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MINISTRY OF HEALTH

UGANDA Supranational® Reference Laboratory

Timely Accurate Diagonostics for a TB-Free Africa

Training on EQA and National TB Laboratory Network

Module 8: On-Site Supervision Overview

Date

Uganda Supranational Reference Laboratory

Content Outline

- What is on-site supervision?
- Advantages and disadvantages of on-site supervision
- Organization of supervision
- Feedback
- Importance of a Checklist
- Components of a checklist

On-Site Supervision

- On-site supervision is a method of EQA which involves a periodic visit by evaluators for on-site laboratory assessment.
- An essential component of an EQA program since it is the best method to obtain a realistic picture of the conditions and practices in the laboratory
- Aimed at problem solving
- Provides continuing education
- Motivates staff to improve performance

Advantages / Disadvantages

- ADVANTAGES:
  - Ability to identify source of errors detected by rechecking and/or panel testing
  - Ability to initiate prompt corrective actions to resolve problems
  - Motivation of staff
  - Educational aspect

- DISADVANTAGES:
  - Expensive and labor intensive
  - Is impracticable if assigned only to NRL

General Organization

- Who??
  - professional laboratory specialist from a higher level laboratory
  - TB supervisors
- When??
  - frequency can be limited by resources
  - by laboratory specialist
    - annual routine visit is sufficient
  - by TB supervisor:
    - quarterly
  - most sufficient: frequent or urgent visits to laboratories suspected of having serious problems

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Different Types of Supervisory Visits: Summary

Who can conduct?	*Frequency*	*Purpose/ main activities*
TB supervisor	quarterly	• General lab check • Supplies inventory / microscopes check • Collection of slides for blinded rechecking • Distribution of panels
Professional laboratory specialist from a higher level laboratory	preferably annually	• Comprehensive assessment • Implementation of corrective actions • Training
	upon identification of very poor performance based on results of panel testing or blinded rechecking	
	in the context of surveys	

Laboratory Elements to Be Evaluated by TB Supervisors

- Availability of SOPs
- Supply of reagents
- Supply of consumables
- Equipment
- Safety practices
- QC practices

Laboratory Elements to Be Evaluated by TB Supervisors (Cont..)

- Result reporting
- Suspects recorded as smear positive in the laboratory register are recorded in theTB

  district register.

Laboratory Elements to Be Evaluated by TB Supervisors (cont.)

- Record keeping
- Evaluation of workload and proportion of positive smears
- Storage of slides for blinded rechecking
- Training of laboratory staff
  - adequate training, refresher courses?
- Corrective actions:
  - are they recommended when appropriate?

Laboratory Elements to Be Evaluated by Laboratory Supervisors

In addition to all operational elements listed above for TB supervisors, laboratory supervisors should:

- Evaluate
  - sputum collection procedures
  - smear preparation, staining, and reading
- Assuring that positive and negative control slides are used with all newly madebatches of stains as well as with each daily batch of smears.

Laboratory Elements to Be Evaluated by Laboratory Supervisors

- Recheck several positive and negative smears to evaluate:
  - quality of staining, smear thickness, smear size and results
- Review results of panel testing and/or rechecking.
- Provide suggestions / implement corrective actions

On-Site Supervision: Important Issues (I)

- Understanding of the rationale for each item to be checked
  - Why this or that procedure is evaluated?
  - How the findings can be interpreted?
  - What are the consequences?
  - What are the possible further checks and actions?
- Use of checklists
  - training of supervisors on how to use checklists
- Capability and capacity to implement necessary corrective actions

On-Site Supervision: Important Issues (II)

- Required:
  - experienced supervisors for trouble-shooting and critical areas
  - training of TB supervisors and laboratory supervisors and evaluation of their work

- Recommended:
  - problem-oriented approach:
    - checking specific areas known or suspected (from rechecking and / or panel testing results) to have problems

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Feedback

- Provide verbal feedback to staff
- Inform about negative as well as positive observations
- Offer suggestions to problem solving
- Document major recommendations
- Plan a follow-up visit

Checklists

- Serve as documentation of the visit and record of current conditions and actions needed
- Help carrying out on-site supervision in a consistent and structured way
- Need of standard definitions of what is acceptable for each checklist item
  - criteria to be established by NTP
- Standardized structure:
  - Open, non-leading questions
  - Results of on-site observations

Checklists

- Two types:
  - Comprehensive (for lab supervisors)
    - More effective if shortened version is used later on
  - Short (for TB supervisors)

- Consider practical use
  - Focus on problems that are frequently identified or most likely occur
  - Evolution with time
  - NTP may refine objective criteria for acceptable practices

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Checklist Items

- Laboratory equipment
- Personnel
- Stocks of supplies and consumables
- Registration and transmission of results
- Basic facilities / safety
- Laboratory register counts: workload, indicators
- Observation of sputum collection, smearing, staining, microscopic examination procedures
- Quality control
- EQA documentation

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Basic Facilities / Safety

- Laboratory space and furniture
- Ventilation
- Electric power supply
- Type of water supply: tap & drain
- Sink or basin, buckets, bottles
- Waste bucket with a lid; autoclave or pressure cooker; burning facility
- Disinfection / overall cleanness

Laboratory Equipment, Personnel

- Types and number of microscopes
- Microscopes: objectives, spare bulbs; mirror, evidence of protection
- Only if stains are prepared:
  - Is there a water distiller or filter? balance? measuring cylinder & glassware available?
- Personnel trained for AFB microscopy
- Workload

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Stocks of Supplies and Consumables

- Storage conditions
  - tight sealed containers
  - out of sunlight
  - expiration date

- Adequate quantities should be available for 3-6 months:
  - check number of examinations over last 12 months; calculate monthly average

Registration and Transmission of Results

- Check sputum pots and request forms for labeling and completeness of information

- Check the laboratory register
  - Is it updated daily?
  - Is essential information filled in (address of suspects, new / follow-ups)?
  - Are results correctly recorded and look plausible?
- Cross-check the laboratory against the District Register
  - Are patient records in the laboratory register consistent with the district register?

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Check on Performance

- Calculate workload
  - At least 2-3 smears per day but not more than 20-25 smears / per day / per technician

- Calculate indicators from lab register / internal monitoring chart
  - positive suspects:5-15% ?
  - follow-up (FU) positives: 5- 10%?

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Smearing, staining, microscopic examination

- Smear preparation:
  - Always new slides for AFB smears?
  - Cleaning prior to use if greasy?
  - Properly labeled?
  - Wire loop cleaned in sand and sterilized by flaming OR a new disposable stick used every time?
  - Smears completely air dried before fixing?
  - Properly heat fixed?

Smearing, Staining, Microscopic Examination (cont.)

- Check smears macroscopically
  - Thickness, size, color?
- Check smears microscopically
  - Bright image?
  - AFB clearly seen; strong red colour?
- How often are stains filtered?

Smearing, Staining, Microscopic Examination (cont.)

- Is the staining done according to NTP guidelines?
  - Staining with carbolfuchsin or auramine
  - Decolorization
  - Counterstaining with methylene blue or permanganate
- How many fields are examined to report positive / negative results?

Conduct of Quality Control

- Check records and bottles for stain preparation quality control (if stains are prepared)
  - Are bottles numbered and dated?
  - Are records on controls kept?
  - Are positive as well as negative controls tested with each batch?
  - Are negatives read after repeat staining?
  - Are control positive and control negative smears available?

Storage of Slides and EQA Documentation

- Randomly select slides (according to lab register):
  - Can >90% of them be found in boxes?
  - Is numbering of slides unique / results not written on them?
- Examine internal documentation of the rechecking program
  - Are records with feedback present?
  - Is rechecking regularly done?
  - When was it done last time?
  - Is sample representative?
  - Are results plausible?
  - Is interpretation possible?

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SUMMARY

- On-site supervision is an essential component of EQA

- There are two categories of a supervisory visit – by a laboratory professional and by a TB supervisor

SUMMARY

- Implementing on-site supervision will require training of supervisors and evaluation of their work

- Standard checklists help ensure that assessments are carried out in a consistent and structured format, provided that supervisors are properly trained

Assessment

- What is on-site supervision?
- Who is responsible for carrying out supervision and how frequent should supervision be carried out?
- Which laboratory elements should be evaluated during supervision?

References

- WHO Laboratory Quality Management System Handbook
- WHO/GLI Tools.
- John, R. (1999). External Quality Assessment for AFB Smear Microscopy. *Public Health Practice Program Office Centers for Disease Control and Prevention, Rosemary Humes. Association of Public Health Laboratories, 17.*
- GLI Training package on EQA overview & Planning

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