Gap Analysis of Leishmaniasis
Detection, Prevention & Response: Lessons Learned for Vector-Borne Diseases

CORDS
Connecting Organizations for Regional Disease Surveillance

Image courtesy of CDC’s Public Health Image Library http://phil.cdc.gov/phil/details.asp
Welcome

Professor Nigel Lightfoot CBE, Executive Director
Connecting Organizations for Regional Disease Surveillance (CORDS)
Lyon, France
Welcome & CORDS Synopsis

Overview of Methodology & Approach of Gap Analysis

Country Reports
- Pakistan
- Albania
- Jordan

Summary of Common Issues

DNDi and Medication Access

Q&A Discussion Session & Closing Remarks
Overview of Leishmaniasis Gap Analysis Project

Dr. James Crilly, Technical Advisor
Leishmaniasis Gap Analysis Project Coordinator
Southeast European Centre for Surveillance and Control of Infectious Diseases (SECID)
South Eastern Europe Health Network (SEEHN)
Overview of Leishmaniasis

Cutaneous leishmaniasis (CL)
http://phil.cdc.gov/phil/details.asp

Visceral leishmaniasis (VL)
http://www.who.int/campaigns/world-health-day/2014/photos/leishmaniasis/en/
Overview of Leishmaniasis

Leishmaniasis is an entirely treatable parasitic disease spread by sandflies.

Cutaneous leishmaniasis can lead to distressing and disfiguring skin ulcers and scarring.

Visceral leishmaniasis affects the liver and spleen and, if untreated, is fatal.

40,000 deaths occur every year, making visceral leishmaniasis the 2nd biggest parasitic killer after malaria.

The disease is unlikely to spread to developed western countries which have healthy populations with good sanitation and healthcare.

The Leishmaniasis Gap Analysis (www.cordsnetwork.org) found leishmaniasis is an emerging, yet largely neglected disease...mainly affecting impoverished communities living in poor conditions with low immune systems and without access to proper healthcare.
Leishmaniasis in the News

Volume 22, Number 5—May 2016

Letter

Cutaneous Leishmaniasis and Conflict in Syria

THE DOUBLE BURDEN: HIV/visceral leishmaniasis co-infection in East Africa

MSF briefing note, December 2011 http://www.msfaccess.org/content/visceral-leishmaniasis-hiv-co-infection-east-africa

Kala azar (visceral leishmaniasis)
WHO leishmaniasis control strategy aims to:

- Eliminate mortality due to VL;
- Significantly reduce morbidity due to VL and CL;
- Contribute to improving health status of populations at risk;
- Minimize socioeconomic losses provoked by the disease.
Priority Interventions of WHO Leishmaniasis Control Strategy

1. **Strengthen** public health services;

2. **Improve** capacities for early detection, diagnosis, treatment;

3. **Reinforce** disease surveillance;

4. **Improve** capacities for outbreak response/prevention;

5. **Strengthen** vector and reservoir control;

6. **Strengthen** research capabilities;

7. **Increase community awareness** and participation;

8. **Build** and scale up partnership action;

9. **Enhance** inter-sectoral collaboration;

10. **Strengthen** cross-border coordination and cooperation.

Source: WHO Strategic framework for leishmaniasis control in the WHO European Region 2014-2020
The gap analysis considered each of these objectives in *three stages*:

1. An objective description of status of leishmaniasis and the *current surveillance, treatment and control activities in each country*.

2. A *critical evaluation* of the effectiveness of these activities, identifying opportunities for improvement.

3. These observations in turn provided the basis for the recommendations to be included in the action plan proposing practical and sustainable measures for capacity building at the individual, institutional and societal level. It is envisaged that the action plan will be the basis for developing an improved strategy for the control of leishmaniasis in each country.
**Data management** component implemented by national experts in each country.

- Clinical case data collated and analysed to enable endemic zones to be mapped and incidence rates calculated;
- Vector distribution and prevalence rates in reservoirs were similarly reported.

1-2 week **study tour** and in-country **workshops** in Albania, Jordan, Pakistan.

Detailed reports were produced for each of the three countries as well as a combined summary report.

**Ongoing dissemination and collaboration** activities.

- Creation of Leishmaniax **virtual group platform**;
- **Meta-analysis** released to media in Feb. 2016;
- International Society on Infectious Disease (ISID) **conference abstract** accepted.
Pakistan's Leishmaniasis Gap Analysis Overview:

Salient Features, Findings & Way Forward

April – November 2015

Dr. S.M. Mursalin, Executive Director
Pakistan One Health Alliance.
POHA is a newly formed group of like-minded professionals drawn from diverse disciplines (e.g. public health, veterinary sciences, agriculture, entomology, environmental health, wildlife, information technology, health biotechnology).

Aims to curtail illness/disease spread either through human, wildlife, vector, food or human-ecosystem interface using One Health approach.

Representation from concerned government departments, international partners is ensured.

Coordination with regional/global partners (e.g. CORDS, SECID, OHASA).
Pakistan’s Leishmaniasis Gap Analysis Overview

- To advocate the cause of Neglected Diseases- specially Leishmania Disease.
- Determine the burden and determinants of leishmania disease specially- the common cutaneous.
- Identify the Gaps for Leishmania Control Measures at various levels of health systems (spe. public sector) & draw recommendations for action.
- **Methodology.** Extensive literature search, Development of standard questionnaires, data collection from 20 districts. Key Informants interviews/ Focus Group Discussions. Report Development and Dissemination.

CORDS
Connecting Organizations for Regional Disease Surveillance

Core Group
Advancing community health worldwide.
Cutaneous Leishmaniasis Cases Reported Via DHIS-Pakistan (2014)

Legend

- **Leishmaniasis Cases**
  - 5 - 272
  - 273 - 726
  - 727 - 1763
  - 1764 - 3250
  - 3251 - 5745
  - Province

<table>
<thead>
<tr>
<th>DIST. WITH HIGH CL (SINDH)</th>
<th># OF CASES</th>
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<tr>
<td>Hyderabad</td>
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</tr>
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<td>4373</td>
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<tr>
<td>Ghotki</td>
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<td>Dadu</td>
<td>1990</td>
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<td>Sukkur</td>
<td>1763</td>
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<tr>
<td>Thatta</td>
<td>1634</td>
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<tr>
<td>Tando Allah Yar</td>
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<td>Chakwal</td>
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</tr>
<tr>
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<td>397</td>
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<td>Khushab</td>
<td>396</td>
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<tr>
<td>Mianwali</td>
<td>387</td>
</tr>
<tr>
<td>Jhelum</td>
<td>272</td>
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<tr>
<td>Multan</td>
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</table>

<table>
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<th>CASES</th>
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<tbody>
<tr>
<td>Mardan</td>
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</tr>
<tr>
<td>Nowshera</td>
<td>1138</td>
</tr>
<tr>
<td>Bannu</td>
<td>1002</td>
</tr>
<tr>
<td>Karak</td>
<td>572</td>
</tr>
<tr>
<td>Hangu</td>
<td>373</td>
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<tr>
<td>Chitral</td>
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<table>
<thead>
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<th>BALOCHISTAN/DIST</th>
<th>CASES</th>
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<tr>
<td>Sibi</td>
<td>499</td>
</tr>
<tr>
<td>Kachhi (Bolan)</td>
<td>430</td>
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<tr>
<td>Quetta</td>
<td>343</td>
</tr>
<tr>
<td>Killa Saifullah</td>
<td>310</td>
</tr>
<tr>
<td>Lasbella</td>
<td>219</td>
</tr>
<tr>
<td>Keich (Turbat)</td>
<td>215</td>
</tr>
</tbody>
</table>
Key Findings
Programme Management in Pakistan

Strengths.
- Adequate health infrastructure with country wide community health workers network.
- Disease Data (for CL) Available through National HIS.
- Dearth of either exclusive or merged Leishmania Control Program in the country Pakistan.

Grey Areas.
- Considerable gap in Management and Disease Control Refugees/IDPs Camps.
- No explicit Cross Border mechanism for Disease Management, either inter district, inter provincial or inter country.
Key Findings
Case Detection & Management in Pakistan

**Strengths.**
- Standard Case Definitions Manuals / protocols available.
- Experience with DEWS implementation, including CL.

**Grey Areas.**
- Weak Diagnostic facilities, lab equipment, trained manpower and population coverage (25%). No District Epidemiologists.
Key Findings
Disease Surveillance in Pakistan

- National Health Information System (DHIS) is the only data system for CL Only with reporting system for VL.
- Inadequate Surveillance and MIS for Leishmania Disease recording and reporting.
- An adequate surveillance and management of Leishmaniasis is lacking at district level among IDPs/Refugee camps.
- Disease data reporting is done as per health department protocol, but has no legal or constitutional coverage.
Key Findings
Integrated Vector Control in Pakistan

- Demonstrated/effective vector control for dengue and malaria.
- Fragmented and week coordination with health system.
- Use of nets in windows & sleeping under bed nets very low.
Key Findings
Epidemic Preparedness & Response in Pakistan

- Significant experience/expertise (from Dengue, Disease Early Warning System i.e. DEWS) willingness for improvement.
- Need to re-instate DEWS and build emergency communication systems.
- Dearth of Specialized Doctors. No training opportunity for Leishmania disease available for medics or paramedics.
- Treatment follow up is quite discouraging, for 41% found with no follow up.
- High chance of relapse (66% reported by health facilities), no mechanism for relapse data at facilities.
Challenges to Address
Leishmaniasis Gap Analysis in Pakistan

- Political and financial commitment for disease prevention & control at all levels.
- Promotion of inter-sectoral collaboration (One Health approach).
- Expansion of geographical coverage/ treatment/diagnostic/ facilities amongst urban-rural and deprived communities.
- Adequate use of existing health infrastructure and community workforce.
- Drug availability by encouraging local manufacturing, registration and legal import rather than smuggling.
- Challenges of integrated disease investigation amongst provinces & countries (including pops, reservoirs, and vector species)
- Update of current guidelines and protocols as per new standards.
Priorities & Next Steps (National)
Leishmaniasis Gap Analysis in Pakistan

- Study dissemination and provincial roadmap development seminars. Business plan.
- Organization of baseline/ disease determinants studies in high risk areas.
- Promotion of One Health approach/ best practices.
- Development of national pool of experts on One Health.
- Development of Integrated Vector Control Program (Incorporating Leishmaniasis, Malaria, Dengue & Others).
- Efforts for drug availability/ registration and local manufacturing.
Closing Remarks
Leishmaniasis Gap Analysis in Pakistan

- Special thanks to CORDS, SECID/SEEHN and the Bill & Melinda Gates Foundation for providing this opportunity to accomplish this gigantic task.
- This seems an important milestone towards a long term strategy and control measures.
- CORDS/SECID/WHO may assist for capacity building TOTs Workshops in Disease Detection and Response. (Regional/National)
- Collaborative Research Studies/Pilot Projects are strongly recommended. (e.g. LHW involvement and Mobile application)
- Continued coordination amongst partners is desired to address this and other emerging diseases.
Study Team Meeting
(Islamabad, Pakistan – September 3, 2015)
Pak One Health Alliance

- Website
  - http://pakonehealth.org

- Facebook
  - www.facebook.com/PakOneHealth

- Twitter
  - @PakOneHealth
Dr. Silvia Bino, Associate Professor of Infectious Diseases
Head, Control of Infectious Diseases Department
Institute of Public Health Rruga Aleksander Moisu Nr. 80
Tirana, Albania
Southeast European Centre for Surveillance and Control of Infectious Diseases (SECID)
South Eastern Europe Health Network (SEEHN)
A process with selected areas:

- Programme management and operational research;
- Case detection and management;
- Disease surveillance and epidemic preparedness and response;
- Control of reservoir hosts;
- Integrated vector control;
- Capacity building;
- Community participation and health education.

Evaluation of Leishmaniasis surveillance and reporting.

Case study of social and economic conditions and dog seroprevalence.
Key Findings

Leishmaniasis Gap Analysis in Albania

- There is no established Leishmaniasis control program coordinated by one accountable authority in Albania and with clear goals and a strategic plan.
- Leishmaniasis has not yet been perceived as a priority public health problem.
- Limited capacities to manage interagency public health programs on zoonotic diseases and lack of sustainability for such programs.
- Intermittent lack of medication in public hospitals.
- Out-dated case detection and clinical management protocols.
- Low capacities for early disease detection at regional or district levels.
- Bone marrow aspiration is the main diagnostic tool and intermittent lack of kits and reagents for diagnosis and lack of PCR and rapid tests.
Key Findings
Leishmaniasis Gap Analysis in Albania (continued)

- Delayed treatment and care.
- Problems with reporting of cases to national authority at IPH and to district authority levels.
- There are no official statistics about the number of stray dogs. In general, the population is estimated to be quite abundant and there are a number of reasons why the population numbers are high.
- There are no population control measures in place and no active surveillance in dogs.
- *P. neglectus* plays an important key role and *P. tobbi* a secondary role.
- No vector control programme dedicated for sand flies.
- Low community perception and lack of community programs especially in poor areas where Leishmaniasis is found.
Key Findings
Leishmaniasis Gap Analysis in Albania (continued)

GAP ANALYSES

District Data Collection

HCU Archive

No. cases

September 2014  December 2014  May 2015  September 2015

241  582  809  1368

No. cases
Flow of Information & Problems
Leishmaniasis Gap Analysis in Albania

Occurrence of health event (Leishmania case detection)

Hospitals Districts

University Hospital Center "Mother"

District Epidemiological Service (local level of data collection)

Institute of Public Health (National Level of data collection)

MOH

Lack of case reporting from UCH to Districts EPI
Number of Cases & Incidence of Visceral Leishmaniasis in Albania 2000 - 2014
Age Histogram
Leishmaniasis Gap Analysis in Albania
Proportional distribution of all leishmania cases

Legend
Leishmania cases count
- 1
- 5
- 10
- 50
- 100

Altitude
meters. asl
-407 - 0
0 - 50
51 - 125
126 - 250
251 - 500
501 - 1,000
1,001 - 1,500
1,501 - 2,000
2,001 - 3,000
3,001 - 4,000
4,001 - 5,000
5,001 - 6,000
Microscopic identification of bone marrow aspiration staining.

Only 34.85 of the cases in TUHC had serologic diagnosis.

The mean time from diseases onset to hospital admission is 22.6 ± 36.1 days with a minimal time of one day and a maximum time of one year.

The timing is age related and is increased in older adults so there is positive significant correlation of admission time and patient age (\(\text{rho} = 0.2, 95\% \text{CI} = 0.1-0.3, p < 0.01\)).

The mean time from admission to laboratory diagnosis and diagnosis confirmation is 1.9 ± 4.1 days. The shortest time is within a day but also in very few cases there delays within 25 days from the admission.
Distribution of Cases Based on Timing from Onset to Hospital Admission
Leishmaniasis Gap Analysis in Albania
95.0 % of the cases were treated with Glucantime, 4.0% with Ambisome and in 1.0% with both. The mean time of Glucantime treatment in the first cycle in 15.0 days, while for Ambisome was 4.7 days. The second cycle of treatment was applied only in 50.5% of cases.

The second round of treatment (second treatment cycle) was applied in only 49.0% of Glucantime cases while 95.7% Ambisome treated cases had again Ambisome during the second treatment cycle.

The mean time for the second cycle for Glucantime treatment was 11.6 days, while for Ambisome was 1.4 days.

Only 3.9% of cases had a second treatment cycle.

The disease reappeared only in 2.1% of the cases.
Only 10 cases within 1368 ones were diagnosed with HIV infection and had the appropriate treatment. HIV cases are not all tested for leishmaniasis.

Currently there are no drugs in the public system to treat leishmaniasis in adults (beyond 14 years old) including HIV positive persons.

AmBisome has been secured for children during the last three years in the public system.

The cost of treatment, when it is secured by the patients, presents a burden to the families due to the high cost of AmBisome.
Challenges to Address
Leishmaniasis Gap Analysis in Albania

- Challenges to leishmaniasis diagnosis, care, treatment (during war, migration, refugee crisis);
- Lack of access to anti-leishmania drugs due to treatment for general population and lack of insured or public health treatment and care program for refugees;
- Increasing awareness for establishing a One Health control program with an accountable authority;
- Challenges of integrated investigation of leishmania infection among Syrian/Afghani refugees and migrants in Jordan, Albania and Pakistan (others, reservoirs and vector species);
- Lack of community and trained health care workers engagement;
- Risk of increasing cutaneous leishmaniasis;
- Lack of a system to exchange health data or other (vectors and reservoirs) among countries receiving refugees and others exporting them.
Operational Protocols Needed
Leishmaniasis Gap Analysis in Albania

- One Health surveillance protocol where human, animal and vectors surveillance is integrated;
- Integrated database with human, animal, and vector data;
- Use of Vecmap or adapt it;
- One Health field investigation guideline and protocol (starting from human, reservoir or vector according to epidemic intelligence data);
- Early case detection and treatment protocol for primary and hospital care.
Priorities Identified
Leishmaniasis Gap Analysis in Albania

- Use regional capacities to establish a critical mass of experts.
- Increase knowledge of health care workers and network of trained clinical workers.
- Establish one national laboratory capacity to early detect Leishmania in humans, animals and vectors and especially molecular diagnosis capacity and one health surveillance and field investigation.
- Ensure appropriate treatment for all age groups.
- Increase awareness of policy makers and others for Leishmaniasis as a public health priority.
- Use well established mosquito control program as a model to establish the vector control program.
- Use well established vaccination program to improve case detection.
- Promote research in the field of Leishmaniasis.
A Platform for experts to develop and test evidence based strategies for the treatment and control of Leishmaniasis.

Meeting between SECID and CORDS

VBORNET Newsletter 8, special issue ‘SAND FLIES’, July 2010

CONTENTS
1. Phlebotominae sand flies (Diptera: Psychodidae): Main vectors in Europe and their distribution with special emphasis for Turkey
2. The leishmaniasis in southern Europe
3. Public health importance and control of sand flies in continental Europe
LEISHMANIASIS, CUTANEOUS - LIBYA: (TRIPOLI)

Submitted by lluka_qafoku on Fri, 04/15/2016 - 13:45

A ProMED-mail post

ProMED-mail is a program of the International Society for Infectious Diseases

Date: Mon, 11 Apr 2016
Source: The Libya Observer [edited]

A total of 145 cases of leishmaniasis have been recorded in Bani Walid, the city’s health authorities have reported. Bani Walid Health Center said there is a surge in leishmaniasis due to waste accumulation.

The infected cases are increasing significantly and there is difficulty in providing therapy due to lack of medicines. the manager
Southeastern European Centre for Surveillance and Control of Infectious Diseases (SECID) South East European Health Network (SEEHN)

- **Website**: http://www.secids.org
- **Facebook**: www.facebook.com/secids
- **Twitter**: @secids
- **Leishmaniaux.net**
  - A platform for experts to develop and test evidence-based strategies for the treatment and control of Leishmaniasis.
Dr. Khalil Kanani, Head of Parasitic and Zoonotic Diseases Division
Ministry of Health
Amman, Jordan
Middle East Consortium on Infectious Diseases Surveillance (MECIDS)
Key Findings

Leishmaniasis amongst Jordanians

- CL due to *L. major* and *L. tropica* is endemic in Jordan
- VL is rare in Jordan (less than 20 cases reported over last 50 yrs)
- Annual average IR of CL = 3.02 / 100,000
- Epidemiologic data points toward zoonotic origin of *L. major* and *L. tropica*
- Patients initially resort to ineffective traditional remedies which lead to delay in seeking medical treatment.
- The risk of ACL among Syrian refugees in Jordan to be established and spread in urban areas of Jordan.
In 2015, there were over 630,000 Syrian refugees in Jordan, of which only 17% were living in refugee camps.

Different leishmania parasite species are known to be endemic in Syria.

CL cases from Aleppo and Edlib areas in Syria are due to anthropontic *L. tropica* strain carrying the risk of introduction and spread of ACL in Jordan.

Reporting between 2010 - 2015 indicates:
- 393 CL cases (382 cases reported, 2012-2015)
- 3 pediatric VL cases (laboratory confirmed, 2015)
Reported CL Cases
In Jordan by Nationality

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<tr>
<th>Year</th>
<th>Jordanian</th>
<th>Syrian</th>
<th>Other nationals</th>
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<tr>
<td>2010</td>
<td>150</td>
<td>5</td>
<td>0</td>
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<td>2011</td>
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<td>6</td>
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<td>96</td>
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</tr>
<tr>
<td>2015</td>
<td>65</td>
<td>187</td>
<td>5</td>
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</table>

- Jordanian
- Syrian
- Other nationalities
Geographic Distribution of Reported CL Cases Among Syrian Refugees by Locality (from 2012 up to 31 October 2015)
Gaps Identified
Leishmaniasis Gap Analysis in Jordan

- No specific budget line for national leishmaniasis control activities and training.
- No established leishmania unit at central level for the control of the vector and animal reservoir.
- Weak and difficult inter-sectoral collaboration for *leishmania* control.
- Under reporting of leishmaniasis.
- VBDs staff turnover and loss of expert staff.
- Lack of laboratory diagnosis and weak treatment capabilities in the highly endemic and marginalized areas.
Delayed seeking of treatment and use of ineffective traditional remedies leads to disfiguring lesions.

High drop out rate during treatment and ineffective post-treatment follow up, particularly among refugees.

Weak awareness and knowledge of leishmaniasis surveillance, diagnosis, treatment and reporting amongst health personnel, particularly in non endemic governorates.

Weak capacities of leishmaniasis diagnosis and treatment amongst health care providers working at refugee camps.

Low application and use risk reduction measures in endemic areas.
Risk of ACL (anthropomorphic cutaneous leishmaniasis) becoming established and spreading in urban areas of Jordan.

Improving health services and capacities related to surveillance, diagnosis and treatment of leishmaniasis in endemic areas, and amongst refugees in marginalized status and transient existence.

Sustain availability of specific anti-leishmanial drugs.
Needs Identified
Leishmaniasis Gap Analysis in Jordan

- Establishment of a national unit with adequate resources for leishmaniasis vector and animal reservoir host.
- Adequate commitment and inter-sectoral coordination to prevent spread and negative impact of the disease on poor and marginalized populations.
- Change regulations to enable registration and importation of anti-leishmanial drugs.
- Better and more sustainable access to diagnosis and treatment.
- Raise awareness on leishmaniasis amongst health personnel, teachers and population in endemic areas.
- Improve the use of risk reduction measures in endemic areas.
Leishmaniasis is a low priority for health authorities with limited budgets and resources allocated for its control, particularly in marginalized areas.
Priorities & Recommendations
Leishmaniasis Gap Analysis in Jordan

- Establishment of a national *leishmania* unit with adequate resources for vector and animal reservoir host control.
- Strengthening of surveillance, for early detection, diagnosis and treatment.
- Ensure availability and accessibility for diagnosis, and management of leishmaniasis cases at peripheral level and refugee camps.
- Raising awareness of community and health education of medical staff.
Priorities & Recommendations
(continued) Leishmaniasis Gap Analysis in Jordan

- Perform Risk Assessment of local establishment and transmission of ACL.
- Update preventive and curative guidelines, protocols and health policies for surveillance, diagnosis and treatment.
- Integration of leishmaniasis control activities with other VBDs control programmes.
- Create coalitions with other institutions for leishmaniasis control efforts and research.
- Sharing information between countries (Leishmanix.net)
Middle East Consortium on Infectious Diseases Surveillance (MECIDS)

- Website
  - http://www.mecidsnetwork.org

- Facebook
  - www.facebook.com/sfcg.org

- Twitter
  - @SFCG_

- Search for Common Ground
  - www.sfcg.org
  - We partner with people around the world to ignite shared solutions to destructive conflicts.
Insights from Leishmaniasis Gap Analysis Project

Dr. James Crilly, Technical Advisor
Leishmaniasis Gap Analysis Project Coordinator
Southeast European Centre for Surveillance and Control of Infectious Diseases (SECID)
South Eastern Europe Health Network (SEEHN)
While the findings of the gap analysis for each country have been presented, there are several conclusions that can be drawn which have a wider relevance.

- All three countries currently lack the funding, manpower and resources needed to address current and emerging vector borne disease threats.
- Leishmaniasis is a major disease threat for refugees and host communities.
- Effective and affordable anti-leishmania treatment is frequently unavailable in the impoverished urban and rural communities where leishmaniasis is most prevalent.
Preparedness against emerging vector borne disease threats such as Dengue and Zika requires a functional vector borne disease capacity.

The best indicator of a functional vector borne disease capacity is a demonstrable ability to control the vector borne diseases which are endemic in the country.

A major output of the gap analysis was to document the limitations in all three countries, for the surveillance and control of the sandfly vectors of leishmania.

Deficiencies were identified in all critical capacities:
- Legislative
- Institutional
- Administrative
- Financial
- Technical
- Research
- Awareness

For each country, we have proposed that a national vector-borne disease unit should be established with adequate funding, staff and resources to conduct coordinated evidence-based integrated vector control interventions against diseases such as malaria, dengue and leishmaniasis.
Due to limited disease surveillance capacity, the spread of ACL in Pakistan over the last 20-30 years was largely unreported.

There is every likelihood of similar occurrence in countries hosting Syrian refugees such as Jordan, Lebanon and Turkey.

Risk of contagion and the ensuing social consequences for young women may be a factor in migration.

Where is the support for the public health services and NGOs working to treat and control leishmaniasis?

Why are anti-leishmania drugs unavailable or unaffordable?
Dr. Byron Arana, Head of Cutaneous Leishmaniasis
Drugs for Neglected Diseases initiative (DNDi)
Geneva, Switzerland
Difficulties to Control Leishmaniasis

- No effective vaccine is available.
- Traditional vector control methods do not appear to be effective and are often not available to or practical for at-risk populations.
- Control is unlikely to be achieved by a single intervention. A combination of case management strategies, integrated vector control and animal reservoir control if relevant, is required and should be tailored to each context.
- Few efforts on drug screening / discovery.
- Treatment has long depended on antiquated drugs that would be considered far too toxic for introduction under modern registration systems.
- Response rates to different treatment options varies from region to region, country to country and also varies depending on the specie of *Leishmania* causing the disease.
- CL is a diseases with a spectrum of clinical manifestations, hence different treatment approaches (topical, systemic, combinations) are recommended depending on number of lesions, localization, lesion size, specie of *Leishmania* causing the disease, etc.
- Even though progress has been made for the treatment of VL (Liposomal Anfotericin B, Combinations), for CL it seems that what is currently available will probably represent almost the entire therapeutic arsenal for the coming years.

The priority for control is developing and implementing improved diagnostic methods and better treatments that are more amenable to field use.
## Treatment Examples*

<table>
<thead>
<tr>
<th>AMBISOME® (Liposomal Amphotericin B)</th>
<th>Global-level Access challenge</th>
<th>Potential solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-supplier (Gilead)</td>
<td>• One-supplier (Gilead)</td>
<td>• Work with stakeholders to validate a generic supplier</td>
</tr>
<tr>
<td>• Long lead times in the past</td>
<td>• Long lead times in the past</td>
<td>• WHO in process of negotiating w/ Gilead for extension of agreement</td>
</tr>
<tr>
<td>• Sourced via WHO agreement (countries must request via WHO Regional office)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMPAVIDO® Miltefosine</td>
<td>• One-supplier (Knight Therapeutics)</td>
<td>• Establish procurement solution with stakeholders (ie. Rotating Stockpile...)</td>
</tr>
<tr>
<td>• Unclear commitment of company to continue to produce drug</td>
<td>• Unclear commitment of company to continue to produce drug</td>
<td>• Find alternative producers</td>
</tr>
<tr>
<td>• Minimum order size requirements to attain Access Pricing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paramomycin</td>
<td>• One producer of finished product (Gland) and API</td>
<td>• Better forecast information and share with suppliers</td>
</tr>
<tr>
<td>• Quality issues led to supply gaps in the past</td>
<td></td>
<td>• Work with stakeholders (MSF, WHO, IDA solutions...) to create a longer-term supply agreement for PM and SSG</td>
</tr>
<tr>
<td>SSG Sodium stibogluconate</td>
<td>• One generic producer (Albert David)</td>
<td></td>
</tr>
<tr>
<td>• API producer is not compliant with GMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Availability varies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Treatment may differ depending on National Treatment Guideline or alignment with neighboring country guidelines
Based on the experience at DNDi, it is important to have:

- **Affordability**
  - Conduct price mapping, prices paid at different levels within the health system.
  - WHO Regional Offices facilitate the Liposomal Ampho B (AMBISOME®) donation.

- **Availability**
  - Determine registration status of key drugs in each county.
  - Cold-chain requirements for AMBISOME®; second line option of Miltefosine & PM?
  - Inclusion of drugs on national tender.

- **Adoption**
  - Create national guidelines with treatment recommendations.
  - Define Clear objectives, goals, milestones and indicators for National Control Programmes.
  - Capacity building activities to train healthcare workers on diagnosis and treatment protocols.
  - Strengthen data collection and reporting.
To achieve short, safe, non-invasive, efficacious, affordable and field-friendly treatments for CL or at least for lesions caused by *L. tropica* and *L. braziliensis*. 
Q&A Discussion Session

Leishmaniasis is an entirely treatable parasitic disease spread by sandflies.

- **Cutaneous leishmaniasis** can lead to distressing and disfiguring skin ulcers and scarring.
- **Visceral leishmaniasis** affects the liver and spleen and if untreated is fatal.

310,000,000 at risk of infection globally, 1,600,000 new cases every year.

40,000 DEATHS occur every year, making visceral leishmaniasis the 2nd biggest parasitic killer after malaria.

Psychological and social stigma can lead to exclusion from society due to the mistaken belief that the disease is contagious.

- Mothers stopped from teaching their children
- Children stopped from going to school
- Disfigured women considered unsuitable for marriage
- Disease used as pretext for a husband to leave his wife

The disease is unlikely to spread to developed western countries which have healthy populations with good sanitation and healthcare.

Connecting Organizations for Regional Disease Surveillance

Advancing community health worldwide.

cords

coregroup
Closing Remarks

Professor Nigel Lightfoot CBE, Executive Director
Connecting Organizations for Regional Disease Surveillance (CORDS)
Lyon, France

CORDS, Zika & beyond the next global threat:
- Benefits of coordinated vector control;
- Innovations in strategy and approach;
- CORDS’ contribution to Zika activities via One Health framework;
- Full Leishmaniasis Gap Analysis Report and Action Plan available on CORDS website here.
Thank you to our networks, partners and supporters.
Thank you for participating and stay in touch!

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