WHO-EM/POL/339/E

Report on the

# Fifth intercountry meeting of national containment coordinators for laboratory containment of wild polioviruses and potential infectious materials

Tunis, Tunisia
22–23 September 2006

World Health Organization
Regional Office for the Eastern Mediterranean

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## 1. INTRODUCTION

The fifth intercountry meeting of directors of poliovirus laboratories in the WHO Eastern Mediterranean Region was held in Tunis, Tunisia from 22 to 23 September 2006. National containment coordinators of all Member States of Eastern Mediterranean Region, except Djibouti and Kuwait, attended the meeting. Participants also included representatives of the Task Force for Child Survival and Development (United States), laboratory consultants from Germany and staff from WHO headquarters and Regional Office for the Eastern Mediterranean (EMRO).

Dr Ibrahim Abdel Rahim, WHO Representative, Tunisia, welcomed the participants and delivered a message on behalf of Dr Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean. In his message, Dr Gezairy welcomed the participants and thanked the Government of Tunisia for hosting the meeting and Dr Mounira Garbouj, Director of the Primary Health Care Unit, Ministry of Public Health, Tunisia. He expressed his satisfaction on significant progress made towards the completion of Phase I of laboratory containment of wild polioviruses and potential infectious material. He emphasized that containment activities were critical to ensure that global investment in polio eradication was preserved. He noted with satisfaction pleased that most of the countries that completed the Phase I containment activities had submitted the draft report on documentation of the quality of containment activities, and that reports had been reviewed by the independent reviewers. He urged the countries still in the process of implementing the Phase I of containment activities to complete the phase as early as possible.

Dr Mounira Garbouj, Director of the Primary Health Care Unit, welcomed all the participants and thanked WHO for holding such an important meeting in Tunisia. She expressed that the meeting was a good opportunity to share experience and learn lessons from each other in implementing the containment activities.

Dr Hinda Triki, Director of Poliovirus Regional Reference Laboratory, Tunisia, was elected Chairperson. The programme and list of participants are included as Annexes 1 and 2, respectively.

## 2. IMPLEMENTATION OF RECOMMENDATIONS OF THE FOURTH INTERCOUNTRY MEETING OF NATIONAL CONTAINMENT COORDINATORS FOR LABORATORY CONTAINMENT OF WILD POLIOVIRUSES AND POTENTIAL INFECTIOUS MATERIALS

*Dr Humayun Asghar, WHO/EMRO*

Dr Asghar reviewed the implementation and main achievements of the recommendations of the fourth intercountry meeting of containment coordinators of laboratory containment of wild poliovirus and potential infectious material. The following is the status of implementation.

| No. | Recommendation | Implementation status |
|---|---|---|
| 1. | Bahrain, Djibouti, Jordan, Lebanon, Libyan Arab Jamahiriya and Qatar should conduct the quality assessment exercise, produce a written report using the format provided by WHO, and submit this report along with the national inventory to the NCC for review for subsequent submission to the Eastern Mediterranean RCC, by mid-March 2005. | All countries except Lebanon submitted the draft report to WHO for review. |
| 2. | Countries currently finishing the laboratory survey and inventory activities (Iraq, Kuwait, Morocco, Syrian Arab Republic, Tunisia, and United Arab Emirates) should expedite efforts in order to complete all activities by March 2005, and should specifically address the following:<br>Morocco and the Syrian Arab Republic: assistance visits to non-responding laboratories to collect survey responses.<br>Kuwait: access to universities laboratories for collection of data on stored poliovirus materials<br>United Arab Emirates: all survey responses should be obtained from laboratories specifically those under the jurisdiction of Dubai office for health and medical services.<br>Iraq: review national plan to include the laboratories in governorates which were not included in the original national laboratory list and complete survey of these laboratories | All countries mentioned, completed the Phase I containment activities and submitted draft report on the self-assessment of quality of containment activities. |
| 3. | Yemen, Palestine and Somalia should create a national plan of action by February 2005 and complete Phase I activities by end 2005. Technical assistance should be provided for the development and implementation of the national plan of action. Palestine should nominate national containment coordinator as soon as possible. | Yemen and Palestine developed the national plan of action.<br>Palestine started implementation of the plan of action in 2006.<br>Yemen delayed implementation of containment activities due to importation of wild poliovirus<br>Somalia suffered from an importation of wild poliovirus, and there is ongoing transmission. |
| 4. | Following the outbreak due to importation of WPV in Sudan, a reassessment of the results of the original laboratory survey should be conducted once poliovirus transmission is again interrupted. A resurvey of high risk laboratories should be conducted. | Sudan re-surveyed the high risk laboratories and submitted the report. |
| 5. | The Governments of Afghanistan and Pakistan are encouraged to nominate the national containment coordinator as soon as possible, and WHO should provide assistance to develop national containment plan of action. | Afghanistan developed the national plan of action.<br>Pakistan nominated the national containment coordinator in 2006. |

| No. | Recommendation | Implementation status |
|---|---|---|
| 6. | If previously a polio free country detects an importation of WPV then all laboratories that may deal with stool specimens should be alerted to raise their awareness of the possible presence of polioviruses, and the implications for containment. The national laboratory inventory can be used for this purpose. | The laboratory staff in the countries are alerted to such an importation and are informed of the implications. At the same time, the neighbouring countries are also alerted to the situation. |
| 7. | Countries should institutionalize the laboratory containment process and should ensure the long-term maintenance of the containment data in electronic database, paper copies, and reports within the governmental structure (Ministry of Health). | The data are kept with the Ministry of Health in both electronic and paper format. |
| 8. | Verification visits should be made to selected laboratories based on risk assessment (virology and research laboratories, laboratories conducting international studies, etc.). All verification visits should be documented and kept as permanent records by national governments. | The visits to selected laboratories are made by the national containment coordinator or the member of the task force |
| 9. | The national containment committee and national task force should submit annual updates on progress on containment status (e.g. updated laboratory inventory) to their national certification committee (NCC) for review. | This is an ongoing activity. Countries are asked to submit the data annually to update the list of laboratories and inventory of the laboratories storing the wild polioviruses. |

## 3. OVERVIEW

### 3.1 Regional status of polio eradication

*Dr Humayun Asghar, WHO/EMRO*

The lowest annual number of cases of poliomyelitis in the Region was in 2003, with 113 cases reported. During 2004 and 2005, progress continued in three endemic countries; however, explosive epidemics occurred in Somalia, Sudan and Yemen. A total of 187 cases were reported in 2004 and 727 in 2005 (37 from endemic countries). As of mid-September 2006, 78 cases have been reported: 28 in Afghanistan, 19 in Pakistan, 30 in Somalia and one in Yemen.

Pakistan has made great progress towards eradication of poliomyelitis, with clear evidence of decreasing virus diversity and intensity of transmission. In early 2005, poliovirus was detected mainly in southern Punjab, Peshawar Valley and northern Sindh. In the second half of 2005, the virus reappeared in Balochistan and continued in 2006 close to the borders of Afghanistan in a common area of transmission. The general performance of the programme has been good and efforts have been made to address the remaining issues, including reaching the youngest children (especially in conservative communities and in inaccessible areas).

The transmission of poliovirus in Afghanistan continues in the southern region, which has security problems. Efforts have been made to ensure the engagement of local community elders and tribal leaders and to use local staff to ensure access to all children with the vaccine.

In Egypt, the last reported case of poliomyelitis was in May 2004. There is clear indication that viral circulation in Egypt has been interrupted, with the last positive environmental sample isolated in January 2005. Political commitment is still evident, with six rounds of national immunization days conducted in 2005 and two in first half of 2006. Monovalent type 1 oral poliovaccine (mOPV1) was used in three rounds in 2005. It is important to maintain high population immunity through routine immunization, and supplementary immunization activities are needed.

The epidemic that occurred in Sudan in May 2004, following the importation of Nigerian poliomyelitis virus via Chad, has been contained with the last case reported in June 2005.

In Yemen, low routine immunization coverage and limited sub-national immunization days in 2002 and 2003 resulted in a significant immunity gap that facilitated the occurrence of the epidemic. Weaknesses in surveillance led to late detection of the importation: the virus was introduced in February 2005 and only detected 20 April 2005. A national immunization day was conducted in April before confirmation. In May, a properly planned house-to-house campaign was conducted followed by similar rounds in July, August, September, November, December and January, plus two mop-up rounds. In most rounds, mOPV1 was used. Independent monitoring showed improvement and most gaps seen in May and July were addressed in subsequent rounds.

Very low routine immunization in Somalia, in addition to the war and emergency situation limiting access to many areas, made the country susceptible to the spread of importations. Wild poliovirus was introduced from Yemen. Despite difficulties in investigation and control, several supplementary immunization activities were conducted early in 2005 as a precautionary measure and these have been instrumental in limiting the epidemic, essentially to Mogadishu and neighbouring districts. The epidemic is on the decline and the spread outside Mogadishu and neighbouring Lower Shabelle remains of a very limited nature. The plan is to continue campaigns until two rounds after the last virus case with focus on the quality of campaigns, refusals and nomads.

The coordination of polio eradication activities between countries in the Horn of Africa is a priority. A cross-border meeting for countries bordering Sudan, an EMRO/AFRO coordination meeting, a Horn of Africa coordination meeting and a Horn of Africa Technical Advisory Group meeting were held. More is needed, however, especially at the local level (e.g. direct contact between national staff).

Risk of importation will continue as long as wild poliomyelitis virus is circulating in the world. Guidelines prepared for developing national plans for preparedness were updated in line with the Advisory Committee on Polio Eradication (ACPE) recommendations. Several importations occurred with no secondary spread (Gaza, Islamic Republic of Iran, Lebanon,

Oman, Saudi Arabia and Syrian Arab Republic). However, importations in Somalia, Sudan and Yemen resulted in epidemics as a result of immunity gaps among children aged under 5 years.

The regional strategic plan for poliomyelitis eradication, 2006–2007, was prepared in consultation with nationals, United Nations agencies and other partners. The plan covers the main elements of intensifying supplemental immunization, enhancing surveillance and maintaining the laboratory network, laboratory containment, certification and strengthening of EPI. It is essential to maintain trained personnel (national and international) and utilize them to support priority health programmes. A PEI/EPI consultation on optimizing collaboration was organized to ensure the experience and benefits of PEI are used to strengthen routine immunization services.

Regional commitment for poliomyelitis eradication is now at its highest level, with national authorities in both polio-endemic and polio-free countries showing great commitment. The Regional Office has continued advocacy for polio eradication since 1988, with visits by the Regional Director to priority countries, dissemination of information and regular updates, and alerting national authorities to developments. Technical support is continuing, using about 100 international and 900 national polio staff in addition to teams of experts and temporary advisors. In addition RTAG and country TAGs are established to advise on strategic directions. Regional priorities for polio eradication are now to:

- interrupt transmission in the remaining endemic countries and continue supplementary immunization activities with the same intensity;
- sustain political commitment at all levels;
- halt transmission in re-infected countries and regain their polio-free status;
- avoid large immunity gaps in polio-free countries;
- maintain certification-standard surveillance;
- coordinate activities between neighbouring countries, especially in the Horn of Africa: synchronization, exchange of information, local level planning and coordination;
- continue with containment and certification activities;
- optimize PEI/EPI collaboration; and
- avail the financial resources required to implement the regional plan for eradication.

### 3.2 Global overview of polio eradication

*Mr Chris Wolff, WHO/HQ*

Polio due to both type 1 and 3 wild polioviruses continues in areas of only four countries of the world: Nigeria, India, Pakistan and Afghanistan. These countries have never completely interrupted transmission and represent the only remaining reservoirs of wild poliovirus (WPV). The four endemic countries account for 92% of all reported cases globally; Nigeria and India account for 65% and 25% of global totals respectively. Nigeria, India and Afghanistan have all had marked increases in the number of cases reported in 2006 compared to 2005, and in Pakistan case numbers are almost the same. In recent years, poliovirus from Nigeria and India has frequently been exported to polio-free areas, often causing multiple case outbreaks. Over the past 4 years, 68 separate importation events have affected 24 previously

polio-free countries, led to over 1400 cases of polio globally, and cost, in external funding alone, more than US $450 million to bring under control. Importations resulting in outbreaks have all been caused by WPV1. The risk of importation is greatest for those countries immediately neighbouring endemic areas, but there is also risk for those neighbouring outbreak areas, and a risk of long distance exportation of wild poliovirus from endemic areas. Long distance exports of virus in the past 4 years have caused more than 700 of the importation-associated polio cases and cost more than US$150 million to control.

Progress in stopping outbreaks of polio following importation of wild poliovirus into polio-free areas has been substantial. In 2006 these outbreaks have accounted for only 8% of all globally reported cases to date, down from more than 60% in 2005. In 2006 outbreaks in polio-free areas have declined in terms of the number of importations detected, the number of countries currently dealing with outbreaks, and the number of cases resulting from these importations. Only 8 countries (Angola, Bangladesh, Democratic Republic of Congo, Ethiopia, Namibia, Nepal, Niger and Somalia) currently have ongoing transmission following importations, the lowest number for 4 years, and for all of these outbreaks appropriate control measures are being taken. Success in global polio eradication is now primarily dependent on interrupting transmission in the four remaining endemic countries, mopping up remaining outbreaks in polio-free areas, and preparing for a polio-free world.

### 3.3 Global progress on Phase I containment activities

*Mr Chris Wolff, WHO/HQ*

The WHO Global Action Plan for laboratory containment of wild polioviruses, 2nd edition describes 3 phases of activities to contain facility-based wild polioviruses in preparation for eventual polio eradication. Phase I, laboratory survey and inventory, advises all countries to conduct a broad survey of biomedical laboratories throughout the national structure to identify those with wild poliovirus infectious or potential infectious materials. Facilities identified with such materials should be encouraged to destroy those that are unneeded. If facilities retain the materials, they should be listed on a national inventory that is maintained by the country and submitted to WHO.

Phase I activities have been completed in 75% of countries in WHO Regions certified as polio-free. Of significance this year, the WHO European Region, with 52 countries, is the first Region to have completed Phase I. All but 2 countries (China and Japan) have completed Phase I in the WHO Western Pacific Region. Countries of the WHO Region of the Americas plan to complete the survey and inventory by the end of 2006. Achievements have also been made by countries in WHO Regions not yet certified.

All countries not reporting polio in 2005 in the WHO South-East Asia and Eastern Mediterranean Regions reported completion of the survey and inventory and are in the process of compiling documentation for submission to WHO. Containment activities in WHO's African Region are mainly focused on countries in the southern and eastern parts of the continent, with 7 reporting completion of Phase I.

Poliovirus containment activities are now an integral component of polio eradication in countries of all six WHO Regions. Experience in the facility survey and inventory process to date in all Regions has been positive, with countries appreciating the necessity of post-eradication poliovirus destruction and containment. Most countries have indicated the intention to destroy wild poliovirus materials when eradication has been achieved.

## 4. UPDATE FROM COUNTRIES COMPLETING PHASE I OF SURVEY AND INVENTORY

### 4.1 Egypt

*Dr Osama Raslan*

The laboratories list was prepared by collecting the information from the Ministry of Health and Population, affiliated authorities as well as those of the private sector through central health laboratories sector (registered laboratories). Laboratories of other ministries and institutions were identified by National Committee members: Ministry of Higher Education, Ministry of Industry, Ministry of Defence, Ministry of Interior, Ministry of Agriculture, Ministry of Housing and Construction and Holding Pharmaceutical Company.

A survey form was developed and translated into Arabic. This form was circulated to all identified laboratories of the Ministry of Health and Population, affiliated authorities and the private sector via registered mail (first round in 2002 and a reminder in 2003 and 2004). Other ministries and institutions were directly contacted by members of the National Committee. By the end of 2005, most of identified laboratories were visited by MOHP laboratory sector personnel in different governorates to accelerate the survey process. Responses from identified laboratories were consequently received. In 2006, a centrally established team from EPI and General Communicable Disease Control Department in the Ministry was assigned to complete the survey. The sanitarians from central and districts level visited all identified laboratories to collect the completed survey forms. University laboratories were re-visited by EPI physicians for the same purpose.

The collected survey forms were entered into Excel software, and data were analysed. Laboratories were classified according to their freezing capabilities (having deep freezers −4 ºC, −20 ºC, −80 ºC or without freezing facilities). Laboratories keeping WPV infectious or potential infectious material were identified, and a National Inventory was developed. A total of 8135 laboratories have been identified: 5063 laboratories belong to the Ministry of Health and Population and affiliated authorities, 2863 are in the private sector, 173 are in universities, and only 36 laboratories were found in other ministries and institutions. 7605 laboratories had 4 ºC refrigerators, 443 had −20 ºC, and 88 had −80 ºC deep freezers. Only four laboratories were identified with WPV infectious and potential infectious material: VACSERA (2 laboratories), NAMRU-3 and the National Research Centre.

The key to success of the Phase I containment activities were the organized infrastructure of the Ministry of Health and Population, affiliation of laboratories to many

different institutions and authorities, and the presence of all ministries and institutions in the national committee.

Some of challenges faced with the completion of Phase I containment activities are poor response of some laboratory (private laboratories and universities), and incomplete or inaccurate data provided by some universities. Further efforts should be made to contact the universities and private sector laboratories to complete survey. All laboratories keeping WPV infectious or potential infectious material should be periodically checked for compliance with bio-safety guidelines for safe handling of such material.

### 4.2 Palestine

*Dr Ibrahim Salem*

Palestine is divided into two main parts, the West Bank and Gaza Strip, with a population of 4 million and an area of 6162 square kilometres. Gaza Strip is divided into five governorates, and the West Bank into ten governorates.

Due to the political situation, two national coordinators and two national containment task forces are nominated for both Gaza and the West Bank separately. A national plan was developed in mid-2006 and a comprehensive list of laboratories was developed: 527 laboratories are recorded (370 in the West Bank and 157 laboratories in Gaza Strip). The survey form has been developed. Due to frequent ban on travel, meetings are held between Gaza and the West Bank through videoconference and teleconference.

There is a plan to provide training to laboratory technicians in all governorates to conduct the survey. The main obstacles in conducting the survey are frequent closures of roads and check points. Due to political instability, the costs incurred for different activities are more than normal and may require more funds to cover all the expenses.

### 4.3 United Arab Emirates

*Dr Mansour Al Zarouni*

In the United Arab Emirates, a national task force and national coordinator were nominated in 2001. The United Arab Emirates was unable to complete Phase I containment activities due to a problem in collection of survey forms from the Dubai Office for Health and Medical Services, and receiving responses from the private sector laboratories.

Finally in 2005, 276 laboratories were listed and surveyed. None of the laboratories were found to possess any wild poliovirus or potentially infectious material. The self-assessment of the quality of Phase I of containment activities was also completed and draft report was submitted to WHO/EMRO.

### 4.4 Tunisia

*Dr Hinda Triki*

Tunisia started containment activities in 2000. The national coordinator was nominated; a draft of the national plan was prepared by the national coordinator and the EPI manager with the assistance of WHO experts. Members of the national committee for containment were nominated in early 2001; this committee included a technical sub-committee and facilitators from different ministries. The national plan and the survey forms were discussed and adopted during the first meeting of this committee and the facilitators were requested to provide the list of laboratories under their jurisdiction.

The national list includes 510 laboratories from different types; most of them are medical biology, public health or research laboratories. 497 laboratories were surveyed and responses obtained from 494 (90%). Data analysis identified only two laboratories with infectious and/or potentially infectious material: National Polio Laboratory in the Pasteur Institute stores wild virus isolates from the last cases of the early 1990s and their contacts; and the laboratory of Microbiology in Charles Nicolle Hospital of Tunis has poliovirus isolates and non-typed enteroviruses from the 1980s. The infectious material from the latter hospital was transferred to the National Polio Laboratory. Representative strains from different years will be referred shortly to a global specialized laboratory for sequencing and inclusion in the global strain bank. Afterwards all remaining infectious and potentially infectious material will be destroyed.

## 5. QUALITY ASSESSMENT OF PHASE I CONTAINMENT ACTIVITIES

### 5.1 Overall findings through review of quality assessment reports

*Mr Chris Wolff, WHO/HQ*

Guidelines for a self evaluation of the quality of Phase I polio containment activities were created by WHO to provide countries with a basis for evaluating their work in containment and writing a report on the quality of the work to be submitted by WHO. 14 countries followed the guidelines, produced a report, and submitted it to the WHO/EMRO for review and feedback. In addition to internal review by WHO/EMRO, two experts in poliovirus containment external to WHO and the Region were asked to review the reports and provide comments on the quality of work described.

The results of both internal and external review were discussed at this meeting. Overall, the reports described an excellent level of work by all countries in implementing Phase I polio containment. With additional details, the reports will be ready for submission to the Regional Certification Commission at their meeting in 2007. Countries were given, in writing, specific feedback on their reports and requested to update the documents to address the issues raised during the review process.

The primary issue is the need for country documentation of all statements and claims so that convincing evidence is provided that all activities were conducted as stated. As per the

meeting recommendations agreed to by all participants, countries should revise their documents, submit them for review by national certification committees, and finally submit the NCC-approved version to WHO/EMRO by the end of 2006. These will then be prepared for submission to the Regional Certification Commission for Polio Eradication in advance of their April 2007 meeting.

### 5.2 Country experience in re-doing Phase I containment activities after re-introduction of wild poliovirus in Sudan

*Dr Naguib Saeed*

Sudan became polio free in 2001 and containment activities were started at the same time, along with the nomination of the national committee and national containment coordinator. A national plan of action was developed and implemented successfully. Phase I activities were completed in 2003. WPV was re-introduced in May 2004 and rapidly spread to 19 of 26 states.

Several NIDs were conducted before getting the outbreak under control. The last virus isolate was from a healthy contact in August 2005. The national containment committee re-convened its activities in March 2006 and organized a re-survey for 23 targeted laboratories with storage facilities. The survey was supplemented with visits to selected laboratories. 23 high-risk laboratories were surveyed and the majority of these were university and/or research laboratories.

Analysis of the survey data showed that only the national polio laboratory was storing the potential infectious material. Visits to the laboratories contributed in raising the awareness about the containment processes and more collaboration and improvement in biosafety in laboratories, implementation and better laboratory inventory systems.

The WPVs isolated during outbreak due to importation were destroyed after confirmation of the identity of the isolates from reference laboratory. The national polio laboratory destroys potential infectious material regularly. The report of the re-survey was submitted to the NCC and also included in the draft report of documentation of the containment activities.

### 5.3 Group discussions

Discussions were held with individual countries and specific points were elaborated. The individual countries were asked to add/amend the draft report, in the light of the comments and submit to WHO for final submission to National Certification Committee. The following groups were constituted.

**Group 1:** Bahrain, Islamic Republic of Iran, Iraq, Jordan, Lebanon, Libyan Arab Jamahiriya, Tunisia (Moderator: Mr Chris Wolff)

**Group 2:** Morocco, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Sudan, United Arab Emirates (Moderator: Dr Walter Dowdle)

**Group 3:** Afghanistan, Egypt, Pakistan, Palestine (Moderator: Dr Humayun Asghar)

The objective of group work was to discuss the detailed review of reports with countries individually. The discussion centred around specific points to clarify or add/delete certain statements and data. The individual participant was provided with comments as ready reference for amending the report.

## 6. FUTURE DIRECTIONS

### 6.1 WHO global action plan to minimize poliovirus facility-associated risk in the post-eradication/post-OPV era, draft 3rd edition (GAP III)

*Dr Walter Dowdle*

When WPV circulation is interrupted, susceptible populations will increase in many parts of the world as interest declines in immunization against a nonexistent infectious agent. The reintroduction of WPV in any population will be an event of international concern. When OPV use stops, a facility-associated reintroduction of an OPV/Sabin virus carries the risk for initial unrecognized transmission, potential reversion to cVDPV, and reestablishment of poliomyelitis. In most countries, facility-associated risk can be eliminated through destruction of all WPV and OPV/Sabin infectious and potential infectious materials. In a few countries, a minimum number of poliovirus facilities will be essential for vaccine production, stockpiles, and quality assurance; diagnostic reagent production; virus reference; and critical international research.

The global strategy for minimizing poliovirus facility-associated risks consists of risk elimination by destruction of poliovirus materials in all but a few essential facilities and risk management of essential facilities by strict adherence to primary and secondary safeguards. Risk elimination comprises two components: 1) worldwide destruction of infectious and potential infectious WPV materials within 18 months after WPV transmission is interrupted; and 2) OPV/Sabin materials when OPV use stops. Risk management of essential facilities comprises establishment of international standards for primary safeguards of facility containment, secondary safeguards of facility location, and national and international oversight to assure such standards are met. GAP III provides regulatory frameworks designed to ensure global consistency among countries in content and enforcement of national policy.

GAP III continues to undergo review by international advisory bodies and in due time will be submitted to regional offices and national ministries of health and containment coordinators for comment and input.

### 6.2 Proposed strategies/implementation of GAP III

*Dr W. Dowdle*

The goal of GAP III is to minimize the risk for poliovirus reintroduction by reducing the number of poliovirus facilities to an absolute minimum (<20) worldwide serving essential international vaccine, reference and research functions and meeting the primary safeguards of

facility containment and secondary safeguards of location in areas of lowest population risks. GAP III is implemented in four phases: the first two are linked to national milestones in polio eradication and the final two are linked to international milestones in the global polio eradication initiative.

Phase I, the national survey and wild poliovirus inventory, informs governments, institutions and facilities about the upcoming need for containment; initiates efforts to reduce WPV materials and the number of facilities holding such materials; and provides a database of facilities on which subsequent steps towards minimizing risks for facility-associated poliovirus can be based. Phase II, which begins at completion of national surveys and inventories, establishes long-term national goals and policies consistent with international goals for the post-eradication/post-OPV cessation era. Phase III specifies the simultaneous global implementation of national regulatory and enforcement actions required for immediate destruction or containment of WPV. Countries will take action when the Director-General of WHO declares that 1 year has passed without isolation of naturally occurring WPV anywhere in the world. Phase IV specifies the sequential implementation of actions worldwide to ensure effective OPV recall from the field, destruction of OPV/Sabin poliovirus materials, and containment of Sabin polioviruses in designated essential facilities. Countries will take action at the effective date established by the World Health Assembly for cessation of global OPV administration for routine immunization.

The proposed GAP III includes annexes of concept documents to assist countries in meeting requirements, with more specific guidance to follow development of international consensus. The WHO Global Certification Commission will communicate through WHO Regional Offices and Regional Commissions detailed guidelines as developed for assessing and documenting national and regional containment.

### 6.3 Risk management standard for post-eradication poliovirus facilities

*Mr Chris Wolff, WHO/HQ*

WHO/HQ has drafted the Biorisk management standard (BSL-3/polio) for essential poliovirus facilities in the post-eradication/post-OPV era. This document provides a comprehensive risk management strategy to prepare the international community for the time when natural wild poliovirus circulation in human populations has been interrupted and the routine use of live oral poliovaccine can cease. This standard provides the general requirements to be followed by essential poliovirus facilities in the post eradication era. It is a component of the draft Global action plan to minimize poliovirus facility-associated risk in the post-eradication/post-OPV era, 3rd edition (GAP III). The standard was developed through consultations with bio safety professionals and experts from other “hazard industries”.

The resulting document combines standard technical specifications with a performance-based approach to risk management placing responsibility on the facility operator to prove the identification and management of risks, consistent with lessons learned by WHO in dealing with other laboratory associated infections, the majority of which were associated with

procedural or management failures. The draft standard is currently in the process of review. When completed it will be included in GAP III for eventual publication.

### 6.4 What do we need next in containment?

*Mr Chris Wolff, WHO/HQ*

Countries of the Region are in different stages concerning the implementation of poliovirus containment and respectively have different tasks that need to be addressed in the coming year.

- Endemic countries need to prepare for interruption of transmission by making a plan, creating survey materials, raising awareness about containment and compiling a national list of laboratories.
- Polio-free countries in process of Phase I should complete the survey, conduct quality assessment, compile the report and submit it for external and RCC review.
- Countries completing Phase I must complete the quality review process, revise documents and submit them to EMRO. The final document should be sent to NCC for review and revised as needed. Finally, it should be included in national documentation submitted from the NCC to RCC.
- Countries that have completed Phase I should maintain Phase I by annually submitting a report to the RCC confirming status of National Inventory, using the national laboratory database and survey results to identify "risk" facilities for possibly obtaining polio materials and contact periodically to confirm (virology, research university, those handling specimens from endemic areas, biotech); identifying any new "risk" laboratory and updating the national laboratory list accordingly; and maintaining all documents/data.

All countries should provide comments to WHO on the draft GAPIII when it is circulated for comment and consider the implications of GAP III for implementation in each country (creating polio-specific legislation, etc).

### 6.5 Progress in regional certification

*Dr Humayun Asghar, WHO/EMRO*

Currently, all countries are submitting reports to the RCC. There are four types of certification documents: national documents, annual updates, final national documents for regional certification and provisional national documents. National documents have been accepted from 18 countries: Bahrain, Djibouti, Iraq, Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates and Yemen. Annual updates are being submitted by countries whose national documents have been accepted. Final national documents for regional certification have been submitted from Bahrain, Jordan, Islamic Republic of Iran, Oman, Qatar, Saudi Arabia and United Arab Emirates, which were accepted by RCC 15. Lebanon, Libyan Arab Jamahiriya, Morocco, Syrian Arab Republic and Tunisia will submit their reports early next year for RCC 17. Provisional national documents are

submitted by countries that are still polio-endemic (Afghanistan, Pakistan and Somalia) and those that have been free of wild poliovirus for less than 3 years (Egypt).

### 6.6 Progress in the regional polio laboratory network

*Dr Humayun Asghar, WHO/EMRO*

The performance of WHO Eastern Mediterranean Region polio laboratory network is sustained at certification standard indicators. The network laboratories have supported the polio eradication activities in a timely manner. All network laboratories were fully accredited except Kuwait, which was provisionally accredited. All laboratories passed the WHO proficiency testing panel of unknown viruses for both primary virus culture and intratypic differentiation testing.

There was a generalized increase in workload due to improvement in AFP surveillance and two major outbreaks in Somalia and Yemen. Another factor for the increase in workload was the collection of stool samples from contacts of AFP cases. All laboratory performance indicators were well above the set targets, except transportation of samples within 3 days, which was only 77%. Timeliness of reporting the virological investigation results, from onset of paralysis to final results, improved significantly from 32 days in 2005 to 28 days in 2006. Another remarkable achievement was the implementation of new testing algorithm aimed at shortening the time of reporting results. From April 2006, it was implemented in Pakistan polio laboratory, and results showed that final results could be obtained in just under 2 weeks after the stool samples were received in the laboratory. This testing algorithm will be introduced in the whole network by mid-2007.

In Egypt, AFP surveillance is supplemented with environmental surveillance to increase sensitivity for detection of wild poliovirus. The last wild poliovirus type 1 was isolated from Fayoum and Sohag in January 2005. There was an evident decrease in genetic diversity of polioviruses in Pakistan and Afghanistan. Importations of wild poliovirus into Sudan led to widespread outbreak and later led to importation into Saudi Arabia, Somalia and Yemen. The last wild polioviruses type 1 from Sudan and Yemen were isolated in June 2005 and February 2006, respectively. In Somalia the importation occurred in July 2005, and as of May 2006 the outbreak was continuing, but it is now on decline and sporadic cases are reported. In 2005, three vaccine-derived polioviruses were reported from the Islamic Republic of Iran, Saudi Arabia and Syrian Arab Republic.

The polio laboratory network is faced with the challenges of sustaining the laboratories' performance and maintaining quality assurance programmes, specific budget allocation for polio laboratories and provision of logistics.

## 7. CONCLUSIONS

The fifth meeting of the national containment coordinators for laboratory containment of wild poliovirus infectious and potential infectious materials focused on reviewing the quality of work reported by the 16 countries now reporting completion of the national

laboratory survey and inventory. 14 of these countries have completed the quality assessment exercise and report (Bahrain, Djibouti, Islamic Republic of Iran, Iraq, Jordan, Libyan Arab Jamahiriya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia and United Arab Emirates) while the remaining 2 are in the final stages of completion (Kuwait, Lebanon). Reports on the quality of the work were reviewed by a panel of containment experts from outside the Region who provided feedback to the countries on areas for improvement or clarification. The revised reports will next be reviewed by National Certification Committees before submission to the Regional Certification Commission for final review and acceptance at their meeting in April 2007. Three countries are currently conducting the national survey and inventory (Egypt, Palestine and Yemen) with completion of this and the quality assessment exercise expected before mid 2007. Polio endemic countries of Pakistan and Afghanistan have appointed national containment coordinators and will begin preparatory work for the laboratory survey once polio circulation is interrupted. Planning for containment work in Somalia remains pending. In conclusion, countries of the WHO Eastern Mediterranean Region continue to make significant progress towards regional completion of Phase I containment and are well placed for rapid completion of this work soon after interruption of wild poliovirus circulation in the Region.

## 8. RECOMMENDATIONS

*Polio endemic countries*

1. Countries remaining endemic for wild poliovirus circulation (Afghanistan, Pakistan and Somalia) should begin preparations now so that a rapid survey and inventory of facilities can be conducted soon after final interruption of transmission. Preparations to begin now include the official appointment of a National Task Force (if appropriate for the size of the country), creation of a National Plan of Action, creation of a draft survey form, raising awareness about containment and establishment of a national list of laboratories.

*Countries with ongoing survey and inventory activities*

2. Countries with ongoing survey and inventory activities (Egypt, Palestine and Yemen) should expedite completion of all activities, including the quality assessment review and report, by July 2007, and should specifically address the following.

- Egypt: compile and analyse results of the recently conducted survey to be followed by the quality assessment process.
- Palestine: organize and conduct the survey and inventory of laboratories to be followed by the quality assessment process.
- Yemen: begin the national survey of laboratories as outlined in the National Plan of Action to be followed by the quality assessment process.

*Countries that have reported completion of the laboratory survey and inventory and quality assessment report*

3. The quality assessment reports from the 14 countries reviewed should be revised, taking into consideration the country-specific comments provided by the reviewers as well as general comments below.

- Reports should be descriptive, providing specifics such as data, dates and names.
- Reports should be written to provide convincing evidence to a reader unfamiliar with the country or containment process that the results are valid. Emphasis and detail should be provided in the sections regarding creation of the national laboratory list (clearly demonstrating that all facilities were identified), conducting the national survey (clearly describing how the survey was conducted), and compiling the national inventory (clearly describing how the survey results were compiled and analysed to determine the facilities with WPV materials).
- Reports should include details and supporting documentation on any wild poliovirus materials that are destroyed.
- National Inventories should list only laboratories with confirmed wild poliovirus infectious materials or potential wild poliovirus infectious materials (stool, throat swabs, water, or sewage samples collected from a time and place of wild poliovirus circulation).
- Documents supporting the events described in the report should be attached to provide an evidence base such as appointment letters, copy of relevant legislative text, example survey form and accompanying letter, national inventory.

4. In preparation for the review of Phase I quality assessment reports by the Regional Certification Commission at their meeting in April 2007, countries completing the survey and inventory should:

- Revise the reports according to the comments from the external review and submit to EMRO by 15 November 2006;
- Consider any additional comments received from EMRO before end of 2006;
- Submit a final report with data and information current to the end of 2006 to the NCC for review and acceptance by end of January 2007. This approved report should be submitted to the RCC by March 2007.

5. Countries that have completed the survey, inventory, and quality assessment process should maintain the Phase I results through the following activities.

- Submitting an annual update to the RCC confirming the current status of the National Inventory of facilities with wild poliovirus materials.
- Identifying laboratories at high risk for having polio materials and periodic confirmation of their status. Laboratories that should be considered include virology, those handling specimens from polio endemic areas or persons from those areas, research, biotechnology, and other laboratories according to the expert opinion of the national

coordinator. The national containment coordinator should also identify any such facility that has may have been newly established.

- Submitting an annual update to the RCC indicating any changes in the number of laboratories on the national list of laboratories according to information that is readily available through ongoing national processes (existing laboratory registration lists) or any newly established high risk facility for polio materials.
- Maintaining all documents and data concerning polio containment

*All countries*

6. Any polio-free country that detects an importation of WPV should use the national laboratory list to identify all laboratories that may deal with stool specimens and alert them of the possible presence of wild polioviruses in the population, the importance of good microbiological practice, and the implications for prompt and proper destruction of processed samples. Laboratories at risk of storing clinical materials from the outbreak period should be identified and contacted to confirm the fate of any materials collected.

7. National implications for the activities proposed in the draft 3rd edition of the WHO Global Action Plan to minimize poliovirus facility-associated risk in the post-eradication/post-OPV era should be carefully considered and comments provided to WHO to ensure that the document outlines an effective, practical and relevant plan for all countries.

## Annex 1

## PROGRAMME

**Friday, 22 September 2006**

| | | |
|---|---|---|
| 08:00–08:30 | Registration | |
| 08:30–09:00 | Opening Session<br>Message from H.E. Dr Mohammad Ridha Kechrid, Minister of Public Health, Tunisia<br>Message from Dr Hussein Gezairy, Regional Director, WHO/EMRO<br>Election of Chairman and nomination of the Rapporteur | |
| | Status of implementation of the recommendations of the last meeting | Dr H. Asghar, WHO/EMRO |
| | *Session 1: Progress reports* | |
| 09:00–09:15 | Regional status of polio eradication | Dr H. Asghar, WHO/EMRO |
| 09:15–09:30 | Global overview of polio eradication | Mr C. Wolff, WHO/HQ |
| 09:30–09:45 | Global progress on Phase I of containment activities | Mr C. Wolff, WHO/HQ |
| 09:45–10:00 | Regional Progress on Phase I of containment activities | Dr H. Asghar, WHO/EMRO |
| 10:00–11:3 | Discussion | |
| | *Session 2: Update from countries completing survey and inventory* | |
| 11:00–12:30 | Country presentations on progress of implementation of Phase I activities Egypt, Palestine, United Arab Emirates, Tunisia | |
| 12:30–14:00 | Discussion | |
| | *Session 3: Quality assessment of Phase I containment activities* | |
| 14:00–14:30 | Overall findings through review of quality assessment reports submitted by the countries | Mr C. Wolff, WHO/HQ |
| 14:30–17:00 | Review of quality assessment documentation of Phase I of containment activities | |
| | **Group 1**: Bahrain, Djibouti, Islamic Republic of Iran, Iraq, Jordan, Lebanon, Libyan Arab Jamahiriya and Tunisia | Moderator: Mr C. Wolff, WHO/HQ |
| | **Group 2:** Morocco, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Sudan and United Arab Emirates | Moderator: Dr W. Dowdle, WHO/EMRO |
| | **Group 3:** Afghanistan, Egypt, Pakistan, Palestine, Yemen | Moderator: Dr H. Asghar, WHO/EMRO |
| | **NOTE**: Group 1 and 2 will discuss the reviewer comments on their quality assessment reports<br>Group 3 will discuss the containment plan of action and its implementation | |

**Saturday, 23 September 2006**

| | | |
|---|---|---|
| 08:30–08:50 | Country experience in re-doing the Phase I of containment activities after re-introduction of wild poliovirus in Sudan | Dr N. Saeed, Sudan |
| 08:50–10:00 | Outcome of group work and comments | Mr C. Wolff, WHO/HQ<br>Dr W. Dowdle, WHO/EMRO<br>Dr H. Asghar, WHO/EMRO |
| | *Session 4: Future directions* | |
| 10:00–10:20 | GAP III: containment of polioviruses in the post-eradication era | Dr W. Dowdle, WHO/EMRO |
| 10:20–10:40 | Proposed strategies of GAP III – How countries can plan global control and containment of all polioviruses (action, legislation, verification) | Dr W. Dowdle, WHO/EMRO |
| 10:40–11:30 | Discussion | |
| 11:30–11:50 | Risk management in polio laboratory | Mr C. Wolff, WHO/HQ |
| 11:50–12:10 | What do we need next in containment? | Mr C. Wolf, WHO/HQ |
| 12:10–12:30 | Discussion | |
| 12:30–12:45 | Progress on regional certification | Dr H. Asghar, WHO/EMRO |
| 12:45–13:00 | Progress in regional polio laboratories network | Dr H. Asghar |
| 13:00–14:30 | Discussion | |
| 14:30–15:30 | Conclusion and recommendations | |
| 15:30 | Closing session | |

## Annex 2

## LIST OF PARTICIPANTS

**AFGHANISTAN**
Mr Ghulam Eshan Shafiri
Director of Central Laboratory
**Kabul**

**BAHRAIN**
Dr Bader Z. Hassan Baig
Director of National Laboratory
Ministry of Health
**Manama**

**EGYPT**
Dr Osama Raslan
National Coordinator for Laboratory Containment
**Cairo**

**ISLAMIC REPUBLIC OF IRAN**
Dr Seyed Taha Mousavi Firouzabadi
EPI Expert
**Teheran**

**IRAQ**
Mr Razaq Hadi
Bacteriologist
Central General Health Laboratory
**Baghdad**

**JORDAN**
Dr Ali Muheidat
Director of National Poliovirus Laboratory
Ministry of Health
**Amman**

**LEBANON**
Dr Vanda Baraket
National Coordinator for Laboratory Containment of Wild Polioviruses
Ministry of Public Health
**Beirut**

**LIBYAN ARAB JAMAHIRIYA**
Dr Salem Al-Agili
Responsible Officer for the National
Containment Coordinator
**Tripoli**

**MOROCCO**
Ms Amal Allah
National Polio Laboratory
National Institute of Hygiene
**Rabat**

**OMAN**
Dr Suleiman Al Busaidy
Director of Laboratories
Ministry of Health
**Muscat**

**PAKISTAN**
Professor General Karamat A. Karamat
National Containment Coordinator
Ministry of Health
**Islamabad**

**PALESTINE**
Mr Shaker Abu Sha'aban
National Coordinator
**Gaza**

Mr Ibrahim Salem
National Coordinator
**West Bank**

**QATAR**
Mr Mamoun El Sheikh
Head of Virology Services
National Health Authority
**Doha**

**SAUDI ARABIA**
Dr Talal Bakir
Chairman of Laboratory Containment of Wild
Polioviruses National Committee
**Riyadh**

**SUDAN**
Dr El Nageeb Suliman Saeed
Director of the National Laboratories
Federal Ministry of Health
**Khartoum**

**SYRIAN ARAB REPUBLIC**
Ms Hala Saba
National Containment Coordinator
Ministry of Health
**Damascus**

Mr Sa'eed Ghanem
Technical Assistant
Ministry of Health
**Damascus**

**TUNISIA**
Mr Mohamed Ali Memmi
Director of Laboratories Unit
Ministry of Health
**Tunis**

Dr Hinda Triki
Responsible Officer for Polio Laboratory
Pasteur Institute of Tunis
**Tunis**

**UNITED ARAB EMIRATES**
Dr Mansour Al Zarouni
Microbiology Specialist
Al Qasmi Hospital
**Abu Dhabi**

**YEMEN**
Dr Nabil Ahmed Al-Rumaema
Microbiologist
Central Public Health Laboratory
**Sana'a**

## WHO Secretariat

Dr Ibrahim Abdel Rahim, WHO Representative, Tunisia
Dr Humayun Asghar, Regional Polio Laboratory Network Coordinator, Polio Eradication Programme, WHO/EMRO
Dr Walter Dowdle, Temporary Adviser, WHO/EMRO
Mr Chris Wolff, Global Project Manager, Vaccine Assessment and Monitoring, WHO/HQ
Dr Helena Kopecka, Laboratory Consultant, WHO/HQ
Dr Francis Kasalo, Regional Coordinator for Laboratory Network, WHO/AFRO
Ms Rehab El Kady, IT Assistant, WHO/EMRO
Ms Abir Hassan, Secretary, WHO/EMRO
Ms Nancy George, Secretary, WHO/EMRO