LYMPHATIC FILARIASIS ELIMINATION IN THE AMERICAS

Regional Program Manager’s Meeting

Port-Au-Prince, Haiti
4-6 September, 2002
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The introduction to the agenda briefly reviewed the successful filariasis elimination program in China. The introduction then highlighted the components of the regional elimination program in the Americas. The expected outcomes formed the concluding introductory remarks. The complete agenda can be found in the annex.

There are many lessons to be learned from the successful experiences of others. Filariasis elimination began in China in 1950’s as an agricultural/economic issue. The success of the program relied on a sustained government commitment to the elimination of lymphatic filariasis (LF). Interventions included mass distribution of a mix of diethylcarbamizine (DEC) tablets and DEC-fortified salt accompanied by intensive surveillance to measure the prevalence of infection. So, while lymphatic filariasis is still considered to be a serious public health problem in the rest of Asia, intensive, collective efforts allowed China to eliminate lymphatic filariasis as a public health problem.

Dr. Ehrenberg noted that the Americas Region could very well be the first to reach the elimination goal. Currently, the prospects for verifying the absence of transmission in three out of the seven endemic countries in the Americas are very good. Recent breakthroughs such as novel drug interventions, new techniques in clinical management, new diagnostic techniques and a better understanding of the dynamics of the infection, including the recognition of LF as a disease of childhood, clearly indicate this is a feasible goal.

He pointed out that this region leads the world in the technical areas of morbidity control and operational research. The potential of integrating control programs into other ongoing public health initiatives in this Region are good, as are the prospects of implementing the programs in a cost-effective, socially responsible manner through links with other programs.

One of the most important assets sustaining the regional lymphatic filariasis elimination efforts are the partnerships and alliances that have evolved among the countries, the international community, the private sector and non governmental organizations (NGO). There is an ongoing collaboration between GlaxoSmithKline (GSK) and the World Health Organization (WHO) for the global elimination of LF. As part of this alliance, GSK will donate all the albendazole needed for the entire length of the global program. This company is already supporting operational research and will help provide funds/or human resources in support of program activities.

He went on to note that this Region has made significant progress in re-assessing the status of infection and disease in the seven endemic
countries. This important knowledge will now allow the Region to redefine the at risk population, the treatment targets and the implementation units (IU).

Work remains to be done to assess the morbidity status and develop a proper response to tackle this problem. Some of the programs face obstacles, including the lack of both human and financial resources or even political commitment. Thus, the alliance is confronted with the challenge of conducting intensive advocacy among those capable of effective action, including the Ministries of Health, the NGOs, the bilateral agencies and the United Nations system. Among the biggest challenge is the need to implement the massive treatment activities as soon as possible and to up-scale efforts in those countries where treatment activities have begun. Furthermore, the Regional initiative must quickly consolidate a rational disability prevention and rehabilitation program to retain the interest of partners and sponsors. The Third Regional Meeting of Program Managers will focus on these challenges.

The Third Regional Program Managers Meeting was co-sponsored by members of the Global Alliance, with primary funding by the Pan American Health Organization / World Health Organization (PAHO/WHO) and the Bill & Melinda Gates Foundation. The sponsors of this meeting wish to acknowledge Haiti’s Ministry of Health for having hosted this year’s event.

Expected outcomes of the meeting
- Progress made with each of the 7 Lymphatic Filariasis Elimination Programs in the Americas Region, with emphasis on the results of the rapid assessment techniques to determine antigenemia.
- Progress of the 2001-2002 treatment related activities in the Dominican Republic (DOR), Haiti and Guyana.
- Morbidity status results (results of rapid morbidity assessments).
- Status of the disability prevention and rehabilitation program and development of a Regional Morbidity Plan.
- 2003 National Program priorities & needs.
- Next steps for Suriname (SUR), Trinidad & Tobago (T&T) and Costa Rica (COS), which are endemic countries approaching the global goal.
- A final meeting report will be developed with all the presentations included along with an annex. The annex of the report contains the following: list of participants; acronyms used; summary of DEC-salt strategy; and details of Qualitative Analysis of Information Systems and National Lymphatic Filariasis Elimination Programs in the Region of the Americas.
Dr. Jean Francois Vely, the PAHO/WHO Haiti Representative opened the meeting by warmly welcoming Haiti's seven sister countries in the region, Brazil, Costa Rica, Guyana, Haiti, the Dominican Republic, Suriname, and Trinidad and Tobago. He invited them to share their experiences in their fight against LF. With great pleasure, he introduced the dignitaries who were present: Dr. Henry Claude Voltaire, Minister of Public Health; Dr. Emile Charles, Director-General of the Ministry of Public Health (MOH); Dr. Mirta Roses, Assistant Director of PAHO/WHO; Dr. Lea Guido, PAHO/WHO Representative in Haiti; Dr. Sergio Yactayo, L Program, Geneva; Dr. John Ehrenberg, Regional Adviser for the Americas; and, Dr. Marie Denise Milord, Coordinator of the National Program for the Elimination of LF. He then turned the microphone over to Dr. Emile Charles.

Dr. Emile H. Charles, Director General Ministry of Health (MOH), Haiti

Dr. Charles welcomed all those present who are engaged in the fight against LF. This included the following: the Assistant Director of PAHO/WHO; the representative of PAHO/WHO in Haiti; the regional adviser to the filariasis program; the coordinator of the national program to fight LF; representatives of international agencies; honored guests from the regional countries; members of international organizations, such as the United Nations, and bilateral cooperation agencies; representatives of NGO partners; and service-provider partners.

Dr. Charles expressed his belief that with the current technical knowledge and expertise, it is a good time for change that will lead to better understanding and better sharing of experiences among those who are fighting against this disease and working toward elimination of the disease in their respective countries.

He explained that more than a decade ago, the Republic of Haiti decided to launch a frontal assault against LF. Today they are continuing these earlier efforts, as well as adopting more aggressive strategies. He emphasized his firm belief that with this aggressive approach, Haiti has developed the necessary program management tools to successfully manage the program and meet their objectives. More importantly, Haiti has infused new life into genuine partnerships with organizations from the private sector.

Dr. Charles concluded his remarks by stressing the success of Haiti's programs and the continued commitment of the MOH to move forward with these programs and acknowledged the invaluable assistance and support of the Minister of Health in Haiti, and service-provider partners, most especially the Hôpital de Saint Croix. He invited all the participants to engage in what promised to be a fruitful exchange of information and ideas. He then introduced Dr. Mirta Roses, the Assistant Director of PAHO.

Dr. Mirta Roses, Assistant Director of PAHO

Dr. Roses welcomed everyone first in French, then in Portuguese, and then in English.

Dr. Roses expressed her firm belief that while LF is a disease of poverty, it is one of the diseases of poverty that can be overcome. She went on to state the deadline for the goal of LF elimination was established during the 52nd World Health
Assembly. During this assembly the political will and the technical advice were put together and 2020 was established as the deadline for LF elimination. She proudly recognized the regions high concentration of expertise and human resources that span all areas of research regarding LF including, epidemiology, clinical trials, treatment, and, most importantly, alliance building to bring together all the interested parties. She noted that this is highlighted by the presence at the meeting of representatives of religious institutions, NGOs, and hospitals. This fact exemplifies one of the most important and valuable features of this hemisphere, the capacity to build alliances and to recognize the strength and the experience of its human resources, as well as the strength and fullness of the political commitment to the common goal of LF elimination.

Dr. Roses also noted the hemisphere’s proud participation in PAHO’s achievements during its 100-year history. With a common goal and the right strategies, the Region has eliminated smallpox, polio, and will succeed with measles. She went on to say that the example and strength displayed by Haiti in the last vaccination campaign to overcome the unexpected surge of polio-like cases was also an indication of the solidarity in this hemisphere and the capacities to bring together partners from all the institutions and from all the walks of life. She noted this is very positive and the ideal way to proceed in the future.

She pointed out the progress in the Region thus far towards elimination of LF, including the successful regional meetings such as this meeting and the two previous ones in the DOR and Guyana. In addition, she pointed out that three out of the seven endemic countries (i.e., SUR, COS and T&T) are quite close to achieving elimination in the near future. The experiences accumulated in the Region by working together and the continuous exchange of information will also help the remaining four countries make sustainable progress towards the goal of LF elimination.

Dr. Roses concluded by stressing the valuable contributions that can be learned from this meeting, including discussions on advances in morbidity assessment, progress with and the importance of linking different institutions under experienced leadership, the necessary participation and involvement of the MOH in order to achieve sustainable progress, and the commitment of all the countries to work individually and together to realize the goal of eliminating LF sooner than the designated deadline.
Dr. Ehrenberg welcomed all the participants on behalf of PAHO and WHO. He thanked additional members of the alliance in addition to those already acknowledged by Dr. Roses. He pointed out that GSK has been an important partner from the private sector who has supported the initiative from the beginning, acknowledging GSK’s offer to donate albendazole for the entire length of the program. Dr. Ehrenberg also acknowledged the important role that the LF support centers have played during the last two years, the important contributions of the NGOs since the beginning of the initiative, and the crucial participation and effort from the ministries of health of the participating countries.

Overview of the agenda
Dr. Ehrenberg briefly reviewed the meeting’s tight schedule and pointed out that the first day would focus on the seven country presentations. He explained that the time allotted to each country depended on the magnitude of the problem in that country. The goal was to concentrate on the four countries where LF remains a considerable problem, Haiti, the Dominican Republic, Brazil and Guyana. The other three countries are considered to be well on their way to reaching the goal of LF elimination. He noted that during this year, an effort was made to reach out to the academic centers and bring their valuable resources to the initiative. He welcomed the three participants from the academic sector who were present, Dr. Adriana Troyo from Costa Rica, Dr. Gilberto Fontes from the Brazil, and Dr. Barney Cline from Tulane, United States of America. He also pointed out that Dr. Eric Ottesen from Emory University, USA would elaborate on important updates with the new ICT cards.

He explained that the second day would focus on three key aspects identified since the last regional management meeting in Guyana. Dr. Eric Ottesen would discuss monitoring and evaluation, Dr. Guillermo González would discuss social mobilization and communication, Dr. Gerusa Dreyer would discuss morbidity control. Dr. Ehrenberg explained that, given the importance of these aspects, the goal was to devote considerable time during the second and third day of the meeting. He pointed out that on the third day the Léogane group from Haiti would share their experiences, and first hand knowledge on their operational capabilities, laboratory research activities, and on their morbidity control efforts.

Overview: Progress in the Region
Dr. Ehrenberg highlighted what has happened in the region since the meeting three years ago in the DOR. He began by laying out the challenges since the second regional meeting.
Challenges since the 2nd regional program managers meeting
- Complete Mapping using ICT cards
- Define implementation units (IU)
- Establish treatment component
- Complete morbidity assessments (MA)
- Develop functional task force
- Establish sentinel sites
These were discussed in more detail based on feedback received from the countries.
Mapping

- It is essential to assess the magnitude of the problem.
- ICT cards have facilitated this activity. Of the 120,000,000 cases worldwide, approximately 3,196,464 are in the Americas.
- Official estimates provided by WHO have placed Brazil at the top of the list as far as at risk population figures are concerned. The total at risk population for the Region was underestimated, as was the estimated number of infected individuals. This is shown in the table, "Lymphatic Filariasis in the Americas".
- Recent data resulting from mapping activities and updated surveys conducted by the programs provide a more realistic estimate. [See table, "Lymphatic Filariasis in the Americas (2002 Estimates)" and graph, "Lymphatic Filariasis in the Americas, Population at Risk 2000, 2002].
- Increases in the total at risk population and the estimated number of infected individuals in the Region are significant. This is primarily at the expense of Haiti, the country, which bears the highest burden in the Region with a six-fold increase in the population at risk.
- Brazil (BRA), the Dominican Republic (DOM), Suriname (SUR), Trinidad and Tobago (T&T) and Costa Rica (COS) recorded a decrease in their at risk figures while Guyana's remained the same. This is good news for the former group of countries mainly in terms of Program related costs and the time required to expand treatment activities.

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>At risk</th>
<th>% at risk</th>
<th>Estimated nr. of infected individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRA</td>
<td>165,473,000</td>
<td>3,000,000</td>
<td>1.8</td>
<td>49,000</td>
</tr>
<tr>
<td>DOR</td>
<td>8,232,000</td>
<td>1,500,000</td>
<td>18.2</td>
<td>100,000</td>
</tr>
<tr>
<td>HAI</td>
<td>7,637,000</td>
<td>1,000,000</td>
<td>13.1</td>
<td>200,000</td>
</tr>
<tr>
<td>GUY</td>
<td>770,000</td>
<td>650,000</td>
<td>84.4</td>
<td>59,000</td>
</tr>
<tr>
<td>SUR</td>
<td>442,000</td>
<td>400,000</td>
<td>90.5</td>
<td>2,000</td>
</tr>
<tr>
<td>T&amp;T</td>
<td>1,318,000</td>
<td>40,000</td>
<td>3.0</td>
<td>8,000</td>
</tr>
<tr>
<td>COR</td>
<td>3,649,000</td>
<td>41,000</td>
<td>1.1</td>
<td>3,700</td>
</tr>
<tr>
<td>TOTAL</td>
<td>187,521,000</td>
<td>6,631,000</td>
<td>3.5</td>
<td>421,700</td>
</tr>
</tbody>
</table>
• Further changes in the “at risk” figures are to be expected as ICT mapping activities take place in Brazil. The DOR and COS are expected to complete the mapping in 2003.
• Morbidity assessments will also be moving forward in Brazil, Guyana, DOR and Haiti.

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Population at risk</th>
<th>%</th>
<th>Estimated nr. of infected individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRA</td>
<td>174,632,932</td>
<td>1,765,000</td>
<td>1.01</td>
<td>69,000</td>
</tr>
<tr>
<td>DOR</td>
<td>8,396,164</td>
<td>422,166</td>
<td>5</td>
<td>63,325</td>
</tr>
<tr>
<td>HAI</td>
<td>8,000,000</td>
<td>6,000,000</td>
<td>80</td>
<td>3,000,000</td>
</tr>
<tr>
<td>GUY</td>
<td>709,506 (1991 census)</td>
<td>638,556</td>
<td>90</td>
<td>64,139</td>
</tr>
<tr>
<td>SUR</td>
<td>450,000</td>
<td>35,000</td>
<td>7.8</td>
<td>0</td>
</tr>
<tr>
<td>T&amp;T</td>
<td>1,300,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>COR</td>
<td>3,649,000</td>
<td>10,000</td>
<td>0.27</td>
<td>?</td>
</tr>
<tr>
<td>TOTAL</td>
<td>197,137,602</td>
<td>8,870,722</td>
<td>4.49</td>
<td>3,196,464</td>
</tr>
</tbody>
</table>

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Dr. John P. Ehrenberg

"Lymphatic Filariasis in the Americas (2002 estimates)"

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"Lymphatic Filariasis in the Americas Population at Risk 2000, 2002"
Determining the population at risk
• The population at risk is key to the program. It defines the treatment objective and allows the program manager to estimate the amount of drug needed for Mass Drug Administration (MDA).
• The data are shown in the graph, *Lymphatic Filariasis in the Americas: Population at Risk 2000, 2002*.
• Encouraging results of the mapping activities in SUR and T&T suggest the two countries may have reached the elimination goal. There are good reasons to believe COS may have also reached the goal. However, this country has yet to complete the ICT based assessments.

Sentinel sites
• The next topic covered was related to the selection of sentinel sites, an essential step in the elimination strategy. Dr. Ehrenberg commented on the need for additional work in this area.
• An updated program managers’ guideline to establish sentinel sites was distributed during the Second Program Managers Meeting in 2001. Participants were encouraged to use these guidelines.
• Participants were particularly urged to review the information on sample size selection. He noted that this is a critical component for establishing sentinel sites and is covered in detail in the manual.

Sentinel site update
• The tables, *Elimination of Lymphatic Filariasis in the Americas, Sentinel Sites Update* gives an update on sentinel sites for each country, including the number and name of the sentinel sites, the number positive using testing for microfilaremia (MF) and ICT testing, the prevalence, whether a stool survey was conducted, and whether serum was collected.
• The first table includes information on Brazil, Guyana and Haiti, and the second table includes information on DOR, COS, T&T, and SUR.

Brazil (BRA)
• Brazil has an old program with approximately eleven foci throughout seven Brazilian States.
• With elimination efforts underway, they have managed to decrease the number of foci to three.
• They have achieved this by relying on selective treatment of all cases according to WHO’s former treatment regimen.
• Careful assessments will be required in order to verify if elimination did in fact take place and to determine the extent to which other measures may have contributed to the elimination of these foci. (e.g., did they change the environment through sanitation, and/or did the program implement vector control).
• Brazil has so far only designated one sentinel site. This is the Canal de Reginaldo focus in Maceió, one of the two main foci in Brazil.
• The hope is that Brazil will develop a more systematic approach to identifying sentinel sites for moving forward with the Program for the Elimination of LF (PELF).
# Elimination of Lymphatic Filariasis in the Americas

## Sentinel Sites Up-date

<table>
<thead>
<tr>
<th>Country</th>
<th>Nr. of Sentinel Sites</th>
<th># Positive</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mf (year)</td>
<td>ICT (year)</td>
</tr>
<tr>
<td>BRA</td>
<td>Feitosa</td>
<td>2,855 (02)</td>
<td>–</td>
</tr>
<tr>
<td>GUY</td>
<td>Lodge</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Tuchberg</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>HAI</td>
<td>Masson/</td>
<td>140/1157 (00)</td>
<td>424/1157 (00)</td>
</tr>
<tr>
<td></td>
<td>Mathieu</td>
<td>26/597 (01)</td>
<td>160/597 (01)</td>
</tr>
<tr>
<td></td>
<td>Barriere</td>
<td>77/1157 (00)</td>
<td>391/1160 (00)</td>
</tr>
<tr>
<td></td>
<td>Jeudi</td>
<td>16/500 (01)</td>
<td>138/509 (01)</td>
</tr>
<tr>
<td></td>
<td>Leogane</td>
<td>98/617 (00)</td>
<td>302/1622 (00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27/487 (01)</td>
<td>193/500 (01)</td>
</tr>
<tr>
<td></td>
<td>Mapou</td>
<td>5/587 (00)</td>
<td>50/589 (00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/270 (01)</td>
<td>17/271 (01)</td>
</tr>
<tr>
<td>DOR</td>
<td>Pueblo Nuevo</td>
<td>22/526 (02)</td>
<td>113/526 (02)</td>
</tr>
<tr>
<td></td>
<td>Barrio La Sombra</td>
<td>17/522 (02)</td>
<td>45/522 (02)</td>
</tr>
<tr>
<td></td>
<td>Batey 7</td>
<td>47/370 (02)</td>
<td>132/370 (02)</td>
</tr>
<tr>
<td>COR</td>
<td>Pto. Limón</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>T&amp;T</td>
<td>–</td>
<td>–</td>
<td>0/2597 (02)</td>
</tr>
<tr>
<td>SUR</td>
<td>Nickerie</td>
<td>–</td>
<td>0/250 (01)</td>
</tr>
</tbody>
</table>

1. Sixteen more to be selected
Guyana (GUY)
- Guyana has selected two sentinel sites so far. As the table indicates, data on the prevalence in these two sites is pending and an update will be presented at this meeting.

Haiti (HAI)
- Haiti has so far designated four sentinel sites, with an additional 16 sites waiting to be established.
- The program completed assessments in 2000 and 2001 to determine MF and antigenemia (Ag) prevalence rates in the four sites.
- Prevalence rates dropped between the two years except for the ICT rates in Léogane, which actually increased in 2001.

Dominican Republic (DOR)
- The DOR selected three sentinel sites. The program completed assessment for 2002, including the ICT testing.
- The DOR conducted stool surveys as well. Given the fact this program is relying on the two-drug mass drug administration (MDA) regimen, which includes albendazole, stool surveys provide vital information on the impact of the LF program.
- It is important to note that the DOR has completed four annual interventions to de-worm the school-age population in the country.
- The focus of the program is on a horizontal rather than a vertical approach.

Costa Rica (COS)
- COS has not re-assessed its focus since 1978.
- ICT testing is still pending and one of the first tasks for Costa Rica is to complete mapping in 2003.

Trinidad and Tobago (T&T)
- T&T have completed their mapping and found no evidence of infection.
- They conducted an ICT based survey, which included the historical focus and areas around it.
- They also surveyed several different parts of the two islands.
- All results were negative.

Suriname (SUR)
- Suriname completed a survey in Nickerie, the border town with Guyana.
- This situation presents a risk for continued introduction of LF into SUR where elimination may have otherwise been achieved.
- SUR will maintain surveillance in Nickerie.
Morbidity assessment
- The table *Elimination of Lymphatic Filariasis in the Americas: Morbidity Assessments Up-Date*, provides information by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Morbidity Assessment (MA)</th>
<th>Findings</th>
<th>Planned Dates of MA</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;T</td>
<td>Y</td>
<td>All 8 Admin. Div. surveyed, 19-51% report signs but no evidence of cause</td>
<td>Jan.-Dec. 2003</td>
</tr>
<tr>
<td>SUR</td>
<td>1. Nov. 2001 2. Jul.-Aug., 2002</td>
<td>1. 0/920 adults examined in Paramaribo &amp; outskirts 2. Survey at out-patient filarial clinic: 23 cases, 78% with elephantiasis, 91% over 60 years of age.</td>
<td>–</td>
</tr>
<tr>
<td>COR</td>
<td>N</td>
<td>N</td>
<td>October 2002</td>
</tr>
<tr>
<td>BRA</td>
<td>2002</td>
<td>Rapid Morbidity Assessment completed in Maceió with further assessments to be conducted in Recife</td>
<td>2002-2003</td>
</tr>
<tr>
<td>HAI</td>
<td>Y</td>
<td>Ongoing in 6 UCS &amp; 5 Municipalities with high antigenemia</td>
<td>October 2002</td>
</tr>
<tr>
<td>DOR</td>
<td>August 2002</td>
<td>Examined = 121,235 cases = 850 Hydrocele = 198 Lymphedema = 652</td>
<td>–</td>
</tr>
<tr>
<td>GUY</td>
<td>June 2002</td>
<td>3,500 cases of lymphedema (0.5% of total population). Hydrocele: 0.1% of male population.</td>
<td>September 2002</td>
</tr>
</tbody>
</table>
• All countries, with the exception of COS, have begun assessing morbidity.
• Completion of morbidity assessments is expected during the next couple of years.

Costa Rica (COS)
• With the new government and the renewed commitment of the newly assigned Minister of Health in COS, it is hopeful that a morbidity assessment will be conducted very soon.

Trinidad and Tobago (T&T)
• T&T did conduct a morbidity assessment, which produced a range of reported results, 19% to 51%.
• The plan is to continue the assessment through January 2003 to refine their estimates.

Suriname (SUR)
• SUR also conducted assessments.
• A survey at a former LF clinic reported 23 cases, 78% with evidence of elephantiasis.
• Most of these patients were over 60 years of age.

Brazil (BRA)
• Brazil reported having completed a morbidity assessment in Maceio. The local program manager expressed her intentions to repeat the assessment in view of sampling problems.
• There are plans to conduct morbidity assessments in 2003 in Recife, the most important focus in the country.

Dominican Republic (DOR)
• The DOR completed an assessment of approximately 121,000 people in August 2002.
• 850 cases were reported; most of these cases presented with lymphedema.
• There were 198 cases with hydrocele.

Guyana (GUY)
• The last assessment in Guyana was conducted in June 2002; 3,500 cases of lymphedema were found.
• A morbidity assessment for the sentinel sites is planned in September 2002.

Task force
• The table, Elimination of Lymphatic Filariasis in the Americas: National Task Force Up-Date, provides an update on the national task force and it’s meetings in each country.
• Meetings have taken place in each country, with the exception of COS. As noted earlier, it is anticipated that LF elimination activities will again be underway in COS.
• Dr. Ehrenberg stressed the importance of having an active task force in each country that gets involved in programmatic efforts. Regular meeting (minimum of 4 times/year) of the task force should be encouraged, especially in BRA, GUY, HAI and DOR.
• For some countries, it may be more appropriate and effective to have a task force that addresses a number of disease entities, such as geo-helminths.
• Involving the academic sector as part of the task force was strongly urged.
<table>
<thead>
<tr>
<th>Country</th>
<th>National Task Force (date of last meeting)</th>
<th>Key Issues Discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;T</td>
<td>June 2001</td>
<td>• Regular communications and informal meetings</td>
</tr>
<tr>
<td>SUR</td>
<td>July 2002</td>
<td></td>
</tr>
<tr>
<td>COR</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>BRA</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>
| HAI     | June 2002                                 | • Management of Morbidity  
• Evaluation of Morbidity  
• Registration forms and Evaluation  
• Social Mobilization  
• Community Participation  
• DEC/Salt Market  
• UCS = IU |
| DOR     | August 2002                               | • Social Mobilization  
• Strengthening Health Services for Morbidity  
• 2003 Plan and Presentation for 3rd. Meeting |
| GUY     | June 2002                                 | • Staffing finances  
• DEC/Salt  
• Morbidity  
• KAP Survey  
• Sentinel Sites  
• Social Mobilization  
• Next Steps |
Global initiative
A brief review of the global initiative on LF elimination was presented to get a sense of where the Americas are positioned. (See Table Lymphatic Filariasis—Number of Cases Worldwide)

- India has by far the biggest problem with the number of cases, with Africa next as a continent. The remaining is distributed between the Americas, Asia and the Middle East.
- Mapping has been completed in several countries.
- There is still a significant number of countries in Asia and Africa for which mapping is in progress, or as is the case for many countries in Africa, still in the planning phase.
- Impressive progress has been achieved worldwide in MDA.
- Data on the number of countries that have implemented mass drug administration and the number of people covered has increased dramatically from 2000 to 2001.
- In 2000, approximately 12 countries had active MDA programs compared to approximately 22 in 2002; this represents an 83% increase.
- A more dramatic increase was seen in this short time period in the number of people who were covered. In 2000 approximately 3 million people were covered compared to 26 million in 2001, representing an increase of over 700%.
- However, there are still substantial challenges to be faced.
- A closer look at data from Indian Subcontinent highlight some of the challenges.
  - India has an at risk population of 454 million people, approximately 15 million of whom have been targeted for mass drug administration.
  - A crosscheck to validate the numbers of people who actually took the drug indicates that only 59% did. This suggests coverage that is well below the reported coverage of 88%.
  - This highlights the need for ongoing monitoring and evaluation in order to track the progress and success of the elimination activities.
- The goal for 2005 is treatment of 350 million people worldwide.
- To achieve this coverage, it is imperative that program activities be scaled up.
- This implies:
  - Increasing the number of LF endemic countries that are implementing PELF;
  - Expanding programme activities within countries to cover entire at risk populations;
  - Increasing the reach and coverage of MDA and alleviation of disability; and
  - Ensuring quality control
    - Drugs and diagnostics
    - Coverage and Compliance
    - Reporting.

<table>
<thead>
<tr>
<th>Lymphatic Filariasis—Number of Cases Worldwide</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>INDIA</td>
</tr>
<tr>
<td>AFRICA</td>
</tr>
<tr>
<td>ASIA</td>
</tr>
<tr>
<td>CHINA</td>
</tr>
<tr>
<td>AMERICAS</td>
</tr>
<tr>
<td>MIDDLE EAST</td>
</tr>
</tbody>
</table>
Country Presentations

The following are summaries and highlights of each country presentation.

HAITI

Dr. Marie Denise Milord, Chief, National Program for the Elimination of Lymphatic Filariasis, Haiti

Overview
Dr. Milord again welcomed everyone to the Third Regional Program Manager’s Meeting on the elimination of LF and expressed Haiti’s pleasure at having the other regional country participants present in Haiti.

Dr. Milord described the progress made in Haiti since 2001 toward the elimination of LF. She noted that LF, a tropical disease that affects people worldwide, has long been neglected as a public health problem. However, this situation changed several years ago when interest was revived with the World Health Assembly’s declaration on LF as potentially eradicable and its resolution to eradicate the disease from the planet by the year 2020. Subsequent to this declaration and resolution, new diagnostic, care, and treatment methods have been developed and made available to enable the different countries to meet their objective, namely elimination of the disease.

Dr. Milord first gave a brief summary of the historical highlights of LF in Haiti and then went onto discuss assessment activities and actions taken planned since 2001.

Historical highlights
LF has been in Haiti for centuries and has always been attributed to supernatural causes, even in current times. Professor Christian Raccurt was one of the first people to study the problem. His research identified certain parishes in the country that were affected by the disease. Also, Duvivier, Limbé, Port de Paix, and Léogane were important focal areas in the early days. More recently, the Centers for Disease Control and Prevention (CDC) in Atlanta collaborated with the Hôpital Saint Croix, to implement treatment and prevention activities through the mass distribution of drugs in Léogane parish.

Assessment of the problem
- In 2001, the Ministry of Public Health (MOPH), in collaboration with its national and international partners, conducted antigen studies in 133 parishes throughout the country. See Map of Results.
- Data indicate a nationwide public health problem with evidence of disease transmission in 117 of the 133 parishes surveyed. Results indicated:
  - The majority of the parishes studied had seropositivity rates of 1.5-4.9%;
  - As many as 20 parishes had seropositive rates of 10%-45%;
  - 20 parishes had 10-45% seropositivity;
  - 13 parishes had 5%-9% seropositivity;
  - 84 parishes had 1.5%-4.9% seropositivity; and
  - 16 parishes had 0% seropositivity.
**General plan of action**
Given the evidence of nationwide transmission, the MOPH resolved to eliminate LF in Haiti. Dr. Milord stressed that the political will and engagement of the authorities are crucial to meet the elimination objective.

- The MOH has made LF elimination one of the priorities in its Priority Plan of Action.
- The MOPH has established a national coordinating center for the program.
  - The center is staffed by a physician, public health nurses, an administrator, a secretary, a driver, a security guard, and a cleaning lady.
  - The staff is responsible for the operations of the technical and administrative units of the coordinating office.
  - The center is responsible for developing the general objectives for the national elimination plan.
- A technical committee has been created to assist the responsible officials at the MOH in decision-making about the LF program.
  - The committee consists of 10 members, including the representatives of the MOPH, the National Ministry of Education, the Ministry of Social Affairs, the WHO, the Haitian Medical Association, the Hôpital de Saint Croix, and a local NGO.
  - It is divided into four subcommittees including mass treatment, care, social mobilization, and DEC-fortified salt.
- The subcommittees meet as often as necessary to address specific problems and related to these problems.
- The full committee has met three times to date.
- The committee has addressed treatment, distribution, and dosage strategies in the various discussions.

**National objectives**

- Improve the understanding of the link between hygiene and LF disease to facilitate behavior change among the population.
- Treat the morbidity to ease the suffering of people afflicted with this malady.
- Provide mass treatment to reduce antigenemia levels to levels considered “low risk”.

**Efforts to accomplish national objectives**

- Mass treatment pilot studies are ongoing in Léogane.
- The second round of mass treatment is underway.
- Priority is given to the parishes most affected with gradual introduction of other regions.
- Activities are organized around three lines of action: social mobilization, treatment of morbidity, and mass treatment.

**Social mobilization.**

- Target groups have been identified and orientation strategies have been developed for each group.
- Informational meetings have been conducted at the regional level with representatives of the health authority and the community attending.
- Informational has been provided to special groups, including teachers and leaders.
- A conference was held for private physicians on the epidemiology of the disease and the objectives of the national elimination program.
- Several training courses have been offered to educators and promoters in charge of conveying the message to the community.
- Training has been provided to local leaders identified during site visits. These leaders will make sure the program plan and initiatives are understood in each of the parishes.
- Educational brochures have been developed for distribution to teachers, priests, ministers and others who will assist in program implementation.
- Posters and cassettes on prevention are being planned for mass distribution.
- Broadcast information via the radio stations have been identified in each parish.
- Educational activities are underway in Léogane.
Treatment of morbidity.
• An evaluation of the positivity rate is ongoing in six implementation units and five parishes using a community-based participatory model.
• Community volunteers will identify the respondents and collect the information. This information will be used to identify where treatment clinics will be established.
  – Preliminary results (complete results expected next month) indicate that hydrocele is a problem for 94.5% of the respondents, with an estimated rate of 0.5-10/1,000 inhabitants.
  – Lymphedema is a problem for 80% of respondents, with rates of 0.5-10/1,000 inhabitants.
• The national committee has prepared a formal curriculum on LF for physicians-in-training.
• Supervisory charts have been created to guide physicians in the treatment clinics.
• An international meeting was held in Léogane on urogenital ultrasound and surgery.
• A number of Haitian physicians have attended seminars on urogenital surgery.
• More than 1,200 patients have been treated in Léogane this year, and > 80 urogenital procedures have been performed.
• The treatment clinic in Milot has treated more than 500 patients.

Mass treatment or salt fortification.
• The first mass treatment strategy is based on the combination of Diethylcarbamazine (DEC) and albendazole, and the second, the fortification of salt.
The objective of mass treatment is to reach a population of 8 million.

In Haiti, 117 out of 133 parishes are affected, or about 80% of parishes.

Plans are underway to implement mass treatment in 12 parishes.

Nine parishes will be treated with the combination of DEC and albendazole: Port-de-Paix, Plaine du Nord, Milot, Quartier Morin, Caracol, Limonade, Verettes, Saut d’eau, and Léogane.

Two rounds of mass treatment have been administered in Léogane.
- In 2000, approximately 110,000 people were treated.
- In 2001, coverage expanded so an additional 70,000 people were treated.
- Attempts are being made to increase coverage in 2002 in Léogane parish.

Knowledge attitude and perceptions (KAP) survey.
- A KAP was conducted on factors influencing coverage in Léogane.
- Results indicate that knowledge, attitude and perception do greatly affect treatment support.
- Factors that influence treatment coverage were gender, knowledge about LF as a mosquito-borne disease and knowledge obtained through the materials distributed.

Sentinel sites.
- In addition to the sentinel site of Léogane parish, other sentinel sites include Barrière Jeudi, Masson/Mathieu, and Mapou, making four in all.
- A survey was completed in all four sentinel sites to assess MF and antigen percent positive.
- Testing was done before treatment, and after the first and second round of treatment.
- Antigenemia (Ag) testing was done with the ICT card at the first two time points (before treatment and after the first round of

### Factors Influencing Coverage
CAP Study (Community-based multi-stage cluster survey, Léogane)

<table>
<thead>
<tr>
<th>Factors influencing coverage</th>
<th>OR*</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men versus women</td>
<td>3.29</td>
<td>1.46 - 7.41</td>
</tr>
<tr>
<td>Knowledge about LF as a mosquito-borne disease</td>
<td>2.55</td>
<td>1.20 - 5.42</td>
</tr>
<tr>
<td>Knowledge obtained through the material distributed</td>
<td>2.94</td>
<td>1.16 - 7.46</td>
</tr>
</tbody>
</table>

* Logistic regression

Health education with information about the disease is an important factor.
treatment) and at the last time point (after the second round of treatment). Ag testing was done with the Binax card.

- The table, **Sentinel Sites in Léogane** shows the data on percent positive before treatment, after the first round of treatment, and after the second round of treatment for each sentinel site.
  - After each round of treatment there was a decrease in the percent positive in each sentinel site, indicating a positive effect of treatment.
  - There was a decrease in Ag after the first round of treatment. In the capital, Barrière Jeudi, which had Ag rates of 34.6%;—this fell to 27% after the first round of treatment.
  - However, just after the second round there was a rise in Ag in all sentinel sites.
  - This raises concerns about the test used and how it performed. The Binax test was used and the exact explanation for these results is not yet clear.
  - Serum has been collected from the patients and is being analyzed using other accepted methods.
  - Salt fortification using local salt took place in Léogane and Milot. Prevalence studies conducted between 1998 and 1999 after salt fortification showed good results.

<table>
<thead>
<tr>
<th>Site</th>
<th>Before treatment % positive (N)</th>
<th>After 1st round of treatment % positive (N)</th>
<th>After 2nd round of treatment % positive (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Barrière Jeudi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>34.6 (1134)*</td>
<td>27.0 (506)*</td>
<td>49.6 (502)**</td>
</tr>
<tr>
<td>MF</td>
<td>6.7 (1157)</td>
<td>3.2 (500)</td>
<td>1.9 (518)</td>
</tr>
<tr>
<td>2. Masson/Mathieu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>36.8 (1149)*</td>
<td>26.8 (591)*</td>
<td>39.2 (498)**</td>
</tr>
<tr>
<td>MF</td>
<td>11.0 (1140)</td>
<td>4.4 (597)</td>
<td>2.7 (513)</td>
</tr>
<tr>
<td>3. Mapou</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>10.2 (579)*</td>
<td>6.3 (271)*</td>
<td>46.4 (205)**</td>
</tr>
<tr>
<td>MF</td>
<td>0.8 (588)</td>
<td>0.4 (271)</td>
<td>0 (207)</td>
</tr>
<tr>
<td>4. Léogane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>50.1 (603)*</td>
<td>38.6 (495)*</td>
<td>42.7 (266)*</td>
</tr>
<tr>
<td>MF</td>
<td>15.9 (617)</td>
<td>5.5 (488)</td>
<td>2.6 (265)</td>
</tr>
</tbody>
</table>

*Amrad ITC card **The new product, Binax
**DEC-fortified salt**
As an alternative to mass treatment, Haiti is considering the use of salt fortified with DEC and iodine. There are plans to implement this treatment strategy in the current year in three pilot sites, l’Arcahaie, Tabarre, and Gressier.

- Locations in Haiti where salt is produced have already been identified.
- Local salt is found principally in the Northwest, in l’Arbonite, and transported to the capital.
- There is a salt fortification plant in Port-au-Prince, which uses the simple, qualitative colorimetric tests to detect the presence of DEC and iodine in the salt.
- Haiti has a commitment from the WHO to supply 3,000 kg of DEC in powdered form for treatment activities in these sites.
- From 2000-2001 there was a decrease in all side effects (see figure Side Effects), except those in the scrotum.
- Haiti has already received 300 kg of DEC-salt from Honeywell International.
- The expectation is to treat approximately 100,000 people with DEC-fortified salt this year.

![Side Effects diagram](image-url)
Monitoring and evaluation

- Up to this point, the community-based survey is the same as those conducted everywhere, except that the cost is rather high.
- This justifies the search for different types of studies. Haiti has tried surveys based on distribution points and others that are school-based.
- There is little difference in the results between the studies based on distribution points and the school-based studies versus community-based studies.
- The results of the different studies are shown in the figure Different Strategies for Determining Coverage.

<table>
<thead>
<tr>
<th>Different Strategies for Determining Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Community-based survey (multi-stage cluster survey)</td>
</tr>
<tr>
<td>■ Survey based on distribution points</td>
</tr>
<tr>
<td>■ School survey</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Survey</th>
<th>Coverage</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td>71.3</td>
<td>66.7 - 76.0</td>
</tr>
<tr>
<td>Distribution points</td>
<td>72.0</td>
<td>68.4 - 75.6</td>
</tr>
<tr>
<td>School</td>
<td>73.7</td>
<td>72.0 - 76.0</td>
</tr>
</tbody>
</table>

- This is a strategy that perhaps could be used throughout the national program to determine coverage.
- Studies were also conducted on communities with low positivity rates.
- The studies have been conducted among school children 6 to 11 years of age and among infested houses.
  - In parishes with low positivity rates, 5% of children are infected.
  - Communities that present a low rate of Ag are Grand Goâve, with a rate of 0.8; Hinche, with 1.0%; and Thomazeau, with 0.7%.
  - Preliminary findings reveal that 5.2% of children tested positive from households in 8 areas.
    - 533 were tested.
    - 6.7% of them were Ag positive.
  - All other parishes also had low positivity rates.
- Haiti has received ICT test kits and serum from abroad; they have developed a questionnaire to monitor seropositive individuals.
Organization
See annex for graphic depiction of organization.
- Ministry of Health is at the top followed by the Director General's Office.
- Under the Director General's Office are the Coordinators Office and the National Technical Committee.
- The Filariasis Program is under the Coordinator's Office and is the responsibility of the National Technical Committee.

Plans and challenges ahead

Plans
- The plan is to treat 1 million people by 2003 with 10 centers for morbidity treatment of morbidity.
- Efforts will be made to identify other sources of financing.

Challenges
- As a new program, there are still difficulties.
- Sustainability is only possible with additional financial support.
- There are logistics and transportation issues.
Dr. González began by reviewing the mapping process in the Dominican Republic.

**Overview**

**Overview of mapping**
- The goal of the mapping process, which began in 1999, was to map all the 154 municipalities in the country.
- Mapping indicates the presence of LF concentrated in five municipalities so far and the presence of hydrocele and lymphedema concentrated primarily in two municipalities.
  - Red indicates positive, green indicates negative, and white indicates not yet processed.
  - A total of 154 municipalities were surveyed.
  - 84 (55%) of the municipalities have been mapped.
All the positive municipalities are located in only five provinces. These provinces are commonly referred to as southern region or as border provinces.

Mapping has been suspended temporarily due to difficulties with the handling of the ICT card, specifically the problem of variability.

**Overview of morbidity**

- The figure, **Location Comparison of Suspected Cases of Hydrocele and Lymphedema in the Extremities**, indicates the results of morbidity assessment surveys conducted in 2002 by municipality.
- Morbidity assessment has identified the presence of hydrocele and lymphedema.
- There is strong overlap in the geographic distribution of lymphedema and hydrocele.
- The greatest concentration of suspected cases of hydrocele occurred in only two municipalities, Barahona and Ubilla.
- The same is true of lymphedema in other parts of the body.
- Lymphedema has also been found in Barahona and Ubilla, as well as in other parts of the country such as Peñón where, to present, there does not appear to be any cases of hydrocele.
- As there is a stigma attached to hydrocele, complete identification may not be likely.
- For hydrocele, the number of detected cases ranges from <2 in yellow to >42 in orange.
- For lymphedema, the number of detected cases ranges from <4 in yellow to >174 in orange.

![Location Comparison of Suspected Cases of Hydroceles and Lymphedema in the Extremities](image)

**General plan of action**

- As there was no ongoing program, the DOR had to start practically from zero.
- As of a year ago, they began receiving funding from the Bill and Melinda Gates Foundation, as well as from PAHO.
- Based on this, they have carried out concrete actions to strengthen local capacities and institutional development.
• Based on this, they have carried out concrete actions to strengthen local capacities and institutional development.
• These concrete actions are coordinated both within and across sectors and among institutions, and local teams are being trained.

National objectives
• To resolve the difficulties of working with the ICT card.
• To complete the mapping process for the rest of the country by the end of the current school year.
• Continue to strengthen local capacities and institutional development.
• Continue training of local teams in assessment and program implementation.

Efforts to accomplish national objectives
• Dr. Francisco Paulino has been designated the general program coordinator at National Center for the Control of Tropical Diseases (CENCET).
• There is an entomology unit and laboratory depending on this institution, which, among their responsibilities in other programs, supports efforts to establish a base line for evaluation and monitoring activities.
• Coordination efforts are underway in the south.
• Plans to form a regional working group are underway.
• Other units, as well as the Dermatological Institute, are going to collaborate in the effort to eliminate LF in other areas of the country.

Social Mobilization
• Social mobilization goals are to:
  – To enhance community education;
  – To improve communication; and
  – To encourage active community participation.
• Efforts are underway to improve social mobilization.
• Mobilization efforts include establishing support groups and regional/national LF councils.
• The figure above, Elimination of Filariasis: Social Mobilization, shows the social mobilization activities underway. These include surveys and activities to raise awareness.
Mass treatment

- Efforts are underway to develop collaboration across institutions on the country,
- The MOH has signed two agreements. One is with the Jaime Mota Hospital for the development or a urogenital clinic, and the other is with the Dominican Institute of Skin Surgery.
- The latter is innovative in that it integrates the program to eliminate lymphatic filariasis with the leprosy program.
- These care units will be important for managing morbidity at the local level and also for mass distribution of medicine and community mobilization.
- There is an agreement in process with NGOs, such as World Vision and Plan International, to facilitate implementation of mass treatment efforts.
- A functional office has been set up in the southwest, which will help carry out program activities.

Treatment of morbidity

- Several strides have been made in terms of equipment, thanks to funds from the Bill and Melinda Gates Foundation.
- There is also a medical office to deal with the urogenital complications.
- There is also a training room designed to prevent the intrusion of infections from other areas of the hospital.
- The local National Center for the Control of Tropical Diseases (CENCET) team comprises nine people.
- All have been trained on filariasis, teamwork, supervision, and computer science, including the use of health mapper.
- The team at the urogenital clinic comprises several specialists who trained in Brazil last year with Dr. Joaquin Noroes.
- The clinic coordinator was also in Brazil to receive training on ultrasound diagnostics.
- Seven people make up the team from the Dermatological Institute, and they provide support to the morbidity component of the program.
- The figure, Care for Chronic Morbidity, indicates the basic concepts in care for chronic morbidity.

Monitoring and evaluation

- Three sentinel sites have been established and baseline assessments determined.
- One of the locations is in the municipality of Tamayo; the second is a community in the municipality of Barahona, and the third in the Batey 7 municipality of Cristóbal.
• The local CENET team includes the use of a health mapper, who will participate in the monitoring and evaluation activities.

• Evaluation of the sentinel sites is shown in figure, **Monitoring Impact: Sentinel Sites.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Location or Community/Municipality</th>
<th>Population</th>
<th>Samples Taken</th>
<th>Positive Microfil.</th>
<th>ICT Positive</th>
<th>Insuff. Sample</th>
<th>Lack of Microfil.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>La Sombra, Tamayo</td>
<td>854</td>
<td>490</td>
<td>17</td>
<td>48</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Pueblo Nuevo, Barahona</td>
<td>4,463</td>
<td>521</td>
<td>21</td>
<td>111</td>
<td>53</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Batey 7, Cristóbal</td>
<td>1,016</td>
<td>370</td>
<td>51</td>
<td>132</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL GENERAL</strong></td>
<td><strong>6,333</strong></td>
<td><strong>1,381</strong></td>
<td><strong>89</strong></td>
<td><strong>291</strong></td>
<td><strong>89</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

• Results revealed that of 1381 samples taken, 21% (291) were positive with the ICT card and 6% (89) were positive for MF.

• The highest positivity rate was seen in Batey 7 municipality.

**Organization**

• The Secretariat of Public Health and Social Assistance of the Ministry of Health (SESPAS) is the institution directly responsible for the program to eliminate LF.

• The National Center for the Control of Tropical Diseases (CENCET) is under that.

• Under CENCET are the entomology and diagnostic laboratories and the General Coordination Unit.

**Challenges ahead**

• Work towards establishing a national consultant group.

• Forge ahead with plans to form a regional technical group that would include, as representatives of the Dominican Security Institute, Dr. Juan Lopez for urogenital concerns and Dr. Toribio Batista for morbidity in other parts of the country.
Dr. Persaud began with an overview of the LF elimination program in Guyana and then went through the main pillars of the country's elimination program.

**Historical highlights**

- Similar to the global LF elimination program, the elimination program in Guyana focuses on two major areas, interruption of transmission and morbidity control.
- The main approach, which was developed as part of last year's program plan, is to use DEC-salt simultaneously with the morbidity control and management program.
- The focus for the coming year is on maintaining the task force.

**Assessment of the problem**

- Overall, there was 9% antigen prevalence throughout the country, which varies from less than 1% in some regions to as high as 42% in the city of Georgetown itself.
- However, because of the distribution of the population, about 97% of the population live in regions which are at risk for LF. The risk of LF is concentrated in the coasts, although all of the other regions could be easily affected due to the high degree of migration activity throughout the country.

**General plan of action**

- Develop and implement health worker education and training.
- Conduct social mobilization and marketing activities [i.e., Knowledge attitude and perception (KAP) survey, focus groups].
- Develop production or procurement process for DEC-salt.
- Identify sentinel sites.
- Conduct morbidity control and management activities.

**National objectives**

- Maintain task force.
- Train and educate health workers in the 10 administrative regions of Guyana.
- Enhance social mobilization and marketing activities.
- Implement DEC-salt program in conjunction with mass treatment control and management activities.
- Engage health workers at the start of the elimination initiative.
- Integrate LF elimination program with ongoing community health worker activities.
Efforts to accomplish national objectives

Task force
• First established in 1999, renewed in 2002 and functioning today.
• Consists of a wide range of persons from the Ministry of Health and representatives from other sectors (i.e., government, Ministry of Education, many American institutions, University of Guyana, NGO's represented in Guyana, NGO Forum, private sector, multilateral and bilateral agencies in Guyana, and PAHO).
• Three meetings have taken place in the last year.
• A technical work group was established as a result of the meetings.
  – The purpose is to implement activities related to morbidity control and monitoring sentinel sites.
• The plan is to have four task force subgroups implement the program components.

Training and education of health workers
• The goal of the training is to emphasize and create an awareness of LF as a significant public health and personal problem.
  – This is particularly important given that prior impressions were that LF is not a disease of major consequence, as it does not kill anyone.
  – Furthermore, people suffering the morbidity consequences of LF (commonly referred to as big foot) often remain out of sight.
• Training of health workers is ongoing in the 10 administrative regions and has been completed in five regions.
  – Over 360 health care professionals, including health workers, nurses, physician's assistants, and physicians were trained during this process.
  – The goal was to update them on what is going on with LF and why LF elimination is the focus.
  – The training focused on defining the intervention of DEC-salt and how it was going to be applied, and on morbidity control and management.

Social mobilization
• The preferred strategy for this program is a combination of a social marketing and communication model with a central focus on education.
• The intervention would be message development and mass media would be the form of communication, as it is available and accessible to even the poorer sections of the population.
• It is important to use the media as an advocate throughout the program implementation, particularly in Guyana where the media has an influential role in the decision-making processes of the populace, and therefore, impacts on the overall successes of many national programs.
  – Mass media is involved in the development of a campaign jingle and commercials on LF
  – The commercials will include information that introduces the program, covers DEC-salt activities and product benefits.
• Marketing and advertising campaigns for DEC-salt are being developed.
• Informational posters and pamphlets are also being developed.

• Health workers are being educated about the importance of community participation.

• The development of the social mobilization strategy was completed earlier in the year.

• The process and impact evaluation component of the DEC-salt strategy are currently being developed
  – Target audience was identified in the first part of the year.

• Persons involved in the salt industry were identified as part of the social mobilization process.

• The school system is being considered as another tool for transmitting messages about LF.

• Key areas and key personnel in each area are being identified as the base for information exchange.

• A KAP survey was completed in June 2002 using cluster sampling of over 600 households in six regions.
  – KAP questionnaire assessed
    - LF morbidity: knowledge of disease;
      household mosquito control; and
    sources of health information
  - Salt: quantity, frequency, and location of purchase.
  – Results of KAP survey shown in the figure below, “Results of the KAPB Survey”.
    - The majority did not know how the disease spread.
    - More than a third thought LF was a problem.
    - The majority received their health information from television media.
  – Focus groups sessions were held in all regions. Results suggest:
    - High awareness of LF, but there is still confusion about transmission;
    - Myths are still prevalent about disease management;
    - There was positive reception to DEC-Salt; and.
    - The majority of those surveyed buy loose salt, but would buy packaged salt if available.

---

**Results of KAPB Survey**

- 59% did not know how disease is spread
- 39% think LF is a problem in their community
- Majority said they get health information from T.V. and health care professional
- SALT: Majority buy from small shops, 1lb packets monthly. Willingness to use DEC SALT
**DEC fortified salt**

- The decision to use DEC-salt was adopted from the last meeting based on the evidence presented and the systems that exist within Guyana to support this approach.

- The advantages of this approach for Guyana are highlighted in the figure below *Advantages of DEC SALT*.

  - **Advantages of DEC SALT**
    - No effect on salt taste or quality
    - Heat stable
    - “Passive” measure (continuous coverage)
    - Pronounced suppression of microfilaremia
    - No adverse reactions
    - Less expensive than tablets
    - Can be combined with salt iodization (UNICEF) or fluoridation

- The major part of this intervention will conducted through the salt industry rather than the Ministry of Health.

- DEC-salt has been secured from various sources, including a donation from WHO and the MOH.

- Partnerships are also being developed with major exporters and importers.

- Guyana has a well-developed quality control plan from the point of production.

- This includes a targeted and accepted concentration level, laboratory testing of selected samples, and stability and confirmatory testing by CDC.

- Training activities will focus on all levels of quality control.

- There is a DEC-salt marketing campaign underway that will include an advertising campaign and product package and labeling promotion.

  - DEC-salt mobilization efforts include:
    - Conducting workshops for health workers;
    - Meetings with community workers;
    - Involving key stakeholders;
    - Involving the press; and
    - Conducting an advertising campaign.

**Morbidity assessment**

- Data on morbidity include the number of hydrocele operations, data from health clinic visits, and the results of the KAP survey. Results are shown in the figure *Morbidity Assessment*.

- Five regions (region 3, 4, 5, g and 10) were found to have a problem and are targeted for intervention.
**Educational activities**

- Workshops and curricula development is underway.
- Seminars for continuing education credits for physicians are underway.
- Community education that emphasizes general skin care and early lymphedema rather than severe disease is underway.
- Educational materials (CDC and WHO materials) and posters for health workers have been distributed.
- Patient groups have been established in 3 endemic communities.
  - All these communities have nursing support. The nurse provides education materials and treatment as needed.
  - To date, there is a high level of patient satisfaction with disease control activities; Patients report improved skin, improved quality of life, and less frequent acute attacks.

**Organization**

A complete organization chart for Guyana is in the Annex.

- At the top of the organization charts the MOH
- Directly under the MOH are the Permanent Secretary and the Chief Medical Officer.
- Under the Chief Medical Officer are the Epidemiology Department and the Program Manager and Coordinator.
- All the components of the LF elimination program are under the Program manager and Coordinator in the Epidemiology Department.
- The international health organizations feed directly into the LF program operations.

**Plan and Challenges Ahead**

**Plans**

- Collect baseline sentinel site data.
- Support existing services and continue education activities.
- Implement monitoring and evaluation systems and databases.
- Maintain social mobilization programs.
- Continue education activities.
- Develop an improved management plan for urogenital morbidity.
- Adhere to the DEC-salt timeline. The timeline is detailed below.
- DEC salt timeline:

  **September 2002**
  - Commence production.
  - Conduct advertising campaign.
  - Sentinel site monitoring.
October-November 2002
   – Launch DEC Salt program.
   – Implement quality control.

2003 Onwards
   – Aim for 80% coverage.
   – Conduct ongoing monitoring and evaluation.

Challenges ahead.
  • Managing multiple donors and multiple disbursement systems.
  • Promoting acceptance of DEC-salt.
  • Meeting the timeline and goal of 80% coverage.
  • Sustaining the intervention.
  • Coordinating all the components and processes.
Brazil's presentation was divided into 4 parts.

The following is the presentation by Dr. Batista.

**Historical overview**

- The LF elimination program for Brazil was approved in 1996.
- The national coordination of the LF program is located in the National Epidemiology Center (CENEPI) of the MOH’s national health foundation (FUNASA).
- The national technical committee has been proposed but is not yet official. National committees at the municipal level have also been proposed but are also not official.
- FUNASA coordinates with ministry of health at the state level in each of the 3 LF endemic states, Pernambuco, Alagoas, and Para. The map below indicates the geographic location of these states.

![Map of Brazil highlighting endemic states](image)

**States and Municipalities that are the priority for the PELF in Brazil**

- Pernambuco
- Alagoas
- Para

**List of Participants**

- Dr. João Batista Furtado Vieira, Gerente Técnico de Endemias Focais/CGVEP/CENEPNASA, FUNASA/MS, Brasília
- Dr. Gilberto Fontes, Professor Adjunto, Universidade Federal de Alagoas, Centro de Ciências Biológicas, Departamento de Patologia, Maceió, Alagoas
- Dra. Tereza Maciel Lira, Diretora de Epidemiologia e Vigilância à Saúde (DIEVS), Secretaria Municipal de Saúde, Recife
- Dra. Audinei Loureiro Cavalcante, Diretora do Depto. Defesa de Saúde, Presidente do Comité de Filariose, Secretaria Municipal de Saúde de Maceió, Maceió,
• Epidemiological surveillance in each of these states relies on the joint coordination between the two institutions and the municipal level of the program in each state.

Assessment of the problem

**Pernambuco State**

• From 1998-2002 an MF survey was conducted in the state of Pernambuco.
  – Eight municipalities were surveyed, including, Recife, Olinda, Jaboatão, Itamaraca, Camaragibe, Moreno, Cabo, and Paulista.
  – In four of these municipalities, Recife, Olinda, Jaboatão, Paulista, approximately 69,000 MF positives were found. This is shown in the table below, “Hemoscopic survey for microfilaremia in the metropolitan region of Recife; estimation for total number of carriers”.
  – Positivity rates ranged from 0.20% in Paulista to 1.25% in Recife.

• In 1999-2000, an MF survey was conducted in Recife.
  – Results are presented in the table, **Hemoscopic Survey for Microfilaria in Metropolitan Recife: estimation of total carriers** and the table **Hemoscopic Survey for Microfilaria in Metropolitan Recife, % Microfilaria by Sanitary District and Micro-region**.
  – Results show overall MF positivity by sanitary district range from 0.24% to 3.79%

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Pop./2002</th>
<th>Mean Prev MF</th>
<th>Nr. carriers -estimated-</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECIFE</td>
<td>1,499,136</td>
<td>1.25%</td>
<td>37,700</td>
</tr>
<tr>
<td>Jaboatão dos Guararapes</td>
<td>601,425</td>
<td>1.69%</td>
<td>20,300</td>
</tr>
<tr>
<td>Olinda</td>
<td>373,478</td>
<td>1.30%</td>
<td>9,300</td>
</tr>
<tr>
<td>Paulista</td>
<td>272,913</td>
<td>0.20%</td>
<td>1,400</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2,696,952</strong></td>
<td>–</td>
<td><strong>68,700</strong></td>
</tr>
</tbody>
</table>

**Para State**

• In 1998, several municipalities in the state of Para were surveyed for MF.
• Selection strategy revolved around identifying areas with higher environmental risk through detail mapping.
  – These included low areas (*baixadas*), marshes (*alagadas*) and the edge of canals and creeks (*beira de canais e riachos*).
• Only Belém was found to be the single persistent focus in this state. In 2001, over 99,000 individuals were examined and only one case was found.
• However, results of the ICT based survey are still pending for Belém. Results are shown below.

<table>
<thead>
<tr>
<th>Sanitary District/RPA</th>
<th>Micro-Region I</th>
<th>Micro-Region II</th>
<th>Micro-Region III</th>
<th>% of general positivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSI</td>
<td>2.92</td>
<td>0.95</td>
<td>1.45</td>
<td>1.85</td>
</tr>
<tr>
<td>DS II</td>
<td>2.47</td>
<td>5.07</td>
<td>2.42</td>
<td>3.79</td>
</tr>
<tr>
<td>DS III</td>
<td>0.37</td>
<td>1.15</td>
<td>1.42</td>
<td>0.88</td>
</tr>
<tr>
<td>DS IV</td>
<td>0.50</td>
<td>0.98</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>DS V</td>
<td>1.57</td>
<td>0.27</td>
<td>0.92</td>
<td>1.03</td>
</tr>
<tr>
<td>DS VI</td>
<td>0.18</td>
<td>0.68</td>
<td>0.00</td>
<td>0.24</td>
</tr>
</tbody>
</table>

**LF Progress—Belém, 2001 Report**

Haemoscopic Survey/thick smear
- 14 neighborhoods surveyed / Population 377,107
- Individuals examined: 99,359
- Positives: ONLY 1 (0.001%)

CFA survey not performed

Morbidity: Catalogued 25 patients with elephantiasis
(To be investigated; not referred history of microfilaraemia; instructed about specific care)

• In summary, surveys between 1998-2001, more than 500,000 examinations were carried out in 30 neighborhoods; only two of which were positive.

• Elimination of LF in Belém in the short to medium term is promising.

• The question remains as to whether there is a residual transmission focus in Belém.

**Alagoas State**

• Between 1993 and 1996, Dr. Gilberto Fontes and collaborators conducted MF surveys in a number of municipalities were surveyed.

• Results are shown in the figure, Alagoas.

• Only the city of Maceió was found to be positive. Results indicated 2.06% MF prevalence in Maceió.

**Bahia State**

• There is an old focus of LF in the state of Bahia in Salvador and Castro Alves.

• In 1980, of 15,280 persons surveyed, 18 were positive for a positivity rate of 0.12%
The final survey was conducted in 1981 when 0 positive individuals were identified. Results are shown in the figure, *Bahia*.

### Alagoas
- 3 *W. bancrofti* MF carriers encountered in Maceió-AL, in 1990 ♦
- re-evaluation of Filariasis status
  - AL: 2,887,000 inhabitants / 29,106 Km²
  - Maceió: 833,000 inhabitants / 33 barrios

#### Haemoscopic Surveys 1993-1996 in 10 municipalities
- Exams in interior
- In Maceió
  - municipalities: 4 barrios searched
  - 20,103 examined
  - Autoctonous cases: 0
  - 10,973 individuals examined
  - 226 MF carriers (2.06%)

### National objectives
- To interrupt transmission of national foci via chemotherapy and vector control.
- To provide full medical assistance to patients

### Efforts to meet the national objectives
- Case detection with selective treatment.
- Active search plus passive detection.
- Individual treatment of MF carriers and clinical cases.
- Morbidity care.
- Vector control.
- Environmental sanitation.
Morbidity assessment
Treatment efforts in Brazil do not follow a mass treatment strategy, but rather a selective treatment approach.

Recife
- There are three units that are specialized in LF. There is also a referral hospital for the complicated cases.
- In 2001, more than 1000 patients were treated for lymphedema.
- Approximately 482 surgeries for hydrocele were conducted.
- Fifty-four professional from Maceió, Recife and Belém were trained at an international training course.
  - The course took place in May 2001 with the participation of Haiti, the US, Brazil and Tanzania.
- Several training sessions on lymphedema treatment took place with the involvement of over 1500 people, including patients, physicians, program coordinators and health workers.
- The figure below shows the percent treated to infected individuals and the percent treated to the total population at risk from 1991 to 2001.

![Treatments... Pernambuco](chart.png)

- The ratio of treated to infected individuals has steadily declined since 1991.
- The ratio of treated to total population is fairly small.

Para State
Treatment.
- In 2000, 25 patients were found with elephantiasis.
- The first part of the physician training has been completed as part of the international training session.
- There are plans to implement a reference health unit to assist with patients with chronic morbidity.
Environmental management.
- In terms of environmental management, many areas of Belém that LF endemic areas received funds
for large sanitation projects that took the form of macrodrainage projects that were implemented from 1990 through 2001.

– The purpose was: to drain channel; to recover degraded areas by mean of leveling the land and planting trees and paving roads; and to resettle populations from marsh areas.

– These macrodrainage projects are the likely reason for the reduction in the number of LF cases in Belém.

Vector control.
• In terms of vector control, there has been no direct action against Culex quinquefasciatus. There have been exhaustive vector control actions carried out against Aedes aegypti and Anopheles spp.

Social mobilization.
• There is an emphasis on integration of activities with the Family Health Program, including instructions on sanitation practices that are given to the communities by the community health workers.

• There is a training course to update information on LF epidemiology and control, and a training course for laboratory technicians.

• One nurse and one physician participated in a morbidity control course.

Maceió
• The ratio of percent treated to infected individuals dropped sharply in 1990 then began to rise and dropped again in 1997 and has risen steadily since then.

• The percent treated to the total population at risk dropped in 1994 and remains low.

• The figure, Treatments... Maceió, shows these data graphically.

• By 2001, the accumulated total for treated individuals accounted for almost 80% of the total infected individuals.
Program objectives

Recife, 2002

• General objective is to interrupt LF transmission.
• The general methods to accomplish this include enhanced diagnosis and treatment, and reduced vector-man contact.
• The general objectives are interruption of transmission and elimination of LF in Recife.
• Specific methods and strategies are outlined in the figures, Programme LF-Recife/2002: general objective-interrupting transmission and eliminating filariasis in Recife.

Programme LF—Recife/2002

OBJECTIVE: Interruption

METHODOLOGY & STRATEGY

■ Diagnosis & Treatment
  – Increment Diagnosis
    • Identify more precisely smaller geographic units
  – MDA in those implementation units

■ Reduce vector-man contact
  – Mapping of breeding sites
  – Vector control via combined methods (physical + biological)

Programme LF—Recife/2002

GENERAL OBJECTIVE: Eliminate Filariasis in Recife

SPECIFIC OBJECTIVES

■ Improve diagnostic coverage
■ Increment diagnosis
■ Treat all positive persons
■ Identify high prevalence foci, for collective approach in treatment
■ Develop integrated vector control with agencies responsible for sanitation and education
■ Promote/implement urban infrastructure
• Basic strategies of action are shown in the figure, Programme LF-Recife/2002: Strategies of Action.

Programme LF—Recife/2002

STRATEGIES OF ACTION...
■ Definition of priority areas [Prioritization of 7 microregions with prevalence ≥1.5%]
■ “Verredura” (intensive and complete search) with hemoscopy (census sectors with the greatest number of cases + adjacent sectors with similar conditions)
■ Community treatment (high prevalence areas)
■ Implement “integrated control” (in greater risk area)
■ Integration of resources/actions of Municipal Secretaries of Health, Sanitation and Urban Cleaning

• The actions include:
  – Definition of priority areas;
  – Intensive and complete case searching;
  – Community-wide treatment;
  – Integrated control; and
  – Integration of resources and activities.

Belém, 2003
• The focus in Belém is close to being eliminated.
• The plan of action for 2002-2003 is to proceed towards elimination through community participation and inter-institutional integration.
• The specific action strategies are noted below:

Programme LF—Belém/2002-2003

SGENERAL SURVEY TO IDENTIFY POSSIBLE RESIDUAL FOCI
Lines of Action
■ Haemoscopic surveys
■ Epidemiologic investigations
■ Entomologic survey
■ Treatments
■ Morbidity care
■ I.E.C.
■ CFA evaluations
• The plan is to conduct general epidemiologic and entomologic surveys to identify possible residual foci.

• The plan is to conduct extensive surveys in Belém during 2003 that will include 25,000 people. These surveys will introduce the ICT testing.

• The hematologic survey goals for 2002 and 2003 are shown in the figure, LF Programme—Belém, haemoscopic survey.

<table>
<thead>
<tr>
<th>LF Programme—Belém, Plan 2002-2003</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HAEMOSCOPIC SURVEY</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th># of bairros</th>
<th>Pop.</th>
<th>Individuals to examine</th>
<th>Houses present</th>
<th>Houses search</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>50</td>
<td>651,232</td>
<td>91,809</td>
<td>184,450</td>
<td>25,430</td>
</tr>
<tr>
<td>2003</td>
<td>23</td>
<td>628,527</td>
<td>95,001</td>
<td>165,971</td>
<td>23,858</td>
</tr>
</tbody>
</table>


- The goal during the two years is to survey close to 50,000 households.

• The entomology survey goals shown in LF Prog. Plan 2002-2003 Entomologic Survey; during the two years, the goal is to survey close to 5,000 houses.

<table>
<thead>
<tr>
<th>LF Programme—Belém, Plan 2002-2003</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENTOMOLOGIC SURVEY</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th># of bairros</th>
<th>Houses to search</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>50</td>
<td>4,983</td>
</tr>
<tr>
<td>2003</td>
<td>23</td>
<td>4,563</td>
</tr>
</tbody>
</table>

Alagoas State

• The State of Alagoas is in a promising position for LF elimination; transmission is limited to Maceió.

• The objective is to continue MF surveys to monitor transmission.

• MF indices have been consistently reduced.

• Selective treatment of all the microfilaremic individuals will continue in this focus.

• ICT testing is also planned in Maceió.

Bahia State

The plan is:

• To form an executive group;

• To conduct mapping;

• To evaluate actual morbidity need and implement morbidity care; and

• To promote necessary steps to verify/certify elimination.
Organization
- At the top of the organizational structure is the MOH.
- Under the MOH is the National Health Foundation (FUNASA).
- Under FUNASA is the National Epidemiology Center (CENEPI).
- National coordination of the Filariasis Control Program is in the National Epidemiology Center (CENEPI).

Plans and Challenges Ahead
- The biggest concern is in the Pernambuco State, where there are high prevalence rates in the metropolitan region of Recife and in Olinda and Jabatão.
- The plans and challenges are presented for the three states with endemic foci, Pernambuco, Para and Alagoas.
- Bahia State is presented next followed by the country as a whole.

Pernambuco State
Plans.
- Decentralization of disease control with autonomy given to the states and municipalities.
- Improved coordination of actions between agencies (federal state and local).
- Assimilation of technical recommendations.
- Plans to develop actions to directly combat the vector.
- Plans to adopt the MDA in some well-circumscribed foci.

Challenges.
- Diverse political situations create a challenge to coordinated LF program implementation and LF elimination.
- Environmental conditions are favorable to disease over wide urban areas in the municipalities.
- MDA not yet widely adopted.
- Huge difficulty to do environmental interventions.
- Difficulty with adoption of vector control measures with adequate coverage.

Strengths.
- The Recife Secretary of Health has good technical capacity, which can benefit the LF program.
- The plan is an integrated intervention with the addition of institutional resources from the health sector and other sectors.
- The integrated action plan does include important environmental programs.
- Filariasis coordination groups have been defined.

Para State
Plans.
- Good prospects for elimination of the focus in Belém.
- Plan to conduct an extensive hematology survey to identify MF positive individuals. Survey is planned for 2003 and intended to cover 95,000 persons.
- Refine the search for infected individuals with the introduction of immunologic examinations.

**Challenges.**
- No challenges anticipated.

**Alagoas State**

**Plans.**
- Good prospects for elimination in the focus in Maceió.
- Plan is to maintain coverage and continue systematic control efforts.
- Continue intense hematology surveys (varreduras).
- Continue selective treatment of microfilaremic persons.
- Refine search for infected individuals with immunologic diagnosis.

**Challenges.**
- No anticipated challenges.

**Overall country plans**
- Broad geographic hematology surveys for MF positive individuals are planned.
- Figure, **Plan 2003: Exams** outlines the examination plans, which include hematologic and ICT card surveys.
- Large-scale treatment efforts are planned for positive persons. Figure, **Plan 2003: Treatments** outlines the treatment plans.

<table>
<thead>
<tr>
<th>Plan 2003: Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State (Municipalities)</strong></td>
</tr>
<tr>
<td>PA (Belém)</td>
</tr>
<tr>
<td>PE (Recife, Olinda, Jaboatão, Paulista)</td>
</tr>
<tr>
<td>AL (Maceió)</td>
</tr>
<tr>
<td>BA (Salvador, Castro Alves)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan 2003: Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State (Municipalities)</strong></td>
</tr>
<tr>
<td>PA (Belém)</td>
</tr>
<tr>
<td>PE (Recife, Olinda, Jaboatão, Paulista)</td>
</tr>
<tr>
<td>AL (Maceió)</td>
</tr>
</tbody>
</table>
– Conventional treatment is expected to cover 2600 individuals.
– DEC salt is expected to cover a total of 250,000 persons.

• New plans are designed that include mixed treatment strategies (MDA in some areas with selective treatment in others) and vector control. Figure, Brazil LF Programme: New Strategies outlines these strategies.

<table>
<thead>
<tr>
<th>Brazil LF Programme: New Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Advances in the process of maturation for introduction of MDA in the main foci (areas of Recife, Olinda, Jaboatão dos Guararapes), with possible adoption of this strategy in the near future (2004 on)</td>
</tr>
<tr>
<td>– Implementation Units (I.U.): on epidemiologic and social basis (not political/administrative)</td>
</tr>
<tr>
<td>■ Mixed treatment strategy</td>
</tr>
<tr>
<td>■ MDA in some well circumscribed foci</td>
</tr>
<tr>
<td>■ Treatment of MF positives &amp; clinical cases</td>
</tr>
<tr>
<td>Vector control as a basic component</td>
</tr>
</tbody>
</table>

Dr. Gilberto Fontes, Profesor Adjunto, Universidade Federale de Alagoas Centro de Ciencias Biológicas, Departamento de Patología, Maceio, Alagoas, Brazil

Dr. Fontes reviewed the experience he and Dr. Elena Rocha had in directing university students who participated in the effort to eliminate the transmission of LF in Alagoas. This work was a collaborative effort with the University of Alagoas, with the State Health Department and the National Health Foundation.

Overview
• The program is a parasitology research-training program that began 12 years ago.
• At present there are approximately 45 students who are participating in the program.
• Since the inception of the training program there have been a total of 472 student trainees in the program.
• The students work in the different areas, including epidemiology, entomology, diagnosis, clinical examination, and educational seminars.
• Field activities and laboratory work are substantial parts of the training.
  – Field activities include: conducting surveys, disseminating health information, information, night blood collection with finger prick and venus blood collection, and treatment and patient follow-up.
  – In the laboratory the students learn about staining and preparation of the slide, membrane filtration techniques, microscopic examination of the slides and computer based statistical software; students learn data base management and analysis using EPI Info, a software that is available free of charge through the CDC website.
Student surveys

- The endemic area on Maceió is quite localized and is found along the canal that passes by three contiguous neighborhoods.
- Data show a decrease in the percent of MF infected individuals and a decrease in the mosquito parasite load and vector infection index. This is most likely due to the activities with treatment of the MF carriers over the past twelve years.
- Students conducted surveys in these areas form 1990-2001.
- A survey conducted in 1995 and showed a prevalence of 5.4%.
- Subsequent surveys in 1995 and 2002 showed a sharp decrease in the prevalence; in 1995 the prevalence was 0.5% and then continued to decrease in 2001 to 0.11%. These data are shown in the table below.

Lymphatic Filariasis in Maceió, Alagoas, State, Northeastern Brazil: number and percentage of *Wuchereria bancrofti*...in 3 endemic sectors

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Examined</th>
<th>No. Microfilariae Carriers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>8,952</td>
<td>226</td>
<td>(2.50)</td>
</tr>
<tr>
<td>1999</td>
<td>2,821</td>
<td>21</td>
<td>(0.74)</td>
</tr>
<tr>
<td>2000</td>
<td>12,669</td>
<td>69</td>
<td>(0.54)</td>
</tr>
<tr>
<td>2001</td>
<td>13,544</td>
<td>64</td>
<td>(0.47)</td>
</tr>
<tr>
<td>2002</td>
<td>14,799</td>
<td>16</td>
<td>(0.11)</td>
</tr>
</tbody>
</table>
• In the sentinel site of Feitosa, this pattern is highlighted by a 6-fold decrease in the prevalence of MF in the blood of individuals; the prevalence decreased from 5.5% to 0.3%. The data are shown in table, **Lymphatic Filariasis in Maceio, Alagoas, State, Northeastern Brazil: number and percentage of *Wuchereria bancrofti***.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of visited houses</th>
<th>No. of examined individuals</th>
<th>No. of positives (%)</th>
<th>Average individuals/homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>89</td>
<td>582</td>
<td>170 (29.2%)</td>
<td>6.5 ± 2.2</td>
</tr>
<tr>
<td>2001</td>
<td>95</td>
<td>481</td>
<td>97 (20.2%)</td>
<td>5.1 ± 2.4</td>
</tr>
</tbody>
</table>

Relative odds = 1.6 (95 I.C.: 1.2 – 2.2); \( \chi^2 = 484; p<0.0001 \)

• Surveys done on families and households reveal the same trend. The results are shown in the tables below **Lymphatic Filariasis in Maceio, Alagoas, State, Northeastern Brazil**.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of visited houses</th>
<th>No. of examined neighbours</th>
<th>No. of positives (%)</th>
<th>Average individuals/homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>164</td>
<td>657</td>
<td>36 (5.5%)</td>
<td>4.0 ± 2.5</td>
</tr>
<tr>
<td>2001</td>
<td>354</td>
<td>1,444</td>
<td>4 (0.28%)</td>
<td>4.1 ± 2.4</td>
</tr>
</tbody>
</table>

Relative odds = 20.9 (95 I.C.: 7.1 – 69.3); \( \chi^2 = 62; p<0.0001 \)

- Examination of the change in the average number of individuals infected per household decreased significantly from 1995 to 2001; 6.5 to 5.1 respectively.
- There was a 2.6-fold decreased odds in the number of infected individuals by household.
• This trend is even more dramatic when the data are presented for neighboring houses of MF person. These data are shown in the table below.
• The epidemiologic survey data are supported by the entomologic survey data.
  – The average microfilarial density has decreased significantly from 580 MF/milliliter of blood in 1995 to 93 MF/milliliter of blood in 2002 as shown in the table below, *Lymphatic Filariasis in Maceió, Alagoas, State, Northeastern Brazil: Wuchereria bancrofti* average microfilarial density.

<table>
<thead>
<tr>
<th>Year</th>
<th>Group</th>
<th>No. houses</th>
<th>No. dissected</th>
<th>No. infected C.q. females</th>
<th>Infection rate</th>
<th>Infectivity rate</th>
<th>Infected mosquitoes/house</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>A</td>
<td>13</td>
<td>283</td>
<td>21</td>
<td>0.074</td>
<td>0.0035</td>
<td>1.6</td>
</tr>
<tr>
<td>2001</td>
<td>B</td>
<td>113</td>
<td>675</td>
<td>21</td>
<td>0.031</td>
<td>0.0015</td>
<td>0.18</td>
</tr>
</tbody>
</table>

• In 2001, an entomology survey was done in 697 randomly selected houses in Feitosa to determine the number of infected female mosquitoes and the mosquito infection rate.

• The results are shown in the table *Lymphatic Filariasis in Maceió, Alagoas, State, Northeastern Brazil: Filarial Infections in the Vectors*.
  – 2044 female mosquitoes were collected and dissected. Among those, none was infected with the MF for a 0% infection rate.

• A household survey on houses with MF positive individuals showed a dramatic reduction of the infection rate from 1996-2000.
  – The infection rate was calculated by dividing the number of infected female mosquitoes by the total number of female mosquitoes.
  – The infectivity rate was calculated by dividing the infection rate by the number of infected female mosquitoes.
  – The data showed a reduction in the infection and infectivity rate and the number of infected mosquitoes recovered per households.
Dr. Audinei Loureiro Cavalcante  
Diretora do Depto. Defesa de Saúde, Presidente do Comité de Filariose, Secretaria Municipal de Saúde de Maceió, Brazil

Dr. Cavalcante discussed the implementation of the plan to eliminate LF in the state of Alagoas, Brazil.

**Overview**
- The map below shows the location of the state of Alagoas and the municipality of Maceió and where they sit within the endemic regions of Brazil.
- The map in the upper left indicates the endemic areas of Brazil in red.
- The regional LF program operates through an agreement that was formed in 1999 with the National Health Foundation and the Federal University of Alagoas.
- The original regional program strategy embraced vector control and since 2001 the strategy has been broaden to include morbidity control, surveillance and health education.
- The objective of the plan is to interrupt transmission through vector control, ongoing epidemiologic surveillance for MF prevalence and subsequent morbidity, and family-based drug delivery.
**Morbidity control**

- There are well-formed strategies and steps in place for the morbidity control component of the program.
- There is the formal LF committee to follow the program execution.
- Educational training materials have been developed and training sessions conducted.
- Contact has been made with the Federal University of Pernambuco-Brazil to reproduce the instruction material.
- Training of 800 health workers is underway using morbidity prevention videos.
- The first module is morbidity control training. 25 participants have been trained from the Municipal Health Department.
- There is a well-developed morbidity investigation plan that is now being implemented and analysis is in progress.
- House to house visits in 100% of the endemic areas over a two-month period.
- Knowledge assessment about the disease.
- Record review for epidemiologic investigation of LF.
- Create a database.
- Additional studies in progress include:
  - Studies in 100% of patients diagnosed with hydrocele;
  - Studies on the prevalence of hydrocele; and,
  - Studies on the prevalence of LF morbidity in children.

**Social mobilization**

- There are efforts underway to increase community participation and engage the health services organizations.
- The formation of club-hope in endemic areas to support the community.
- Integration of the PELF into other disease control programs and health activities.
- The implementation of three primary health units to provide LF treatment.
- The establishment of an agreement with the Federal University Hospital to treat patients with elephantiasis.
Dr. Tereza Maciel Lira, Diretora de Epidemiologia e Vigilância à Saúde (DIEVS)
Secretaria Municipal de Saúde, Recife, Brazil

Dr. Tereza Maciel discussed the LF control program in Recife, Brazil.

Overview

- The adequacy of the water supply varies by neighborhood and ranges from as low as 20% to as high as 99.2% inadequate water supply (2000 data).
- Geographic divisions include 94 neighborhoods with 6 health districts.
- There are 4 rivers and 66 canals.
- It has a warm, humid climate: climate (27-30°C) and humidity (80%).
- Recife is a beautiful city, but has serious health problems, low socioeconomic status, and many sanitation and water problems.
- Income level is low, with 43% of the population earning minimum salaries (2000 data).
- Sewage disposal is not adequate, with 39.2% of the population lacking sufficient sewage disposal systems (2000 data).

Assessment of the LF problem

- The first cases of LF were reported in 1952 in the Alfogados neighborhood.
- Filariasis prevalence in Recife has been known for the last two years.
- The most recent study in 1999-2000, revealed an average prevalence of 1.3
  - A total of 18,339 individuals were examined and 239 were found to be positive for the disease for a prevalence of 1.3%.
  - However, this figure conceals the great disparities in the city.
- As seen in the map of the Prevalence of LF in Recife, the prevalence ranges from 0 (shown in blue) to > 5.00 (shown in dark purple).

Program objectives

- To reduce LF transmission levels in Recife by adopting measures aimed at reducing environmental sources and risk factors, and by treating infected individuals.
- To develop and conduct promotion and prevention activities that target the population at risk for LF infection in addition to providing treatment to people with severe and chronic symptoms of the disease.

Program guidelines

- Program guidelines include:
  - Universality;
  - Equity;
  - Comprehensiveness;
  - Intersectorial collaboration;
  - Overcoming individual/group dichotomy; and
– Regional/territorial collaboration.

• Development of various manuals is underway, including:
  – A manual for the diagnosis, treatment, and follow up of cases;
  – A manual for training community health workers;
  – A manual of epidemiologic surveillance guidelines and procedures; and
  – A manual of epidemiologic surveillance guidelines and procedures.

• The city was divided into priority areas based on two criteria: endemicity and socio-environmental risk. See figure on page 58, Classification of Areas.

Endemicity classification
– 1 neighborhood was high endemicity risk;
– 24 had moderate risk;
– 24 had low risk; and
– 45 had no transmission identified.

Socio environmental classification
• Socio environmental risk was determent pursuant to the Environmental Health Program criteria and based on living and environmental conditions.

• Socio-environmental classification:
  – 38 neighborhood were high socio-environmental risk;
  – 31 were moderate risk; and
  – 25 were low risk.
Establishing priority areas
Using these two criteria, endemicity and social risk, priority areas have been identified.

- In red are the priority 1 areas, which include neighborhoods with high and intermediate endemicity.
- In blue, are priority 2 areas, seven neighborhoods with intermediate endemicity and very high social risk.
- In violet are priority 3 areas, the 17 neighborhoods with intermediate endemicity, but this time with moderate or low social risk.
- Next, in gray are priority 4 areas, which are the neighborhoods with low endemicity.
- In white are priority 5 areas, areas where no cases have been detected.

Program goals
Main goal.
To reduce the prevalence of microfilaria in priority Areas “1” and “2” to < 2% within a period of two years.

Vector control.
- Treat 100% of breeding sites in priority area 1.
- Expand control activities in the remaining areas.
- Reduce vector density to 4 units/quarter/night in priority area 1.

Epidemiologic surveillance.
- Report 100% of cases.
- Develop regulations requiring mandatory reporting of cases.
- Create biannual risk map.
Diagnosis.
- Set up 70 collection stations.
- 100% hemoscope screening in priority area 1, through door-to-door campaigns over a 2-year period
- 80% hemoscope screening in priority area 2, through on-demand screening at collection stations over a 2-year period.
- 50% hemoscope screening in priority area-3, through on-demand screening at collection stations over a 2-year period.
- 40% hemoscope screening in priority area 4, through on-demand screening at collection stations over a 2-year period.
- Coverage: 436,956 screening exams over a 2-year period.

Treatment.
- Treatment for 100% of LF cases in Recife.

Training.
- Train 100% of doctors, nurses, and community health workers in priority area 1, 2, and 3 over a 2-year period.
- Train 8 laboratory technicians.
- Provide doctors/nurses with guidelines for reporting lymphatic filariasis.

Standards.
- Develop standardized clinical practice approach with respect to patient care and the treatment of symptoms for both acute and chronic cases.

Social communication and education.
- Education materials have been developed, including:
  - 50,000 educational magazines;
  - 2000 poster; and
  - 50,5000 posters.

Laboratory preparedness.
- Goal is to improve and upgrade the capacity of the municipal laboratory to perform 20,000 parasitology tests per month and have a five-day turn around time for results.

Efforts to meet program goals
- Identification of key activities with respect to environment, cases detection, diagnosis, and treatment has been completed.
- Activities adopted will depend on the priority area.
  - If we have a priority 1 area and we encounter a site where the endemicity is really high, we will provide mass treatment.
  - If the endemicity is not high, we will provide expanded treatment for infected people and their families, and in other priority areas we will treat individuals.

Activities implemented
- Training of 140 network doctors/nurses.
- Training of community health workers in vector control.
• Decentralization of lymphatic filariasis control activities at the district level.
• Collection of thick film blood specimens from 22:00 hours to 00:00 hours.
• Increase in the number of screening units from 19 to 55.
• Increase in the number of slides/month from 1200 to 5000.
• Preparation of the project.
• Use of biological larvicide – Bacillus sphaericus.
• Designation of lymphatic filariasis as a disease requiring mandatory notification in Recife.
• Preparation of disease notification and investigation file.
• Mapping/surveying of vector breeding sites.
• Development of educational materials.

Structure of the program
• The LF program is in the General Coordination, Epidemiology and Health Surveillance Office.
• Linked to this office are Epidemiology and Vector Control as well as the Executive Coordination Office. Activities include planning, technical support and education.
• All activities are decentralized within the six areas division areas of Recife.

Proposal for action
• Carry out door-to-door campaigns in priority 1 areas with the “ICT Filariasis card test”.
• Provide treatment to all those who test positive for microfilaria.

Partners
The LF program partners include:
• Ministry of Sanitation;
• Ministry of Planning – Housing Office;
• Aggeu Magalhães Research Institute; and
• Empresa de Limpeza Urbana.

Program activities
• The figure, Activities indicate the activities planned as discussed above and implementation based on central level and or priority area.
## ACTIVITIES

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>CENTRAL LEVEL</th>
<th>DISTRICT / LOCAL LEVEL LEVELS OF PRIORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>1. ENVIRONMENTAL-BASED</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vector monitoring</td>
<td></td>
<td></td>
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<tr>
<td>Vector surveillance and control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersectoral activities (EMLURB, URB, COMPESA, Ministry of Sanitation)</td>
<td></td>
<td></td>
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<tr>
<td><strong>2. CASE BASED</strong></td>
<td></td>
<td></td>
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<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
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<tr>
<td>- Door-to-door campaigns</td>
<td></td>
<td></td>
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<tr>
<td>- On-demand screening</td>
<td></td>
<td></td>
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<tr>
<td>- Active case-finding</td>
<td></td>
<td></td>
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<tr>
<td>Treatment</td>
<td></td>
<td></td>
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<tr>
<td>- Individual intervention</td>
<td></td>
<td></td>
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<tr>
<td>- Expanded intervention</td>
<td></td>
<td></td>
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<tr>
<td>- Collective intervention</td>
<td></td>
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<tr>
<td>- Treatment of chronic forms</td>
<td></td>
<td></td>
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<tr>
<td>Epidemiological Surveillance</td>
<td></td>
<td></td>
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<tr>
<td>- Notification</td>
<td></td>
<td></td>
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<tr>
<td>- Disease requiring mandatory notification (legislation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Risk mapping</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. HUMAN RESOURCES-BASED</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. EDUCATION AND SOCIAL COMMUNICATION-BASED</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
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<tr>
<td>- Information in the home</td>
<td></td>
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<tr>
<td>- Information in schools</td>
<td></td>
<td></td>
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<tr>
<td>- Educational offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Community meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. RETOOLING THE CENTRAL LABORATORY</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion following Brazil presentations

**Points raised by Brazilian team:**

- In Brazil, migration has not been considered an important factor in terms of disease transmission, although it may present difficulties for successful treatment coverage.
- Additional guidelines would be helpful to address the problems in Brazil given the range of situations that exist in Brazil in terms of LF elimination.
- Brazil has been involved in a lengthy process to develop a plan adapted to the current disease patterns. One important factor is to ensure the political and institutional viability among the different target groups and the different key players (i.e., persons, institutions, and government organizations).
- In addition to the very important political aspects, there are also technical and programmatic issues that are important.
- A practical issue that was discussed concerns the adaptation of the forms. The current form is set up to guide the planning process according to the MDA-based methodology only. However, the situation in Brazil requires a mixed strategy.
- As there were a number of invalid results from the morbidity assessment in Maceio, the survey will be repeated with better accuracy.
- When looking at the large number of infected people in Recife it is important to remember that Recife has double the population size compared to other municipalities.
- The team in Brazil would like to the group to recommend some general guidelines on the best way to use the ICT cards, particularly with regards to how to use the cards in areas that are in different stages of LF elimination. For example, in Brazil there are areas that are already in the process of eliminating the disease elimination and those where there is still active transmission.

**Questions from the audience**

**Question 1.**

- How to monitor and how to use a sentinel site in an area that has been selected for therapy?
- The problem is that when you implement selective treatment you are assessing the problem as you go along.
- Over time you are getting information on MF as you progress.
- Suggestion was made to assess index population, such as less than 5year olds.
- It was noted that this is very labor intensive, may not give a great deal of useful information.

**Response to question 1.**

- In monitoring populations where you are doing selective treatment, the key becomes how many people you can test for MF each year.
- The ideal is that each year, a new pool of people are treated and tested over time, the entire population becomes your sentinel site.
- While this may not be very practical in many places, it may be the price you have to pay to monitor effectively in sentinel sites.
• An alternative way of looking at it is to say: “you have an endemic population, and you have an intervention, and the ultimate goal is to bring MF down to a level that would not support transmission”.

• A sentinel site is a way of having an ongoing measure of that goal in the population.

• An alternative way of looking at it is that you do it the same and it is a test of whether or not that intervention is going to work.

• It is also a good suggestion to expand the sampling pool.

Call for action.
• Better suggestions for sampling techniques are still needed.

Question 2.
• In the community (Sao Luis) where the ICT prevalence studies revealed 5% infection rate, why is that not considered one of the endemic foci?

Response to question 2.
• In relationship to the results in Sao Luis, they are not yet considered final results.

Call to action.
• There are plans to have meetings with regional coordinators to obtain more information in order to accurately complete the survey and produce a timely report.

• It is vital that procedures for using the new ICT cards be defined.

Comments by Dr. Ehrenberg
• Of interest is the situation in Maceió where the MF dropped impressively between 1995 and 2002.

• During this time a treatment strategy was implemented that included a regular treatment scheme rather than selective treatment.

• By regular this refers to the fact that in 1990 a community-wide survey was conducted to identify positive cases for treatment.

• Initially, approximately 100 cases were identified which continued to decrease over time such that the surveys conducted between 1999 and 2002 were primarily limited to the actual focus.

• Of particular interest here is that with a regular treatment scheme rather than a selective one, there was a dramatic decrease in MF rates.

• Further study and further analysis are warranted given the question “if you do not have the coverage rates that you are supposed have and yet you see a marked decrease in MF? What is happening?”

• Considering the number of people treated to the total population at risk in Maceio, which is close to 60,000 or 70,000 people, relatively speaking, a fairly low number of people have been treated.

• This poses a very interesting question in terms of coverage and what is really needed to achieve “coverage”.

• Do we really need such high treatment coverage?

• Do we really need to go for the above 80% on the two-drug regimen?

• Or are we facing different situations and different dynamics in these foci that basically change the whole situation?

• In light of the approach that has been taken in Maceió and the results achieved
• ICT testing and mapping of the buffer areas in the near proximity around Maceio have been proposed.
• As MF surveys have been negative, ICT testing should be done to more accurately determine the situation.
• These activities have both programmatic implications in terms of implementation, as well as political implications in terms of should they continue what they are doing?
• In spite of the limitations, in spite of the lack of resources, in spite of the irregular treatments, it appears that they have managed to decrease MF.
• The question remains though, do they really know what they have in terms of infection rates?
• Here is where ICT testing may be important. For example, if there were a positive ICT test would that call for a massive treatment scheme in the three “barrios” or some other approach? Could they continue doing what they are doing?
• As they have not yet completed the mapping, this is an issue for open discussion so the group can provide feedback and recommendations to the Brazilian team.
• The current recommendation is to conduct mapping using a well-designed sampling scheme of the area, including the focal site and the buffer zone around it.
• Appropriate methodology and adequate training will be critical components to an accurate assessment of what is going on.

Response from Dr. Dryer
• There is a lot to be learned from Maceió because Maceió was one of the endemic areas in the past that has remained silent for twenty years until recently.
• It is not known if re-infection occurred or the adult worms were there all the time and showed up after so many years.
• Nevertheless, it is important to remember that the vector, the environment and all of the biological factors are also important in order for transmission to occur.
Dr. Oostburg discussed the progress of the LF elimination program in Suriname.

**Historical overview**

Suriname is divided into districts, with most of the population living in the coastal region in the northeast part of the country. The population living in this small area is 450,000 or about 80% of the total population.

In addition, there are approximately 50,000 Maroon and Amerindians living primarily in the interior region. The Maroons are the descendants of the former escaped slaves and live in tribes according to African culture. The map shows the districts of Suriname and schools that were selected for the assessment of the LF prevalence.

Historically, the LF prevalence in Suriname changed from 17.4% in 1949 to 0.06% in 1981. Surveys conducted in 1987 among Guyana's immigrants revealed an MF prevalence of 2.6%. In 1998, only 1 positive girl was identified during an ICT survey. A nationwide school-based survey using ICT cards
was conducted in 2001 and revealed no positive cases. The data shown in the table, **ICT Based Assessment**, suggest that LF transmission has been interrupted in Suriname.

### A. ICT Based Assessment

- **ICT survey schoolchildren (6 - 15 years) Suriname, October - November 2001**

<table>
<thead>
<tr>
<th>District</th>
<th>Population</th>
<th>Elmentary Schools</th>
<th>Junior High Schools</th>
<th>Selected Elementary Schools</th>
<th>Selected Junior High Schools</th>
<th>Total # of Pupils Tested</th>
<th>Positive Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramaribo</td>
<td>233882</td>
<td>131</td>
<td>68</td>
<td>3</td>
<td>3</td>
<td>750</td>
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<tr>
<td>Nickerie</td>
<td>34464</td>
<td>28</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>750</td>
<td>0</td>
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<tr>
<td>Wanica</td>
<td>77115</td>
<td>52</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td>Commewijne</td>
<td>22012</td>
<td>23</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td>Marowijne</td>
<td>13484</td>
<td>16</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>125</td>
<td>0</td>
</tr>
<tr>
<td>Coronie</td>
<td>2911</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>125</td>
<td>0</td>
</tr>
<tr>
<td>Para</td>
<td>15375</td>
<td>18</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td>Brokopondo</td>
<td>8039</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>125</td>
<td>0</td>
</tr>
<tr>
<td>Sipaliwini</td>
<td>24696</td>
<td>25</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>128</td>
<td>0</td>
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<tr>
<td>Saramacca</td>
<td>13695</td>
<td>15</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>250</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>445673</strong></td>
<td><strong>324</strong></td>
<td><strong>106</strong></td>
<td><strong>16</strong></td>
<td><strong>10</strong></td>
<td><strong>3003</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

**Assessment of the problem**

**ICT card survey among school aged children, 2001**

- ICT card surveys were conducted among school-aged children 6-13 years of age during October and November 2001 to assess the LF prevalence.
- A total of 3003 children were surveyed in elementary and junior high schools throughout the country, including the interior region, in order to cover the entire region of Suriname.
- The district map of Suriname above also indicates the location of the schools that were included in the 2001 ICT survey.
- Particular consideration was given to Paramaribo, the capital district; schools were sampled in the northern, central and southern part of Paramaribo to get a complete coverage of the district.
- Nickerie was also given special consideration, as it is adjacent to Guyana where there is still an LF transmission problem. In Nickerie, schools were sampled close to the river, in the central region and in the eastern region.
- In other districts, schools were selected using random selection techniques.
- Results of the survey as shown in table **ICT Based Assessment**, revealed that none of the children were positive.
National objectives
• Apply for certification of elimination.
• Continue to monitor LF.

Efforts to meet national objectives
• There is a national task force in Suriname, which is chaired by Dr. Oostburg. Dr. Ersel, the PAHO representative, and Dr. Resida, the Director of the Bureau of Public Health, are members of the task force.
• The task force meets officially on a monthly basis and unofficially weekly.

Morbidity assessment

1. Retrospective adult outpatient chart review, 1950-2000
• A retrospective chart review was conducted among selected adult patients attending outpatient clinics from 1950-2000.
  – Those patients who presented to the clinic with a complaint had blood samples taken and assessed for the presence of MF.
  – The majority of clinic patients were > 60 years of age.
  – Data are presented by age at first visit. As shown in the table, Morbidity Assessment B.1. Outpatient Clinic, the data indicate that among the 170 patient charts reviewed:

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Creole</th>
<th>Hind</th>
<th>El</th>
<th>Ly.</th>
<th>Mf.</th>
<th>Chyl</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10 years</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>11 - 20 years</td>
<td>4</td>
<td>5</td>
<td>9</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>21 - 30 years</td>
<td>8</td>
<td>9</td>
<td>17</td>
<td>13</td>
<td>11</td>
<td>8</td>
<td>10</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>31 - 40 years</td>
<td>6</td>
<td>16</td>
<td>22</td>
<td>9</td>
<td>4</td>
<td>9</td>
<td>17</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>41 - 50 years</td>
<td>3</td>
<td>11</td>
<td>14</td>
<td>24</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>51 - 60 years</td>
<td>10</td>
<td>16</td>
<td>26</td>
<td>44</td>
<td>5</td>
<td>22</td>
<td>25</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>61 - 70 years</td>
<td>8</td>
<td>42</td>
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<td>0</td>
<td>18</td>
<td>40</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>71 - 80 years</td>
<td>4</td>
<td>14</td>
<td>18</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>&gt; 80 years</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>47</td>
<td>123</td>
<td>170</td>
<td>130</td>
<td>36</td>
<td>78</td>
<td>129</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>
- 15 (9%) had evidence of MF in their blood;
- 78 (46%) had signs of elephantiasis (EL);
- 129 (76%) had lymphedema (LY); and
- 4 (2%) had chyluria.

• A population based morbidity survey was conducted in September-December 2001 among a random sample of 18-55 year olds in Paramaribo and Wanica.
  – No cases of LF sequelae were identified.

3. Physician based survey in July 2002
• The bureau of public health outpatient clinics and 40 (50%) general practices were surveyed. The results are as follows:
  – 23 patients were identified with LF;
  – 91.3% were above 60 years of age;
  – 78.3% had elephantiasis of the legs;
  – 0% had chyluria or hydrocele testis;
  – 87% reported repetitive attacks of lymphangitis; and
  – 100% were treated with DEC.

Plans and challenges ahead
• Nickerie, because of its proximity to Guyana where there is still LF transmission, will remain a sentinel site. Periodic ICT card surveys will be conducted.
• It appears the LF transmission has been interrupted in Suriname.
• Suriname has reached the stage for further assessment for elimination certification.
Mr. Sharma began with a historical overview of LF in Trinidad and Tobago (T&T) and followed with progress since the last LF program elimination meeting and future steps.

**Historical overview**
The focal point of LF in T&T is in the north coast village of Blanchisseuse, Trinidad. LF transmission has not been identified in any other area of Trinidad and there is no evidence of transmission on the island of Tobago. Periodic surveys since 1976 suggest that LF is not endemic in T&T, and recent surveys suggest that LF transmission in T&T has been interrupted.

- Studies between 1976 and 1979 reported about 6.3% MF prevalence in the north coast village of Blanchisseuse, Trinidad.
- An in-depth study between May of 1978 and September 1979, found 15.2% MF prevalence.
  - A small percentage of persons who were positive for MF still presented with lymphedema.
  - A smaller percentage of patients with lymphedema presented with elephantiasis.
- A program of mass treatment was conducted between April 1980 and April of 1981; all persons in that focal point were treated.
- A later study conducted in 1981 demonstrated 1.7% MF prevalence.
- A follow up population-based study conducted in 1992 reported 0% MF prevalence.
- Another population-based study conducted in 1995 again reported 0% MF prevalence.
- A subsequent population-based study between 1999 and 2000 that encompassed a larger area of the country and included more of the central and southern areas of the country found 0% MF prevalence.

**Assessment of the problem**
- LF is not endemic in T&T.
- Small-scale studies in Trinidad reported an MF prevalence of 1.7% in 1981 and 0% in 1992.
- A comprehensive nationwide study conducted by Dr. Rawlins in 2002 demonstrated 0% LF prevalence.
- The close proximity to LF-endemic Guyana and the transmigration of people moving back and forth between both countries are important considerations.

**General plan of action**
- Continue to monitor status of LF elimination.
- Given the successful efforts to interrupt transmission and eliminate LF in T&T and the proximity to Guyana, the national focus is now on surveillance.
- Increase awareness and knowledge of LF.
National objectives
To develop a national surveillance system for communicable diseases and other conditions.
To develop an LF vector surveillance system.
To include the use of geographic information system (GIS) as part of the ongoing surveillance activities.

Efforts to accomplish national objectives
• The plan of action for 2002-2003 includes:
  – Assessing the need for ongoing LF surveillance;
  – Providing education about the disease;
  – Monitoring and evaluating LF sequelae;
  – Conducting community-based ICT assessments in areas previously found to have MF prevalence;
  – Establishing a feedback loop; and
  – Beginning the application procedure for provisional certification of LF elimination.
• The plan of action is detailed in the following figures, Plan of Action 2002-2003.

Plan of Action 2002-2003

1. Assess the need for the placement of Lymphatic Filariasis on the National Surveillance System.

2. Assess the need for the inclusion of the LF vector in the Vector Control Surveillance System.

3. Provide the opportunity for health personnel, and the community regarding Lymphatic Filariasis Awareness and Education.

4. Monitoring and evaluation of patients presenting signs and symptoms of lymphoedema/hydrocele and do laboratory diagnosis.

5. Community ICT- based assessments in previously positive foci in Trinidad and Tobago, and in other designated areas to ensure zero transmission.

6. Creating a feedforward and feedback loop with the National Community and related agencies PAHO/WHO, CDC, CAREC etc.

7. Begin the application for provisional Certification of Elimination of Lymphatic Filariasis in Trinidad and Tobago.
Plans and challenges ahead

Plans.
• Efforts are needed to continue monitoring activities for possible LF transmission in T&T, given the close proximity to Guyana where LF transmission is still a problem.
• Several issues must be considered in light of the new focus to develop a national disease surveillance system that includes LF as well as other communicable diseases and conditions.

Challenges ahead.
• The cost of including LF in an atmosphere where there are highly competitive challenges.
  – The question is whether it is a requirement for certification of elimination that LF be placed on the surveillance system?
• The additional cost of adding LF vector surveillance to support the application for certification of elimination.
• The need to create policies, guidelines, criteria, and case definitions to begin surveillance activities.
• The need to identify laboratory resources to initiate surveillance activities.
Overview

- Dr. Fernandez noted that there have not been many new developments in the LF program in Costa Rica. He went on to provide a summary of background information and the concrete results that the LF program hopes to achieve during coming months.

- Costa Rica is located in Central America, bordering with Nicaragua to the north and with Panama to the southeast. It covers 50900 km². The map shows the country with its eastern and western borders on the Atlantic and Pacific oceans.
• In Central America, Puerto Limón on the east coast in Costa Rica is the only known area endemic for LF.
• The first investigations on LF date back to 1946 in people on the Atlantic and Pacific coast.
• The highest infection rates were along the coast.
• In 1954 and 1962, studies were conducted in the area of Roosevelt.
• Data showed an MF prevalence between 15.3% and 17.6%.
• Work carried out between 1976 and 1980 showed an low LF prevalence and density in Puerto Limón, the LF endemic area. There was also a low incidence of infectious vectors.
• As shown in the table below, Distribution Sample Positive for Microfilaria According to Location, among the communities studied in the city of Puerto Limón, the Cristóbal Colón community had the highest rate.

<table>
<thead>
<tr>
<th>Community</th>
<th>Number of Slides</th>
<th>Positive No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cristóbal Colón</td>
<td>743</td>
<td>26</td>
<td>3.5</td>
</tr>
<tr>
<td>Roosevelt</td>
<td>406</td>
<td>14</td>
<td>3.4</td>
</tr>
<tr>
<td>Cuartel</td>
<td>275</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Cementerio</td>
<td>159</td>
<td>3</td>
<td>1.9</td>
</tr>
<tr>
<td>Pueblo Nuevo</td>
<td>302</td>
<td>5</td>
<td>1.7</td>
</tr>
<tr>
<td>Santa Eduvigés</td>
<td>533</td>
<td>12</td>
<td>2.2</td>
</tr>
<tr>
<td>Limón Centro</td>
<td>914</td>
<td>8</td>
<td>0.9</td>
</tr>
<tr>
<td>Barrio Quinto</td>
<td>689</td>
<td>7</td>
<td>1.0</td>
</tr>
<tr>
<td>Volunteers (Different Neighborhoods)</td>
<td>938</td>
<td>16</td>
<td>1.7</td>
</tr>
<tr>
<td>Censo Manzanas Positivas</td>
<td>1196</td>
<td>39</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>6155</strong></td>
<td><strong>133</strong></td>
<td><strong>2.2</strong></td>
</tr>
</tbody>
</table>
• Among 743 slides reviewed, the MF prevalence was 3.5%.
• Roosevelt has a 3.4% MF prevalence.
• The bar graph, Distribution of Positive Case According to Microfilariae Density, shows the distribution of positive cases by MF density.
• The number of cases is shown on the Y-axis and the number of MF per 20 microliters of blood is shown on the X-axis.
• The greatest number of cases was found where there was a moderate MF density.

**Community mobilization**
• At the end of the 1980s, a community participation program was created.
• An overview and census of mosquito nests were conducted.
• Surveys and training were given to community members concerning the disease and the vector.
• A tree-diagram of problems was created, primarily with regard to health and healing in each of the locations.
• Various institutions became involved in improving the environment.
• With active institutional participation, it was possible to pave streets, build education centers for children, and begin deeding property to squatters.
• Swampy areas were filled, and some canals were sealed.
• Putting in lighting and construction of a boulevard on the beach were begun.
• Active motivation and community participation were achieved.
• As a result of progress in recent years, the city of Puerto Limón has a sewage system.
• Potable water is available, and streets and sidewalks have been repaired.
• There are ongoing cleanup and fumigation campaigns to help control dengue. Dengue is endemic in this area, and for the last ten years, we have felt the impact of a dengue outbreak practically every year.
• The results and improvements that were achieved are outlined in the figure, Results Achieved and the figure Improvements.

<table>
<thead>
<tr>
<th>Results Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Paving of streets</td>
</tr>
<tr>
<td>• Construction of recreation areas for children</td>
</tr>
<tr>
<td>• Initiation of property deeding</td>
</tr>
<tr>
<td>• Filling of swamp areas</td>
</tr>
<tr>
<td>• Lighting and construction of a boulevard on the beach</td>
</tr>
<tr>
<td>• Motivation and active participation of the neighborhoods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>In recent years, the city of Limón has made major improvements in:</td>
</tr>
<tr>
<td>• Installation of a sewer network</td>
</tr>
<tr>
<td>• Availability of potable water</td>
</tr>
<tr>
<td>• Repair of streets and sidewalks</td>
</tr>
<tr>
<td>• Ongoing cleaning and fumigation campaigns to control dengue</td>
</tr>
</tbody>
</table>

**Regional program goals**
• During this new phase, the program goal is to determine if transmission is ongoing in the communities of Roosevelt and Cieneguita and to determine morbidity in the city of Puerto Limón.
• The expected results are as follows:
  – Determine antigenemia (Ag).
  – A sample of 5,000 ICT cards and an external budget of $10,000 have been obtained.
• Training has also taken place on the use of ICT cards.
• The Ag study has not yet been initiated due to some technical and administrative problems at the outset.
• Select study areas.
• Roosevelt and Cienguita communities have been selected for the Ag study as these communities had the highest MF prevalence rate (>3.5%).
• Update the census and surveys of the two locations.
• A census has already been conducted of all primary and secondary schools.
• Activities have been organized to learn about regional opinions to carry out morbidity studies.
• The questionnaires have been drafted for the door-to-door morbidity study.
• The surveys of Roosevelt and Cristóbal Colón have been updated.
• Establish sample selection. The sample selection will be 100% of the students between the ages of 7 and 17 in these two communities.
• Information and promotion activities.
• Active search for cases.
• A search has been made of files from hospitals and other health centers in the central canton of Limón, to identify diagnoses of hydrocele, chyluria, and/or elephantiasis.
• A rapid survey on hydrocele, elephantiasis, and chyluria is also set to begin. The survey will utilize a questionnaire that has already been developed.

Plans and challenges ahead
• The goal is to establish whether transmission has been halted or continues to be ongoing.
• One indicator of interest is the prevalence of Ag among 7-17 year olds in Roosevelt and Cristóbal Colón.
• Another indicator of interest is the prevalence of clinical manifestations of LF.
• A timeline was developed for implementation of the various program activities from July through September. This is shown on figure, Chronogram.
• Activities include: preparation and evaluation, information dissemination, evaluation of Ag surveys, searching hospital files, door-to-door surveys, capture of mosquitoes, creation of electronic databases, and creation of mapping report.
• While the study on Ag has not been initiated due to technical problems with the cards, it is hoped that PAHO will give authorization in the near future so that work can begin.
• The preparatory phase of these activities began in July, August, and September.
• Awareness-raising sessions have been carried out with the education sector.
• An evaluation of elephantiasis is set to begin in collaboration with the University of Costa Rica on elephantiasis.
There is also an effort to capture mosquitoes and conduct an entomology investigation.

Plans have been developed to begin the quick door-to-door morbidity survey.

The date for the last program activity in the chronogram, creation of the final mapping report, has been adjusted due to a series of problems at the outset.

The necessary budget is calculated at $10,120 in external support ($9,820 for ICT cards and $300 for the morbidity survey).

In addition, a contribution is anticipated from the MOH in the amount of $50,300 for this phase, which corresponds to personnel and logistical support ($31,250 for Ag studies and $19,050 for morbidity surveys).

<table>
<thead>
<tr>
<th>Chronogram</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
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</thead>
<tbody>
<tr>
<td>Preparation of the Evaluation</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information (educational and awareness-raising sessions)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation of antigenemia</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Search for files</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door-to-door survey</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Electronic databases</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capture of mosquitos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Creation of a final mapping report</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Summary of Country Presentations

Chairman: Dr. Baltus Oostburg, Advisor of the Minister of Health, Suriname
Rapporteur: Dr. Calum McPherson, Professor of Parasitology, Director of Research, St. Georges University

The meeting began with presentations from the four countries where lymphatic filariasis (LF) is still endemic (Haiti, Dominican Republic, Guyana and Brazil) and was completed by presentations from the three countries (Suriname, Trinidad and Tobago and Costa Rica) that are believed to be approaching the global goal of elimination. Each of the country presentations was accompanied by comprehensive PowerPoint presentation handouts. This report serves mainly to highlight the major achievements and also covers the discussion that followed each country presentation.

HAITI

Presentation by: Dr. Marie Denise Milord.

An overview of the history of the LF activities in Haiti was presented. One hundred and seventeen (117) of 133 counties were found to have active LF transmission, which necessitated a national program and made LF a priority program for the MOH. Only 16 counties were reported to be free of LF demonstrating that the disease was a national problem and a coordination bureau has been established. The composition of the program personnel and the technical committee were presented.

- The strategy of the Haitian program was to carry out a pilot program in the commune of Léogane that comprised:
  - Social mobilization;
  - Morbidity reduction; and

Activities related to these goals were presented. Two strategies of prevention are to be used, mass treatment and DEC-salt (plus iodine), and will undergo trials in three sites in 2002. Three sentinel sites have been monitoring the mass treatment program before and after treatment in 2000, 2001 and 2002 using MF and Ag tests. Concern was expressed about the reliability of the Binax ICT cards. DEC-salt production is carried out in Haiti, which has introduced careful quality control tests. The plan is to treat 100,000 people with DEC-salt during the coming year. The secondary side effects of treatment were monitored during all the mass treatment campaigns and side effects were found to increase in the 2001 survey.

- The challenges to the program include:
  - The time required to introduce a new program including gaining the confidence of the population;
  - Funding constraints for introducing treatment to all infected areas; and
  - Transportation and reaching the one million people to be treated in 2003.
Discussion
Dr. Cline: Are there sentinel sites located in the DEC salt sites?
Dr. Milord: No.
Dr. Rawlins: Did you examine all species of mosquitoes that may act as vectors, particularly Mansonia spp?
Dr. Milord: No.
Dr. Ehrenberg: How important will social mobilisation be for maintaining the program over the next 3-4 years?
Dr. Milord: It will be very important to mobilize the whole population and there will be a considerable effort made in this area.
Dr. Sergio Yactayo: When do you think the LF elimination program will be introduced to the whole of Haiti?
Dr. Milord: We hope to introduce the LF eradication program to all endemic communes throughout Haiti over the next 5 years. We hope to treat 500,000 people this year and by 2006 the elimination program will be in all 117 affected communes.

DOMINICAN REPUBLIC
Presentation by: Dr. Manuel Gonzalez de Pena.

The mapping of LF started in 1999 and should be completed by the end of 2002. The LF endemic areas are all in the southeastern part of the country close to the Haitian border. Two out of 154 municipalities have the highest prevalence of LF. An organigram was presented and the role of the regional task force elaborated. There are collaborative links with the university and with a number of NGO's. Three specialists were trained to surgically treat hydrocele cases and a number of others received training to treat skin diseases. Three sentinel sites have been established. One of the major constraints for the program, as it is for others, is funding.

Discussion
Dr. Guillermo González made the comment that treatment was strictly supervised at the household level. A total of 123,000 people have been treated and all secondary effects recorded by a physician or nurse. There are 109 suspected cases of hydrocele and the need for surgical intervention among these patients is being assessed.
A number of activities had been conducted since the last meeting and the plan of action for 2002 - 2003 was presented. Guyana’s program focuses on the use of DEC-fortified salt for transmission interruption and simultaneous morbidity management. The Guyana task force has representatives from a number of organizations and institutions and meets about 3 times a year.

- Activities during the year included:
  - Workshops for health professionals;
  - Knowledge, attitude and behavior survey completed;
  - Social mobilization ongoing; and

- Activities related to the planning of transmission interruption activities include:
  - Mapping completed in 2001;
  - Decision to use DEC salt and procurement of DEC;
  - Forging partnerships with major salt importers;
  - Putting DEC-salt quality control mechanisms in place;
  - Developing DEC-salt marketing strategies; and
  - Addressing social mobilization for the use of DEC-salt and distribution issues.

- Anticipated date of DEC-salt launch in Guyana is October/November 2002. 80% coverage for three years is planned.

- Sentinel sites have been set up in New Amsterdam and Georgetown and participants registered.

- Rapid morbidity assessment surveys, workshops, and continuing medical education seminars have been completed.

- Models for skin care on a sustainable basis have been developed.

Constraints included the existence of multiple disbursement systems due to numerous donors. The main challenges that face the program are sustainability, acceptance of the DEC-salt, and program coordination.

**Discussion**

Dr. Joao Batista Vieira: Is the continuation of an open salt market going to be a problem for Guyana?

Dr. Persaud: The Government is not planning to place any restrictions on salt importers to only bring in DEC-salt. Guyana wants to maintain confidence in the product and that DEC salt was a food commodity.

Dr. Rawlins: Why not fortify salt in Guyana? The 9% prevalence rate reported is lower than earlier results reported by surveys conducted by CAREC. How many tests were done?
The 2001 survey was reported at the last meeting but around 3000 ICT card tests were done with prevalences varying between 0.6 - 42.0%. With regards to producing DEC-salt in the country Dr. Persaud said that this would cost more as they were not set up to do this (fortification and packaging). Quality control and a number of other factors favor external sources of DEC-salt supply.

Professore Oostburg stated that when chloroquine was added to salt for the malaria eradication program it was done in Guyana and Suriname. He feels that this option should remain a possibility.

Dr. Ehrenberg enquired about the possibility of morbidity training in Recife and had the cost of the management of lymphedema been done?

Dr. McPherson stated that there was a need for people to be trained in Recife and that the morbidity program had not necessitated the employment of any new staff, that teams already available were used and that there had been no increase in cost. The only new expenses were her transport costs.

BRAZIL

Presentations by: Drs. Joao Batista Vieira (Brasilia), Gilberto Fontes (Maceió), Audinei Cavalcante (Maceio) and Tereza Lira (Recife).

The four presentations focused on:

- An overview of the PELF program in Brazil;
- The role that university students played in the RELF program in Maceió in northeastern Brazil;
- Morbidity control program in Maceió; and
- The PELF program in Recife city, northeastern Brazil.

There are approximately 1,765,000 people at risk of LF infection living in three endemic states in Brazil (Pernambuco, Alagoas and Para). A comprehensive training program for selective treatment has been carried out. To date the ICT cards have not been used in Brazil. The elimination of the parasite from much of its former range is attributed to the introduction of vector control programs in the 1990s, particularly a microdrainage program. The parasite has been eliminated from Para and Pernambuco states and greatly reduced in Belém.

Students from the Federal University of Alagoas carried out much of the MF work on the parasite distribution in Maceió, situated on the northeastern coast of Brazil. There has been a 10-fold reduction in MF carriers, a 6-fold reduction in MF density and a reduction in the number of infected mosquitoes. This reduction is attributed to the treatment of MF positive patients.

There are good environmental control measures in place in Recife. The reduction of the MF levels is a priority in a couple of areas in Recife through the treatment of all MF carriers.
Discussion
Dr. Rawlins: The emphasis on vector control is appreciated but exactly what was the vector control measure to be used?
Dr. Vieira: In two small areas of Recife larvicides, polystyrene balls and education were employed. In other areas sanitation engineering methods were used.
Dr. Rawlins: There is a need to coordinate dengue and LF control efforts.
Dr. Vieira: In the early control efforts control personnel were responsible for control of a single species of mosquito. Today vector control personnel are trained to control all species of mosquito vectors.
Dr. Rawlins: There is a need to integrate Aedes and Culex control measures, as is the practice in the Caribbean.
Dr. Ehrenberg: It is encouraging to learn that the program in Brazil is moving to a combined treatment scheme and it is perfectly acceptable to prioritize areas for control.
Dr. Vieira: Brazil is considering all control strategies including the use of DEC-salt. There is a need to strengthen the political commitment to the program, which is especially important in Brazil.

SURINAME

Presentation by: Professor Dr. Baltus Oostburg

The majority of the population of Suriname lives on the coast and only some 50,000 maroons live in the interior of the country. Historically the known prevalence of LF MF in Suriname changed from 17.4% in 1949 to 0.06% in 1981. Surveys conducted in Guyanese immigrants in 1987 revealed a MF prevalence of 2.6%. In 1998 only 1 Guyanese girl was found to be positive in an ICT survey.

Between October and November 2001, none of 3003 school children from around the country, but in particular near to the Guyanese border, were infected as measured by the ICT method. The survey was conducted by a group of medical students who also conducted a morbidity survey by examining patient records from 1950. A total of 170 cases of LF were reported for that period and no patients < 60 years of age had LF sequelae. There is a problem in the differential diagnosis of the etiology of lymphedema cases. A Task Force has been set up in Suriname and meets regularly.

In conclusion, Professor Oostburg stated that there was no evidence that there had been any LF transmission in the country since 1980 and he attributes this in part to the improved sanitation and the elimination of Culex breeding sites. Future activities will include setting up a sentinel site near to the Guyanese border in which 25% of the school children will be monitored annually.

Discussion
Dr. Sergio Yactayo: Certification of elimination [in Suriname] may be considered only after one year of DEC-salt implementation in Guyana. However, too many LF infected people live close to the border.

Professor Oostburg: As there have been no new cases since 1980 there is a need for clarification of the elimination\transmission interruption criteria.
Dr. Sam Rawlins felt that T&T also required a verification of the elimination of transmission of LF in T&T. Dr. Rawlins then asked about the problem of over reporting of ‘big foot’.

Professor Oostburg: There is always going to be an over reporting of elephantiasis in surveillance due to the problem of differential diagnosis.

Dr. Ehrenberg urged all program managers to examine the program manager’s manual that contains clear definitions of elimination and transmission. He agreed that the morbidity cases seen in Suriname might not indicate cases of LF.

**TRINIDAD AND TOBAGO**

*Presentations by: Dr. Karimesh Sharma, Dr. Sam Rawlins and Dr. David Chadee.*

Historically the northern coast of Trinidad is the only location where LF has been reported by Nathan and colleagues in 1978. Between April 1980 and 1981 all MF carriers (1.7% of the population) were treated. MF surveys carried out in 1995, 1999 -2000 (350 people) and February - June 2002 (2597 - this survey using the ICT cards in 8 - 12 year old school children from around the country) revealed no positive LF cases. A morbidity survey carried out in 2001 found that although 19% and 14.5% of participants had seen ‘big foot’ and hydrocele—there was no established link made to LF. The question was posed where does the program go from here and should LF be one of the diseases put on the data base surveillance system used for other diseases. A request was made for this point to be further discussed in the small group meetings to be held the next day.

Dr. Chadee followed these presentations with a review of monitoring MF infections in *Culex quinquefasciatus* mosquitoes - xenomonitoring (defined by WHO as the collection of caught, blood-fed mosquitoes to detect microfilaremia in a community). The protocol for this is to be published in the *Annals of Tropical Medicine and Paraasitology* in the near future.

**Discussion**

- **Dr. Cline:** What sample size and from how many households are the mosquito pools made from for testing?
- **Dr. Chadee:** 25 *Culex* spp. will be pooled in each test and all will be collected from 1 household.
- **Dr. Ehrenberg:** Who, when and where will the samples be tested?
  
  The samples will be tested between September 14th and the 28th in Trinidad by Dr. Steve Williams of Smith College.
- **Dr. Cummings:** Is there a density of mosquitoes that are required for transmission and how important is the introduction of a few LF positive individuals?
- **Dr. Rawlins:** In theory, one mosquito could transmit LF but in practice it is thought that a large number of infectious bites are required for successful transmission of the parasite.
COSTA RICA

Presentation by: Dr. Jose Fernandez.

The objective of their work is to examine the question “Is transmission still going on”? A large number of activities have been conducted and these are presented in the handout. An ICT card survey is planned for October 2002.

The country reports were followed by presentations:

1) Dr. Adriana Troyo presented “The academic sector and its role in the Regional initiative; the University of Costa Rica experience”. Dr. Troyo elaborated on a number of important ways in which an academic institution could help to collaborate with Ministries of Health. These include inter alia fundraising, optimizing human resources, technology, program continuity and the local and global dissemination of research results.

Due to a lack of time this presentation was not discussed.

2) Dr. Eric Ottesen: Latest on the new Binax-ICT cards.

The sensitivity and specificity of the tests were excellent when compared to the presence of MF. However, they were slightly less sensitive than the Og4C3 ELISA test performed by Dr. Lammie at CDC. Problems of false positives and negatives arise when the test is not read after 10 minutes. The manufacturer of the ICT cards is conducting further studies to try to overcome this limitation.

Discussion

Dr. González: What is the interpretation of an MF positive ICT negative test?

Dr. Ottesen: This does occasionally happen but the exact reasons for this remain unclear. Dr. Ottesen went on to explain that the quality control of the cards was very good but that this has to be continually monitored.
The Academic Sector and its Role in the Regional Initiative: 
the University of Costa Rica’s Experience

Dr. Adriana Troyo, Professor of Microbiology, Department of Parasitology, University of Costa Rica, San 
Jose, Costa Rica

Dr. Troyo discussed the role of the academic sector in general, and then more specifically, the 
experience of the University of Costa Rica.

Overview
• Worldwide, there are ongoing efforts to prevent, control and eliminate various infectious diseases 
such as poliomyelitis, measles, onchocerciasis and lymphatic filariasis.
• The governments and Ministries of Health are working on the different programs, but there is a 
tendency to overlook the possibilities and benefits of other program’s supporting research.
• The region’s countries have very limited resources, and although the health programs are carried out 
as best as possible, local investigation leading to effective program application is sometimes lacking.
• The available financial, human and technical resources, as well as other country priorities, can limit 
the overall impact of a particular program.
• There are other institutions that can help complement these resources and the academic sector is 
one that could aid the programs in many different ways.
• The University of Costa Rica (UCR) is the largest public university in the country with about 
30,000 students and a history of excellent academic formation, investigation and social support.
  – There are many research programs being developed in the different academic units of the 
University (including research centers and institutes).
  – More than 80% of the country's investigations are carried by the UCR.
  – Being a public institution, the UCR is engaged in the development process of the country, 
  providing the educational and investigational basis for its growth.
  – Therefore, there is a constant interest in the national problems, especially regarding education and 
  health.

Role of the academic sector
• Working in an underdeveloped country, there is always a need for optimization of resources, 
especially when the research is of national interest.
• The benefits of working with the academic sector are outlined in the following figure, Benefits, and 
then discussed in more detailed.

Optimization of technology.
• The universities possess the technology to carry out many investigations, which would be very 
difficult or impossible to accomplish without the adequate technology.
• The academic investigators could use this resource to support the work of the ministries.
Benefits

- Optimization of funds
  - Universities
  - External support
- Optimization of human resources
  - Academic research interest
  - Interdisciplinary
  - Training
- Optimization of technology
- Continuity of objectives
  - Permanent personnel and objectives
- Community application of results
  - Directly benefiting the communities
- General national benefits
  - Development of health and educational sectors
- Global program benefits
  - Improve or modify current or future methods

Continuity of objectives

- The Ministries of Health respond directly to political entities.
  - This could create difficulties for the continuity of programs.
  - When the government changes, the programs may remain, but the national health priorities could change and new and untrained personnel could be assigned.
- The academic sector has more permanent personnel to carry out research objectives.
- The public health programs would benefit from the continuity of the research carried out by the academic sector.

Community application of results

- The research conducted through the universities will yield results that can directly benefit the communities through the local offices of the Ministries of Health.
- Therefore, both the academic and public sectors will be in charge of the creation of knowledge, its diffusion and its application.
- The universities would cooperate in detecting problems, approaching them in an interdisciplinary way, and planning the best solutions.
- This jointly generated knowledge would be available to health authorities for application as appropriate.

General national benefits

- Development of the country's health sector depends on outcome information from the local health offices.
  - Again, these outcomes would be greatly improved if they receive the direct support of the academic sector.
• Likewise, the educational sector could also benefit from the opportunity provided to future professionals to work in direct contact with the affected communities.

**Global program benefits**
• The investigations carried out in the universities could yield results that would modify or improve the current and future methods being used.
• Such results will definitely impact the global health community by applying the new changes in other countries as well.

**Conclusion**
The academic sector, the public health sector, but most of all the community, will benefit from this synergy. However, for these benefits to actually be achieved at least two factors that must be present:
• Good communication between all the parties to define the objectives and the procedures to be followed in each investigation.
• Inclination to consider and apply, whenever possible, the recommendations given by the academic sector as a result of their research.

**Role of the UCR in the Program to Eliminate Lymphatic Filariasis**
• The Department of Parasitology of the School of Microbiology is very interested in the PELF.
• The Department is specifically interested in the role that the University could play in aiding the Ministry of Health in their efforts to demonstrate the absence of transmission in Puerto Limón, the only known area with past LF history in the country.
• The figure below, **UCR/ LF Elimination Program**, outlines the role of the university in the elimination program.

<table>
<thead>
<tr>
<th>UCR/LF elimination program</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCR will aid the Ministry in demonstration of LF absence in Puerto Limón</td>
</tr>
<tr>
<td>– PCR: immature stages in mosquitoes (Culex Sp.)</td>
</tr>
<tr>
<td>– ELISA: IgG-1 and IgG-4</td>
</tr>
<tr>
<td>• For support of results obtained by the Ministry</td>
</tr>
<tr>
<td>• Validation of techniques as tools for monitoring or certification process.</td>
</tr>
</tbody>
</table>

• The University will work with PELF to support the use of ICT cards results by other evaluation techniques such as:
  – Polymerase chain reaction (PCR): Detection of *Wuchereria bancrofti* immature stages in mosquitoes to establish entomological indices of transmission that would complement human-derived data.
ELISA: Detection of *W. bancrofti* specific IgG-1 and IgG-4 to establish the immunological capacity and relevance of detecting these antibodies in a population that may no longer be at risk of infection.

Detection of *W. bancrofti* antigen in serum for confirmation of any ICT card positives.

- The University has qualified and trained personnel to carry out these additional studies, which will be very helpful in supporting the results obtained by the Ministry of Health.
- This work will aid the interpretation of the biological significance of positive ICT tests.
- This work will also assist in the development of methods to validate these techniques as tools to monitor or verify the elimination of LF.
- In addition, the University has responded with other studies in Puerto Limón that are also related to the LF work.
  - As requested by local health authorities, two investigations have already begun. One is a study on the prevalence of *Dirofilaria immitis* in dogs (using the Knott technique and ICT cards) and the other is a survey of intestinal parasites in school children.
  - Both studies are generating interesting results, which will be important to consider when interpreting the ICT and serologic test results.
Latest on the New Binax ICT Cards

Dr. Eric Ottesen, Professor and Director
Lymphatic Filariasis Support Center, Emory University, Georgia, USA

Dr. Ottesen gave an update on the antigen detection test. He began by recapping the advantages of the ICT test and then discussed in detail the problems that have recently developed with the ICT cards.

Advantages of the *Wuchereria bancrofti* Antigen (Ag) Test: Dr. Ottesen pointed out that during the last five or six years he repeatedly showed slides that highlighted the strong advantages of the ICT test.

Advantages:
- HIGH SENSITIVITY (>95%)
- HIGH SPECIFICITY (99%)
- POSITIVE DAY AND NIGHT
- USES FINGER PRICK BLOOD
- RAPID (1-5 minutes)
- FIELD USABLE
- COMMERCIALLLY AVAILABLE (test cost $1.50/test for public health programs)

• The original manufacturer of the ICT cards in Australia went out of business.
• The manufacture of the cards was taken over by company in the United States.
• Because of these recent events with the manufacture of the ICT cards, the confidence in the ICT cards is now shaken among program managers.

Old versus new *W. Bancrofti* antigen test

Problems with the new Binax test card
• The figure *W. bancrofti* AG detection displays the old and the new cards.

![W. Bancrofti Ag detection](image)
• There were initial production problems with the Binax card, including cost, expiration dates and timely production.
• The biggest problem however, was not so much with production, but with the stability of the results.
• Results would differ if the cards were read at 10 minutes and then again later.
• Problems with the new Binax card are highlighted in the chart, W.b. Ag Detection, problems with the new Binax test.

Studies to evaluate the Binax card performance
• Program managers complained that “the cards turn positive when we come back to read them the next day.”
• The manufacturer, however, correctly stated that the “the cards aren’t supposed to be read the next day. The directions say to read them at 10 minutes, and when you do that the test works fine.”
• The questions really were, “When should the cards be read for the best accuracy, and was there something that could be done to improve the performance and stability of the Binax card?
• Studies to address these questions were initiated at multiple sites throughout the world.

Study design to test sensitivity:
• Goal: To test sensitivity of Binax ICT test compared to blood smear MF analysis and enzyme-linked immunosorbent antigen (ELISA) test to detect Wuchereria bancrofti infection using the Og4C3 antigen.
• Approximately 200 subjects of mixed ages and both genders from each endemic site (Egypt, Haiti, India, Tanzania, Vanuatu) were studied.
• The figures below show the basic study design. The design included MF determination, collection of plasma samples for later laboratory determination and use of the Binax-ICT card.
  – The Binax card was read at 10 minutes opened and then read again 4-12 hours later.
  – The goal was to assess the sensitivity and specificity of the Binax cards at detecting microfilaria and infection and to validate the results when read at different time points.
Study Design A

Binax ICT study—core protocol
A. Finger-prick blood (<300mcl) for
   1) Mf determination
   2) Plasma for later Og4C3 assay
   3) Binax-ICT test
      a) Read at 10’
      b) Opened and read again later (4-12 hours)
      c) [Egypt: also ran tests where cards read at 10’ and left closed]

Study Design B

Binax ICT study—core protocol
B. Evaluate Binax-ICT for
   1) Sensitivity
      a) in detecting those with microfilaremia
      b) in detecting those with infection (defined by Og4C3 positivity)
   2) Specificity (with respect to Og4C3)
   3) Variability of result depending on when card is read
      a) Card left closed
      b) Card opened at 10’

Results:
• ICT versus microfilaremia and ELISA Ag (Og4C3):
  – All those who tested positive for microfilaremia by blood smear were ICT test positive.
  – Sensitivity was 100% in Egypt, India, Tanzania, Haiti and Vanuatu.
• Local data from Haiti:
  – ICT versus blood smear: 100% sensitivity.
  – ICT versus ELISA: Sensitivity of ICT was 82% and specificity was 99%.
  – These results were expected, as the ELISA test is more sensitive than the ICT.
  – Results are summarized in the figure, Binax ICT: Sensitivity/Specificity—Haiti

Binax ICT: Sensitivity/Specificity—Haiti

<table>
<thead>
<tr>
<th>Microfilaremia</th>
<th>ICT+(%)</th>
<th>ICT-(%)</th>
<th>Og4C3 Result</th>
<th>ICT+(%)</th>
<th>ICT-(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>21 (100%)</td>
<td>0 (0%)</td>
<td>Positive</td>
<td>61 (82%)</td>
<td>13 (18%)</td>
</tr>
<tr>
<td>Negative</td>
<td>40 (23%)</td>
<td>133 (77%)</td>
<td>Negative</td>
<td>1 (0.8%)</td>
<td>123 (99%)</td>
</tr>
</tbody>
</table>

Sens to detect MF: 100%
Sens: 82%; Spec: 99%
**Change in readings over time:**

- The question was how does the result change when cards are read at 10 minutes and then again several hours later.
- In all sites, 2%-11% of those who were negative at 10 minutes converted to positive at a later reading even if the card was opened at 10 minutes.
- In Egypt and Tanzania, 10% and 49%, respectively, of those who were negative at 10 minutes became inconclusive at the later reading.
- Among those who were initially positive at the 10-minute reading, none changed status at the later reading, except in India where 20% went from positive to false negative. This is most likely due to the fact that there were two different readers.
- The subsequent two figures, **Change in readings over time, initial ICT\(_{10}\) negatives** and **Change in readings over time, initial ICT\(_{10}\) positives**, show the results with a 10-minute reading and a later reading.

<table>
<thead>
<tr>
<th>Country</th>
<th>ICT(_{10^-})</th>
<th>ICT(_{1+})</th>
<th>ICT(_{-})</th>
<th>ICT(_{?})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>119</td>
<td>13 (11%)</td>
<td>94</td>
<td>12 (10%)</td>
</tr>
<tr>
<td>Haiti</td>
<td>136</td>
<td>9 (7%)</td>
<td>127</td>
<td>0</td>
</tr>
<tr>
<td>India</td>
<td>126</td>
<td>2* (2%)</td>
<td>124*</td>
<td>0</td>
</tr>
<tr>
<td>Tanzania</td>
<td>52</td>
<td>2 (4%)</td>
<td>25</td>
<td>25 (49%)</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>163</td>
<td>13 (8%)</td>
<td>150</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>ICT(_{10^-})</th>
<th>ICT(_{1+})</th>
<th>ICT(_{-})</th>
<th>ICT(_{?})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Haiti</td>
<td>62</td>
<td>62</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>India</td>
<td>74</td>
<td>59*</td>
<td>15*</td>
<td>0</td>
</tr>
<tr>
<td>Tanzania</td>
<td>58</td>
<td>58</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>45</td>
<td>45</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Study conclusions regarding the Binax test
• Sensitivity to detect microfilaremia is excellent.
• Sensitivity to detect all infections is very good.
• Card must be read at 10 minutes to be accurate.

Programmatic concerns
• It is difficult to ensure that all readings can be done in ten minutes.
• Therefore, screening may not be technically precise.
• There is no opportunity for program managers to read the cards the next day and thus no provision for this quality-control check.
• The programmatic concerns are summarized in the figure, Binax-ICT: Programmatic Concerns.

Challenges ahead
• A PRIMARY CHALLENGE IS TO REDESIGN THE CARDS.
• A SECONDARY CHALLENGE IS TO DEVELOP AN INTERIM ‘BAND AID’ SOLUTION TO ENABLE USE OF CURRENTLY AVAILABLE CARDS IN SELECTED SITUATIONS.

Progress
• The goal is to redesign the card so that it has the same robust specifications as that from two years ago: i.e., excellent sensitivity, specificity and stability over time.
• The goal is displayed pictorially in the figure below, Binax-ICT: Progress.

• Primary 'redesign' goals
  – Equal sensitivity & specificity as before
  – Stability guaranteed 18-24 hours

• The company has the support of WHO and GSK to determine the problem and identify a solution.
• The work is ongoing and results are expected soon with new production anticipated for the spring.
GROUP GUIDELINES

Monitoring and Evaluation of LF Elimination Programs
Dr. Eric Ottesen
Professor and Director, Lymphatic Filariasis Support Center,
Emory University, Georgia, USA

Dr. Ottesen discussed monitoring and evaluation of LF elimination programs from a global perspective and from the perspective of the Americas region.

Programmatic goals and objectives of monitoring and evaluation (M&E)
• There are two goals for the Americas region; for some countries, verifying the absence or the presence of infection is the primary concern; for others, initiating the LF elimination programs is the main concern.

Goals:
• Verifying the presence or absence of infection.
• Initiating LF elimination programs where needed.

Objectives and stages:
• Getting the programs started (and funded).
• Monitoring their progress.
• Evaluating their effectiveness.
• Stopping the programs.
• Conducting surveillance after stopping.
• Evaluating the program impact.

Philosophical principles of M&E
• The goal of M&E activities is to make sure that the program is being carried out well and is effective.
• The principal ‘beneficiary’ of the M&E is the program manager who can then use the information to enhance program effectiveness.
• ‘Confidence’ in the data collected is essential.
• Standardization of the data is important. This is where the regional and global influence becomes important.
• ‘Common sense’ must play a role. There should be flexibility in criteria applied to developing appropriate approaches to monitoring and evaluation.

Responsibility for M&E component
• National programs.
• WHO Country and Regional offices.
• WHO – Geneva.
  – Temporary Advisors
    - Produced current program managers’ guidelines in 1998.
  
The role of this group is to revisit the guidelines and develop:
  - Global standardization of goals and approaches;
  - Overall compatibility of data management;
  - Addressing certain theoretical questions; and
  - Recommending operational research to develop tools, strategies.
• A ‘core group’ was developed by WHO to focus on M&E issues.
  – This group has nine members that include:
    - Two from WHO headquarters;
    - Two from the TAG at WHO;
    - Two from the WHO collaborating centers experienced in these issues;
    - One from the Liverpool LF support center; and
    - Two representatives from the Atlanta subgroup on M&E.
  – The group has been divided into subgroups based on the problems of interest.
  – The subgroups will meet and make recommendations to the core group and then to the TAG.
  – The figure below, M&E core group (WHO-appointed), shows the various components of the M&E core group.

• The “Atlanta” monitoring and evaluation subgroup includes members from places other than Atlanta. There are members from Texas and the United Kingdom.
Several members of the group are present at this meeting, providing a direct conduit for influencing the global guidelines.

The “Atlanta” subgroup members are:

Dave Addiss  Pat Lammie
Mark Bradley  Els Mathieu
Barney Cline  Eric Ottesen
Tim Dondero  Frank Richards
Rafe Henderson  Nana Twum-Danso
Robin Houston

Concerns of M&E raised at the New Delhi program managers; meeting, April 30 2002

• Definitions
  – Coverage and best methods to validate estimates.
  – Implementation unit, especially in relation to sentinel site selection.
  – Monitoring strategy, especially choice of sentinel & spot check sites.

• Choice of impact indicators for baseline and serial monitoring.
  – MF vs. Ag vs. vector infection.

• Monitoring the program in ‘special populations’.
  – E.g., migratory, urban.

• Funding needs.

Fundamentals of monitoring

• Monitoring includes monitoring for impact and process.

Monitoring for impact.

• Monitoring sentinel sites at baseline and at specified intervals after MDA.
• Subsequent monitoring of spot-check sites

• Indicators to monitor impact rely on MF prevalence and density most importantly; Ag prevalence is also of interest but the meaning is less clear in terms of program impact.

• The figure Monitoring for impact highlights these concepts.

Monitoring for ‘impact’

• Sentinel sites
  – PMG baseline and 1 year after 3rd and 5th MDAs
    MF prevalence
    MF density
    (Ag prevalence)

• Spot-check sites
  – PMG after 3rd and 5th MDAs
    MF prevalence
    MF density
    (Ag prevalence)
Monitoring for process.

- This refers to how the program is working.
- The key ‘process’ indicator is ‘coverage’ assessment after MDA.
- Coverage assessment is the ratio of the number who ingested the drug to the total population ‘at risk’ (and therefore targeted for treatment).
- The figure below, Monitoring for process, highlights these concepts.

<table>
<thead>
<tr>
<th>Monitoring for ‘process’</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Coverage’ assessments— after each MDA</td>
</tr>
<tr>
<td>No. who ingested drug</td>
</tr>
<tr>
<td>('reported' / 'observed'; ‘reported’ / ‘surveyed’)</td>
</tr>
<tr>
<td>‘Problem-oriented’ monitoring—if necessary</td>
</tr>
</tbody>
</table>

Verifying absence of infection
Post-endemic countries.

- The goal is to document that no residual foci of infection remain. This can be accomplished by:
  1) Detailed description of former endemic area(s);
  2) ‘Risk map’ of country today; and
  3) Activities to maximize detection of infection.

These include:
- Hospital record review (hydrocele, lymphedema); and
- Screening for asymptomatic infection. This can be done using:
  - Blood banks;
  - Military recruits;
  - Populations where infection might exist (e.g., formerly endemic populations, migrants).
- Diagnostic methods for use in monitoring and evaluation include detection of:
  - Microfilaremia – sign of active infection;
  - Antigenemia – sign of active infection;
  - DNA (PCR) – sign of active infection / transmission; and
  - Antibody – indicates prior experience with infection.
Verifying absence of infection
• What are the criteria for ‘LF negativity’ (when testing humans)?
  – *Endemic countries*: cumulative incidence over 5 years of <1/1000 (0 ICT+ with LQAS sample size of 3000 5 year old children).
  – *Post-Endemic*: Prevalence of <1/1000 (various options for sample populations).
• What are the criteria for ‘LF negativity’ (when testing vectors)?
  – Not established.

Summary
• The principal issues for this meeting’s M&E workgroup are outlined in the figure below, M&E: Principal issues for Group I. These include:
  – The workability or relevance of current guidelines, operational constraints and the data management system; and
  – The tools and sampling strategies available for verifying absence of infection.
• The necessary outcomes of the group are forming a clear definition of issues/problems and suggesting recommendations to resolve them.

<table>
<thead>
<tr>
<th>M&amp;E Principal issues for Group I</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ‘Workability’ (relevance) of current M&amp;E guidelines</td>
</tr>
<tr>
<td>– Operational constraints</td>
</tr>
<tr>
<td>– Data management</td>
</tr>
<tr>
<td>– DEC-salt usage instead of yearly MDA</td>
</tr>
<tr>
<td>– ‘Selective’ treatment instead of MDA</td>
</tr>
<tr>
<td>• Verifying absence of infection</td>
</tr>
<tr>
<td>– Tools available (s/s)</td>
</tr>
<tr>
<td>– Sampling strategies</td>
</tr>
</tbody>
</table>

| • Outcomes required |
| – clear definition of the issues/problems |
| – recommendations for resolving them |

Discussion points
• There has been a change in terminology from certification of the elimination of infection to the verification of absence of infection.
• The regional PRG might emphasize to WHO the need for criteria for verification of absence of infection, which is important for countries such as T&T and SUR.
• The governments of T&T and SUR must at the same time make a commitment to the LF elimination program to prevent re-introduction of infection.
• A suggestion was made to request an external evaluation to assure credibility of the assessment.
• A request was made for clarification of the process for verifying the elimination of infection.
• LF ‘certification of elimination’:
  – The first thing that is needed for the certification process is the development of criteria for
determining certification of elimination.
  – In fact, part of the purpose of the program managers’ guidelines was to define how certification
would take place, basing them on the successfully executed guidelines for certification of
elimination for guinea worm.
  – The sentiment from WHO is that the program is too young to have a commitment to a formal
certification process.
  – This process should take place in another five or ten years.
  – ‘Provisional certification’ may be a concept compatible with the strategies being promoted by
WHO.
  – As for guinea worm certification of elimination, there is likely to be a recommendation for
external advisors to make some assessment and some detailed description of the history, and what
has been done for LF elimination.

**Final suggestions**
• Ask for recognition and acknowledgement of success made in T&T and SUR where transmission has
been interrupted.
• Ask for the details of the process to remove a country from the endemic list.
Social Mobilization and Communication

Dr. Guillermo Gonzálvez, Director General, Centro Nacional de Control de Enfermedades Tropicales (CENCET) Secretaría de Estado de Salud Pública y Asistencia Social, Santo Domingo, República Dominicana.

Dr. Gonzálvez gave an overview of issues and concepts of social mobilization and communication, two essential components of the PELF. These activities are part of the program’s information, education, and communication (IEC) strategy. He covered the basic objectives, foundations, and goals of the IEC strategy followed by more detail of the KAP survey results.

Primary objectives of IEC strategy

1) The primary objectives of the Program’s IEC strategy are:
   - Based on social contract with the community; and
   - Designed to promote the requisite levels of community awareness to eliminate LF.

2) These objectives:
   - Promote better daily care and a healthier environment for the affected population through the adoption of knowledge and practice;
   - Facilitate control of the disease; and
   - Reduce episodes of erysipelas or elephantiasis in the southeastern part of the country.

Foundations of the IEC

- Health promotion activities are based essentially on communication strategies with the capacity to:
  - Reach the target populations;
  - Transfer knowledge;
  - Instill levels of awareness; and
  - Change behaviors to make significant quality-of-life improvements.

- An effective communication strategy includes:
  - A built-in awareness of the environment in which it is to be implemented;
  - Awareness of the characteristics of social networks, and individual and group behaviors; and
  - Awareness of the basic values and traditions of each community.

- Community involvement and commitment are essential components for an effective IEC strategy.

- Consideration must be given to:
  - Community mobilization as a means of shaping its own destiny;
  - Principles of equity;
  - Concern for social co-responsibility;
  - The right of people to decent treatment;
    - Concern for self-perception/self-esteem of the individual;
    - Promotion of healthy living environments.
- Concern for Environmental protection;
- Focus on reducing social discrimination;
- Recognition of the value of human life;
- Focus on the development of life skills;
- Introduction of lifestyle improvements;
- Timely and reliable information;
- Focus on preventive health;
- Solidarity; and
- Focus on self-help and mutual help among neighbors.

Goals of IEC
• Acceptance and use of medication to prevent LF.
• Adoption of new behaviors based on hygiene practices to facilitate the control of LF, as well as the encourage the use of household resources available to infected individuals.

Target populations for IEC
Target populations can be considered primary, secondary and tertiary population groups as follows:
• Primary population: at-risk families;
• Secondary population: persons infected with LF; and
• Tertiary population: community leaders, grass roots and religious organizations, civil society and military institutions, NGOs, schools, and health workers.

Social mobilization and communication overview
• Social mobilization is linked to the level of commitment assumed by community organizations, local leaders, and institutions, such as schools and churches.
• These organizations/agencies can be innovative agents of integration with the potential to help transform community behaviors and to facilitate the adoption of health standards that are most in keeping with local circumstances.
• Social mobilization activities will be programmed in accordance with the results of the KAP survey.

Basic tenets of social mobilization are shown below in the figure Social Mobilization.

Summary of IEC strategy
• The target populations, the corresponding behaviors, factors activities and outlined in the table below, which summarizes the IEC strategy.

Procedures, methodology, expected results
• The procedures and methodology for the IEC component include:
  – Community census updating/completion; and
  – Mass screening.
Social mobilization

1. Information, Education, and Communication (IEC Strategy):

“The active participation of a community in negotiated actions for the purpose of identifying areas of interest and/or self-benefit.”

2. Projects involving the participation of community leaders and organizations.

3. Negotiation

• Expected results:
  – Audit of mass communications media;
  – Focus group-based qualitative study;
  – Information on practical knowledge, attitudes, and practices;
  – IEC strategic plan;
  – Strategic training plan; and
  – Strategic evaluation plan.

• There are three types of investigation to study the target population groups, including qualitative, quantitative and audit/s of resources (see chart, Types of Investigation).

• Each type of investigation for the IEC strategy has corresponding techniques.
  – Qualitative investigation techniques include observation, focus groups, in-depth interview, life history;
  – Quantitative techniques include KAP surveys.
<table>
<thead>
<tr>
<th>Type of investigation</th>
<th>Population</th>
<th>Techniques</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Qualitative</strong></td>
<td>People affected or at risk</td>
<td>Observation</td>
<td>Delve into behavior and reflective interpretation of health, lymphatic filariasis, and community action</td>
</tr>
<tr>
<td></td>
<td>Health workers</td>
<td>Focus groups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community leaders</td>
<td>In-depth interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Life history</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analysis of documents</td>
<td></td>
</tr>
<tr>
<td><strong>Quantitative</strong></td>
<td>Family</td>
<td>KAP survey</td>
<td>Prepare information on practical knowledge, attitudes, beliefs, and practices</td>
</tr>
<tr>
<td><strong>Audit of communications media</strong></td>
<td>Communications resources</td>
<td>Interviews</td>
<td>Develop a database to facilitate use of communications media to promote the IEC strategy</td>
</tr>
<tr>
<td></td>
<td>a) Mass media</td>
<td>Observations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Institutional</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Human</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The next chart shows the three target population groups and the corresponding behavior, factors and activities.

| Target Population groups and the corresponding behavior, factors and activities |
|---|---|---|---|
| **General population** | **The family** | **Health workers, community leaders, organizations, churches, institutions, social communicators, schools** | **Population living with lymphatic filariasis** |
| **Target Population** | **Behavior** | **Factors** | **Activities** |
| **The family** | **Acceptance of medication (albendazole) to prevent lymphatic filariasis** | **Information designed to promote a culture of prevention (attitudes and behaviors)** | **Community promotion** |
| **Population living with lymphatic filariasis** | **Accepting medication (albendazole) to prevent lymphatic filariasis** | **Strengthening of the concept of healthy living** | **Use of local communications resources** |
| | | **Environmental awareness** | **Mass media promotion (radio, TV, print media, flyers, etc.)** |
| | | | **Community activities** |
| | | | **Training in lymphatic filariasis knowledge and treatment** |
| | | | **Training in communications skills and resources** |
| | | | **Awareness** |
| | | | **Mass media promotion (radio, TV, print media, etc.)** |
| | | | **Training through the use of educational materials** |
| | | | **Use of local communications resources** |
| | | | **Community forums** |
| | | | **Support groups** |
| | | | **Mass media promotion** |
| | | | **Community forums** |
| | | | **Support groups** |
| | | | **Mass media promotion** |
General IEC of the diagnostic and exploratory IEC investigation

- Secure relevant data to facilitate planning, coordination, training, and implementation activities.
- Secure primary, basic information to support the global program.
- Develop a plan based on motivational and educational activities to facilitate a negotiated change of behaviors with respect to LF.
- The investigation aims to determine:
  - The environmental profile of the target population;
  - The most influential media;
  - The primary socio-cultural characteristics;
  - The predominant socioeconomic level;
  - Any influential social networks operating in the community; and
  - Knowledge, values, beliefs and behaviors representative of the population as well as attitudes and behaviors that can contribute to the program’s success.

Specific objectives

- To probe the attitudes and behaviors of the population with respect to LF.
- To obtain data on the target population’s social, cultural, and demographic characteristics.
- To identify factors that can contribute to the development of IEC strategies.
- To collect qualitative and quantitative data on the target population’s health knowledge and practices regarding LF.
- To identify general and community resources in the area of communications that could be used in the LF program.

Characteristics of interest for the “target” population groups

- Individual/family characteristics of interest include:
  - Social, demographic and economic characteristics;
  - Health practices;
  - Use of communications media; and
  - Knowledge, attitudes and practices.
- Community characteristics include:
  - Community media;
  - Mass media;
  - Institutional media;
  - Social community networks;
  - Educational media;
  - Socialization environments;
  - Expressive resources;
– Decision flows in social and community networks; and
– Community leadership.

Focus groups

• Focus groups were conducted in the DOR as part of the qualitative methods. Information collected reinforced the need for education and provided important insights to facilitate social mobilization and communication efforts.

• Highlights of the focus group findings are:
  – Lack of public knowledge about LF;
  – Scarcity of preventive attitudes or behaviors among respondents;
  – Little awareness with respect to acting on health realities;
  – Widespread perception of health system inefficiency;
  – History of cooperation among social networks of the southeast region of the DOR;
  – Community leadership is key to the development of preventive strategies;
  – Serious difficulties in terms of understanding or self-expression due to limited education and understanding of Spanish;
  – Important role of women for changing behavior and promoting health actions;
  – Fundamental role of religion in daily life; and
  – Poor access to health services as a function of economic factors.

KAP survey

As part of the IEC strategy for the DOR, a KAP survey was conducted.

• Survey of adults from selected urban and rural dwellings in the southeastern part of the country.

• Survey populations and samples were selected at random, based on proven statistical principles.

• The sample size was 540.

Sample demographic characteristics.

– Gender: 77.2% female, 22.8% male
– Median age: 42.1 years
– 90.2% have children
– Median number of children per family: 4.1
– Religion: 43.1% Catholic
– Marital status:
  – 36.7% consensual unions
  – 29.3% married
  – 18.0% single
– Educational status:
  - 35% had not completed primary school
  - 15% were illiterate
– Place of birth:
  - 94.4% born in the South
  - 48.1% born in rural areas
  - 49.3% always lived in current dwelling.

Community participation results.
– 57% reported the existence of some form of community organization.
– 35.6% directly participate in some community organization.

Home water treatment results.
– 39.6% of households add bleach.
– 23.5% do not treat their water.
– 45.7% of households are directly connected to public water mains.
– 33.5% get their water in 1-gallon plastic containers.
– 29.4% store water in 55-gallon tanks.

Sources of information and influence.
Extensive information was obtained on sources of information and influence in order to help guide the development of an effective IEC strategy plan. Family was the most important source of information and television was the most popular form of public media.

• Results for sources of information:
  – 20% reported that family is the most important source of information and influence.
  – 16.5% reported radio.
  – 10.2% reported television.
  – Vans equipped with bullhorns, as well as local radio stations, are important sources of local information.

• Results for influence of radio:
  – 57.6% report having a radio in the home.
  – Most of those surveyed report listening:
    - to the news several times a day,
    - in the home,
    - for more than three hours per day.

• Results of influence of television:
  – 75.4% of those surveyed report having a television in the home.
  – 81.3% report that they watch television.
  – Most reported:
- watching more than 3 hours per day,
- watching television in the home, and
- watching television news and soap operas most often.

• Results of influence offprint media:
  – 33.1% of those surveyed reported reading newspapers.
  – Most of those surveyed report:
    - reading infrequently,
    - a preference for news stories, and
    - reading the Listín Diario on a regular basis.

Knowledge of specific infectious diseases.
• More people reported knowledge of AIDS than the other diseases that were included (i.e., Dengue, Malaria, Leprosy, Hepatitis and AIDS).
• Close to 100% had knowledge of AIDS followed by 75% for dengue, 65% for hepatitis, 55% for malaria, and 45% for leprosy.
• The data suggest that the population is more likely to be aware of diseases that get more media attention, such as AIDS.

Knowledge of LF disease,
• The results indicate that close to 50% of men and 52% of women reported “hating” LF.

Source of knowledge.
• Most of those reporting knowledge of LF reported they received that knowledge from health promoters, suggesting that health promoters can be an important resource for disseminating health information.
  – 25.4% from health promoters;
  – 6.9% from discussions with a doctor; and
  – 5.9% from neighbors.

Knowledge of transmission.
• Results indicate some knowledge about how the disease is transmitted.
  – 39.9% report knowing how LF is transmitted.
  – 99% identified mosquitoes as the mode of transmission.

Beliefs about LF
• The results suggest less than half of the respondents believe they are likely to become infected.
  – 42% say they are very likely to become infected.
  – 34.8% believe they are unlikely to become infected.
    - most frequent reason (32%) given was they protect themselves against mosquitoes.
– 90.4% believe that all people are susceptible to the disease.

Attitudes regarding participation in mass screening.
– 93.9% of respondents reported that they were willing to take the recommended medication.
– 89.4% reported that they could speak with others about LF and how to prevent it

Recommendations for IEC strategy
• The recommendations based on the KAP survey results highlight communication, information needs and community involvement.
• The general recommendations are noted in figure, Recommendations.

Recommendations
• Develop a communications strategy based on alternative community media and mass media.
• Respond to the individual information needs of different population groups.
• Give preference to the development of visual messages.
• Develop IEC activities in conjunction with community networks and general social networks.

• Once the strategies have been developed the primary actions are taken.
• The primary actions include preparing materials, selecting communication modes, implementing campaign and evaluating the process. These are described in the figure, Primary Actions.

Primary Actions
• Select communication channels and materials;
• Prepare IEC (information, education, and communication) messages and information materials;
• Implement mass screening campaign;
• Evaluate the process; and
• Provide feedback to improve the program.
Regional Plan for Morbidity Control

Dr. Gerusa Dreyer, NGO Amaury Coutinho, Pernambuco, Brasil

Dr. Dreyer discussed moving forward with efforts to control LF morbidity in the Americas. She explained that her group has been involved with LF for the last 18 years and she has been actively involved in morbidity training control initiatives since 1986. The goal of the teaching activities has been to train physicians, nurses and health workers using manuals and videos and continually culling new knowledge from the literature.

She noted that it was fitting to be discussing efforts to move morbidity control forward in the Americas here in Haiti, as the first training course was conducted in Haiti in 1997 and the last course, before the PGR meeting, was also conducted in Haiti in June 2002. Dr. Dreyer reviewed the highlights of morbidity control and then briefly reviewed the various training initiatives that have taken place.

Highlights

- In the Americas, among the four endemic countries, 100% with >10 sites have lymphedema management programs and 75% with >3 sites have urogenital surgery programs.
- In 1997, WHO launched the two pillars of the PELF, specifically interrupting transmission and controlling morbidity.
- The two pillars have different characteristics and may also have different goals as outlined below.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Interrupting transmission</th>
<th>Morbidity control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration/Timeline</td>
<td>5 – 10 years (once per year)</td>
<td>Daily, lifelong (or once for surgery)</td>
</tr>
<tr>
<td>Target population</td>
<td>Community</td>
<td>Patients</td>
</tr>
<tr>
<td>Programmatic goal</td>
<td>Full drug coverage</td>
<td>Full treatment coverage or full access treatment?</td>
</tr>
</tbody>
</table>
• Following this, training was reorganized to deliver the most appropriate activities following the WHO recommendations for the PELF.

• The following activities outline how to move morbidity control forward in the Americas:
  – Build on the strengths and experience;
  – Set national and regional goals;
  – Build the program to meet the goals and objectives;
  – Conduct training activities;
  – Conduct mapping; and
  – Implement monitoring.

Morbidity control training initiatives

Pilot project in Haiti (1997)
• 1997 the pre-pilot was a lymphedema management program that was conducted in Haiti.
• Health workers and physicians attended the training course.
• Key issues:
  – Developing highly didactic materials for different levels.
  – Having appropriately translated material is crucial to be sure the material is being correctly delivered.
  – Appropriate translation requires time and attention.
• Highlight:
  – To determine if the TDR demonstration project was reproducible outside of Brazil.
  – The first international training course was launched in Haiti, which incorporated for the first time the ultrasound training as well as lymphedema management.
  – Three countries participated, the DR, Haiti and Tanzania.
• Key issue for lymphedema:
  – Importance of differential diagnosis.
• Highlight for lymphedema:
  – The first draft of the lymphedema manual.
  – The importance of a careful, comprehensive translation.
• Key issue for ultrasound:
  – The need to have a qualified person supervising the activities to ensure quality control.
• Highlight for ultrasound:
  – The benefits of a high quality, powerful ultrasound machine to aid in differential diagnosis and monitoring.
  – The importance of having a technician in charge who knows how to operate the machine and can effectively train others.
China, October, 1998

- A lymphedema management, urogenital disease and ultrasound training initiatives were conducted.
- This presented a challenge since LF transmission had been interrupted for the last 20 years. However, there were many patients having acute morbidity attacks and chyluria all over the previously endemic areas.
- 32 physicians were trained.
- Key issue:
  - Translation was a particular challenge. While it is important to have someone who understands the language, they must also understand and be aware of the subject in order to make ensure correct and successful translation
  - Importance of considering residual morbidity.

Recife, Brazil, 1999 Morbidity post chemotherapy.

- March 1999 one of the most important training initiatives took place, which covered morbidity post chemotherapy and physician’s attitudes toward morbidity treatment in the field.
- Key issue:
  - Problems associated with drug distribution versus chronic morbidity. For example. There were patients with lymphedema demanding antifilarial treatment and people with hydrocele refusing antifilarial treatment because they had previously received DEC and experienced no improvement
  - Conveying to physicians that mass treatment can be effective and, once the health system is prepared, adverse reactions do not present a problem.
- Highlight:
  - Good participation from the professional community.

Recife Brazil, August- November 1999, lymphedema management in the field.

- For the first time, a training initiative took place in the field in an effort to conduct a learning exercise about understanding and assessing the prevalence of lymphedema in an area where there is information on the MF prevalence.
- The significance of this initiative was working in the field as a team with the health worker, a nurse and a physician.
- 1,137 families were surveyed.
  - 39 patients identified with lymphedema of varying stages; most had stage II (33.3%), followed by stage I (28.2%) and stage III (15.4%); no one had stage VII.
- Key issue:
  - The severity of co-morbidity. Venous insufficiency presented as the most frequent co-morbidity.
  - Consideration for the needed infrastructure, particularly the necessary training and the additional cost of dealing the associated co-morbidity.
- Highlights:
  - Building feet washing stations provided a place where people who did not have access to water in their home could wash their feet.
– It is critical that the community know that you, as the representative of the system, are there to help them. “Help us to help you” was the successful motto of the program.

Development of international training center. Recife, Brazil, October 25th 1999:

• The idea evolved after the 1998-training course in China as an effort to find a less complicated, less demanding, and yet effective means to train health professionals.

• The University of Pernambuco in Brazil was chosen as they had an ongoing program in teaching, research and assistance.

• Initial financial support came from various sources.
  – WHO provided initial support in combination with the Japanese government for participant expenses and logistics (year 2000).
  – The NGO, Amaury Coutinho provided support with for developing and maintaining the infrastructure for the ongoing program.
  – Glaxo SmithKline provided support for consolidation efforts and developing teaching materials (2000, 2001).
  – Federal University of Pernambuco (UFPE) provided support to build the International Center Headquarters (ongoing).

• Subsequent financial support came from the following:
  – Health Development International,
  – FUNASA,
  – NGO Amaury Coutinho,
  – UFPE,
  – Prefectures of the cities of Recife and Maceió,
  – Notre Dame University,
  – Interchurch Medical Assistance (IMA), and
  – CDC.

Recife, Brazil, October 30th, 1999. National consolidation event.

• A one-day, national consolidation event was conducted on lymphedema management and urogenital disease.

• 253 physicians attended.

• Key issue:
  – Lack of continuity work with filariasis after training

• Highlight:
  – The unexpected high number of physicians attending the event.
  – Good participation on the discussion.
Recife, Brazil, May 2000.
• Training was conducted on lymphedema management and urogenital disease.
• 18 participants from 10 countries attended.
• Key issue:
  – The desire for more basic information and current knowledge on physiology, histology, and biochemistry of the lymphatic system and skin.
• Highlight:
  – The commitment to the effort expressed by all the participants.
• An international training center should have:
  – Adequate physical infrastructure;
  – A clean, large space for training;
  – Well trained, involved staff, preferably international in composition; and,
  – An on-going program.

• The training included also diagnosis of filarial infection and antifilarial treatment.
• 30 Brazilians participated.
• Key issues:
  – To identify a surgeon with interest and to sustain their participation.
  – Lack of follow up: adequate follow up is very important to any morbidity control effort.

Pondicherry, India February 2001. Lymphedema management and urogenital disease.
• Done in collaboration with the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER).
• Twenty-eight participants from eight countries.
• Key issues:
  – The problems that arise if there is no on-going program.
  – The size of the problem.
• Highlights:
  – Patient motivation to learn is a tremendous motivator for the trainers.
  – Participant’s partnerships with each other

Dominican Republic (DR), May 2001. Hydrocelectomy and ultrasound:
• 23 participants from 2 countries.
• The initial histopathology component was introduced along with the expressed need for a social and psychological component.
Key issues:
- The patient’s education.
- The disease severity.
- The most frequent co-morbidity was hernia. The appropriate medical attention and the associated costs should be part of the discussion on implementation of the morbidity program.

Highlights:
- The importance of country organization and availability of needed resources.
- The high level of infrastructure.
- The commitment of the staff involved.
- The need to introduce a social component and to attempt to improve the management of lymphedema with more “low tech” efforts in order to reach a greater number of patients.

Recife, Brazil, July 2001. Lymphedema management and urogenital disease.
- 9 participants from 3 countries.

Key issue:
- The importance of learning how to conduct a practical and thorough patient examination.
- The need for training and retraining in this.

Highlights:
- Introduction of the social component.
- The importance of differential diagnosis.
- A recommendation was made that several ultrasound machines should be available for testing in order to help countries select the most appropriate one for their situation.

Maceió, Brazil Nov 2001. Lymphedema management.
- 25 participants from Maceió and Belém, Brazil.

Key issues:
- The importance of the presentation of co-morbidity, particularly venous insufficiency.

Highlights:
- Education kit developed and distributed to the patients.
- Consideration for additional training sessions.

Recife, Brazil April 2002. Training for urogenital program implementation.
- One participant from the DR.

The course included:
- Training in surgical techniques;
- Developing treatment protocols, including informed consent and protocol issues for DEC treatment; and
- Training in the use of ultrasound.
Recife, Brazil, April 2002, First international training course on ultrasound.

- Eight participants from five countries.
- **Key issues:**
  - The interest and development of didactic materials.
- **Highlights:**
  - The request for more educational information and didactic materials.
  - Reconstructive surgery was incorporated into the training.
  - Participation of a translator from the CDC to translate the patient’s statements given in Portuguese into English.
  - The general interest of the participants about lymphedema management.


- Twenty-two participants from two countries.
- **Key issues:**
  - Maintaining the focus.
  - Sustaining the program.
- **Highlights:**
  - A very high participant commitment.
  - The existing technical expertise in place.
  - Implementation of a pathology component.

### Additional courses

- Between 1998 and February 2002, an additional 10 courses were carried out by Aggeu Magalhães Research Center in Brazil for Brazilian health workers and physicians.
- The training followed the Filariasis Elimination Program approach
- 226 people working in Greater Recife were trained.
- Most were trained for transmission interruption.

### Didactic material available

- Didactic material is available in different languages, including:
  - Patient’s education booklet,
  - Videos,
  - Lymphedema management book, and
  - Education materials that are country specific.
Conclusions

- There is strong patient and participant commitment.
- Consideration of how to deal with the associated co-morbidity is crucial.
- There is strong interest in basic education and updated information from the courses participants.
- The Americas has a tremendous level of available expertise.
- Haiti has a successful, complete morbidity control program and is leading the morbidity control effort in the Americas.
- Haiti’s success in morbidity control is followed by the morbidity control success of the Dominican Republic and Brazil.
- One key issue for any country is how to keep focus on morbidity control when the country has other diseases to deal with. For example, how the government will make a choice between malaria, dengue, AIDS and filariasis?
- Another special key issue is how to assure sustainability of the implemented program(s).
Day 2: Group Presentations

Chairman: Dr. Samuel Rawlins, Scientist (Vector-Borne Diseases), Caribbean Epidemiology Center (CAREC), Port-of-Spain, Trinidad
Rapporteur: Dr. Steven Ault, PAHO/WHO Representation, Brasilia, Brazil

Group 1: Monitoring and evaluation

Chairman: Dr. Robin Houston, Consultant, Montana, USA
Rapporteur: Dr. Adriana Troyo, Instructor, Department of Parasitology and Microbiology, University of Costa Rica, San José, Costa Rica

Dr. Houston and Dr. Troyo reviewed the group discussion on monitoring and evaluation.

Discussion points

Ranking risk areas.
- Whether a combination of factors could be used to rank areas in the country as high and low risk areas?
- Ranking could be based, on prevalence, as well as a number of other important factors that indicate risk.
- Whether ranking on a number of factors should enter into the sentinel site selection?

Use of spot-check sites and mobile sites.
- Spot sites are really designed to provide confidence that what is going on in the sentinel site is a true reflection of what is going on in other parts of the country.
- Spot sites are really a management tool, rather than a means to provide more concrete data.
- If used, spot sites should be a selection of diverse areas, not just one similar to the fixed sites.
- Spot sites may include stable and unstable areas. They can also be areas where it is less clear what is going on in terms of LF prevalence.
- Spot sites may help with population mobility issues by providing an opportunity for checking in areas where there is cross-border or urban migration.

Surveillance.
- The use of passive or background surveillance, including incorporation of LF indicators into national surveillance systems.
- The use of alternative surveillance mechanisms, such as clinics or physicians that have been used for other programs.

Coverage.
- The current manual does not include much discussion about coverage for DEC-salt programs.
- The terminology used in describing coverage is confusing. There are several terms used for coverage:
  - observed coverage and
  - reported coverage.
• The definitions of the numerator and denominators used to determine coverage need clarification.
  – Does the numerator include only those observed to take the pill (those observed to be dosed), or the number of pills that are left with the family and not necessarily observed to be taken?
  – Does the denominator include the total population or only the eligible population?
• The census data often have errors and can introduce error into the coverage estimation.
• In an MDA program, coverage should reflect distribution.
• The need for developing sampling methods for assessing coverage of the DEC-salt programs.
• The importance of clarifying whether coverage refers to areas in which the program has been implemented or whether coverage also includes some estimate of how much coverage is needed for the endemic areas in the country.
• The importance of applying multiple, independent techniques to assess coverage. CDC has done work comparing cluster surveys, school based surveys and distribution based surveys.
• The need for developing tested assessment options for program managers.
• The need to review the PAHO reporting format, as the consensus is that the current format is difficult to use.
• The use of modeling programs for developing a time frame for how and when the program is likely to achieve elimination based on coverage estimates.

Sentinel sites and baseline data collection.
• The need for clarification on the use and selection of the sentinel and mobile (or spot) sites.
• Selection of sentinel sites.
  – Whether sentinel sites, as described in the current program managers’ manual, are really able to capture and reflect what is the true picture in the country.
  – Limitations of initial mapping.
  – While the program managers’ manual provides guidelines, they must be adapted at the local level for the number and location of the chosen sites.
  – The group emphasized that sentinel sites should provide a mechanism for program monitoring through observation of various indicators in a controlled environment.
  – Consider alternative criteria beyond prevalence and mapping to select sentinel sites.
  – Consider the relevance of sentinel site selection with regard to border issues and population movement.
• Choosing sampling methods with regard to accuracy.
• The need for surveillance of low prevalence areas that my not be covered by the program.
• The use of the new ICT cards and related costs.

Costs.
• It was pointed out that some of these costs are not necessarily financial, but are “costs” in terms of time requirement for the human resources needed.
• Consider the value of bringing in other institutions to supply the personnel needed. This could include universities where there are medical students or other students who are learning about monitoring and evaluation.
• Consider the cost related to establishing sentinel sites and maintaining them and the different costs related to different methods of coverage determination.

• Cost restrictions could have an impact on the accuracy of data or on the ability to collect accurate data.

Summary of group discussion

Verification of the absence of infection.

• COS and Brazil have conducted surveys to establish the absence of infection.

• SUR and T&T have no documented infections.

• The three steps for verification of absence of infection are outlined below.

Recognition of success.

• Suriname and T&T have conducted surveys and have surveillance data that suggest that LF has been eliminated.

• It is important for political reasons to recognize this success.

• There is no established certification procedure for this.

• The regional PRG should:
  – Acknowledge the success of these programs;
  – Petition WHO to have SUR and T&T removed from the list of endemic countries; and
  – Recommend continued surveillance for new cases.

Current program manager’s guidelines.

• The adequacy of the current program manager’s guidelines was questioned.

• The issues highlighted are summarized below.

- Stage 1—Implementation Unit—distinct foci within countries will reach program end points (e.g. Bahia)

- Stage 2—Country-specific—success, but country may be at risk of re-introduction from neighboring countries (Provisional certification/Verification of program success)

- Stage 3—Regional Elimination=Certification)
Final summary points
The summary points that were highlighted are indicated below.

• ICT test is our best tool to demonstrate the absence of infection
  – An algorithm has been developed to guide follow up of positive card tests
• Current tools are not adequate to document the absence of transmission
• Research is needed
  – PCR
  – Antibody assays

Discussion following presentation

Question 1
• Could this working group elaborate on the specific recommendations and how the group made these recommendations?
  – Clarify for example, when and how would these things occur or what is the mechanism by which these recommendations will be incorporated into the PELF?
  – Will this sub-committee that was designated to work on M&E make specific recommendations to WHO so they can be incorporated into the next version of the program managers guidelines?
  – How does the group envision that these recommendations are going to be incorporated into the next version of the program manager's manual and guidelines?
  – Do you have a sense of timing?

Response to question 1.
• One goal of the group working on this is to conduct needs assessments in a number of countries and then have sub-committees within our group write the results and recommendations over the next three months.

Question 2
• Is there any consistency in terms of coverage and what is happening with areas that have both onchocerciasis and LF programs in Africa?
  – For example, in the Americas there is different coverage for these two diseases in terms of eligible population. In the case of LF, we speak about the at risk population.
  – The question is what is the difference in Africa and is this bound to cause confusion?
  – There may not be confusion in the Americas because the only country that has the two programs is Brazil, and the programs are not in the same area. So the question is whether there is communication between the two groups and clarification of the criteria and consistency for definition between thee two program groups.

Response to question 2.
• It is not clear what lines of communication are currently in place, but clearly it is important to consider.
Call to action: It is an excellent point and it seems one of things being suggested is to establish a line of communication so that definitions can be more unified. In other programs there has been a precedent of reporting coverage in different ways with the guidelines stating what each mean.

**Question 3**

- Could the PAHO annual reporting format be simplified or made a little bit easier?

**Response to question 3**

- It is true that the forms are not clear as to where some pieces of information should go, so the idea is to develop an instruction sheet to accompany the form.
- There are plans for PAHO to work closely with each of the regional programs on how to use the format.
- There are several important parameters:
  - Testing;
  - Reporting format; and
  - Reappplication process for next year for those countries that already submitted the form.
- The PAHO focal points in each country are there to provide assistance with the reporting format.
- This is the first time that most of the PAHO focal points are present at the regional program meeting. This will also help us to incorporate some of the information and relay it back to you in the countries.
- In addition, everyone was encouraged to communicate any doubts they have and could do so by calling Dr. Ehrenberg.
- While the form looks cumbersome, it is important to use it correctly. It is something that needs to be done in order to provide a complete picture of what is going on.

Dr Troyo reviewed discussion points on verification of the absence of infection.

**Verification of absence of infection**

- MF and ICT test card surveys have been used to verify the absence of infection.
- Surveys still need to be conducted in COS and Brazil.
- An important question is “are the current programmatic guidelines adequate?”
  - Not all agree with the conclusions that the ICT test is in fact the best tool to demonstrate the absence of infection.
  - The other tools that are being used are also not adequate to document this absence of transmission.
- A new tool has been developed to guide the follow up of any positive individuals identified with the ICT card test.
  - One of these is the PCR.
  - Continued research is underway.
- The process of verification of absence of infection should begin in the implementation units of each country in order to reach the distant foci.
• Politically, it is important to recognize that verification of absence of infection has been achieved in SUR and T&T.

• There is no current certification procedure for verification of absence of infection.

• The suggestion is that the regional program directors acknowledge the success of these countries and petition WHO to remove them from the list of endemic countries.

**Summary and recommendations**

• In countries that have data indicating the absence of infection, surveillance should be continued in order to identify possible new LF cases due to re-introduction from neighboring countries.

• A process for certification is needed.

• The regional program directors can provide direction to WHO in the development of certification guidelines.

• Research is needed to evaluate and validate the epidemiologic surveillance tools such as PCR, which may provide a direct measure of transmission instead of infection, as is the case with ICT cards.

**Follow-up discussion and summary of presentation**

• If only treatment access is provided, it may be difficult to determine how many people are actually receiving treatment. Community health work may be able to provide more accurate data.

• It seems that most countries have some overlap of the two treatment models.

• Morbidity management in Guyana is an integrated service within the current health services system.

**Guyana**

• The model is mainly a community-based access to treatment model with a focus on training health workers in accurate diagnosis.

• As this model also benefits people that do not have disease, it is difficult to determine the proper denominator for program monitoring.

• There is the need for more detailed data collection on morbidity management and more detailed monitoring of the surgical procedures used.

• One of the key challenges for Guyana is to train local surgeons in the proper surgical procedures.

**Dominican Republic**

• In the DOR there is a universal treatment model, which enables identification of each morbidity case with subsequent treatment.

• A model system has been tried in one region.
  
  – Specifically, any person who is suspected of having some associated morbidity is referred to further assessment for hydrocele or lymphedema treatment.
  
  – There is a referral center, which has various facilities to manage complicated cases.
  
  – However, this is quite labor intensive in terms of finding all the cases for treatment.
  
  – Initially, the questionnaire format was used to identify cases of hydrocele. However, only mild
cases were identified. Once the surgical procedures were available 14 cases presented, highlighting the difficulties in detection.

**Haiti**
- Haiti currently has an access to treatment model, but maybe moving towards a more community-based approach. They have very active support groups and five active clinics nationwide.
- There is good clinic based data collection, but there is still a need for community-based data collection efforts.
- While there is a good treatment model in place for hydrocele, there is still a need to train more surgeons in the procedures.
- Some of the country’s surgeons have already been trained in Recife. This group of physicians has already treated 100 patients.

**Brazil**
- There are very good services in place for treatment of hydrocele.
- Brazil has a wealth of experience to offer the other countries that are initiating morbidity programs.
- Despite all this experience and existing infrastructure, Dr. Dreyer noted that they still had an access to treatment model.
- Although universal treatment remains ideal, there are many difficulties with accurately accessing the denominator. Universal treatment also requires a tremendous program commitment.
- It is important to recognize that the access to treatment model in Brazil is working well.
- The core of the process is training the physicians, health care workers and patients.
- Dr. Dreyer emphasized the importance of establishing services that are easy to access.

**Summary of country goals**
- The objective for the morbidity control-work group was to identify the goals for each country, the needs each program has to achieve these goals, and to establish the appropriate indicators of monitoring.
- Summary of each country are as follows
  - DOR: Identify and evaluate all morbidity patients in the census with the goal of self-treatment for 50% of the patients.
  - Haiti: Establish services and clinics nationwide and collect accurate data on every patient receives treatment.
  - Guyana: Develop morbidity control and monitoring curricula, train more health workers, and establish treatment clinics.

**Needs to achieve these goals**
- While there was not enough time to discuss the needs to achieve these goals, it is clear that training and access to financial resources are vital.
Indicators for monitoring

- It was felt that it is more difficult to monitor the access to treatment model as it is hard to accurately determine the starting point and the true magnitude of the problem.
- There is concern about who will collect the data and whether they are able to accurately assess the patients.
- The group felt it is difficult to accurately monitor the impact of training.
- During the next several months, members will continue discussions with the goal of developing national plans.
Group 2: Social Mobilization and Communication

Chairman: Dr. Guillermo González Director General, Centro Nacional de Control de Enfermedades Tropicales (CENCET), Secretaría de Estado de Salud Pública y Asistencia Social, Santo Domingo, Dominican Republic.

Rapporteur: Dr. Celia Riera, PAHO/WHO Representation, Santo Domingo, Dominican Republic.

Dr. Riera summarized the group discussion on social mobilization and communication in terms of situational analysis and need by country. She concluded with final recommendations. The group consisted of 14 members.

Discussion points
• Situational analysis by country.
• Needs by country.
• Final recommendations.

Situational analysis by country

Haiti
• Social mobilization is important to guarantee mass treatment.
• Social mobilization and communication are necessary to ensure that the population is educated and knows about the disease and its treatment.
• Social mobilization will help identify target groups to facilitate the development of appropriate educational messages and intervention strategies.

Costa Rica
• Officials at the Ministries of Health and Education were informed about the implementation of the antigenemia survey in Puerto Limón.
• In the past, LF has not been considered an important problem in the country and has not been given priority. It has received little attention.

Guyana
• The KAP survey was conducted.
• The services of two social communications specialist have been retained during the last two years.
• Some educational messages and media spots have been prepared with the support of the consultants.

Trinidad and Tobago
• There is a group actively working on social mobilization issues.
• Since LF is not a health priority in the country, the government believes that efforts in the area of LF should be limited to developing communication strategies for health workers.
• For this reason, raising awareness among the authorities is needed to secure greater political commitment.
Brazil
• Due to the magnitude of the problem, the metropolitan region of Recife will receive the greatest investment.
• The plan for Recife includes education and communication as one of its five components. This component includes:
  – Education for community workers;
  – Training for special action groups such as health educators;
  – The preparation of educational materials; and
  – The participation of organized community groups (popular theater, pastoral health office).
• Recife needs to base its intervention strategy on social mobilization and communication, especially in light of the interest in MDA and/or the DEC-salt fortification strategies.
• There is resistance to the MDA plan and the use of albendazole due to concern over potential toxicity among pregnant women and the effect on the fetus.

Dominican Republic
• Activities involving observation and negotiation with social networks were undertaken.
• Focus groups and KAP surveys were carried out in areas endemic for LF.
• The products of these activities were used to develop a communication plan and a communication strategy based on alternative media as well as mass media.
• An evaluation of the impact of these activities is currently under way.

Social mobilization and communication situational analysis summary
• It was felt that mass communication has been more developed than social mobilization, which is still a new phenomenon.
• There is some confusion over how to differentiate the two components.
• Human resources have been trained in IEC, but technical assistance in social mobilization is needed.
• The collaborating center in Liverpool has offered to assist several countries in developing their expertise.
• Given the situational diagnosis, a decision was made to classify needs under two groups of countries:
  – Those with active transmission (Guyana, Haiti, Brazil, and the DOR); and
  – Those in the process of verifying elimination of the disease (Costa Rica, Trinidad and Tobago, Suriname).

Needs by country
This was presented for each country, first for those that were part of the active transmission group and those who were in the process of verifying elimination.
Countries with active Transmission

**Dominican Republic**
- The human, financial, and material resources necessary to develop and implement population studies, and communication, intervention and evaluation strategies.
- Training in the development of social mobilization and communication.

**Haiti**
- Technical assistance with development of social mobilization strategies.
- Financial assistance to implement the strategies.

**Guyana**
- Assistance with the development and implementation of the social mobilization component.
- Assistance with evaluation of the IEC campaign.

**Brazil**
- Financial resources for large-scale reproduction of the materials already produced.

Countries in the process of verifying elimination

**Costa Rica**
- Continue awareness-raising activities with schools and parents aimed at obtaining consent for the Ag and morbidity survey; the latter requires involving the primary care units.
- Financial resources for equipment, mobilization activities, and software for developing information and data management systems.
- Resources to conduct data analysis and application.

**Trinidad and Tobago**
- Morbidity assessment activities, which based on a program strategy decision, are limited to communication activities with health workers.

Recommendations
- Define the sectors and institutions in each country that will participate in the social mobilization strategies. These include the education sector, the environmental sector and organized community groups.
- Coordinate with existing groups in the countries to address other health problems (e.g., dengue, malaria, etc.).
- Conduct an inventory in each country of the educational materials produced and send them to PAHO Headquarters in Washington for dissemination.
- Send validated evaluations of the materials produced.
- Conduct an inventory of human resources in the countries that have been working in this area. This will provide information to create an inventory of human resources and expertise available to support the countries.
• In each country, study the mobilization and mass communication activities of other programs to analyze the possible integration of filariasis activities to prevent duplication of efforts and resources.
  – Prepare a guide for this area that can be adapted to each country. It is important to point out that this will require financial resources.
  – Turn to the WHO for the mobilization of resources to support the implementation of the guide.
• Promote the preparation of a project for technical cooperation among countries to carry out activities and share experiences.
Group 3: Regional Plan for Morbidity Control

Chairman: Dr. David Addiss, Medical Epidemiologist, Centers for Disease Control and Prevention, Division of Parasitic Diseases, Atlanta, Georgia, USA

Rapporteur: Dr. Tess McPherson, Dermatologist, Ministry of Health, PAHO/WHO Representative, Georgetown, Guyana

Dr. McPherson reviewed the group’s discussion on moving morbidity control forward in the Americas.

Goals of morbidity control

Universal Treatment
- Provide care to all people with lymphedema.
- Provide proper surgery to all men with hydrocele.

Universal Access
- Provide access to care for all people with lymphedema.
- Provide access to surgery for all men with hydrocele.
- Access implies that the facilities, training, patient education and resources are available.

Goal of mapping

Universal treatment.
- Identify all cases.
- Determine a fairly precise “denominator”.

Access to treatment
- A general idea of magnitude and geographic distribution of the cases is needed.
- Precise denominator not required.

Methods of mapping

Mapping can consist of active house-to-house surveys or more passive action through the use of existing information as outlined in the figure, Method of Mapping or Initial Assessment.

<table>
<thead>
<tr>
<th>Method of “Mapping” or Initial Assessment</th>
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<tbody>
<tr>
<td>• House-to-house surveys</td>
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<tr>
<td>– Stage</td>
</tr>
<tr>
<td>– Active, intense</td>
</tr>
<tr>
<td>– Subsequent financial planning easier</td>
</tr>
<tr>
<td>• Existing information, key informants</td>
</tr>
<tr>
<td>– More passive</td>
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<tr>
<td>– Subsequent financial planning harder</td>
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</table>
Process indicators
• Process indicators for program mapping for lymphedema are considered in terms of the two primary treatment goals, universal treatment and universal access.
• The primary difference is in the calculation of patients receiving appropriate treatment.
  – For universal treatment, the percent of patients receiving appropriate treatment is the key indicator.
  – For universal access, the number of patients receiving appropriate treatment is the key indicator.
• The process indicators for universal treatment and universal access are indicated in figures below Process Indicators for Program Monitoring Lymphedema. One addresses universal treatment and the other access to treatment.

Universal treatment

“Process” Indicators for Program Monitoring Lymphedema

Universal treatment
– Percentage of patients receiving appropriate treatment*
– Number of health workers trained
– Number of sites established
– Others

* By age, gender, stage, etc.

Universal Access

“Process” Indicators for Program Monitoring Lymphedema

Access to treatment
– Number of patients receiving appropriate treatment*
– Percentage of community members, health workers aware of treatment and how to access it
– Number of health workers trained
– Number of sites established
– Others

* By age, gender, stage, etc.
Country summaries
The status of morbidity control activities was summarized for each country according to activities directed against lymphedema and/or hydrocele as appropriate for the respective country.

DOR:
Lymphedema
- Universal treatment model in progress.
- Case detection as part of the pre-MDA census.
- Reference center (Dermatological Institute).
  - Complicated cases.

Hydrocele
- Universal Treatment Model – in progress.
- Case detection part of pre-MDA census.
  - Lack of sensitivity for hydrocele using questionnaire and photographs.
- Reference center – Barahona.

Haiti
Lymphedema
- Access model.
- Currently clinic-based, moving towards more community based programs as well.
  - Use of support groups.
- Main reference center is Léogane.
  - Milot in the north another reference center.
- Expanding to national level.
- Clinic-based data collection.

Hydrocele
- Access model.
- Reference center is Léogane
  - 100 patients operated on, 405 cases enrolled.
  - Surgeons from elsewhere being trained.

Guyana
Lymphedema
- Access to treatment model.
- Focus on training.
- Integrated with health services.
- Community management.
  - Prevention.
– Challenge of program monitoring.
• Problems of assessment.

**Hydrocele**

• Access to treatment model.
• Needs
  – Data collection.
  – Training and information.
• Challenges
  – High percentage of international surgeons.
  – High turnover.

**Brazil**

**Lymphedema**

• 15 Years experience.
• Access to treatment model.
• Universal treatment remains ideal.
  – Difficulty with assessing denominator
  – Program commitment
• Training is core of process.
• Empowerment of patient essential element.
• ‘Help us to help you’.

**Hydrocele**

• Access to treatment model.
• International center for training.

**Steps toward a strategic morbidity plan for the Americas**

The specific steps toward moving morbidity control forward are:

• Define goals;
• Define needs to achieve goals;
• Identify appropriate indicators for monitoring; and
• Be flexible – review and modify as needed.
**Country specific goals**
- The group discussed specific morbidity control goals for the DOR, Haiti, Guyana and Brazil.
- The country specific goals are outlined below in the figures *Country Goals*.

<table>
<thead>
<tr>
<th>Country Goals: Dominican Republic and Haiti</th>
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<tbody>
<tr>
<td>Dominican Republic</td>
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<tr>
<td>- Aims to identify and evaluate all morbidity in pre MDA phase</td>
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<tr>
<td>- 50% of lymphedema patients self treatment</td>
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<tr>
<td>Haiti</td>
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<tr>
<td>- Establish clinics nationwide</td>
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<tr>
<td>- Data on all patients treated</td>
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<table>
<thead>
<tr>
<th>Country Goals: Guyana and Brazil</th>
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<tbody>
<tr>
<td>Guyana</td>
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<tr>
<td>- Establish two further clinics</td>
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<tr>
<td>- Community training of health workers</td>
</tr>
<tr>
<td>- Curricula</td>
</tr>
<tr>
<td>Brazil</td>
</tr>
<tr>
<td>- Continue current services</td>
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</table>

**Needs**
- Training.
- Financial resources.

**Monitoring issues**
- Access to treatment model.
- Community level care.
- Impact of training.

**Overall summary**
- Initial discussions to be continued.
- National and Regional plans to be developed.
Group Discussions: Summary

Dr. Steven Ault summarized comments and questions of the discussions following group 1, 2 and 3 presentations.

Group 1A. Monitoring and Evaluation (Presenter: Dr. Robin Houston)

Question 1
- How will this group’s recommendations get incorporated into the revised Program Managers Guidelines?

Response to question 1
- The Atlanta group (CDC and Emory University) will present these recommendations to the TAG, perhaps by the end of the year.

Question 2
- Why does the definition of coverage differ between the LF program and the onchocerciasis program, and how can these definitions become more unified? The Atlanta group is discussing this issue now.

Response to question 2
- It was recommended that WHO simplify the Annual Planning Guide and the Annual Report.
- Dr. Ehrenberg emphasized that the details were necessary for global programming purposes and apologized for the complexity.
- Regarding sampling issues, it was mentioned that school samples can be made to approximate cluster samples if you randomly select the schools and the students to be tested within each school.

Question 3
- Is the ICT card a better indicator than the microfilaria prevalence and density indicators?

Response to question 2
- The MF indicators are important and the ICT cards can supplement the MF indicators.

Group 1B. Verification of Absence of Infection (Presenter: Dr. Adriana Troyo)

Comments
- The comment was made that we need to learn how to use the ICT cards effectively during the treatment phase and after transmission has stopped.
- Suriname and Trinidad and Tobago need some type of acknowledgement for the efforts they have made, which indicate transmission may have stopped.
- This acknowledgement is politically necessary to ensure that governments continue to prevent re-infection (re-establishment of transmission) and continue the morbidity control program.
• The Regional PRG should recognize their work and ask if they can be removed from the WHO list of endemic countries.

• Dr. Ehrenberg commented that the latter request is difficult. He suggested that the each country directly ask how this can be done.

• Dr. Addis commented that China has developed its own internal model for verification of elimination of transmission, and that this might be a useful model for our Region.

• Dr. Ehrenberg suggested that the region should take a look at what lessons we can learn from the dracunculiasis elimination process (and even from the onchocerciasis program).

• A comment was made that WHO and the TAG thought it is too early in time to develop a finalized certification process.

• Dr. Sergio, of the WHO, noted that in Geneva they are now speaking of verification of elimination (of transmission) instead of certification of elimination.

Group 2. Social Mobilization and Communication (Presenter: Dr. Celia Riera)

Comments
• Educational materials already developed in the Region should be sent to Dr. Ehrenberg and distributed to all interested parties.

• The Liverpool Support Centre representative clarified that Liverpool will continue to support work on social mobilization and communication, as will WHO Geneva.

• The Brazil representatives described their social mobilization and communication efforts, information which is now incorporated into the final version of this group’s presentation.

Group 3. Regional Plan for Morbidity Control (Presenter: Dr. Tess McPherson)

Question 1
• Which is the best model, universal treatment or access to treatment?

Response to question 1
• Dr. McPherson responded that the group thought that the universal treatment model is the ideal, but cannot always be implemented due to resource constraints.

• Brazil has successfully used the access to treatment model for 11 years.

Question 2
• How to cover universal cost of treatment services?

Response to question 2
• The question of who covers the cost of universal treatment services was not discussed in the group.

• The countries will continue development of their national goals for morbidity control; these may appear in the 2004 national plans if they are not presently there.
• It was noted that it is possible to do quality control for this component, but the details were not discussed.

**Question 3**
• How long will the morbidity component have to be continued beyond the interruption of transmission?

**Response to question 3**
• Dr. Dreyer responded that the examples of Japan and China are instructive.
  – Japan achieved interruption of transmission 15 years ago, but still faces morbidity problems (i.e., chyluria and hydrocele).
  – China interrupted transmission 20 years ago, but still has patients with acute attacks, lymphedema and chyluria.
• Additional comments by Dr. Dreyer:
  • Lymphedema, chyluria and hydrocele are NOT transmissible diseases, and therefore, it is difficult to fit them into the standard public health models.
  • The continued importance of advising health workers remains: what they can do to help morbidity control and the importance of educating patients and empowering them about what the patients can do and where they can obtain treatment.

**Question 4**
• What are the approximate costs of treatment of lymphedema and hydrocele in the hospital and in the community care mode? This information is important for Program Managers to prepare their budgets.

**Response to question 4**
• The group did not discuss the issue, but it is known that the universal treatment model is more expensive than the access to care model.
• This information should also be included in the annual action plans.
Healthmapper Update and Demonstration

Ms. Erika Garcia, HCP/HCT, PAHO/WHO
Washington, D.C. USA

Dr. Garcia is primarily responsible for epidemiological information and is a focal point for the Americas. She gave a brief summary presentation on health mapping.

Overview
• Global information system (GIS) has been used by many countries throughout the global LF elimination program.
• WHO has a full team dedicated to the development of this software.
• Health mapping in the Americas is in its beginning stages.
• One workshop was held in the DOR and there is likely to be another one for the participants from Guyana, SUR, and T&T.

Highlights of software
• Through the software, you go to the Americas and select the country you would like to analyze and create a country-specific map.
• There are many ways to manipulate the map on the screen.
• There is a zoom feature to view a map more closely
• The most important feature is the administrative level, which refers to provinces or states.
• Geographic information such as parks and mountains can be added.
• Plots can be made of villages, health centers, and schools.
• The information is put into the system through a digitized file that each country must develop. It must be in an electronic format and then can be imported into HealthMapper.
  – Data can be imported from a file or map information data.
  – Data points from the global positioning system (GPS) can also be imported into the mapper software.
• Information including rivers, streets, roads, parks, mountains, villages, etc. needs to be imported from an Arc View or Map Info file. You can also use GPS data to plot sites, for instance, a school or clinic. These types of data points are also imported using the GPS system.
• With respect to health indicators data, there are two ways to visualize them on a map.
  – One way is to manually create forms within HealthMapper by inputting data. All data are managed using the HealthMapper Data Manager.
  – The second way is to import data from an external source, such as Excel, Access or Epi Info.
• An indicator allows you to store disease data for different countries so that you can view the disease distribution across countries.
• The “Overlay Indicator” option opens up the database inside HealthMapper. There is a hierarchical structure or data organization built into the software for easy retrieval.
  – For instance, if data are collected and entered by age groups, it is possible to view data for all or specific age groups.
• This software shows how data are aggregated and inquires what geographic level is applicable. Examples of applicable geographic levels include the whole country or the village.
• To put view data on a map, the source of the data must be specified. Sometimes the data can come from different sources but have the same attributes. You can select which data source you want to view, such as data from the Ministry of Health, or from the WHO data bank.
• The layers of a map and data ranges can be manipulated. Constant changes are being implemented by the HealthMapper Team in Geneva.
DAY 3: Welcome

Dr. Jack Guy Lafontant, Director General, Hospital Saint Croix, Port-au-Prince, Haiti

Dr. Marie Denise Milord
Chief, Nation Program for the Elimination of LF
Directrice de la Section Recherche
Hospital Saint Croix, Port-au-Prince, Haiti

Mayor Octela
Mayor of Léogane, Haiti

Opening

Dr. Jack Guy Lafontant
Director General, Hospital Saint Croix

Dr. Lafontant began the welcoming ceremony for day 3. He welcomed everyone to Léogane and then gave a brief introduction about Léogane and the Hospital Saint Croix, the institution hosting the group on day 3. He concluded his section by introducing the Mayor of the city of Léogane, Mayor Octela.

Overview of Léogane

- Léogane is a county of Haiti.
- It is about 657-square kilometers with a population of about 125,000.
- Léogane is a sportive and cultural city like Paris and Rio.
- Léogane is the capital of the local carnival.

Overview of Hospital Saint Croix

- Hospital St Croix is the main institution in the area.
- It is not an NGO, but is considered a mixed institution by MOH terminology.
- The institution is run by the Episcopal Church of Haiti, but works with different denominations, including Catholics, Presbyterian and Baptists.
- The institution is thought of in the same way as other public hospitals of the health system.
- The institution conducts a variety of activities, including hospital activities, community health activities, and research activities.
- The institution is a pioneer in the field of LF.

Overview of LF activities, Hospital St. Croix

- Activities have been possible with the help of friends from the US who have been providing financial support over the past 20 years.
- Until approximately three years ago, the institution focused primarily on research activities in LF. It is now adding a community-oriented program as well.
• The mission in filariasis is to be a model for the country, to give technical support to the other institutions of the country, and to be a training center.
• The institution is currently negotiating with the MOH to become the National Reference Center.
• The institution will also continue research activities.

Dr. Lafontant then went on to introduce the honored invitee, the Mayor of the city of Léogane, Mayor Octela. Dr. Lafontant explained that Mayor Octela was the first person citizen of the city to take albendazole and DEC tablets.

Mayor Octela, Mayor of Léogane
Mayor Octela thanked the director of the hospital for inviting him. He also thanked the director and administrator of the hospital and the people who are responsible for the LF program in Léogane and Haiti. He then extended a warm welcome to all the other participants from the Caribbean, Central America, South America, and North America. In the name of all the citizens of Léogane, he offered the city to them as their home. He explained that the guests were in the city of Anakaona, which was the name of an Indian king of the territory. He pointed out that the main agricultural product is sugar cane, although plantain crops are also grown. He explained that Léogane was the capital of Haiti in 1967 and the people of Léogane are proud to e host the carnival.

Dr. Milord, Hospital Saint Croix
Dr. Milord offered a special thanks to the filariasis program staff in Léogane and the international partners. She expressed what an honor it was to host the meeting and to share what is happening with PELF in Haiti and to learn what others are doing.

She expressed gratitude for the opportunity to serve the people of Léogane. The Hospital provides additional technical and leadership skills to the health workers and community leaders to help improve capacity and to assist in preventing and treating filariasis and other diseases including, other pathologies of the lymphatic system, intestinal helminth infections, and to some degree, malaria and dengue. She expressed her pleasure at the opportunity to assist former colleagues.

She was particular grateful for the opportunity to stimulate discussion among the Hospital staff and participating colleagues. She entreated everyone to ask questions and interact freely and share ideas. The session commenced.
Hands-on Experience

Group 1. Laboratory / Field Activities

**Facilitators:**
Fr. Thomas Streit, CSC, PhD  
Research Assistant Professor, Center for Tropical Disease Research & Training, University of Notre Dame, Notre Dame, Indiana USA

Dr. Patrick Lammie  
Distinguished Consultant, Investigator  
Centers for Disease Control and Prevention (CDC), Division of Parasitic Diseases, Atlanta, GA USA

Group 2: Clinical

**Facilitators:**
Dr. David Addiss, MPH  
Medical Epidemiologist, Centers for Disease Control and Prevention (CDC), Division of Parasitic Diseases, Atlanta, GA USA

Dr. Madsen Beauderochars, DSP  
Director, LF Program, Hospital Saint Croix  
Léogane Haiti

**General Introduction**

- The Léogane district, some 25 kilometers from Port-au-Prince, is 657 square kilometers and has a population of 125,000.
- Its main subsistence is from the sugar cane and banana plantations.
- The Hospital Saint Croix, with approximately 140 beds, was founded by the Episcopal Church, and is situated in the main city of Léogane. The hospital is charged with responsibility for public health in the district by the Haitian government.
- The hospital is a pioneer in the area of LF clinical management, research and community health. The hospital coordinates these activities with the support of funds from the USA.
- The success of these LF activities can be attributed to the high level of political commitment and the high level of involvement of the local community.
- A good example is the Mayor of the city of Léogane who himself was the first person to publicly take DEC and albendazole pills during MDA.
Field activities
• The group first participated in a didactic session.

Mass drug administration
• The organization of this component was demonstrated in the hospital.
• MDA of albendazole and DEC was done door-to-door in the earliest campaigns, but when accompanied by education and health promotion, employing the distribution post model has worked better in this locality.
• Now there are 120 distribution posts with approximately 500 volunteers involved in this activity.
• It is projected that in 2002, 77% of the population will be covered by the MDA.

Sentinel sites
• The operational aspects of this component were also demonstrated in the hospital.
• Currently, four sentinel sites are operational in Léogane, in addition to ‘spot checks’ recommended by WHO.
• These sites monitor the trends in MF prevalence, ICT test results and other serologic markers of LF, and intestinal helminth infection prevalence in the target populations.
• Each sentinel site has a fully digitized map of all the houses and the population living in the target area.
• The site is operational one week during the year.
• By a sampling method, individuals are selected and invited to have their blood and stool examined.
• Results show that the MF and helminth prevalence has been decreasing since the implementation of the MDA using DEC and albendazole treatment.

The participants were then divided into several subgroups to visit various sites/places in the city to obtain “hands on” experience with the operational aspects of the LF program in Léogane.

Fortified salt.
• A manager produced samples of a newly produced domestic iodine-fortified salt that are being sold in the community.
• Marketing and distribution of a dual-fortified (DEC + iodine) product is planned for 2003 as an adjunct to tablet MDA.

Assessment of vectors as a measure of LF transmission.
• Gravid mosquito trap:
  – This was demonstrated in the lab.
  – The trap is designed to attract older, gravid female mosquitoes in order to monitor the proportion of mosquitoes infected with W. bancrofti larvae.
  – LF parasite detection in the mosquitoes is done locally by dissection, with other samples sent to Atlanta for PCR analysis and detection of filarial DNA.
  – Freshly dissected, “dancing” 3rd stage larvae were seen by participants in this session.
• In house mosquito aspirations were covered.
  – Vacuum collection of early morning mosquitoes from sentinel “house traps” was demonstrated.
  – Mosquitoes collected this way are also assessed for filarial infections in the lab, and serve as another marker for LF transmission.

Laboratory assessments
  – Blood films for microfilaria and techniques for evaluation of stool samples for intestinal helminthes were demonstrated.

Culex breeding habitats
  – Three different breeding habitats were visited including a pit latrine, an old rum distillation factory, and a water well.
  – Unfortunately, the sites visited contained mainly Aedes aegypti and Mansonia mosquitoes with only a few Culex.
  – Many of the locally accessible latrines with breeding Culex were seasonally dried up.

Bed net factory
• Managed by a local committee named Kolemo, this micro-enterprise assembles and sells bed nets, using material impregnated with deltamethrine that is imported from abroad.
  – The enterprise currently has 5 women working as seamstresses and has produced approximately 1200 bed nets.
  – The enterprise plans to expand.
  – Bed nets are sold locally at an affordable price of $4.
  – Marketing of the nets includes an educational component; a site was visited where the health promoters, mainly men, demonstrated the promotional materials.

Morbidity control
• A patient with LF sequelae:
  – A visit was made to the home of a patient with lymphedema.
  – The patient demonstrated the routine washing, inspecting and fungicidal treatment of the legs and feet.
  – This home management of leg and foot hygiene was first introduced at the hospital and monitored by community health workers. Experience shows that it substantially reduces leg infections.
  – It was striking to see how clean and good the legs and feet of this patient looked!
• Hope support group:
  – A visit was made to a group session of people with lymphedema.
  – This church-based support group meets regularly to informally provide peer support amongst its members.
• A treatment session in the hospital:
  – A visit was made to a lymphedema /elephantiasis treatment session.
At this session, the patient received personal guidance in hygiene of the legs. The patient also received an instruction booklet in the local language, which has been translated from WHO’s Hope booklet for LF patients.

- **A hydrocelectomy in the hospital:**
  - An operation was viewed.
  - The ultrasound detection of a living *Wuchereria bancrofti* worm in a lymph node of a young man was also demonstrated.

**Community mobilization**

- Health promoters are involved with the mobilization of the community and dissemination of information concerning the disease itself, mass screening for LF, MDA, and morbidity management.
- The community mobilization efforts focus on community meetings, schools and churches. They efforts also involve contact with community leaders for promotion of information.
- They use educational materials such as, posters, flip-over charts, radio spots and the GlaxoSmithKline LF video spots.
Refresher Exercise: Reapplication Forms and Annual Reports

Dr. Sergio Yactayo, Lymphatic Filariasis Elimination (CEE/FIL) Communicable Diseases Eradication and Elimination, WHO, Geneva, Switzerland

Highlights

- There are 38 least-developed countries in the world, and among these, 32 are endemic for LF disease.
- This suggests that there is a strong link between the disease and the poverty.
- The object of this discussion is to provide a brief summary of the annual records and the replication forms.

Annual reports

- The annual report form is used to summarize the monitoring and evaluation data. This form includes monitoring indicators.
- This activity is often continued for quite some time and may go on for years, as is the case with India.
- The minimal information required in these forms is the baseline data.
  - Baseline data include indicators that are necessary at the outset.
  - The first indicators are the MF and ICT prevalence.
  - The second indicators cover information about the clinical manifestations, which provide an approximation of the prevalence of lymphedema and hydrocele in the country.
  - The total population must be included.
- Following the baseline information, data are required that relate to coverage at the sentinel sites.
- Data are requested for the fixed and mobile sites
  - Coverage rates should be calculated by millions of inhabitants.
  - Indicators include MF and ICT prevalence.
  - The sample should be 500 persons in each sentinel site to ensure a representative sample.
  - Please remember to include your country name and the name of each sentinel site with the corresponding data.
- Annual reports should be completed and sent before the February 28th, 2003.

Reapplication form

- The replication form should be filled out after the annual report.
- This form indicates the MDA program plans and goals for the coming year following the annual report.
- Forms are sent to the PAHO regional offices for approval.
- Upon receipt of approval for the MDA plan, it is possible to receive the necessary drug supplies.
- It is best to complete this form in advance so there is time for the approval process to take place and the program can receive their drug supplies in a timely manner to continue implementation.
WRAP–UP

Dr. Barnett Cline, Professor Emeritus, Department of Tropical Medicine, School of Public Health & Tropical Medicine, Tulane University, Louisiana, USA.

Overview

Dr. Cline began the wrap-up session by recognizing the success of the meeting and expressing appreciation for the legendary Haitian hospitality the group experienced. Furthermore, he noted the outstanding planning and organizational efforts, and recognized the role of many in making the meeting so successful. And thanks to the efforts of Dr. John Ehrenberg and the local and regional PAHO team, all participants were provided a thick three-ring binder containing all the meeting subject material. This material serves as a valuable historical document of the evolution of the filariasis elimination program in the Americas.

Borrowing from Gerusa Dryer practice of characterizing meetings or training sessions with one word or a short phrase, he considered the essence of the present Third Regional Program Manager’s Meeting to be captured by the word “maturation”. The maturation has taken place at both the level of country programs and at the regional level. He continued the closing session by highlighting the program’s progress through country specific advances and summarizing the recommendations made by the working groups.

Country-specific advances

Under young and talented leadership, the Haitian PELF has evolved into a fully functional national program. It is exciting to see the progress that has taken place along with the strong spirit of collaboration that exists among various organizations and partners involved. Among other items, the Haitian team presented their three years of sentinel site data from Leogone, offering strong evidence of substantial reduction of microfilaremia following mass drug administration. While challenges remain, there is growing confidence that the national program is maturing into an effective and sustainable one; 12 communities in addition to Leogone and Milot are now targeted for MDA. Furthermore, a pilot study has been planned to assess the feasibility and utility of DEC-salt administration in one region.

The Dominican Republic PELF has matured importantly during the past year. There has been notable success in mobilizing institutions within the country, such as the Dermatological Institute and the provincial hospital in Barahona (Hosp. Jaime Mota) that have taken the lead, respectively, in morbidity alleviation efforts for lymphedema and genito-urinary complications of LF. A newly created urological surgical reference center has been established in Barahona and is now fully functional. Their social mobilization and communication initiative is moving ahead systematically in preparation for the MDA that is planned for later in the year. Mapping strategies have been revised to make them more realistic, and sentinel site studies have been initiated.

Guyana has made substantial strides with their DEC-salt initiative and is becoming a global model for DEC-salt interventions. The collaboration developed with the local salt industry provides important lessons that can be applied in other country programs. A great deal of emphasis has been placed on developing social marketing and social mobilization efforts. In addition, Guyana has made significant advances in morbidity control and is taking steps to ensure the sustainability of these activities, including efforts to include morbidity control curricula in the medical schools.
Brazil, long a leader in morbidity research and practice, continues to make strides in morbidity alleviation; Brazilian experts have conducted a series of very successful training workshops. The mapping of LF transmission in Brazil is well advanced, with foci in three areas (metropolitan Recife, Belém and Maceió). Recognizing the complexities inherent in a decentralized program, the strategies and organizational linkages to expand LF activities in these areas are being reviewed and reformulated. The national program is under strong, new, leadership, and public health officials in the affected states and municipalities are making vigorous efforts to assess the status of LF and to deal with it effectively.

Trinidad and Tobago and Suriname presented new and encouraging data that indicate transmission has been interrupted in these countries. In Suriname more than 3,000 school children were tested by ICT, and in Trinidad about 2,600 people were tested. It is important to recognize these accomplishments, and to find a means of formally verifying (short of official certification, for which a mechanism does not yet exist) that these countries are no longer endemic for LF. Trinidad & Tobago is also undertaking an ambitious study of vector monitoring as an additional, independent measure of LF transmission.

Costa Rica, with an epidemiological situation similar to that in Trinidad & Tobago and Suriname, has a well established plan of action in place to begin assessment and mapping activities in the near future in Puerto Limon, the historically endemic town.

Working group recommendations

The Monitoring and Evaluation working group brought up several key discussion points. One set of issues focused on measures of coverage, including selection of sentinel sites, survey sampling procedures, alternate definitions of coverage, and the use and cost of ICT cards. A second set of issues focused on verification and certification of elimination of transmission, with emphasis on the importance of recognizing countries that have made significant strides and have evidence of sustained interruption of transmission. Due to logistical constraints, is not possible at this point for these countries to obtain formal certification from WHO. The group therefore recommended that intermediate steps be developed. They suggested that a formal list be developed (by PAHO) of countries in the region with current transmission and those without current transmission. Dr. Cline noted that these recommendations represent a step forward in the maturation process of the regional program. These issues have been discussed several times in the recent past, but this is the first formulation of concrete recommendations.

The Social Mobilization working group thoroughly reviewed transmission status for each country, the current status of country-specific activities, and country-specific resources and needs. Dr. Cline commented on the growing awareness among country and regional authorities that professional expertise in communications and social mobilization is essential to insure program success. He considered this as another measure of the program’s maturation at the national and regional levels.

The Morbidity Control working group reviewed the evolving framework for advancing morbidity control strategies and, importantly, suggested two alternate models for national programs to consider. They were a “universal treatment model” and an “access to care” model. Under the universal treatment model, all individuals with LF-induced morbidity would be identified through active searches, and subsequently the program would systematically undertake to provide appropriate care for all identified patients. In contrast, the access to treatment model, deemed to be more feasible by most participants in the working group, focuses on the development of treatment centers and related capacity-building, and the
dissemination of the health education and communication messages essential to mobilize the patients to seek treatment at the centers or other facilities.

While too early to anticipate the evolution of this concept, it seems likely that it will offer a valuable framework for future discussions and for mobilizing resources needed to build the “morbidity control” pillar that is essential to complement the “transmission interruption” pillar of the global PELF.

Other presentations
Dr. Cline noted that this meeting had a number of very interesting presentations that were not country specific or work group specific. One was the role of the academic sector in LF program activities. He emphasized the importance of effectively utilizing available resources within each country and the potential value of collaboration between the Ministry of Health and the academic sector.

Summary
Dr. Cline summarized the warp-up session by highlighting three final points, interactions and communications, the need for a user-friendly data management system, and the maturation of the global LF elimination program.

The first point focused on interactions and communication. He concluded that there are two categories of countries in the Americas in terms of LF elimination, those with no evidence of transmission and those with evidence of transmission. Three countries have data suggesting no transmission and are moving towards certification of elimination. The other four countries have evidence of transmission and are continuing elimination efforts through various strategies. Monitoring activities are continuing in all countries. He encouraged continued interaction and exchange among the countries based on shared problems and needs. He suggested that efforts be considered to structure the future meetings to maximize opportunity for interaction and exchange among the countries in each category. He also noted the utility of a website as a means of disseminating information.

The second issue was the need expressed by program managers for a user-friendly data management system that will standardize and facilitate data collection, management, analysis and presentation. It is important that the system permits flexible introduction of data from diverse sources, and that it links effectively with established mapping software.

The third and final topic concerned the maturation process of the global program. Dr. Cline noted that, in reality the global PRG doesn’t exist anymore, but is now a family of six regional and sub-regional programs. As part of a Global Alliance, each program, he observed, has the responsibility and freedom to appropriately address region-specific issues and solutions to problems. Each region is responsible for making program decisions and recommendations to move their respective program forward.

He concluded by emphasizing the comment made by Dr. Mirta Roses Periago during the opening ceremony, specifically her observation that the Americas region has an extraordinary concentration of expertise and resources and a remarkable ability to build alliances. These are strengths that the group can and should build upon to continue the forward progress and maturation of the LF elimination program in the Americas.
Country Organizational Charts

PELF Organizational Chart: Haiti

- Minister
- Director General
- Coordinator
- National Technical Committee
- Administrative Unit
  - Secretary
  - Staff
- Technical Unit
  - Trt. Morb.
  - Mass Trt.
  - Mobilization
Filariasis Elimination Program Organizational Chart: Dominican Republic

- SESPAS
  - National Consultation Group
  - CENCET
    - Entomology
    - Diagnostic Lab
    - PELF General Coordination
      - Social Communication
      - Regional Counsel
      - Regional Technical Group
      - Southwestern Regional Coordination
    - Morbidity Treatment Unit
      - IDCP
      - Flebology Dept.
      - Southeastern Dermatology Unit
      - Regional Technical Group
      - Social Communication
      - Regional Counsel
      - Diagnostic Lab
      - Entomology
    - SESPAS
PELF Organizational Chart: Guyana

National Control Program for Filariose: Institutional Organization

• National Coordination of the Filariasis Control Program in the National Epidemiology Center (CENEPI) of the National Health Foundation (FUNASA), part of the Ministry of Health

Proposed but not officialized yet
• National Technical Advisory Committee, linked to the National Coordination in FUNASA
• State Executive Committees linked to the State Secretaries of Health

The programs at the municipal level have established their coordination as well.
A1. Third Regional Lymphatic Filariasis Program Managers’ Meeting
Port-au-Prince; Haiti • September 4-6, 2002

Agenda Outline

Day 1 (4/09/02)

Opening Ceremony

8:00-8:30 Registration

8:30-9:00 Opening Ceremony
Chairman: Dr. Emile H. Charles; MOH General Director
Rapporteur: Dr. Jean Francois Vely

Dr. Henri Claude Voltaire; MOH, Haiti
Dr. Mirta Roses Periago; Assistant Director, PAHO/WHO
Dr. Lea Guido PAHO/WHO Representative, Guyana

9:00-9:15 Dr. John P. Ehrenberg; Meeting Coordinator
Orientation and review of the agenda.

9:15-9:30 Dr. John P. Ehrenberg: Brief overview of progress in the Region since the last Program Manager’s Meeting, Guyana 2001.

Chairman: Prof. Dr. Baltus Oostburg
Rapporteur: Dr. Calum Mac Pherson

9:30 -10:00 HAITI
10:00-10:15 Discussion.

10:15-10:30 Break

10:30-11:00 DOMINICAN REPUBLIC
11:00-11:15 Discussion.

11:15-11:45 GUYANA
11:45-12:00 Discussion.

12:00-12:30 BRAZIL
12:30-12:45 Discussion.

12:45-2:00 Lunch
2:00 - 2:20   SURINAME
2:20 - 2:30   Discussion.

2:30 - 2:50   TRINIDAD & TOBAGO
2:50 - 3:00   Discussion.

3:00 - 3:10   COSTA RICA
3:10 - 3:30   Discussion.

3:30 - 3:40   Dr. Adriana Troyo: The academic sector and its role in the Regional initiative; the University of Costa Rica experience.
3:40 - 3:50   Discussion.

3:50 – 4:10   Dr. Eric Ottesen: Latest on the new BINAX-ICT cards.
4:10 – 4:20   Discussion

4:20 – 5:30   *Group Guidelines: Facilitators will provide a 15 minute introduction & guide to the 4 work groups meeting on day 2.*
   Chairman: Dr. Joao Batista Furtado
   Rapporteur: Dr. Marie Denise Milord

4:20 – 4:30   *Break*

4:30 - 4:45   Dr. Eric Ottesen: Monitoring & Evaluation (Group 1).

4:45 – 5:00   Dr. Guillermo Gonzalvez: Social mobilization & communication (Group 2).

5:00 - 5:15   Dr. Geruza Dreyer: Regional plan for morbidity control (Group 3).

5:15 -5:30   Questions & sign up for one of 3 work groups (hard copies of work group guidelines will be distributed).

5:30       *Adjourn*
Day 2 (5/09/02)

9:00-12:30  **Group discussions:**

**Group 1:** Monitoring & evaluation.
(Chairman: Dr. Robin Houston / Rapporteur: Dr. Adriana Troyo).

**Group 2:** Social mobilization & communication.
(Chairman: Dr. Guillermo González / Rapporteur: Dr. Celia Riera).

**Group 3:** Regional Plan for morbidity control.
(Chairman: Dr. David Addis / Rapporteur: Dr. Tess McPherson).

12:30-2:00  **Lunch**

2:00-4:00  **Group presentations (20 min. each).**
Chairman: Dr. Samuel Rawlins
Rapporteur: Dr. Steven Ault

2:00-2:20  **Group 1**
2:20-2:40  Discussion

2:40-3:00  **Group 2**
3:00-3:20  Discussion

3:20-3:40  **Group 3**
3:40-4:00  Discussion

4:00-4:15  **Break.**

4:15-5:00  Dr. Erika García: Healthmapper up-date and Demo.
5:00-5:15  Discussion

5:15  **Adjourn**
Day 3 (6/09/02)

7:00
Departure from Hotel Montana to Leogane

9:00-9:30
Arrival at Hopital Ste. Croix, Leogane

9:30-9:45
Bienvenue; offer of coffee / tea / croissant
M. Octela (Mayor of Leogane)
Dr. Marie Denise Milord (MSPP)
Dr. Jack Guy Lafontant (HSC)
Fr. Thomas Streit (UND)
Dr. Lammie (CDC)

9:45-10:00
Dr. Patrick Lammie: Review of the day’s agenda and sign up into work groups.
Chairman: Dr. Jack Guy Lafontant
Rappoteur: Dr. Marthelise Eersel

10:00-12:00
“Hands on” experience with operational aspects of a Lymphatic Filariasis program in the Region.

Group 1: Laboratory / Field activities
(Facilitators: Fr. Thomas Streit & Dr. Patrick Lammie)
Laboratory: includes examination of fresh infectious larvae collected from mosquitoes, use of new ICT cards & microscopy.
Field site visits: mock “distribution post”, visit fortified salt reseller, bednet factory, educational rally in a church, mock sentinel site exercise, use of GPS technology, Culex breeding site and landscape epidemiology, visit lymphedema patient at home, and support group in session.

Group 2: Clinical (Facilitators: Dr. David Addis & Dr. BeaudeRochars)
Urogenital disease, hydrocele surgery (theory, patient follow up / rounds).
Ultrasound detection of Wuchereria bancrofti in vivo.
Lymphedema / elephantiasis treatment workshop

12:00-1:30
Lunch

1:30 - 2:15
Discussion & Questions

2:15 – 2:30
Dr. Sergio Yactayo: Refresher exercise “Re-Application Forms and Annual Reports; critical information and the need for a timely submission”.

2:30 – 2:45
Discussion.

2:45 - 3:15
Dr. Barnet L. Cline: Wrap up; highlights of the meeting
3:15 - 3:25
Dr. John P. Ehrenberg: Closure

3:30
Departure to Port-au-Prince
A2. 3rd REGIONAL PROGRAM MANAGERS’ MEETING
LYMPHATIC FILARIASIS ELIMINATION IN THE AMERICAS
Port-Au-Prince, Haiti • 4-6 September 2002

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A3. Acronyms

listed in alphabetical order

Ag: Antigenemia

CENCET: Centro Nacional de Enfermedades Tropicales (Dominican Republic)
CENPI: Centro Nacional de Epidemiología (Brazil)
CDC: Centers for Disease Control and Prevention
COS: Costa Rica
FUNASA: Fundación Nacional de Salud (Brazil)
DEC: Diethylcarbamazine
DOR: Dominican Republic
GIS: Global Information System
GPS: Global Positioning System
IEC: Information, Education and Communication
ICT: Immune-Chromatographic Test (antigen detection assay)
IMA: Interchurch Medical Assistance
LF: Lymphatic filariasis
MDA: Mass Drug Administration
MF: Microfilaremia
MOH: Ministry of Health
NGOs: non governmental organizations
PAHO: Pan American Health Organization
PCR: Polymerase chain reaction
PELF: Program to Eliminate Lymphatic Filariasis
SUR: Suriname
SESPAS: Secretaría de Estado de Salud Pública y Asistencia Social (DOR)
TAG: Technical advisory group
TDR: Tropical Diseases Research/WHO
T&T: Trinidad and Tobago
UFPE: Universidad Federal de Pernambuco; Brazil
USA: United States of America
WHO: World Health Organization
A4. Implementation of the DEC/SALT Strategy for LF Elimination in Guyana 2002/Follow-up

Guyana Update Meeting September 5th 2002, Haiti

Present:
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Dr Shamdeo Persaud Programme coordinator Guyana
Dr Tess McPherson PAHO/WHO Guyana
Dr Htay Win PAHO/WHO
Dr Trevor Milner PAHO/WHO Washington
Dr Pat Lammie CDC Atlanta
Dr Robin Houston Emory University Atlanta
Dr Joan Fahy Liverpool School of Tropical Medicine
Dr Calum Macpherson WINDREF and St Georges Medical School, Grenada

Points Discussed

1. DEC-Salt Quality Control
Pat Lammie gave an update on the training for quality control and DEC management for 3 countries where salt is to be produced; Trinidad, Jamaica, Cuba and FDA in Guyana.
Cuba is awaiting some fortification equipment and T. Milner pointed out that they would need Spanish translation for procedure. P. Lammie indicated that CDC would initially keep some split samples for an external check to maintain correct calibration.

2. DEC-Salt Production
Shipment of DEC-salt from Guyana via importers to producers is being organized. This process must be checked and confirm how the cost is to be covered (e.g., PAHO/WHO to cover shipment costs, but importers will use their own boats). T. Milner emphasized that they must understand that is critical that the barrels stay dry and do not get wet.

Packaging Issues

1. Logo: All Producers now have a logo.
2. Cost: Reimbursement for extra packaging costs is to be arranged. The discussion concentrated on who should be reimbursed. It was felt that costs would be incurred by the producers, so they should be reimbursed to ensure cost to retailers remained the same. It is important to gather information on real cost of extra packaging. R. Houston, T. Milner and UNICEF facilitators are going to work on this issue in the coming week.
3. Bureau of standards: Labeling should also be in the metric system. The size of bags should be maintained as 1 lb. Thus, the label would read 454g (1 lb)
Production and Distribution Issues

1. **DEC –Salt Importers**
   It was felt likely that importers would import a small amount initially. There was discussion as to whether MOH should buy some DEC-salt to use in the sentinel sites. This could be a “reward for people who have participated” or serve as buffer stock in case the DEC-salt available is sold out due to high demand. If this is done, there was agreement that the additional stock should be bought equally from all importers.

   Communication with the importers was considered vital. There was discussion about whether to invite importer to sit on LF taskforce. R. Cummings to addressed this and suggested inviting them as observers. However S. Persaud said that the salt board being started by UNICEF would allow the importers to have a forum for discussion of issues.

2. **DEC –Salt marketing**
   Jingle: The use of a jingle is recommended. The issue was raised as to whether the advertisement should contain information that salt is also iodized. Maybe line at end of jingle; “DEC SALT is also iodized…”

   Dr. Persaud updated the group on other materials being developed.

3. **Key stake holder information**
   a) Physicians
      It was stressed that physicians are an influential group and therefore the importance of making sure they have information on salt use in conditions such as pregnancy and hypertension. There has already been a continuing medical education course (2001 Eric Ottesen) and some targeting of this group through various means including workshops, visits to public hospitals, and health centers.

      It is important to include them in the process and in two ways. Firstly, a mailing to the 330 registered physicians with Q & A leaflet (T. Mcpherson to develop existing material which P. Lammie will send) a scientific paper showing safety and efficacy of DEC-salt and other program information (e.g., morbidity). Secondly, arrange a follow-up continuing medical education course before launching the program. P. Lammie will check dates and see if he, and or Eric Ottesen could visit Guyana to conduct the course. T. McPherson to arrange with Dr Bacchus of Guyanese Medical Association after dates have been agreed.

   b) Other Health workers
      T. McPherson emphasized the importance of developing the capacity of the health service for the increased morbidity demand that was likely to result following DEC- salt launch. Work over the past year insured that there were some health staff who have been educated in morbidity management. She is waiting educational materials and stressed that these are a priority so that advocacy visits to health workers would start in time to have appropriate care available for patients. She also explained how patients are already acting as advocates for the program.

   c) Distributors/ Retailers
      This is another group to target and ensure that they are fully informed. Advocacy visits to stores should be planned to present information before launching the program. It would be good shops could be provided with signs, which are being developed, e.g. ‘DEC SALT is sold here…’
d) Bulk Consumers

Consideration in second phase of salt use.

In closing, P. Lammie said that even if the start was rocky there was still good chance of success and that we should have a year to achieve full market penetration. He said that this should be easier than with M.D.A. R. Houston felt that there was a solid foundation and that a certain amount of flexibility lay with the retailers. R. Cummings agreed that a decent foundation had been achieved already and that the goal of market penetration is achievable given the discussions at this meeting.
A5. Qualitative Analysis of Information Systems of National Lymphatic Filariasis Elimination Programs in the Region of the Americas

Prepared by Ms. Erika Garcia, Communicable Disease Program, PAHO/WHO Haiti

Includes:
A5a. Objective and Methods
A5b. Power point slides
A5c. Questions in questionnaire
A5d. Country specific questionnaire results

Objective
The objective of conducting a qualitative survey and analysis was to better understand national LF programs’ information systems and processes.

Method
Based on WHO Guidelines for the Elimination of Lymphatic Filariasis, a questionnaire was developed as an interviewing tool for each national LF program. A total of seven countries were interviewed Brazil, Costa Rica, Dominican Republic, Guyana, Haiti, Suriname and Trinidad and Tobago, during the 2nd Regional Program Review Meeting in Port-au-Prince, Haiti.

The questionnaire was designed so that the identification of the unit of analysis for each country was required before continuing the interviewing process. Once the unit of analysis was identified, i.e., areas of the country, a listing of indicators then followed to prompt whether data collection was being done or not. Once the interview completed, a table of indicators by unit of analysis was constructed for each national LF program.

Please refer to the questionnaire attached to this document.

Results
The following observations were made and are organized by the questionnaire format.

Survey Phase
The number of areas/regions identified by national programs varies from country to country. Digitalized maps for the areas/regions exist for about half of the countries and some countries only have maps for some of the areas.

With regard to data, almost all the countries have collected population data by age and sex and total number of positives and examined by age and sex. The most significant finding of this part of the survey is that Costa Rica only has collected total population data by age and sex (See table on next page).
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# of Areas of Risk
The number of areas at risk?

Total pop
Are the total populations of these areas captured?
  Male
  Female
  Age

# Inf people
Total number of infected people recorded for these areas?
  Male
  Female
  Age

# Examined
Is there a total number of examined patients captured for these areas?
  By age/sex?

DB?
Are all these data in a computer?

Digital maps
Are there accessible digitalized maps of the area?
**Treatment Phase Results**

At the time of the survey two out seven countries were implementing a treatment phase. Brazil has collected treatment data but not all recommended indicators. Haiti on the other hand collects all indicators (See table below).

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<tr>
<td>Reasons ~ trtd</td>
<td>X</td>
<td>“</td>
<td>“</td>
<td>“</td>
<td>“</td>
<td>“</td>
<td>“</td>
</tr>
</tbody>
</table>

Does the country have a fixed period of treatment?

- Treatment Period
  - # Registered
  - # Registered by age & sex
  - # Taken
  - # Tablets consumed
    - Alb
    - DEC
  - Reason not Treated

- N/T=No Treatment
- N/A=Not Applicable

Is the total number of people in treatment recorded? Eligible population

Is this information also captured by age and sex?

Is the total number of tablets actually taken (compliance)?

Is the total number of tablets distributed (coverage)?

Are the reasons why medication is not taken recorded?
Morbidity Results

Regionally, collection of morbidity data is varied. While Suriname collects morbidity data, Trinidad & Tobago and Dominican Republic do not. The other countries collect data (Guyana, Haiti and Brazil) for some of areas, while Costa Rica does not collect any data all together. (See table below)

<table>
<thead>
<tr>
<th></th>
<th>BRA</th>
<th>COR</th>
<th>DOR</th>
<th>GUY</th>
<th>HAI</th>
<th>SUR</th>
<th>TRT</th>
</tr>
</thead>
<tbody>
<tr>
<td># Areas</td>
<td>6</td>
<td>1</td>
<td>12</td>
<td>5</td>
<td>1</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td># Treated</td>
<td>4/6</td>
<td>N/A</td>
<td>X</td>
<td>3/5</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>Lymph.</td>
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<td>X</td>
<td>3/5</td>
<td>√</td>
<td>√</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Hydrocele</td>
<td>4/6</td>
<td>X</td>
<td>3/5</td>
<td>√</td>
<td>√</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Prevalence</td>
<td>1/6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>X age &amp; sex</td>
<td>4/6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>√</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

- # Trtd Lymphoedema: Does the country capture the total number of people being treated for lymphoedema?
- Lesion types: Are lesion types recorded?
- Prevalence by age & sex: Does the country have the prevalence by age and sex?
- Computerized: Is this data computerized?
- Digital maps: Are there maps of these data?
Situation Analysis of Data Collection and Management in Regional LF Programs

Erika Garcia
Communicable Diseases Program, PAHO/WHO
Haiti, September 2002

Questionnaire

Objectives
1) Assess whether Pac-ELF can be useful for LF programs in the Americas
2) To find out what variables national programs are (not) collecting in the context of LF Elimination initiative

Qualitative Analysis

Survey Phase
- Unit of Analysis (admin level)—digitalized
- Census Year
- Total population and by age & sex
- Total # examined and by age & sex
- Total # positives and by age & sex
- Stored in computer?

Treatment Phase
- MDA period
- Registered and by age & sex
- # Taken
- # Tablets consumed (Alb. and DEC)
- Reason not treated (pregnant, sick, infant, elderly, absent, other)

Morbidity Data
- # Treated Lymphedema/Hydrocele
- Prevalence by age and sex

IT Tools Used
- Software dB used
- Initial date when dB created
- Other programs used
Results: Survey Phase

<table>
<thead>
<tr>
<th></th>
<th>BRA</th>
<th>COR</th>
<th>DOR</th>
<th>GUY</th>
<th>HAI</th>
<th>SUR</th>
<th>TRT</th>
</tr>
</thead>
<tbody>
<tr>
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<td>12</td>
<td>5</td>
<td>1</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Total population</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
</tr>
<tr>
<td>X age and sex</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<td>X</td>
<td>3/12</td>
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<td>✓</td>
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<td>3/12</td>
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<td>✓</td>
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<td>3/12</td>
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<td>✓</td>
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Results: Treatment Phase

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<tr>
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<th>COR</th>
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<th>GUY</th>
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<th>SUR</th>
<th>TRT</th>
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<td>N/T</td>
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<td></td>
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<td></td>
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<td># Taken</td>
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<td>Alb</td>
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<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>DEC</td>
<td>1/6</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasns ~ trtd</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N/A - Not applicable  N/T = No treatment
## Results: Morbidity Data

<table>
<thead>
<tr>
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<th>BRA</th>
<th>COR</th>
<th>DOR</th>
<th>GUY</th>
<th>HAI</th>
<th>SUR</th>
<th>TRT</th>
</tr>
</thead>
<tbody>
<tr>
<td># Areas</td>
<td>6</td>
<td>1</td>
<td>12</td>
<td>5</td>
<td>1</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td># Taken</td>
<td>4/6</td>
<td>N/A</td>
<td>X</td>
<td>3/5</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>Lymphodema</td>
<td>4/6</td>
<td>X</td>
<td>3/5</td>
<td>√</td>
<td>√</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hydrocele</td>
<td>√</td>
<td>X</td>
<td>3/5</td>
<td>√</td>
<td>√</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Prevalence</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>X age and sex</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

N/A - Not available

---

### Pac-ELF in the Americas?

- **2 modules**
  - Blood Survey: applicable to all countries—program managers
  - MDA
    - Haiti
    - Other countries planning for MDA
    - Not applicable to Guyana and Suriname

No IT incompatibilities
### QUESTIONS
Name of the area and Year of latest Census

<table>
<thead>
<tr>
<th>Name &amp; Cens Yr (Unkn)</th>
<th>Name of the area and Year of latest Census</th>
</tr>
</thead>
</table>

**Survey Phase**

<table>
<thead>
<tr>
<th>Method of Ident</th>
<th>How did the country identify which areas are at risk?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total pop</td>
<td>Is the total population of that area captured?</td>
</tr>
<tr>
<td>Male</td>
<td>Is the total population of males for that area captured?</td>
</tr>
<tr>
<td>Female</td>
<td>Is the total population of females for that area captured?</td>
</tr>
<tr>
<td>Pop by age</td>
<td>Is the total population by age for that area captured?</td>
</tr>
<tr>
<td># Inf people</td>
<td>Is the total number of infected people recorded?</td>
</tr>
<tr>
<td>Male by sex?</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Age by age?</td>
<td></td>
</tr>
<tr>
<td># Examined</td>
<td>Is the total number of examined patients captured?</td>
</tr>
<tr>
<td>Computerized</td>
<td>Are all these data in a computer?</td>
</tr>
<tr>
<td>Digital maps</td>
<td>Are there accessible digitalized maps of the area?</td>
</tr>
</tbody>
</table>

**Treatment Phase**

<table>
<thead>
<tr>
<th>Treatment Period</th>
<th>Does the country have a fixed period of treatment?</th>
</tr>
</thead>
<tbody>
<tr>
<td># Registered</td>
<td>Is the total number of people in treatment recorded? Eligible population</td>
</tr>
<tr>
<td># Registered by age &amp; sex</td>
<td>Is this information also captured by age and sex?</td>
</tr>
<tr>
<td># Taken</td>
<td>Is the total number of tablets actually taken (compliance)?</td>
</tr>
<tr>
<td># Tablets consumed</td>
<td>Is the total number of tablets distributed (coverage)?</td>
</tr>
<tr>
<td>Alb.</td>
<td></td>
</tr>
<tr>
<td>DEC</td>
<td></td>
</tr>
<tr>
<td>Reason not Treated</td>
<td>Are the reasons why medication is not taken recorded?</td>
</tr>
<tr>
<td>Preg</td>
<td>for these reasons?</td>
</tr>
<tr>
<td>Sick</td>
<td></td>
</tr>
<tr>
<td>Infant</td>
<td></td>
</tr>
<tr>
<td>Old</td>
<td></td>
</tr>
<tr>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Digital maps</td>
<td>Are there digitalized maps of these data points?</td>
</tr>
</tbody>
</table>

**Morbidity Data**

<table>
<thead>
<tr>
<th># Trtd Lymphoedema</th>
<th>Does the country capture the total number of people being treated for lymphoedema?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesion types</td>
<td>Are lesion types recorded?</td>
</tr>
<tr>
<td>Prevalence by age &amp; sex</td>
<td>Does the country have the prevalence by age and sex?</td>
</tr>
<tr>
<td>Computerized</td>
<td>Is this data computerized?</td>
</tr>
<tr>
<td>Digital maps</td>
<td>Are there maps of these data?</td>
</tr>
</tbody>
</table>

**Technological tools**

<table>
<thead>
<tr>
<th>Software</th>
<th>What software is used to record/capture these data?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date when dB began</td>
<td>When was the database first created?</td>
</tr>
<tr>
<td>Other programs used</td>
<td>What other computer programs are being used for analysis of data?</td>
</tr>
</tbody>
</table>
### BRAZIL

<table>
<thead>
<tr>
<th>Name &amp; Census Yr 2000</th>
<th>Belem</th>
<th>Recife</th>
<th>Yolinda</th>
<th>Joboatao</th>
<th>Paulista</th>
<th>Maceio</th>
</tr>
</thead>
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<tr>
<td><strong>Survey Phase</strong></td>
<td></td>
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<td>Male</td>
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<td>Y</td>
<td>Y</td>
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<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
</tr>
</tbody>
</table>

N/A=Not Applicable, not using Alb.
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| # Registered by age & sex | N/A | N/A | N/A | N/A | N/A |
| # Taken | N/A | N/A | N/A | N/A | N/A |
| # Tablets consumed | N/A | N/A | N/A | N/A | N/A |
| Alb. | N/A | N/A | N/A | N/A | N/A |
| DEC | N/A | N/A | N/A | N/A | N/A |
| Reason not Treated | N/A | N/A | N/A | N/A | N/A |
| Preg | N/A | N/A | N/A | N/A | N/A |
| Sick | N/A | N/A | N/A | N/A | N/A |
| Infant | N/A | N/A | N/A | N/A | N/A |
| Old | N/A | N/A | N/A | N/A | N/A |
| Absent | N/A | N/A | N/A | N/A | N/A |
| Other | N/A | N/A | N/A | N/A | N/A |
| Digital maps | N/A | N/A | N/A | N/A | N/A |

| Morbidity Data | | | | | |
| # Trtd Lymphodema | N | Y | N | Y | Y |
| Lesion types | N | Y | N | Y | Y |
| Prevalence by age & sex | N | Y | N | Y | Y |
| Computerized | N | Y | N | Y | N |
| Digital maps | N | N | N | N | N |

| Technological tools | | | | | |
| Software | Excel | Excel | Excel | Excel | Excel |
| Other programs used | NONE | NONE | NONE | NONE | NONE |

N/A = Not applicable not using this method of treatment
COSTA RICA

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| # Registered by age & sex | N/A       |
| # Taken               | N/A           |
| # Tablets consumed    | N/A           |
| Alb.                  | N/A           |
| DEC                   | N/A           |
| Reason not Treated    | N/A           |
| Preg                  | N/A           |
| Sick                  | N/A           |
| Infant                | N/A           |
| Old                   | N/A           |
| Absent                | N/A           |
| Other                 | N/A           |
| Digital maps          | N/A           |

| Morbidity Data        |               |
| # Trtd Lymphodema      | N/A           |
| Lesion types          | N/A           |
| Prevalence by age & sex | N/A       |
| Computerized          | N/A           |
| Digital maps          | N/A           |

| Technological tools    |               |
| Software will use     | Epiinfo 2000  |
| Date when dB began    | N/A           |
| Other programs used   | NONE          |

N/A=Not Applicable, not treating
**DOMINICAN REPUBLIC**

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N/A = Not Applicable, not treating
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