Control of Communicable Diseases in Man

Abram S. Benenson, editor

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Cover Design: Four basic aspects of communicable disease control are symbolized—grain: proper nutrition; flask: research; syringe: prevention and treatment; hand and soap: sanitation.

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LIAISON REPRESENTATIVES

PREFACE TO THE FOURTEENTH EDITION

The *Control of Communicable Diseases in Man* was first published by the American Public Health Association in 1917 to present the essential facts needed to control communicable diseases of man. The periodic revisions, this the fourteenth, assure that the information and recommended practices remain abreast of the advances in our knowledge of the communicable diseases and of the changes in socioeconomic conditions. The book is intended to provide a ready source of information on how to recognize a specific disease, how to manage the patients so that the disease does not spread, and to provide guidance for treatment to preserve life and limit the spread of infection. It is not intended to replace more inclusive textbooks but to be a source of basic information on which initial action can be taken.

The events in the interval since the last edition was published bear evidence that the problems presented by communicable diseases have not been solved. The emergence of acquired immunodeficiency syndrome and of its various disease manifestations has reemphasized the need for competence in the communicable disease area and the need for maintaining surveillance of disease occurrence. To make the issue more complicated, the emerging relationship between neoplasia and specific etiological agents broadens the scope of communicable disease, and, more importantly, gives hope to preventing malignancies by applying infectious disease principles, e.g., hepatocellular carcinoma prevented by immunization against hepatitis B.

Questions may be raised about the amount of space devoted to the presentation of rare and exotic diseases. This is deliberate. Physicians in developed areas are familiar with the diseases which occur in their areas, but they have had no personal contact and usually little information about the diseases occurring in remote areas to which their patients are exposed in their increasing international travel; the jet plane assures their return within the incubation period of all infectious diseases. The inclusion of smallpox, even though it has been eradicated globally, is considered necessary; should smallpox appear again through some mischance, it is essential that there be a readily available source of information for rapid recognition and appropriate immediate action. Sources of information on these diseases may not be readily available; this book attempts to fill some of the void.

This manual considers communicable diseases globally. While it is a publication of the American Public Health Association, the presentation aims to be international. Toward this end, the numbers assigned for each disease by the World Health Organization *International Classification of Disease,* 9th Revision, Clinical Modification (ICD-9 CM) have been used; the disease nomenclatures recommended by the Council for International

Organizations of Medical Sciences (CIOMS) and the World Health Organization (WHO) in *International Nomenclature of Diseases*. Volume II, Part 2, Mycoses, 1st Edition, 1982, and Volume II, Part 3, Viral Diseases, 1st Edition, 1983, have been used so far as possible. When the recommended name is too different from that in current use, the recommended name is shown as the first synonym and marked with an asterisk. This volume is a model of international cooperation, with active participation by the WHO, the Pan American Health Organization (PAHO) and the health authorities of the major English-speaking countries.

The development of the text is a collaborative project. The members of the editorial board, selected for their expertise or that of their colleagues in the specific diseases, were assigned specific chapters for review and updating. After review and some editing by the editor and associate editor, these chapters were sent to all members of the editorial board and to the liaison representatives, who had been designated by the various health agencies in the USA (governmental and nongovernmental), WHO, PAHO, and the health departments of Australia, Canada, New Zealand, Scotland and the United Kingdom, as well as to experts on specific diseases who have given freely of their time and effort. The comments and criticisms were then considered in the preparation of the penultimate version, which was again distributed to the 28 people involved. After resolution of any disagreement, the final drafts as submitted to the printer (in the form of word-processor disks) were distributed to assure that no serious errors had been introduced.

While the orientation of the book is directed primarily toward the problems encountered by the official and nonofficial disease control agencies in the United States, the practices recommended should be applicable anywhere. An increasing number of diseases, such as influenza, must be considered on a global basis; toward this end, the WHO has established a network of international collaborating centres which can provide national authorities with the services of consultation, collection and analysis of information, assistance in the establishment of standards, production and distribution of standard and reference material, exchange of information, training and organization of collaborative research, and information dissemination regarding the incidence of specific diseases. The diseases covered by these centers are indicated in the appropriate chapters; WHO should be approached for further details about the services available.

While this manual is not intended to be a therapeutic guide, the currently best clinical management, especially of the exotic diseases, is indicated in section 9B7. Since the drugs needed for treatment of some rare or exotic diseases may not be available commercially within the United States, the Director of the Centers for Disease Control (CDC) of the U.S. Public

Health Service (USPHS) has established the CDC Drug Service to provide access to rarely used drugs on an Investigational New Drug (IND) basis. These can be obtained by calling (404) 329-3670, or at night, for emergency requests only, (404) 329-2888. The items available from this source are specified under the appropriate disease discussions. Some immunoprophylactic or immunotherapeutic agents are also available from CDC. Since several of the drugs and immunobiologics are considered "Emergency Life Saving" products, they are also dispensed from the US Quarantine Stations, located in international terminals in 9 major cities throughout the USA. The release of vaccinia immune globulin is controlled by a group of physician consultants who are situated in various parts of the country. The telephone number of the closest consultant can be obtained by contacting the quarantine officer at International Air Terminals or physicians may call the Centers for Disease Control directly at (404) 329-3145 or night calls at (404) 329-2888.

While the format of earlier editions and sometimes the original words written by the previous editors, Haven Emerson and John E. Gordon, are retained, every chapter has been carefully updated. New chapters have been added; these include acquired immunodeficiency syndrome (AIDS), malignant neoplasia, cryptosporidiosis, Kawasaki syndrome, and hymenolepiasis. As indicated above, the naming of several diseases has been changed to seek conformity with CIOMS-WHO nomenclature recommendations.

This edition again presents the composite efforts of many individuals, named or not named, in many countries; the task of adjudicating among conflicting suggestions fell to the editor, who accepts the responsibility for having rejected any suggestions which consequently will be proven to have been correct.

Purposes of the manual—The primary aim is to provide an informative text for public health workers of official and voluntary health agencies including physicians, dentists, veterinarians, sanitary engineers, public health nurses, social workers, health educators and sanitarians; and for physicians, dentists and veterinarians in private practice who are concerned with the control of communicable diseases. The book is also designed for those serving with the armed forces at home and abroad, and for health workers stationed in foreign countries. School administrators and students of medicine and public health will also find the material useful.

A second general purpose is to serve public health administrators as a guide and as a source of materials in preparing regulations and legal requirements for the control of the communicable diseases, in developing programs for health education of the public and in the administrative acts of official health agencies for management of communicable disease. The

needs of field workers have been given special attention; their need for a handy reference determines the format of the manual and its pocket size.

Factual knowledge is presented briefly; opinions are advanced consistent with these facts as a basis for intelligent management of communicable disease, unhampered by local custom and not restricted to prevailing practices. The emphasis is on principle because local conditions often require variation in practices from state to state within the United States and between countries. To keep facts and opinions reasonably current, the manual is revised every five years.

Scope and Contents—The presentation is standardized. Each disease is briefly identified with regard to clinical nature, differentiation from allied or related conditions and laboratory diagnostic procedures. Infectious agent, occurrence, reservoir, mode of transmission, incubation period, period of communicability, and susceptibility and resistance are presented next. Methods of control are described under the following five headings:

A. *Preventive measures:* Applicable generally to individuals and groups when and where the particular disease may occur in sporadic, endemic or epidemic form, and whether or not the disease is an active threat at the moment, e.g., chlorination of water supplies, pasteurization of milk, control of rodents and arthropods, animal management, immunization procedures, and health education of the public.

B. *Control of patient, contacts and the immediate environment:* Those measures designed to prevent infectious matter present in the body and the environment of the infected individual from spreading the disease to other persons, arthropods or animals; and recommendations on the appropriate management of contacts to assure earliest possible treatment, to prevent disease dissemination during the incubation period, and to detect any carriers and their management to minimize disease spread. Specific treatment, if available, is outlined to minimize the period of communicability and to reduce morbidity and mortality. Recommendations for isolation have been based largely on the *CDC Guideline for Isolation Precautions in Hospitals,* by Julia S. Garner and Bryan P. Simmons and *CDC Guideline for Infection Control in Hospital Personnel* by Walter W. Williams (in one volume). While the category-specific isolation precautions have been epitomized in the enclosed definitions, reference is advisable to the original publication which can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

C *Epidemic measures:* Those procedures of emergency character designed to limit the spread of a communicable disease which has developed widely in a group or community, or within an area, state or nation. These measures are not applicable when the disease occurs sporadically among widely separated individuals or separated by considerable intervals of time.

D. *Disaster implications:* The likelihood that the disease might constitute a major problem in a disaster or catastrophe situation and whether it would be necessary to take preventive actions.

E. *International measures:* Such controls of international travelers, immigrants, goods, animals and animal products and their means of transport based on provisions of international health regulations, conventions, intergovernmental agreements or national laws; also any controls that may protect populations of one country against the known risk of infection from another country where a disease may be present in endemic or epidemic form.

Reporting of Communicable Diseases—The first step in the control of a communicable disease is its rapid identification, followed by notification to the local health authority that the disease exists within the particular jurisdiction. Administrative practices on the diseases to be reported and how they should be reported may vary greatly from one region to another because of different conditions and different disease frequencies. This manual presents a basic scheme of reporting, directed toward a practical working procedure rather than ideal practice. The purpose is to provide necessary and timely information to permit the institution of appropriate control measures by responsible health authorities, as well as to encourage uniformity in morbidity reporting so that data between different health jurisdictions within a country and between nations can be validly compared.

A system of reporting functions in four stages. The first is the collection of the basic data in the local community where the disease occurs. The data are next assembled at district, state or provincial level. The third stage is the aggregation of the information under national auspices. Finally, for certain prescribed diseases, report is made by the national health authority to the World Health Organization.

Consideration here is limited to the first stage of the reporting system—the collection of the basic data at the local level because it is the fundamental part of any reporting scheme and because this manual is primarily for local health workers. The basic data sought at the local level are of two kinds (see Definitions, Report of a disease).

1. ***Report of Cases:*** Each local health authority, in conformity with regulations of higher authority, will determine what diseases are to be reported as a routine and regular procedure, who is responsible for reporting, the nature of the report required and the manner in which reports are forwarded to the next superior jurisdiction.

   Physicians are required to report all notifiable illnesses which come to their attention; in addition, the statutes or regulations of many localities require reporting by hospital, householder, or other persons having knowledge of a case of a reportable disease. Within hospitals, a specific officer should be charged with the responsibility for submitting required reports. These may be case reports or collective reports.

   Case Reports of a communicable disease provide minimal identifying data of name, address, diagnosis, age, sex and date of report for each patient and, in some instances, suspects; dates of onset and basis for diagnosis are useful. The right of privacy of the individual must be respected.

   Collective Reports are the assembled number of cases, by diagnosis, occurring within a prescribed time and without individual identifying data, e.g., "20 cases of malaria, week ending October 6."

2. ***Report of Epidemics:*** In addition to the requirement for individual case reports, any unusual or group expression of illness which may be of public concern (see Definitions, Epidemic) should be reported to the local health authority by the most expeditious means, whether it is included or not in the list of diseases officially reportable in the particular locality; and whether it is a well-known identified disease or an indefinite or unknown clinical entity (see Class 4, below).

For reporting purposes, the diseases listed in this manual are distributed among the following five classes, according to the practical benefit which can be derived from reporting. These classes are referred to by number throughout the text, under section 9B1 of each disease. The purpose is to provide a scheme on the basis of which each health jurisdiction may determine its list of regularly reportable diseases.

Class 1: Case Report Universally Required by International Health Regulations or as a Disease under Surveillance by WHO.

This class can be divided into:

1. Those diseases subject to the International Health Regulations

(1969), Third Annotated Edition, 1983, WHO, Geneva; i.e, the internationally quarantinable diseases—plague, cholera, yellow fever; and

1A. Diseases under Surveillance by WHO, established by the 22d World Health Assembly—louse-borne typhus fever and relapsing fever, paralytic poliomyelitis, malaria and viral influenza.

An obligatory case report is made to the health authority by telephone, telegraph, or other rapid means; in an epidemic situation, collective reports of subsequent cases in a local area on a daily or weekly basis may be requested by the next superior jurisdiction, as, for example, in a cholera epidemic. The local health authority forwards the initial report to the next superior jurisdiction by the most expeditious means if it is the first recognized case in the local area or is the first case outside the limits of a local area already reported; otherwise, weekly by mail or telegraphically in unusual situations.

Class 2: Case Report Regularly Required Wherever the Disease Occurs

Two subclasses are recognized, based on the relative urgency for investigation of contacts and source of infection, or for starting control measures.

2A. Case report to local health authority by telephone, telegraph, or other rapid means. These are forwarded to next superior jurisdiction weekly by mail, except that the first recognized case in an area or the first case outside the limits of known affected local area is reported by telephone or telegraph; example—typhoid fever and diphtheria.

2B. Case report by most practicable means; forwarded to next superior jurisdiction as a collective report, weekly by mail; examples—brucellosis and leprosy.

Class 3: Selectively Reportable in Recognized Endemic Areas

In many states and countries, diseases of this class are not reportable. Reporting may be prescribed in particular regions, states or countries by reason of undue frequency or severity. Three subclasses are recognized; 3A and 3B are primarily useful under conditions of established endemicity as a means leading toward prompt control measures and to judge the effectiveness of control programs. The main purpose of 3C is to stimulate control measures or to acquire essential epidemiological data.

3A. Case report by telephone, telegraph, or other rapid means in specified areas where the disease ranks in importance with Class

2A; not reportable in many countries; example—tularemia and scrub typhus.

3B. Case report by most practicable means; forwarded to next superior jurisdiction as a collective report by mail weekly or monthly; not reportable in many countries; example—bartonellosis and coccidioidomycosis.

3C. Collective report weekly by mail to local health authority; forwarded to next superior jurisdiction by mail weekly, monthly, quarterly, or sometimes annually; example—phlebotomus fever and fasciolopsiasis.

Class 4: Obligatory Report of Epidemics—No Case Report Required

Prompt report of outbreaks of particular public health importance by telephone, telegraph, or other rapid means; forwarded to next superior jurisdiction by telephone or telegraph. Pertinent data include number of cases, time frame, approximate population involved and apparent mode of spread; examples—staphylococcal food poisoning, infectious keratoconjunctivitis, unidentified syndrome.

Class 5: Official Report Not Ordinarily Justifiable

Diseases of this class are of two general kinds: those typically sporadic and uncommon, often not directly transmissible from person to person (chromomycosis); or of such epidemiological nature as to offer no special practical measures for control (common cold).

Diseases are often made reportable but the information gathered is put to no practical use. This leads to deterioration in the general level of reporting, even for diseases of much importance. Better case reporting results when official reporting is restricted to those diseases for which control services are provided or potential control procedures are under evaluation, or epidemiological information is needed for a definite purpose.

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