Fourth Meeting between the National Authorities for Containment and Containment Working Group for the Global Commission for Certification

Virtual Meeting - Tuesday, Wednesday 27-28 October 2020

POLIO GLOBAL ERADICATION INITIATIVE

Contents

Abbreviations and acronyms

Update on global poliovirus containment – Daphne Moffett, WHO……1

Update on the auditor qualification and auditor support plan, 2021–2023 – Nicoletta Previsani, WHO

Process for revision of the Global Action Plan for Poliovirus Containment (GAPIII, 2014) and development of a tool for identifying and assessing potentially infectious materials and poliovirus – Harpal Singh, WHO……3

Next steps towards certification of containment – James Blaine, Chair, Containment Working Group Task Group)……4

Status of containment certification – David Salisbury, Chair, Global Commission for the Certification of the Eradication of Poliomyelitis……5

Outcomes of the survey of national authorities for containment – Harpal Singh, WHO……6

Application for a certificate of participation: lessons learnt and the way forward – Liliane Boualam, WHO……7

Country experience – Lia Haynes Smith, US National Authority for Poliovirus Containment, USA….8

Requirements for containment of novel oral poliovirus vaccine and potentially of S19 – Mark Pallansch, Chair, Advisory Group on mOPV2 provision……9

The way forward – Daphne Moffett, WHO……10

Abbreviations and acronyms

AQAS	GAPIII Auditor Qualification and Audit Support Plan 2021–2023
CAG	Containment Advisory Group
CC	certificate of containment
CCS	Containment Certification Scheme to support the Global Action Plan for Poliovirus Containment (GAPIII)
CP	Certificate of Participation
GAPIII	Global Action Plan for Poliovirus Containment (short title) or Global Action Plan to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of oral polio vaccine use (full title), 3rd edition, 2014
GCC	Global Commission for the Certification of the Eradication of Poliomyelitis
GMP	good manufacturing practices
GPEI	Global Polio Eradication Initiative
ICC	Interim Certificate of containment
IM	Infectious Material (polio virus)
IPV	inactivated polio vaccine
NAC	National Authority for containment
OPV	Oral Poliomyelitis vaccine
nOPV2	novel oral polio vaccine type 2
PEF	poliovirus-essential facility
PIM	potentially infectious materials (polio virus)
PV	Poliovirus
cVDPV	circulating Vaccine-Derived Polio virus

Background and meeting objectives

The meeting was opened by Michel Zaffran, Director, department of Polio Eradication, WHO, and Chair, Global Polio Eradication Initiative (GPEI) Strategy Committee, who highlighted the current challenges of upsurges of cases of polio due to wild-type poliovirus serotype 1 (WPV1) in Afghanistan and Pakistan and outbreaks of cases due to circulating vaccine-derived poliovirus (cVDPV), mainly across the centre of Africa. Furthermore, the COVID-19 pandemic had suspended many polio activities. Although the programme's budget is generous, with supportive donors, 2021 will be a difficult year. He was optimistic, however, as the programme had overcome many difficulties in the past, and in 2020 it had seen the eradication of WPV from Africa, under difficult circumstances. He said that containment was one of the main goals of the eradication plan; however, the number of facilities holding PV must be minimized, and they must comply strictly with regulations.

The objectives of the meeting were:

1. To provide a global update on the Containment workstream programme;
2. To provide and discuss COVID implications and the Containment programme adjustments (including auditor qualification and PEF certification processes;)
3. To get updated on the revision of GAPIII and the development of other tools to support survey and inventory of poliovirus materials;
4. To receive a country experience towards progress in containment certification; and
5. Discuss way forward.

It was noted that countries around the world were involved in certification of containment, and work was being done in all six WHO regional offices.

James Blaine, Chair, Containment Working Group (CWG), Global Commission for the Certification of the Eradication of Poliomyelitis (GCC), had kindly agreed to chair the meeting, on behalf of Arlene King Chair of GCC-CWG unable to attend this meeting.

Summaries of presentations

1. Update on global polio virus containment (Daphne Moffett, WHO)

The relations among the various bodies responsible for overseeing containment of polioviruses and for advice were illustrated. The current status of the containment programme is that 25 countries plan to contain poliovirus type 2 (PV2) materials in 70 designated poliovirus-essential facilities (PEF); of those, 24 countries have established a national authority for containment (NAC). Applications for certification as a PEF have been received from 14 countries, of which 10 have been endorsed by the Global Commission for Certification (GCC). Of the countries with a NAC, 20 have submitted applications for certificates of participation (CPs) in the Containment Certification Scheme (CCS), although it is assumed that the number of countries that retain PV materials will increase once the inventories of PV1 and PV3 are completed. Of the 72 PEFs holding PV2 materials, 58 have applied for CPs; the number of facilities that retain PV materials may decrease once CCS audits begin.

The COVID-19 pandemic has affected PV containment in a number of ways, as many WHO focal points for containment at both headquarters and regional level have been reassigned to work on COVID-19, and most NACs work on containment not only for polio but also for other diseases. Another effect has been delays in surveys on infectious and potentially infectious materials (IM and PIM). Despite the pandemic, a global platform for a network of NACs was launched in February, progress is being made in implementation of the CCS, and consultations with NACs have resulted in a reduction in the number of PEFs and improved auditing capacity in the USA. A time-bound, costed strategy for auditing and country support that accounts for the realities of the pandemic, including travel and quarantine restrictions, has been developed; and the CAG and its working groups continue to meet and make progress. With regard to containment of WPV3, all materials must now be destroyed or contained in a PEF. Explicit actions are required for facilities with WPV3 materials, and NACs have been asked to report the number of new PEFs, if any, and to update current GAPIII enrolment certificates for existing PEFs. A resolution will be proposed to the World Health Assembly in 2021, stating the requirements for all PV types that will enter containment, with updated guidance.

The CAG recommendations for containment of novel PV2 (nOPV2) are based on the fact that it is a live poliovirus and is therefore covered by GAPIII. CAG has temporarily waived handling of nOPV2 from adherence to Annex 3 when used in vaccine production, vaccine quality control, clinical trials and outbreak response; however, no PV2, including nOPV2 is exempt from the IM and PIM inventory

requirement. The accountability requirements are equivalent to those for mOPV2, and nOPV2 will also require enhanced environmental surveillance. CAG will review the waiver once it has received the results of a phase-III clinical trial and data on acute flaccid paralysis and environmental surveillance. GAPIII Annex 3 outlines strict biorisk management standards to be followed by all facilities that handle any live PV (currently, all PV2, WPV3 and VDPV3). The CAG recommendations are that novel OPV strains be defined by their capsid regions, and chimaeric viruses with non-structural regions from Sabin-2 or nOPV2 but a type 1 or 3 capsid should be defined as type 1 or 3 for containment purposes and not be subject to type 2 containment. Although Sabin PV1 and PV3 are still used in routine vaccination, GAPIII guidance for Sabin viruses will apply once containment guidelines are issued. Exclusion of the development and production of nOPV1 and nOPV3 strains from GAPIII is being considered, as the discussions on the construct are similar to those on nOPV2, the main difference being insertion of capsid sequences from types 1 and 3. Type 3 or both types 1 and 3 will be contained at some time in the future after cessation of use of OPV. The recommendation represents a pre-emptive step to address concerns raised by regulators. CAG agrees that the four candidate strains (1 and 2 for types 1 and 3) could be handled outside GAPIII containment for the purposes of production, quality control and clinical trials. Handling of IM in facilities is subject to national and international regulations, and national regulations maintain primacy.

Annex 4 to the sixty-ninth report of the WHO Expert Group on Biological Standardization (WHO TRS No. 1016), Guidelines for the safe production and quality control of poliomyelitis vaccines, was amended in August 2020 to resolve industrial challenges in implementing current GAPIII guidelines. Companies that contribute to the GPEI through production, stock-piling and supplying PV vaccines have found it difficult to ensure the right level of containment while maintaining the continuity of supply and rationalizing investment and operational costs. In a quality control laboratory in which several biological agents are tested, “campaign testing” is not feasible. Industry’s biocontainment infrastructure and stringent, documented biosafety procedures are largely effective in minimizing the risk of poliovirus release, and they consider that routine showering when leaving a production or quality control area does not add to biosafety and would affect the industry’s ability to supply GPEI. The proposed revision would specify that a full-body shower facility be available in the personnel exit airlock from a containment facility. The second issue is whether non-dedicated facilities (e.g. quality control laboratories) should be used in the final phase of containment. The TRS drafting group considered that non-dedicated laboratories could be used in that phase, with additional precautions, comprising location of the laboratories within the containment facility, adherence of all non-PV-related activities and all personnel admitted to laboratories to all applicable containment procedures and a risk assessment that complies with the requirements in GAPIII to identify any additional controls. The third issue is handling of samples outside containment, as GAPIII requires that all samples from manufacturing facilities be tested in containment laboratories. The drafting group considered that water and environmental monitoring samples from containment production facilities should be handled according to established procedures to prevent the release of live PV. Procedures for decontaminating sample containers or packaging should be validated and shown to have no impact on sample integrity, and the packaging materials should be decontaminated before disposal. All samples received from containment production facilities and all test procedures involving reagents containing live PV should be performed in containment laboratories.

Other challenges to containment are: (i) a global lack of qualified GAPIII CCS auditors; (ii) continued use of mOPV2 for outbreak response, which creates a continuous cycle of surveys and inventories and reintroduction of tOPV; and (iii) the reduced priority of PV containment, particularly during the COVID-19 pandemic. Investigations of vaccine “contaminants” and reported facility breaches underline the importance of vigilance in containment. To ensure the sustainability of the containment programme, long-term global oversight will be required, with work to reverse the loss of political will.

2. Update on the auditor qualification and auditor support plan, 2021–2023 (Nicoletta Previsani, WHO)

The auditor qualification and auditor support (AQAS) plan was developed in early 2020, and a first draft of the plan had been shared with NACs in early August with a request for feedback. The second version had been based on the comments and questions received. The current document had been seen, discussed and approved by GCC a few days before the meeting.

The plan was based on the fact that different NACs have different capabilities and needs for qualified auditors, one factor being the number of PEFs, and that achieving and maintaining qualification is problematical in a country with only one PEF. NACs with more than one PEF may also be at various

levels of readiness for GAPIII. According to the new AQAS plan, countries with auditing systems similar to GAPIII/CCS could qualify auditors through a fast track approach consisting of two audits led entirely by the candidate auditors and assessed by a WHO team. Countries that do not feel that ready or where English is not the language of communication may opt for a different approach to qualifying their auditors, in which WHO would support the development of in-country capacity during five audits (as described in CCS). The first three first audits would be led by the WHO team, with training opportunities for the candidate auditors, and the last two would be led entirely by the candidate auditors and assessed by a WHO team. Both groups of countries developing auditor capacity would be offered a new hands-on advanced auditor training course. NACs of countries that host only one PEF would receive training on what and how to plan for and expect from outsourced audits.

Remaining challenges include the lack of NACs in some countries and the lack of CP applications by some PEFs, recent extension of the CP expiry date to the end of April 2022. The new AQAS plan will support PEF-hosting countries in scheduling and completing their auditor qualifications and/or PEF certifications. The plan proposes various support packages that require up-front engagement with and commitment from both NACs and PEFs and can be implemented concurrently, with provisions for different support options and for running activities remotely.

Activities proposed in AQAS include country engagement visits to present the plan, to confirm the appropriate support for each individual country, to help develop the long-term national plan, to ensure that all stakeholders are committed to schedule and provide the resources required and to confirm the readiness and availability of NACs and PEFs to engage in certification.

The GCC had approved for the plan to be implemented remotely, and participant recommended that guidelines should be drawn up for conducting remote audits.
The AQAS plan would be released after the GCC had completed its review.

3. Process for revision of the Global Action Plan for Poliovirus Containment (GAPIII, 2014) and development of a tool for identifying and assessing potentially infectious materials and poliovirus (Harpal Singh, WHO)

Progress in revision of GAPIII was based on a CAG recommendation made at its third meeting[1], in December 2018. Briefly, CAG recommended that the secretariat initiate and coordinate the revision of GAPIII to ensure transparency, wide stakeholder engagement, harmonization of the biorisk management requirements of GAPIII with similar standards[2] and allocation of time for critical review by CAG, public consultation and endorsement by CAG of the revised document. The revision of GAPIII involves two work streams, in line with the strategy for implementation of GAPIII, i.e. risk elimination (e.g. survey, inventory and destruction of poliovirus materials) and risk mitigation (e.g. management of biorisk in facilities that retain polioviruses by strict adherence to safeguards). Revision of the strategy for preparation of the containment phase will comprise the survey, inventory, destruction of and preparation for containment of WPV/VDPV and OPV/Sabin polioviruses. The second workstream will be revision of the strategy for containment of poliovirus, which will comprise of the strategy for preparation of the containment phase will comprise the survey, inventory, destruction of and preparation for containment of WPV/VDPV and OPV/Sabin polioviruses. The second workstream will be revision of the strategy for containment of poliovirus, which will comprise biorisk management of facilities that retain polioviruses after eradication, specifically Annex 2 of GAPIII for PEFs holding WPV and Annex 3 for PEFs holding only OPV/Sabin poliovirus (no WPV).

Strengthening of infrastructure for oversight, guidance, drafting and review of both work streams will be supported by several groups or entities. CAG is the overarching body for revision of GAPIII. A steering committee is being established to provide day-to-day oversight of the first workstream by the drafting group for the preparatory aspects of containment of poliovirus, and the second workstream will be overseen by a contractual partner in collaboration with WHO. The revision was launched on 14

[1] Report of the third meeting of the Containment Advisory Group, 13–14 December 2018 (http://polioeradication.org/wp-content/uploads/2017/08/CAG3-Dec-2018-Report-EN-20181213-14.pdf).

[2] Examples include Annex 4: Guidelines for the safe production and quality control of poliomyelitis vaccines (WHO Technical Report Series, No. 1016) (https://www.who.int/publications/m/item/polio-2020-amendment-to-annex-4-trs1016), WHO Laboratory Biosafety Manual, fourth edition (2020) (in press), ISO 35001:2019 Biorisk management for laboratories and other related organisations (https://www.iso.org/standard/71293.html) and CWA 15793: Laboratory bio-risk management standard (https://www.ibpforum.org/resource/cwa-15793-laboratory-biorisk-management-standard).

September 2020 with stakeholder's inputs to annexes 2 and 3 of GAPIII. The stakeholders included NACs, PEFs, containment support groups (e.g. Containment Management Group, GCC-CWG, SAGE, SAGE working group on polio, vaccine industry groups (e.g. International Federation of Pharmaceutical Manufacturers and Associations, Developing Countries Vaccine Manufactures Network), subject matter experts (on e.g. poliovirus, biorisk management, containment, vaccine production and control), WHO laboratory networks (Global Polio Laboratory Network, Global Rotavirus Laboratory Network, Global Measles and Rubella Laboratory Network, influenza), WHO technical units (e.g. Biosecurity and Health Security Interface, Technology, Standards and Norms) and biosafety professional associations.

A tool has been developed to assist facilities in determining whether samples or collections stored or handled in their facilities are considered PV PIM and recommendations for their destruction or implementation of biorisk management requirements described in the PIM guidance[3]. The latest version of the tool will be hosted online for users to enter sample data. The platform is Excel®, in English only, and reports providing information on PIM can be auto generated, printed or e-mailed. Information will also be provided on reporting to the relevant national authority.

During discussion of the two presentations, the secretariat informed that the AQAS and the GAPIII revision would be launched simultaneously, as GAPIII will include auditor qualification. Nevertheless, facilities will require time to make the necessary changes to comply with GAPIII, including its annexes, before audits are conducted; and national legislation might have to be revised to ensure compliance. No date has yet been set. WHO could will provide training in use of the revised GAPIII. The secretariat confirmed that WHO and the GCC would acknowledge and accept auditors trained with the previous version of GAPIII. Postponement of the CP expiry date will not change the length of validity of ICCs. CPs for PEFs with PV2 will not have to be reviewed again for containment of PV3 material, unless major changes in infrastructure are considered necessary. The secretariat had informed that PIM guidance has also been reviewed several times and will be issued once it has been edited.

4. Next steps towards certificates of containment (James Blaine, Chair of CWG Task Group)

A GCC-CWG Task Group has been set up to facilitate application for interim and certificates of containment (ICC and CC). The group will draft new forms for application and guidance for compliance and documentation. A first draft should be ready by April 2021 and will be sent out for wide consultation. The document will be aligned with the revised GAPIII and will take into account the discussions at the present meeting. He looked forward to receiving comments from the group.

The aim of this process is to make it more practical and easier to use until the last CP is issued. The ICC and the CC will require more input, including from users, and it is essential that NACs be involved. Presentation of the tools and process will be communicated to NACs once the exercise is completed.

5. Status of containment certification (David Salisbury, Chair, GCC)

Despite resolution WHA71.16, few countries had not yet complied with the requirements for safe containment, and they must be urged to do so, or, if they did not commit themselves to the CSS, should give up any PV material. He recalled that a letter had been sent at the beginning of October 2020 by the GCC to all NACs, informing them that, in view of the delay in activities and the projected long-term restriction on travel due to COVID-19, the GCC recommends a 1-year extension of the validity of all CPs, such that the new expiry date will be 30 April 2022. Countries should participate remotely in the new plan for auditor training and make progress in the certification scheme. The GCC strongly urges facilities and countries that have not yet entered the CCS to do so, as the deadlines communicated in May 2018 during the Seventy-first World Health Assembly have long passed. Countries are also strongly encouraged to address containment not only of PV2 but also of WPV3 and to initiate the necessary CP applications. A balance must be struck between decreasing the number of PEFs and implementing and monitoring long-term containment.

6. Outcomes of the survey of national authorities for containment (Harpal Singh)

Responses to the survey sent to NACs before the meeting had been received from regions with the most PEFs and from laboratories and production and control facilities. The numbers of facilities designated as serving critical functions that require the retention of PVs by type, most retaining Sabin viruses and WPVs; fewer facilities contain VDPVs. In answer to a question in the survey about whether

[3] Guidance to minimize risks for facilities collecting, handling or storing materials potentially infectious for polioviruses (PIM guidance) (http://polioeradication.org/polio-today/preparing-for-a-polio-free-world/containment/containment-resources/).

retention of PV material conforms to the requirements of GAPIII, more than half of the NACs had responded positively, while nearly one third responded that they did not know. Minimum mitigation measures for facilities working with PV2 IM have been developed by NACs, and facilities that apply for ICC will work towards GAPIII containment requirements. None of the facilities is currently operating in line with all GAPIII containment requirements. Of the 37 facilities, 25 have been granted a CP, the applications of six are being considered by the CWG, three applications are in preparation, and three were not complete. Once the 37 facilities have CPs, 19 intend to apply for CC, 12 intend to cease containment, and six are undecided.

The challenges of CC, now and in the future, include:

- reprioritization of work towards polio outbreaks and COVID-19,
- lack of capacity to build audit teams due to postponement of GAPIII auditor training and travel restrictions because of COVID-19,
- no qualification of auditors in countries because of delays in meeting CCS requirements,
- difficulty in obtaining signed agreements between a NAC and all PEFs in the country that give the NAC legal status as a national authority,
- limited capacity in WHO,
- limited human and financial resources,
- lack of political support for the NAC,
- availability of materials for audits only in the local language and not in English,
- lack of experience in national audits despite attendance at GAPIII auditor training,
- lack of experts in containment engineering to participate in audits,
- differences between the timelines of national legislation and GCC,
- lack of legislative authority to oblige facilities to implement GAPIII beyond national requirements, and
- responsibility for achieving and maintaining activities during COVID-19 at provincial, territorial and municipal levels and not at the institution housing the NAC.

7. Application for containment certification: lessons learnt and the way forward (Liliane Boualam)
A few Member States had not yet complied with resolution WHA71.16. Three countries had not yet appointed a NAC, 14 PEF applications are awaited by the GCC CWG; of three events associated with a breach in PV containment reported to the national focal point, two complied with the WHO guidelines for reporting. Of the 72 PV2 PEFs, 81% had applied for CPs; of those, 58% have been awarded and the remaining 42% are being reviewed. Some are expected to be removed, as they are ceasing work, have transferred PV2 material to another facility or are containing S19 material. Several issues in meeting CCS requirements have been resolved, including provision of documentation not only in English language, incomplete documentation, provision of secondary and tertiary safeguards, incomplete information on working conditions and incomplete CP application forms. Some CPs have been withdrawn from global records because the type 2 work performed in these facilities is completed and no type 2 material is present. The S19 option is still being developed; once it is available, the number of PEFs will be reduced. Reduction of the GCC to five members has slowed the work, as has the COVID-19 pandemic. The rolling timeline established for review of CC files is still valid, and all CP applications should now be sent to a dedicated address: containmentcertification@who.int

Overall, the CP application process appears to have been well understood and implemented, and an average of two exchanges between NACs and the secretariat has sufficed to receive requested information, although the current application form for ICC and CC could be improved. It is recommended that NAC designations and CP applications be expedited, and that the secretariat provide orientation for NACs on following guidelines for applying for ICC/CC, when they become available.

In answer to a question about the mission of the consultant addressing risk assessment, the secretariat replied that it would apply to certain parts of GAPIII, and the CWG is also identifying areas that might require risk assessment. A tool is being developed, and training could be provided to NACs once all documentation has been finalized. A training package on ICC will be available in the second quarter of 2021.

8. Country experience (Lia Haynes Smith, Director, National Authority for Containment, USA)
PV containment in the USA began in January 2017, and the NAC was designated in January 2018. The NAC is located at the Center for Preparedness and Response at the Centers for Disease Control and Prevention. The cooperation of containment facilities is voluntary, with no regulation to compel them to

adopt WHO GAP III containment measures, and a collaborative approach is taken. The personnel at the NAC comprise the Director, a senior adviser on management and communications, one lead auditor, two auditors and a public health analyst. The activities of the NAC include developing and applying national surveys and inventories, explaining GAPIII to facilities through webinars and visits, developing risk mitigation strategies for work with PV2 materials during transition to GAPIII, visiting sites to verify containment conditions and certifying facilities that retain PV2 materials. The NAC also facilitates exchange of information, provides recent news from WHO and submits questions to the CAG on certification and audit processes. It has formed a "PEF community" by establishing a network to provide opportunities for collaboration on essential activities, sharing best practices in containment and providing input to policies for GAPIII implementation in the USA. The NAC conducts various communication and outreach activities, through its website, providing fact sheets and infographics and communicating to professional societies at national and international conferences. It also provides education and training on containment, including detailed explanations of GAPIII and internal audits, and has held webinars on policies, NAC studies, the national response plan and guidance on PIM. Requests have been received for training in risk assessment, inactivation, decontamination, personnel competence and occupational health.

A step-wise approach has been taken to GAPIII implementation, to allow designated PEFs that retain PV2 to take the necessary additional measures for full GAPIII containment. Some are transforming their laboratories, while others will soon complete their work with PV2 PIM. Effective safeguards are in place, but the difference between current practice and GAPIII containment is too significant to bridge in a single step. The current risk mitigation strategy comprises 41 containment measures for improving routine laboratory practices for eradicated strains, emphasizing biosafety to reduce the risk of accidental release. In biosafety strategies, PV2 materials are separated from other areas for primary containment with personal protective equipment. Security is ensured by controlling access to the laboratory and to the freezer. The emergency response strategies comprise a plan in the case of release of PV2 and incident reporting.

PEFs with short-term work will obtain a CP and destroy or transfer their PIM before 2022, while PEFs with longer-term work will work towards an ICC or CC. Site visits are conducted to all facilities to verify current containment conditions, and optional gap assessments may be conducted for facilities seeking CC. A national SharePoint site has been set up for external partners, and an information system has been developed to track audits, auditor training and qualification and conduct surveys. As of 27 October 2020, 10 facilities had received GCC-CWG endorsement of their CP application, and those of three facilities are under review; two applications have been withdrawn.

The NAC consults GAPIII as a basis for policies and receives feedback from experts in PEFs and the PV containment working group. The policies represent the NAC's interpretation of GAPIII and guidance documents and may be modified by external circumstances, such as the epidemiological situation, vaccination coverage, new international policies or final eradication. The topics covered by NAC policies and guidance are biorisk management and risk assessment, storage outside containment, security (including physical security, reliability of personnel and a record of access), inventories, transfers of PIM, personal protective equipment and hand hygiene and interim guidance for shared use of PEFs. Policies are being prepared on PV inactivation, occupational health and incident response.

The main challenges faced by the NAC include the large number of PV2 PEFs and potentially PV3 PEFs, the unknown timeline for ICCs and CCs for WPV3 and VDPV3 PIM and translating GAPIII requirements into policies that can be applied to facilities in the USA. It takes time to explain GAPIII, CCS and NAC procedures to new facilities, and more information is required before the CCS can be implemented; a process for ICCs should be made available soon, and new plans for the WHO auditor qualification process should be finalized. Communication of WPV2/VDPV2 PIM containment still presents a challenge, as it is unclear whether risk mitigation for WPV PIM is like that for OPV PIM.

Progress in containment in the USA includes a reduction of the number of facilities that retain PV materials from 20 in 2017 to 12 in 2020, improved biosafety and security practices and better containment, all due to the collaborative approach. The COVID-19 pandemic has delayed surveys, outreach, the time-bound action plans of PEFs and engagement of recently reported PV2 facilities.

9. Requirements for containment of novel oral poliovirus vaccine and potentially of S19 (Mark Pallansch, Chair, Advisory Group on mOPV2 Provision)

Novel OPV2 is highly attenuated Sabin OPV2, which grows sufficiently for use in vaccine manufacture. It is antigenically indistinguishable from Sabin OPV2 and is genetically stable, maintaining an attenuation phenotype in studies to date. S19 is highly attenuated Sabin OPV with capsid sequences of both Salk and Sabin series vaccine strains, is genetically stable during replication and maintains an attenuation phenotype in mice, indicating that it is probably not infectious to humans. It is a seed virus

for production of inactivated PV (IPV) and therefore not an oral vaccine. mOPV2, tOPV, nOPV2 and S19 all contain live, attenuated PV2. mOPV2, tOPV and nOPV2 may be used only in outbreak response, although use of nOPV2 has additional requirements under emergency use listing, and its availability will be limited during the first 3 months of its initial use. nOPV2 and all S19 strains are live poliovirus and are therefore covered by GAPIII.
To date, CAG has determined only whether nOPV2 and S19 strains should be handled according to annexes 2 and 3 of GAPIII. nOPV2 has been waived temporarily from adherence to Annex 3 only for vaccine production, vaccine quality control, clinical trials and outbreak response. S19 strains have been waived temporarily from adherence to annexes 2 and 3 only for uses in IPV production, IPV potency neutralization assays in rats, neutralization tests for PV antibody determination in human serum and potency testing for human immunoglobulin lot control and release. No novel PV vaccine is exempt from the requirement for an inventory of IM and PIM. The vaccine accountability requirements are equivalent to those for mOPV2 (and will also apply to tOPV), and enhanced environmental surveillance is required.
The temporary waiver for nOPV2 was adopted to facilitate the first response to the ongoing cVDPV2 outbreaks and failures of outbreak response campaigns. CAG has been informed that nOPV2 would be used only for outbreak response. Guidance on nOPV2 must be aligned in technical briefings and documents on management, monitoring, removal and disposal, and the framework for readiness for release of nOPV2 must be aligned in GAPIII, CAG recommendations and TRS 1016.
Responding to questions, he said that methods are available to identify changes to virus strains and recombinants, which is important, as, if S19 recombines with an OPV, it would lose its attenuation. One participant asked whether CAG would review additional uses of the novel strains, such as to improve the methods for producing PV vaccines. It was noted that no date has been set for the manufacture of S19, and its serology should be better defined. The CWG secretariat replied that a multicentre study is being carried out on serological methods for international standards. With regard to the availability of strains, there are legal requirements regarding issues such as technology transfer and intellectual property, and agreements are being reached with respect to S19.

10 Way Forward, (Daphne Moffett, WHO)

The main recommendations for the next semester were presented and discussed and summarized as below:

1. AQAS Plan---Qualification of auditors
   - Implement the new plan and begin scheduling remote country visits
   - Auditors can be fully qualified remotely

2. CCS process and certification of facilities
   - GCC extension of CP validity to April 30, 2022 (this does not impact ICC timeline)
   - Dr Blaine (GCC-CWG) will chair the ICC/CC guidance development
   - Facilities can be remotely audited and move forward with ICCs; facilities will require on-site visit prior to CC

3. Beyond type 2 containment
   - WHO secretariat will f/u with GCC on the timeline and process for including WPV3 in containment. Will clarify if GCC sign off is sufficient or if DG or assembly are required. Approach will be communicated to all.

4. GAPIII revisions
   - Transparent and iterative process; intent is to harmonize with extent guidance and recommendations; revise strategy and phases to meet current realities; update biorisk management. annexes; recognition of national legislation harmonization.

5. PIM revisions
   - Guidance is with CAG for final comment and endorsement. Annex tables are also updated.

Conclusions:

Collectively, the programme will need to address knock-on effects of flexing to the realities of the COVID-19 pandemic. The plans for containment should extend beyond PV2 to other strains.

A CAG meeting should be held in early 2021 to revise the requirements for WPV PIM, and the NACs should inform the WHO secretariat of the number of facilities that would be involved.

The Secretariat thanked participants for their comments on difficulties in applying for an ICC or a CP, which would be used to improve the process.

Annex 1. Agenda
Tuesday, 27 October 2020
Chair: James Blaine (GCC-CWG)

13.00–13.10	Welcome, opening remarks, outline of agenda Michel Zaffran (WHO)
13.10–13.55	Update on global poliovirus containment Daphne Moffett (WHO)
14.15–14.45	Update on the auditor qualification and audit support plan, 2021–2023 Nicoletta Previsani (WHO)
13.55–14.15	Update on revision of GAPIII Harpal Singh (WHO) 16.00 Break
14.45–15.15	Discussion
15.15–15.30	Next steps towards certificates of containment James Blaine (Chair of the Working Group)
15.30–15.50	Status of containment certification David Salisbury (Chair, GCC)
15.50–16.00	Summary and wrap-up Chair

Tuesday, 13 October 2020 Introduction
Wednesday, 28 October 2020
Chair: James Blaine (GCC-CWG)

13.00–13.15	Outcomes of the survey of national authorities for containment Harpal Singh (WHO)
13.15–13.40	Application for a certificate of participation: Lessons learnt and way forward Liliane Boualam (WHO)
13-40–14.10	Country experience Lia Haynes Smith (NAC, USA)
14.10–14.30	Requirements for containment of novel oral poliovirus 2 and potentially of S19 Mark Pallansch (Chair, Advisory Group on mOPV2 Provision)
14.30–14.50	Discussion
14.50–15.10	The way forward Daphne Moffett (WHO)
15.10–15.50	Discussion: Containment and certification
15.50–16.00	Summary and wrap-up Chair