Review of Laboratory Information Management Systems in Mozambique

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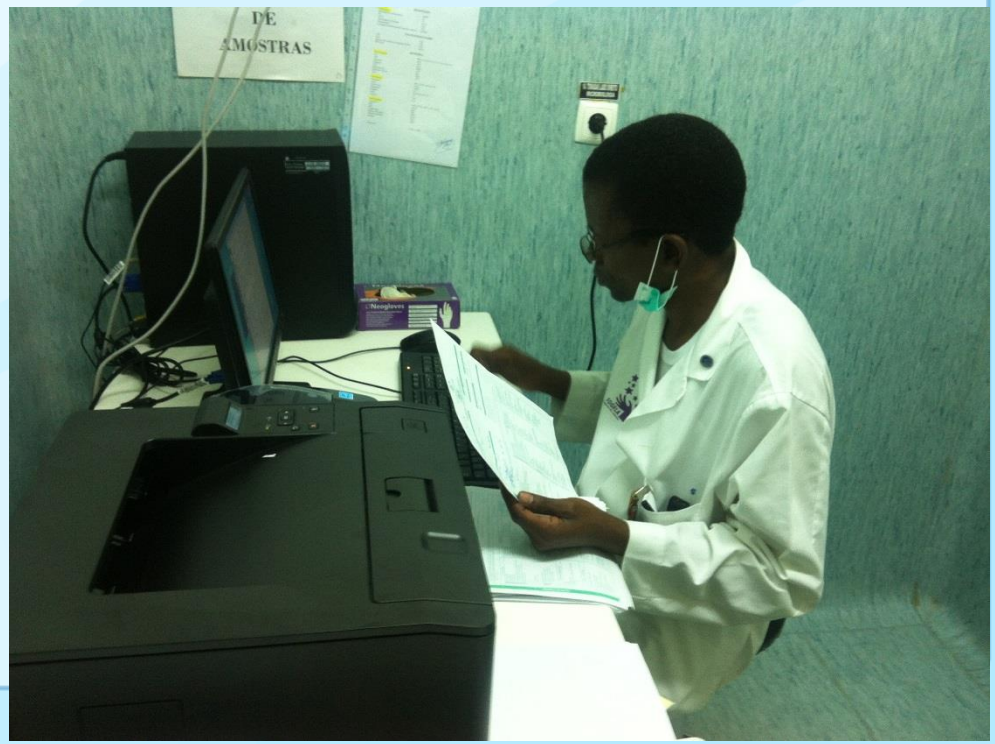
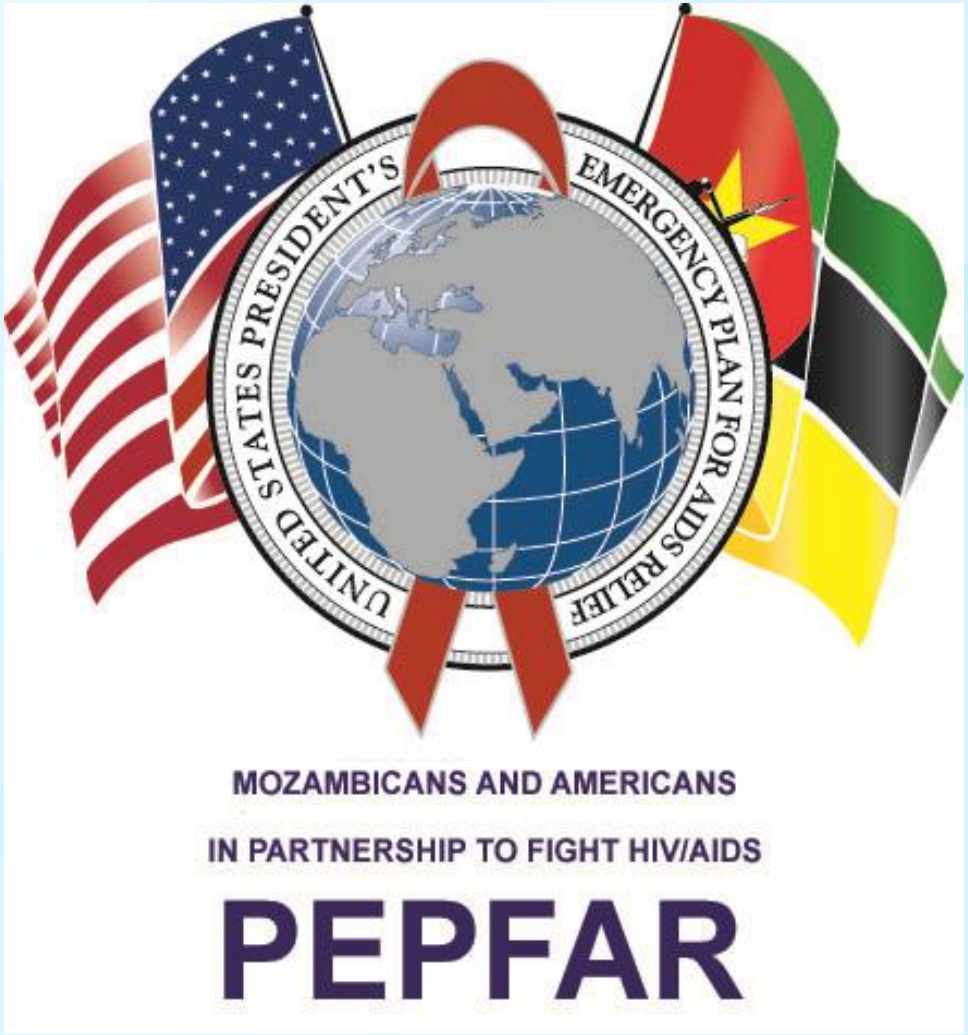
Outline

- Laboratory network in Mozambique
- Goals of eLIS
- Overview of eLIS implementation approach
- Evaluation methods and results
- Conclusions



Mozambique Laboratory Network

- National Public Health Reference Lab
- 3 Central Hospital Labs
- 9 Provincial Hospital Labs/2 General Hospital Labs
- 128 District Hospital Labs
- ~250 Health Centers

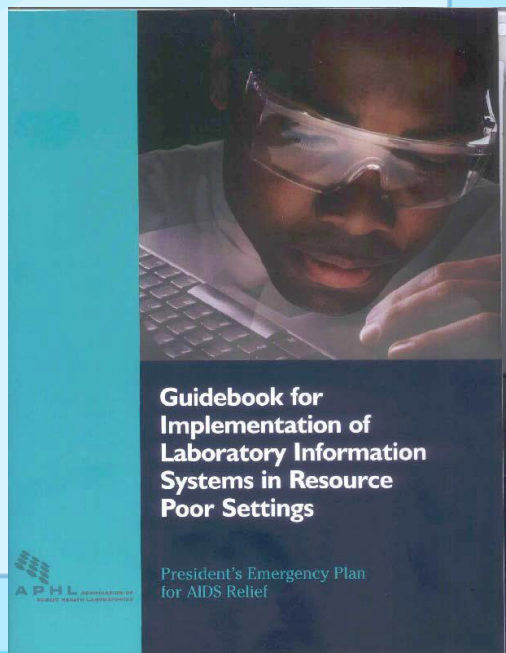


Goals of eLIS Implementation

- Increase the timeliness, reliability and accuracy of laboratory test results to support HIV care and treatment
- Provide information to laboratory managers and directors in support of data driven decisions for improved laboratory management

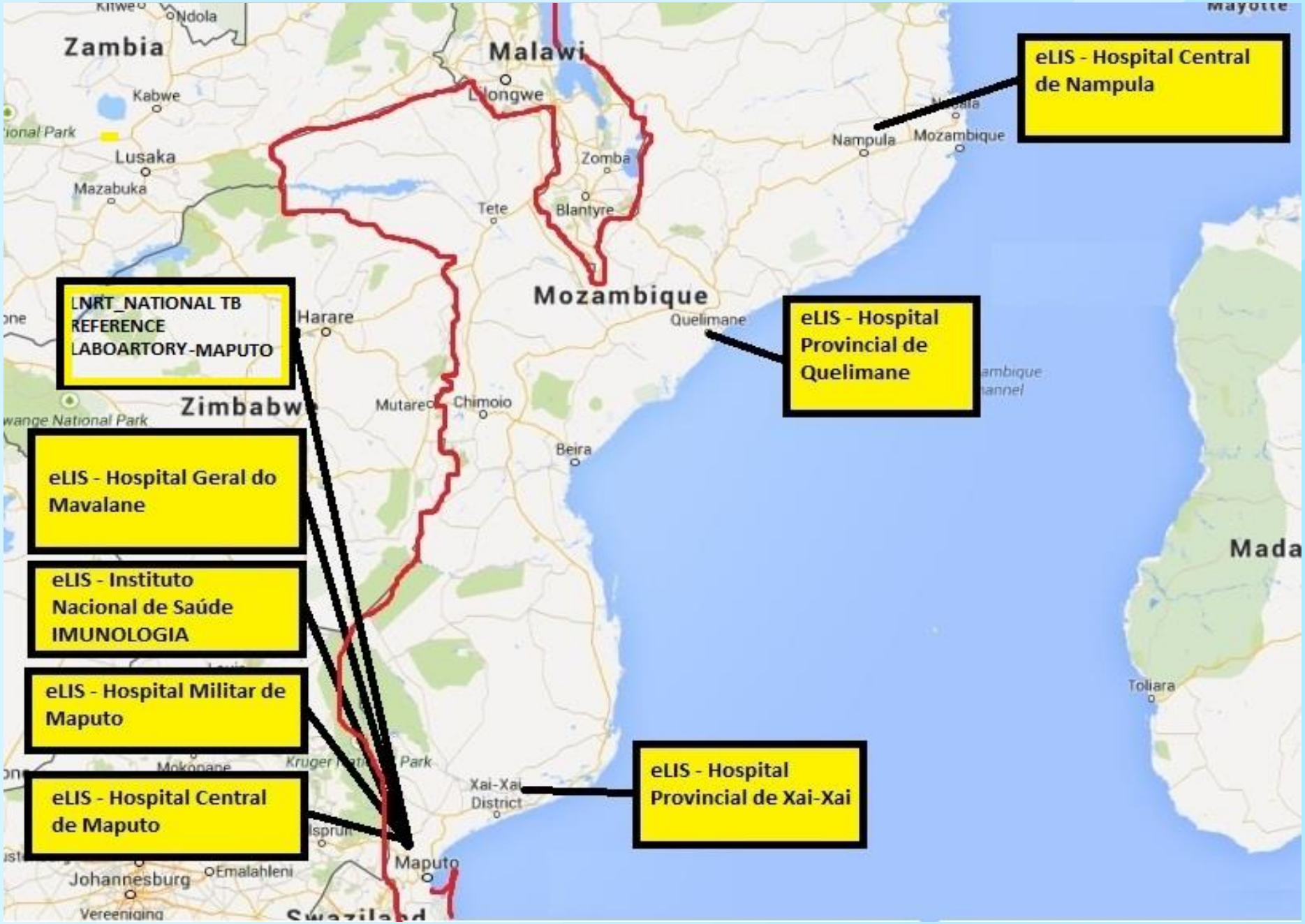
Planning and Selection of eLIS

- Planning initiated in 2006 with PEPFAR funding and APHL as technical assistance partner
- Focus on National Reference Laboratories and Provincial Hospital Laboratories
- eLIS working group formed
- eLIS functional requirements identified
- Commercial eLIS product selected
- Pilot sites selected
- eLIS super-users identified



Implementation of eLIS

- Infrastructure and hardware placement
- Basic computer training
- Installation and customization of eLIS software
- Interfacing eLIS with automated lab analyzers
- Training of super-users and users
- Troubleshooting and maintenance of hardware and software
- Customization of reports from eLIS database
- Refresher and advanced training on eLIS software


Zambia
Malawi
Mozambique
Zimbabwe
Kabwe
Lusaka
Mazabuka
Ndola
Lilongwe
Zomba
Blantyre
Tete
Harare
Mutare
Chimoio
Beira
Quelimane
Nampula
Mozambique
Maputo
Xai-Xai
District
Johannesburg
Emalahleni
Toliara
eLIS - Hospital Central de Nampula
LNRT_NATIONAL TB REFERENCE LABOARTORY-MAPUTO
eLIS - Hospital Provincial de Quelimane
eLIS - Hospital Geral do Mavalane
eLIS - Instituto Nacional de Saúde IMUNOLOGIA
eLIS - Hospital Militar de Maputo
eLIS - Hospital Central de Maputo
eLIS - Hospital Provincial de Xai-Xai

Goals of eLIS Evaluation

- **Compare laboratory quality indicators in labs with and without eLIS**
- **Survey the perceptions of users on eLIS usability and value-added to quality lab services**
  - Review the performance and functionality of eLIS software
  - Identify best-practices for successful implementation and maintenance of eLIS in resource limited settings

Laboratory Quality Indicators

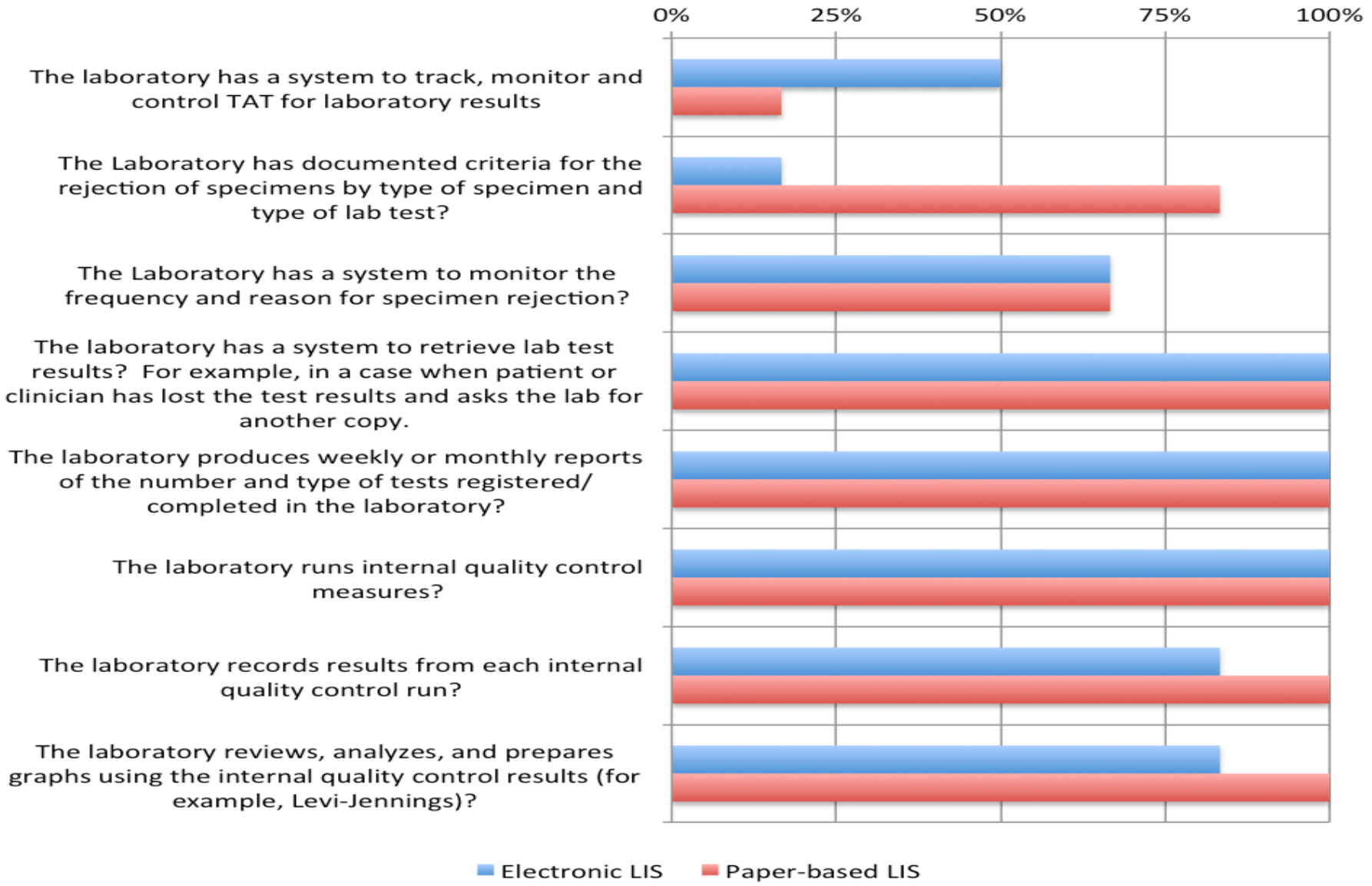
1. **Turn-around-time for lab test results**
2. **Specimen rejection rates**
   - Documented criteria for specimen rejection
   - Monitored frequency and reason for rejection
3. **Internal quality control results**
   - Recorded IQC results
   - Analyzed and acted upon IQC results when out of range
4. **Retrieve historical test results**
5. **Statistical reports for laboratory management**
6. **Client (clinician) satisfaction**

Methods

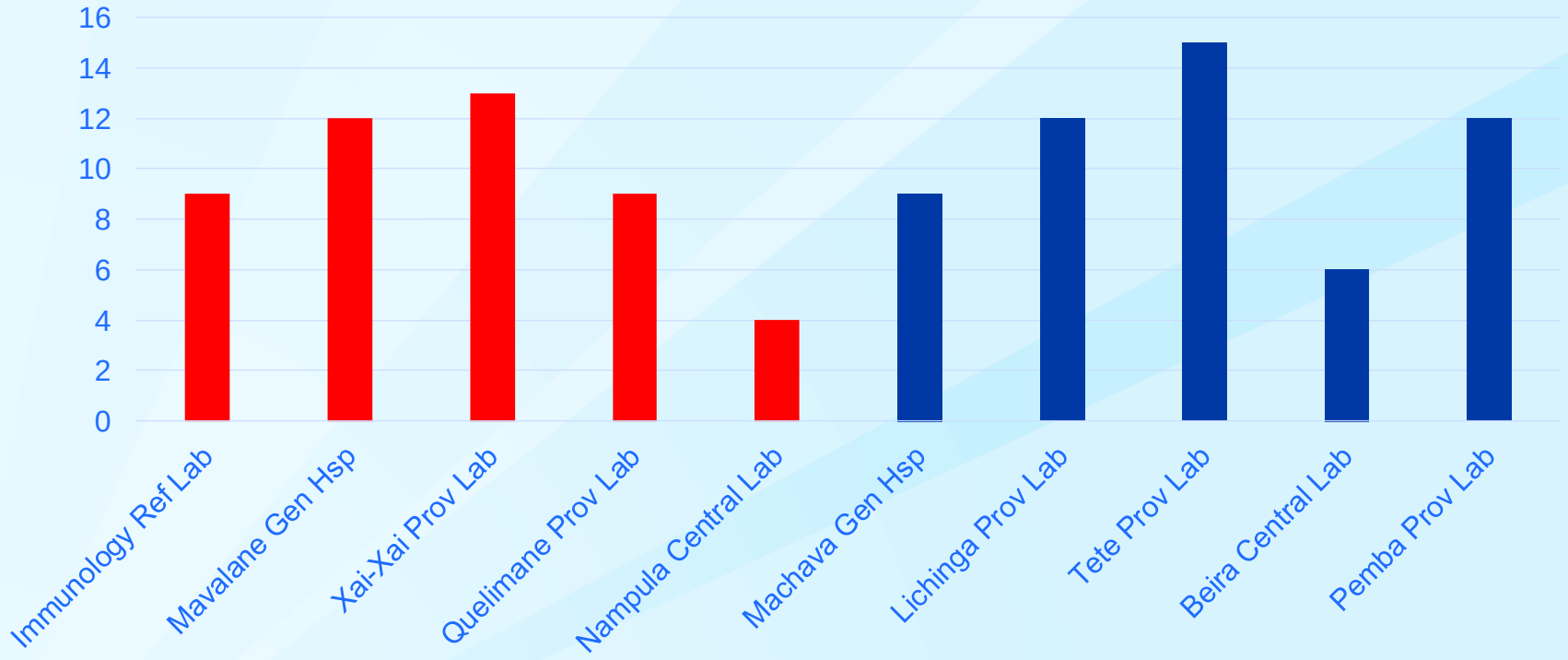
- **Site selection**
  - 6 laboratories with eLIS
  - 6 comparable laboratories without
- **Data collection**
  - Structured interviews using standardized questionnaire
  - 2 Interviewers per interview (portuguese speaking and english speaking)
  - Interviewees
    - Laboratory manager
    - Quality manager
    - Laboratory technician
    - Hospital administrator
    - Clinical Director

RESULTS

Percentage of interviewees responding 'yes' to quality indicator questions



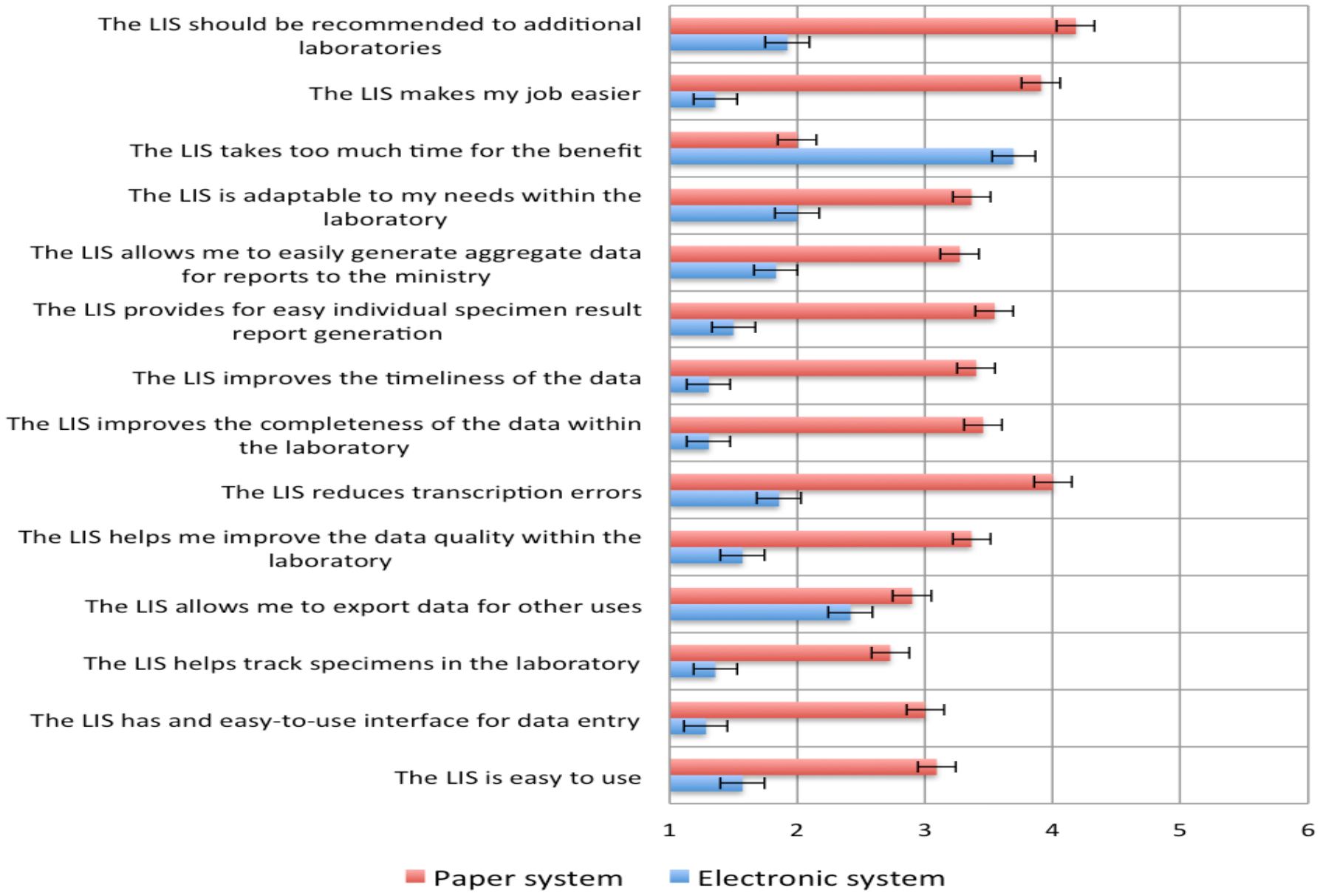
9.0 SLIPTA Information Management Score



Labs with eLIS

Labs with pLIS

Perceptions of the LIS



Perception of LIS Value Among Lab Staff

- **The LIS makes my job easier?**
  - eLIS– Strongly Agree. *"Reduces the lab turn-around-time"*
  - pLIS- Disagree. *"Takes too long to enter data"*
- **The LIS reduces transcription errors?**
  - eLIS- Agree. *"Allows me to obtain printed results without having to transcribe onto test requests"*
  - pLIS- Strongly Disagree. *"We have many transcription errors"*
- **The LIS helps me track specimens in the laboratory?**
  - eLIS- Strongly agree. *"Facilitates knowing which patients have results and which don't"*
  - pLIS- Somewhat disagree. *"When a request form is lost, there is a big problem"*

- **The LIS is easy to use.**
  - eLIS- Somewhat agree. *"With proper training"*
  - pLIS- Disagree. *"Unavailability of standard registers, registers don't have fields to capture all data and lab would like to record"*
- **The LIS helps you improve the data quality within the laboratory?**
  - eLIS- Agree. *"One advantage is that results are not lost. It therefore improves the relationship with patients and clinicians"*
  - pLIS- Disagree. *"Doesn't help that much since some data is lost and turn around time is affected because of that"*
- **The eLIS should be recommended to additional laboratories.**
  - eLIS- Agree. *"I would recommend the system but would suggest some changes. The system should take into account the local reality and needs. In addition, the amount of time allocated for training must be lengthened"*

Conclusions

- eLIS users perceive it to bring value to their work and to the quality of laboratory service provided
- eLIS as a tool did not contribute significantly to improved laboratory quality as measured by indicators in this evaluation
- Country ownership will require dedicated MoH staff and training and maintenance costs to be integrated into national lab budget..local partners will be key
- Training should be routinized to keep up with staff turn over and evolving use of eLIS

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