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Report of the Technical Consultancy for Laboratory Networks to Support Integrated Disease Surveillance and Response (IDSR) in the African Region

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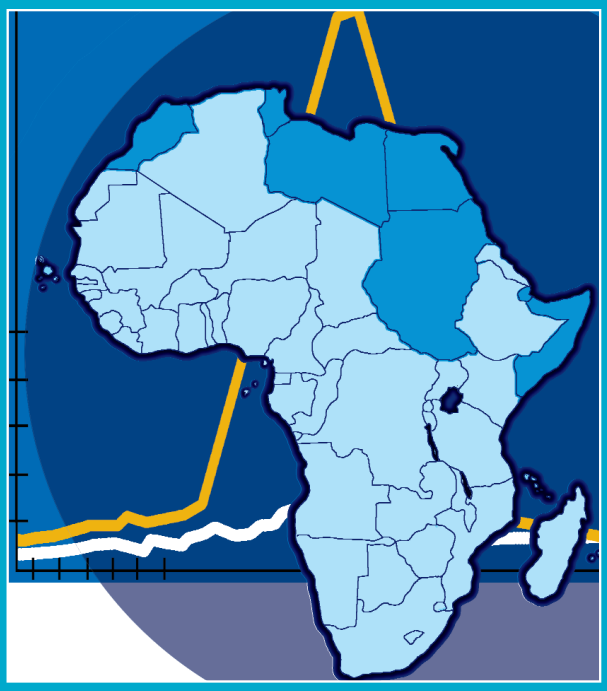
Meeting co-hosted by

World Health Organization Regional Office for Africa (AFRO) and

Centers for Disease Control and Prevention (CDC)

September 13-15, 2005, Atlanta, Georgia, USA



CDC Centers for Disease Control and Prevention

WORLD HEALTH ORGANIZATION Regional Office for Africa

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Technical Consultancy for Laboratory Networks to Support Integrated Disease Surveillance and Response (IDSR) the African Region

Meeting co-hosted by
World Health Organization Regional Office for Africa (AFRO) and
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September 13-15, 2005
Atlanta, GA USA

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Executive summary

Introduction

Member States in the WHO African region adopted the Integrated Disease Surveillance (IDS) strategy in 1998. Since then, nearly all of the 46 Member States have incorporated IDSR into their national surveillance programs for detecting and controlling priority infectious diseases.

At the 2004 annual meeting in Harare, Zimbabwe, the IDSR taskforce (WHO AFRO and IDSR partners) recommended that Member States strengthen laboratory capacity and linkages with surveillance by implementing or reinforcing national laboratory networks (NLN). In the past year, the IDSR lab working group has made considerable progress in supporting the countries toward this recommendation (such as drafting NLN guidelines and IDSR lab indicators, and proposing frameworks of standard processes and foundations of core functions of a network).

Methods

On September 13-15, 2005, WHO (AFRO and HQ) and CDC convened a technical meeting on laboratory networks in Atlanta, Georgia, USA. The purpose of the meeting was to review the draft NLN guidelines and IDSR lab indicators, and to hear NLN experiences from four African countries (DRC, Rwanda, Senegal and Zambia).

Colleagues from WHO (AFRO and HQ), CDC, and IDSR partners presented on aspects of surveillance and laboratory, and emphasized the importance of partnerships for IDSR in the African region. NPHL directors and epidemiologists from the four African countries each presented background information on their national IDSR systems and data on IDSR core indicators. They described their progress with NLN, and presented lab data and data on NLN functionality.

During the second half of the meeting, the participants worked in break-out sessions: 1) to review the guidelines for establishing NLN; and 2) to review indicators for monitoring the implementation of lab networks in the African region.

Results

Overall, the countries showed steady progress with strengthening labs and establishing and maintaining NLN. Some areas of improvement included: links with epidemiologists and MOH; communication channels between the levels; coordination of activities and training; advocacy for NLN; reporting of indicator and lab data; and political support.

The results of the 1st break-out session (NLN guidelines) included suggestions for countries to: develop a NLN vision and legal framework; develop a five-year plan for lab systems; establish a national directorate of labs in the MOH; identify the roles and responsibilities of labs at each level; and develop a monitoring and evaluation system and a plan for advocacy. The results of the 2nd break-out session (lab indicators) included technical revisions to the indicators, and comments on feasibility and availability of data for measuring the indicators, and interpretation and usefulness of the results. New indicators were proposed to address SOP for IDSR priority diseases, training, and performance in national EQA programs.

Conclusions

WHO (AFRO and HQ), CDC, IDSR partners, and NPHL directors and epidemiologists convened to critically discuss NLN and IDSR lab indicators for the African region. The four presenting African countries showed steady progress and strong commitment toward establishing and maintaining NLN. The meeting participants shared their experiences and lessons learned with NLN and lab indicators, and made recommendations in these focus areas: NLN vision and legal framework; roles and responsibilities of labs; funding support and resource sharing; and advocacy. The participants also recommended technical revisions to the 14 draft lab indicators, and proposed new ones.

Recommendations

The meeting participants agreed to the following recommendations and dates of completion:

- Finalize and disseminate the meeting report and CD of materials, and create a FTP site to post materials (by October 2005)
- Small group to finalize the lab indicators and disseminate to lab meeting participants (by November 2005)
- Small group to finalize the NLN guidelines (by November 2005)
- Provide indicators to the IDSR core indicator working group (by December 2005)
- Field test the lab indicators in Rwanda and Zambia (in Quarter 1, 2006)
- Desktop review/pre-test NLN guidelines in African countries (in Quarter 1, 2006)
- Follow-up technical meeting joint with epidemiology (in Quarter 4, 2006)

Abbreviations

WHO AFRO	World Health Organization Regional Office for Africa (Zimbabwe)
WHO HQ	World Health Organization headquarters (Switzerland)
CDC	Centers for Disease Control and Prevention (USA)
CCID	Coordinating Center of Infectious Diseases (CDC)
COGH	Coordinating Office of Global Health (CDC)
DBMD	Division of Bacterial and Mycotic Diseases (CCID/CDC)
DESCD	Division of Epidemiology and Surveillance Capacity Development (COGH/CDC)
EQA	External quality assurance
FELTP	Field Epidemiology and Laboratory Training Program
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
MOH	Ministry of health
M&E	Monitoring and evaluation
NLN	National laboratory network
NPHL	National public health laboratory
SOP	Standard operating procedures
USAID	United States Agency for International Development (USA)

1.0 Background

In 1998, Member States in the WHO African region adopted the Integrated Disease Surveillance (IDS) strategy through resolution AFR/RC48/R2. The IDS strategy aims to strengthen national surveillance systems by improving the availability and use of surveillance and laboratory data to control priority infectious diseases.

To strengthen laboratories in IDSR systems, WHO AFRO and IDSR partners developed national objectives in these broad areas:

1. linkage of public health laboratory diagnostics with national and regional surveillance activities,
2. establishment of accurate, appropriate, and sustainable diagnostic practice, and
3. effective collection, management, reporting, and use of laboratory data.

At the 2004 annual meeting in Harare, Zimbabwe, the IDSR taskforce (WHO AFRO and IDSR partners) recommended that countries implement or reinforce laboratory networks for IDSR. The recommendation underlined the need to

- develop a definition of a functional laboratory network including specific elements that comprise a network,
- specify planning and supervision appropriate to a functional network,
- develop a framework for external and internal quality control, and
- specify the practical requirements for human and material resources that are essential to establishing and maintaining laboratory networks.

To assist the countries with these objectives, WHO AFRO formed an IDSR laboratory working group comprised of members from WHO AFRO, WHO Lyon, and CDC. In the past year, the working group has drafted guidelines for a national laboratory network (NLN), and proposed frameworks for describing the standard processes and foundations associated with the core functions of a NLN. The IDSR laboratory working group also collaborated with the IDSR indicator working group to draft indicators for laboratory networks.

On September 13 - 15, 2005, WHO (AFRO and HQ) and CDC convened a technical consultancy on laboratory networks for IDSR, in Atlanta, Georgia, USA. Colleagues from WHO (AFRO and HQ), and CDC, and IDSR partners and national public health laboratory (NPHL) directors and epidemiologists from four African countries (Democratic Republic of the Congo, Rwanda, Senegal and Zambia) attended the meeting.

2.0 Objectives and expected results

2.1 Objectives

The objectives of the meeting were to

- review the recommendations for establishing or reinforcing NLN within ministries of health (MOH),
- review proposed indicators for monitoring progress towards development of functional laboratory networks, and
- extract and apply experiences and lessons learned from four African countries.

2.2 Expected results

The expected results at the end of the meeting were to have

- practical information to guide the development of the NLN guidelines, and
- feedback on the proposed indicators for laboratory networks

3.0 Welcoming remarks and presentations

3.1 Welcoming remarks

To commence the meeting, brief welcoming remarks were given by

Dr. Wondi Alemu**,** head, IDS sub-unit, Division of Communicable Disease Prevention and Control (CSR), World Health Organization Regional Office for Africa (WHO AFRO)

Dr. Jean Bosco Ndihokubwayo, head, Lab-unit, Division of Communicable Disease Prevention and Control (CSR), World Health Organization Regional Office for Africa (WHO AFRO)

Dr. David Warnock**,** director, Division of Bacterial and Mycotic Diseases (DBMD), CDC/Coordinating Center for Infectious Diseases (CCID)

Dr. Nancy Rosenstein, chief, Meningitis and Special Pathogens Branch (MSPB), DBMD/CDC/Coordinating Center for Infectious Diseases (CCID)

Dr. Mark White**,** director, Division of Epidemiology and Surveillance Capacity Development (DESCD), CDC/Coordinating Office of Global Health (COGH), welcomed the participants on behalf of ***Dr. Steve Blount***, director, COGH, and ***Dr. Eugene McCray***, director, Office of Capacity Development and Program Coordination. Dr. White briefly described the current reorganization at CDC, which emphasizes a cross-center approach. He stressed that programs must apply good science and work through partnerships to achieve public health impact and improve health. Dr. White commended IDS in the African region for its successful partnerships, which provide a model for future collaborations.

3.2 Summary of presentations

Dr. Mark White**,** director, DESCD/COGH/CDC, presented the vision and mission of DESCD and its role in helping MOH in countries around the world to improve and establish field epidemiology and laboratory training programs (FELTP). Partnerships between DESCD and countries are critical for achieving functional and successful FELTP. Dr. White compared the goals of FELTP with IDSR in the African region. FELTP, like IDSR, must have close linkages between laboratories and surveillance systems. Dr. White suggested that laboratory staff be given equal respect and status as epidemiologists in MOH. Also, a career path and higher-level jobs are needed to provide incentive and to retain laboratory staff.

Dr. Sambe Duale, on behalf of the United States Agency for International Development (USAID), reaffirmed the agency's commitment to continue supporting IDSR in the African region. USAID recognizes the importance of the laboratory component in IDSR. Dr. Duale suggested that countries document success stories to help advocate for mobilizing efforts and expanding the resources needed for countries to implement IDSR.

Dr. Stella Chungong**,** WHO headquarters (HQ), expressed the importance of enhancing global efforts to strengthen early recognition, alert, and containment of infectious diseases. WHO/Communicable Disease Surveillance & Response (CSR) has developed a three-pronged strategy that includes: containing known risks, global outbreak alert and response, and improving preparedness. The revised 2005 International Health Regulations (IHR) provide the legal framework for this strategy. In the next biennium, CSR will focus on supporting the development of core capacities for IHR, and preparedness and response for pandemic influenza. Epidemiology and laboratory capacity and networks are essential to this work. Monitoring and evaluation (M&E) are also integral components, and lead to stronger partnerships toward common goals for more systematic measurement. Also, lessons learned can be used more effectively to guide public health strategies. Dr. Chungong expressed that the time is right for an indicator culture, where innovation can be stimulated toward outcome improvement and the effects of interventions.

Dr. Margaret Lamunu, WHO HQ, elaborated on the three-pronged strategy developed by WHO/CSR, and discussed the IHR regulations and core capacities for surveillance in the countries. Dr. Lamunu emphasized the importance of M&E. Current WHO activities in these areas include developing a M&E protocol, an indicator user guide, global database, and minimum standards and criteria for a functional surveillance and response system. The primary challenge is developing tools that can be used by all countries given that there are variations in disease priorities, surveillance systems, and human, financial and material resources. Additional challenges include developing cost effective methods for generating M&E data, building capacity for M&E at all levels of surveillance systems, and ensuring implementation of M&E and use of the data.

Dr. Philippe du Bois, WHO HQ, presented the laboratory perspective of the WHO/CSR three-pronged strategy. The revised 2005 IHR now include a laboratory component. To increase involvement of laboratories in surveillance systems, key issues to address include specimen collection and transport, referral of specimens to private laboratories, testing results and feedback, and defining the roles of rapid diagnostic tests and collaborating centers.

Dr. Wondi Alemu, WHO AFRO, presented an overview of the IDS strategy in the African region. The IDS strategy was adopted by Member States in 1998 to strengthen national surveillance and response systems, including strengthening and involvement of laboratories, with an overarching goal of reducing mortality, disability and morbidity from priority infectious diseases. The major thrusts of the strategy are prioritizing communicable diseases, strengthening and involving public health laboratories, strengthening data management, and building communication networks. Since its adoption, 44 of the 46 Member States have made significant progress with IDSR activities. Currently, 93% of the countries have completed an initial assessment of their national surveillance and response systems, including the laboratory components, and developed a strategic IDSR plan for their country; 89% have adapted the IDSR technical guidelines; and 67% have started training. Progress is evidenced by data analysis and epidemic detection of priority infectious diseases in the countries (2004 malaria epidemic in Ghana; 1999-2003 malaria cases in Eritrea; 2001 cerebrospinal meningitis epidemic in Burkina Faso). Major challenges with IDSR implementation still remain (for instance, maintaining national ownership of IDSR, rolling-out IDSR in all districts of all countries, ensuring quality and availability of surveillance data, ensuring sustainable funding).

Dr. Jean Bosco Ndihokubwayo, WHO AFRO, expressed that laboratories in the African region have been one of the weakest components in surveillance and case management. A key goal of the IDSR strategy is to link laboratories with surveillance systems. WHO AFRO has developed a sub-set of goals for laboratory strengthening and networking. WHO AFRO and the countries are slowly making progress toward these goals. Dr. Ndihokubwayo suggested that countries develop a strong vision for their laboratory networks, and continue to promote the role of labs in the IDSR strategy and gain political support.

Dr. Ndihokubwayo described the external quality assurance (EQA) program in the African region, which aims to help participating laboratories assess their capabilities and guides WHO AFRO in developing activities targeted to the laboratories' needs. Currently, there are 64 laboratories from 44 countries participating in the EQA program. The next steps are to expand participation to additional laboratories in Burkina Faso, Cameroon, DRC, and Niger, and Djibouti and Sudan in the eastern Mediterranean region; expand the disciplines to include tuberculosis and malaria; and support 10 African countries in 2006 to set up national EQA programs.

Dr. Ndihokubwayo provided examples of laboratory data on meningitis outbreaks in the meningitis-belt countries in Africa. This laboratory-based surveillance data highlighted that laboratories are now guiding public health action and decision making to prevent and control outbreaks.

4.0 Summary of country presentations

4.1 Presenters

Democratic Republic of the Congo (DRC)
Dr. Mondonge Makuma, chief, Epidemiology Division
Dr. Louis Koyange Delysogo, Minister of Health

Rwanda
Dr. Nsengayire Florent Senyana, director, Epidemiology & Disease Prevention
Mr. John Baptiste Gatabazi, biomedical scientist

Senegal
Prof. Iyane Sow, Reseau National de Laboratories

Zambia
Dr. James C.L. Mwansa, consultant medical microbiologist
Dr. Lubinda Wamunyima, data management specialist

4.2 Summary of presentations

National public health laboratory directors and epidemiologists from four African countries (DRC, Rwanda, Senegal, and Zambia) each presented background information on their national IDSR systems and data on IDSR core indicators. They described their progress in establishing NLN, including the critical steps, lessons learned, links between the NLN and epidemiology, improvements in outbreak confirmation, advocacy for NLN, and barriers and constraints. They also presented laboratory data from national public health laboratories (NPHL) and indicator data on the functionality of their NLN. A summary of NLN attributes for these African countries is presented in Table 1. (See Annex 4 for country presentations)

Table 1

	IDSR adopted	NLN established	# of labs in NLN	Support of NLN
DRC	1998	1998	National (1) Provincial (5 out of 11 functional) Hospital (515)	WHO, Coop. Francaise, Coop. Belge
Rwanda	2002	2003	Central (1) District (33)	Government funded, NGOs (for HIV, malaria and TB)
Senegal	2000	1999	National (17) Regional (12) District (51)	WHO (1999), WB (2003, 2004)
Zambia	2000	2000	National (1) Central (4) Provincial (9) District (72)	MOH, provincial level, district (by laboratory specialists in HIV, malaria, measles, polio and TB that have special funds)

4.3 Country experiences with NLN establishment

Critical steps

Overall, the countries showed steady progress with establishing and maintaining their NLNs. Critical steps included:

- identification of a NPHL to coordinate the NLN
- adoption of a national policy defining the role of laboratories
- adoption of a legal framework to establish the NLN
- obtaining a budget line for the NLN
- provision of technical guidelines and standard operating procedures (SOP)
- provision of material resources
- training on relevant laboratory issues

Lessons learned

The countries observed that:

- the roles and responsibilities at the national-level are not clearly defined
- supervision is critical to ensure that the NLN is functioning according to plan
- lab infrastructure has not developed along with the expansion of the network
- it is critical for the health system to function well in order for surveillance and laboratory services to also function well
- delays in laboratory confirmation of outbreaks results in delays in response, and weak reliance on laboratory services leads to reduced laboratory confirmation of outbreaks
- good coordination and logistical support is needed for well-functioning health and surveillance systems

Links between NLN and epidemiology

Country experiences included: joint attendance of laboratory and epidemiology staff at national meetings on IDSR; joint participation in outbreak investigations; and joint attendance at meetings for data review and analysis. Some countries have developed a national strategy that emphasizes links between laboratory and epidemiology and joint planning.

Improvements in outbreak confirmation

Countries stated that outbreak confirmation could be improved by the provision of materials for specimen collection and transport, training of staff in specimen collection and transport, sharing of information on suspected outbreaks with the NPHL, and prompt communication of laboratory results to the epidemiology unit.

Advocacy for the NLN

Country efforts to advocate for the NLN included the presence of a laboratory specialist office in the MOH, involvement in developing the national policy on the NLN, and partner meetings.

4.4 Barriers and constraints

The meeting participants discussed major barriers and constraints to laboratory services and establishing and maintaining NLN in the countries. Some of the common barriers and constraints included:

- lack of political support in the countries
- inadequate human, financial, and material resources
- lack of functional bacteriology laboratories at peripheral levels
- inadequate coordination of referral laboratories, training, and activities
- inadequate coordination of staff and other non-governmental organizations with laboratory programs in the countries
- lack of transportation of specimens to referral laboratories
- communication and data sharing between the levels is not timely
- lack of recognition of the role of the laboratory in IDSR systems
- low motivation of laboratory staff due to lack of career path, high level jobs and remuneration, and logistics, such as housing
- poor laboratory data management due to staff lacking epidemiology and biostatistics skills, and also there is a lack of computers
- limited infrastructure and coordinating office to support laboratory networking
- laboratory staff from district labs are being drawn to better job opportunities
- poor case detection due to low proportion of specimens being collected, or the wrong specimens are being collected
- limited communication facilities between laboratories and the levels in the IDSR system
- lack of training in IDSR at the health center level

4.5 Suggested solutions and actions

The meeting participants discussed the following solutions and actions to address the barriers and constraints to laboratory services and NLN:

- Identify what is needed in terms of political commitment to strengthen laboratory services and develop laboratory networks in the countries. Design some strategies for getting political commitment.

- Build capacity of bacteriology and local laboratories at the peripheral levels; ensure sustainable provision of laboratory reagents, equipment and supplies; and establish communication and transportation channels between laboratories and the levels of the IDSR system. Countries should allocate budgets to support these laboratory services, and also for establishing and maintaining laboratory networks.

- Develop a career path and higher-level jobs to provide incentives and to retain laboratory staff.

- Document success stories for advocacy to donors to mobilize efforts and expand the resources needed to implement IDSR.

- Document the challenges of collecting data to measure IDSR laboratory indicators.

- Institutionalize involvement of laboratories in disease surveillance.

- Complete IDSR training at all levels.

5.0 Break-out session 1: Review of NLN guidelines

The meeting participants divided into two groups to review the draft NLN guidelines for the African region. The participants provided comments and feedback based on their country and agency experiences. (See Annex 5 for break-out session guidelines)

5.1 Summary of reports

The groups provided complementary and overlapping suggestions of how a laboratory network should be set up. The groups suggested that countries develop a NLN vision and legal framework; develop a five-year plan of action for laboratory systems; establish a national directorate of laboratories in the MOH; identify the roles and responsibilities of laboratories at each level; and develop a monitoring and evaluation system and a plan for advocacy. (See Annexes 5 and 6 for break-out session guidelines and group reports)

5.2 General comments

In response to the reports from the break-out session, the meeting participants made the following comments:

Vision and legal framework for NLN

- The NLN vision should be based on the national goals, and on the existing laboratory system. It should aim to support IDSR. Countries should define the optimal structure for their NLN and the roles and responsibilities of each level. Also, it is important to define the private sector's role in the NLN.

- The NLN enables laboratories to interact with other laboratories and epidemiologists to support IDSR in the country. The NLN is built on the existing laboratory system in the country. The NLN does not build laboratory capacity, but enhances the existing capacity so that laboratories can support surveillance.

- Countries need a "road map" or steps on how to set up a laboratory network. This "road map" should list the essential elements that countries should have in place for successful networks. Countries need to establish big goals for laboratory networks, but also small goals that can be achieved on a small

budget. The “road map” should a have “minimum” plan of action for countries starting off with small budgets for laboratory networks.

- In some countries, the HIV program has become an autonomous network replacing the national network. The plan is centered on HIV and related diseases. There is no mention of cholera, meningitis and other diseases. This has resulted in non-HIV laboratories becoming marginalized. Plans for laboratory networks should include integration of all the diseases.

Roles and responsibilities of laboratories

- In the NLN, each level should know the roles and responsibilities of the other levels. The national goals of the laboratory network should coincide with the international goals. This simulates a top down and bottom up approach. National efforts are placed in a larger context, and all the levels in the network work together toward common goals.

Obtaining funding support and sharing resources

- Countries should have line items in their national budgets for laboratory services and the NLN. Budgets should differentiate between the public health component of laboratories and the clinical component.

- In soliciting funding for IDSR and laboratory services, countries should aim to seek donors which will support their national goals rather than the goals of the donors. Countries need to be empowered to obtain resources that already exist in the countries.

- To enhance IDSR and laboratory capacity, countries should identify ways to share resources of vertical programs (such as HIV). Need to identify areas where vertical programs could benefit from IDSR and laboratory services, and design strategies for working with vertical programs and sharing resources.

- In plans for HIV and PEPFAR budgets, countries need to emphasize to WHO and donors that HIV is a cross-cutting disease causing opportune infections, and that PEPFAR funds should support these diseases too.

- In South Africa, laboratories used PEPFAR funds to support other diseases besides AIDS, specifically to hire surveillance officers for data management, and laboratory staff for handling isolates and to do molecular studies.

Advocacy

- Advocacy is needed at the national level in the countries to make-known the value of laboratory services in an IDSR system.

5.3 Next steps

The next steps for developing the NLN guidelines are:

- Compile the feedback and comments from the groups
- Convene a small group to finalize the NLN guidelines
- Conduct a desktop review/pre-test of the NLN guidelines with key people in countries

It is expected that these steps will be completed by the end of the first quarter in 2006.

6.0 Break-out session 2: Review of IDSR lab indicators

The meeting participants divided into two groups, and reviewed 14 proposed IDSR core indicators for monitoring the implementation of laboratory networks in the African region. The participants provided comments and feedback based on their country and agency experiences. (See Annexes 7 and 8 for break-out session guidelines and group reports)

6.1 Summary of reports

The groups suggested technical revisions to each indicator (what it measures, how it should be calculated, how often, levels for use). The groups also commented on feasibility and availability of data for measuring the indicators, and interpretation and usefulness of the results. The groups proposed new indicators to address standard operating procedures for IDSR priority diseases, training on relevant laboratory issues, and performance in national external quality assurance programs. (See Annex 8 for group reports)

6.2 General comments

In response to the reports from the break-out session, the meeting participants made the following comments:

- The types of IDSR lab indicators should be differentiated and the purpose should be defined for each indicator. For example, different types are: monitoring and evaluation indicators (for measuring ongoing progress), and assessment indicators (for measuring initial progress).

- Based on WHO AFRO experiences in developing the IDSR core indicators, a short list is preferred. Indicators that are conceptually problematic will likely also be problematic in the field. The working group should consider revising or deleting such indicators. The draft set of indicators should be field tested. There should be a trouble-shooting component for countries to use to resolve problems with indicators.

- As the laboratory indicators continue to be refined, it is important to keep in mind the difference between laboratory services and laboratory networks. We don't want the laboratory indicators to assess human, financial and material resources of the laboratories, but instead the functionality and networking of the laboratories to support IDSR.

- General comments/suggestions for improving the current set of laboratory indicators:

    - Focus on indicators that will measure the progress that countries are making in integrating laboratories with IDSR.
    - Develop indicators that measure the roles of the each level in the laboratory network.
    - Ensure that the indicators address both laboratory services and networks.
    - Ensure that indicators are general, and can be applied to all countries.
    - Fewer indicators are preferred. Consider a dividing the indicators into a small core set and an optional set. Also, divide into different types of indicators, such as input, process, and output; and short-term impact and evaluation.
    - Define who should use indicators, and what the indicators will be feeding into (WHO, CDC, MOH).

6.3 Next steps

The next steps for developing the IDSR laboratory indicators are:

- Compile the feedback and comments from the group.
- Convene a small group to finalize the indicators.
- Disseminate final indicators to the groups.
- Provide indicators to the IDSR core indicator working group.
- Field test the indicators in Rwanda and Zambia.

It is expected that these steps will be completed by the end of the first quarter in 2006.

7.0 Recommendations

	Coordinator	Deadline
1. Finalize and disseminate report and CD of the materials and create a FTP site to post materials	H. Perry	October 2005
2. Small group to finalize lab indicators and disseminate to participants in lab meeting in Atlanta	T. Aisu	November 2005
3. Small group to finalize the NLN guidelines	J.B. Ndihokubwayo	November 2005
4. Provide indicators to the IDSR core indicator working group	W. Alemu	December 2005
5. Field test in Rwanda and Zambia (CDC, AFRO, WHO-HQ, countries)	W. Alemu	Quarter 1, 2006
6. Desk review/pre-test of the NLN guidelines with key people in countries	J.B. Ndihokubwayo	Quarter 1, 2006
7. Follow-up technical meeting joint with epidemiology	S. Chungong	Quarter 4, 2006

8.0 Annexes

Annex 1: Meeting agenda

Annex 2: List of participants

Annex 3: Acknowledgments

Annex 4: Country presentations

Annex 5: Guidelines for break-out session 1: Review of NLN guidelines

Annex 6: Reports from break-out session 1: Review of NLN guidelines

Annex 7: Guidelines for break-out session 2: Review of IDSR laboratory indicators

Annex 8: Reports from break-out group 2: Review of IDSR laboratory indicators

Annex 1: Meeting agenda

Technical Consultancy for Laboratory Networks to Support Integrated Disease Surveillance and Response in the African Region

13 – 15 September 2005, Atlanta, GA, USA

Date	Time	Agenda	Speaker
Tuesday Sept 13	8:30 – 9:00	Registration	SSSI and CDC
	9:00 – 10:30	▸ Opening and welcome	Dr Eugene McCray, chair COGH-OCDPC, director
		▸ Presentation of the agenda and expectations	WHO-AFRO
		▸ Perspectives from partners	
		o CDC	Dr. Mark White, COGH/OCDPC Dr David Warnock, CCID/DBMD
		o USAID	
		o WHO-HQ	Dr Duale, SARA
		o WHO-AFRO-IDSR	Dr Chungong, Dr duBois, and Dr Lamunu
		o WHO-AFRO-IDSR/lab	Dr Alemu Dr Ndihokubwayo, Dr Mhlanga
	10:30-10:45	**Coffee and tea break**	
	10:45-12:30	Plenary Session 1 : IDSR experiences from laboratory and public health surveillance perspectives	*CCID-COGH to co-chair*
		▸ Senegal	Dr Iyane Sow (Senegal)
		▸ Zambia	Dr Mwansa and Dr Lubinda
		Questions and discussion	
		▸ Democratic Republic of Congo	Dr Makuma and Dr Koyange
		▸ Rwanda	Dr Florent and Mr Gatabazi
		Questions and discussion	
	12:30-1:30	**Lunch**	
	1:30-2:00	▸ Presentation of AFRO PHLN Guide	Dr Ndihokubwayo
		▸ Instructions to breakout groups	CDC-IDS
	2:00-3:15	Breakout Session 1	Breakout group chairs and rapporteurs
		▸ Feedback to issues to consider for PHLN Guidelines	
	3:15 – 3:30	**Coffee and tea break**	
	3:30 – 5:00	Breakout Session 1 (continued)	Breakout group chairs and rapporteurs
		▸ Feedback on steps for forming a national laboratory network	
	5:00	End of day	

Date	Time	Agenda	Speaker
Wed Sept 14	9:00-10:30	Report from breakout groups ▸ Report back from breakout groups o Group 1 o Group 2 Questions and discussion	DBMD and DIH to co-chair
	10:30-10:45	**Coffee and tea break**	
	10:45-11:30	Plenary Session 2: Presentation of draft IDSR Lab indicators Instructions to breakout groups	Dr. Alemu and Dr. Ndihokubwayo CDC-IDSR
	11:30 – 12:30	Breakout Session 2: Feedback to IDSR lab indicators	Breakout group chairs and rapporteurs
	12:30-1:30	**Lunch**	
	1:30 -3:00	Breakout session 2: (continued)	Breakout group chairs and rapporteurs
	3:00-3:15	**Coffee and tea break**	
	3:15-5:00	▸ Report back from breakout groups o Group 1 o Group 2 Questions and discussion o Consensus o Plans for further evaluation	DBMD and DIH to co-chair
	5:00	End of day	
		Evening Reception	
Thursday Sept 15	9:00-10:30	Plenary Session 3: Advocacy and implementation ▸ Presentation: An Introduction to Advocacy o Questions and discussion ▸ Review of national advocacy and implementation experiences: lessons learned from Senegal, DRC, Zambia, Rwanda ▸ Accelerating implementation: the way forward (e.g., IDS lab-lite)	Dr. Tom Hearn, chair Dr. S. Duale DBMD and DIH to co-chair
	10:30-10:45	**Coffee and tea break**	
	10:45 – 12:00	Summary of the findings of this meeting Recommendations Adoption of next steps and timetable for following up on findings of the meeting	DBMD and DIH to co-chairs
	12:00-12:30	Closing remarks ▸ CDC ▸ National participants ▸ WHO-HQ ▸ WHO-AFRO	Dr Eugene McCray
	12:30	End of the day	
	12:30-onwards	*Lunch, side meetings, CDC-Clifton visits*	

Annex 2: List of participants

Centers for Disease Control and Prevention (CDC)

Coordinating Office of Global Health (COGH)

Mr. Eric Gogstad
Dr. Eugene McCray
Dr. Peter Nsubuga
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Mr. Wayne Brown

Annex 3: Acknowledgments

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Senegal *Zambia*

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Global Immunization Division (GID)

Coordinating Office of Global Health
Division of Epidemiology and Surveillance Capacity Development (DESCD)

Coordinating Center for Health Information and Service (CoCHIS)
Public Health Practice Program Office (PHPPO)

World Health Organization African Regional Office (WHO AFRO), Harare, Zimbabwe
Division of Communicable Disease Prevention and Control

World Health Organization (WHO), Geneva, Switzerland

World Health Organization (WHO), Lyon, France

African Ministries of Health

United States Agency for International Development (USAID), Washington, DC, USA
Africa Bureau
Global Health Bureau

Global Alliance for Vaccines and Immunization (GAVI)

Partners for Health Reform plus (PHRplus)

Rockefeller Foundation

Support for Analysis and Research in Africa (SARA)

United Nations Foundation (UNF)

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Division of Epidemiology and Surveillance Capacity Development (DESCD), Coordinating Office of Global Health

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Special thanks to:

The rapporteurs of the plenary and break-out sessions, and Diane Speight for graphic design of meeting materials.

Annex 4:
Country presentations

Democratic Republic of the Congo

NATIONAL LABORATORY NETWORK AND IDSR IN DRC

Dr Vital MONDONGE MAKUMA
Biologist Louis KOYANGE DELYSOGO

Background – IDSR

When was IDSR adopted?	***IDSR*** adopté en **1998**: AFR/RC48/R2
Levels of system	**Système à 3 niveaux:** central, provincial, district.
• **Priority diseases for IDSR**	**33** maladies
• **Epidemic-prone diseases**	**13**
• **Diseases targeted for eradication elimination**	**3**
• **Other disease of public health importance**	**20**

Selected National IDSR Indicators 2004

• **Indicator**	**Data**	**%**	**Actions**
• Proportion of districts submitting surveillance reports on time to the next higher level.	360/515	70	- Supervision, - moyens de transport et de communication
• Proportion of suspected outbreaks of epidemic-prone diseases notified to the next higher level within 2 days of surpassing the epidemic threshold	0/316	0	- supervision - Formation,
• Proportion of investigated outbreaks with laboratory results.	6/316	2	- Sensibilisation, - formation - materiels de prélèvement

Système actuel des laboratoires en RDC

- Direction de laboratoire (8è direction)
- Laboratoire National de santé Publique (Institut National de Recherche Bio-Medicale = INRB)
- Laboratoires des programmes spécialisés (PNLS, PNT, PNLTHA,)
- Laboratoires provinciaux, Laboratoires des hôpitaux et des centres de santé
- Laboratoires privés

Fonctionnement du système

- Pas de coordination des laboratoires à tous les niveaux
- Pas de texte sur la politique national de laboratoires
- Inexistence du système d'approvisionnement structuré
- Evaluation, supervision et suivi de façon dispersée

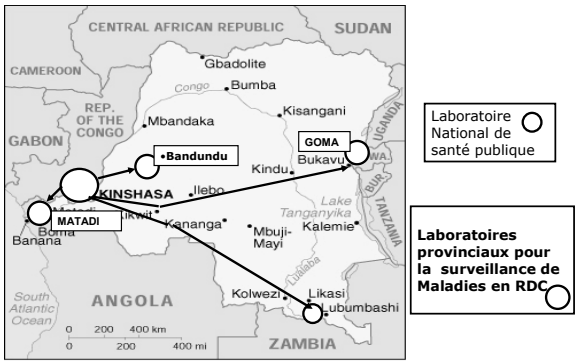
National Laboratory Network (NLN)

- **NLN established?**
  Officiellement NON, depuis 1998 quelques laboratoires travaillent en informel
- **Number of labs in NLN, by level**
  1 Laboratoire national de sante publique(existant et fonctionnel)
  11 laboratories provinciaux dont **5 fonctionnels**.
  515 Laboratoires des hôpitaux de reférence des ZS (non évalués)
- **How are NLN functions supported**
  Appui des partenaires : OMS, coop. Francaise, coop. Belge

Role and responsibilities of labs

- **Niveau central** : Supervision, formation des techniciens de laboratoire, programme national QA, diagnostic specialises.
- **Niveau provincial :** supervision des activites de laboratoires de zones de sante, culture, identification, antibiogramme
- **Niveau des zones de sante**: collecte, conservation et transport des echantillons, examens microscopiques,

LABORATOIRES FONCTIONNELS



NLN Establishment

- **Critical steps in establishment of the NLN**
  - Texte officiel de la politique nationale de laboratoire
  - Texte officiel créant le réseau de laboratoire
  - Obtenir le financement
- **Lessons learned**
  - Conflit de compétence entre la Direction de laboratoire et le laboratoire national de santé publique
  - faible utilisation de laboratoire réduit le nombre des épidémies confirmées

IDSR Establishment

- **Critical steps in establishment of IDSR**
  - Formation
  - Logistique de surveillance:vélos,véhicules, phonie, mail,ordinateur
  - Coordination des activités
- **Lessons learned**
  - Le bon fonctionnement du système de santé influence le système de surveillance
  - Une bonne coordination favorise le bon fonctionnement du système
  - Le retard des confirmations de laboratoire retarde une meilleure prise en charge des épidémies

NLN Implementation

- **NLN link with epidemiology units**
  Investigation, réunion d'analyse et partage de données, planification,suivi et évaluation, formation
- **NLN improve IDSR ability to confirm outbreaks**
  - Former le personnel pour le prélèvement, conservation et transport des échantillons
  - Fournir les intrants (milieux de Cary Blair and Transisolate)

NLN Advocacy

- Évaluations :MSP,OMS, CDC, Coop. Française
- Proposition des textes de la politique nationale de NLN
- Plusieurs réunions de concertation organisées avec tous les partenaires
- Restitutions

IDSR Advocacy

- Sensibilisation des autorités et des partenaires
- Évaluation en 2000
- Plan quinquennal 2002-2006, politique nationale de surveillance en 2002
- Adaptation des outils en 2002
- Formation depuis 2003
- Coordination des activités
- Utilisation des ressources du programme d'éradication polio pour l'IDSR

Pathogens isolated and identified 2005

Pathogens isolated and identifi	Janvier	Fevrier	Mars	Avril	Mai	Juin	Juillet	Aout
Total specimens referred	30	27	44	37	7	12	47	8
V. cholerae 01	0	0	0	0	0	0	0	0
Shigella dysenteriae type 1	0	0	0	0	0	0	0	0
Shigela (others)	0	0	0	0	0	0	0	0
Salmonella typhi	2	0	0	14	0	0	1	0
Salmonella spp	0	0	0	2	0	0	40	0
Neisseriia meningitidis C	0	0	0	0	0	5	0	0
Neisseriia meningitidis W135	0	0	0	0	0	0	0	0
ECEP	0	0	0	14	5	0	0	0
Pneumocoque	3	0	0	0	0	0	0	0

National Laboratory Data Antimicrobial susceptibility for organisms isolated, 2005 year

PATHOGEN	Ampicillin		Chloramph		Ciproflox		Cotrimox		Nalidixic		Tetra		Oxacillin	
	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi
Total	65		65		65		60		60		60			
H. influenzae b	0													
N. Meningitidis	5	0%	5	0%	5	0%								
S. peumoniae	1	0%	1	100%	1	0%	1	100%	1	100%	1	100%		
Salmonella typhi	17	100%	17	100%	17	0%	17	100%	17	0%	17	100%		
Salmonella spp	42	100%	42	100%	42	0%	42	100%	42	0%	42	100%		
Sh. ysenteriae 1	0													
Sh. (others)	0													
V. cholerae 01	0													

Données de laboratoires

- Les données présentées sont uniquement de l'INRB
- Pourquoi ?
  - → Insuffisance des moyens de communication
  - → Manque des outils de gestion de données
  - → Faible capacité de diagnostic des maladies à potentiel épidémique

Challenges and constraints

NLN	IDSR
Challenges: → texte créant le NLN → fonctionnement effectif du NLN **Constraints :** → Insuffisance des ressources → Vaste pays **Pratical Solutions:** → Appui de l'OMS pour l'élaboration et promulgation du texte. → Plaidoyer au près de l'Etat et des partenaires pour les ressources.	**Challenges:** → logistique de surveillance : transport des équipes, communication → Supervision, suivi et évaluation des activités → Programme efficace de riposte **Constraints :** → Système de santé inefficace **Pratical Solutions:** → Plaidoyer au près de l'État et des partenaires pour les ressources → Revitaliser le système de santé

Next steps

- **Improving the functionality of the NLN**
  - Rehabiler et équiper les laboratoires
  - Former le personnel
  - Mobiliser les moyens de fonctionnement
- **Improving the functionality of IDSR**
  - Completer la formation des Zones de Santé
  - Prépositionner le stock d'urgence et Fonds d'urgence
  - Obtenir les resources pour la supervision, suivi et evaluation
- **Improving the collaboration between epidemiology and laboratory**
  - Investigations et formations conjointes avec epidemiologites

Rwanda

Rwanda presentation

IDSR activities from the perspective of Epidemiology Dept. and The national Reference laboratory

Presented by

1.Dr.Senyana Florent, MD
2.Mr Gatabazi J.,MSc.BMS

Background – IDSR

- When was IDSR adopted? In 2002
- Levels of system=4

Priority diseases for IDSR	# of diseases
• Epidemic-prone diseases	6
• Diseases targeted for eradication / elimination	4
• Other disease of public health importance	7

Selected National IDSR Indicators 2004 summary

Note: Using the table below to show your data, please show national data on the IDSR indicators and any additional indicators that show the use of laboratory data.

Indicator	Data	%	Actions
• Proportion of districts submitting surveillance reports on time to the next higher level.	40	100%	Feed-back
• Proportion of *suspected outbreaks* of epidemic-prone diseases notified to the next higher level within two days of surpassing the epidemic threshold	2/6	33 %	Lab investigation, confirmation, antibiogram,treatment and feed-back.
• Proportion of investigated outbreaks with laboratory results.	2/2	100	

Background – National Laboratory Network (NLN)

NLN	
• the NLN established in?	**July 2003**
• How are NLN functions supported?	**-Goverment funded** **-NGO's(hiv,malaria,tb)**
• Role and responsibilities of NLN central coordinator	**-Coordinates the activities of periferal labs** **-Links with epi & MOH**
• Number of labs in NLN, by level	**1 central level (NRL)** **33 district level**
• Role and responsibilities of labs in NLN	***NRL-confirmation of epidemics on specimens collected from districts, QC of periferal labs(hiv,tb,malaria)** **•refers those that it can not handle (Entebbe, Anvers, Marseilles)** **•Districts collect and refer to NRL**

NLN Establishment

(Please present separately from epi and lab perspectives)

The 2-3 most critical steps in the establishment of the NLN

1. **Establishment of NRL to coordinate and supervise the activities of peripheral labs**
2. **Involvement and training in IDSR at community level (epi)**
3. **Strengthen capacity of lab at district level**

Lessons learned

1. **Lab infrastructure not developed along with the expansion of the network**
2. **Epidemics other than HIV, malaria and TB are not well catered for**
3. **HIV,malaria,TB programs are vertical (no integration)**

NLN Implementation

(Please present separately from epi and lab perspectives)

NLN link with epidemiology units

- **Establish a channel of communication between Community, health mobilizers health centers ,Health district supervisors (epi)**
- **lab tech at district hospitals to perform preliminary investigations and possible confirmation of pathogens**
- **Specimens are collected from districts and delivered to NRL as soon as possible for confirmation of outbreak.**

The NLN improve IDSR ability to confirm outbreaks

- **Information and specimens on a suspected outbreak come from epi to NRL**
- **Suspected specimens are processed at NRL and results are communicated to Epidemiology Unit by phone and in writing (hand delivered) for action**

NLN Advocacy

()

- **Efforts taken to advocate and promote NLN?**

1.Political will; creation of the NRL by the Gov. to coordinate and strengthen the activities of peripheral labs.
2.Guidelines of IDSR,
3.Project of establishing ICT epidemiological network currently underway,
4. Establishment of regional bacteriology .
5. Construction of a new and expanded NRL under planning

National Laboratory Data

Pathogens isolated and identified, 2005 by month

Pens isolated and athogidentified	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
(Total Specimens Referred)	10	9	11	7	1	5	1	7
Vibrio cholerae 01		2						
Shigella dysentriae type 1								
Shigella (others)								
Salmonella typhi			1					
Salmonella (others)			1					
Neisseria meningitidis A,B,or C			1					
Neisseria meningitidis W135								

National Laboratory Data

Antimicrobial susceptibility for organisms isolated, 2005 year to date

PATHOGEN	Ampicillin		Chloramph		Ciproflox		Cotrimox		Nalidixic		Tetra		Oxacillin	
	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi	Tests	Resi
H. influenzae b			2	1	1	-	2	1						
N. eningitidis	1	-	1	-	1	-	1	1			1	-		
S. peumoniae	1	-	1	-			1	1					1	-
Salmonella typhi	1	1	1	1	1	-	1	1	1	-				
Salmonella spp														
Sh. ysenteriae 1														
Sh. (others)														
V. cholerae 01	2	-	2	2	2	-	2	2	2	2	2	-		

Challenges and constraints

2 most pressing challenges and constraints to establishing / maintaining NLN

1.Poor or lack of ground and Tel. communication between labs

2.Poor or lack of ground and Tel. communication between the community, HC, District level and central level

3.Training in IDSR at Health center level

4. Lack of functional bacteriology labs at peripheral levels

- practical solutions to these challenges and constraints

1.Provision of communication network

2.Establishing and capacity building of functional labs at district and regional levels

Next steps

Improving the functionality of the NLN

- **Capacity building of bacteriology labs-infrastructure, human resources, information and communication, data management, and specialized reagent such as stereotyping antisera…**
- **Build capacity to process locally the specimen which are usually referred outside the country**

Improving the collaboration between epidemiology and laboratory

- **Establishing an ICT network between epi and lab**

Laboratory Indicator Results

National level data for 2005 year to date

Indicator	Data	Results	Actions
Proportion of districts that have established laboratory network	33/40	1 (3%)	NRL established in July 2003
Proportion of districts that are participating in NLN	33/40	11(33%)	feedback
Protion of out-breaks with confirmed lab results	2/2	V .cholera	Feed-back Communication for behaviour change

Laboratory Indicators

(Please present separately from epi and lab perspectives)

- Feedback on the draft laboratory indicators

Indicator	Relevance	Practicality	Feasibility by level
Specimens received in lab within 8hrs	Recovery of pathogens		
Proportion of epidemics prone diseases handled at each level	Quick response and control		
Proportion of dieseases targeted for eradication handled at each level	Quick response andfeedback for eradication		

Challenges and recommendations

(Please present separately from epi and lab perspectives)

- What are the 2 most pressing challenges to using the Laboratory Indicators?
  1. Increasing the number of labs in the network
  2. Communication and data sharing between levels on time (epi)
- What are practical solutions to these challenges?

1. Establishing viable labs at district level
2. Establishing Tel. and internet communication between levels
3. Finalise IDSR training at all levels

Senegal

Building a National Laboratories Network

Experience of Sénégal

Prof. Iyane SOW
Coordinator of N.L.N of Sénégal

1. Background - IDSR

- IDSR was adopted in 2000

Priority diseases for IDSR	Diseases
Epidemic – prone diseases	5 : CSM, Shigellosis, YF, Measles, cholera
Diseases targeted for eradication / elimination	6 : Dracunculosis, NNT Poliomyelitis, Leprosy Onchocercosis, Trachoma
Other diseases of public health importance	4 : TB, AIDS, Malaria, Bilharziosis

2. Structure of N.L.N.

2.1. Three levels :

* Peripheric : Laboratories of Distric Health Centers
* Intermediary : regional laboratories & Laboratories of regional hospitals
* National : Laboratories of national hospitals, institues and universities, Reference laboratories (DST, HIV, TB)

2.2. Institutionnal place : N.L.N :

National Service linked to Ministry cabinet

Dates of establishment of senegalease NLN	Officiously : 1999 Officially : 2002
NLN functions supports	Activities are supported by WHO in 1999, and by WB in 2003, 2004
Role and responsabilities of Coordinator	Organize trainings, prepare all activities
Number of labs by level	National : 17, Regional : 12, District : 51
Role and responsabilities of labs in NLN	Confirm diagnosis, collect data, diseases survey

3. Activities of N.L.N

- National inquiry : 88 laboratories
- Communication about N.L.N Administration and technical personnal
- Lab record chart : to collect data labs
- Equipement : reagins and materials
- Participation in seminaries
- Manuals of technical procedures
- Trainings : collect and transmission of laboratories data, Quality in laboratory, quality audit, susceptibility to antibiotics

4. Objectives in 2005

- Make good functioning of network coordination
- Realise formation activities
- Support the laboratories (equipements and reagins)
- Organize a qualité control
- Supervise the laboratories

5. NLN Establishment

- *Most critical steps :*

- Formalization : 1998 – 2002

- Recognition by programms and services

- Lack of resource

- *Lessons learned :*

- Delay of implementation

- Many activities did'nt realized

- Defective survey

6. NLN Implementation

- *How does NLN link with epidemiology units ?*

- Relations of collaboration : joint meetings, common teams for investigation ...

- Sharing out data lab with epidemiology units

- *How does the NLN improve IDSR ability to confirm outbreaks ?*

- Training about diagnosis of epidemic diseases

- Collect and transmission of data lab

- Investigation of outbreaks

7. National Health Laboratory

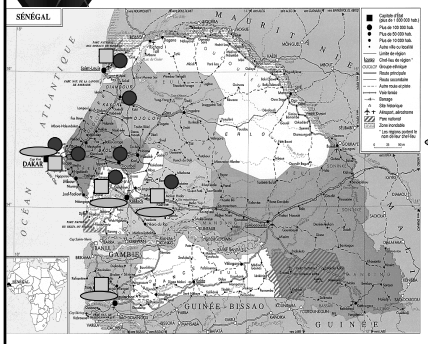
Implement several lab unities

- *Complet the reference laboratories*
- *Multidisciplinarity*
- *Property of Health Ministry*

8. National Laboratory data : 2005

CSF	289	Stools	1201
S. pneumoniae	5	*V. cholerae*	465
S. agalactiae	1	*VPH*	67
Hib	NT	*S. flexneri*	11
N. meningitidis	ND	*S. dysenteriae*	1
Other	14	*S. Typhi*	1
		S. Enteritidis	4
		Salmonella Spp	4

9. Outbreaks investigation



Cholera : 2004, 2005

CSM : 1999, 2003

Shigellosis : 1999

10. Contraints

- *No coordination office for N.L.N.*
- *National Health Laboratory*
- *Staff of coordination*
- *Financial resources : no budget in 2005*
- *No financial strategic partner*

11. Conclusion

- *Efforts since 1998 :*

No strong support

Feeling that individual problem

- *Many trumps in Sénégal*
  - *One laboratory in every Distric Health Centers*
  - *Quality of personnal*
- *Perspectives : - Political engagement*
  - *Financing of activities*
  - *Plan of developpement N.L.N.*

THANK YOU

Zambia

Technical Consultancy on Laboratory Networks for IDSR in the Africa Region

ZAMBIA

Dr. James C. L. Mwansa
Consultant Microbiologist (National Laboratory IDSR Support)
Wamunyima Lubinda
National Surveillance Officer

Background – IDSR

- **Inception of IDSR strategy was in 2000.**
- **Adaptation of Technical Guidelines and Training Modules done in 2002 and 2003 respectively.**
- **IDSR adopted 2000**
- **Community, Health Centre, District, Provincial and National**

Priority diseases for IDSR	# of diseases
• Epidemic-prone diseases	7
• Diseases targeted for eradication / elimination	3
• Other disease of public health importance	8

- **Epidemic-prone diseases**
  - –Cholera
  - –Measles
  - –Meningitis Plague
  - –Dysentery (Shigella)
  - –Viral Haemorragic Fever
  - –Yellow Fever
- **Diseases targeted for eradication / elimination**
  - Acute Flaccid Paralysis (AFP) Polio
  - Leprosy
  - Neonatal Tetanus
- **Other disease of public health importance**
  - HIV and AIDS
  - Malaria
  - STIs
  - TB
  - Trypanosomiasis
  - Schistosomiasis
  - Pneumonia in Children less than five years of age
  - Diarrhoea in Children less than five years of age

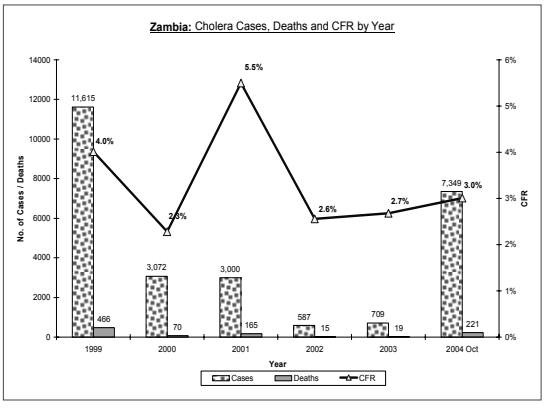
Selected National IDSR Indicators 2004 summary

Note: Using the table below to show your data, please show national data on the IDSR indicators and any additional indicators that show the use of laboratory data.

Indicator	Data	%	Actions
• Proportion of districts submitting surveillance reports on time to the next higher level.	72	90-98	ND1 ND2 ND3
• Proportion of *suspected outbreaks* of epidemic-prone diseases notified to the next higher level within two days of surpassing the epidemic threshold		100	
• Proportion of investigated outbreaks with laboratory results.		100	

Timeliness of AFP stool specimen processing, 1997 - 2004

	National Laboratory			RR Lab
Year	Total # AFP Stool specimens Received	% of specimen results communicated within 28 days	# /% of Polio virus sent to RRL within for wild polio virus	#/% of Polio Virus with ITD results communicated within 14 days of receipt
2004	278	94.6%	Nil	Nil
2003	224	95.5%	Nil	Nil
2002	258	81.3%	21(72.4%)	29(100%)
2001	354	92.2%	12(100%)	12(100%)
2000	214	62.3%	4(100%)	4(100%)
1999	132	85.0%	6(100%)	6(100%)
1998	44	81.8%	3(100%)	2(100%)
1997	10	68.4%	Nil	Nil



Background – National Laboratory Network (NLN)

NLN	
• When was the NLN established in your country?	2000
• How are NLN functions supported?	MoH, Provincial, District by Laboratory Specialist (TB, HIV/AIDS Polio Malaria, Measles have special funds)
• Role and responsibilities of NLN central coordinator	Provision of guidelines and Quality Assurance, Training and Confirmation of referred Isolates
• Number of labs in NLN, by level	National 1 Central 4 Provincial 9 District 72
• Role and responsibilities of labs in NLN	Isolation and Confirmation of isolates

NLN Establishment

- Most critical steps in the establishment of the NLN in your country?
  - Identification of a National Ref. Lab
  - Provision of Technical Guidelines and SOP
  - Training of Technical Staff
- Lessons learned?
  - Need for Logistical Support and Supervision
  - Communication and transport
  - Motivation

NLN Implementation

- How does NLN link with epidemiology units?
  - Through IDSR country strategy
  - Attendance of NEPPC&MC
- How does the NLN improve IDSR ability to confirm outbreaks?
  - *Early detection*
  - *Evidence based planning and management*

NLN Advocacy

- What efforts have been taken to advocate to promote NLN?
  - High profile NEPPC&MC chaired by Minister of Health
  - Presence of office of Laboratory Specialist in the MOH

National Reference Laboratory Data Specimens Referred,2005, by month

Nature of specimens referred by month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
CSF	156	149	130	166	145	95	110	120
Stool	208	176	133	240	184	147	140	152
Blood	160	176	189	160	213	214	190	195

National Laboratory Data

Pathogens isolated and identified, 2005 by month at National Ref.Lab

Pathogens isolated and identified	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
(Total Specimens Referred)	524	501	452	566	542	456	440	467
Vibrio cholerae 01	11	10	0	8	0	0	0	1
Shigella dysentriae type 1	0	0	0	0	0	0	0	0
Shigella (others)	0	0	0	0	0	1	0	0
Salmonella typhi	0	0	0	0	0	1	0	0
Salmonella (others)	1	0	2	6	2	5	1	2
Neisseria meningitidis A,B,C or W135	0	0	0	0	0	0	0	0
Haemophilus influenzae	0	0	0	0	0	1	0	0
Streptococcus pneumoniae	2	0	3	3	4	1	1	1

National Laboratory Data

Antimicrobial susceptibility for organisms isolated, 2005 year to date

PATHOGEN	Ampicillin		Chloramph		Ciproflox		Cotrimox		Nalidixic		Tetra		Oxacillin	
	T	R	T	R	T	R	T	R	T	R	T	R	T	R
H.influenzae	1	0	1	0	1	0	1	1	ND		1	1	ND	
N.meningitidis	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. peumoniae	0	0	15	5	13	0	7	5	ND		3	0	13	6
Salmonella typhi	1	1	1	0	1	0	1	1	ND		1	1	ND	

PATHOGEN	Ampicillin		Chloramph		Ciproflox		Cotrimox		Nalidixic		Tetra		Oxacillin	
	T	R	T	R	T	R	T	R	T	R	T	R	T	R
Salmonella spp	15	11	14	5	11	1	14	8	ND		4	2	ND	
Sh.Dysenteriae 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sh. (others)	1	1	1	0	1	0	1	1	1	0	1	1	ND	
V. holerae 01	19	5	19	0	19	0	19	11	ND		19	0		

T = Test

R = Resistance

Challenges and constraints

- What are the 2 most pressing challenges and constraints to establishing / maintaining NLN?
  - Availability of reagents, equipment & Transportation of specimens
  - Retention of professionals
- What are practical solutions to these challenges and constraints?
  - Identification of central supplies and procurement
  - Good conditions of service and career progression

Components of Nat. Lab. Policy

- Test selection and use
- Basic inputs (Equipment, Supplies, Infrastructure & Human recourse
- Quality assurance
- Safety
- Ethics
- Research and development
- Local, regional and International Collaboration (including private laboratories

Next steps

- Improving the functionality of the NLN
  - Availability of working equipment & reagents
  - Good data management
  - Provision of communication facilities for data sharing and feedback

Improving the collaboration between epidemiology and laboratory

- Regular combined meetings
- Coordination of surveillance activities

Annex 5

Breakout Session 1:
Review of NLN guidelines

Guidelines for Chair and Participants

Purpose

The purpose of Breakout Session 1 is to share experiences and opinions on the establishment of National Laboratory Networks (NLN) to support IDSR. The expected outcome is a prioritized list of action steps for the country level to use in order to establish and maintain a NLN.

To prepare the participants for this Breakout Session, Dr. Jean-Bosco Ndihokubwayo will present on the *Draft* Guidelines for Regional and National Laboratory Networks to support IDSR. This document will describe the WHO/AFRO vision for the role of laboratories in surveillance and response. The document aims to:

- inform countries of their roles and responsibilities in the regional laboratory network coordinated by WHO/AFRO
- guide countries in establishing and maintaining a national laboratory network.

The discussion and outcome of this Breakout Session will assist WHO/AFRO and CDC in validating and finalizing the *draft* Guidelines.

Agenda

The Breakout Session should consist of three activities, 1) generating ideas of action steps, 2) discussion to obtain consensus on action steps, and 3) prioritization of action steps. A chairperson and a rapporteur will be selected. A suggested procedure for these activities and guidance in considering action steps is described below.

1) **Generating ideas for action steps**
The purpose of this activity is to generate a list of action steps for countries to take in establishing and maintaining a NLN. During this activity, participants should suggest action steps based on their experience. Please refer to the box below for guidance in generating ideas.

Guidance in the generation of ideas

Consider your experience in establishing and maintaining a National Laboratory Network in the African region. These experiences may have been in your own country or in another country. Based on the successes, challenges, and lessons learned in your experience, you may recommend specific action steps to facilitate progress in NLN development.

Keep in mind that the action steps should be for the country level and might be accomplished in collaboration with partners such as the WHO, NGOs, or CDC.

Consider action steps that would address these broad categories:

- national policy and legal framework for NLN
- NLN organization (roles and responsibilities)
- NLN coordination and maintenance
- NLN monitoring and evaluation

Examples of action steps might include

- identify a National Reference Laboratory
- provide technical guidelines for laboratory testing
- provide supplies for specimen collection
- align laboratory staff according to workload
- monitor laboratories through external quality assessment

The chair should moderate the Breakout Session to allow all participants to introduce as many action steps as they would like. The objective is to obtain an exhaustive list.

The rapporteur will be given four flip chart pages with headings from each of the four categories above. The rapporteur should record each step that is introduced on the appropriate flip chart page. As ideas are introduced, the rapporteur should attempt to group steps that are similar.

This activity should continue until all suggestions have been made.

2) Discussion to obtain consensus on action steps

The purpose of this activity is to provide an opportunity for in-depth discussion on the action steps that have been introduced. The objective is to obtain consensus on the content of the list.

During this activity, the chair should moderate questions, clarification, and elaboration of the steps. The discussion may lead to suggestions for revising, regrouping, adding, or deleting steps. The chair should facilitate the participants' coming to consensus on the list.

The chairperson should encourage discussion on the prioritization of the steps. However, the steps should not be prioritized during this activity.

3) Prioritization of action steps

The purpose of this activity is for participants to vote on how to prioritize the action steps within each category. The objective is to obtain a prioritized list that reflects the participants' opinions.

Participants should consider the priority of the steps within each category according to their relative importance and chronology. Each participant will be provided colored labels. The chair will instruct the participants how to use the labels to indicate their opinion on the priority of the action steps listed on the pages.

Annex 6:
Reports from break-out session 1:
Review of NLN guidelines

Report from group 1, break-out session 1

Breakout session 1

Working group discussion
Feedback

Summary

- **Situation analysis**
- **Vision for NLN**
- **Action**

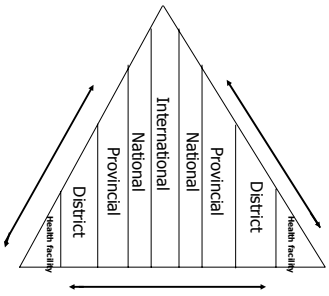
Situation analysis

- Asking what needs can NLN fulfil, what are the requirements of the NLN?
- To happen at every level
  - MoH
  - Provincial/regional/district
  - People…

Vision for NLN

- Optimal structure of a new NLN
  - Should include:
    - vertical programmes, such as TB labs/malaria
    - university labs, mining sector/missionary labs
    - different levels of existing labs and linkage/referral
    - Linking MoH, (epidemiologists included)

Vision for NLN



Optimal structure

- How to organise existing labs…
  - Establish legal framework and chain of authority for network
    - Act of parliament/decree of MoH
    - Establish advisory committee
    - Define role/linkeage within MoH
  - Designate National PHL…
    - Identify focal point persons
  - What tests done at what level…
    - Minimum equipment/reagents at each level
    - Guidelines/procedures/technical components
  - Outbreak response authority…
  - Establish lines of referral
    - For specimens and results

Roles and responsibilities

- Roles and responsibilities by level (in-country)
  - Proposal to define clearly roles/responsibilities within country NLN in the draft document/place in a separate document

Roles and responsibilities

- National Public Health Laboratory/ies
  - Plan of action for laboratories, budgetary issues re replacement of new equipment, resource mobilisation,
  - linkage with international labs,
  - EQA and quality assurance,
  - outbreak investigation, supervision,
  - M+E, data analysis, communication with MoH, feedback of data,
  - confirmation of ID of special pathogens, specialised testing for lower level labs,
  - policy development, advocacy,
  - guideline development, standardisation,
  - CME, training,
  - co-ordination of network activities with epi in MoH
  - Facilitate procurement/sourcing of reagents

Roles and responsibilities

- Provincial
  - Supervise lower level labs,
  - Plan of action for laboratories, budgetary issues re replacement of new equipment, resource mobilization at their own level
  - Participate in EQA and internal quality control,
  - Provide data for and participate in outbreak investigation
  - M+E, data analysis, communication with NPHL, feedback of data,
  - ID of special pathogens, specialized testing for lower level labs, referral of specimens to NPHL
  - policy implementation, advocacy,
  - Implement guidelines and contribute to development, standardisation,
  - Facilitate training of lower levels, ongoing CME of staff
  - co-ordination of provincial network activities with epi in MoH
  - Distribution of reagents

Roles and responsibilities

- District
  - Collect and transport specimens/isolates
  - Perform basic tests – primary isolation and referral
  - Participate in EQA and internal quality control,
  - Maintain relationships with health facilities/labs
  - Provide and use data for and participate in outbreak investigation
  - Provide and use M+E information, communication with Provincial labs, feedback of data,
  - Policy and guideline implementation
  - Advocacy
  - Ongoing CME of staff
  - Stocking and distribution of reagents to health facility labs
  - Participate in district health management team meetings and activities

Roles and responsibilities

- Health facility/clinic lab
  - Collect and transport specimens/isolates
  - Perform basic tests – primary isolation and referral
  - Participate in EQA and internal quality control,
  - Maintain relationships with health facilities/labs
  - Provide and use data for and participate in outbreak investigation
  - Provide and use M+E information, communication with Provincial labs, feedback of data,
  - Policy and guideline implementation
  - Advocacy
  - Ongoing CME of staff
  - Stocking and distribution of reagents to health facility labs
  - Participate in health facility committee meetings and activities

Vision for NLN

- Resources required to reach this vision
  - Personnel requirements (including career path)
  - Budget
  - Logistical issues
    - Communication hardware/internet/fax/telephone
    - Transport requirements
- Leadership requirements
  - Very important!….
  - Qualification and powers of co-ordinator of NLN

Action

- Communication of vision
  - I.e Advocacy
    - Creating need/demand
    - Marketing this vision…
- Maintenance of network
  - Monitoring and evaluation…
    - Training
    - Supervisory visits
    - Annual meeting of laboratories
    - Feedback of results of M+E

Report from group 2, break-out session 1

Breakout Session 1, group 2

- Brehima Koumare, *Chair*
- Philippe Dubois
- Stella Chungong
- J.B.Ndihokubwayo
- DRC delegates
- Rwanda Delegates
- Senegal Delegate
- Kathy Cavallaro, *rapporteur*
- other CDC delegates

Major Action Steps

- Advocate
- Establish National Directorate of Laboratories within ministry of health
- Create the legal framework for a National Laboratory Network
- Develop 5-year Plan of Action for Laboratory Systems
- Follow up and monitor

Action Step 1 Advocate/Sensitise

- Messages
  - Laboratory system in context of IHR, IDSR
    - Need for long term vision, policy, strategy
  - Examples of essential role of labs in epidemic detection and control, and economics
    - Meningitis W135, Marburg, SARS, Ebola, Avian flu H5, as well as more common diseases malaria, cholera, TB
  - Role and benefits of National Lab Network
- Target audiences
  - MOH decision makers and higher
  - All health cadres (doctors, nurses, epidemiologists)
- Proposal to Regional Committee for resolution

Action Step 2: Establish National Directorate of Laboratories at MOH

- Separate from other disciplines (e.g. pharmacy, epidemiology, nursing, radiology)
- Function and structure of Directorate
  - TORs
    - Legal framework (decree to establish Directorate)
    - Develop norms, standards, technical guidelines, levels of labs, roles and responsibilities, certification, external quality assessment, supervision, personnel standards, financial support
    - Define minimum package of services
    - Provide supplies, infrastructure, equipment maintenance
    - Coordinate NLN

Action Step 2: Establish National Directorate of Laboratories at MOH

- Resources
  - human
  - material
  - financial
    - Budget line item for laboratory services
    - WHO Lyon costing tool as starting point

Action Step 3: Create legal framework for a National Laboratory Network

- Should be functional, not administrative
  - Need indicators of functional network
- Should integrate into existing lab system
- Designate coordinator and TORs
- Designate roles and responsibilties
  - Inclusion of private labs in NLN to be decided by country

Action Step 4: Develop 5-year Plan of Action for Laboratory System

- Should include lab support of IDSR
  - Part of strategic IDSR PoA *(lab support is an integral part of IDSR)*

Action Step 5: Monitoring and evaluation

- Develop indicators
  - For lab services at each level
  - For functional NLN
  - WHO Lyon tool can be starting point for content
- Supervision

Annex 7

Breakout Session 2:
Review of IDSR Laboratory Indicators

Guidelines for Chair and Participants

Objective: To obtain feedback to the proposed list of IDSR core indicators for monitoring the implementation of laboratory networks in the African region

Method:

Part 1: Participants will review the 10 proposed indicators and 4 evaluation items from the perspective of their own countries or agency. They will discuss together and achieve a collective response to the following review criteria:

Criteria for guiding the review:

- Is the necessary data generally known?
- Source of the data
- The level it measures
- The feasibility of measuring the indicator
- The ease of use
- Frequency
- The practicality of the results – are the results useful? How are they useful? At which levels?
- Overall impression

Part 2: From your own perspective and national or international situation:

- Who will be the target audience for the indicator results?
- How can the indicator results help you in your job improve implementation of an effective laboratory network?
- Are there other indicators we should consider? If so, what are they? Why should they be considered?

Report to plenary: Please choose a rapporteur to report your findings back to the plenary:

- The group results to review of the indicators
- The group's views on the questions in Part 2

Annex 8:
Reports from break-out session 2: Review of IDSR laboratory indicators

Report from group 1, break-out session 2

Break-out session 2
Report from Group 1

WHO-CDC Technical Consultancy on
Laboratory Networks for IDSR:
Possible core indicators
14 September 2005

Group members

- Tom Aisu
- Wondi Alemu
- Kerrigan McCarthy
- Bekithemba Raymond Mhlanga
- James C.L. Mwansa
- Lubinda Wamunyima
- Helen Perry

Level	#	Indicators	Denominator	Numerator	Comments
District	1	Proportion of district laboratories reporting monthly data to the provincial lab ***in a given time period***	Total number of district labs expected to report	Total number of district labs ***that submitted*** monthly data to the provincial lab	•Is there a reporting format that captures this data (at provincial level)? •Could there be indicators that capture denominators e.g. number of CSF specimens submitted to laboratories. This will capture whether clinicians are actually using laboratory services; if not, no outbreaks will be detected anyway.
	2	Proportion of districts reporting an outbreak of any disease that confirmed meningitis, shigellosis, cholera or typhoid at the district level	Total number of districts that reported an outbreak	Number of districts that confirmed meningitis, shigellosis, cholera or typhoid	•Only some districts are prone to epidemics. These will be the denominator most of the time. •Not a clear indicator. As worded, it does not capture the intended information. •This indicator has resource implications that make it not feasible. •Should district confirm outbreaks of typhoid?
	3	Proportion of district ***laboratories that*** forwarded stool/CSF/blood to provincial level for confirmation of IDSR agents of disease	Total number of district ***laboratories able to send stool/CSF/ blood I.e. ALL DISTRICT LABORATORIES***	Number of district labs forwarding ***stool/CSF/blood***	•This indicator may be difficult to use/interpret without knowing the context. There is no reference point. It will be difficult to establish a standard for this indicator. •Problems include: number of diseases surveyed, and multiplicity of specimen types, whether this should be measured during an outbreak or just for routine diagnostic specimens, should indicator include the number of specimens referred on, should the indicator be concerned with IDSR disease only or any diseases.
	7a	Proportion of ***district laboratories*** that ***received at least one supervisory visit with written feedback by provincial level***	Total number of provincial laboratories	Number of provincial laboratories that conducted at least one supervision activity with district laboratories	

Level	#	Indicators	Denominator	Numerator
Provincial	4	Proportion of provincial laboratories reporting monthly data to the national lab ***in a given period of time.***	Total number of provincial laboratories expected to report	Number of reports from provincial laboratories reported to the national lab
	5	Proportion of provincial laboratories ***reporting*** culture and sensitivity tests for designated pathogens	Total number of provincial labs	Number of provincial laboratories ***reporting*** sensitivity tests for designated pathogens
	6	Proportion of provincial laboratories referring ***CSF/blood/stool*** specimens or isolates to the NPHL	Total number of provincial labs	Number of provincial labs referring isolates/specimens to NPHL
	7	Proportion of ***provincial laboratories*** that ***received at least one supervisory visit with written feedback by central level***	Total number of provincial laboratories	Number of provincial laboratories that conducted at least one supervision activity with district laboratories

Level	#	Indicators	Denominator	Numerator
Central	8	Proportion of laboratories in the national network reporting to MOH lab-based surveillance data	Total number of laboratories in the national network	Number of laboratories in the national network reporting lab-based surveillance data to the MOH
	9	Proportion of laboratories with up-to-date monthly trends of specimens tested (quality and number) and pathogens isolated	Total number of laboratories expected to keep monthly trends of specimens tested and pathogens isolated	Number of laboratories with up-to-date trends of specimens tested and pathogens isolated
	10	Proportion of labs whose results are ***not fully in*** concordance with NPHL results	Total number of labs that referred specimens/isolates with results	Number of labs with results that are greater than 95% concordance with NPHL results

General comments

Indicators should try to address:

- Gaps between national and district labs
- Monitoring of quality of specimens by each level
- Acceptability of lab systems to clinicians

Report from group 2, break-out session 2

Report from Group 2

WHO-CDC Technical Consultancy on Laboratory Networks for IDSR:
Possible core indicators
14 September 2005

Group members

- Brehima Koumare, *Chair*
- Philippe Dubois
- Stella Chungong
- J.B.Ndihokubwayo
- DRC delegates
- Rwanda Delegates
- Senegal Delegate
- Kathy Cavallaro, *rapporteur*
- other CDC delegates

Scope of Indicators

- "high-level" indicators
- to measure the "end product"
  - "end product" is the function of the NLN to support surveillance
- to guide managers in problem solving

	Data known?	Sources of data	Level measures	Feasible	Ease of use	Freq of use	practical	Overall impression
1	y	y	dist	Y	Y	Mo	Y	Bon
2								See suggestion
3						yr		See suggestion
4	y	y	prov	y	y	mo	y	Bon
5								See suggestion
6								See suggestion
7	y	y	prov	y	y	yr	y	See comments
8							n	See suggestion
9								rejected
10								rejected

Comments on #2

Problematic

- it involves reporting, confirmation, and specific diseases
- Not all districts can do the confirmation.

Could it instead receipt of results at the district or district lab?

Comments on #3

Simplify wording (collect, handle, ship).

Denominator is confusing (how to measure trained personnel?)

Numerator not relevant.

Revise to address adequacy (related to transportation delays, condition of sample, appropriate transport medium).

Suggested revision of #3

Proportion of districts having submitted adequate specimens (yearly)

Num: Number of districts having submitted adequate specimens

Dem: Number of districts having submitted specimens to provincial or central.

	Data known?	Sources of data	Level measures	Feasible	Ease of use	Freq of use	practical	Overall impression
1	y	y	dist	Y	Y	Mo	Y	Bon
2								See suggestion
3						yr		See suggestion
4	y	y	prov	y	y	mo	y	Bon
5								See suggestion
6								See suggestion
7	y	y	prov	y	y	yr	y	See comments
8							n	See suggestion
9								rejected
10								rejected

Comments / suggested revision of #5

- Too complex. Revise num and den

Proportion of labs actually performing culture and sensitivity testing of designated pathogens.

- Numerator: number of provincial labs that performed culture and sensitivity testing of designated pathogens
- Denominator: all provincial labs

Comments and suggested revision of #6

- Focus on adequacy of specimens
- Should measure if prov lab can process

Proportion of provincial labs having submitted adequate specimens or isolates to NPHL

Num: Number of provincial labs having submitted adequate specimens or isolates

Dem: Number of provincial labs having submitted specimens or isolates to NPHL

	Data known?	Sources of data	Level measures	Feasible	Ease of use	Freq of use	practical	Overall impression
1	y	y	dist	Y	Y	Mo	Y	Bon
2								See suggestion
3						yr		See suggestion
4	y	y	prov	y	y	mo	y	Bon
5								See suggestion
6								See suggestion
7	y	y	prov	y	y	yr	y	See comments
8							n	See suggestion
9								rejected
10								rejected

Comments on #7

- Target percentage of labs supervised must be defined. Not to discourage countries.
- Countries that don't have provinces should adapt
- Accepted
- Yearly

Comments / suggested revision of #8

- Should focus on quality of data and feedback

Proportion of feedback bulletins including laboratory data from central level to periphery (frequency determined by country).

Num: Number of bulletins with lab data

Denom: Number IDSR bulletins

Comments on #9

- Focused too much on lab system rather than NLN
- Not as relevant as other variables
- This is not an indicator, but part of the minimum package of activity of lab system
- Rejected

Comments and suggested revision of #10

Refocus the indicator to address national EQA.

Proportion of planned tests for national EQA

- Num: number of tests carried out by national EQA
- Denom: number of tests planned for national EQA per year

Suggested indicator for SOPs

Proportion of IDSR priority diseases for which lab confirmation is recommended for which central lab has produced/ reviewed / updated laboratory SOPs – fiches techniques (yearly)

- Num: number of SOPs produced / reviewed / updated
- Den: number of IDSR priority diseases for which lab confirmation is recommended

Suggested indicator for training

To measure if central level fulfilled its mission to train?

Must specify training: diagnostic tests, collection, processing, etc.

How to measure impact of training?

Are the competencies defined for running a lab?

Suggested indicator on implementation of laboratory training plan developed by NLN

Proportion of districts / provinces in which at least one laboratory staff was trained this year according to the NLN training plan

- Numerator:
  Number of districts / provinces in which at least one laboratory staff was trained this year
- Denominator:
  Number of districts / provinces planned for training

Suggested indicator for national EQA—not for this list

- Additional indicator: proportion of labs passing successfully the national EQA
- Should all labs in NLN participate in national EQA?
- Num: number of labs with successful performance in national EQA
- Denom: number of labs participating in the national EQA

Comments on # 11 Availability of written MoH recs…

- Concern that ….
- Y/N

Comments on #12 Presence of separate budget for national lab system

- Accepted
- Y/N

Comments on #13 Policy on PHL services and lab network endorsed by MOH and written copies available

- Two documents
  - Policy on PHL services
  - Create the NLN
- Accepted
- Proposed separation into 2 indicators, Y/N

Comments on #14 Representation of national lab specialist on national IDSR task force

- Specify the head of the NLN as the representative