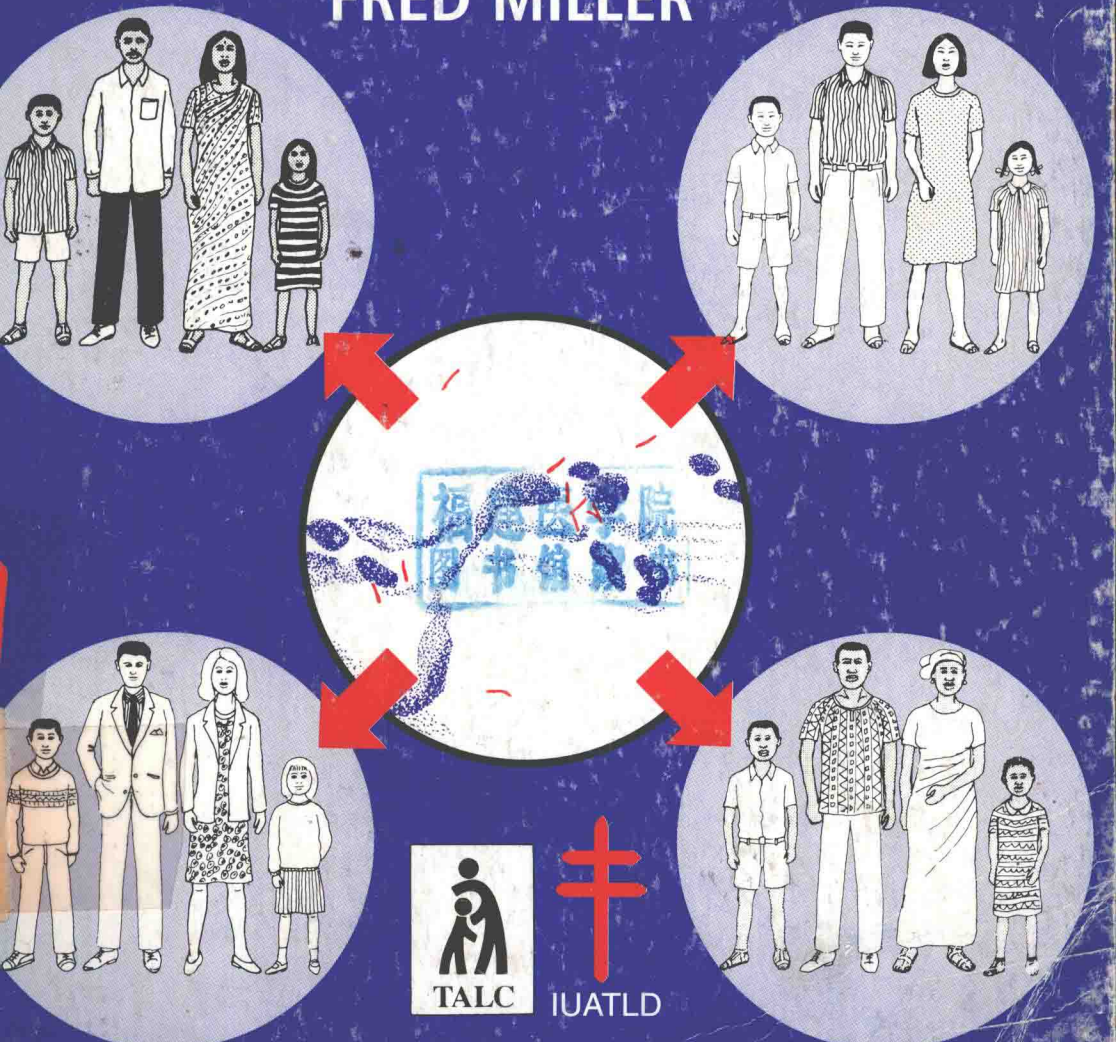
Clinical Tuberculosis

Second Edition

JOHN CROFTON • NORMAN HORNE
FRED MILLER



TALC
IUATLD

Clinical Tuberculosis

Second Edition

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The Authors

Sir John Crofton became Professor of Respiratory Diseases and Tuberculosis at Edinburgh University in 1952. He has been Chairman of the International Union Against Tuberculosis and Lung Disease's tuberculosis treatment and tuberculosis diagnostic scientific committees, and a member of WHO's Consultative Panel on TB. He has lectured and advised in over 50 countries.

Norman Horne was President, Europe Region, of the International Union Against Tuberculosis and Lung Disease from 1982 to 1988, and has been Chairman of the Chest Heart and Stroke Association of Scotland since 1982. Formerly he was President of the British Thoracic Association, and WHO Visiting Professor in Medicine, Baroda, India.

Fred Miller was a consultant paediatrician and undertook many assignments for WHO, chiefly in India. He also wrote the book *Tuberculosis in Children* (Churchill Livingstone, 1982).

Foreword to First Edition

The International Union Against Tuberculosis and Lung Disease welcomes *Clinical Tuberculosis* with interest, gratitude and pride.

Interest, because clinical aspects are part and parcel of the essential knowledge necessary both to those dealing with the individual and those dealing with the community.

Gratitude, because precisely this type of manual for non-specialised practitioners and public health field workers was long and badly needed.

Pride, because the book is the result of the collaborative effort of two long-standing highly respected members of the Union, and a paediatrician, all of them with an immense experience with tuberculosis patients as well as with the problems and needs at national and international levels. The book bears witness to their indefatigable drive in trying to impart useful know-how to their colleagues and fellow workers striving under difficult conditions.

We now possess well established methods for prevention, diagnosis and treatment of tuberculosis as well as the concept of National Tuberculosis Programmes; the latter provide the system through which the effective means can be delivered.

Recent studies have re-awakened our awareness as to the magnitude of the problem: tuberculosis remains the biggest killer in the world as a single pathogen; while it hits children as well as elderly, the worst affected are adults between 15 and 59 years of age i.e. the parents, workers and leaders in society. Tuberculosis accounts for 26 per cent of all avoidable deaths in Third World countries.

The tremendous toll of tuberculosis is increasing in many countries due to the interaction of HIV and tuberculosis infections. However tuberculosis remains curable even in the HIV infected. The present remobilisation against the ancient scourge tuberculosis will, hopefully, be able to curb the present flaring up of incidence.

Moreover cost–benefit analyses have shown that short-course chemotherapy of tuberculosis, within the framework of national programmes, is one of the cheapest of all health interventions, comparable in cost to immunization for measles or to oral rehydration therapy for diarrhoea.

Those who fight tuberculosis, this inseparable but terrible companion of man, will find this comprehensive and clear book a mighty ally to assist them accomplish their mission with more competence, more understanding and more humanity, and will bring closer the time when proper diagnosis and adequate management of cases will stop the perpetuation of the disease, thus paving the way to its elimination.

Annik Rouillon, MD, MPH
Executive Director,
International Union Against Tuberculosis
and Lung Disease

Preface to the Second Edition

Professor David Morley, the Honorary Director of Teaching Aids at Low Cost (TALC), originally asked the authors to write this book for non-specialist doctors and health professionals in countries with a high prevalence of tuberculosis. We found it a fascinating challenge to try to produce a book in simple language which could be useful to workers who might have very few resources. The book was to be primarily about clinical tuberculosis. But we felt that clinical tuberculosis should be put in a framework of a National Tuberculosis Control Programme. Only in that framework could the mass of patients be effectively diagnosed and cured. Only in that framework could mass cure lead to mass prevention.

We had hoped that at least some doctors and health professionals in some countries would find the book useful. In the event it does seem to have met a real need. The demand has exceeded our wildest expectations. We initially arranged for French, Spanish and Portuguese translations, so as to make it available to the appropriate countries in Africa and America. But we have been delighted to find that many countries have wished to produce editions in their own languages. As we write (1997) it has appeared in fourteen languages, with editions in four others in various stages of preparation. Besides the languages already mentioned there are editions in Russian, Italian, Croatian, Chinese, Mongolian, Thai, Vietnamese, Arabic, Farsi (Iran) and Turkish. We are expecting future editions in Romanian, Indonesian, Urdu and Bengali. We are most grateful to the translators, publishers and distributors of all these editions. A preliminary estimate is that more than 70,000 copies in the various languages have been distributed in 125 countries. The book has been used by the World Health Organization and the International Union Against Tuberculosis and Lung Disease, and we hope by others, for their training courses.

In producing our first edition we had much help from a series of international experts. These included Professors John Biddulph (Papua New Guinea) and David Morley (TALC and UK); Drs Andrew Cassels (UK), Keith Edwards (Papua New Guinea), A.D. Harries (UK and Malawi), Wendy Holmes (Zimbabwe and Australia), Kanwar K. Kaul (India), A. Kochi (WHO), Colin McDougall (UK), S.J. Nkinda (Ethiopia),

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In preparing this second edition we have benefited from much discussion with international experts, notably those from WHO and IUATLD. In particular we thank Dr Hans Rieder of IUATLD who reread our first edition in detail and made many helpful suggestions which we have incorporated.

The major changes in the present edition are in the chapters on HIV and tuberculosis and in the sections on chemotherapy. Since the first edition there is now much more experience of HIV. We have greatly expanded that chapter. In doing so we have utilised extensively the WHO publication *TB/HIV. A Clinical Manual* by Drs A.D. Harries and D. Maher (1996). We are most grateful to Dr Harries for constructive criticism of a draft of our chapter.

We have revised the sections on chemotherapy to make sure that they are consistent with the second (1997) edition of WHO's *Treatment of Tuberculosis. Guidelines for National Programmes*. We have also revised the Appendix on tuberculin testing in the light of recent recommendations by the International Union Against Tuberculosis and Lung Disease and informal discussions with WHO staff.

Much work has been done in recent years on 'molecular' aspects of tuberculosis. The detection of specific components of tubercle bacilli may ultimately lead to rapid diagnosis of disease and to rapid detection of drug resistance. Genetic classification of sub-strains of bacilli can already identify sources of local outbreaks. But none of the new methods is so far sufficiently simple, reliable and cheap for general use in poorer countries. So we have not included any details. The search continues for new drugs but none has yet proved sufficiently effective, non-toxic and cheap to find a place in routine treatment. In all these fields look out for new developments.

Sadly, we have to record the death in 1996 of our co-author Fred Miller. He made an outstanding contribution to the book. We hope the book will stand as a memorial to his remarkable work for paediatrics, and in particular for paediatric tuberculosis, in many countries. We miss him sorely.

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General Background to Clinical Tuberculosis

1: INTRODUCTION

1.1 About this book

This book is written for non-specialist hospital doctors, doctors in primary health care and other health professionals who may meet tuberculosis in the course of their work. **Almost all patients with newly diagnosed tuberculosis can be cured if properly treated.** Many will die if they are not properly treated. Therefore, as a responsible doctor or health worker

- DO NOT miss the diagnosis
- DO then give the correct treatment for the full period of time.

More than that, GOOD TREATMENT IS THE MOST IMPORTANT FORM OF PREVENTION. It makes infectious patients non-infectious. This reduces the passing on of infection in the community.

Tuberculosis is a challenging disease. Sometimes trying to make the diagnosis is like trying to solve a detective story. But if you succeed in solving the problem, you can be sure of a happy ending to the story. Modern treatment is highly successful in curing tuberculosis even in patients already infected with the HIV (AIDS) virus.

1.2 Some of the things you should know

If you are going to play your part in helping your patients, and in controlling tuberculosis in your country, you must know something about its cause. You must know where infection comes from. You must know how most people control that infection and do not get ill, but why some develop disease. The general public will also expect you to know something about the best way of **preventing tuberculosis**. If your country has a **national programme** for tuberculosis control, YOU SHOULD KNOW ABOUT IT and should play your part in making it work.

1.3 The world problem of tuberculosis

In many industrialised countries money, resources, high standards of living, and widespread chemotherapy in the last 40 years, have helped to reduce tuberculosis to a relatively minor problem. But in poorer countries it remains almost as big a problem as ever. Indeed, as their populations have increased and their tuberculosis rates have only slightly decreased, **there are probably more tuberculosis patients in the world today than there were 20 years ago**. WHO has estimated that the total number of cases in the world will rise from 7.5 million in 1990 to 10.2 million in the year 2000. Total deaths will rise from 2.5 to 3.5 million. The rise will be due partly to increases in population in developing countries and partly to the spread of the HIV virus (p 135). These rises could be stopped if many countries set up effective Tuberculosis Control Programmes (p 15).

1.4 The outlook

This may all sound depressing, but in many poor countries with high tuberculosis rates modern programmes of mass treatment efficiently applied, are showing excellent results. There are even signs that this success is beginning to make tuberculosis a little less common in some of these countries where HIV infection is low. In industrialised countries the rate of new cases (incidence rate) fell by 6–12 per cent a year after the widespread use of chemotherapy. After the introduction of good National Control Programmes WHO reports declines per year of 5 per cent for Chile, 7 per cent for Cuba, 8 per cent for Uruguay and 7 per cent for the Republic of Korea. These figures show what can be achieved. But with the explosion of HIV infection in Africa, and now in Asia, it will need very major national and international effort to achieve such results throughout the world. An increasing number of countries have made a good start. We hope you will make your own contribution in your own country.

1.5 Tuberculin surveys and annual numbers of new cases

It has been calculated that **for every 1 per cent of new annual infections** (new tuberculin positives among the population) **there will be 50–60 new smear positive cases of pulmonary tuberculosis per 100,000 population per year and an equal number of either smear-negative or non-pulmonary cases**. Using this calculation a sample tuberculin survey can be used to calculate the probable number of new cases per year in a country. (Not all experts accept the value of this method.)