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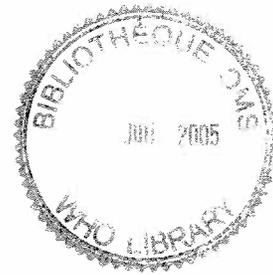
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CONCEPTS and PROCEDURES for LABORATORY-BASED INFLUENZA SURVEILLANCE

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PREFACE

All groups involved in the study of influenza require accurate information that can be used ultimately to develop better means for controlling the spread of disease. Uniformity of procedures used for collecting information is one of the most important ways of improving the usefulness of information obtained. With this in mind, the World Health Organization (WHO) periodically organizes workshops to pass on guidelines concerning optimal procedures for isolation and identification of influenza viruses. In addition the two WHO Collaborating Centers for Reference and Research in Atlanta and London train, on an individual basis, laboratory personnel in using these procedures. As results of these training programs take effect, the quality of influenza surveillance which is carried out under the auspices of the WHO influenza program around the world steadily improves. To assist in these training functions carried out through the auspices of the World Health Organization, the Centers for Disease Control (CDC) in 1975 developed a manual describing currently available procedures for studying influenza viruses by isolation and antigenic analysis of virus from outbreaks and epidemics and by serologic diagnosis of infection.

Several recent developments have indicated a need for a revised manual. Among these are the growth of information about the antigenic relationship of influenza viruses that has resulted in a change in the nomenclature system. Second, there has been an awareness that, for the main purposes of international influenza surveillance, some of the more advanced procedures are of less value than the traditional methods previously used. Nevertheless, new methods and concepts continue to be introduced of which all participants in influenza surveillance programs should be aware so that they are capable of evaluating possible relevance to their own activities. Third, with the great advances in application of techniques of molecular biology techniques to the study of the relationships of influenza viruses, a new generation of workers is becoming involved in research concerning the evolution and ecology of influenza virus. These workers are not directly involved in viral isolation and surveillance activities, but are dependent on others for information and guidance about clinical/epidemiological findings. It is desirable that the reports of influenza surveillance activities can be effectively interrelated with results of molecular biological research.

The manual for the diagnosis of influenza has therefore been revised in an attempt to create a better understanding of the concepts underlying influenza surveillance programs, to emphasize the most practical methods for isolating and identifying influenza viruses, and to describe technologies that have recently been developed. Thus, we have emphasized basic procedures used for isolation and identification of influenza virus isolates by traditional methods that can be used successfully, even where resources are severely limited. We also describe techniques that may be used in diagnostic laboratories which have greater resources or which are more involved with influenza at a research level. In addition, we assume that scientists who

will use the methods described here already have sufficient background in virological methodology so that the manual should be considered as an adjunct to, rather than a replacement for, other texts describing general procedures for diagnostic virology.

The format of the manual has also been changed so that it is divided into sections. Part A discusses the essential concepts behind the procedures and protocols that should be used to ensure accurate, reliable results in viral diagnosis. Our hope is that this section will be of value to all persons who are involved in influenza studies, including those making policy, organizing diagnostic or research laboratories, and the technicians carrying out daily work. Part B contains the specific protocols for laboratory procedures and provides a simple reference for the technologist who grows and identifies influenza isolates, or measures antibody in sera or secretions. Part C provides a bibliography organized by subject area, to enable users with different backgrounds to identify general references, or more detailed original research reports, which in turn can point to more specific reading material available.

Comments about the manual and suggested improvements are welcomed and should be forwarded to the Influenza Branch at the CDC, Atlanta, or to the World Health Organization Viral Diseases Unit, Geneva.

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