Introduction

The primary objective of this manual is to provide a resource for the global network of laboratories that supports the surveillance for cases of measles, rubella, and congenital rubella syndrome. The Global Measles and Rubella Strategic Plan, 2012-2020, emphasizes the importance of disease detection and case-based, integrated surveillance for measles and rubella to achieve regional elimination goals. The mid-term review of the Plan supported the strategies but noted that full implementation is imperative. The recommendations included a priority to enhance the laboratory-supported, case-based surveillance of measles and rubella. The responsibilities and capacity of individual laboratories, therefore, must continue to expand in support of the vision and framework of the Strategic Plan and the Measles & Rubella Initiative.

The activities required to meet the increased responsibilities within the WHO Measles and Rubella Global Laboratory Network (GMRLN) are coordinated at the national, regional and global levels. The shared experiences and expertise of member national laboratories and past and present regional and global laboratory coordinators are reflected in this manual.

There are new approaches and challenges for the laboratory to provide increased diagnostic and analytic support for case classification in elimination settings, to accurately measure and interpret data for population immunity studies, and to meet the growing workload generated by the integration of measles and rubella surveillance. While expanding capacity, the laboratory network must maintain high quality data and provide standardized documentation of activities, records, and laboratory results to meet the requirements for verification of elimination.

Topics covered in this manual address these challenges by:

- Describing the activities of the network laboratories in support of immunization and surveillance programmes and goals, including the verification of disease elimination
- Outlining the accreditation programmes and quality assurance programmes that reduce the likelihood of errors and improve all aspects of laboratory performance
- Providing guidelines and best practices for collecting suitable clinical specimens and the laboratory confirmation of measles and rubella infection in different settings
- Providing guidelines, tools, forms, and protocols for diagnosis of measles and rubella infection and molecular characterization of circulating viruses
The information provided in this manual, while primarily intended as a resource for those directly responsible for laboratory support, can be valuable for other public health personnel and programme managers. The collection of adequate clinical samples and reliable testing to achieve accurate interpretation of test results are essential for coordination of case investigations among epidemiologists, immunization programme and field staff, and the laboratory.