# Supplementary Materials

**1. Information sheet**

**Awareness, attitudes and practices regarding the quality control of antibiotic susceptibility tests among medical laboratory technologists of state sector hospitals in Sri Lanka.**

**Introduction :**

I am J.L.Welagedara, a final year undergraduate of Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Peradeniya. I am conducting my research on awareness, attitudes and practices regarding the quality control of Antimicrobial Susceptibility Tests among medical laboratory technologists of state sector hospitals in Sri Lanka. This form provides relevant information on this research and invite you to participate in this survey. Before deciding your participation in this survey, you can discuss with anyone you are comfortable with and have an clear idea about this survey. This form may contain some words which are not much familiar to you all. If any clarifications/questions arise at a time, please do not hesitate to contact me at any time.

**Title of the research :**

Awareness, attitudes and practices regarding the quality control of antibiotic susceptibility tests among medical laboratory technologists of state sector hospitals in Sri Lanka.

**Purpose of the research :**

Quality control of ABST is an important task in a microbiology laboratory as it directly affects the accuracy and reliability of the test results. Therefore the proper awareness on QC of ABST is essential to release the quality reports. The main purpose of this research is to assess the awareness, attitudes, practices as well as to identify barriers and facilitators regarding the quality control of antibiotic susceptibility tests among medical laboratory technologists of state sector hospitals in Sri Lanka.

**Procedure of research :**

A cross-sectional study will be conducted among medical laboratory technologists of state sector hospitals in Sri Lanka that selected using convenient sampling technique. Google forms of questionnaire will be circulated through online platforms. In addition, printed copies of questionnaire will be distributed to some identified hospitals (Kandy National Hospital, Peradeniya Teaching Hospital, Kurunegala Teaching Hospital and Ratnapura Teaching Hospital) physically. Official permission was obtained from the directors of relevant hospitals to distribute the printed copies of the questionnaire. Before answering the questionnaire information sheet and consent form will be provided to participants.

**Participant selection and voluntary participation :**

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate in this research, please do not hesitate to let me know of your decision. You can change your decision at any time during answering and stop participating even if you agreed to participate at now.

**Duration :**

Estimated duration of the research is over two months in total.

**Risks/Hazards/Discomforts :**

There is no any risk/hazard/discomfort involved in this research.

**Potential benefits :**

There are no direct benefits for participants by participating in this research, but their participation is likely to help us find the answer to the research question.There may be a benefit to the medical microbiology laboratories as they can identify the issues regarding the QC of ABST. The results obtained are useful in identifying the current practices of QC in ABST nationally and to facilitate the process.

**Reimbursement :**

We are unable to reimburse you for your participation in this research either monetarily or by any other form of gift(s). We are grateful for your participation.

**Confidentiality :**

All the information that are planned to collect will be kept confidential and only the researchers could see or publish the data related to this study.

**Right to refuse or withdraw :**

You do not have to participate in this research if you are not willing to do so .You may also stop participating in the research at any point. It is your choice and all of your rights will still be respected.

Whom to contact : Research supervisor or student

Research supervisor : Prof. Veranja Liyanapathirana

Contact number : +94777060887

Name of the Researcher : Ms. J.L.Welagedara

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Contact number : +94712816869

E-mail : [jayanilakshani1997@gmail.com](mailto:jayanilakshani1997@gmail.com)

This research proposal has been reviewed and approved by the Ethics Review Committee of the Faculty of Allied Health Sciences, University of Peradeniya.

**2. Consent form**

**Awareness, attitudes and practices regarding the quality control of antibiotic susceptibility tests among medical laboratory technologists of state sector hospitals in Sri Lanka.**

**a)By the participants**

The participants should complete the whole of this sheet himself/herself.

1. Have you read the information sheet? Yes/No

1. Have you had satisfactory answers to all your questions? Yes/No
2. Have you read enough information and explanation about the study? Yes/No
3. Do you understand that you are free to withdraw from the study at anytime, without having to give a reason? Yes/No
4. Have you had sufficient time to come to your decision? Yes/No
5. Do you agree to participate in this study? Yes/No

I have read the forgoing information, or it has to been read to me. I have had the opportunity to ask questions about it and any questions that I have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Name of participant ………………………..

Signature of participant …………………….

Date (DD/MM/YYYY) …………………….

**b) By the investigator**

I have explained the study to the above volunteer and he/she has indicated her willingness to take part in this study.

Signature of the investigator ………………….

Date (DD/MM/YYYY) …………………….

Name : Ms. J.L.WELAGEDARA

**3. Questionnaire**

**Questionnaire on Awareness, Attitudes and Practices Regarding the Quality Control of Antibiotic Susceptibility Tests among Medical Laboratory Technologists of State Sector Hospitals in Sri Lanka.**

This questionnaire is given to you to assess the awareness, attitudes, practices, and challenges faced regarding the quality control (QC) of antibiotic susceptibility test (ABST) among the medical laboratory technologists (MLTs) of state sector hospitals in Sri Lanka. Please be kind enough to provide genuine answers to the questions by yourself. This information will be kept confidential and will only be used for the research purpose. Your participation is highly appreciated. Ethics approval has been obtained from the Ethics Review Committee of the Faculty of Allied Health Sciences, University of Peradeniya (AHS/ERC/2024/056)

**Declaration**

I agree to participate in the study after going through the information sheet.

* Yes
* No

I hereby declare that I will answer for the questionnaire in one of the forms (online or printed), and I have not answered the questionnaire earlier.

* Agree
* Disagree

1. **Demographic data**
2. Age …………………………
3. Gender

* Male
* Female
* I would rather not divulge

1. Educational qualifications **(Pick all relevant)**

* Diploma in Medical Laboratory Technology
* BSc in Medical Laboratory Science
* BSc in Biomedical Science
* BSc
* Postgraduate degree (M.Sc./M.Phil)

1. Number of years of service as a MLT………………………………
2. Hospital category

* National /Teaching /Provincial general /District general hospital
* Base hospital /Other

1. Current working station in the laboratory

* Microbiology
* Biochemistry
* Haematology
* Histopathology
* OPD
* Laboratory administration
* Other (please specify) …….............................................

1. **Awareness on QC of ABST**
2. What is your work experience in a state sector microbiology laboratory?

* Currently working in a Microbiology lab/section
* Previously worked in a Microbiology lab/section
* Haven’t worked in a Microbiology lab/section

1. Have you learnt about QC of ABST during your undergraduate or diploma training programme ?

* Yes
* No
* Unsure

1. Have you received a specific training on implementing the CLSI method in ABST testing?

* Yes
* No
* Can’t remember

1. Have you ever performed QC in ABST during your employment?

* Yes
* No

**If “No” please skip 5th and 6th questions**

1. If “yes” which of the following QC guidelines were used for ABST in your lab **(Pick all relevant)**

* CLSI
* EUCAST
* John Stokes
* Unsure
* Other (please specify)………………………………………..

1. If you are currently following the CLSI method for ABST or if you have previously used the CLSI method for ABST , do/did you have access to the latest versions of CLSI M100 and CLSI M02 in your laboratory?

* Yes
* No
* Unsure

**The following questions can be answered either from experience (if you are currently working or has worked in a microbiology laboratory) or from theoretical knowledge received in training.**

**I answer the questions from**

* **My experience**
* **My theoretical knowledge**
* **Both**

1. What is the most frequently used reference to interpret the zone diameters for quality control organisms? **(Pick only one)**

* CLSI M100
* CLSI M02
* Laboratory Manual in Microbiology by the Sri Lanka College of Microbiologists
* Not aware
* Other (please specify) …………………………………………………

1. What is the most frequently used reference to interpret the zone diameter breakpoints for clinical isolates? **(Pick only one)**

* CLSI M100
* CLSI M02
* Laboratory Manual in Microbiology by the Sri Lanka College of Microbiologists
* Not aware
* Other (please specify) ……………………………………………………

1. Which of the following elements are quality controlled while performing ABST? (Put a “√” mark for the answer)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Yes | No | Don’t know |
| Antibiotic disks |  |  |  |
| Agar media (Ex: MHA) |  |  |  |
| Organism inoculum |  |  |  |

1. How do you find the corrective action if the QC of ABST fails ? **(Pick all relevant)**

* By referring to CLSI M100
* By referring to CLSI M02
* Discussion with other MLTs/senior MLTs
* Discussion with the consultant Microbiologist

1. **Attitudes on QC of ABST**

(Put a “√” mark for the answer)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
| 1. Do you think that QC for ABST is essential? |  |  |  |  |  |
| 2. Do you think that QC results affect the patient’s ABST test results? |  |  |  |  |  |
| 3. Are you confident in performing QC of ABST? |  |  |  |  |  |
| 4. Are you confident that your ABST results are accurate and precise to be reported to the patients ? |  |  |  |  |  |
| 5. Do you think that you need further trainings on QC of ABST? |  |  |  |  |  |

**The following section on practices of performing QC on ABSTs should be answered only by those who are currently working in or have worked in a Microbiology laboratory within the last five years.**

**Are you currently working in a microbiology laboratory or have you worked in a Microbiology laboratory within the last five years?**

* **Yes**
* **No**

**If your answer is “No” please move to section E**

1. **Practices on QC of ABST**
2. From where do/did you obtain your QC organisms for the ABST? **(Pick only one)**

* Medical Research Institute
* Directly from the ATCC or NCTC
* Neighbouring hospital
* Not aware
* Other (Please specify)………………………………………………………

1. Which of the following equipment is/are or was/were available in your microbiology lab? **(Pick all equipment available)**

* -80oC freezer
* -20oC freezer
* Refrigerators
* None of the above

1. Where do/did you store stock cultures of QC organisms in your microbiology lab? **(Pick only one)**

* -800C freezer
* -200C freezer
* Refrigerator
* Room temperature
* Unsure

1. Where do/did you store stock of antibiotics for combination antibiotics (e.g co-amoxyclav) in your lab? **(Pick only one)**

* -80oC freezer
* -200C freezer
* Refrigerator
* Room temperature
* Unsure

1. Where do/did you store stock of antibiotics other than combination antibiotics in your lab? **(Pick only one)**

* -80oC freezer
* -200C freezer
* Refrigerator
* Room temperature
* Unsure

1. Do/did you perform QC for each new lot of media and/or antibiotics?

* Yes
* No
* Not aware

1. When maintaining QC strains, how long do/did you use the first passage (F1) which is sub cultured from frozen (-80oC) stock culture? **(Pick only one)**

* 1 week
* 1 month
* 3 months
* Not aware
* We do not practice this step

1. When maintaining QC strains, how long do/did you keep second passage (F2) which is sub cultured from first passage (F1)? **(Pick only one)**

* 1 day
* 1 week
* 1 month
* Not aware
* We do not practice this step

1. Which of the following QC plans do/did you practice when introducing a new antibiotic for testing in your lab? **(Pick only one)**

* CLSI: 20- or 30- day plan
* CLSI: 15 replicate(3- ×5- day) plan
* CLSI: Daily QC testing
* Stokes: Daily QC testing
* Not aware
* Other(Please specify)…………

1. Which of the following plans do/did you use for QC of regular in-use antibiotics? **(Pick only one)**

* Daily
* Weekly
* No regular QC is done
* Not aware

1. How do/did you keep the ABST QC result records in your lab? **(Pick only one)**

* Laboratory logbooks
* Laboratory information management system (LIMS)

* Cloud storage
* Do not keep records
* Other (please specify)

……………………………………

1. **Challenges**

What are the challenges you faced when implementing QC for ABST? **(Pick all relevant)**

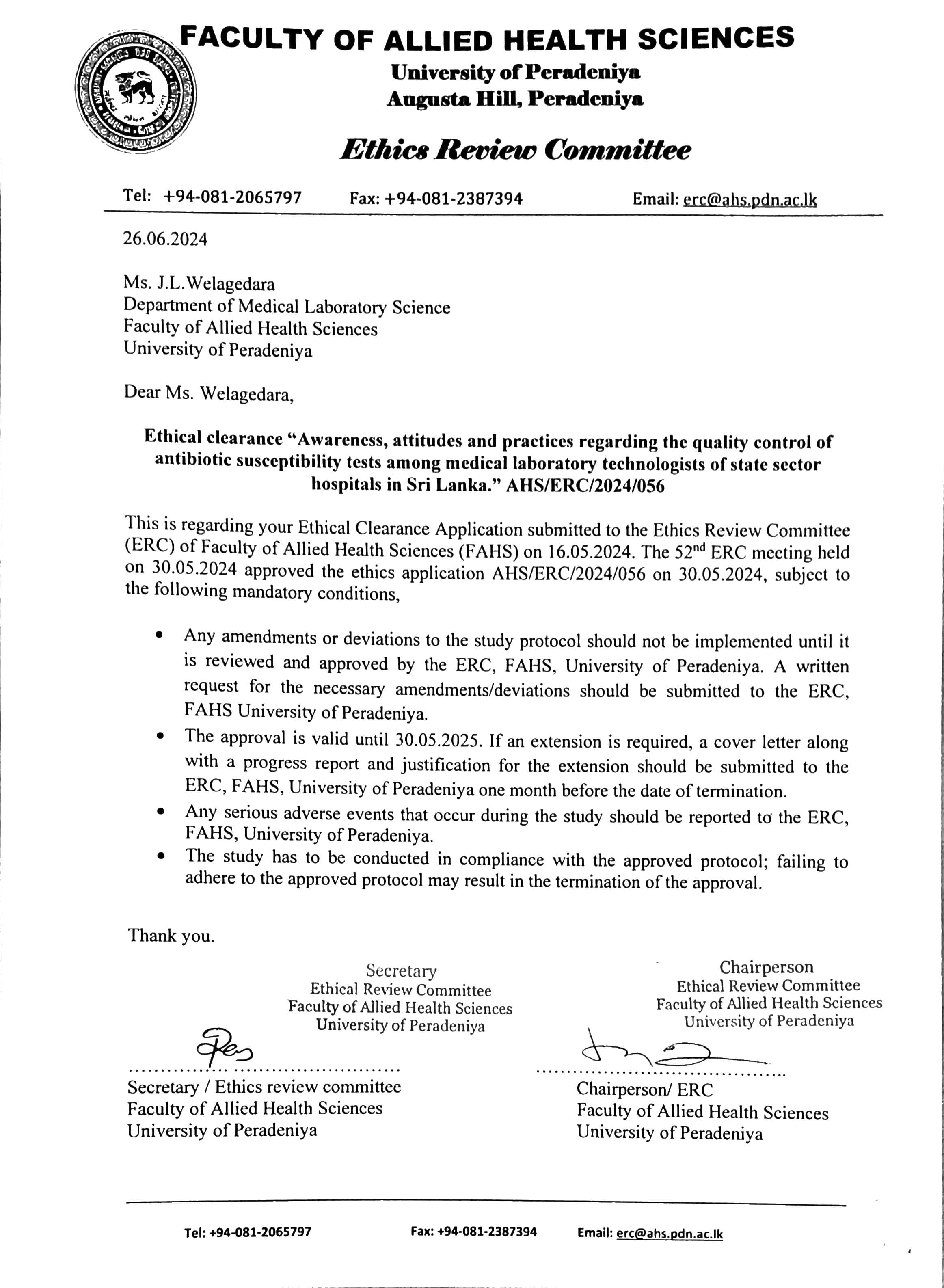
* Workload/Lack of staff
* Time constraints
* Financial constraints
* Inability to access QC strains
* Lack of training and awareness
* Others(Please specify) …………………………………………………

**F) Suggestions**

What are the suggestions that would like to propose to improve the QC of ABSTs in your Microbiology laboratory ?

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**4. Ethical clearance letter**

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**5. Marking scheme**

**B) Awareness**

2. Have you learnt about QC of ABST during your undergraduate or diploma training programme ?

* Yes
* No
* Unsure

3. Have you received a specific training on implementing the CLSI method in ABST testing?

* Yes
* No
* Can’t remember

4. Have you ever performed QC in ABST during your employment?

* Yes
* No

Above questions give evidences for awareness of the participants regarding QC of ABST. With the percentages of responses, awareness level was interpreted. [[1]](#footnote-1)

**Some knowledge based questions are also included under the awareness section and knowledge score is calculated as follows.**

7. What is the most frequently used reference to interpret the zone diameters for quality control organisms? **(Pick only one)**

* CLSI M100 **3 points**
* CLSI M02 **0 points**
* Laboratory Manual in Microbiology by the Sri Lanka College of Microbiologists 1 point[[2]](#footnote-2)
* Not aware **0 points**
* Other **As appropriate**

8. What is the most frequently used reference to interpret the zone diameter breakpoints for clinical isolates? **(Pick only one)**

* CLSI M100 **3 points**
* CLSI M02 **0 points**
* Laboratory Manual in Microbiology by the Sri Lanka College of Microbiologists **1 point**[[3]](#footnote-3)
* Not aware **0 points**
* Other **As appropriate**

9. Which of the following elements are quality controlled while performing ABST? (Put a “√” mark for the answer)**[[4]](#footnote-4)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Yes | No | Don’t know |
| Antibiotic disks | **3points** | **0 points** | **0 points** |
| Agar media (Ex: MHA) | **3 points** | **0 points** | **0 points** |
| Organism inoculum | **3 points** | **0 points** | **0 points** |

10. How do you find the corrective action if the QC of ABST fails ? **(Pick all relevant)**

* By referring to CLSI M100 **3 points**
* By referring to CLSI M02 **2 points**[[5]](#footnote-5)
* Discussion with other MLTs/senior MLTs **1 point**
* Discussion with the consultant Microbiologist **1 point**

Maximum total score = 18 points

**Interpretation :**

Knowledge score is calculated as a percentage and score is categorized using Bloom’s cut-off point.[[6]](#footnote-6)

Good – 80-100% ( score 14-18)

Moderate – 60 -79% ( score 10-13)

Poor - < 60% ( score <10)

**C) Attitudes**

Points are assigned as follows.

Strongly agree - **5**

Agree - **4**

Neutral – **3**

Disagree – **2**

Strongly disagree – **1**

Maximum total score for all questions = 25

Score can be calculated as percentage and categorized according to Bloom’s cut-off . [[7]](#footnote-7)

Good( favourable) - 80 -100% (score 20-25)

Moderate – 60 -79% (score 15-19)

Poor (unfavourable) - < 60% ( score <15)

**D) Practices**

1. From where do/did you obtain your QC organisms for the ABST? **(Pick only one)**

* Medical Research Institute **3 points**
* Directly from the ATCC or NCTC **3 points**
* Neighbouring hospital **2 points**[[8]](#footnote-8)
* Not aware **0 points**
* Other **As appropriate**

2. Where do/did you store stock cultures of QC organisms in your microbiology lab? **(Pick only one)**

* -800C freezer **3 points**
* -200C freezer **3 points**[[9]](#footnote-9)
* Refrigerator **0 point**
* Room temperature **0 point**
* Unsure **0 point**

3. Where do/did you store stock of antibiotics for combination antibiotics (e.g co-amoxyclav) in your lab? **(Pick only one)**

* -800C freezer **0 points**[[10]](#footnote-10)
* -200C freezer **3 points**[[11]](#footnote-11)
* Refrigerator **0 point**
* Room temperature **0 point**
* Unsure **0 points**

4. Where do/did you store stock of antibiotics other than combination antibiotics in your lab? **(Pick only one)**

* -800C freezer **0 points**[[12]](#footnote-12)
* -200C freezer **3 points**[[13]](#footnote-13)
* Refrigerator **2 point**[[14]](#footnote-14)
* Room temperature **0 point**
* Unsure **0 point**

5. Do/did you perform QC for each new lot of media and/or antibiotics?

* Yes **3 points**[[15]](#footnote-15)
* No **0 point**
* Not aware **0 points**

6. When maintaining QC strains, how long do/did you use the first passage (F1) which is sub cultured from frozen (-80oC) stock culture? **(Pick only one)**

* 1 week **0 point**
* 1 month **3 points**[[16]](#footnote-16)
* 3 months **0 point**
* Not aware **0 point**
* We do not practice this step **0 points**

7. When maintaining QC strains, how long do/did you keep second passage (F2) which is sub cultured from first passage (F1)? **(Pick only one)**

* 1 week **3 points**[[17]](#footnote-17)
* 1 month **0 point**
* 3 months **0 point**
* Not aware 0 point
* We do not practice this step 0 point

8. Which of the following QC plans do/did you practice when introducing a new antibiotic for testing in your lab? **(Pick only one)** [[18]](#footnote-18)

* CLSI: 20- or 30- day plan **3 points**
* CLSI: 15 replicate(3- ×5- day) plan **3 points**
* CLSI: Daily QC testing **0 point**
* Stokes: Daily QC testing **3 point**
* Not aware **0 points**
* Other **As appropriate**

9. Which of the following plans do/did you use for QC of regular in-use antibiotics? **(Pick only one)** [[19]](#footnote-19)

* Daily **3 points**
* Weekly **3 points**
* No regular QC is done **0 points**
* Not aware **0 points**

10. How do/did you keep the ABST QC result records in your lab? **(Pick only one)** [[20]](#footnote-20)

* Laboratory logbooks **3 points**
* Laboratory information management system (LIMS) **3 points**
* Cloud storage **3 points**
* Do not keep records **0 points**
* Other **As appropriate**

**Interpretation :**

Maximum total score = 30

Score can be calculated as percentage and categorized according to Bloom’s cut-off. [[21]](#footnote-21)

Good – 80-100% (score 24-30)

Moderate – 60 -79% (score 18-23)

Poor - < 60% (score < 17)

1. Alam, B.F., Almojaibel, A.A., Ansari, K.A., Haroon, M., Noreen, S., Tauqir, S., Almas, K., Farooqi, F.A., Ali, S., 2023. General public awareness, knowledge and attitude toward COVID-19 infection and prevention: a cross-sectional study from Pakistan.

   Available at : https://doi.org/10.12688/f1000research.52692.2 [↑](#footnote-ref-1)
2. Zone diameters included in the lab manual has obtained from the CLSI M100 ,January 2009 version. There are some minor changes in those diameters when comparing with latest M100 version(34th edition). Therefore 1 point will be assigned for this answer. [↑](#footnote-ref-2)
3. Zone diameters included in the lab manual has obtained from the CLSI M100 ,January 2009 version(34th edition). There are some minor changes in those diameters when comparing with latest M100 version. Therefore 1 point will be assigned for this answer.

   CLSI M100, Table 4A and 4B includes zone diameter breakpoints for QC strains and Tables 2A-2J includes zone diameter breakpoints for clinical isolates. Therefore correct answer for the above 2 questions is CLSI M100.

   CLSI. *Performance Standards for Antimicrobial Susceptibility Testing*. 34th ed. CLSI supplement M100. Clinical and Laboratory Standards Institute; 2024. p.56-138 , p.226-236 [↑](#footnote-ref-3)
4. CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. [↑](#footnote-ref-4)
5. CLSI M02 (sub chapter 4.8) desribes the categorization of errors as random, identifiable or system related and the general corrective action for out of range QC results. CLSI M100 Table 4D provides further guidance for trouble shooting and corrective action for out of range QC results which are specific to antibiotic drugs and QC strains. Since both references(M02 and M100) are needed for finding the corrective action when QC of ABST fails, 3 points and 2 points will be given for M100 and M02 respectively. Since other 2 methods are alternatives for finding corrective action, 1 point will be given for each. [↑](#footnote-ref-5)
6. Feleke, B.T., Wale, M.Z., Yirsaw, M.T., 2021. Knowledge, attitude and preventive practice towards COVID-19 and associated factors among outpatient service visitors at Debre Markos compressive specialized hospital, north-west Ethiopia, 2020. PLOS ONE 16, e0251708.

   Available at : https://doi.org/10.1371/journal.pone.0251708

   Melaku, M., Abera, B., Mulu, W., Beyene, B., 2014. Knowledge, Attitude and Practices of High Risk Populations on Louse- Borne Relapsing Fever in Bahir Dar City, North-West Ethiopia. Sci. J. Public Health 2, 15–22. Available at : https://doi: 10.11648/j.sjph.20140201.13 [↑](#footnote-ref-6)
7. Feleke, B.T., Wale, M.Z., Yirsaw, M.T., 2021. Knowledge, attitude and preventive practice towards COVID-19 and associated factors among outpatient service visitors at Debre Markos compressive specialized hospital, north-west Ethiopia, 2020. PLOS ONE 16, e0251708.

   Available at : https://doi.org/10.1371/journal.pone.0251708

   Melaku, M., Abera, B., Mulu, W., Beyene, B., 2014. Knowledge, Attitude and Practices of High Risk Populations on Louse- Borne Relapsing Fever in Bahir Dar City, North-West Ethiopia. Sci. J. Public Health 2, 15–22. Available at : https://doi: 10.11648/j.sjph.20140201.13 [↑](#footnote-ref-7)
8. MRI is the main recognized source in Sri Lanka to obtain QC strains while CLSI M02 (sub chapter 4.3) recommends ATCC or NCTC. Some hospitals may obtain QC strains from nearby hospitals due to some circumstances and it may alter the characteristics of QC strains. Therefore 3 points will be assigned only for MRI and ATCC or NCTC while 2 points for neighbouring hospitals.

   CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.42 [↑](#footnote-ref-8)
9. According to CLSI M02 (sub chapter 4.4) stock cultures of QC strains shoul be maintained at < -20 C or preferably at < -60 C or in liquid nitrogen. Therefore 3 points will be assigned to -800C and -200C answers.

   CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.43 [↑](#footnote-ref-9)
10. Extreme temperatures may lead to degradation of certain antibiotics,diminishing their effectiveness.Therefore -800C may not suitable for certain antibiotics and 0 points will be assigned to -800C answer. [↑](#footnote-ref-10)
11. CLSI M02 says some labile combination antibiotics should be stored frozen until the day of use to retain their stability.

    CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.19

    According to manufacturer’s(HiMedia) guidelines combination antibiotics (eg: Co-amoxyclav) store at -20 0C.

    <https://www.himediadownloads.com/MSDS/SD063.pdf>

    Therefore 3 points will be assigned only for answer -200C freezer. [↑](#footnote-ref-11)
12. Same as footnote 10 [↑](#footnote-ref-12)
13. 14 CLSI M02 has recommended to refrigerate antibiotic disks at < 80C or freeze at < -140C.

    CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.19

    Manufacturers (HiMedia) have recommended to store between 80C to -20 0C or only at -20 0C for certain drugs.

    <https://www.himediadownloads.com/MSDS/SD204.pdf>

    <https://www.himediadownloads.com/MSDS/SD041.pdf>

    Store in refrigerator is not always correct for each drug. However -20 0C is suitable for every drug. Therefore 3 points will be assigned only for -200C freezer and 2 points for refrigerator. [↑](#footnote-ref-13)
14. [↑](#footnote-ref-14)
15. CLSI M02(sub chapter 4.5) has recommended to perform QC for each new lot of media and antibiotics. Therefore 3 points will be assigned for answer “yes”.

    CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.43 [↑](#footnote-ref-15)
16. CLSI M02 (Appendix C) has recommended that F1 subculture can be stored for 1 month. [↑](#footnote-ref-16)
17. CLSI M02 (Appendix C) has recommended that F2 subculture can be stored for 1 week.

    Therefore 3 points will be assigned for only those answers.

    CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.64-65 [↑](#footnote-ref-17)
18. CLSI M100 (Table 4C- Disk Diffusion Reference Guide to QC Frequency) has recommended 20- or 30- day plan or 15 replicate(3- ×5- day) plan when introducing a new antibiotic disk to the existing system. John Stokes method is also a recognized method used in Sri lanka. Therefore 3 points will be assigned for above answers.

    CLSI. *Performance Standards for Antimicrobial Susceptibility Testing*. 34th ed. CLSI supplement M100. Clinical and Laboratory Standards Institute; 2024. p.240 [↑](#footnote-ref-18)
19. CLSI M02 (sub chapter 4.7) has recommended daily QC testing on each day disk diffusion tests are performed on patient isolates. Weekly QC testing may be implemented once satisfactory performance with daily QC testing has been documented. Therefore both “daily” and “weekly” answers are correct and 3 points will be assigned.

    CLSI. *Performance Standards for Antimicrobial Disk Susceptibility Tests*. 13th ed. CLSI standard M02. Wayne, PA: Clinical and Laboratory Standards Institute; 2018. p.44-45 [↑](#footnote-ref-19)
20. All the QC results done for any test in the laboratory should be recorded in manual or electronic form. Therefore 3 points will be assigned for any method of record keeping.

    Bhat, V., Vira, H., 2018. Quality Control Issues in Antibiotic Susceptibility Testing by Disc Diffusion Technique. Clin. Infect. Dis. Open Access 2, 1–2. Available at : <https://www.researchgate.net/publication/324388365_Quality_Control_Issues_in_Antibiotic_Susceptibility_Testing_by_Disc_Diffusion_Technique> [↑](#footnote-ref-20)
21. Feleke, B.T., Wale, M.Z., Yirsaw, M.T., 2021. Knowledge, attitude and preventive practice towards COVID-19 and associated factors among outpatient service visitors at Debre Markos compressive specialized hospital, north-west Ethiopia, 2020. PLOS ONE 16, e0251708.

    Available at :https://doi.org/10.1371/journal.pone.0251708

    Melaku, M., Abera, B., Mulu, W., Beyene, B., 2014. Knowledge, Attitude and Practices of High Risk Populations on Louse- Borne Relapsing Fever in Bahir Dar City, North-West Ethiopia. Sci. J. Public Health 2, 15–22. Available at : https://doi: 10.11648/j.sjph.20140201.13 [↑](#footnote-ref-21)