Laboratory Recommendations

1. Full integration of IgM detection and molecular testing for laboratory confirmation of both rubella and measles infections needs to be implemented or strengthened especially in regions that have recently introduced rubella vaccination. Since the integration of measles and rubella testing, coupled with the move to case-based surveillance in all regions will increase the cost of the laboratory component of surveillance, GMRL laboratories should develop a plan to secure adequate resources to perform the required testing.

2. Additional efforts will be required by the GMRLN to meet laboratory surveillance indicators, and to provide additional laboratory data to support verification of elimination as countries and regions accelerate efforts to eliminate measles and rubella. Laboratories should review surveillance indicators on a regular basis and meet with the members of the national verification committee to ensure that the laboratory data in the national reports for measles, rubella and CRS are complete and accurate. In particular, laboratories should work with program staff to ensure that indicators for obtaining viral genotype information from cases and outbreaks are met.

3. The use of molecular testing for case classification can provide an adjunct to antibody detection. The use of molecular detection methods such as real time RT-PCR should be expanded particularly in pre-elimination and elimination settings and laboratories will need to work with the epidemiologic and field staff to develop a plan to obtain adequate samples for viral detection.

4. New technology and improved methodologies, such as multiplex RT-PCR testing, Luminex bead-based antibody detection, point of care IgM assays, and vaccine-specific real-time RT-PCR should have the potential to improve laboratory surveillance for measles and rubella and should be systematically evaluated by GMRLN laboratories.

5. The ability to discern separate lineages of circulating wild type measles and viruses requires new approaches, such as analyzing extended sequencing windows or whole genome sequences to increase the resolution of molecular epidemiology. The NEW working group will coordinate the evaluation and implementation new methods. GMRLN laboratories will need additional training to implement these new methods.

6. The MeaNS and RubeNS databases are well established, but additional support is needed to maintain and improve these essential tools.

7. Logistical and funding obstacles exist in many countries that are served by the GMRLN. Laboratories should carefully review their supply and equipment usage to predict future needs and work with national authorities and epidemiologic staff to ensure that laboratory testing capacity is not impede by lack or reagents and equipment or by logistic issues such as specimen transport.

8. The GMRLN Laboratory Accreditation Program must be supported and expanded, particularly for molecular testing and more information related to RT-PCR should be included in the accreditation check list. All laboratories should participate in annual accreditation, either by site visit or paper accreditation, and deficiencies must be addressed in a timely manner to maintain quality laboratory surveillance. A dedicated website for online accreditation is being considered.
9. External quality assessment is an essential component of a quality control program for the laboratories. The serologic EQA panel has been used effectively to assess the ability of laboratories to detect measles and rubella IgM. This program was improved by the recent introduction of web based reporting. The molecular EQA program expanded substantially in 2016. The molecular EQA should be expanded to include all laboratories performing molecular testing on a routine basis and a web based reporting system should be considered. In addition there is an ongoing need for IgM positive serum samples for the serologic panels.

10. Protocols are needed to guide the response to outbreaks, especially for countries that are unprepared due to prior elimination status or are experiencing other conflicting health emergencies. Protocols should identify resources to facilitate timely sample collection and testing and include a plan for surge capacity, testing strategy (i.e. testing priority, number of samples etc.), and the referral of samples within the regional network.

11. The requirements of GAPIII for polio containment will require an intensive review and inventory of samples that potentially contain polioviruses. The laboratories in the GMRLN will need to comply with the deadlines and may require additional resources to complete the inventory and subsequent containment.

12. The polio transition process will affect GMRLN laboratories and could lead to the availability of additional resources to support laboratory surveillance for VPDs. GMRLN laboratories are encouraged to become fully engaged in transition activities and work with colleagues on the GPEI, when possible, to develop transition plans especially in high priority countries.

13. The Global Health Security (GHS) program contains action packages for improvement of laboratory capacity and surveillance for VPDs. Laboratories in GHS countries that engage the national GHS program will benefit from the increased resources and technical support.