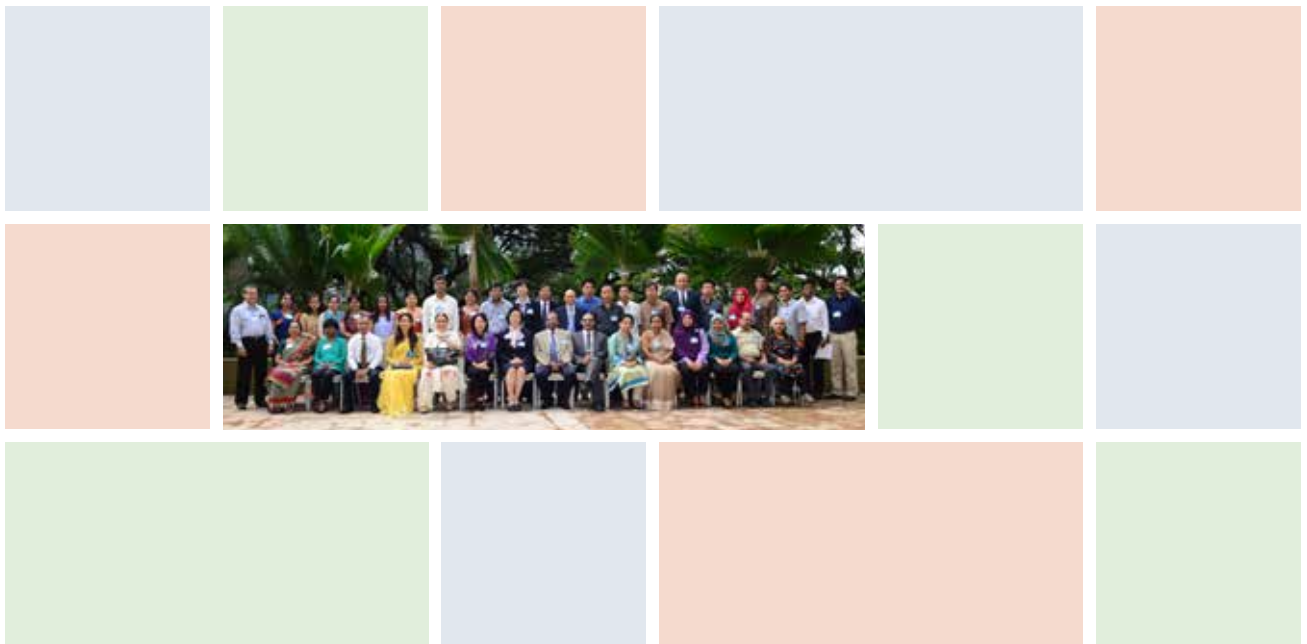


Laboratory Quality Management, Laboratory Quality Stepwise Implementation Tool (LQSI), Infectious Substances Shippers Training (ISST)

Report of Regional Workshop, Pune, India, 24–28 August 2015



**Laboratory Quality Management,
Laboratory Quality Stepwise Implementation Tool
(LQSI), Infectious Substances Shippers Training (ISST)**

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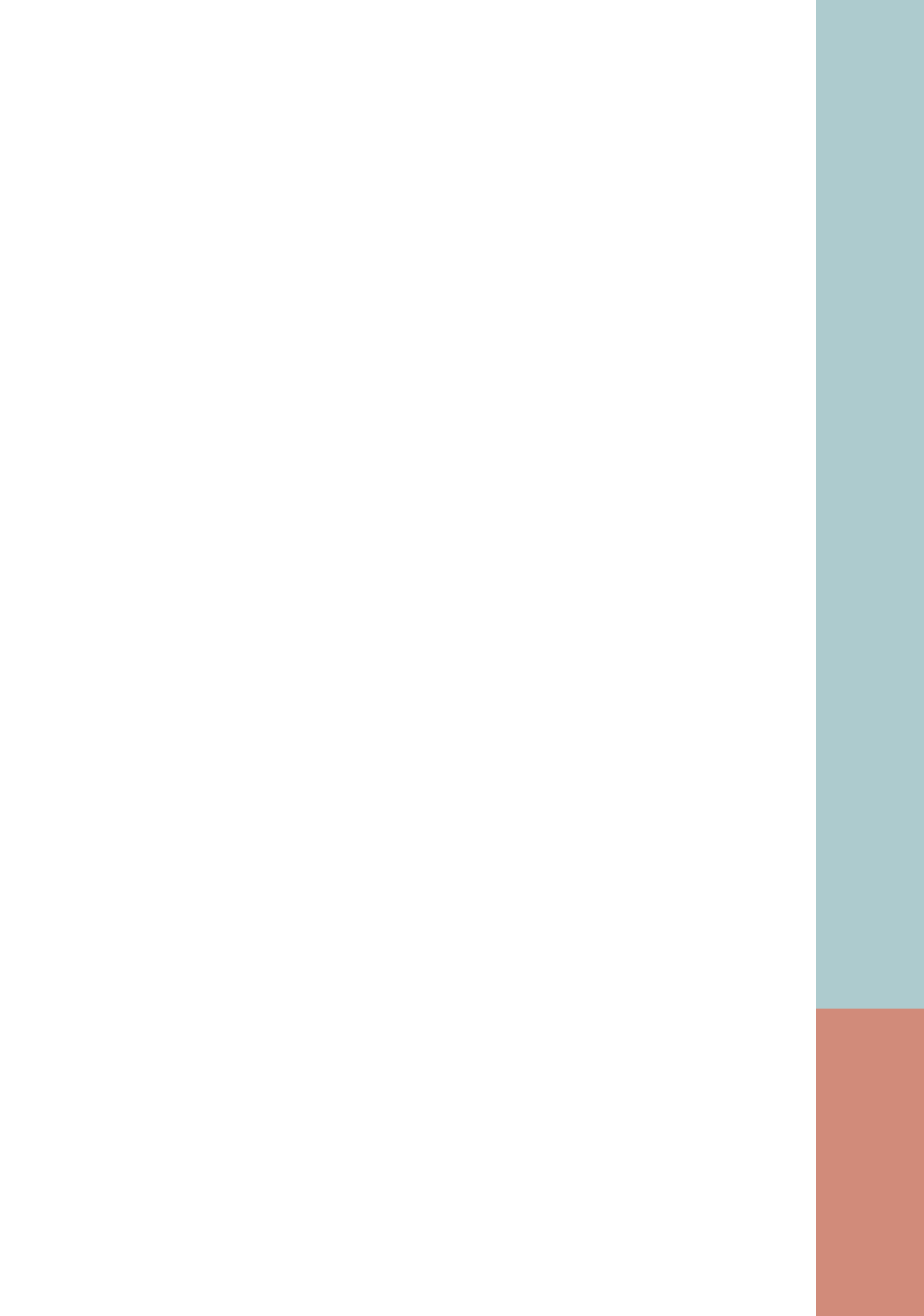


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Regional Director's Message



Health laboratories are an integral and essential component of the health system. They provide valuable inputs to physicians and public health administrators in planning, implementing and evaluating interventions for the prevention and treatment of diseases to mitigate morbidity and mortality. Strengthening laboratory services and systems is essential for universal access to high quality laboratory diagnostic services. The poor quality of laboratory results can lead to inappropriate interventions, and adversely affect the credibility of the laboratory.

One of the best methods to strengthen laboratories is to implement a quality management system that complies with the requirements of the international quality standards, ISO 15189, or with a national standard with similar requirements. A quality management system can be described as a set of processes needed to control, assure and manage the quality of the laboratory. To assure quality it is essential that all processes related to the Quality system essentials perform correctly.

In the past few years, WHO has consistently advocated promoting implementation quality in the health laboratories in the countries of the South-East Asia Region. Realizing that Member States will require considerable technical support to strengthen quality systems at the country level, WHO specially tasked the Royal Tropical Institute (RTI) to develop the Laboratory Quality Stepwise implementation (LQSI) tool. This tool ensures the correct implementation of all the processes of quality system essentials.

This regional workshop is being organized with help of staff of Royal Tropical Institute and WHO to establish a regional core group of trainers to roll out the LQSI tool to establish stepwise quality management system in SEAR laboratories.

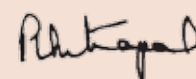
Health laboratories are special, often unique work environments that may pose identifiable infectious disease risks to persons in or near them. Laboratory workers are perpetually at occupational risk of exposure to microorganisms that cause a wide variety of diseases, from inapparent to life-threatening ones. The risk has increased manifold in the recent past with the emergence of several highly pathogenic organisms. Given the growing importance of emerging infectious diseases, the handling of pathogens in an imperfect environment or by improper techniques can be a threat to international health security.

Most laboratories need to use reference labs in order to validate their test results and characterize the pathogens. This needs safe packaging and shipping of specimens. This workshop will also provide hands-on training on packaging and shipping of specimens in line with current international regulations.

I believe that this workshop and the implementation of its recommendations will be of use to our Member states in implementing the quality management system in public health laboratories. It will also help to reduce the risk of unintentional exposure to pathogens and their accidental release. It will also facilitate safe shipping of specimens as per international regulations.

I wish you very fruitful sessions and deliberations. I look forward to your recommendations and shall be delighted to provide technical support to countries for their implementation. I would conclude by expressing my sincere gratitude to National Institute of Virology Pune and Government of India for agreeing to host this important workshop.

Thank you



Dr Poonam Khetrpal Singh

Regional Director

Regional Workshop on laboratory Quality Management, laboratory Quality stepwise implementation tool (LQSI), infectious substances shippers' training (ISST) was organised in Pune, India, from 24–28 August 2015 by South-East Asia Regional office-WHO. A total of 34 participants from South East Asian countries attended the workshop. (Annex-1)

Infectious Substances Shippers Training (ISST), 24-25 August 2015

Background

Under International Health Regulations (IHR), strengthening laboratory capacity in the area of biosafety and laboratory biosecurity is a preventive measure to protect global health security from intentional or unintentional exposure to, or release of infectious substances from laboratories.

Such an event may result in a public health emergency of international concern. The transport of infectious substances is strictly regulated, and training is required for certain categories of infectious substances. Training contributes to improving compliance with applicable regulations, ensuring protection of staff, the public and the environment.

Compliance with applicable requirements also significantly increases access to courier and carrier services, and subsequent timely transport of infectious substances necessary for public health response.



Process and Outcome

To ensure that this information is available to shippers of infectious substances, WHO has developed a training course (Infectious Substances Shippers Training –ISST).

The WHO ISST course is a 2-day face-to-face course to train and certify shippers of infectious substances (IS) inline with international transport regulations. The course includes different modules that cover: introduction to transport of infectious substances, shipping terms, categorization, packaging, marking and labeling, documentation and refrigeration. The course is recognized by the air transport authority International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA). ISST course material is available on the following link: http://www.who.int/ihr/i_s_shipping_training/en/

The ISST training workshop was conducted back-to-back with an introduction to laboratory quality management and the LQSI tool training course.

Only participants who pass the ISST course final test with 80% of higher were awarded the “WHO ISST Shipper of Infectious Substances Certificate”. All participants of this workshop successfully completed the competency test and final assessment as per the above criteria.

Regional Workshop on Laboratory Quality Management, Laboratory Quality Stepwise Implementation tool (LQSI), 26–28 August, Pune, India



Background

Well-functioning, sustainable laboratory services, operating according to international principles of quality and safety, are an essential part of strong health systems and are crucial to improving public health. The analyses they provide offer a reliable foundation for evidence-



based control of disease outbreaks, robust surveillance of adverse events associated with pharmaceutical or vaccine use, and earlier treatment of both acute and chronic diseases.

WHO Regional Offices and its partner – the WHO Collaborating Centre for Laboratory Strengthening at the Royal Tropical Institute (KIT), Amsterdam – have embarked on several regional programmes to provide Member States guidance to implement quality management systems in their public health laboratories using the WHO laboratory quality stepwise implementation tool. Within this framework, a regional workshop on quality management system (QMS), introduction and implementation of LQSI tool in public health laboratories was conducted in Pune, India, from 24–28 Aug 2015.

Process

The linkage between the quality of laboratories and the delivery of reliable, high quality data for evidence-based clinical and public health decision-making is increasingly being recognized worldwide as an important element. A key intervention for effective and efficient strengthening of medical laboratories is the implementation of a laboratory quality management system (LQMS) based on the international quality standard ISO 15189.

WHO has launched a web-based tool that guides laboratories in the practical day-to-day implementation of the LQMS: the Laboratory Quality Stepwise Implementation tool (LQSI tool). The tool was developed in collaboration with the WHO collaborating centre in laboratory strengthening – KIT Biomedical Research Department of Royal Tropical Institute (KIT), Amsterdam, the Netherlands.



The workshop in Pune, India, was an interactive training course developed for WHO by KIT. The training aimed to:

- »» provide participants with the essential concepts of the laboratory quality management system (LQMS) compliant with the international quality standard ISO 15189
- »» familiarize participants with the online tool for Laboratory Quality Stepwise Implementation (LQSI tool)
- »» teach participants how to use the LQSI tool
- »» provide assistance in starting LQMS implementation, namely in preparation of quality plans for participants own laboratories in Pune was conducted for Ministry. The training was given in English.





Content and Programme

This 3-day training course consisted of three components. Component 1 focused on understanding quality and quality management, and creating an insight in the way an LQMS helps in managing and assuring quality of the primary laboratory process.

Component 2 focused on understanding the individual components of the LQMS and the practical implementation of the LQMS using the LQSI tool. Within this component, participants tested the LQSI tool on their own computers and acquired the competency to use this tool for the implementation of LQMS in their own laboratories. Selected modules from the WHO LQMS training toolkit were also used to help participants to understand what role different LQMS components play in creating quality-controlled and quality-assured laboratory processes.

Component 3 focused on using proper planning skills for the implementation and maintenance of the LQMS.

Course programme:

»» **Component 1:** understanding quality and quality management

- o Introduction to concept of quality
- o Customer as pivotal element in quality management
- o Introduction to process analysis
- o Introduction to risk assessment and prevention
- o Importance of information management
- o Introduction to LQMS

»» **Component 2:** understanding and implementing the LQMS

- o Introduction to the LQSI tool
- o In-depth discussion of LQMS elements:
 - Documents and records

- Personnel
 - o Practicing with using the LQSI tool for implementation
 - o In-depth discussion of LQMS elements:
 - Equipment and supplies
 - Facilities and safety
 - o Practicing with using the LQSI tool for implementation
 - o Continual improvement
- »» **Component 3:** understanding the policy and planning cycle in quality management
- o Vision, mission and values for the laboratory
 - o Strategic planning
 - o Action planning
 - o Planning for implementation of quality in your own laboratory
 - o Planning for implementation of quality in your own laboratory: participant presentations

The training schedule can be found in Annex II.

Teaching Methods

The teaching methods were based on modern adult learning principles and consisted of a blend of plenary lectures, plenary discussions, group exercises, individual exercises and homework. Every day of the workshop started with a recapitulation of the previous day and discussion of the homework questions. Special attention and time was devoted to the last assignment of the workshop, in which participants assessed the status of their own laboratory compared with the first phase of the LQMS implementation as described in the LQSI tool and created and presented a quality year plan and SMART action plans to turn their visions into





achievable goals and kickstart the implementation of the LQMS in their own laboratory after this training.

Evaluation of the Training

Raw results of the training evaluation by participants can be found in Annex III.

Evaluation by Participants

The training was overall very well rated, with an average score of 8.7 (on a scale of 1=worst to 10=best). This score was reflected in the rest of the evaluation results in which participants were predominantly positive about the training.

The LQSI tool itself was regarded as the most useful topic, followed by the introductions on several aspects of quality.

The quality elements on personnel and equipment were also much appreciated. Other topics received more or less the same number of votes. Ten participants named a few topics from different components of the training as the least useful. This indicates that the relevance of each topic for individual participants depends on the status of LQMS implementation in their own laboratories. It likely also reflects the diverse backgrounds and positions of participants. Topics that come later in the implementation process are regarded as more relevant by those who have already progressed with LQMS implementation. Vice versa: early topics of LQMS implementation are likely to be more relevant to those whose laboratories are at initial stages of the implementation process.

Participants indicated that they would have liked to have more training on auditing, biosecurity and action planning. The first two are outside the scope of this training. More action planning is something to consider for improvement. However, this course is normally given in 5 days and the current 3 days was too short to take more time for this particular topic.

Training method

Participants were very satisfied with the training method. They liked the combination of interactive exercises and lecturing style teaching and the division of time between exercises and lectures. They also appreciated active participation of everyone in the learning process and the possibility to discuss important issues and share their experience with colleagues.

Course Trainers

The vast majority of participants were satisfied with the course trainers and the selection of participants. There were two participants who wanted the opportunity for praying, something facilitators were not aware of. Next course, just preferences maybe better inventoried in advance.

Course length and organization

Fourteen participants were satisfied with the length of the course. Another 14 indicated that they would have liked the course to be longer. A small number ((n=5) likely participants originating from ISO accredited laboratories thought the course could have been shorter.

All participants indicated that coordination was satisfactory to good. They were satisfied with the timing of the breaks and also were in general satisfied with the hotel and training facilities.

Some of the participants indicated that they would like the handouts before the training to take easier notes.

Evaluation by Trainers

The trainers were satisfied with the training: the participants' group was sufficiently uniform in their learning needs, the schedule was well timed and the work on the different topics went well. The group of participants was enthusiastic and engaged.



For the beginners in LQMS, the course might have been too intense (42% of participants wanted the course to be longer and some experienced too many working hours). The trainers acknowledge this point; usually the same course is given over 5 days. Despite the participants wish to have printed handouts beforehand, the trainers do not find it useful as it would spoil the message of some of the exercises. The trainers greatly appreciated having on the site WHO staff and are grateful for their excellent assistance in group work and discussions and all organizational issues.



The trainers would like to stress the necessity to follow up this training. The last assignment of this course required participants to make long- and short-term plans for the LQMS implementation. The purpose of this assignment was to help participants to start the LQMS implementation in their own laboratory directly after this training. As also indicated by some of the participants in the evaluation (see Annex III), follow-up after, for example, three to six months to assess their progress by a quality management expert and further guide them to take the next steps may significantly increase the leverage of this training.

Action Points

Overall, this training was very well received. Participants were satisfied with all aspects of the training course, including organization, trainers, training methodology, hotel and teaching facilities. Also the trainers are overall satisfied with this training.

The discussions between participants and teachers yielded the suggestion to jointly draft a paper to be published in a regional medical journal to advocate the importance for laboratory quality strengthening and the usefulness of the LQSI tool for that purpose.

National Institute of Virology: to develop a first draft of a paper on the importance of quality in laboratories; send the draft to course teachers for suggestions for improvement, after which they will send to all participants for judgment.

Participants also indicated the need to follow up on this training. Trainers share this opinion and would like to stress that assessment of progress and guidance on next steps by an experienced quality management mentor after three to six months may significantly increase the effectiveness of this training course and, subsequently, the quality of the respective laboratories performance and results.

WHO should consider possibilities for follow-up mentoring to assess progress made by participants and guide on next steps.

ANNEX I:

List of participants and facilitators

Bangladesh

Prof Dr Tahmina Shirin

Chief Scientific Officer, Virology Department, Institute of Epidemiology, Disease Control and Research, Mohakhali, Dhaka

Prof Dr Md Jahangir Alam

Sher-E-Bangla Medical College, Microbiology department, Baptist Mission Road, Barisal 8200

Dr Md Ashraful Alam

Principal Scientific Officer, Institute of Epidemiology, Disease Control and Research, Mohakhali, Dhaka

Dr Shahnila Ferdousi

Head of Public Health Laboratory, Institute of Public Health, Dhaka

Bhutan

Mr Amin Ngawang Tashi

Pharmacist, Public Health Laboratory, Thimphu

Mr Rinchen Wangdi

Senior Lab Technician, Public health Laboratory, Thimphu

Mr Sonam Jamtsho

Laboratory Technologist, Phuntsholing Hospital, Phuntsholing

India

Dr Charu Prakash

Additional Director (Microbiology), National Centre for Disease Control, 22 Sham Nath Marg, Delhi

Dr Sunil Gupta

Additional Director (Microbiology), National Centre for Disease Control, 22 Sham Nath Marg, Delhi

Dr Rajlakshmi Vishwanathan

National Institute of Virology, Pune

Dr Rajlaxmi Jain

National Institute of Virology, Pune

Mrs Rashmi Gunjkar

National Institute of Virology, Pune

Dr Anita Shete

National Institute of Virology, Pune

Indonesia

Dr Ida Susanti

Biosafety Officer, Centre for Biomedical and Basic Technology of Health, National Institute of Health Research and Development, Ministry of Health, Jakarta

Dr Kambang Sariadji, M.Biomed

Coordinator of Bacteriology Laboratory, Centre for Biomedical and Basic Technology of Health, National Institute of Health Research and Development, Ministry of Health Jakarta

Dr Holy Arif, SSI

Coordinator of Biosecurity Division, Centre for Biomedical and Basic Technology of Health, National Institute of Health Research and Development, Ministry of Health, Jakarta

Dr Rudi Hendro Putranto, DMD, M.Epid, Responsible for Outbreak Management, Centre for Biomedical and Basic Technology of Health, National Institute of Health Research and Development, Ministry of Health, Jakarta

Maldives

Ms Fathimath Limya

Assistant Director, Ministry of Health, Male

Ms Aishath Rukhushath

Laboratory Technologist, Maldives Food and Drug Authority, Male

Ms Juveyriya Saleem

Laboratory Technologist, Indira Gandhi Memorial Hospital, Male

Nepal

Dr Raj Kumar Mahto

Senior Consultant Pathologist, National Public Health Laboratory, Ministry of Health & Population, Teku, Kathmandu

Dr Ranga Bahadur Basnet

Senior Consultant Pathologist, National Academy of Medical Sciences, Bir Hospital, Kathmandu, Nepal

Mr Hari Bahadur Thapa Suyal

Senior Medical Technologist, Bharatpur Hospital, Bharatpur

Mr Krishna Rijal

Medical Lab Technician, Naradevi Ayurveda Hospital, Kathmandu

Sri Lanka

Dr Sunethra Gunasena

Consultant Virologist, Medical Research Institute, Colombo

Dr J I Abenayaka

Consultant Virologist, Medical Research Institute, Colombo

Thailand

Miss Ornanong Ratchtrachenchai

Medical Scientist, Expert Level, National Institute of Health, Department of Medical Sciences, Ministry of Public Health, Nonthaburi

Miss Noppavan Janejai

Medical Scientist, Senior Professional Level, National Institute of Health, Department of Medical Sciences, Ministry of Public Health, Nonthaburi

Mrs Uruyakorn Chansang

Medical Scientist, Senior Professional Level, National Institute of Health, Department of Medical Sciences, Ministry of Public Health, Nonthaburi

Mr Wattanapong Wootta

Medical Scientist, Senior Professional Level, National Institute of Health, Department of Medical Sciences, Ministry of Public Health, Nonthaburi

Royal Tropical Institute

Prof. Dr. Paul Richard Klatser

Head of KIT Biomedical Research Department, Royal Tropical Institute, Amsterdam, The Netherlands

Dr Tjeerd Adrianus Maria Datema

Laboratory strengthening specialist, Royal Tropical Institute, Amsterdam, The Netherlands

Temporary Advisers

Dr D T Mourya

Director, National Institute of Virology, Pune

Dr Mandeep Chadha

Scientist, National Institute of Virology, Pune

Dr Pragya Yadav

Scientist, National Institute of Virology, Pune

Dr Shailesh Pawar

Scientist, National Institute of Virology, Pune

WHO Secretariat

Dr Aparna Singh Shah

Regional Adviser, Health Laboratory Services (HLS) and Blood transfusion Safety, WHO/SEARO

Dr Samaan Magdi

Technical Officer, IHR Capacity Assessment, Development and Maintenance, WHO/HQ, Geneva

Dr A. S. M. Alamgir

Pandemic Influenza Surveillance and Responses and Lab Strengthening, WCO Bangladesh

Mr Kuldeep Sharma

Executive Assistant, Health Laboratory Services, WHO/SEARO

ANNEX II:

Programme of the workshop

24 August 2015

0830 to 1200 hrs. Tea/Coffee – 1030 – 1100 hrs.

Infectious Substances Shipping Training

Expectations, learning objectives, agenda, administrative issues

Introduction

Pre-assessment

Terms Used For Shipping Infectious Substances Lecture

Exercise 1

Quiz 1 and review

1300 to 1700 hrs.

Lunch-1200-1300 hrs. Tea/Coffee – 1430 – 1500 hrs.

Categorization and Identification of Infectious Substances

Lecture

Exercise

Quiz 2 and review

Packaging of Infectious Substances

Lecture

Exercise

Quiz 3 and review

25 August 2015

0830 to 1200 hrs. Tea/Coffee – 1030 – 1100 hrs.

Review of Day 1

Marking and Labelling Packages of Infectious Substances

Lecture

Exercise 4

Quiz 4 and review

Documentation for Shipping Infectious Substances

Lecture Exercise 5

Quiz 5 and review

1300 to 1700 hrs.

Lunch-1200-1300 hrs. Tea/Coffee – 1430 – 1500 hrs.

Shipping Infectious Substances with Dry Ice

Lecture

Quiz 6 and review

Review of all modules Final assessment

Shipping Infectious Substances in Dry Shippers

Lecture

Frequently Asked Questions and Tools

Lecture

Certificate presentation

Wednesday, 26 August 2015

0900 to 1230 hrs (Tea/Coffee – 1030 – 1100 hrs)

Part I: Concept of quality

- »» Topic 0: Introduction to the course
- »» Topic 1: Introduction to concepts of quality
- »» Topic 2: The role of the customer in quality management
- »» Topic 3: Process analysis part 1

1400 to 1700 hrs

(Tea/Coffee – 1515 – 1545 hrs)

- »» Topic 4: Process analysis part 2
- »» Topic 5: Risk assessment

Friday, 28 August 2015

0900 to 1230 hrs (Tea/Coffee – 1030 – 1100 hrs)

- »» Recap on yesterday's lessons
- »» LQSI tool exercise 3: Equipment and Supplies, continued
- »» Topic 12: Facilities & Safety
- »» Topic 13 : Continual improvement

Part III: Management & planning

- »» Topic 14: Vision, mission and values

1400 to 1700 hrs

(Tea/Coffee – 1515 – 1545 hrs)

- »» Topic 14: Vision, mission and values continued
- »» Topic 15: Strategic planning & action planning
- »» Topic 16: Final assignment – LQSI tool action planning
- »» Evaluation
- »» Q&A/group discussion
- »» Valedictory function

ANNEX III:

Results of evaluation of the LQSI training

Evaluation by participants

Participants' expectations before start of the training

Overall the participants expressed their motivation to attend this course to obtain more knowledge about the LQMS and to become familiar with the LQSI tool.

Overview of evaluation by participants:

1. Which 3 topics did you find most useful in this training and why?

Some participants selected more or less than 3 topics.

Topic	No. of participants
LQSI tool	22
Introduction to quality management systems and international standards	13
Introduction to concepts of quality	11
Personnel	9
Equipment	6
Vision, mission and values	4
Process improvement	4
Action planning	2
Process control. Sample management	3
Strategic planning	1
Assessment. EQA	1

2. The following topics were selected as the least useful, number of participants' votes between brackets:

- »» *Equipment and materials* (4)
- »» *Vision, mission and values* (3)
- »» *Personnel* (2)
- »» *Introduction to concepts of quality, documents and records, importance of information, assessment and EQA, purchasing* (each 1)

3. The topics that participants would like to have in such a course, but which were not included, were:

- »» *Country situation*
- »» *Auditing* (3)
- »» *More action planning* (2)
- »» *Standards*

- »» Financials
- »» Stock management
- »» Biosecurity management (2)
- »» Quality manual development
- »» Remaining quality system elements
- »» More on EQA

4. Topics that **received too much attention**

- »» QA and QC
- »» LQSI explanation
- »» Customer satisfaction (2)
- »» Vision, mission, values

Training methodology

5. *What is your opinion of the training methods used in this course? (compared with only “lecture” style of teaching)*

- »» I like the interactive training 16
- »» I prefer “lecture style” 1
- »» I like a combination of both 17

6. Was the division of time between lectures and exercises satisfactory?

- »» Yes 33
- »» No, I would like to have more exercises 1

Course facilitators

7. Were you satisfied with the type of assistance provided by the course facilitators?

- »» Yes 34

8. Were the facilitators supportive enough during the group work / exercises?

- »» Yes 33
- »» No 1 (could have been more)

9. Do you feel that every group member had an equal chance to gain from and contribute to the course?

- »» Yes 31
- »» No 3

Comments/ Suggestions for improvements:

- »» There should have been more attention to personal wish for praying (n=2)
- »» Some participants were a bit shy (n=1)

Course length

10. Would you like the course to be longer, shorter or was it the right length?
- »» Longer 14
 - »» Shorter 5
 - »» Right length 14

Comments/Suggestions for improvements:

Need 5 days, more hands on, more ToT

Organization

11. What do you think about the organization/coordination of the whole course (circle your answer)
- »» Lunch/tea breaks were:
 - *Just right* 31
 - *Shorter* 1
 - »» Time table was:
 - *Too many hours* 4
 - *Okay* 28
 - »» Coordination was:
 - *Good* 26
 - *Satisfactory* 6
12. What do you think about the hotel you were staying in?
- »» *Reasonable* 8
 - »» *Good* 12
 - »» *Excellent* 8
13. What do you think about the teaching facilities of the course?
- »» *Reasonable* 0
 - »» *Good* 10
 - »» *Excellent* 19

General evaluation

14. Please list three strong points / aspects of the whole course
- »» General, organization, atmosphere:
 - *Everything was good* (4)
 - *Good location*
 - *Very good and efficient, excellent, good organization*
 - *Friendliness, attentiveness*
 - »» Teachers, facilitators
 - *Excellent, good, competent, strong, professional, friendly, helpful, clear, interactive, knowledgeable teachers* (16)
 - »» Teaching, sessions
 - *Participation of all participants in the learning (interactive), high extent of interactivity* (13)
 - *Good course material* (5)

- *Teaching methodology* (4)
 - *Skillful combination of lectures and interactive methods* (2)
 - *Knowledge based* (2)
 - *Informative* (2)
 - *Content* (2)
 - *Group exercises* (2)
 - *LQSI, process analysis, concepts of QMS*
 - *Encouraged thinking*
 - *Practical*
 - *Very good discussions*
 - *Presentations*
 - *Good examples*
 - *Practical sessions*
15. Please list three weak points / aspects of the whole course
- »» *Need to be longer* (7)
 - »» *Compact* (2)
 - »» *Too little about gap reality vs standard* (2)
 - »» *Expensive hotel* (2)
 - »» *Limited time*
 - »» *Too little among students themselves*
 - »» *Too long days*
16. Any other comments, suggestions, recommendations
- »» *Follow-up/refresher would be appreciated*
 - »» *Tour/sightseeing*
 - »» *Wonderful teaching methods*
 - »» *LQSI is wonderful*
 - »» *Excellent, very useful, good training, lots of info, thank you facilitators and teachers*

Overall score

17. Overall average score on a scale of 1 (worst) to 10 (best) was 8.7 (range 7–10).

Well-functioning, sustainable laboratory services, operating according to international principles of quality and Bio-safety, are an essential part of strong health systems and are crucial to improving public health. The analyses they provide offer a reliable foundation for evidence-based control of diseases, their surveillance and earlier treatment of both acute and chronic communicable diseases. This report briefly describes Regional Workshop on Laboratory Quality Management, Laboratory Quality Stepwise Implementation tool (LQSI), & Infectious Substances Shippers Training (ISST) held in Pune, India from 24–28 August, 2015.



**World Health
Organization**

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