



**NATIONAL ACTION PLAN FOR LABORATORY CONTAINMENT OF
WILD POLIOVIRUSES IN INDIA**

All countries are committed to eradicate polio from the world. As of October 2003, only seven countries were reporting polio cases. The rest have successfully interrupted poliovirus transmission and are in various phases of its eradication. Once the transmission has ceased, as in smallpox, the only source of infection is from laboratories storing clinical material, apparent or potentially infectious, containing wild polioviruses. To prevent laboratory associated spread of wild polioviruses it is obligatory that all potentially polio infected non-essential clinical material is either destroyed or handled under appropriate bio-safety conditions.

The Global Commission for Certification of Polio Eradication has requested the Regional and the National Commissions to ensure that each country has a plan of action for the purpose and it is vigorously implemented. With this Action Plan India would join all the other countries of the South East Asia Region of the WHO in gearing up towards polio eradication

Global Polio Eradication

India is a signatory to the World Health Assembly (WHA) Resolution 41.28, 1988 that commits the countries to eradicate polio by the year 2000. At that time, paralytic poliomyelitis was endemic in 125 countries on 5 continents

with the reported number of 350,000 cases annually. The year 2000 goal was not met, but progress continues toward the interruption of wild polioviruses transmission. The last indigenous case in the Americas was in 1991; in the Western Pacific Region in 1997; and in the European Region in 1998. The naturally occurring wild polioviruses type 2 has not been detected anywhere in the world since the last recorded case in October 1999. In 2002, endemic polio remained in 7 countries.

Status of Polio Eradication

In 2001, wild polio viruses were detected in 15 countries. In 2002, wild type polioviruses were detected in nine countries and in eight countries during January-June 2003. Intensive efforts will be required to eliminate the last reservoirs of wild polioviruses transmission. In Afghanistan, India, Nigeria, and Pakistan indigenous wild polioviruses type 1 and 3 transmission has been reported in 2003.

In the Southeast Asia region (SEAR) of the WHO, nine out of ten countries have achieved zero-polio status. These are Bhutan (in 1986), Sri Lanka (in 1993), Maldives (in 1994), Indonesia (in 1995), DPR Korea (in 1996), Thailand (in 1997), Bangladesh, Myanmar, Nepal (all reported their last case in 2000). India is the only

remaining country reporting endemic transmission of wild polioviruses. As per the norms of certification of polio eradication, only WHO regions can submit requests for certification. Therefore, certification of SEAR depends on India reaching zero polio status for three consecutive years plus satisfactory laboratory containment action.

The world will be declared free of wild polioviruses transmission when the Global Commission for the Certification of the Eradication of Poliomyelitis is satisfied that all Regions of the World Health Organization (WHO) have documented the absence of wild polioviruses circulation for at least three consecutive years and all wild polioviruses materials in laboratories are either destroyed or adequately contained.

What is Wild Poliovirus Containment?

The purpose of laboratory containment of wild polioviruses is to eliminate the risk of reintroducing wild polioviruses from the laboratory to the community. This can be achieved by identifying wild polioviruses containing materials in all types of biomedical laboratories and then either destroying these virus stocks or by segregating and storing these under appropriate biosafety conditions. Wild polioviruses may be present in a variety of clinical materials, most commonly in faeces and throat specimens, less commonly in blood, and rarely in cerebrospinal fluid in non-paralytic and paralytic infections. In fatal cases, wild polioviruses may be present in faeces, intestinal contents, lymph nodes, and spinal cord tissue. Infectious laboratory products include virus stocks and derivative materials from cell cultures, non-human primates, and transgenic mice inoculated with wild polioviruses.

The wild poliovirus infection to paralytic disease ratio is in excess of 100:1. All persons infected by wild polioviruses do not suffer from paralytic poliomyelitis yet most will replicate the viruses in the pharynx and intestine and shed infectious viruses particles in respiratory secretions and faeces thus spreading the infection in the community. During endemic years about 5% of all normal children would have been found to have wild viruses in the stool samples. For the same reasons environmental water and sewage samples collected during polio endemic years are also considered as wild poliovirus contaminated. At least 99 per cent of wild poliovirus infections do not cause recognizable paralytic disease, but the infected person may shed wild polioviruses in faeces and respiratory secretions. These

are potential wild poliovirus infectious material. Laboratories with stored collections of faecal, throat or environmental samples are required to assess the likelihood of the presence of wild polioviruses in these materials, on the basis of sample treatment, storage history, the country of origin, the year, and the time when the last indigenous wild poliovirus isolates were obtained in the country. Potential wild poliovirus infectious materials may also include contaminated laboratory stocks of other viruses, particularly rhinovirus, enterovirus, and Sabin vaccine strains in laboratories that work or have worked with wild polioviruses in the past. Good laboratory practices require confirmation of the identity and purity of all virus stocks in the laboratory.

During the phase of laboratory survey and inventory, the countries are required to:

- (i) Survey all biomedical laboratories to identify those with wild poliovirus infectious materials and encourage destruction of all unnecessary materials.
- (ii) Develop a National Inventory of laboratories that retain such materials and submit this to the Regional Certification Commission.
- (iii) Instruct laboratories retaining wild poliovirus infectious or potential infectious materials to institute enhanced biosafety level-2 (BSL-2/polio) measures for safe handling.
- (iv) Plan for implementation of the Global Certification Phase.

Containment as a Prerequisite for Certification of Polio Eradication

The *Global Action Plan for Laboratory Containment of Wild Polioviruses*, (2nd Edition, June, 2003) describes in Global Commission's requirements for laboratory containment in different stages of polio eradication programme. The plan is formulated in recognition of the changing nature of the risks during different stages of eradication programme. Phase I begins when polio cases are decreasing in the Regions. Phase II begins when one year has elapsed without isolation of wild polioviruses anywhere in the world. In phase I (Laboratory Survey and Inventory) the numbers of polio-free countries and regions are increasing but wild polioviruses continue to circulate somewhere in the world. The national health authorities alert laboratories located in academic, government, hospital, industry, private, and state and local government facilities to the impending eradication

of polio, encourage destruction of all unneeded wild polioviruses materials, and compile a national inventory of all biomedical laboratories choosing to retain such materials. Phase II (Global Certification) requires that wild polioviruses and such infectious materials are stored and handled in biosafety level 3 (BSL-3/polio) in registered laboratories. Phase III refers to a time in the future when post eradication data and experiences suggest to some countries the need to consider discontinuing polio immunization.

Status of Polio Eradication in India as of December 2003

In India, vaccination against poliomyelitis was initiated in 1978 under the Expanded Programme (UIP) on Immunization (EPI). In 1985 the Universal Immunization Programme was launched and implemented in phased manner to cover all districts in the country by 1989-90. During 1986 the UIP was accorded the status of a Technology Mission under the banner of Technology Mission on Immunizations. This resulted in significant increase in vaccination coverage. The number of reported cases of poliomyelitis declined from 28,757 during 1987 to 3,265 in 1995. At this stage, in pursuance to the World Health Assembly Resolution of 1988, in addition to the administration of routine oral polio vaccine (OPV) through the UIP, the Pulse Polio Immunization (PPI) Programme was launched in 1995-96 to cover all children below the age of three years. In order to accelerate the pace of polio eradication, the target age group was increased to all children under the age of 5 years from 1996-97. Till 1998-99, the PPI Programme consisted of vaccination of children at fixed booths on two National Immunization Days. In order to reach the global goal of reaching zero incidence of polio by 2000, a strategy to intensify PPI was adopted in 1999-2000. The strategy consisted of 4 nation-wide PPI rounds, followed by two sub-national rounds in identified states and routine immunization. In earlier years despite good coverage, 5-6% of children were missed OPV even in PPI Programme. During 1999-2000 therefore, in addition to booth immunization, a house-to-house search of missed children was undertaken. In 1998 a total of 1934 polio cases were reported in India. Due to change in the strategy, the number reduced to 265 cases in 2000. It appeared that India was nearing the 'zero polio' status. But there was a setback in 2002; a total of 1600 cases of paralytic poliomyelitis were reported. The immunization strategy was again reviewed. With intensive efforts in specific

areas, the number of cases of poliomyelitis has remained all time low (Total 214 cases) until December 2003. Yet, new foci of wild polioviruses transmission have emerged in Karnataka, Tamil Nadu and Andhra Pradesh.

Why Initiate Containment in India Even Before Achieving Zero Polio Status?

India is yet to reach zero-polio status. Though there was a set back to polio eradication in the country in 2002, intensive efforts have resulted in all time low number of polio cases till October 2003. It is therefore likely that wild poliovirus transmission can be interrupted by the mid 2004.

India is a vast country. There are a large number of laboratories involved in clinical medicine, biomedical research and development, pharmaceuticals and vaccine manufacture and testing of biological materials. Of these, a number of laboratories are directly working on viruses causing respiratory, enteric and neurological diseases.

Definition of Polioviruses

Polioviruses: Human enteroviruses that exist as three well-defined serotypes and infect cells via a specific receptor, FVR:CD155.

Wild Polioviruses: Isolates known or believed to have circulated persistently in the community and reference strains derived from these isolates.

Oral Poliovirus Vaccine (OPV) Strains: Attenuated polioviruses approved for use in oral vaccines by national control authorities. Unapproved candidate strains are considered wild.

OPV-Like Polioviruses: Isolates consistent with a limited period of virus excretion or person-to-person transmission, usually demonstrating less than 1% difference from parent OPV strains by full VP1 sequence homology. Included are isolates that have not been sequenced but have been shown to be vaccine-like by two WHO recommended methods of intratypic differentiation.

Vaccine-derived Polioviruses (VDPV): isolates consistent with an extensive period of virus excretion or transmission in the community, usually demonstrating 1-15% differences from parent OPV strains by full VP1 sequence homology. VDPVs are classified as wild for programmatic and containment purposes.

But there are also laboratories that may not be directly working with viruses yet these laboratories may be handling and storing materials that may contain wild polioviruses. Such laboratories may be unaware of the potential risk they pose to the polio eradication programme in India and globally.

Inadvertent, unintentional or accidental release of wild polioviruses from any source (any laboratory, be it virology, parasitology, clinical pathology, microbiology, environmental sciences or industry) would negate the efforts being undertaken to make India polio-free. Two such incidents have already been recorded in the country recently. A laboratory reference strain of wild polioviruses type 2 namely, MEF-1, was isolated from stool samples of acute flaccid paralysis cases in 2000 (3 cases) and in 2002-03 (7 cases). These viruses (introduced from some yet unidentified sources) could neither spread nor establish circulation because the strains appeared in the community at a time when intensive efforts were ongoing to stop indigenous wild polioviruses transmission. The country cannot afford to permit such incidents in future at any time.

Making a countrywide list of all biomedical laboratories and inventorying those having specific pathogen (in this case wild polioviruses or potentially infected material) is a task never before attempted in the country. This will take quite some time to achieve. It should also be noted that several states have been either completely free from polio or have controlled wild polioviruses circulation for more than 2 years (Kerala, Tamil Nadu, Orissa, Andhra Pradesh, Maharashtra and all states in Northeast). These states are overdue to initiate activities appropriate for phase-II of polio eradication programme. The incidents of wild polioviruses introduction from unknown laboratory sources mentioned above were recognized because a reference strain was involved. It would have been almost impossible to track the wild polioviruses to a laboratory source if an indigenous wild virus had escaped from a laboratory. Unless containment measures are imposed urgently the tremendous risk due to wild poliovirus stocks in laboratories will continue.

Political Commitment for Polio Eradication in India

There is a high level of political commitment for polio eradication in India. There are indications that the Government would do all that is necessary to eradicate polio from the country. On more than one occasion the President of India has launched the National and sub-

National Immunization Days by administering polio vaccine to children. In the address to the Nation by the President of India on the eve of the Republic Day 2002, he talked of the Pulse Polio Programme and the remarkable results achieved. The Prime Minister has appealed to the Nation on television and radio on the occasion of Pulse Polio Immunization Days. He has called upon every citizen to ensure that every parent brings every child under the age of five to receive a dose of oral polio vaccine during the nation-wide Pulse Polio Immunization drive. The Prime Minister in his address to the Nation from the ramparts of Red Fort on the occasion of the 54th Anniversary of India's Independence said that the Government is committed to the goal of Health for All, which includes polio eradication. The Leader of the Opposition in Lok Sabha has stated that, "There is simply no time for complacency. We have eradicated smallpox from India. We are poised to eliminate polio." The Health Minister has assured full support of the Government of India to the states in reaching zero incidence level of polio cases so that India's global commitment of polio eradication by 2005 is achieved.

Role of Central Government in Polio Eradication

The Article 246 of the Constitution of India gives three lists namely the Union list, the State list and the Concurrent list. The health related matters do not appear in the Union list. In the State list the major healthcare related items are listed. The Concurrent list contains items on which both the States and the Union have power. It includes prevention of the spread of infectious diseases from one state to another. According to the Article 47 of the Constitution of India, though health is a State subject, the concurrent list provides scope for the Central Government to take active role in advising, guiding and monitoring the control activities and even make laws especially when issues assume national importance. The eradication of polio from the country is an example of such a situation. The states receive funds from the Centre for the programmes on the concurrent list and are responsible for their implementation. At the Centre, the Ministry of Health & Family Welfare manages health programmes in the country.

In accordance with the guidelines of the WHO, the Union Ministry of Health & Family Welfare, Government of India constituted a Task Force for laboratory containment of wild polioviruses.

**Composition of the National Task Force for
Laboratory Containment of Wild polioviruses**

Chairperson

Director General, Indian Council of Medical Research,
New Delhi

Member Secretary:

Sr. Deputy Director General/ Chief, Division of
Epidemiology & Communicable Diseases, ICMR, New Delhi

Technical Coordinator

Director, Enterovirus Research Centre, Mumbai.

Representative from Ministry of Health & Family Welfare

1. Department of Health (Secretary/ Representative)
2. Department of Family Welfare (Secretary/ Representative)

*Representatives from Related Ministries/ Departments/
Organizations*

1. Science & Technology (Secretary/ Representative)
2. Environment (Secretary/ Representative)
3. Defense (Secretary/ Representative)
4. Agriculture/ Veterinary (DG, ICAR/ Representative)
5. Umbrella Agency for Universities (Indian Association of Universities)
6. Representative of National Polio Surveillance Project
7. Representative from Association of Medical Microbiologists
8. Representative from Vaccine Manufacturers: Serum Institute

Independent Experts

1. Dr. T Jacob John, Former Professor of Virology, Christian Medical College, Vellore
2. Dr. UC Chaturvedi, Former Professor of Virology, King George's Medical College, Lucknow
3. Dr. Shobha Broor, Professor of Microbiology, All India Institute of Medical Sciences, New Delhi
4. Dr. Amit Ghosh, Director Institute of Medical Technology, Chandigarh
5. Director, National Environmental Engineering Research Institute, Nagpur
6. Director/ Technical Representative, Indian Institute of Science, Bangalore
7. Director, National Institute of Cholera and Enteric Diseases, Kolkata
8. Director, National Institute of Virology, Pune
9. External experts to be co-opted as and when required

The Government secretary may nominate in his/her place a senior officer, with technical knowledge from the same department to serve as a Task Force member maintaining continuity.

Terms of Reference of Task Force

- Write the National Plan.
- Conduct a national search for laboratories in order to create a list of all bio-medical laboratories in the country that could potentially be storing wild polioviruses infectious or potentially infectious materials.
- Contact each agency and laboratory on the national search list and request them to search their storage areas for wild polioviruses infectious or potentially infectious materials, complete documentation attesting to what was found, and report back to the National Task Force.
- Monitor and follow-up with agencies or laboratories to ensure that the activities are done in a timely and effective manner.

Secretariat

Since the Chairperson of the Task Force is the Director General, Indian Council of Medical Research and is based in New Delhi, and the Member Secretary is also from the same organization, it is appropriate for the Secretariat of the Task Force to be in the same city. This would facilitate communication and result in better co-ordination of activities.

Containment Coordinator

The Chairperson of the Task Force is Prof. N K Ganguly, the Director General (DG), Indian Council of Medical Research, New Delhi. He shall serve as the National Containment Coordinator. Prof Ganguly has over thirty years of experience in the fields of microbiology, immunology, biotechnology, and experimental medicine at the Post Graduate Institute of Medical Education and Research, Chandigarh. He has extensive experience of laboratories and their biosafety. As Head of Department of Experimental Medicine and later as Director General of the ICMR he has demonstrated his acumen as a health research administrator. The ICMR is an autonomous health research organization funded by the Union Ministry of Health and Family Welfare. It functions as a technical arm of the Ministry. By virtue of the ICMR's pivotal position, its DG enjoys direct access to the Minister of Health and Family Welfare and the Secretaries to the Ministry. Prof. Ganguly has excellent relations with the heads of other Ministries and Departments, Agencies and the academia. He is Chairman of the ACHR, SEARO-WHO; Member of the Joint Co-ordination Board, and Scientific and Technical Advisory Committee of WHO/UNDP's

Tropical Disease Research; Member, Scientific Advisory Committee, Bill and Melinda Gates Foundation. It would be possible for him to draw technical advice on polio laboratory containment from various national and international agencies.

Technical and Administrative Support to National Coordinator

In his task as the National Coordinator Prof. Ganguly shall be supported by Dr. Jagadish M Deshpande, Director of Enterovirus Research Centre, Mumbai, which is also one of the Global Specialized Polio Laboratory. Dr. Deshpande would serve as the Technical coordinator. Dr Lalit Kant, Sr. Deputy Director General, and Head, Division of Epidemiology and Communicable Diseases, at the ICMR Headquarters office, New Delhi, shall be the Member Secretary of the Task Force. In addition, at least two other individual expert members of Task Force would be available to assist the National Coordinator to make the most appropriate and effective decisions in implementing containment activities.

List of National Laboratories

A thorough national search for all laboratories that might store wild polioviruses infectious or potentially infectious materials is the first and most important step for successful completion of the pre-global eradication phase of wild polioviruses containment. At present a complete list of all biomedical laboratories in the country is not readily available. Preparation of a comprehensive list of laboratories will require input from several agencies like:

- (i) Government Ministries – Central and State (Health, Education, Environment, Defense)
- (ii) Funding agencies (like ICMR, CSIR, ICAR, UGC, DBT, BRNS, and DST)
- (iii) Association of Universities
- (iv) Association of Medical Microbiologists
- (v) Biotechnology Consortium
- (vi) Directorate of Health Services (Central and all states)
- (vii) National Polio Surveillance Project

Central and State Ministries (especially those of Health, Medical Education and Drugs and Chemicals) and administrative heads of Union Territories will be requested to assist in listing of all laboratories in their respective states. Directorate of Health Services will be able to provide the information obtained by the District Health officers

(District Immunization Officers) and State Epidemiologists about diagnostic laboratories, biomedical institutions and industries in their respective jurisdictions. The various ministries, agencies and associations have indicated willingness to provide all available lists of institutions (laboratories and professionals) registered with them and list projects funded by them. Laboratories responding to the survey will be requested to provide names and addresses of additional laboratories known to them for exhaustive search of laboratories for national list.

In order that no laboratory is missed, a national list of all bio-medical laboratories involving research, teaching, training, diagnostics, and testing laboratories will be created by compiling information collected from government and private sectors.

Possible agencies/institutions with bio-medical laboratories

- (i) National research institutes under the Ministry of Health & Family Welfare including Indian Council of Medical Research
- (ii) Laboratories in all faculties of medicine including traditional medicine
- (iii) Biomedical laboratories under the Departments of Science & Technology and Biotechnology
- (iv) Biomedical laboratories under defense (military establishments)
- (v) Agricultural and veterinary sciences laboratories
- (vi) Scientific and industrial research laboratories
- (vii) Laboratories under Atomic Energy Board
- (viii) Universities, college laboratories including government, private medical and dental colleges
- (ix) Laboratories of bio-pharmaceutical industries including detergents and water treatment devices, vaccine and biologicals manufacturers
- (x) Indian Institute of Technology laboratories
- (xi) Quality control laboratories
- (xii) Water Resources Board laboratories
- (xiii) Environment laboratories
- (xiv) Water supply and water quality laboratories
- (xv) Police and forensic science laboratories
- (xvi) Private sector hospitals and diagnostics laboratories
- (xvii) State Public Health laboratories
- (xviii) Laboratories affiliated to the Indian Medical Association

In each of the above institutions the following types of laboratories will need to be surveyed:

- Virology
- Bacteriology/ Microbiology
- Pathology
- Parasitology
- Immunology
- Molecular Biology
- Genetics
- Biochemistry
- Culture and specimen collection laboratories
- Nutrition
- Environment and Food & Water
- Drugs development
- Pharmacy
- Natural products laboratories
- Veterinary laboratories
- Disinfectant testing
- Water treatment devices manufacturers and/ or testing laboratories
- Private pathologists and hospital diagnostics laboratories
- Laboratories of manufacturers' of biologicals, vaccines and antiviral drugs development

Sensitization

- (i) Members of the Task Force will give presentations about laboratory containment of wild polioviruses at meetings of professional groups.
- (ii) Articles will be published in scientific journals and publications of the various professional organizations about containment of wild polioviruses.
- (iii) Frequently asked questions (FAQs) will be displayed on Internet sites of Union Ministry of Health & Family Welfare, ICMR, New Delhi, EVRC, Mumbai, and the National Polio Surveillance Project (NPSP). Links may be provided to WHO Global Plan of Action for Laboratory Containment of Wild Polioviruses.
- (iv) Advertisements in newspapers and publications of associations/societies.
- (v) IEC material for safe disposal of all unneeded infectious materials will be prepared.

Private Diagnostic Laboratories

India has a very large number of private diagnostic laboratories which conduct tests and may even be storing some samples for future tests. They pose two major problems. One, enumerating these laboratories may not be easy considering that there is no legal or other requirement for their registration, and second, even if they were enumerated collection of reports from them would be quite formidable. Taking help of the district health officers and the Surveillance Medical Officers (NPSP), a district-wise list of laboratories would be prepared. As the situation is likely to vary from state to state, a representative sample from each major region of the country, north, east, south, west and central would be taken. From that list a 5 to 10 per cent stratified sample of laboratories would be identified to determine their storage practices and capacity; complexity of microbiological tests offered; and if any tests are being performed involving virus replication. The criteria used for stratification would be such that it covers all types of private pathological /diagnostic laboratories likely to have wild polio viruses. A profile of these laboratories would be developed and the probability of storing potentially infected biological material would be assessed. Using this sample as a representative for the country as a whole, a decision would be taken to include or exclude the thousands of similar laboratories in the country.

Other Laboratories Likely to Have Wild Polio Viruses

All laboratories in the following categories would be included in the survey:

- (i) Working with polio viruses
- (ii) Part of National Polio Surveillance Programme Network
- (iii) Virology institutes
- (iv) Department of Virology in various medical colleges and other institutions
- (v) Possess -20°C deep freezers

Laboratory Survey Form

A laboratory survey form designed specifically to elicit information about presence or absence of wild polioviruses and potential infectious materials will be sent to each and every laboratory for which slightest information becomes available from any of the different sources.

To facilitate creation of as complete a list of laboratories as possible the members of the Task Force would be requested to liaise with different Ministries/ Institutions.

For this the special position held by the ICMR with 26 permanent research institutes and more than 60 field stations spread throughout the country will be most advantageous.

Pilot Testing of Survey Forms

The survey forms would be pilot tested to check whether or not the form is understood and filled in correctly by the responding laboratories.

Retrieval of Survey Forms

The survey forms once distributed to the labs would need to be mailed back to the Secretariat. Several mechanisms will be employed to ensure maximum compliance:

- Facility provided by the Department of Posts and Telegraph for sending the business reply letters for posting without pre-payment would be utilized.
- Help will be sought from other professionals of these institutes for completing the survey of laboratories.
- National Polio Surveillance Project has a very active team of surveillance medical officers (SMO) with outreach up to block level throughout the country. These trained medical professionals will be very helpful for the laboratory survey.
- Help from state health machinery and professional bodies will be sought for retrieval of the filled in survey forms as well as follow up of non-responders.
- A secured website would be set-up and there would provision of filling up and submission of the form on-line.

Database of Laboratories

The Task Force Secretariat at ICMR Headquarters will be responsible for preparation of the national inventory of laboratories, database management and analysis. Assistance of the SEARO/WHO will be sought for uniformity of database structure within the region and possibly globally.

Site Visits and Surveys

Laboratories storing wild polioviruses and potential infectious materials and those possibly storing such material will be identified from the information provided by them. Laboratories will be asked to prepare detailed inventories of all stored wild polioviruses and potentially

wild poliovirus infected materials by thoroughly searching all deep freezers available in their laboratories. These laboratories would need to be visited by site inspectors. A list of virologists who could act as site inspectors would be prepared in consultation with relevant experts and professionals in this field.

Virologists will be needed to carry out the on-site inspection of the laboratories for compliance to the wild poliovirus containment requirements. They would also be required to advise and supervise safe disposal of wild poliovirus infectious material. A training programme for these virologists would be conducted.

During the site visit the information provided by the laboratory would be verified. Laboratories will be advised and encouraged to destroy stocks that are of no research potential or of historical importance. Laboratories will be provided with guidance for destruction of wild polioviruses stocks and documentation of the process. If the laboratory agrees to destroy the biological material, it would be destroyed under supervision and recorded in the site visit note of the site inspector.

BSL-2/ polio bio-safety requirements will be ensured in those laboratories that wish to retain the infected or potentially infected biological material or strains of wild polioviruses.

Inventory of Laboratories with Wild Poliovirus

A final national inventory of laboratories retaining wild polioviruses and potentially infectious materials and a virus inventory will be prepared along with supporting documentation for submission to the Ministry of Health & Family Welfare for onward transmission to the National Certification Commission. This will be included as part of the national documentation for certification that will be submitted to the Regional Certification Commission and copy to the WHO South East Asia Regional Office.

Need for Legislative Instruments

Ideally the Government of India should declare a policy prohibiting the retention/ storage and the use of wild polioviruses in laboratories in India and issue a decree making the filling up of survey forms and accurately declaring the presence/absence of polioviruses in the laboratories mandatory. Instead of formulation of a new legal instrument, which may take a lot of time, it may be examined if the existing health laws can be used to prohibit retaining of wild polio infections or potentially infectious

material without an enhanced biosafety level-2/polio measures.

Future Directions of Containment

According to the proposed time-line, India is likely to be finishing phase I approximately around the estimated time for start of Global Phase II. During this phase those laboratories identified with polio materials would be encouraged to destroy the material or operate in biosafety level-3 laboratories.

Financial implications

The expenditure involved in implementing this containment plan would be provided annually through the National Polio Surveillance Project.

This write-up has been adapted from the booklet "National Plan of Action : Laboratory Containment of Wild Poliovirus in India" published by the Indian Council of Medical Research, New Delhi.

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