South-East Asia Regional Committee resolution (September 2013, New Delhi)

SEAR Member States adopted the goal of measles elimination and rubella/CRS control in the South-East Asia Region by 2020.
Achieving elimination of measles and control of rubella/congenital rubella syndrome (CRS) in South-East Asia Region

Strategies:
1. Immunization
2. Surveillance
3. Laboratory network
4. Support & Linkages
Strategy 3: Laboratory network

Develop and maintain an accredited measles and rubella laboratory network that supports every country or area in the country for measles elimination and rubella/CRS control
Objective (3) for strategic plan

Develop and maintain an accredited measles and rubella laboratory network that supports every country or area in the Region.

How to?

Capacity building:
- Update technology of testing: IgM detection & genotyping
- Laboratory management: Quality & safety
- Monitoring the quality: Accreditation review
- Onsite review
- Desk review (internal audit)
Expansion of Measles & Rubella (MR) laboratory network of the SEAR

- **2003**: 8 labs
- **2012**: 23 labs
- **2013**: September: Member states (MS) resolved to adopt measles elimination
- **2014**: Kick-off lab case based surveillance
- **2018**: 40 WHO accredited labs
  - 10 new proposed labs:
    - Indonesia (3)
    - Nepal (1)
    - India (6)
New proposed labs
3 Indonesia – Jakarta, Makassar, Palembang
1 Nepal – Dharan

The boundaries and names shown and the designations used in the maps in this document do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2015. All rights reserved.
 Tiered structure of WHO Regional MR Laboratory Network in the South-East Asia region

- **Regional Reference Lab (RRL)**
  - Technical Advice: Consultants and training
  - QA/QC: confirmatory results, positive control and reference material to NLs
  - Performed sequencing and validate genotyping results of NLs before report to national database and MeaNS/RubeNS
  - Research: New technologies trial, validation methods and etc.

- **National Lab (NL)**
  - Direct contact with programme officers
  - Primary testing and/or molecular testing as appropriate
  - Performed sequencing and/or validate genotyping results of SNLs if have
  - QA/QC, training and supervision of the network labs in country if have
  - Research: Kit evaluation and sero-survey and etc.

- **Sub-national lab (SNL)**
  - Direct contact with programme officers
  - Primary testing
  - And/or molecular testing as appropriate
Seven Performance Criteria

1. Reporting timeliness of case confirmation results
2. Reporting timeliness of genetic characterization data
3. Accuracy of results compared with the reference laboratory
4. Implementation of specified quality control procedures
5. A passing score in the annual proficiency test
6. A minimum number of 50 tests performed per year
7. A passing score on comprehensive onsite review of laboratory’s work practices
Number of Specimens Tested by the SEAR MR Lab Network, 2014-2017

Data as of 30 November 2017
## Number of sample for Measles IgM sero-confirmatory during 2005 – May 2017

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<td>1</td>
<td>12</td>
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<td>25</td>
<td>25</td>
<td>25</td>
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<td>26</td>
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<td></td>
<td></td>
<td>46</td>
<td>46</td>
<td>88</td>
<td>23</td>
</tr>
</tbody>
</table>
Results reported within 4 days by the SEAR MR Lab Network, 2015-2017

Source: Reported by SEAR Measles Laboratory Network

NR=No Report
Onsite review Accreditation results of 39 labs in 2014-2017

2014
13 Labs

India, Guwahati : 83.8%
India, Lucknow : 84.4%
Indonesia, Bandung : 93.5%
Indonesia, Jakarta : 88%
Indonesia, Surabaya : 84.2%
Indonesia, Yogyakarta : 83.7%
Maldives, Male : 85%
Myanmar, Yangon : 86.3%
Nepal, Kathmandu : 83%
Sri Lanka, Colombo : 80%
Thailand, RRL-NIH : 94%
Thailand, SNL Phitsanulok : 85%
Thailand, SNL Samutsongkram : 92.5%

2015

2016
21 Labs

Bangladesh, Dhaka : Pending
Bhutan, Thimphu : 82.5%
DPRK, Pyongyang : 80.0%
India, Bhopal : 85.0%
India, Jaipur : 87.5%
India, Patna : 82.5%
India, Chandigarh : 86.3%
India, New Delhi : 88.7%
Myanmar, Yangon : 91.0%
Sri Lanka, Colombo : 85.0%
Timor Leste, Dili : 85%
Thailand, RRL-NIH : 99.0%
Thailand, SNL Chiang Mai : 88.0%
Thailand, SNL Chonburi : 90.0%
Thailand, SNL Khon Kaen : 86.0%
Thailand, SNL Nakhonratchasima : 83.0%
Thailand, SNL Nakhonsawan : 90.0%
Thailand, SNL Songkhla : 92.0%
Thailand, SNL Suratthani : 90.0%
Thailand, SNL Ubonratchathani : 88.0%

2017

1 Lab

Bangladesh, Dhaka : 85%

Review plan in 2017 :
Mumbai, India
SNL Makassar, Indonesia
SNL Palembang, Indonesia
SNL Mandalay, Myanmar
Participation:
WHO PT and National PT

- Serology IgM detection: WHO RRL (VIDRL and Thai NIH)
- Molecular: WHO GSL (US CDC)
WHO PT results of network in SEAR 2017

<table>
<thead>
<tr>
<th>Location</th>
<th>Measles</th>
<th>Rubella</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhaka, Bangladesh</td>
<td>100%</td>
<td>98%</td>
</tr>
<tr>
<td>Thimphu, Bhutan</td>
<td>91.20%</td>
<td>89.20%</td>
</tr>
<tr>
<td>Pyongyang, Korea</td>
<td>100.00%</td>
<td>100%</td>
</tr>
<tr>
<td>Male, Maldives</td>
<td>100.00%</td>
<td>100%</td>
</tr>
<tr>
<td>Yangon, Myanmar</td>
<td>97.90%</td>
<td>100%</td>
</tr>
<tr>
<td>SNL-Mandalay, Myanmar</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td>Kathmandu, Nepal</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>SNL-Dharan, Nepal</td>
<td>97.90%</td>
<td>95.80%</td>
</tr>
<tr>
<td>Colombo, Sri Lanka</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Dili, Timor Leste</td>
<td>100%</td>
<td>92.50%</td>
</tr>
</tbody>
</table>

Legend: Measles (light green bars), Rubella (dark blue bars)
WHO PT results of network of India 2017

Ahmedabad, India
Bangalore, India
Bhopal, India
Chennai, India
Hyderabad, India
Jaipur, India
Kolkata, India
Pune, India
Patna, India
Guwahati, India
 Lucknow, India
Chandigarh, India
New Delhi, India
Mumbai, India

Measles
Rubella
WHO PT results of network of Indonesia 2017

- Bandung, Indonesia: 100%
- Jakarta, Indonesia: 100%
- Surabaya, Indonesia: 100%
- Yogyakarta, Indonesia: 100%
- SNL Jakarta, Indonesia: 92.50%
- SNL Makassar, Indonesia: 77.50%
- SNL Palembang, Indonesia: 100.00%

Legend:
- Measles
- Rubella

Note: Not done
WHO PT results of network of Thailand 2017

- RRL-NIH, Nonthaburi, Thailand
- SNL-Chiang Mai, Thailand
- SNL-Chiang Rai, Thailand
- SNL-Chonburi, Thailand
- SNL-Khon Kaen, Thailand
- SNL-Nakhon Ratchasima, Thailand
- SNL-Nakhonsawan, Thailand
- SNL-Phitsanulok, Thailand
- SNL-Samutsongkhram, Thailand
- SNL-Songkhla, Thailand
- SNL-Suratthani, Thailand
- SNL-Surat, Thailand
- SNL-Ubon Ratchathani, Thailand
- SNL-Udon Thani, Thailand

Measles: 100%
Rubella: 100%
<table>
<thead>
<tr>
<th>Laboratory</th>
<th>WHO Panel</th>
<th>Thai NIH Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNL-Chiang Mai, Thailand</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>SNL-Phitsanulok, Thailand</td>
<td>100%</td>
<td>96.2%</td>
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<td>SNL-Nakhon Sawan, Thailand</td>
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<td>100%</td>
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<td>SNL-Samutsongkhram, Thailand</td>
<td>100%</td>
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<tr>
<td>SNL-Chonburi, Thailand</td>
<td>100%</td>
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<tr>
<td>SNL-Khon Kaen, Thailand</td>
<td>97.9%</td>
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<td>SNL-UDON Thani, Thailand</td>
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<td>SNL-Nakhon Ratchasima, Thailand</td>
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<td>SNL-Ubon Rachathani, Thailand</td>
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<td>SNL-Trang, Thailand</td>
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KEY ACTIVITIES CONDUCTED
Capacity building

• Establishing the molecular labs for viral genome detection and amplification in 2014-2016
• To enhance the quality assurance
• To support CRS surveillance system
Establishing the molecular labs for viral genome detection and amplification in 2014-2016

- **2014**: Provide molecular lab group training for 22 labs in 9 countries (Myanmar and Timor-Leste: not yet trained)

- **2014 & 2016**: Three individual labs training at WHO RRL, Thailand: Timor-Leste, India (NIV, Pune) and ERC, Mumbai

- **2015**: Provide on site training for 3 labs:
  - Sri Lanka: Conventional RT PCR
  - Nepal: Conventional RT PCR
  - Bangladesh: Conventional RT PCR

- **2016**: Provide on site training for 2 labs:
  - Myanmar: Conventional RT PCR and sequencing
  - Bhutan: Conventional RT PCR and Real time PCR
Training on Measles and Rubella laboratory diagnosis for staffs from Enterovirus Research Center (ERC), Mumbai, India
At Thai-NIH, 18th – 29th April 2016

Training Program on molecular characterization of Measles and Rubella for India for staff from National Institute of Virology, Pune, India
At Thai-NIH, 2nd – 20th February 2015
Inter-country Training on Molecular Technique for the SEAR Measles and Rubella Laboratory Network

Bangkok, Thailand, 24-28 February 2014
**Bangladesh** at National Measles Laboratory, Dakha on November 23\textsuperscript{rd} to 27\textsuperscript{th}, 2015

**Nepal** at National Measles Laboratory, Kathmandu on December 7\textsuperscript{th} to 11\textsuperscript{th}, 2015

**Bhutan** at National Measles Laboratory, Thimphu on June 1\textsuperscript{st} to 10\textsuperscript{th}, 2016
Sri Lanka at Medical Research Institute (MRI), Colombo on July 20th to 24th, 2015

National at Measles Laboratory at National Health Laboratory, Yangon, on March 7th to 18th, 2016
To enhance the quality assurance:

- Regional Meeting of Virologists from the SEAR Measles and Rubella Laboratory Network; Jakarta, Indonesia, 27-31 October 2014
- Inter-country workshop on capacity building in measles and rubella laboratory accreditation, Bangkok, Thailand, 16-20 November 2015
Inter-country workshop on capacity building in measles and rubella laboratory accreditation,
16-20 November 2015,
Bangkok, Thailand
• **To support CRS surveillance system**
  – Regional workshop on strengthening laboratory capacity for Rubella/Congenital Rubella Syndrome (CRS) surveillance, 26-30 October 2015 Bangkok, Thailand

• **Objective:**
  – To build capacity of labs to follow the new harmonized algorithm for lab-confirmation of CRS cases
  – To strengthen coordination between lab-network and the surveillance teams so that complete lab-supported case-based CRS surveillance is functional in all countries in the region.
Regional workshop on strengthening laboratory capacity for Rubella/Congenital Rubella Syndrome (CRS) surveillance, 26-30 October 2015 Bangkok, Thailand

Strengthen and better coordinate for lab-supported case-based CRS surveillance

Build laboratory capacity on diagnostics and case classification