非政府機構合作

要徹底的防治結核病、有效的達到十年減半的目標需要廣泛結合國內外公私機構，從公衛、醫療、生活環境等各方面，同心協力，才能完成。

To expand partnership with other sectors and NGOs

To completely eliminate TB disease and effectively achieve the goal of reducing TB by half in 10 years require collaboration with local and international organizations, i.e. public health, healthcare, and other sectors, etc, to establish partnership towards a common goal.

6.4.3 增強與擴大「都治計劃」

世界衛生組織 在 1993 年確立全球結核病危機，並在 1995 年開始推動「都治計畫」(Directly Observed Treatment Short-Course, DOTS)。 這計劃是過去十年來，全球在結核病防治的進步，尤其是結核病盛行地區，最主要的策略。爲配合世界結核病防治趨勢，「結核病十年減半計劃」將強力推薦每一位痰塗片或培養陽性的結核病個案均接受「都治計畫」的藥物治療。

To strengthen and expand “Directly Observed Treatment Short-Course, DOTS” Program

The WHO declared global TB emergency in 1993, and initiated “Directly Observed Treatment Short-Course, DOTS” in 1995. “DOTS” has been the most important strategy in the past 10 years in terms of advancing the global fight against TB particularly in regions severely burdened with TB. To follow the global trend in TB control, the national campaign of “Reduce TB by Half in 10 Years” in Taiwan strongly urges every smear positive TB patient to be treated under the “DOTS” program.

6.5 願景、目的、目標與預期績效指標

Vision, Goal, Objectives and Anticipated Targets

6.5.1 願景

營造無結核病的家園。

Vision

To build a TB free country.

6.5.2 目的

在短期內儘快消除結核病。

Goal

To eradicate TB disease within the shortest time period possible.

6.5.3 目標

在本計劃執行的十年間完成結核病減半的目標。
(A)、及早發現已受感染並發病者，及早治療，減少傳染源
(B)、使已被發現的病人得到完善醫療照護，儘速治癒，切斷傳染源
(C)、預防未感染者遭受感染，有效控制結核病蔓延

Objectives

The ultimate object is to reduce TB cases by half in the 10-year period. Additionally,

A. Early detection and treatment of patients already infected by TB and reduce sources of infection.
B. Provision of timely and complete TB treatment to patients that have been identified to prevent them from infecting others.
C. Effective prevention of the healthy population from being infected.

6.5.4 預期績效與指標

結核病每年新增確診個案數逐年下降，十年後新增個案減少一半。

Anticipated outcome and measurement indicators

Annual reduction of new confirmed TB cases with a target of reduction by half in 10 years.

(A)、全國性指標

全國性總體指標：自計畫起始至第五年（2010 年），個案發生率降至每十萬人口 52 人。第十年（2015 年），個案發生率降至每十萬人口 34 人。個案追蹤治療後年齡標準化成功率(success rate)達 90%以上。

年度性的指標如下：

年度指標	2006	2007	2008	2009	2010
年齡標準化成功率（%）	91	91.5	92	92.5	93
個案追蹤治療 18 個月失落率（%）	1.65	1.6	1.5	1.4	1.3

(B)、地方性指標

自計畫起始至第五年（2010 年），有一半的縣市個案發生率減半，第十年（2015），所有的縣市發生率減半。

(A) National indicator

The national overall indicator: 5 years after introduction of the strategy (Year 2010), the TB incidence rate is to be reduced to 52 cases per 100,000 population with further reduction to 34 cases per 100,000 population 10 years later. The age-standardized success rate is to be 90%.

The annual indicator is identified as below:

Annual indicator	2006	2007	2008	2009	2010
Success rate（%), age standardized	91	91.5	92	92.5	93
Treatment default rate (%) after 18 months	1.65	1.6	1.5	1.4	1.3

(B) Local indicator

Within five years after the introduction of the strategy, i.e. Year 2010, the TB incidence rate is to be reduced by 50% in half of the counties and municipalities. Within ten years, i.e. Year 2015, the TB incidence rate is to be reduced by half in all counties and municipalities.

6.6 公共衛生與行政體系方面的策略

Strategy on the public health and the administrative system

6.6.1 基礎管理單位的設置

結核病防治在過去五十多期間，雖然有相當的成就，但是相關的行政體系受客觀環境因素的影響，而有變化。這些因素包括，退出聯合國、精省、全民健保、等等。爲求全國結核病的防治符合一致標準與品質、疾病管制局參考世界衛生組織推薦的方案，將以下列模式建立遍布全國各階層的服務網絡，以便所有的人力、物資都能做最有效的運用。

(A)、基礎管理單位（Basic Management Unit, BMU）的設立。

(B)、分級管理的概念。

一旦這防治工作的基礎架構完成後，預期每一結核病人將可得到下列醫護服務：

1. 專屬的醫院結核病個案管理專員一人、公共衛生護士一人、「都治計劃」關懷員一人。
2. 專任的照護醫師一人及輔導診治醫師一人。
3. 病情及完治時程將獲定期於結核病委員會中討論。

有關「基礎管理單位」的細節，請見附錄 (二)

Establishment of TB Basic Management Unit

In the past 50 years, TB prevention and control in Taiwan has made significant progress. Several factors have contributed to changes in the administrative structure. These factors include withdrawal from the United Nation, downsizing of the provincial government, and introduction of the National Health Insurance. In order to have consistent standards and quality in TB control throughout the country, CDC Taiwan has considered strategies and models recommended by the WHO and intends to use those models to build a network of service at different levels across the country so that all the resources and materials can be utilized most efficiently.

(A) Establishment of Basic Management Unit (BMU)
(B) Adoption of multi-level management

Once the infrastructure of TB control is established, every TB patient will receive the following services:

1. To be cared by a team consisting of a hospital-based case management staff, a public health nurse, and a DOTS observer.
2. To be cared by an attending physician and a consulting physician.
3. To have the personal TB condition and treatment plan reviewed regularly at the TB control committee meeting.

For more information on Basic Management Unit, please refer to Appendix II.

6.6.2 醫療人力資源的開發

針對結核病醫療人力之不足，我們將密切與現有的資源連接、積極與各層級的衛生單位及學術機構合作辦理醫師、檢驗人員、醫療院所護理人員、個案管理師、衛生機關及其他機關工作人員之結核病防治相關專業能力訓練活動。雖然每個人都有感染結核病的可能性，我們將針對結核病負荷最重的地區與族群，加強醫療人力的開發與調度。 詳情請見附錄 (三)

Development of TB specialty personnel

The shortage of health care professionals in TB control will be resolved by integrating existing resources and collaborating with different health care agencies and academic institutions to train more medical doctors, laboratory technicians, nurses, case manager, etc. Areas with higher TB burden and groups at higher risk will receive priority in the distribution of available resources.

Please refer to Appendix III for detailed information.

6.6.3 加強預防接種

(A)、全面追蹤一歲內嬰兒卡介苗接種完成率。
(B)、國小入學後以普查方式，針對未受感染者完成補種。
(C)、加強接種技術教育訓練，強化標準一致性。
(D)、隨機辦理疫苗力價評估，確保疫苗品質。
(E)、辦理卡介苗接種效果評估研究。

Enhancement of vaccination program

(A) To conduct complete follow-up on BCG vaccination for infants up to 1 year old to determine the vaccination rate.
(B) To survey and identify those elementary school children who have not had vaccination and has not been infected. These children will be provided with vaccination.
(C) To enhance vaccination technique to ensure consistent quality and standard.
(D) To conduct ad hoc assessment to ensure vaccine quality.
(E) To conduct effectiveness analysis of using BCG vaccination.

6.6.5 機構內感染管制措施

爲避免在醫療院所內發生群聚感染，疾病管制局已經印行一本結核病院內感染控制的手冊。另有一供醫療院所教學用材料的光碟。未來這方面的工作策略將包括：

(A)、鼓勵醫療院所增強感染控制的品質

(B)、與中央健保局配合提供獎勵措施，以加強醫療院所改善感染控制的意願與品質

(C)、加強對各醫院防止院內感染措施的檢查

Nosocomial infection control measures

To help prevent nosocomial infection due to congregation of people in the hospital, CDC Taiwan has compiled and published specific guidelines for hospital infection control. A CD ROM was also produced for education purpose in a hospital setting. The future direction includes:

(A) To encourage hospitals to take steps to enhance infection control.

(B) To collaborate with Bureau of National Health Insurance to provide incentive to award those hospitals that improve infection control.

(C) To audit infection control measures in each hospital.

6.6.6 協調中央健保局合作處理結核病治療與經費議題

(A)、將健保結核病醫療費用納入疾病管制局公務預算

依行政院指示，將結核病患醫療費用含部分負擔納入衛生署疾病管制局公務預算，俾對結核病防治之計畫推動、健保財務、病患就醫權益及民眾健康提供完整保障。爲因應防疫之需求，以痰陽性個案醫療給付爲優先。

(B)、 提供無健保病人醫療照顧

爲避免結核病個案因未加入健保而有經濟問題，無力負擔檢查治療費用，致影響整體防治績效，提供因結核病治療所需之醫療費用。

Collaboration with National Health Insurance in resolving TB treatment funding issues

(A) Transfer of TB treatment budge from National Health Insurance to CDC

In compliance with a directive from the Executive Yuan, the National Health Insurance program is to transfer its TB treatment budget to CDC to facilitate integration of all TB control and related programs. The priority will be to treat those sputum smear positive TB patients.

(B) Treatment for patients without National Health Insurance coverage

Some TB patients have no coverage from the National Health Insurance program due to financial difficulty. These patients will receive assistance so that they are properly treated.

6.6.7 衛生教育宣導

加強衛教宣導，提昇全民結核病防治知能，促成初段與次段的預防。
(A)、初段預防
在於透過衛生教育，增加民眾對結核病的認知及消除結核病的污名。
(B)，次段的預防
在於透過衛生教育，促成早期發現、早期治療。

除一般民眾外，也將針對下列各類人員，籌劃適當、有效的教育宣導資料與活動。
(A)、醫護專業人員
(B)、高危險性族群及和他們一起工作的人
(C)、教職員

未來有關結核病防治的衛生教育宣導的要點如下：
(A)、廣泛使用大眾媒體
(B)、製作創意文宣或教材
(C)、配合世界衛生組織全球性宣導主軸
(D)、結合各級政府進行有地方特色之宣導活動
(E)、衛生教育重點主軸如下：

- 避免延誤就醫
- 咳三週、快檢查

- 規則服藥、避免抗藥性產生
- 傳染途徑概念澄清
- 保障病患就學、工作及隱私權。
- 接納及關懷病患。

細節請參閱附錄 (四)。

Enhancing public health education

To enhance public health education, raise public awareness on TB control, to achieve primary and secondary prevention.

(A) Primary prevention
Through public education, raise the awareness and knowledge on TB so that the stigma of TB can be erased.

(B) Secondary prevention
Through public education, achieve early detection and treatment.

To develop special educational materials and activities for the following groups:

(A) Health care professionals
(B) People at high risk of contracting TB and those work with them
(C) Education staff

The key elements of public education on TB control include the following.

(A) To widely use public mass media
(B) To produce education materials
(C) To keep pace with the WHO on the global TB prevention and control campaign
(D) To collaborate with government agencies at all levels in sponsoring campaign activities that have unique local flavours.
(E) Key points of public health education are as follows:
- Early and timely TB treatment.
- Continuous coughing for 3 weeks, a sign to seek immediate medical attention.
- Regular medication keeps MDR-TB away.
- Correct information about TB transmission.
- Protection of patient privacy at school and at work
- Acceptance and care for TB patients.

Please refer to Appendix IV for more details.

6.6.8 國際合作

我們將積極參與國際抗癆活動，扮演一國際公民的職責。

(A)、援助其他國家
以結核病防治作國民外交工作與外交部等機關合作規劃各種國際援助案，協助需要幫助的國家，提昇其結核病防治工作品質，以結核病防治作國民外交。

(B)、國際交流
與外交部等機關合作，加強與各國及國際結核病防治組織經驗交流

- 選派優秀專業人員前往國外開會、考察、研習，汲取新知和國際經驗，以提升國內防治品質。
- 舉辦國際性學術研討會，邀請國外專家學者與會，促進學術及經驗交流。
- 贊助民間團體參與國際會議。
- 與他國進行結核病防治之援外合作
- 製作簡易文宣分享我國防治經驗
- 與專業性國際組織，如世界衛生組織 、「全球對抗愛滋病、結核病及瘧疾基金」（Global Fund to Fight AIDS, Tuberculosis and Malaria 等）進行各項專業交流與聯繫。

International collaboration

As a world citizen, we will actively participate in global events on TB prevention and control.

(A) Support for other countries
To develop foreign aide strategies with the Ministry of Foreign Affairs to support countries that need help with TB control, thus to increase the quality of their TB control and to facilitate bilateral interaction and friendship.

(B) International exchange
To collaborate with the Ministry of Foreign Affairs to promote exchange of experience and knowledge with other countries and international TB control organizations.

- To sponsor Taiwan TB specialists to attend abroad conferences, study, research, and acquire new knowledge and international experience on TB control, thus to upgrade the TB control in Taiwan.
- To host international symposiums with invited foreign experts to promote academic and experience exchange.
- To sponsor non-government agencies to participate in international conferences.
- To collaborate with other countries in funding TB control projects.
- To share Taiwan TB control experience through publications.
- To connect with international organizations such as the WHO, Global Fund to Fight AIDS, Tuberculosis and Malaria to exchange expertise and knowledge.

6.6.9 研究發展

結核病防治的研發工作主軸在於對病理與治療有更深入的了解，以便發展適用於台灣的最佳醫療指引。這十年計劃中的研究發展工作重點如下：
(A)、研究釐清結核病相關基本資料
(B)、研究發展如何提高正確的診斷率及更有效的治療方式
(C)、研究人口密集機構及院內感染防範模式
(D)、研究國際結核病防治策略形成的模式

細節請參閱附錄 (五)。

Research and Development

Research and Development of TB control will focus on gaining better understanding of different treatment regimens and TB pathology so that guidelines specifically for Taiwan can be developed. The key points for R & D of this 10-year strategy are listed below.

(A) To research and compile basic information about TB.
(B) To research and develop most effective methodology to increase accuracy in diagnosis and to improve effectiveness of treatment.

(C) To research effective TB infection control methods for institutions with a large number of people and nosocomial infection within hospitals.
(D) To study how international TB control organizations develop the strategies.

Please refer to Appendix V for detailed information.

6.6.10 跨部會權責劃分與分工

結核病防治需要各相關政府機構密切分工合作。各部門的權責劃分如下：

一、縣市政府
提出縣市在地化結核病防治計畫，執行及評估在地化結核病防治成效。

二、教育部
協助督導各級教育單位，辦理學校結核病防治教育宣導，灌輸學生正確觀念，加強學生生活輔導，防止校園疫情擴大。

三、 內政部
協助進行安養機構、遊民及替代役男結核病防治教育宣導及篩檢，並配合辦理個案管理事宜。

四、法務部
協助進行各矯正單位收容人結核病防治教育宣導及篩檢，並配合辦理個案管理事宜。

五、國防部
協助辦理軍人結核病防治教育宣導、篩檢與個案診治及管理。

六、外交部
協助規劃各種國際援助事宜；透過外館、醫療團瞭解各國防治現況與實際需求，以爲研擬提供援助之參考，透過政府及非政府間國際組織之管道，積極參與相關區域或多邊援助計畫。

七、新聞局
協助辦理結核病防治教育宣導，提供民眾正確的結核病防治資訊。

八、勞委會
配合外籍勞工健康檢查，如發現結核病個案，應即處理，並副知當地警察機關，督促雇主儘速安排外籍勞工返國。

九、原住民族委員會
協助進行原住民結核病防治教育宣導及篩檢，鼓勵個案規則治療，改善生活習慣，降低結核病患病率及死亡率。

十、衛生署
訂定與執行本計畫。

十一、結核病相關學術、社會團體
協助進行結核病防治教育宣導、學術研究及國際交流合作。

十二、醫療院所
負責結病個案診斷、門診及住院治療事宜，協同主管機關提高結核病醫療、檢驗品質及進行相關教學、研究。

Cross-departmental collaboration

TB control needs close collaboration among government departments and agencies at different levels. The following section describes respective roles and responsibilities:

1. County and municipal governments
To plan TB control programs at the local level and to assess program outcome.

2. Ministry of Education
To assist and supervise educational institutions to develop and deliver educational programs focusing on providing accurate information and concept, to provide guidance on healthy living, and to prevent TB outbreak on campus.

3. Ministry of the Interior
To assist in delivering TB educational programs to nursing homes, long term care facilities, homeless people, male soldiers on military service substitution program; to conduct screening and collaborate on related TB case management.

4. Ministry of Justice
To assist with TB educational program, provide screening and participate in TB case management, for inmates in the correctional facilities.

5. Ministry of National Defence
To provide TB educational programs, screening, treatment and case management to military personnel.

6. Ministry of Foreign Affairs
To assist in coordinating international TB aid activities; to gather reference information through embassies and international agencies for planning foreign aids; through connections of government and NGOs, actively collaborate with regional or to plan multi-lateral aids activities.

7. Government Information Office
To assist with dissemination of TB public education information so that the general public will have correct information and concept on TB.

8. Council of Labour Affairs
To assist with health screening for foreign workers; take proper procedure immediately when any TB cases are identified; to notify local police station and employers to deport foreign workers to their home countries as soon as possible.

9. Council of Indigenous Peoples
To educate indigenous people on TB prevention and education, screening and encourage for regular treatment, improve life style, and decrease TB incidence rate and mortality rate.

10. Department of Health
To develop and execute this strategy.

11. Academic institutions and organizations related to TB control
To assist with TB public education and to collaborate and exchange with academic research agencies at the international level.

12. Health care institutions
To be responsible for TB diagnosis, treatment, and hospitalization, etc. to assist health

authorities to raise standard and quality of TB health care, and to participate in TB education and research.

6.7 結核病發現與診斷方面的策略

Strategy on TB detection and diagnosis

6.7.1 嚴密監視病情

我們將廣泛收集與提供即時的病情資訊，讓中央及地方衛生機構能充份發揮早期偵測感染、接觸者與感染源調查、監控傳染擴張的功能。

(A)、落實通報政策
(B)、加強外籍人士與勞工結核病監測
(D)、加強特定職業及族群別結核病監測

詳情請見附錄(六)。

Close surveillance of TB outbreak

We envision that TB surveillance information is widely collected, monitored and disseminated for immediate action to control any outbreak so that government agencies at all levels can achieve early detection, infection source identification, contact investigation and determine the level of potential outbreak.

(A) To enforce compliance of reporting policy and procedure.
(B) To enhance TB surveillance of foreign visitors and foreign workers
(C) To enhance TB surveillance of certain work and ethnic groups at high risk.

Please refer to Appendix VI for detailed information.

6.7.2 個案發現與管理

(A)、改善主動發現個案績效
(B)、強化被動發現個案績效
(C)、建立專案管理制度提升結核病醫療品質
(D)、加強個案管理品質監控工作
(E)、激勵地段個案管理人員積極投入個案追蹤

詳情請見附錄(七)。 本節取材自「結核病十年減半計劃」文件。疾病管制局備有個案管理執行與運作的細節。

TB case detection and management

(A) To improve effectiveness of proactive TB case detection.
(B) To enhance outcome of reactive TB case detection.
(C) To establish case management system to improve quality of TB care.
(D) To enhance quality of TB case management services.
(E) To encourage local public health nurse to actively monitor each case.

Please refer to Appendix VII for detailed information. This chapter was taken directly from the “Reduce TB by half in 10 years” document. CDC Taiwan has detailed information on TB case management execution and implementation.

6.7.3 結核病醫療資訊系統

完整與正確的數據是結核病防治資訊系統的基礎。每一基礎管理單位必須定期收集、呈報各項運作有關的數據。 在資訊系統整體的考量上，工作重點如下：
(A)、強化結核病患資料庫效能
(B)、建立多功能的網路結核病通報查詢系統
(C)、結核病資訊系統品質的繼續提昇
(D)、廣泛收集分析與結核病防治有關的社經、衛教資訊

詳情請見附錄(八)。

TB Management Information System

Considering complete and accurate data being the foundation of TB management information system, every Basic Management Unit needs to regularly collect analyze and report data pertinent to TB management. Future work on the TB management information system will focus on the following elements.

(A) Increase capacity of the TB database.
(B) Establish multi-functional network system for TB reporting and tracking.
(C) Raise the quality of TB information system.
(D) Collect, analyze, disseminate information related to TB.

Please refer to Appendix VIII for detailed information.

6.7.4 結核病檢驗網

結核代檢網自 2001 年 10 月開始設立，初期以優良實驗室建置、送檢網路建立、資料回饋等硬體及收、送檢流程建構爲主；本計畫將著重於代檢實驗室分級認證、實驗室品質提昇、監控及人員素質訓練等。主要的工作包括下列各項：

(A)、建構結核菌代檢網
(B)、建立區域級結核菌實驗室
(C)、建立國家級標準結核菌檢驗中心
(D)、監控各地結核菌抗藥性情形
(E)、鼓勵學術單位從事結核菌檢驗之相關研究
(F)、訂定結核菌新興檢驗指引
(G)、建立訂定合理結核菌檢驗支付標準機制

詳情請見附件(九)。

TB Laboratory Network

In October 2001, we began to establish a network of good quality TB laboratories. In the first phase, the priorities were selection of good quality laboratories, establishment of specimen collection and delivery system, information collection and feedback mechanism, operational process and procedures. This strategy aims at classification

and certification of contracted laboratories, quality assurance, monitoring and human resources development. Listed below are the key elements:

(A) To establish a network of contracted TB laboratories.
(B) To establish regional TB laboratories.
(C) To establish national TB reference laboratory center.
(D) To monitor TB drug resistance in all regions.
(E) To encourage academic institutions to conduct research in TB bacteria testing
(F) To develop clinical guidelines for TB testing.
(G) To establish reasonable payment schedule for TB laboratory work.

Please refer to Appendix IX for more information.

6.7.5 結核病診療網

結核病診療網的強化，包括下列各要點：

(A)、 賡續辦理「結核病診療指定醫師」認證
(B)、 配合辦理健保局全民健保結核病醫療給付，改善專案「結核病診療醫院」認證
(C)、 提昇結核病診療指定醫師質與量
(D)、 建構結核病診療醫師專家諮詢／轉介機制
(E)、 提升結核病診療指定醫院品質
(F)、 提供多重抗藥性／慢性傳染性肺結核病患診療服務
(G)、 成立結核病診療諮詢小組
(H)、 結核病院內感染查核
(I)、 建立結核病教學示範暨後送中心
(J)、 建立呼吸道隔離病床通報及聯繫調度平台
(H) 、建構 MDR 指定醫院及指定輔導醫師

詳情請見附錄(十)。

TB diagnostic and treatment network

The following section identifies the key elements to enhance the TB diagnostic and

treatment network.

(A) To continue with the certification of “TB designated specialist” for medical doctors.
(B) To work with Bureau of National Health Insurance on TB treatment reimbursement and to improve the certification of designated “TB hospitals”.
(C) To increase the capacity and quantity of designated TB specialists.
(D) To develop TB specialist consultation and referral protocol and procedures
(E) To improve quality assurance of designated TB hospitals.
(F) To provide diagnostic and treatment services to MDR-TB and chronic infectious TB patients.
(G) To establish TB diagnostic treatment consultation team.
(H) To investigate nosocomial infection in designated TB hospitals.
(I) To establish TB teaching and referral centers.
(J) To establish respiratory quarantine ward and related reporting and coordination procedure.

Please refer to Appendix X for detailed information.

6.8 結核病治療方面的策略

Strategy on TB Treatment

6.8.1 「都治計劃」

「都治計劃」是目前世界衛生組織與世界銀行共同認定最爲有效的結核病防治方法。『結核病十年減半計劃』執行期間，將擴大實施「都治計劃」、並作爲重要指導方針之一。

個案接受「都治」將有三個階段：
(A)、住院都治
(B)、社區都治

(C)、住院與社區都治的轉銜

觀察送藥方式將有兩種方式：
(A)、關懷送藥到家
(B)、個案到點服務

縣市各級衛生機構將以團隊合作的模式，聯結病患就診醫療院所，積極做到關懷送藥到家和個案到點服務。參與「都治計劃」執行的各層級的衛生單位包括：
(1)、衛生所
(2)、縣市衛生局
(3)、疾病管制局分局
(4)、疾病管制局總局

參與的各類工作人員將包括：
(1)、指導醫師
(2)、臨床診治醫師
(3)、醫院個案管理專員
(4)、衛生局督導人員
(5)、衛生所地段管理人員 (公共衛生護士)
(6)、都治關懷員
(7)、社會工作人員

「都治計劃」選擇與接納適當病人的詳細流程以及其他相關策略，請見附錄(十一)。

Direct Observed Treatment Short Course (DOTS)

"DOTS" is by far the most effective TB treatment method recognized by the WHO and the World Bank. "DOTS" will be expanded along the course of "Reduce TB by half in 10 years" campaign. It is one of the major directions of this strategy.

"DOTS" has three types of services:
(A) "DOTS" in hospital.
(B) "DOTS" in community.
(C) "DOTS" bridging program for hospital and community.

"DOTS" can be administered in two ways:

(A) Deliver and observe the dosage at patient's home.
(B) Patients report to a designated location for dosage.

Health agencies at the county and/or municipal level shall all participate as a team with designated TB hospitals to ensure DOTS is implemented according to the two service types described above. The health agencies taking part in DOTS program includes:
(1) Local health unit
(2) County and city health bureau
(3) CDC branch offices
(4) CDC headquarters

The participating health care professionals include:
(1) Consulting physician
(2) Attending physician
(3) Hospital case management personnel
(4) Supervisor from the Bureau of Health
(5) Public heath nurse
(6) DOTS observer
(7) Social worker

For detailed procedural information on patient selection and intake, please refer to Appendix XI.

6.8.2 多重抗藥性結核病的治療

配合世界衛生組織的建議建構「MDR 指定醫院」，將有抗結核藥物副作用及抗藥性問題的病患轉介至本局指定醫院，嚴格實施加強型都治（DOTS-Plus）專案照護管理，由專業的醫療照護團隊結合醫療與公共衛生，從病患的發現原則、診斷方式、治療處方、管理與追蹤模式、定期評價等每個環節緊密聯繫，俾快速有效阻絕傳染原，避免抗藥性結核菌在一般醫院間持續散播。DOTS-Plus 是針對多重抗藥性結核病盛行地區，而正在開發的一項策略，包括使用第二線抗結核藥物。這方案的先決條件是要有一個高效率的「都治計劃」。 我們將觀察這方面的發展，並隨時適當的採用新的措施。

預防及控制多重抗藥性結核病的產生的策略如下：

(A)、正確的痰抹片、培養及藥敏試驗
(B)、免費提供第二線抗結核藥品
(C)、實施「加強型（DOTS-Plus）都治專案照護」
(D)、鼓勵痰陽住院隔離治療二週、MDR-TB 住院二個月
(E)、訂定結核病住院治療審核指引
(F)、建構「MDR 指定醫院」及指定輔導醫師

凡是對抗結核一線藥產生副作用並考慮使用二線藥或有抗藥性問題，請衛生局協助轉介至本局 MDR 指定醫院。

除上述相關措施外，未來將配合世界衛生組織之規劃：
(A)、建立即時與完整的通報系統
(B)、陽性菌株的收集
(C)、配合製藥產業，研發治療多重抗藥性結核病之新藥

Treatment of MDR-TB

Based on WHO's recommendation in establishing "MDR Designated Hospital", patients showing TB drug resistance or drug side effects are referred to such hospitals to receive DOTS-Plus treatment provided by an expert team. To prevent these patients from infecting others while in the regular hospital, we will focus on detection, diagnostic procedure, prescription, case management and monitoring, and regular assessment. DOTS-Pus is a special program for areas with high MDR-TB incidence rate. It includes the use of the second line anti-TB drugs. However, the prerequisite is a highly effective DOTS program and we will keep a close watch over the development in this area.

The strategy on MDR-TB prevention and control is identified below:
(A) Accurate sputum smears, culture, and drug sensitivity tests.
(B) Appropriate second line anti-TB drugs free of charge.
(C) Implémentation of "DOTS-Plus".
(D) A 2-week treatment in hospital isolation ward for patients with positive sputum smear and 2 months of the same treatment for the MDR-TB patients.

(E) Development and implementation of assessment guidelines for treating TB in hospital.
(F) Establishment of “MDR TB Designated Hospital” and consulting specialist.

CDC’s “MDR-TB Designated Hospital” will treat all patients considered for the second line drugs due to side effects from the first line drugs.

In addition to the policies above, we will also incorporate the WHO strategies on TB control:

(A) Establishment of timely and complete notification system.
(B) Collection of positive TB bacteria strain.
(C) Collaboration with pharmaceutical companies on research and development for drugs to treat MDR-TB.

6.8.3 鼓勵個案規則治療

督促個案遵循「TB 就診手冊」就診。提醒醫師配合填寫個案就診相關資料，俾利防疫單位即時追蹤管理。另考量各原住民族區、離島偏遠地區特殊的文化、社經、醫療背景，以社區化的服務方式配合衛生所人員管理結核病個案，以提高治療管理效果。

TB patient compliance in treatment plan

We urge TB patient to follow “TB Treatment Handbook”. We would remind physicians to complete relevant information when charting TB cases to facilitate follow-up and case management. Furthermore, we need to consider factors in treating patients from aboriginal reservations, rural areas, and different culture, social economic and health care background. As well, we need to utilize community health care model in TB case management to improve treatment outcome.

6.8.4 傳染性肺結核個案隔離治療

(A)、強制隔離治療

罹患傳染性肺結核個案（特別是痰塗片陽性個案、多重抗藥性個案），可依傳染病防治法規定，及行政程序法所規定之程序，強制移送住院隔離治療。　　病患如拒絕住院時，可依罰鍰。

(B)、慢性傳染性肺結核病

鼓勵慢性傳染性肺結核病人至合約醫院長期住院治療，補助住院營養暨生活費，提供其醫療、伙食及生活津貼。

Treatment of infectious pulmonary TB in isolation ward

(A)　Mandatory treatment in isolation ward

According to the Infectious Disease Act and related regulations, any patients with infectious TB, particularly, smear-positive cases and MDR-TB cases need to receive mandatory treatment in isolation in a hospital setting. Patients maybe fined if refused.

(B)　Chronic Infectious TB Patients

To encourage chronic infectious TB patients to receive long term hospitalization care and to provide financial assistance to offset cost of living, food, medical services.

6.8.5　傳染性結核病病人搭乘國際航大眾航空器規範

世界衛生組織近期對於有關結核病與搭機旅遊的健康指引進行再版，明確的建議：罹患傳染性肺結核病的乘客，應該延遲其搭乘大眾航空器的長旅程（超過八小時）計畫；或傳染性之多重抗藥性（MDR）結核病患無論搭乘時間長短，均應該延遲其旅行計畫。

實施辦法將分三期進行：

(一)　　宣導勸導期

採以加強大眾及針對目標對象加強衛教宣導的方式，提供民眾結核病的正確觀念。並使包括衛生行政系統、醫護系統等對於訪視或診治結核病人時都能進行相關之教育宣導。而航空公司及旅行社等亦能提早提出配套措施並演練，以因應相關之後續限制政策、措施之執行，並有足夠的時間可提醒旅客注意相關措施。

(二)　　違規罰款期

依據傳染病防治法第四條、第四十二條及第六十六條逕行公告，限制傳染性結核病人及多重抗藥性結核病人搭乘大眾航空器，違反限制規定，搭乘大眾航空器被舉發或發現者則逕行罰鍰。

限制對象爲全國結核病患資料庫（以下簡稱結核病患資料庫）登記列管之（一）痰抹片抗酸菌檢驗陽性有傳染之虞之肺結核個案且於同一航程中搭乘超過連續八（含）小時的飛航行程；（二）傳染性之多重抗藥性（MDR）結核病患毋論搭乘時間長短。

在下列兩種情況下可取消限制：（1）痰抹片抗酸菌檢驗陽性結核病個案後經直接觀察治療（DOT）達二星期（14 天）或其他證據證實已無傳染之虞者；（2）傳染性之多重抗藥性（MDR）結核病患經痰培養陰性者；得由資料庫系統自行取消限制。

(三)　管制搭乘國際航班期

依據傳染病防治法第四條、第四十二條及第五十六條第二項，入出國及移民法第六條。 公告實施「行政院衛生署管制傳染性肺結核病患搭乘國際航班作業要點」。限制上節 (二) 所列傳染性結核病患搭乘國際航班之大眾航空器。

若需要詳細資料，請洽疾病管制局。

Tuberculosis and air travel guidelines

The recently released WHO Tuberculosis and Air Travel Guidelines stipulate that people with infectious TB must postpone long-distance (> 8 hours) air travel, while those with multidrug-resistant tuberculosis (MDR-TB) must postpone any air travel.

We intend to implement related regulations in the following three stages:

(A)　Public Education Phase
Through public education, correct information will be provided to raise the awareness. Public health and healthcare agencies will be engaged to facilitate this campaign. Airlines and travel agencies will be urged to be ready for the next two stages of implementation.

(B)　Penalty for Violation Phase

Pursuant to the Infectious Disease Control Act Section 4, Section 42 and Section 66, passengers, infected with tuberculosis as described below, will be fined if violating the air travel guidelines.

Based on data from national TB registry, air travel limitations are applied to two types of TB patients: (1) those with current record of smear-positive test result and plan for prolonged air journey greater than 8 hours, (2) those having diagnosed as MDR-TB patients regardless the duration of the air travel.

However, restrictions can be lifted when the above-mentioned patients meet the following two conditions: (1) Smear-positive patients after two weeks, i.e. 14 days of DOTS treatment; (2) MDR-TB patients after smear test result shows negative.

(C) Travel Restrictions

Pursuant to the Infectious Disease Control Act Section 4, Section 42 and Section 56 (subsection 2), and Section 6 of the Immigration Act, “Tuberculosis and International Air Travel Regulations” will be implemented to impose travel restrictions on passengers infected with tuberculosis as described above.

For further information, please contact Center for Disease Control.

6.9 考評

爲確保結核病防治策略的成功執行，將有針對執行面各層級的階段性評估。爲求達到預期的地方性指標，將輔導各縣市結核病防治單位，依照本計劃的內容與重點，各自研其轄區內的執行方案。

本計劃的評估活動將以執行成果與預期的全國性與地方性指標比較爲主軸。
(A)、年度性評估
(B)、期中評估
(C)、期末評估
(D)、及時性的評估

細節請參閱附錄 (十二)。

Evaluation

For successful execution of the TB control strategy, evaluation in different phases and at different levels is critical. We will assist county and municipal health authorities and other participating organizations to develop specific goals and objectives for their respective jurisdictions.

The evaluation will entail monitoring of outcome relative to anticipated national and local goals. Listed below are the key points.

(A) Annual evaluation
(B) Midterm evaluation
(C) Final evaluation
(D) Ad-Hoc evaluation

Please refer to Appendix XII for more details.

6.10經費需求

本計畫前五年所需經費，共計新台幣 8,371,351 千元（不含人事費）

(A)、2006 年度所需經費爲 1,658,148 千元
(B)、2007 年度所需經費爲 1,665,855 千元
(C)、2008 年度所需經費爲 1,673,907 千元
(D)、2009 年度所需經費爲 1,682,323 千元
(E)、2010 年度所需經費爲 1,691,118 千元

各項工作分年經費細節，請見附錄 (十三)。 後五年的預算將視前五年進行情況編列。

Funding Requirement

The total budget for the first five years of this strategy is NT$8,371,351,000 New Taiwan dollars (excluding funding for human resources).

(A) Funding for 2006 is NT$1,658,148,000 New Taiwan dollars
(B) Funding for 2007 is NT$1,665,855,000 New Taiwan dollars
(C) Funding for 2008 is NT$1,673,907,000 New Taiwan dollars
(D) Funding for 2009 is NT$1,682,323,000 New Taiwan dollars
(E) Funding for 2010 is NT$1,691,118,000 New Taiwan dollars

A spreadsheet with breakdown in different categories is included in Appendix XIII. The budget of the second five years will depend on the progress made in the first half of the implementation.

7. 結語

結核病防治的工作需要隨時參考最新的國內外經驗與科技，以因應國內結核病疫情。即使在編撰本文件短短的半年之間，新的文獻，政策，方案、公告，不斷產生。鑒于本文件的主旨在於將台灣現行結核病防治策略做扼要的的描述，以增進國內外人士對這方面的了解，因此無法將所有相關的細節納入。 衛生署疾病管制局不論是在書面出版物或網站上都備有各類結核病監測、診斷、治療的指引，醫護人員應以該局之專業文件爲依據。其他讀者在閱讀本文件後，如需進一步的資料，亦請與疾病管制局直接聯繫或參閱該局網站：www.cdc.gov.tw

Conclusion

Effective TB control needs to take advantage of new technologies and experience gained locally and internationally so that outbreaks can be dealt with appropriately.
During the six-month period when this document was being prepared, we encounter new research findings, policy, strategies, and literature. Recognizing the primary purpose of this document is to provide a concise description of Taiwan's current TB control strategy to domestic and international readers, we do not attempt to be all-inclusive as far as TB literature is concerned. CDC Taiwan has an extensive collection of publications on all aspects of tuberculosis, including surveillance, clinical protocol and guidelines. Healthcare professionals working in the field are urged to seek guidance from materials intended for clinical practice. Please contact Center for Disease Control directly or visit its website at www.cdc.gov.ta

8. 參考文獻

References

(一) 文件分析相關文獻：

References on Document Analysis

1. Written document analysis worksheet. Washington, DC. National Archives and Records Administration. http://www.archives.gov/education/lessons/worksheets/document.html Accessed April 30, 2006

(二) 結核病防治相關文獻

References on TB control and related subjects

1. 行政院衛生署疾病管制局「結核病十年減半全民動員計劃」核訂本，中華民國 95 年 7 月。
2. 行政院衛生署疾病管制局網站各項與結核病相關的資料
   - Guide to Tuberculosis in Taiwan
   - 結核病患納入 DOTS 作業事項
   - TB Half World TB Day 2005 Commitment and Action!
   - Government (TB) Strategies
   - 結核病
3. Ma, K., New Plan to Stop TB. http://english.www.gov.tw/Taiwanheadlines Accessed April 28, 2006
4. *Compendium of Indicators for Monitoring and Evaluating National Tuberculosis Programs.* World Health Organization 2004
5. 中華人民共和國「全國結核病防治規劃 (2001-2010 年)」。
6. 中華人民共和國 《結核病防治管理辦法》。1991 年 9 月 12 日衛生部發佈施行。
7. 中國結核病防治規劃，實施工作指南。 衛生部疾病控制司。 2002 年 3 月.
8. Revised National Tuberculosis Control Program. Ministry of Health and Family Welfare. Government of India.
9. Chauhan, L. S., Agarwal, S. P.: Revised National Tuberculosis Control Program. *Tuberculosis Control in India, Chapter 3.*

10. Sarin, R., Dey, L.B.S.: Indian National Tuberculosis Programme: Revised Strategy. *Ind. J. Tub., 1995,42,95*
11. *Policy and Strategies on Tuberculosis Control.* Japan International Cooperation Agency. February 2002.
12. *An HIV/TB Strategy for the Eastren Mediterranean Region 2006-2010.* Regional Office for the Eastern Mediterranean, World Health Organization. (WHO-EM/STD/088/E; WHO-EM/TUB/247/E)
13. *Actions for Life: Toward a World Free of Tuberculosis. Global Plan to Stop TB 2006-2015.* Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35) *The Stop TB Strategy: Building on and Enhancing DOTS to Meet the TB-related Millennium Development Goals.* Geneva, World Health Organization, (WHO/HTM/STB/2006.37).
14. *Stopping Tuberculosis in England: An Action Plan from the Chief Medical Officer.* Department of Health, UK, October 2004
15. *Tuberculosis Strategy for the North West Region of England.* Department of Health, U.K., March 2006.
16. A Strategic Plan for the Elimination of Tuberculosis in the United States. *Morbidity and Mortality Weekly Report.* April 24, 1989 / 38(S-3);1-25. Centers for Disease Control.
17. Tuberculosis Coalition for Technical Assistance. *International Standards for Tuberculosis Care (ISTC).* The Hague: Tuberculosis Coalition for Technical Assistance, 2006
18. National Tuberculosis Control Programme. http://www.emro.who.int/STB/egypt/AboutNTP.htm Accessed May 1, 2006
19. *Tuberculosis in First Nations Communities, 1999.* Government of Canada. http://www.hc-sc.gc.ca/msb/fnihp
20. Prevention and Control of Tuberculosis (TB) in Singapore. A document provided by Department of Health, Singapore.
21. DOTS-Plus and Greenlight Committee. http://www.who.int/tb/dots/dotsplus/management/en/print.html Accessed August 17, 2006
22. 台灣防癆工作回顧，索任，感染控制雜誌，第 13 卷，第 3 期。
23. 千禧年以後的結核病，曹世明，http://www.csh.org.tw/%E4%B8%AD%E5%B1%B1%E9%86%AB%E5%88%8A/30.2/%E5%8D%83%E7%A6%A7%E5%B9%B4%E4%BB%A5%E5%BE%8C%E7%9A%84%E7%B5%90%E6%A0%B8%E7%97%85.htm
24. 台灣防癆體系重建及運作之願景，楊思標，2002 年 2 月，http://www.24drs.com/edoctor/article.asp?who=112
25. 臺灣地區法定傳染病病患人數統計，行政院衛生署疾病管制局，http://www.cdc.gov.tw/index_info_info.asp?data_id=2426，Accessed Auguest 7, 2006

26. 九十四年死因統計，行政院衛生署，http://www.doh.gov.tw/statistic/data/死因摘要/94年/94.htm，Accessed Auguest 7, 2006
27. 傳染病疫情指標監視現況表，行政院衛生署疾病管制局，http://www.cdc.gov.tw/index_info.asp?p_data_id_3=844&act=init，Accessed Auguest 11, 2006

(三) 其他主題之策略文

References on developing strategic documents for other subjects

1. Fedotov I. *Outline for a National Programme for the Elimination of Silicosis.* International Labor Office (ILO), Geneva, Switzerland.
2. *National Strategy for Suicide Prevention: Goals and Objectives for Action.* U.S. Department of Health and Human Services. 2001.
3. *Health Information: A National Strategy.* Department of Health and Children. Government if Ireland. http://www.dohc.ie/publications/pdf/nhis.pdf Accessed May 21, 2006.
4. *Strategic Framework for Child Protection 2003-2006: Action Plan.* Queensland Government, Australia, August 2003.
5. *Joint Accommodation and Care Strategy for Older People in South Gloucestershire: Draft for Consultation.* South Gloucestershire Council.
6. *Choose Life: A National Strategy and Action Plan to Prevent Suicide in Scotland.* Ministry of Health and Community Care. Edinburgh, Scotland, 2002.

9. 附錄

Appendices

附錄（一）：有關結核病的重要資訊

Appendix I: Important Facts on TB

綜合各項有關結核病防治的文件，謹列出下列要點供讀者參考。

1. 台灣地區結核病的防治有將近 90 年的歷史。

2. 結核病是一嚴重但是可以治癒的疾病。

3. 結核病是台灣地區感染人數最多和死亡人數最多的法定傳染病。

4. 2005 年經通報之結核病個案計 22,663 人，經確診爲結核病確定病例者 16,472 人，結核病發生率爲十萬人口 72.47 人。在所有報告傳染病中，結核病是目前病人數最多的應報告傳染病，平均每 32 分鐘就新發現一名結核病人。結核疫情居高不下，疫情是日本的兩倍、美國的十倍，其嚴重性可想而知。

5. 全球約有三分之一人口已受結核菌感染，每年約有 900 萬人新發生結核病，其中台灣約佔 15,000 人，其中五千多人是有傳染性的結核病人。

6. 結核病的防治在於早期發現與治療。病人必須完全治癒才不會傳染給他人或演變成很難治療的多重抗藥性結核病。

7. 結核病療程長達六個月以上，病人若不接受治療，經過五年後，預估仍有五分之一的病人可活存，並持續散播細菌。

8. 根據英格蘭醫學雜誌一篇 2003 年 (348:1256-66) 的研究報告，一個肺結核病人如果沒有接受治療，平均一年會傳染給 10-15 個人。

9. 「都治計劃」是世界衛生組織和世界銀行公認目前最有效的結核病治療方法。這方法在世界各國普遍執行，即使是在最貧窮的國家，也有高達 95%的治癒率。台灣將全面實施這計劃。

10. 「都治計劃」是台灣結核病防治十年減半全國動員計劃的主要項目之一。「都治計劃」成功的先決條件在於政府在政策、人員、物資、經費上的充份，周詳的策劃與執行，與全國上下的密切合作。

疾病管制局備有各種有關結核病防治資訊，歡迎進一步聯繫、索取。

The section lists some key information about TB control.

1. Taiwan has been controlling tuberculosis for almost 90 years.

2. TB is a severe disease but can be cured.

3. TB is the reportable communicable disease that infects the largest number people and causes the largest number of death in Taiwan.

4. In 2005, 22,663 TB cases were reported with 16,472 confirmed as infected. The incidence rate was 72.47 TB cases per 100,000 population. Among all reportable communicable diseases, TB has the largest number of patients of infectious diseases. A new TB case is detected every 32 minutes. TB burden in Taiwan has not declined. It is almost two times of Japan and ten times of the United States.

5. Almost one third of population in the world is infected with tuberculosis. Approximately, 9 million new TB cases are detected each year. Of those, Taiwan accounts for 15,000 new TB cases and 5,000 of them are infectious.

6. The key to TB control is early detection and treatment. TB patient must be cured to prevent further spread of TB disease and developing MDR-TB.

7. The TB treatment cycle can last for more than six months. Without treatment, 20% of the TB patients may survive the illness, but may continue to infect others.

8. According to a research study published in the New England Journal of Medicine (348:1256-66) in 2003, one single TB patient without treatment may infect 10 to 15 people.

9. DOTS is considered by far the most effective TB treatment strategy by the WHO and the World Bank. DOTS has been implemented worldwide and can reach 95% cure rate in the poorest country. Taiwan will implement the DOTS strategy nationwide.

10. DOTS is one of the major programs in the “Reduce TB by Half in 10 Years” national campaign. The critical successful factors for DOTS are government policy, sufficient human, material, and financial resources, a sound strategy and execution plan as well as close collaboration at all levels.

Taiwan Center for Disease Control welcomes inquiries about TB prevention and control. Additional information is available.

附錄 (二)：有關結核病防治行政體系發展的策略

Appendix II: Development of TB Control Administrative Structure

參照世界衛生組織建議，每十萬人口建立一「基礎管理單位」，台灣將有 300 個「基礎管理單位」，平均照護八萬人口。這些醫療院所特別命名爲「衛生署疾管局結核病防治指定院所」。這些醫療院所將是結核病防治的主要診治機構，根據五個條件將其運作劃分爲四個層級。

至於如何強化各醫療機構、相關醫護人員的質與量，將有各種培訓與認證的方法。這方面的細節，在附錄(十)有所描述。

The WHO recommends establishing one Basic Management Unit (BMU) per 100,000 population for TB control. Based on this principle, Taiwan will have 300 BMUs with each BMU cover 80,000 people. These BMUs will be named as “Taiwan CDC TB Control Unit” and designated as the main TB diagnostic and treatment center. Based on five criteria, the operation will have four different levels.

How to enhance the capacity of healthcare institutions, increase the quality and quantity of healthcare professionals as well as associated training and certification are detailed in Appendix X.

(A)、衛生所、診所或慢防所層級

- 醫師：需具有胸腔專科醫師或感染專科醫師或結核專科醫師或曾接受衛生主管機關結核病相關訓練並獲結業證明者。
- 實驗室：需有自行作 Sputum AFS 的能力或有委託本局指定結核病代檢實驗室代檢。
- 「結核病診療諮詢小組」病歷討論會：須定期參加疾病管制局各分局或各縣市衛生局的本項會議。
- 個案管理：有兼任個案管理專員或兼任個案管理醫師的設置。
- 「都治計劃」人員：有對口的公衛護士及「都治」關懷員或其他志工。

Local health unit, clinics, and chronic disease prevention and treatment centers

- Physician: having on staff chest specialist, infectious disease specialist, TB specialist or physicians who successfully completed special TB training with a certificate.
- Laboratory: with in-house ability to perform Sputum AFS test or having formed agreement with qualified laboratories contracted by CDC.
- "TB Treatment Consultation Team" meeting: Participating regularly in such meetings organized by CDC branch offices or county or municipal bureau of health.
- Case management: having on staff part-time case management staff or part-time physician.
- DOTS personnel: must have designated public health nurse, DOTS observers or volunteers.

(B)、地區或區域醫院或其他教學醫院層級

- 醫師：需具有胸腔專科醫師或感染專科醫師或結核專科醫師或曾接受衛生主管機關結核病相關訓練並獲結業證明者。
- 實驗室：需有自行作 Sputum AFS 的能力或有委託本局指定結核病代檢實驗室代檢。
- 醫院結核病委員會的設置：定期每週開會檢討院內結核病患的診治情形。前一年發現病例未達 50 例者，可加入衛生署疾病管制局各分局或縣市衛生局成立之「結核病診療諮詢小組」病歷討論會，至少每月一次。
- 個案管理：前一年發現病例達 100 人以上者，需有專任人員，原則上 100 人設置一位個管專員。
- 「都治計劃」人員：有各縣市對口的公衛護士及「都治」關懷員或其他志工
- 收治住院：有能力收住需住院結核病患。

Regional, district hospitals or other teaching hospitals

- Physician: having on staff chest specialist, infectious disease specialist, TB specialist or physicians who successfully completed special TB training with a certificate.

- Laboratory: with in-house ability to perform Sputum AFS test or having formed agreement with qualified laboratories contracted by CDC.

- Establishment of “Hospital TB Committee”: holding regular meetings to discuss in-patient TB cases. Those hospitals with less than 50 detected cases in the previous year may participate at least once a month in the “TB Treatment Consultation Team” meetings organized by CDC Branch offices or county or municipal health bureaus.

- Case Management: Those hospitals with at least 100 detected cases should have a dedicated case management person on staff. In principle, one dedicated case management staff for every one hundred TB patients.

- DOTS Staff: Each county or municipality should have designated public health nurses, DOTS observers and other volunteers.

- Hospital care: capable of admitting TB patients for treatment.

(C)、感染症醫院層級

- 醫師：需具有胸腔專科、或感染病專科、結核專科醫師或曾接受衛生主管機關結核病相關訓練並獲結業證明者。
- 實驗室：需有自行作 Sputum AFS 的能力或有委託本局指定結核病代檢實驗室代檢。
- 醫院結核病委員會：定期每週開會檢討院內結核病患的診治情形。
- 個案管理：有專任個案管理專員。
- 「都治計劃」人員：有各縣市對口的公衛護士及「都治」關懷員或其他志工。
- 收治住院：有能力收住需住院結核病患。 其他醫院無法收治住院時，接受轉介收住病患的醫院。

Infectious Disease Hospitals

- Physician: having on staff chest specialist, infectious disease specialist, TB specialist or physicians who successfully completed special TB training with a certificate.

- Laboratory: with in-house ability to perform Sputum AFS test or having formed agreement with qualified laboratories contracted by Center for Disease Control.

- Hospital TB Committee: Hold weekly meeting to discuss in-patient TB cases.

- DOTS Staff: Each county or municipality should have designated public health nurses, DOTS observers and other volunteers.

- TB Treatment in Hospital: equipped to admit and treat TB patients and to accept TB patients referred by other facilities.

㈣、結核病教學及多重抗藥性、困難個案後送指定醫院

- 輔導醫師：分區遴選結核病診療臨床經驗豐富的專科醫師擔任本局指定輔醫師。
- 個案管理：有專任個案管理專員，俾與「都治計畫」人員配合。
- DOTS-Plus：建立一個以病人爲中心的醫療照護團隊，每一位 MDR 結核病人在冗長的治療期間，得到專業醫護及公衛團隊的照護與管理。
- 藥師：管理第二線藥品與發放

Hospitals designated for TB education, MDR-TB and severe TB cases

- Consulting physicians: For each district, TB specialists with clinical expertise will be selected and designated as CDC TB consulting physicians.

- Case management: Dedicated case management staff collaborates closely with DOTS personnel.

- DOTS-Plus: to establish a patient-centric care team to ensure every MDR-TB patient receives adequate care during the treatment period.

- Pharmacist: to manage and distribute second line medications.

結核病防治「基礎管理單位」/ 「衛生署疾管局結核病防治指定院所」
工作內涵與功能

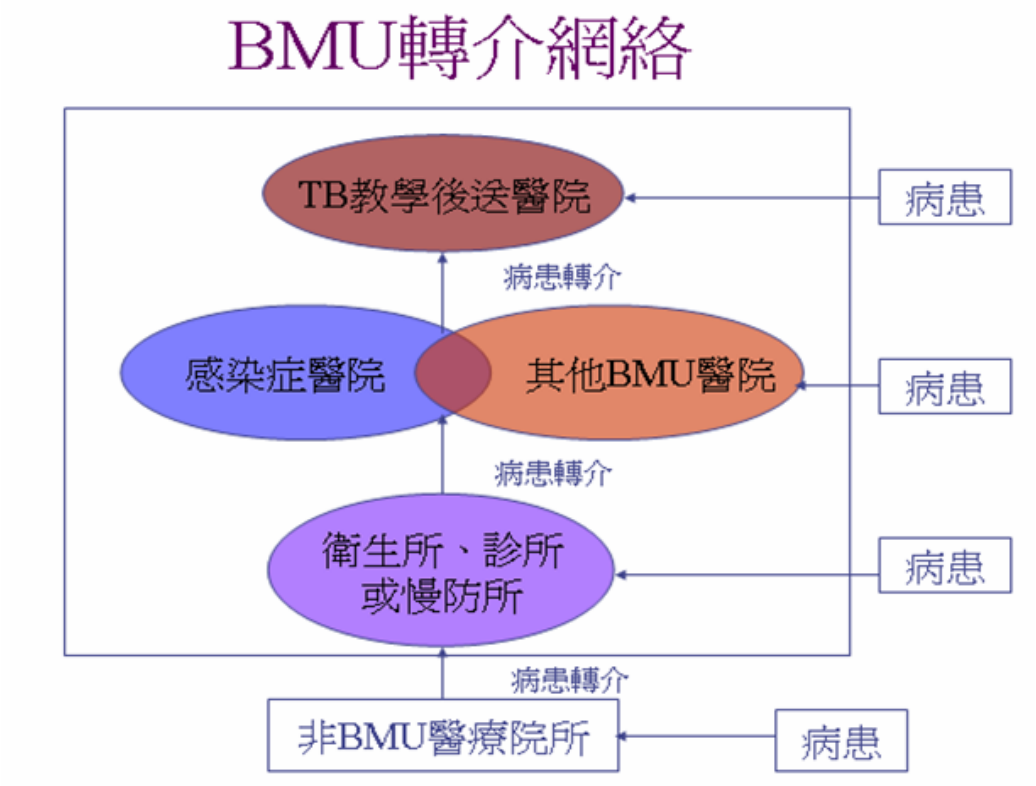
Roles and responsibility of TB BMU / CDC designated TB facilities

TB後送中心

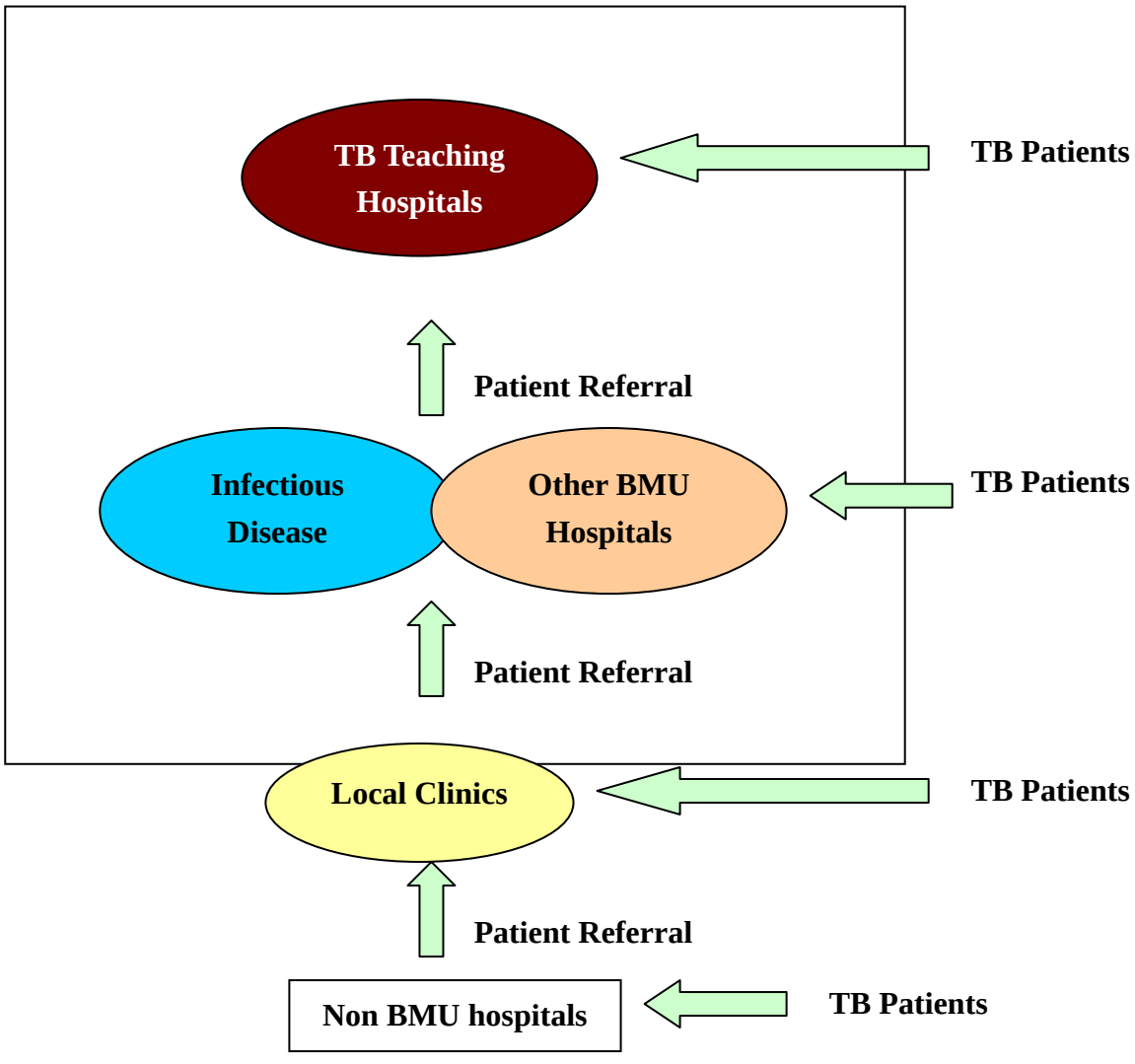
後送教學、收治MDR及複雜個案	感染症醫院		
轉介住院	轉介住院	地區、區域或其他教學醫院	
住院	住院	住院	衛生所、診所或慢防所
診斷、治療 個案管理	診斷、治療 個案管理	診斷、治療 個案管理	診斷、治療 個案管理

TB Referral Center

Teach, receive and treat MDR TB and complicated TB cases	**Infectious Disease Hospitals**		
Referral for hospitalization	Referral for hospitalization	**Regional, District, other teaching hospitals**	
Hospitalization	Hospitalization	Hospitalization	**Local health unit, clinics, chornic disease prevention facilities**
Case Management	Case Management	Case Management	Case Management


BMU轉介網絡
TB教學後送醫院
病患
病患轉介
感染症醫院
其他BMU醫院
病患
病患轉介
衛生所、診所
或慢防所
病患
病患轉介
非BMU醫療院所
病患

BMU Network


TB Teaching Hospitals
TB Patients
Patient Referral
Infectious Disease
Other BMU Hospitals
TB Patients
Patient Referral
Local Clinics
TB Patients
Patient Referral
Non BMU hospitals
TB Patients

附錄 (三)：有關增加醫療人力資源開發的策略

Appendix III: Health Human Resources Development Strategy

針對結核病醫療人力之不足，我們將密切與現有的資源連接、積極與各層級的衛生單位及學術機構合作辦理醫師、檢驗人員、醫療院所護理人員、個案管理師、都治關懷員、衛生機關及其他機關工作人員之結核病防治相關專業能力訓練方案。其中，一般醫師訓練由原本 4 小時課程增加至 24 小時上課課程訓練外並與醫院合作辦理包括：結核病進階訓練課程－在具經驗之結核病專家指導下進行看診及個案討論、以及結核病胸部 X 光看片能力訓練。訓練項目及時數如下：

訓練項目	訓練時數
結核病一般醫師訓練	24
結核病醫師進階訓練	72
結核病胸部 X 光看片能力訓練	30
醫院個案管理專員訓練	10
醫療院所護理人員訓練	6
都治關懷員職前訓練	16
都治關懷員在職訓練	12
衛生機關人員訓練	16
全國各縣市結核防治輔導人員訓練	8
各縣市衛生局所結核防治護理人員訓練	7

有關結核病診療醫師的培訓、質量、認證細節，請參閱附件(十)內相關的部份。

To address the shortage of TB health care providers, we will work closely with healthcare agencies and educational institutions to develop TB training programs for physicians, laboratory technicians, nurses, case management personnel, DOTS observers and other workers in TB control. These programs will increase general practitioner training hours from the original 4 hours to 24 hours. The training program, to be instructed by TB experts, encompasses TB diagnosis, treatment and follow-up in addition to chest X-ray interpretation. The hours of training are set out below:

Training Module	Hours
General TB training for General Practitioner	24
Advanced training for TB Specialist	72
Capacity building in TB chest X-ray film interpretation	30
Hospital TB case management training	10
Training for nursing staff in healthcare facilities	6
DOTS observer introductory training	16
DOTS observer continuing training	12
Training for staff of local health units	16
Training for TB Control Consultant in counties and municipalities	8
TB Control Health Care Providers	7

Please refer to Appendix X for detailed information regarding TB training programs and certification for physicians.

附錄（四): 有關衛生宣導的策略

Appendix IV: Public Education Strategy

結核病初期症狀不明顯，因此長被忽略而延誤就醫時機。加強衛教宣導，提昇全民結核病防治知能，尤其是針對下列各類人員：

(A)、醫護專業人員
(B)、高危險性族群及和他們一起工作的人
(C)、教職員
(D)、一般民眾

Symptoms of TB in the early stage are not so obvious that people might overlook and miss opportunities for timely treatment. Knowledge and awareness of TB and its control are critical, especially for the following groups:

(A) Health care professionals
(B) People at high risk and their co-workers
(C) Teachers and staff in education
(D) The general public

衛教宣導的要點如下：

The key elements of public Education include the following.

(A)、廣泛使用大眾媒體

多方面應用電視、廣播、報紙、網路、戶外電視牆等，宣導結核病防治資訊，並由新聞局協助提供可資運用之媒體通路加強宣導。

To Increase the use of public communication media

To use multi-media approach such as TV, radio, newspaper, internet, and outdoor flat screen

to broadcast TB control information. Furthermore, work with Government Information Office to explore effective communication channels for TB control.

(B)、製作創意文宣或教材

開發多元行銷通路，深入不同對象民眾，強化宣導防治觀念。

To develop creative educational materials

To design creative public education materials to target different audience groups through various communication channels.

(C)、配合世界衛生組織全球性宣導主軸

擴大於世界結核病日前後擴大宣導活動，喚起社會大眾的重視。

To tie in with WHO’s global communication strategy

To expand “World TB Day” and raise public awareness.

(D)、結合各級政府進行有地方特色之宣導活動

配合各縣市所轄重點議題、文化特色、節慶活動，藉由社區、山地鄉、醫療院所、學校等，激發創意，舉辦各項因地制宜的宣導活動，推動在地化防治衛教。

To collaborate with government agencies to conduct local campaigns

To promote local public health education by adapting to local cultural characteristics, for examples, working closely with local aboriginal communities, school, community service, and hospitals to develop public educational programs suitable for the region.

(E)、衛生教育重點主軸如下：

- 避免延誤就醫
  結核病初期症狀不明顯，症狀以咳嗽、有痰及胸悶爲主，因而忽略或延誤就醫時機，甚至傳播他人。

- 咳三週、快檢查
  民眾連續咳嗽三週，建議就醫接受胸部 X 光及痰液檢查，遵從醫囑規則服藥六至九個月，就可康復。

- 規則服藥、避免抗藥性產生
  結核病治療過程中，如果選擇性服藥、任意藥物減量或者自行停藥、很容易造成抗藥性的結核菌及治療失敗。

- 傳染途徑概念澄清
  肺結核是藉由飛沫傳染，環境空氣流暢、陽光充足，即可減少結核病的感染。

- 保障病患就學、工作及隱私權。
-
- 接納及關懷病患。

除上列各項，我們將透過各級醫護人員的教育機構、持續教育課程，加強專業人員對結核病防治的認識。

Key Elements of Public Health Education

- Early and timely treatment
  Symptoms of early TB are not obvious. Symptoms are mainly coughing, sputum, and chest congestion. Lack of attention to those symptoms may result in delay in treatment and the patient may infect others.

- “Continuous Coughing for 3 Week; See a Doctor Immediately”
  Patients with continuous coughing for three weeks are given chest X-ray and sputum test. TB patients will recover after taking medications regularly for 6 to 9 months.

- Regular medication keeps MDR-TB away.
  TB treatment can fail if patient does not follow instructions to take medication regularly. Consequently, development of MDR-TB is possible.

- Correct understanding about TB transmission
  TB is an air-borne disease. A clean environment with fresh air and sunshine may help reduce spread of TB.

- Protection TB patient’s privacy at school and workplace.

- Acceptance and care for TB patients.

In addition to the above key points, we will conduct continuing TB education through educational institutions for healthcare professionals.

附錄（五）：有關研究發展的策略

Appendix V: Strategy for TB Research and Development

這十年計劃中的研究發展工作重點如下：

(A)、研究釐清結核病相關基本資料

與學術機構合作研究，死亡結核病個案分析（TB mortality review）、特定族群疫情資料、影響結核病個案完治之因素分析、完治結核病個案診療醫院分布等，將是未來研究發展的重點。

(B)、研究發展如何提高正確的診斷率及更有效的治療方式

從事臨床研究、吸取國際經驗、開發更有效的診斷、治療方法。

(C)、研究人口密集機構及院內感染防範模式

針對原住民、醫護人員、軍人、教師、學生、矯正機關收容人、人口密集機構院民等特殊族群之結核病病患，將進行評估需求與照護模式建構之研究外，尚委請學術機構研擬結核病院內感控偵測機制。

(D)、研究國際結核病防治策略形成的模式

聘請衛生政策專家收集並比較相關國家之結核病策略。

The essential elements of a ten-year strategy for TB Research and Development are described below.

(A) To research and compile basic information about TB

Future collaboration with academic institutions will include research projects focusing on TB mortality analysis, TB surveillance information of specific population groups, analysis of factors affecting treatment completion rate, distribution of successful treatment completion cases by hospital.

(B) To research and develop methods to increase accuracy in diagnosis and to improve

treatment effectiveness.

To develop more effective treatment methods by conducting clinical trials and learning from international experience.

(C) To research effective TB infection control methods for institutions with a large number of people and nosocomial infection within hospitals

Certain population groups tend to share limited space with a large number of people, for example, aboriginal people, healthcare workers, military personnel, teachers, students, prison inmates. Special projects will focus on needs assessment and development of care models for people in this type of environment as well as engaging researchers to develop new measures in controlling infection in hospitals.

(D) To study how international TB control organizations develop their strategies

To engage public health policy experts to research and compare TB strategies in different countries.

附錄 (六): 有關嚴密監視病情的策略

Appendix VI: Strategy for TB Surveillance

我們將廣泛收集與提供即時的病情資訊，讓中央及地方衛生機構能充份發揮早期偵測感染、接觸者與感染源調查、監控傳染擴張的功能。

We will collect and distribute surveillance information in a timely manner to assist central and local healthcare agencies in achieving early detection of infection and conducting contact analysis and investigating source of infection.

（A）、落實結核病通報政策

- 加強宣導並嚴格執行傳染病防治法有關個案通報之規定，責成各縣市衛生局加強督導醫療院所依規定通報結核病患，提高結核病患通報率。
- 定期研考各醫療院所結核病患診斷日至通報日間隔，提高通報時效，落實傳染病防治法之精神。
- 配合結核病醫療費用納入公務預算賡續推動「不通報、不給付」政策，並與中央健康保險局合作進行醫療費用申報案與全國結核病人資料庫勾稽。
- 辦理結核病死亡病例與全國結核病人資料庫勾稽工作。

(A) To carry out TB reporting policy

- Strictly eenforce communicable disease regulations and reporting procedure and make all levels of health departments accountable for supervising hospitals and clinics to increase TB reporting rate.
- Monitor reporting record of hospitals and clinics to shorten the delay between date of diagnosis and date of reporting. Follow regulations governing communicable disease prevention to raise timeliness of case reporting.
- Enforce the policy of no payment to medical services providers for non-reported TB cases. Audit health insurance payment by linking health insurance data with national TB database.

- Conduct data linkage TB mortality and national TB database.

（B）、加強外勞（外籍人士）結核病監測工作

- 將外勞健檢醫院工作品質規格化，並定期、不定期辦理抽查工作，以確定品質。
- 加強監控外勞結核病主動篩檢，辦理入國後三日內、入國工作滿六個月、十八個月及三十個月之日前後三十日內定期健康檢查。
- 加強監控外勞結核病被動篩檢，針對因症就診個案，經通報之外勞調閱前次體檢胸部X光片，監控健檢醫院品質暨檢討改進。
- 如有未確診之爭議個案，得提報本局各分局結核病診療諮詢小組或由衛生局聯繫診療醫師（院）取得病歷等資料送諮詢委員討論。

(B) To strengthen TB screening for foreign workers

- Standardize quality assurance procedures for designated hospitals where foreign workers receive their physical examinations. Conduct regular and ad hoc audits to ensure quality.
- Strengthen voluntary TB screening for foreign workers: within 3 days after entry and 30 days before or after the end of 6 months, 18 months and 30 months.
- Increase monitoring of mandatory TB screening of those detected or reported foreign patients by reviewing and comparing of previous X-ray films to ensure quality improvement in the designated hospitals where foreign workers are assigned to have physical examinations.
- Any complex suspected TB cases should be reported to the TB Consulting Unit in a CDC Branch Office. Alternatively, the responsible health bureau may request the patient’s medical record from hospital for referral to the TB Consulting Unit.

（C）、加強特定職業及族群別結核病監測

針對原住民、教師、學生、醫護人員、役男、現役軍人、監獄拘留所及人口密集機構結核病監測。請各相關機構加強健康檢查及定期篩檢與咳嗽監測，以便早日發現結核病個案。

(C) To enhance screening for certain professions and groups at high risk

To increase screening for groups, such as aboriginal people, healthcare professionals, military personnel, teaching staff, students, prison inmates, and people living in high population density areas. To urge related organizations to strengthen health examinations, regular screening and monitoring cough for early TB detection.

一、山地鄉及原住民

山地鄉與原住民兩個族群的結核病發生率與死亡率比台灣地區整體要高很多。針對這兩個族群的主要防治工作包括下列各點：

- 加強主動及被動篩檢
- 降低就醫障礙、並實施住院治療補助
- 提升完治率、提供完治獎金
- 整合其他部會單位及非政府組織資源

Residents in Mountainous Areas and Aboriginal people

The TB incidence rate and mortality rate of these two groups are higher that those of the population as a whole. Key elements of TB control program for these groups include:

- To strengthen voluntary and mandatory screening.
- To reduce barrier to medical service and to provide financial assistance for hospitalization.
- To increase Cure Rate and to provide financial reward for success.
- To pool resources with other government agencies and NGOs.

二、矯正機關收容人

矯正機關含監獄、看守所、少年輔育院、觀護所、技能訓練所。上述機構內之收容人，每年均應接受胸部 X 光檢查。

- 每一至三個月(視收容人流動性而定)安排一次新進收容人篩檢。
- 除例行篩檢外，矯正機關收容人如有新發現結核病確診病患，親密接觸者應安排胸部 X 光檢查。

Inmates in Correctional Institutions

Correctional facilities include prisons, detention centers, juvenile education centers, protection agencies, certain skill training centers. Inmates or residents of these facilities shall have annual X-ray check-up.

- To conduct medical screening for new comers every one to three months.
- In addition to medical screening, close contacts with any confirmed TB cases in the institutions should receive chest X-ray test.

三、安教養機構、精神病院院民

- 每年爲院民安排胸部 X 光檢查，須由胸腔科或放射科專科醫師進行結果判讀，並進行後續追蹤。
- 如該院缺乏檢驗設備，應接受衛生局安排，以 X 光巡迴車每年至該院進行檢查。
- 行動不便無法接受 X 光巡迴車檢查之院民，可以利用疾病管制局結核菌代檢網安排驗痰檢查。
- 檢查後如發現痰塗片陽性結核病病患，應轉衛生署公告之呼吸道隔離治療指定醫院治療，或採取適當隔離措施。
- 除例行篩檢外，院民中如有新發現結核病確診病患，同寢室接觸者應安排胸部 X 光檢查。
- 目前上述檢查大都由各機構自行向當地衛生局提出申請，爲大多數私立機構實爲結核病傳播之高危險地區，爰此，疾病管制局將與內政部及各縣市政府協調，因依據傳染病防治法，預防結核病院內感染爲各機構負責人之職責，故各機構應自行編列經費，每年爲院民進行必要的檢查，並確實做好資料保存、後續追蹤與轉診等工作。
- 疾病管制局將定期會整國外資料、編纂及更新相關指引，提供前述機構專業參考。

Nursing homes and mental health institutions

- To provide annual chest X-ray examination for residents of these institutions with the test results to be interpreted by chest/respiratory specialist or radiologist and to follow up, if necessary.
- If these facilities do not have in-house laboratory equipment, local Bureau of Health shall make arrangements to have the circuit X-ray unit to provide the service onsite.
- Those residents who are unable, due to disability, to use the service provided by the circuit X-ray unit can use the service of medical laboratories contracted by CDC for sputum smear test.
- Patients showing sputum smear positive shall be referred to those hospitals designated by the Department of Health where isolation treatment facilities are available. Should this not be possible, patients should be appropriately quarantined.
- Aside from routine screening, roommates of any newly detected TB patients shall receive X-ray examination.
- These institutions through the local health department can apply for the services mentioned above. Many of these facilities are privately owned and operated where infection can easily spread. It is necessary for CDC to liaise with the Ministry of the Interior and municipal and county governments to ensure the facility owners or operators are accountable for arranging examinations for the people they serve and maintain good record keeping as required by the law and regulations governing communicable disease prevention.
- CDC will regularly collect and compile the most up-to-date information on TB for reference by these facilities.

附錄 (七)：有關個案管理策略

Appendix VII: Strategy for TB Case Management

（A）、改善主動發現個案績效

- 除購買數位 X 光巡迴車外，尚逐步委由品質優良之醫療院所，針對醫療資源缺乏的山地鄉、離島等偏遠地區、矯正機關、安養院、精神病院、教養院、結核病患親密接觸者、高患病地區四十歲以上民眾等危險族群進行 X 光巡迴篩檢；尤其針對山地鄉十二歲以上居民全面造冊，俾便進行完整之胸部 X 光篩檢。
- 安養院或醫院長期臥床及使用呼吸器維生者，多爲老年人或因久病抵抗力較弱者，亦屬結核病高危險群，但因行動不便，接受 X 光篩檢較爲困難，計畫針對全國安養院及醫院臥床老人試辦驗痰篩檢，避免疫情擴散，另將加強宣導人口密集機構感染控制相關措施。
- 接觸者檢查應兼顧防疫需求及成本效益，依病人的傳染性及可能的感染範圍決定接觸者檢查的重點對象及實施的優先性，提高檢查成效。輔導危險群之收容機關和結核病診療醫院合作建立專責醫院制度，負責篩檢之業務
- 配合勞工業安全衛生法之規定，提昇勞工健檢，特別醫護人員篩檢之品質；與中央健康保險局合作，改進現行成人健檢品質，俾能主動發現職場與老年結核病患。

(A) To improve effectiveness of TB case detection

- In addition to purchasing more digital circuit X-ray units, we will gradually contract hospitals with good quality to provide X-ray examinations to remote areas, correctional facilities, nursing homes, mental hospitals, and skill training centers, people with close encounter with TB patients, people age 40 and over residing in areas with high incidence rate. We will register everyone over and above 12 years old living in mountainous villages to ensure complete chest X-ray screening.

- Nursing home residents and those who are bed-ridden with respirator are mostly elderly people who are at high risk of TB. It is difficult for these residents to have X-ray examination due to immobility. On a pilot project basis, we will provide sputum smear test to prevent TB from spreading. We would also strengthen public health education focusing on showing the organizations with high concentration of people about infection control.
- Contact analysis will be conducted based on actual needs and cost effectiveness. The probability of infecting others and the potential area where infection may spread would be considered to set priority. Facilities that provide shelter to those at high risk would be assisted to work with designated TB hospitals on screening.
- In compliance with the Occupational Health and Safety Act, program will be set up to increase quality of health examination for workers, particularly healthcare workers. Collaboration with the National Health Insurance will focus on improving existing adult health examination for the purpose of early TB detection.

（B）、強化被動發現個案績效

- 防止來自病人之延誤
  加強辦理各種衛教宣導活動，提醒民眾有症狀時，不要諱疾忌醫、儘速就醫接受檢查。建構周密完整的結核病診療網，讓有心就醫者均能找到質優便利之醫療院所。

- 解決醫師之延誤
  與各醫學會、縣市衛生局合作舉辦相關研討會，藉以提升醫師診斷結核病之警覺性與能力。透過補助，並藉結核菌代檢網之設置，提昇醫療院所診斷結核病之設備。

- 加強要求醫院通報個案（包括死亡通報）
  同時配合健保制度，繼續推動不通報、不給付政策，並持續進行健保結核病費用申報與結核病資料庫勾稽作業，去除個案發現的死角。

(B) To enhance passive TB case detection rate

- Prevention of delayed treatment caused by patients.
  To enhance public health campaigns to urge those with symptoms to seek medical care. To establish a good TB diagnostic and treatment network to provide easier access to treatment to those who are willing to seek care.

- Prevention of delayed treatment caused by physicians.
  To organize symposium in collaboration with medical societies, county and municipal health bureaus, to raise physicians' awareness and capacity. To provide financial assistance and through the TB laboratory network project, to improve TB diagnostic equipment in the hospital.

- To enforce hospital's responsibility in TB reporting, including TB deaths
  To continue with the "no reporting no payment" policy of Bureau of National Health Insurance. To continue with audit based on data linkage between National Health Insurance claims and the national TB data bank.

(C)、建立專案管理制度提升結核病醫療品質

爲加強醫療與公共衛生的橫向整合，辦理結核病照護品質改善方案，透過個案管理專員之設置及給付之改善，提升醫療院所服務品質，擴大實施結核病就醫免保險自付額之措施，提高民眾積極就醫意願及就醫穩定性，降低結核病病患就醫失落率，提高結核病個案成功率(success rate)。

(C) To establish case management system to improve quality of care

To better integrate public health with medical services, a special quality improvement program will offer paid positions to case management personnel, eliminate co-payment to encourage patients to seek medical care and to reduce the number of patients who default on treatment and to increase treatment success rate.

（D)、加強個案管理品質監控工作

- 縣市衛生局例行監控報表回饋
  利用全國結核病人資料庫製作各項工作品質統計結果，製成例行性報表、及各種即時監控指標（如 9、12、15、18 月成功率(success rate)），提供各縣市衛生局平日工作參考。

- 縣市衛生局年度指標達成度考評
  自全國結核病人資料庫取得各項工作統計結果，由各縣市提供執行情形，據以評定分數，納入縣市衛生局考評項目，嚴密監控個案管理品質、及工作績效。

- 縣市衛生局定期實地查證
  定期辦理地方結核病防治工作實地查證及評分工作，以實地訪查輔導方式確認個案管理人員工作品質。

(D) To strengthen quality of case management

- Regular information feedback to county and municipal health bureaus
  Use National TB patient database to compile and generate regular statistical reports based on specific indicators for health bureaus to use as reference in its daily operation. One such report could be for success rate by a 3-month interval.

- Annual indicator-based evaluation of county and municipal health bureaus
  To closely monitor and evaluate county and municipal health bureaus' performance in TB control.

- Regular on-site evaluation by county and municipal health bureaus
  Regular on-site evaluation to measure success of TB control will help track progress and ensure quality of TB control case management.

（E）、激勵地段個案管理人員積極投入個案追蹤

- 建立結核病個案管理輔導作業標準
- 建立公共衛生與醫療聯結照護結核病個案磨合模式。

- 定期選拔績優工作人員，公開表揚獎勵。

(E) To encourage more rigorous case follow up

- To establish TB case management guidelines
- To establish shared care model between public health and medical service personnel in the caring for TB patients
- To award and give recognition to outstanding staff

附錄 (八)：有關結核病醫療資訊系統的策略

Appendix VIII: Strategy in TB Management Information System

世界衛生組織強調每一結核病防治機構定期收集、提供有關運作細節的數據，以便早期發現執行的優缺點與評估策略的效益。

The WHO stressed every TB treatment center should collect detailed information regularly to identify the pros and cons of particular approaches and to evaluate the effectiveness of TB control programs.

(A)、強化結核病患資料庫效能

確保資料庫正常作業、及時提供相關資訊給所有結核病防治人員。

(A) To increase capacity of TB database

To ensure proper operations of TB databases function and provide timely information to TB control staff.

(B)、建立多功能的網路結核病通報查詢系統

鼓勵醫療院所直接上網通報結核病個案，增加通報點，提高通報時效；定期統計公布各項最新疫情資料，並提供各種即時報表服務，方便衛生機關、醫療院所掌握個案狀況及各地區結核疫情。

(B) To establish multi-functional network system for TB reporting and tracking

To encourage clinics and hospitals to report TB case online; to raise report timeliness and to increase system access points for reporting; to publish TB statistics regularly; to provide standard reports on demand so that health authorities and hospitals have access to current information.

㈫、 結核病資訊系統品質的繼續提昇

目前的資訊系統內容豐富、普及性及使用率也相當高。爲求這系統發揮更大的功能與效益，計劃進一步了解基層的結核病醫護人員的需求，採用最新的科技，開發能更直接協助防治工作的資訊系統功能。資料的標準化、系統使用程序的精簡化，加強所有工作人員對數據收集與提報有正確的觀念與方法，也是未來工作的重點。

(C) To raise the quality of TB Information System

The current TB management information System contains rich information and has been widely used. In order to maximize its functionality and efficiency, we need to understand user requirements in depth, and utilize the most up-to-date technology to improve this system. Furthermore, strengthening users' understanding in data collection and reporting is also an important step.

㈭、廣泛收集、分析、傳播與結核病防治有關的社經、衛健資訊

結核病的發生與傳染與很多其他因素息息相關，諸如社會經濟情況、環境衛生、營養、教育、社區發展，等等。研究分析的結果適時與防治機構分享，並傳播給民眾加深公共衛生教育宣導。這些相關的資料也將做爲未來防治策略發展的重要參考

(D) To collect, analyse, circulate information related to TB

Many factors are linked with TB and its spread. The factors include socioeconomic status, environmental health, nutrition, education, and community development. Research on social determinants of health will help TB control by transferring the knowledge to the public in health education. The information will be considered in the development of future TB control strategy.

附錄（九）： 有關結核病檢驗網的策略

Appendix IX: Strategy in TB Laboratory Network

結核代檢網自 2001 年十月開始設立，初期以優良實驗室建置、送檢網路建立、資料回饋等硬體及收、送檢流程建構爲主；本計畫將著重於代檢實驗室分級認證、實驗室品質提昇、監控及人員素質訓練等。 合約檢驗室必須能提供全套的結核菌檢驗： (1) 痰塗片抗酸菌染色檢查，(2) 結核菌培養檢查，(3) 培養陽性者加作鑑定及藥物感受性試驗。

In October 2001, we began to establish a network of good quality TB laboratories. In the first phase, the priorities were the selection of good quality laboratories, establishment of specimen collection and delivery system, information collection and feedback mechanism, operational process and procedures. This strategy aims at classification and certification of contracted laboratories, quality assurance, monitoring and human resources development. The laboratories on contract must be capable of performing complete tuberculosis tests, such as (1) Acid – fast sputum smear test, (2) TB bacteria culture, (3) reconfirmation of cases with positive bacteria culture followed by drug sensitivity testing.

(A)、建構結核菌代檢網

選擇檢驗技術達一定水準之實驗室擔任代檢醫院。除衛生所爲送檢單元外，一般醫療院所可選擇是否加入，藉由代檢醫院爲骨幹，共同協助提昇區域內之(醫院)檢驗室檢驗品質及水準。

(A) To establish a network of laboratories

We will select hospitals that meet quality standards to operate TB laboratories. In addition to local health units submitting specimen to these laboratories for testing, other nearby hospitals can also utilize the service to help improve TB laboratory testing in the region.

1. 選定結核菌代檢合約實驗室
   分區選擇品質優良並經專家認可之結核菌檢驗室爲合約代檢實驗室，爲鄰近縣市結核病人提供全套服務。合約代檢實驗室的建置，可以取代每一家醫院自行設置實驗室的必要性。

   To select and contract TB laboratories

In each region, select best qualified laboratories to be contracted as TB laboratories to provide comprehensive services to the TB patients in the region. This approach can replace the need of building a TB laboratory in each hospital.

2. 設立密集便利的收痰點
每一鄉鎮規劃設立痰收集點，將區域之檢體集中後送至合約代檢檢驗室，俾能兼顧民眾驗痰之方便性與檢驗量之經濟規模。試辦初期痰收集點將就近設於各地衛生所，並開放各地醫療院所送痰代檢；未來將逐步落實病人在醫療院所診治時，即完成驗痰之目標。

To establish convenient sputum collecting points

Every county is to set up a sputum collecting site and send sputum specimens to the TB laboratory for testing. This will provide easy access to sputum testing and increase testing efficiency. In the pilot phase, the sputum collecting sites will be located at the local health unit receiving specimens from various hospitals and clinics. The future plan is to complete the sputum testing at the same location where patients are treated.

3. 建立快捷運送、即時回報及品質回饋管道
以符合國際生物安全標準之容器、完善的檢體運送快遞系統將檢體送往合約代檢實驗室檢驗，檢驗結果並將迅速回報，以及早確定診斷或正確評估治療效果，代檢醫院將各衛生所運送檢體之相關統計數據，定期回饋衛生所，並輔導衛生所改善檢體處理、運送品質。代檢醫院亦將定期提報各相關報表，俾利本署疾病管制局能監督相關疫情。

To establish a network of fast courier service, timely report and quality feedback

We will establish a comprehensive courier system of transporting collected specimens, using internationally approved biologically safe containers, to designated laboratory for testing. To ensure early diagnosis, the test result will be returned in a timely manner. The laboratory will compile and report on statistics relating to the specimens submitted by local health units, make recommendations on appropriate handling of specimens and transport procedures on a regular basis. To support CDC’s surveillance, the laboratories will provide regular reports.

4. 監控代檢網品質

a. 與相關學會合作，以專案方式建立代檢合約實驗室例品質監控機制，取得與美國病理學會（College of American Pathologists, CAP）同級測試檢體，配合實地訪查工作，促進檢驗品質。

b. 定期邀集相關者專家開會檢討代檢網實施情形，審查各項報表數字，釐清代檢網實施問題所在，並提出解決方案。

c. 建置結核菌檢驗室通報制度，方便上網通報、結果查詢、及勾稽比對等工作。

d. 提升醫院辦理結核菌檢驗之意願
依各地區均衡發展之原則，補助醫院結核菌檢驗室設備，以提升醫院參與之意願，擴大代檢合約實驗室參與層面，提昇痰檢驗量及品質。

To control and monitor quality of TB laboratories

a. With special projects, cooperate with TB-related medical societies, in establishing quality assurance mechanism for specimen handling to reach the standards set by College of American Pathologists, CAP.

b. Invite TB researchers and experts, based on various reports and statistics, to review and discuss the implementation of the TB laboratory network as well as provide solutions to problems and difficulties.

c. Establish a TB laboratory reporting system to facilitate internet-based data submission, inquiry, linking, tracking and comparison.

d. Elevate hospitals' willingness in providing TB laboratory testing services. To achieve a balanced development of hospital TB laboratories, financial assistance in acquiring equipment will be offered as an incentive for participation. By this, it is hoped that we can expand the network of laboratories and increase the volume of sputum testing and quality.

(B)、建立區域級結核菌實驗室

自檢驗品質達一定水準之代檢實驗室中，另依北、中、南、東各區挑選一家代檢實驗室擔任該區域內之區域級實驗室，除需協助訓練區域內之其他實驗室檢驗人員提昇檢驗能力，同時協助區域內結核菌檢驗室品質提昇；另外需負責該區域疑似結核病聚集事件發生時處理相關檢驗作業。

(B) To establish regional TB laboratories

Among the qualified laboratories, select one laboratory in each of four geographic regions (east, west, south and north) to be the regional laboratory that can provide capacity building for staff of other laboratories within the region, assist in quality improvement and be responsible for conducting testing for investigating community infection due to clustering.

(C)、建立國家級標準結核菌檢驗中心

與醫學中心合作，建立國家級標準結核菌檢驗中心，負責特殊結核菌檢驗之執行（如基因鑑定、菌種鑑定）、結核菌株庫／基因庫之建置、結核檢驗技術之學術研發、及對全國結核菌檢驗單位之輔導、支援及考核。

(C) To establish a national TB reference laboratory center

To work with medical centers to establish a National Reference TB Laboratory Center that will be responsible for TB testing including DNA sequencing and bacteria strain confirmation, DNA database / TB bacteria database development, academic publication in TB-related laboratory science periodicals. Furthermore, this center will mentor, support and evaluate TB laboratories in the country.

(D)、監控各地結核菌抗藥性情形

透過代檢檢驗室藥物感受性試驗彙整報表，針對各地結核菌抗藥性情形進行監控，以評估各地結核病個案管理品質，及早介入解決問題。

(D) To monitor MDR-TB nationwide

To closely monitor and control MDR-TB through drug sensitivity testing statistics provided by TB laboratories in order to evaluate case management quality and to conduct early investigation and problem solving.

㈤、鼓勵學術單位從事結核菌檢驗之相關研究

透過疾病管制局每年之委外或補助方式，鼓勵學術單位從事研究工作。

(E) To encourage academia's participation in TB Research

To encourage academic institutions to participate in TB research through CDC's research grant programs.

㈥、訂定結核菌新興檢驗指引

邀集學者專家定期檢討現行「結核菌檢驗手冊」內容，密切注意全球結核菌新興檢驗科技進展，依學術界共識，訂定各項指引與執行標準，供國內結核菌檢驗室使用。

(F) To develop new TB laboratory testing guidelines

To invite researchers to review the current "TB Laboratory Testing Handbook"; closely watch for new technologies in TB laboratory testing; develop new standards and guidelines for use by TB laboratories.

㈦、建立訂定合理結核菌檢驗支付標準機制

邀集學者專家精算結核菌檢驗成本，俾利中央健康保險局據以調整現行健保有關結核菌檢驗之支付標準，提昇醫院設置結核菌檢驗設備之意願。

(G) To establish reasonable fee payment for TB laboratory testing

To invite experts to determine costs of TB laboratory testing so that the National Health Insurance program can adjust the existing payment schedule to provide incentives to encourage hospitals to invest in TB laboratories.

附錄（十）：有關結核病診療網的策略

Appendix X: Strategy on TB Diagnostic and Treatment Network

除依附錄(二) 所述，在「基礎管理單位」的架構下建立四個層級的運作模式外，本計劃將針對下列個要點，健全結核病防治診療網。 有關結核病診療醫院的分級、功能、運作，將依照「基本管理單位」的架構與分層管理的觀念執行。

In addition to operating on four levels under the Basic Management Unit model described in Appendix II, this strategy include the key elements to enhance TB diagnostic and treatment network. The classification, functions, operation of TB hospitals will follow the BMU framework and management concept.

(A)、賡續辦理「結核病診療指定醫師」認證

配合附錄(三)所述專業人力發展策略，透過各種教育訓練工作，提昇醫師診治結核病之品質與數量，俾能持續辦理結核病診療指定醫師及指定醫院的認證工作，將結核病醫療與社區結合，每一個結核病人可以就近獲得優質、方便的醫療服務。完成這項醫師專業教育訓練的醫師將獲頒發認證證書，並參加健保局全民健保結核病醫療給付改善專案，其任務爲：

- 接受地方公衛護士轉介結核病患
- 處理結核病患相關診療問題
- 提供結核病醫療諮詢
- 依地緣關係，成爲各縣市衛生局執行結核病防治工作之顧問醫師
- 主持或參與衛生局結核病個案討論會
- 擔任各種結核病診療教學、訓練課程之種子師資。

(A) To continue with the certification of “TB designated specialist” for medical

Following the “Health human resources development strategy” described in Appendix III, through training and education, to increase the number and quality of TB physicians and to

continue with TB physician and hospital certification. To encourage integration of TB care into the community to improve better access to quality care. Those physicians who complete TB education and training will receive certificates and be eligible to participate in National Health Insurance TB Care Improvement program with the following privileges:

- To receive TB patient referred by local public health nurse
- To attend to TB diagnosis and treatment
- To provide TB treatment consultation
- To act as local TB consultant for the county or municipality
- To host or participate in TB symposium with local health authority
- To act as a trainer for TB training and education sessions

(B)、配合辦理健保局保結核病醫療給付，改善「結核病診療醫院」認證

- 選定與當地自然結合、方便就醫之醫療院所，及前述結核病診療指定醫師者，均可納入醫療給付改善專案，接受品質監控、及各種訓練輔導計畫。
- 結核病診療指定醫院應具有完整之結核病診斷、治療能力，在衛生局督導下共同負責基本之個案管理、衛生教育等任務，成爲結核病防治體系中個案發現、通報之基本核心單位，醫院個案管理師並同時與縣市衛生局密切合作，完成個案管理的工作，以符合世界衛生組織「建構以社區爲導向的結核診療體系」之要求。
- 結核病診療指定醫院有兩項義務 ：
  a. 提供就診結核病患完善的醫療服務及醫療諮詢。
  b. 應防疫機關之請，提供病患相關資料，俾利結核個案管理工作之推動。
- 結核病診療指定醫院有兩項權力：
  a. 防疫機關處理結核病患診療問題、辦理疑似個案確診、及接觸者檢查工作時，將依地緣關係優先轉介至指定醫院。
  b. 防疫機關將協助指定醫院追蹤結核病個案，促其定期迴診。

(B) To work with Bureau of National Health Insurance on TB treatment reimbursement and to improve the certification of designated “TB hospitals”.

- To select community-based hospitals and physicians that can easily be accessed by TB patients to take part in the fee payment enhancement program and special training programs.

- Designated TB hospitals should have the capacity in TB diagnosis, treatment, case management, public health education etc. Hospitals will become the core facility in the TB control system in terms of case detection and reporting. TB case manager in the hospital needs to work with local health authority on TB case management to meet the criteria identified in “Community Oriented TB Treatment System” by the WHO.

- The designated TB hospitals have the following responsibilities:
  a. Provide patients with complete TB treatment and consultation services.
  b. Provide TB case information at the request of diseases control agencies to facilitate TB case management.

- The TB designated hospitals have the following rights and responsibilities:
  a. Based on hospital location, to receive preferential referrals by health authorities in dealing with treatment issues, diagnosis confirmation, contact investigation.
  b. Health authorities will assist designated hospitals with case follow up and urge patients to return for regular examinations.

C)、公務預算挹注結核病醫療費用

- 針對 6,000 結核病痰抹片陽性個案住院≦14 天內之醫療費用。
- 針對 1,200 抗結核藥物副作用及多重抗藥性結核病(MDR)個案住院≦60 天內之醫療費用。
- 結核病個案門診或住院之部分負擔金額。
- 山地鄉結核病患暨慢性傳染性結核病患住院病房費、診察費。

(C) To transfer of administrative budget to provide specific treatments

- Issues pertaining to the cost of treating 6,000 sputum smear positive TB cases where hospitalization is equal to or less than 14 days.
- Issues pertaining to the cost of treating 1,200 cases of MDR-TB where hospitalization is equal to or less than 60 days.
- Issues pertaining to co-payment of TB patients treated in Out Patient Department of hospitalization.
- Issues pertaining to the cost of diagnosis and hospitalization room charges for aboriginal and chronic infectious TB patients.

㈣、提昇結核病診療指定醫師質與量

- 擴大辦理結核病診療醫師訓練課程，包括結核病之診治、結核藥物副作用之處理、多重抗藥性結核病之治療等，使經認證之結核病診療指定醫師人數逐漸增加。
- 與縣市衛生局、相關醫學會合作，持續辦理結核病診療再教育工作，以維持並提高其診療品質，並與相關醫學會研究建立診療醫師品質評鑑機制之可能性。

(D) To Increase the capacity and number of designated TB specialists

- To expand physician training on TB diagnosis and treatment, including side effects of drugs, treatment for MDR-TB; to increase the number of certified TB physicians.
- To work with county and municipal health bureaus and medical associations to provide continuing education on TB aiming to maintain the level of competency; to collaborate with related medical associations to develop quality of care assessment tools.

㈤、建構結核病診療醫師專家諮詢／轉介機制

利用現行結核病診療醫師分級制，師資級醫師提供專業諮詢／爭議仲裁、專家級醫師提供診療轉介服務、診療級醫師負責第一線診療服務，俾利各縣市衛生局據以建構結核病診療專家諮詢／轉介體系。

(E) To develop TB specialist consultation and referral protocol and guidelines

Based on the current TB physician classification, physicians with teaching appointment can provide consultation / dispute resolution; TB specialists can treat patients from referrals; regular physicians are responsible for the first line diagnostic treatment service. This classification will help set up the consultation / referral process.

㈥、提升結核病診療指定醫院品質

透過誘因與評鑑制度的設計，提升結核病診療指定醫院之品質：

- 正向之誘因提供

a. 衛生行政體系應全力配合其轄區內結核病診療指定醫院業務之推展、轉介區內結核病人、疑似個案及危險族群篩檢工作。
b. 檢討結核病診療指定醫院之分布情形，不足之地區，將輔導當地醫療院所延攬醫師、設立病房、並主動提供教育訓練課程。
c. 加強與中央衛生機關及法人團體橫向聯繫，監控流程結果。

- 強制性之評鑑控管

  結核病診療網建構初期以輔導、獎勵等柔性方式辦理醫師及醫院之認證作業，其後將各項標準與其他傳染病防治整合爲一評鑑制度，融入現行教學醫院評鑑，俾便增加其約束力。前揭評鑑制度除針對網內各醫院結核檢驗治療與硬體設施之品質進行考核外，其診治病人目標數之達成比率、完成管理比率、與公衛體系連繫品質均應列入評比。

(F) To improve quality assurance of TB hospitals

Through incentives and assessment, to improve the quality of TB hospitals

- To create positive incentives
  a. Health care administrators will work with TB hospitals in their jurisdiction to promote TB related activities and to refer patients, suspect cases and to conduct screening of groups with high risk.
  b. To review the location of the TB hospitals to determine resource availability. For under serviced areas, to assist local hospitals to recruit physicians, to establish TB ward and to provide public educational courses.
  c. To liaise closely with central government agencies and organizations to monitor the workflow.

- Mandatory review and assessment

  In the initial stage, the TB Diagnostic and Treatment Network will include a coaching and rewarding scheme to assist with TB certification for physicians and hospitals. These standards will be integrated into an overall teaching hospital assessment system. The assessment will not only focus on evaluating the quality of care, facilities and equipment, but also on the level of reaching the target of treating TB patients, completion rate of case management, interaction with the public health system.

(G)、提供多重抗藥性／慢性傳染性肺結核病患診療服務

- 根據世界衛生組織建議，應由政府管控抗結核二線藥品之儲存、管理與發放，並將MDR-TB病人安置於完善的負壓隔離病房，嚴防抗藥性結核菌株在一般醫院內散播。
- 目前台灣發生MDR結核病的比例高達4%，要解決結核病抗藥性的問題，應建構「抗結核藥物副作用暨MDR指定醫院」，將有抗結核藥物副作用及抗藥性問題的病患轉介至本局指定醫院，嚴格實施加強型都治（DOTS-Plus）專案照護管理，由專業的醫療照護團隊結合醫療與公共衛生，從病患的發現原則、診斷方式、治療處方、管理與追蹤模式、定期評價等每個環節緊密聯繫，俾快速有效阻絕傳染原，避免抗藥性結核菌在一般醫院間持續散播。

(G) To provide diagnostic and treatment services to MDR-TB / Chronic Infectious TB patients

- Based on the WHO recommendations, government should control the use of the second line anti-TB drugs in terms of storage, management, and dispense. MDR-TB patients should be kept in isolation in a negative pressure room to prevent further spread of TB drug resistant bacteria in a hospital setting.
- Currently MDR-TB is about 4% of all TB cases in Taiwan. It is necessary to set up referral hospitals specializing in TB drug adverse effects and MDR-TB. DOTS-Plus will be deployed by combining resources from medical services and public health in detection, diagnosis, treatment, case management and follow-up, and regular assessment to stop the spread of drug resistant TB strains in hospitals.

(H)、成立結核病診療諮詢小組

- 設置目的：
  a. 協助結核病個案確診，審查二線結核藥物用藥，及就其他診療相關問題提供處理建議。
  b. 教育訓練結核病醫療工作同仁，提升結核病照護水準。
  c. 提供疾病管制局結核病醫療網之相關諮詢。

- 組織：
  設置於疾病管制局之第一、第三、第四、第六分局。

- 諮詢委員任務：

聘請當地結核病診療臨床經驗豐富的專科醫師擔任。諮詢委員任期一年，由疾病管制局統一發給聘書，其任務爲：

a. 對有診斷、治療有疑義的結核病個案提供處理意見，協助原診療醫師確定診斷。
b. 提供醫療院所結核病診療、用藥之諮詢。
c. 審查疾病管制局免費供應醫療院所之二線結核藥物處方。
d. 爲疾病管制局建構結核病醫療網之諮詢顧問。
e. 協助疾病管制局設定結核病醫療網「認證合約之結核病診療院」之標準及進行資格審查。
f. 協助協調結核病醫療網各級院所發揮功能，妥善轉介及照護病人。
g. 協助面訪治療困難或不順從之個案
h. 協助突發（或異常）疫情之調查處理
i. 其他結核病診療相關諮詢及協助事項
j. 原住民族地區及慢性傳染性個案住院病例審查。

- 作業方式：
  a. 病例審查與會討論
  b. 面訪個案
  c. 協助突發疫情調查與處理
  d. 二線抗結核藥物審查
  e. 定期召開委員會議

(H) To establish TB Consulting Team

- Purpose:
  a. To assist with TB case diagnosis, investigate secondary drug usage and advice on other diagnostic issues.
  b. To train TB health care professionals to improve TB care quality.
  c. To provide TB information as required by CDC TB Diagnostic and Treatment Network.

- Organization:
  A consulting team should be established in CDC's 1st, 3rd, 4th, and 6th Branch office.

- Responsibilities of the TB Consultants:
  CDC will appoint experienced TB specialists to a one-year term with the following

responsibilities.

a. To provide consultation on any suspect TB cases and to assist the attending physician in confirming the diagnosis.
b. To advise on TB diagnosis, treatment and drug therapy.
c. To review the prescriptions of free second line drugs provided by CDC for use in hospitals.
d. To act as CDC's consultant in developing the TB diagnostic and treatment network.
e. To assist CDC in developing standards and qualifications governing "certified TB hospitals on contract".
f. To assist various facilities within the diagnostic and treatment network to function fully in patient care and referral.
g. To assist in interviewing difficult and non-compliant TB cases.
h. To assist in the investigation and handling of unexpected outbreak.
i. To provide consultation on TB treatment and related tasks.
h. To investigate TB cases in Aboriginal communities and chronic infectious TB cases in the hospital.

- 作業方式：
  a. 病例審查與會討論
  b. 面訪個案
  c. 協助突發疫情調查與處理
  d. 二線抗結核藥物審查
  e. 定期召開委員會議

- Operational procedures:
  a To attend case review meetings
  b. To conduct patient interviews
  c. To aassist in investigating and handling of spontaneous TB outbreak
  d. To assess use of second line anti-TB drugs
  e. To hold regular committee meetings

㈠、結核病院內感染查核

疾病管制局自 2004 年起，配合現有之醫院感染管制查核與「結核病院內感染控制指引」之出版，特別加強醫院結核病院內感染控制方面之查核，其中包括定期 X 光篩檢、教育

訓練、接觸者檢查、痰陽個案之區隔，咳嗽監測等項目。2005 年起並將結核病查核項目併入醫院感染管制查核之中，成爲每年例行之醫院感染管制項目之一，持續推動結核病院內感染控制。

(I) To monitoring nosocomial TB Infection

Since 2004, with the publication of “Guidelines for Nosocomial Infection Control in TB Hospitals” and in compliance with the monitoring of infection control in general hospitals, CDC Taiwan has paid special attention in monitoring such infections, including regular X-ray screening, education, contact investigation, isolation of patients with positive sputum smear, and monitoring of persistent coughs. Starting in 2005, TB became a regular item for hospital infection control monitoring.

(J)、建立結核病多重抗藥性、複雜個案後送指定醫院

- 設置目的：
  a. 多重抗藥性及慢性開放性結核病人照護安置
  b. 痰陽個案住院及配合分級轉診政策。
  c. 提昇臺灣之結核病醫療照護品質。
- 組織：

  初步規劃於全台各地遴選具診治能力之醫院，渠等醫院應具備下列條件：

  a. 具備診治多重抗藥性、複雜性結核病人之能力及經驗具有符合下列3項條件之1的胸腔專科或感染症專科或結核病專科醫師1名以上。

  （1）曾在原衛生署(台灣省)慢性病防治局(防癆局)、台中、嘉義、台南慢性病(結核病)防治院、台北市慢防院、高雄市防治中心及衛生署胸腔病院服務滿一年以上，或

  （2）曾接受衛生署胸腔病院或指定醫院訓練一年，或

  （3）具有治療MDR結核病之經驗2年以上，經本局認定者。

  b. 具結核菌檢驗、塗片、培養、鑑定及一線抗藥性試驗之能力或檢體由指定代檢實驗室代檢，並能配合將二線抗藥性試驗送本局指定代檢實驗室。
  c. 有指定藥師管理藥品與發放。
  d. 有指定個案管理師管理MDR結核病人服藥情形及追蹤複查。
  e. 具備負壓隔離病房並每年定期檢測合格者。
  f. 具備完善的感染管制委員會，且應設置結核病管理小組。
  g. 組成專案照護團隊，針對每位MDR結核病患實施加強型都治（DOTS-Plus）專案照護管理。
  h. 具備辦理醫護人員結核病防治訓練及診治結核病人才培育計畫之能力。

- 任務：
  a. 提供結核病患診療服務。
  b. 每週召開個案討論會，連絡相關人員，協助備妥需討論的個案資料，提會討論。
  c. 配合感控訓練，增加結核病相關課程。
  d. 由指定醫院組成專案照護團隊，針對每位MDR結核病患實施加強型都治（DOTS-Plus）專案照護管理。
  e. 辦理醫護人員結核病防治訓練。
  f. 辦理診治結核病之人才培育計畫。
  g. 指定藥師管理藥品與發放。
  h. 指定個案管理師管理MDR結核病人服藥情形及追蹤複查，並將病患用藥及複查資料輸入結核病資料庫。

- 個案治療過程之評估：
  個案住院期間，由各區輔導醫師定期前往各醫院進行病人治療評估指導與病例討論（bed side teaching），並由收治醫院製作治療評估記錄。

(J) To designate hospitals to treat MDR-TB and complicated TB cases

- Purpose:
  a. To provide health care service to MDR-TB and Chronic infectious TB patients.
  b. To implement policy on hospitalizing sputum smear positive patients and related referrals.
  c. To improve quality of TB health care services in Taiwan.

- Organization:
  The preliminary plan is to select hospitals that meet the following criteria:
  a. The capacity in dealing with MDR-TB and complicated cases with one chest specialist or TB specialist who meets one of the three requirements below.
     (1) Having worked at one year for any following agencies: Former Department of Health, Taiwan Provincial Bureau of Chronic Disease Prevention and Treatment, Chronic Disease Prevention and Treatment Hospital (in Taichng or Chia-Yi or Tainan), Taipei Chronic Disease Prevention and Treatment Hospital, Kaohsiung Disease Prevention and Control Center, or Department of Health Chest Hospitals, or

(2) Having received one year training in Department of Health Chest Hospitals or other designated hospitals, or

(3) Having at least 2 years of experience of treating MDR-TB and certified by CDC.

b. Having the capacity to perform TB laboratory test, smear, culture, identification and sensitivity test for first line anti-TB drugs. Alternatively, the hospital can engaged the services of a qualified laboratory and dispatch specimen for the second line anti-TB drugs to laboratories commissioned by CDC.
c. Having on staff a designated pharmacist to manage and dispense medication.
d. Having a designated staff responsible for MDR-TB case management in treatment and follow-up.
e. Having equipped with negative pressure wards that are certified annually.
f. Having established an infectious control committee and TB control management unit.
g. Having established a special team to provide DOTS-plus treatment to each MDR-TB patient.
h. Having the capacity to participate in human resources development and to provide training for TB prevention and treatment personnel.

- Tasks:
  a. To provide TB treatment services
  b. To schedule weekly TB symposium, communicate with relevant people, prepare TB case materials, and discuss TB issues.
  c. To complement infection control measures by increasing TB related training courses.
  d. To establish special team to treat each MDR-TB patient with DOTS-Plus.
  e. To provide and administer TB training program
  f. To administer the TB human resources development plan
  g. To designate a pharmacist to manage TB medication and distribution
  h. To designate TB case manager to monitor MDR-TB patient drug therapy and follow-up, and to enter medication information in TB Information System.

- TB case treatment evaluation:
  While TB patients are hospitalized, the TB consulting physicians should evaluate each patient regularly and participate in bedside teaching. The hospital shall prepare evaluation reports accordingly.

附錄（十一）：有關「都治」計劃的策略

Appendix XI: DOTS Strategy

「都治」（Directly Observed Treatment Short-Course）是目前世界衛生組織與世界銀行共同認定最爲有效的結核病防治方法。『結核病十年減半』計劃中，將擴大實施「都治計劃」、並作爲重要指導方針之一。

Both the WHO and the World Bank consider DOTS as the most effective TB treatment method. DOTS will be expanded to become one of the important directions in the "TB Reduction by Half in 10 Years" national campaign.

(A)、實施方式

個案接受「都治」計劃將有三個階段：

(A) Implementation Method

Patient intake will include three phases:

一、住院都治：

痰塗片陽性確診結核病個案且有隔離治療之必要者，列爲強制住院隔離治療對象，所有確診結核病個案於住院期間，即由醫院依醫院結核病個案管理工作指引，提供個案住院期間都治計劃及相關個案管理工作。

DOTS in hospital care

Patients with positive sputum smear must be quarantined and hospitalized for treatment. During the hospitalization period, hospital personnel must follow TB case management guidelines to provide care for the patients.

二、社區都治：

痰塗片陽性確診結核病個案在社區居家治療接受社區都治者，由個案轄區縣市衛生

局督導之衛生所指派地段管理人員協調都治單位（含醫療院所、具醫療機構資格之衛生所、慢性病防治所）指派都治關懷員進行社區都治。

DOTS in community

The municipal or county bureau of health will dispatch case managers to liaise with TB treatment agencies (clinics, hospitals, community health unit, and chronic disease treatment centers) to dispatch TB health works to provide DOTS.

三、住院都治與社區都治之轉銜：
住院都治出院前（轉社區都治前）由個案轄區縣市衛生局督導之衛生所指派地段管理人員必需到院訪視個案至少一次，進行個案出院後回到社區中都治執行簡介，並與醫院結核病個案管理專員進行個案回到社區之轉銜交接。

Integration of DOTS between Hospital and Community

Before discharging patient from hospital for transfer to community care, public health nurse at the county or municipal health department shall visit the hospitalized TB patient at least once to familiarize the patient with the transfer process and to discuss with hospital staff to ensure a seamless transfer without disruption in treatment.

規則性的服藥關鍵結核病治療的成敗。實行「都治計劃」將有兩種觀察送藥方式：

一、關懷送藥到家：
由都治關懷員送藥到個案家，監督個案服藥。

二、個案到點服藥：
依個案意願，集中個案抗結核治療藥物在定點，個案到定點受監督服藥。

Regular dosage is critical in treating tuberculosis. As part of DOTS, we will have two methods in delivering and observing.

1. Deliver medication to patient’s home
   DOTS observer will deliver medication to patient’s home and observe.

2. Taking medication at a designated location
   If patients prefer, they can come to a predetermined location for the dosage.

「都治計劃」的執行需要大量的人力資源，各級行政與醫療單位的團隊合作運作，以下列各點爲原則。

一、由縣市衛生局選擇設置「都治」單位：
　都治單位之設置點可爲醫療院所或具醫療機構資格之衛生所、慢性病防治所。

二、「都治」單位必需連結病患就診醫療院所，組織一團隊，成員包括診療諮詢醫師、臨床診治醫師、醫院個案管理專員、衛生局督導人員、衛生所地段管理人員（公衛護士）、都治關懷員及社會工作人員等。

三、「都治」單位作爲病患診療資源協調（含服務）中心，每個月對轄內結核病人及工作項目進行個案管理（含診療服藥治療）檢討改善。

DOTS implementation is a resource intensive undertaking requiring collaboration among all agencies in a team approach.

1. To establish a DOTS unit in the county and municipal health bureaus.
   DOTS unit can be located in a hospital, local health unit with treatment capacity, or chronic disease clinics.
2. The DOTS unit must be connected with designated hospitals to form a team consisting of consulting physician, attending physicians, hospital TB case management staff, supervisors from local health authorities, public health nurses, DOTS observers and social workers.
3. The DOTS unit serves as the coordinating center for TB patients. Every month, the unit shall review each case to ensure continued quality improvement.

(B)、　確診的方式

本確診機制之目的在於減少痰塗片陽性非結核病患納入「都治」的機率，並確保「都治」關懷員所遵醫囑執行之醫令正確性。經由本程序確診的結核病人，即可由「都治」計劃方案治療。

診療諮詢醫師來源有三：
一、由院方指定該院感染科或胸腔科專科或結核專科醫師二至三名擔任
二、或由現任各縣市結核病諮詢專家分配責任區擔任。
三、臨床診療醫師不能同時擔任其治療病例之診療諮詢醫師。

諮詢項目內容：

結核病診斷、抗結核用藥處方、無檢體證據個案之確診，爭議個案轉送結核病諮詢委員會議諮詢、其他等。

確診流程：

一、有院方指定診療諮詢醫師者：通報前經診療諮詢醫師審閱相關病歷確認，書面通報時該筆通報書需經診療諮詢醫師核章或網路通報時請於諮詢醫師欄位擇選「院定」並輸入諮詢醫師姓名。

二、無院方指定診療諮詢醫師者：縣市衛生局於個案辦理登記日起三日內將病患通報疫調等相關資料送分區責任醫師審核，俟分區責任醫師回覆審核結果時，請縣市衛生局資訊系統諮詢醫師欄位擇選「分區責任」並輸入諮詢醫師姓名。
三、依諮詢醫師審核結果判定爲「痰塗片陽性確診」納入「都治」對象。

(B) TB diagnosis confirmation process

This approach is to prevent inclusion of false positive TB case in the DOTS program and to ensure the care orders given to DOTS observers are correct. All patients with diagnosis confirmed by this process can be included in the DOTS program.

Consulting physicians may come from the following three sources:
1. Appointment of 2 to 3 chest or TB specialists by a designated TB hospital.
2. To assign responsibility area in the county or municipality to each of the existing TB consulting physicians.
3. A TB attending physician can not work as a consulting TB physician at the same time.

Areas of TB consultation include the following:
TB diagnosis, prescription and therapy of anti-TB drugs, confirmation of TB diagnosis where there is a lack of specimen for testing, referral of suspect TB cases with uncertain diagnosis.

Confirmation Process:

1. When a consulting physician appointed by the hospital is available, the attending physician should request the consulting physician to review the relevant patient chart before reporting the case. If reporting by paper document, the document needs to be signed by the consulting physician. If reporting online, please select “hospital approved” at appropriate spot and include the name of the consulting physician.

2. If no consulting physician appointed by the hospital is available, the county or municipal bureau of health should, within 3 days following the initial registration, send relevant patient information to the consulting physician responsible for that area for review and confirmation. Upon receipt of the patient information returned by the physician, the county or municipal bureau of health shall input the information onto the information system and select “district approved” with the name of the consulting physician.

3. When the diagnosis is confirmed by a consulting physician to be “Sputum Smear Positive”, the patient should be admitted formally into the DOTS program.

(C)、 選擇接受「都治」病患之流程

病患經通報後經確診流程確認爲結核病患者，列爲納入「都治」的人選。這流程可以分成下列四個步驟。

一、由臨床診治醫師、地段管理人員與病患溝通後，同意參加「都治」者，則由病患簽署同意書，參與「都治」之病患則建立資料卡由都治關懷員及管理員登錄列管；不同意參與「都治」決定自行管理者，則由地段管理人員依管理規則密切進行追蹤管理。

二、自行管理者由地段管理人員或醫院個案管理專員進行密切追蹤管理，若發現不合作服藥者，則依不合作個案進行後續處理，必要時，請依傳染病防治法第 43 條辦理個案強制移送指定隔離機構施行隔離治療。

三、同意接受「都治」者，則確定都治關懷員觀察服藥地點（病患最方便的地點，選擇到家或到點）及服藥時間。

四、「都治」關懷員第一次執行觀察作業，須由地段管理人員陪同，並了解病患基本資料及服藥種類、劑量。

(C) Workflow for DOTS patient intake

Once the process in the last section confirms a patient's diagnosis, the patient is eligible for DOTS program by following the intake process below.

1. After the attending physician and public health nurse consulted with and obtain agreement from the patient, patient is to sign a consent form to participate in the DOTS program. A patient information file is then set up by DOTS observer and case management staff. For those who do not consent to enter the DOTS program, the pubic health nurse responsible shall monitor and follow up on the case.

2. The public health nurse is to monitor those, qualified but declined, Non-DOTS TB patients closely. If found not in compliance in taking medications regularly, if necessary, the case can be dealt with under Section 43 of the Communicable Disease Prevention Act. Mandatory admission to hospital for treatment in isolation can be applied.

3. For DOTS participants, the assigned DOTS observer will establish with the patient a convenient time and location for medication which can be delivered to the patient's home or a mutually agreed location.

4. The DOTS observer assigned to the case should be accompanied by the public health nurse on the first visit to familiarize himself/herself with patient's medical history, type of medication and dosage.

(D)、 「都治」關懷員執行步驟

一、遵醫囑執行病患之「都治」觀察，如病患爲每日劑量型治療方式，「都治」關懷員每週至少執行五日（含）以上之觀察服藥；如爲高劑量間歇療法，則依醫囑於病患服藥日期執行觀察服藥每週至少三次。

二、「都治」關懷員自都治單位攜帶抗結核藥物、「都治」日誌及提貨卷或食物等於約定時間至約定地點進行觀察服藥。

三、詢問病人服藥有無不適或副作用。（若病人有不適，則紀錄於日誌並回電地段管理人員或個案管理專員，請求提供支援解決）

四、確認病人藥物種類及數目

五、觀察病人服藥

六、詢問病人或家屬有無需要幫助之處

七、提醒病人或家屬下次就醫時間及確認病人是否須進行驗痰

八、給予病人提貨卷或食物並請其於相關資料上簽名
都治關懷員回都治單位後應與衛生所地段管理人員（公衛護士）、督導人員、討論個案情形，整理「都治」日誌並將資料鍵入電腦資料庫。

(D) DOTS observer's workflow

1. DOTS observers carry out doctor's order. For the daily therapy model, the observer needs to supervise every dose at least 5 days a week. For the high dosage intermittent therapy model, the observer will follow doctor's order to supervise at least 3 times a week.
2. The DOTS observer, with the medication from office, DOTS journal, material voucher or food supplies, go to the designated location to meet the patient and supervise the dose of medicament.
3. The observer shall ask the patient about any reaction or discomfort that might have been caused by the medication. (If yes, the observer shall record that in the journal and telephone the responsible public health nurse or case management personnel for support and solution.)
4. Confirm patient's identify, type of medication and dosage
5. Observe patient taking the medication.
6. Ask the patient or patient's family about any assistance they may need.
7. Remind the patient or patient's family about next doctor's appointment and confirm the need for sputum test.
8. Ask the patient to sign on the required document for material voucher or food supplies that have been delivered on this visit.

DOTS observers on return to the office shall discuss with public health nurse, supervisor any findings, complete DOTS journal and input relevant data onto the computer system.

(E)、　分工

一、衛生所層次：

由衛生所主管調配人力進行高品質結核病個案管理工作，協調個案所需含診療、社會扶助及社會支持等相關資源。

二、縣市衛生局層次：

1. 成立「都治」單位：
   - 負責聯結「都治」診療團隊（含括臨床診療院所、合約指導醫師 等），評估聘僱關懷員人數及負責招募作業，並指派「都治」關懷員服務之都治單位負責執行個案都治觀察服藥作業，確定病患在治療的全程中規則地依照醫師的處方服下每一劑抗結藥物。
   - 聘請診療諮詢醫師。
2. 設置督導人員進行監督、督導作業，並藉由電話訪問病患包括服藥情形及是否有其他需要協助之處。每個月實地抽訪個案，評估「都治」落實執行情形。
3. 將訪查情形鍵入電腦資料庫。
4. 每個月定期召開結核病個案輔導討論會議。
5. 協調轄內之公衛系統及醫院個案管理專員系統。

三、疾病管制局分局層次：

1. 督導縣市衛生局都治計畫推動實務。
2. 協助縣市衛生局協調跨縣市之公衛系統及醫療體系之合作。
3. 協助縣市辦理都治關懷員訓練。
4. 抽訪分局轄內個案，評估「都治」落實執行情形。
5. 反應轄內「都治」執行情形。

四、疾病管制局總局層次：

1. 藉由電腦資料庫進行進度查核及管制。
2. 對於執行工作進行檢討改進。
3. 不定期抽訪個案，評估「都治」落實執行情形。

(E) Division of responsibilities

1. Local health unit

   Local health clinic coordinate different resources, such as medical, social assistance and support, to provide quality case management.

2. County or Municipal Bureau of Health
   a. Establish “DOTS” unit
      - Responsible for building a “DOTS” team (including hospitals, consulting physicians), estimating and recruiting the number of DOTS observers required, assigning observers to different work units to carry out their duties in supervising patients in taking medication.
      - Recruit attending and consulting physicians.
   b. Assign supervisor to monitor operations and through telephone interviews with patients to inquire about medication and any assistance. Every month, conduct selective on-site visit to assess program progress and delivery.
   c. Enter pertinent data onto the TB Information System
   d. Conduct monthly TB case review seminar
   e. Coordinate TB resources in the public health system and hospitals within its jurisdiction.

3. CDC Branches:
   a. Supervise county and municipal bureau of health in delivering the DOTS program.
   b. Assist county or municipal bureau of health in cross boundary collaboration resources in the public health system and TB care system.
   c. Assist with the training of DOTS observers.
   d. Conduct selective review of TB cases and assess DOTS program implementation.
   e. Provide feedback of DOTS program delivery.

4. CDC Headquarters:
   a. Conduct audit and control by using the information from the computer system.
   b. Review and improve program delivery.
   c. Conduct ad hoc on-site visit to assess DOTS program delivery.

(F)、參與人員角色（例示）

一、指導醫師：

輔導臨床診治醫師對個案之診斷治療，確認治療管理方針，審查臨床醫師診療處方，參與個案管理討論，必要時協助訪視個案。

二、臨床診治醫師：

通報、診療病患、勸導個案加入都治計畫、參與個案管理討論。

三、醫院個案管理專員：

醫院結核病人之輔導、衛教及督導其定期回診，與公衛護士及都治關懷員協調辦理病人由醫院轉社區都治之過程。

四、衛生局督導人員：

綜合及查核轄內之都治單位都治執行情形，協助都治治療療程之進行，辦理衛生局層次應執行之都治治療療程工作。

五、衛生所地段管理人員（公衛護士）：

承辦都治單位之都治業務工作，協助都治關懷員執行都治治療療程，其他與都治治療相關事項。

六、都治關懷員：

依據都治關懷員參考指引執行都治程序。

七、社會工作人員：

協助病人辦理救濟、補助或轉介等社會福利工作。

(F) Roles and responsibility of participants (example only)

1. Consulting physician

Assist attending physician in TB diagnosis and treatment, confirming treatment plan, evaluating prescription, participating in case management discussion as well as performing on-site visit when needed.

2. Attending physician

Responsible for reporting, diagnosis & treatment, encouraging patients to enrol in the DOTS program and participating in the TB case management discussion.

3. Hospital case management staff

Provide counselling, health education to hospitalized patients and collaborate with public health nurse and DOTS observer in patient transfer to the community DOTS program.

4. Bureau of heath supervisor

Assess and assist in DOTS program delivery within its jurisdiction

5. Public health nurse

Responsible for overall DOTS operation, assisting DOTS observers on executing treatment plan, handling other DOTS related activities.

6. DOTS observer

DOTS observers shall follow the procedure specified in the procedure guidelines.

7. Social worker

Assist patients in applying for social assistance, welfare or referral for other social assistance.

(G)、 檢討機制

定期與縣市衛生局、相關學者專家開會，就實施都治計畫所遭遇之各項實務問題，

(G) Review and feedback mechanism

To meet regularly with county and municipal bureau of health, scholars and experts to explore solutions to practical program delivery difficulties and different ways to improve.

附錄（十二)：有關考評的策略

Appendix XII: Evaluation Strategy for TB Control

結核病的防治需要一個面面兼顧、嚴謹的監控與評估方法。防治的策略執行期間相當長，有針對執行面各層級的階段性評估，才能確保中、長期目標的完成。爲求達到預期的地方性指標，將輔導各縣市結核病防治單位，依照本計劃的內容與重點，各自研其轄區內的執行方案。

The implementation of this strategy spans over a very long period. TB control needs a stringent, consistent and comprehensive evaluative process to ensure attainment of mid-term and long-term goals and objectives. We will assist various county and municipal TB agencies to follow this strategy so that respective targets in TB control can be achieved.

本計劃的評估活動將以執行成果與預期的全國性與地方性指標比較爲主軸。

(A)、年度性評估

每年將舉辦結核病防治評估會議，以統計數值與既定的全國性指標與地方性指標比較。並且按防治策略逐項回顧檢討，作爲下一年度執行之參考

(B)、期中評估

本計劃執行第五年(2010 年)結束後，將聘請結核病專家學者組成評估小組，深入了解防治策略執行狀況及效益、參考國際結核病防治新趨勢、向疾病管制局提出具體建議，以確保本計劃能順利完成預期的目標。

(C)、期末評估

在 2015 年本計劃結束後，舉辦國際結核病研討會，並聘請國內外專家學者對台灣結核病十年減半計劃，做學術性的評估與報告。

(D)、及時性的評估

計劃執行期間，如有特殊情況，視實際需求，將做主題性的評估。

The evaluation will be based on comparing the anticipated national and local targets with the actual progress and achievement at different levels.

(A) Annual Evaluation

To host annual TB control evaluation meeting, use statistical comparison of national and local indicators, conduct critical review of annual progress as a reference for the year to come.

(B) Midterm Evaluation

At the conclusion of the first five years of this strategy, i.e. year 2010, a special group consisting of experts and scholars will be established to conduct program evaluation and to recommend to CDC on status, effectiveness, international TB control trends, etc. to ensure successful completion of anticipated goals and objectives.

(C) Final Evaluation

In 2015 when this strategy is fully implemented, we will host an international conference with invited local and international TB experts to present scholarly reports on the outcome of this national campaign.

(D) Timely Ad Hoc Evaluation

During the period of implementing the National TB Strategy, additional evaluation may be conducted for special situation.

附錄（十三）：有關經費的需求

Appendix XIII: Budget for TB strategy

各項工作分年經費項目如下：（仟元）。後五年的預算將視前五年進行情況編列。

年度 項目	2006	2007	2008	2009	2010	總計
加強衛教宣導	31,774	33,322	34,940	36,631	38,398	175,065
加強預防接種	6,907	7,244	7,595	7,963	8,347	38,056
加強疫情通報監視	6,907	7,244	7,595	7,963	8,347	38,056
健全個案發現	16,578	17,386	18,230	19,112	20,034	91,340
建構結核菌檢驗網	13,815	14,488	15,192	15,927	16,695	76,117
建構結核病診療網	33,815	35,463	37,185	38,984	40,865	186,312
醫療費用納入公務預算及推動醫療品質改善方案	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000
提高個案治療管理績效	27,630	28,976	30,383	31,854	33,390	152,233
專業人員訓練與資源連結	9,670	10,141	10,634	11,148	11,686	53,279
人才培育推動研究與國際合作	11,052	11,591	12,153	12,741	13,356	60,893
合計	**1,658,148**	**1,665,855**	**1,673,907**	**1,682,323**	**1,691,118**	**8,371,351**
資本門	6,800	10,990	8,000	6,600	6,600	38,990
經常門	1,651,348	1,654,865	1,665,907	1,675,723	1,684,518	8,332,361

Annual associated programs and expense have been identified below, in units of NT$1,000. The budget of the second 5 years will be allocated based on progress and achievements in the first 5 years.

Year Program	2006	2007	2008	2009	2010	Total
Public Health Education Campaign	31,774	33,322	34,940	36,631	38,398	175,065
Immunisation	6,907	7,244	7,595	7,963	8,347	38,056
Surveillance and Reporting	6,907	7,244	7,595	7,963	8,347	38,056
Case Detection	16,578	17,386	18,230	19,112	20,034	91,340
TB Laboratory Network	13,815	14,488	15,192	15,927	16,695	76,117
TB Diagnostic & Treatment Network	33,815	35,463	37,185	38,984	40,865	186,312
Budget Integration and Special Quality Assurance Program	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	7,500,000
Case Management Enhancement	27,630	28,976	30,383	31,854	33,390	152,233
Professional Development and Outreach	9,670	10,141	10,634	11,148	11,686	53,279
HR Development, Research and International Collaboration	11,052	11,591	12,153	12,741	13,356	60,893
Total	1,658,148	1,665,855	1,673,907	1,682,323	1,691,118	8,371,351
Capital budget	6,800	10,990	8,000	6,600	6,600	38,990
Operational budget	1,651,348	1,654,865	1,665,907	1,675,723	1,684,518	8,332,361