IDI'S Experience on health facility malaria case management.

Presentation at the Fresh Air `National Malaria Technical Update and coordination Workshop at Hotel Africana, Kampala.

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Joint Uganda Malaria Training Programme **(JUMP)**

Collaboration involving:

Uganda Malaria Surveillance Project (UMSP)
Infectious Diseases Institute (IDI) ,
National Malaria control program of Ministry of Health

Aim of JUMP:

To build capacity of health facilities for management of patients with fever/Malaria through training.

Rationale for the training

- Malaria case management in Africa is characterized by presumptive treatment and substantial overtreatment [McCombie1996,Ndyomugenyi 2007].

  treatment without laboratory tests [Hammer etal 2007,Zurovac D 2006].

  Prescription of anti-malarials to negative Bs [Reyburn H 2007].

- Treatment inconsistent with policy [Osterholt DM 2006].

- Malaria Rx policy changed in 2005 from first line treatment with inexpensive CQ/SP to ACTs.

Two types of courses

1. Integrated Management of Malaria (IMM)
    - Diagnosis with microscopy
    - For health units with functional labs
    - Delivered at IDI and within districts.
2. Use of Malaria Rapid Diagnostic Tests(RDT) for fever case management
    - Diagnosis with RDTs
    - For Health units without functional labs
    - Includes nursing aides
    - Delivered on site

IMM Course content

General aspects of Malaria (Module 1)

- Malaria transmission and Disease causation
- Epidemiology of Malaria Control and Policy framework for Malaria
- Record keeping
- Medical Supplies management
- Infection prevention Ethical code of conduct

- **Clinical management of Malaria (Module 2)**
- Evaluation of a patient with a fever
- Making a definitive diagnosis of Malaria
- Management of patient with fever and a negative Blood Slide
- Treatment of uncomplicated Malaria
- Treatment of severe malaria
- Treatment of Malaria in Pregnancy
- Management of fever after malaria treatment
- Monitoring for drug safety
- Malaria and HIV/AIDS co-infection
- Patient education

- **Medical records management Module 4)**
- Medical record keeping
- Data storage
- Data retrieval and updating
- Analyzing data
- Interpretation of data
- Presentation of data
- Disposal of data
- Surveillance and data

Laboratory use in Malaria patient management (Module 3)

- Good Laboratory Practice
- Microscopy
- Preparation and storage of different reagents/stains for Malaria microscopy
- Laboratory diagnosis of Malaria
- Quality Assurance/ Quality Control in Malaria microscopy

IMM package

- Baseline assessment on site

- 6 day training of multidisciplinary teams

- Two follow-up support supervision at six and 12 weeks

Method of assessment

1. Individual health worker performance assessment during site visits.
2. pre and post tests during training.
3. Surveillance data analysis.

Target Audience

Clinicians	Laboratory staff	Records staff
Medical Officers Clinical Officers Registered Nurses Registered Midwives Registered Comprehensive Nurses Enrolled Nurses Enrolled Midwives Enrolled Comprehensive Nurses	District Laboratory Coordinator Lab Technologists Lab Technicians Lab Assistants	Records clerks Malaria Focal Persons Surveillance focal person Health Management Information system (HMIS) focal person

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Course Organization

Day 1	Days 2, 3, 4	Day 5	Day 6
Common Sessions 1,2,3 & 6 of module 1 for	**Parallel Discipline Specific** Sessions for	**Common** Session 7 of module 1 for all	**Common** sessions 4 & 5 of module 1 for all
Clinical, Laboratory and records Staff together	Clinicians Module 2, Laboratory Module 3 Records Module 4	Clinical, Laboratory and records Staff together	Clinical,Laboratory and records Staff together Post test,
(Lectures & case discussions)	*(Lectures and case discussions)*	**Discipline specific** clinical placement	Regional action plan presentations.
Regional group discussions	Regional group discussions	Regional action plan development	End of course evaluation and closure

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Indicators for IMM course

Proportion of clinicians who:-

- *Take proper history*
- *perform a proper physical examination*
- *Make a correct diagnosis*
- *Prescribe correct treatment*
- *Perform a proper patient education (counseling on adherence, prevention and follow up care)*
- *Negative smears treated with antimalarials*

Proportion of laboratory staff who:-

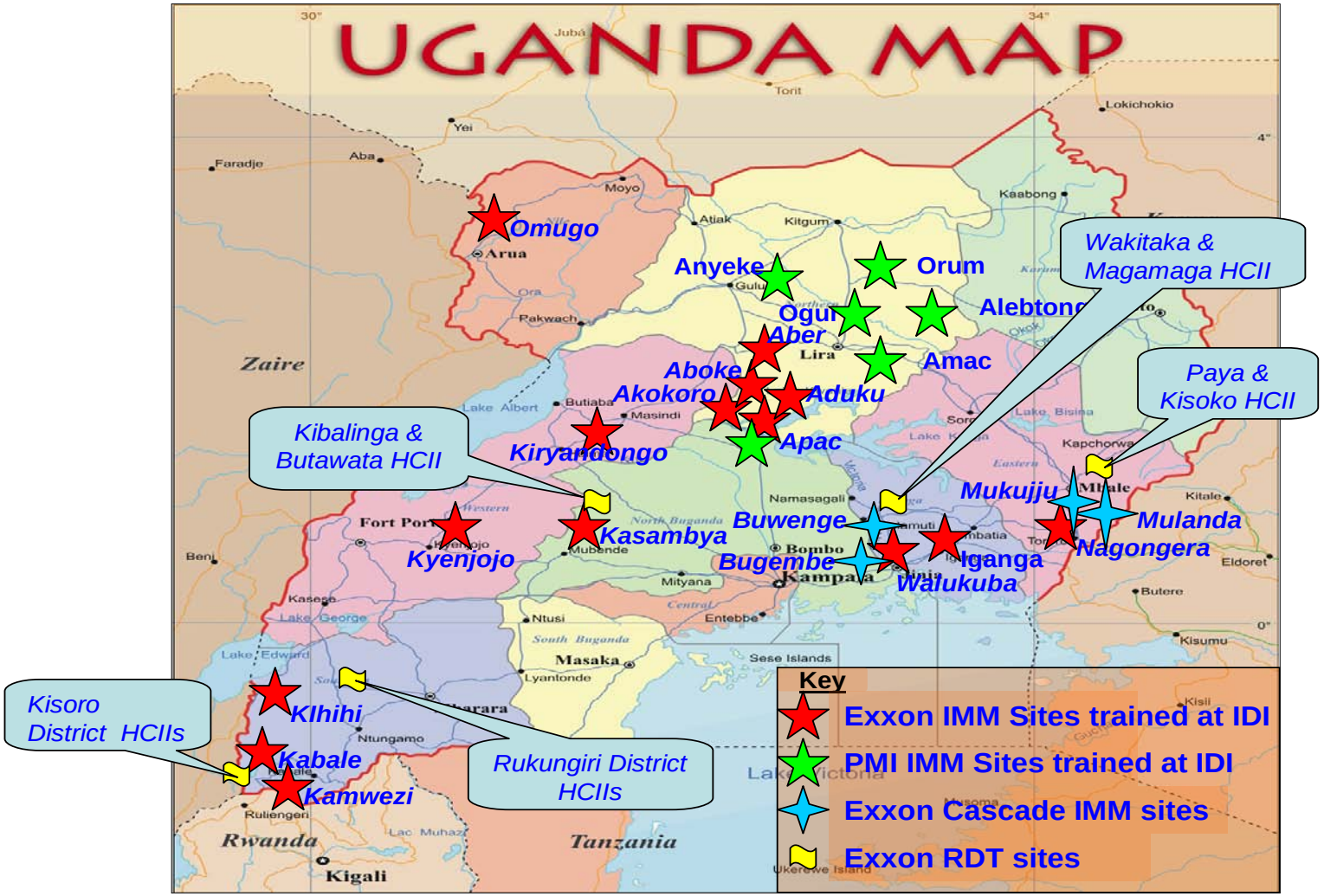
- *Prepare malaria blood smears correctly*
- *Correctly read positive blood smears*
- *Correctly read negative blood smears*

Records

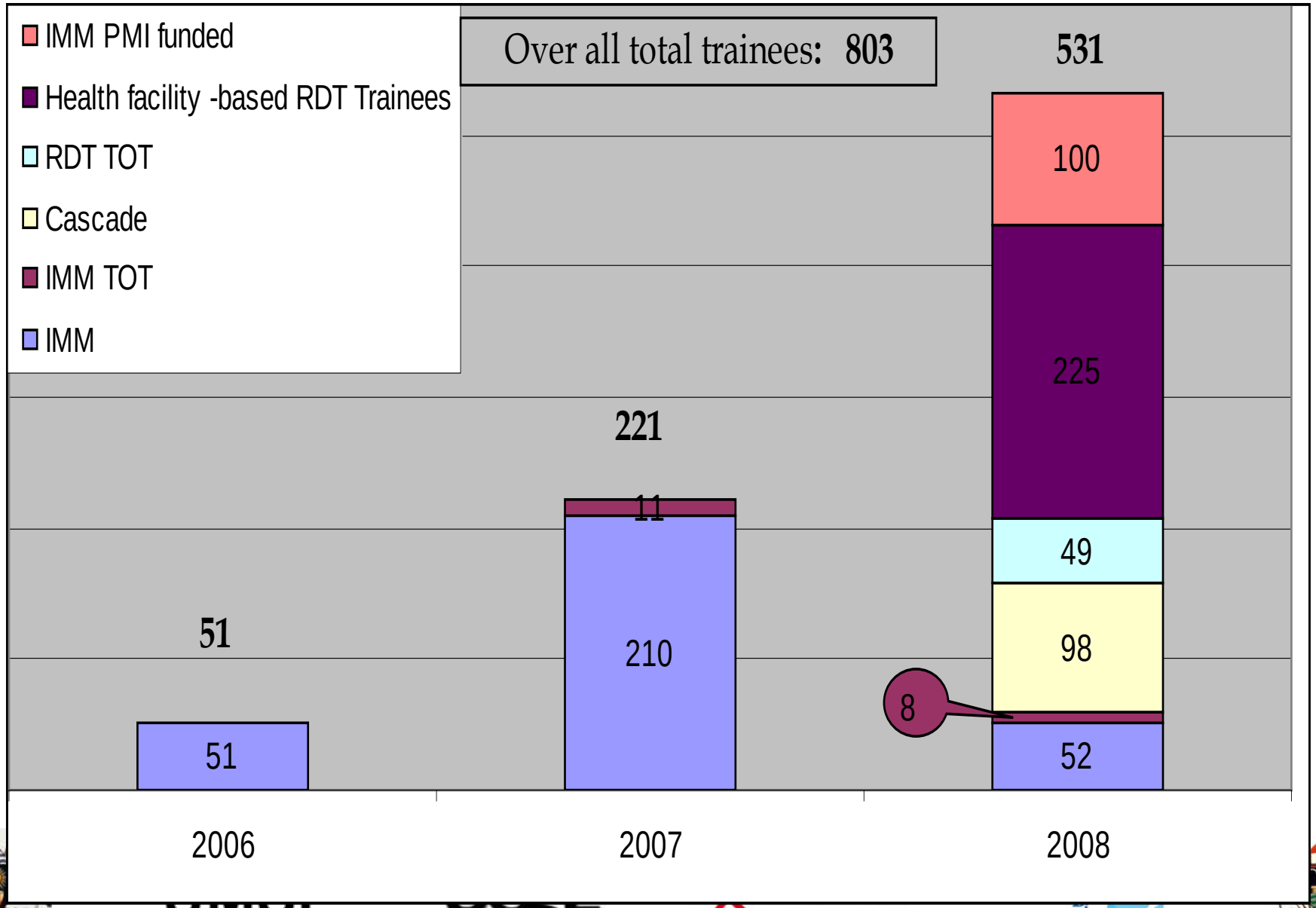
- *Completeness*
- *Quality of the handwriting*

RESULTS

Map of Uganda showing the distribution of Health Facilities where the trainees were drawn and type of course given to each facility:



Graph Shows total trainees to date according to course attended and year of training.



Key indicators for children under 5 years

	Pre	Post	Mean Difference	**Significance**
Microscopy among suspected malaria	38.5%	60%	16.1%	<0.04
BS- with Malaria Tx	**47.9%**	**19.6%**	**-28.3%**	**<0.001**
Sample Size	8	8		

Key indicators for patients 5 or more years

	Pre	Post	Mean Dif-ference	Significance
Microscopy among suspected malaria	***34.1%***	***53.4%***	***22%***	**0.02**
BS- with Malaria Tx	38.8%	15.6%	-23.2%	<0.001
Sample Size (no Hus)	8	8		

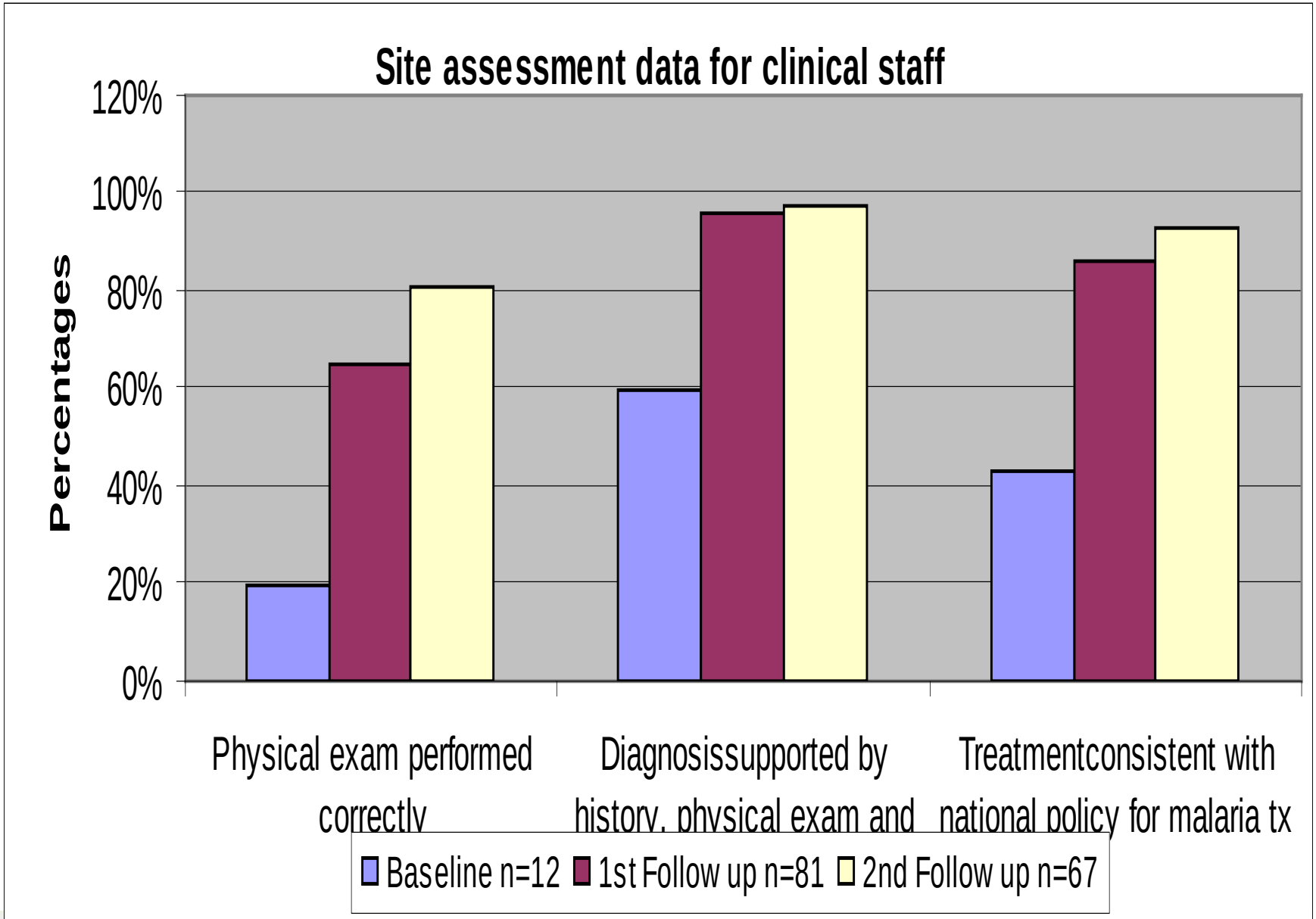
Indicator	Baseline	1st F/Up (6weeks)	2nd F/Up (6weeks)
Laboratory (n=Number evaluated)	**17**	**16**	**14**
% of BS prepared correctly	22%	67%	63%
% of BS read correctly	49%	71%	70%
% of positive BS read correctly	49%	71%	70%
% of negative BS read correctly	72%	77%	91%

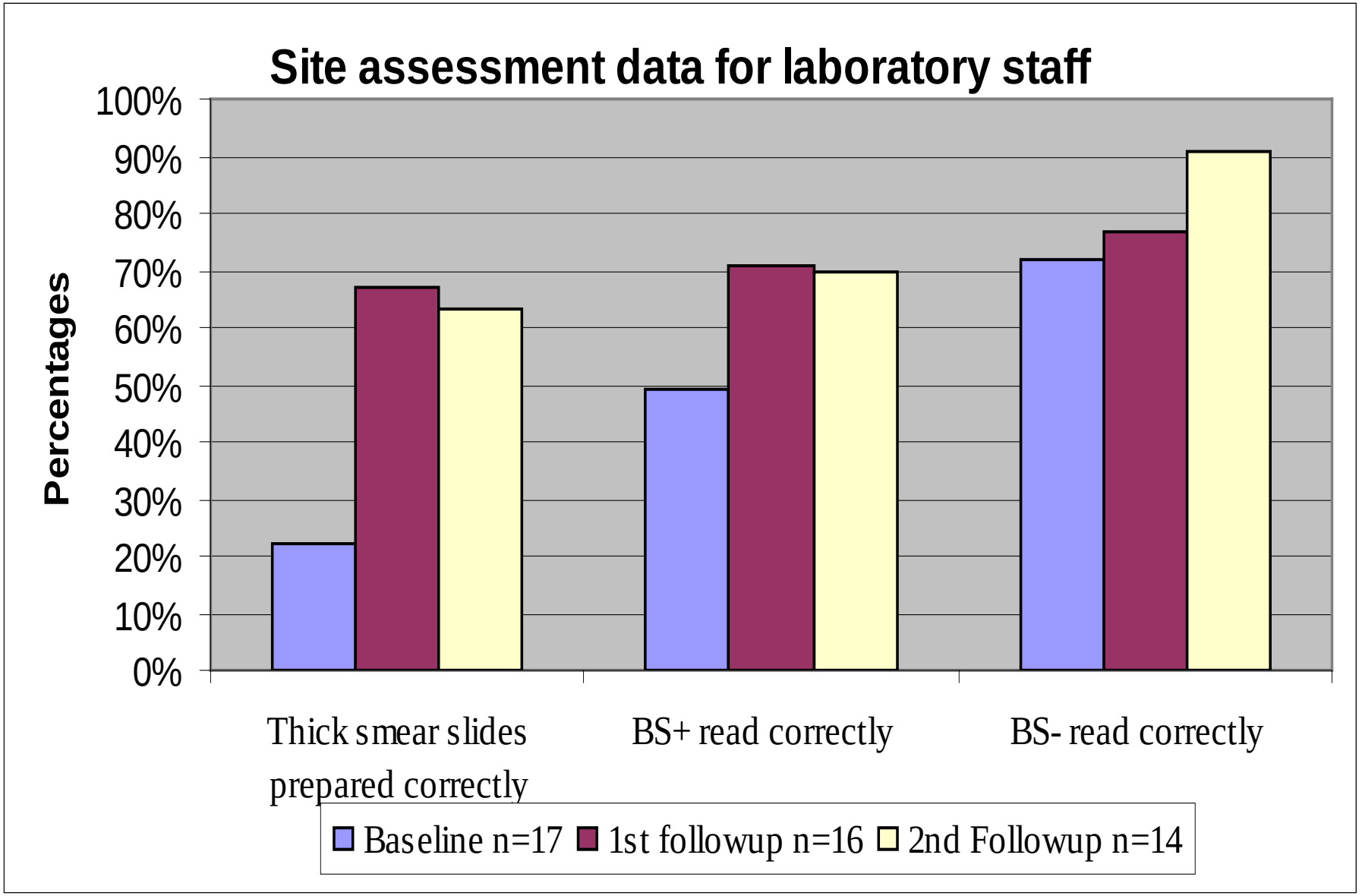
The effect of the IMM training on performance of trained health care workers

Indicator	Baseline percentage that performed task correctly	1st and 2nd follow-up percentage correct	Relative Risk (unadjusted) 1st & 2nd f/up /Baseline
Sample Size - visits observed	101	148	
Proper history taking	20	50	2.53
Thorough physical exam	18	68	3.83
Correct diagnosis	47	96	2.05
Correct treatment	42	89	2.14

Performance of health care workers in the cascade trained sites (Bugembe and Buwenge HC IVs).

	Baseline	1st Follow up	2nd follow up	Mentoring visit
Clinical (Number assessed)	22	25	22	17
Proportion of health workers that take proper history (%)	9.0	16.0	59.1	23.5
Proportion of health workers that do a thorough physical examination of patients (%)	0.0	20.0	27.3	5.9
Proportion of health workers that make a correct diagnosis (%)	35.2	68.0	54.5	64.7
Proportion of health workers that prescribe the correct treatment (%)	40.9	68.0	59.1	88.2
Proportion of health workers that give adequate and relevant patient education (%)	0.0	8.0	22.7	29.4
Laboratory (Number assessed)	4	6	3	4
Mean proportion of smears prepared correctly. (%)	0	80.0	66.7	100.
Staff mean sensitivity (%)	27.5	71.3	64.3	96.7
Staff mean specificity	63.0	92.0	75.7	85.0


Site assessment data for clinical staff
120%
100%
80%
60%
40%
20%
0%
Percentages
Physical exam performed correctly
Diagnosissupported by history, physical exam and
Treatmentconsistent with national policy for malaria tx
Baseline n=12
1st Follow up n=81
2nd Follow up n=67


Site assessment data for laboratory staff
Percentages
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Thick smear slides prepared correctly
BS+ read correctly
BS- read correctly
Baseline n=17
1st followup n=16
2nd Followup n=14

RDT course

- Done in 2 districts, trained all HCII and HCIII without functional laboratories
- 6 other HCII during the training of national trainers
- 225 health workers were trained in total
- Data is still under analysis but from general observations patients in trained health units are treated according to results unlike earlier when every fever was treated as malaria.

Schedule for RDT

Day 1	**Day 2**
Evaluation of patient with fever	
Performing and Interpretation of RDT results	Patient education
Treatment of uncomplicated malaria	Practical
Management of a patient with fever but a negative RDT	Logistics Management &Storage and monitoring
Referral of patients with severe disease	

Effect of the training on quality of care in health facilities.

- ❑ Training teams helps to cause unity in service delivery.
- Clear evidence of team work
- Improved utilization of the labs for confirmation of Malaria cases.
- ❑ Improvement of the quality of care
  - Improved diagnostic skills by clinicians
  - Improved laboratory diagnosis
  - More rational use of malaria treatment with significant reduction in treating negative smears
- Improved completeness and cleanliness of the records
- ❑ The improvements observed increase with continued follow-up.

Challenges

- Health system issues affect health worker performance:
  - o Personnel issues at sentinel sites
    - Inadequate staffing especially in the laboratory
    - Low motivation
    - Transfers disorganize the built teams.
  - o Lack of reliable source of power for microscopy
  - o Shortage of drugs and medical supplies/equipment
- Inadequate funding

Lesson learnt

- Training of teams rather than individuals causes unity in service delivery
- Fever case management is better after training and further improvement observed with continued support supervision.
- Laboratory trainees need more hands-on experience to perform better.
- There are health system issues that limit further improvement.
- The cascade mode of delivery of the IMM training is cheaper and effective in improving health care worker practices and allows for easy scalability.
- On site training helps to reach wider coverage in a shorter period of time.

Achievements

- JUMP RDT curriculum has been adopted by MOH for national roll out
- IMM curriculum has been approved by national Case Management working Group
- The laboratory module has been adopted by STOP MALARIA for training laboratory staff.
- UMSP using it for the PMI supported trainings

Conclusion

Integrated team-based training with support supervision improved key indicators of malaria case management and reduced the number of unnecessary antimalarial treatments.

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