Cutaneous Leishmaniasis: Global overview

Meeting of stakeholders for selected Health R&D Demonstration Projects, 7-10 May 2014, WHO, Geneva

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Leishmaniasis

- A unique disease with wide ranging (e.g., cutaneous, mucocutaneous & visceral) & complex epidemiology
- Prevails in tropical and subtropical zones
- Strongly immunologically mediated disease
- Several vector species & a range of reservoirs
- Several parasite species with diverse characteristics depending on geographic focus
- Similar species could have different clinical spectrum and severity of disease
- Cutaneos leishmaniasis is the most common form
Leishmaniasis Global Situation

Cutaneous leishmaniasis (CL)
- An estimated 0.7 million to 1.3 million new cases occur worldwide annually.
- About one-third of CL cases occur in the Americas, the Mediterranean basin, and the Middle East and Central Asia countries.

• Mucocutaneous leishmaniasis
  - Most cases are reported from Bolivia, Brazil and Peru.
Leishmania in humans with principal tropism

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<tr>
<th>Subgenus</th>
<th>Viscerotropic</th>
<th>Dermotropic</th>
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<td>Subgenus</td>
<td>L.(Leishmania)</td>
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Global reported and estimated incidence of cutaneous leishmaniasis

<table>
<thead>
<tr>
<th>Region</th>
<th>Reported CL cases per year</th>
<th>Countries with 5 year data (%)</th>
<th>Estimated annual CL incidence</th>
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<tr>
<td>Americas</td>
<td>66,941</td>
<td>70</td>
<td>187,300 – 307,800</td>
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<td>Sub-Saharan Africa</td>
<td>155</td>
<td>33</td>
<td>770 – 1500</td>
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<td>East Africa</td>
<td>50</td>
<td>0</td>
<td>35,300 – 90,500</td>
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<td>Mediterranean</td>
<td>85,555</td>
<td>65</td>
<td>239,500 – 393,600</td>
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<td>Middle east to central Asia</td>
<td>61,013</td>
<td>89</td>
<td>226,200 – 416,400</td>
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<td>South Asia</td>
<td>322</td>
<td>100</td>
<td>1,900 – 3,500</td>
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<td><strong>Global Total</strong></td>
<td><strong>214,036</strong></td>
<td><strong>61</strong></td>
<td><strong>699,900 – 1,213,300</strong></td>
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http://www.plosone.org/article/info:doi/10.1371/journal.pone.0035671
Cutaneous leishmaniasis, reported (2012) and annual estimated cases

Status of endemicity of cutaneous leishmaniasis, worldwide, 2012

Number of new CL cases reported, 2012

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2013. All rights reserved.
Cutaneous leishmaniasis in East and sub-Saharan Africa

- Commonly caused by the old world *leishmania* species;
  - *L. major*, *L. donovani*, *L. aethiopica*, *L. tropica*
  - Cutaneous lesions caused by *L. infantum*,
    very few cases reported from CAR, Gambia, Mauritania
  - *L. aethiopica* – Ethiopia, Kenya, Uganda

- Predominantly zoonotic, occasional outbreaks reported scale

- CL not included in the surveillance report – precise magnitude & distribution unknown
CL L. aethiopica

- Occurs in the highlands of Ethiopia and Kenya
- Major cause of CL in Ethiopia and various forms:
  - Localized
  - Diffuse
  - Mucocuaneous
- Localized CL respond well but diffuse and MCL forms are difficult to treat
- Hyraxes major reservoirs
- HIV positive. Palate also affected
Cutaneous leishmaniasis in eastern Mediterranean region

18 of the 23 WHO/EMR countries are endemic to CL. ACL in 11 & ZCL in all 18.
Distribution of Cutaneous leishmaniasis in eastern Mediterranean region

- Contribute to 60% of global CL burden

18 of the 23 WHO/EMR countries are endemic to CL. ACL in 11 & ZCL in all 18.

- L. tropica, mainly by P. sergenti, causing ACL
- L. major, mainly by P. papatasi, causing ZCL
In 2011, 91,345 ACL and 52,447 ZCL cases and a total of 143,792 CL cases reported to WHO.
Syrian crisis and CL

Number of Syrian refugees registered in neighboring countries - almost 2.7 m

WHO so far has provided over 240,000 vials of antimonials for CL treatment
Cutaneous leishmaniasis in the Americas

- Predominantly zoonotic – several wild reservoirs
- In Brazil, from 1980 to 2001, 10 fold increase in incidence of CL & spread to all states
- Brazil, Colombia, and Peru accounted for 76% of reported CL cases (2001 to 2011)
- Occupational exposure remains important, but widespread deforestation has led to:
  - a rapid increase in cases and;
  - peridomestic, periurban and even urban transmission.
Presence of cutaneous and mucosal leishmaniasis at the first sub-national administrative level in the Americas, 2011

- ≈637,151 cases reported by 2001-2011
- Mean/year: 57,900
- Mucosal Form: 3.8%
- 71% of reported cases in 2011 were male
- Underreporting cases
- Estimated cases are 187,200-307,800

Source: PAHO/WHO – Data available by the leishmaniasis control programs of the countries.
Cutaneous leishmaniasis in the Americas

- Transmission cycles
  - sylvatic
  - domestic/peridomestic

- Risk factors
  - Migration
  - deforestation
  - environmental changes
Cutaneous leishmaniasis in the Americas

• CL - Increasing trend in transition from the sylvatic cycle to the domestic cycle (increase in cases in women & children),

• change in the epidemiological patterns associated with changes:
  – in population,
  – in land use and;
  – peridomestic and indoor transmission 
    \((L.\text{amazonensis} – \text{Bolivia}, L.\text{ guyanensis} – \text{Colombia and } L.\text{ braziliensis} – \text{Brazil})\).
Mainly affects poor populations

Parasite: 15 species of *Leishmania* were identified as pathogenic to humans

Vectors: 54 potential or suspected species of *Lutzomya*

Source: WHO TRS949

**Leishmaniases in the Americas**

**Distribution of Leishmania species in the Americas, 2009.**

**Legend**
- L. baixiensis
- L. panamensis
- L. peruviana
- L. guyanensis
- L. colombiensis
- L. amazonensis
- L. mexicana
- L. venezuelensis
- L. infantum
- L. fagueti
- L. shawi
- L. naiffi
- L. lindenberghi
- L. pifanoi
- L. garnhami

Brazil=8
Venezuela=8
Colombia=7

N° countries

![Graph showing distribution of Leishmania species in the Americas]
Cutaneous leishmaniasis in the Americas

- Clinical Forms
  - Cutaneous Leishmaniasis (localized)
  - Mucosal leishmaniasis
  - Diffuse CL

- ML: Deformities and mutilation- severe form
Cutaneous and mucosal leishmaniasis in the Americas

CL cases high endemic countries in Latin America 2001 -2011

Source: PAHO/WHO – Data available by the leishmaniasis control programs of the countries
Cutaneous leishmaniasis incidence by country in Latin America, 2001 - 2010

Source: PAHO/WHO – Data available from countries’ leishmaniasis control programs
Cutaneous and mucosal Leishmaniasis in the Americas

- 57,287 Cases
- Incidence Rate: 16.51 cases/100,000 inhabitants
- 95.7%: Cutaneous Form
- 70.6%: Male
- Panamá, Costa Rica and Nicaragua: Proportion is same
- Age Group:
  - 10-50 years old: 70%
  - Nicaragua and Panama: < 10 years old most affected

Source: PAHO/WHO – Data available from countries initiating diagnostic testing.
Factors sustaining or facilitating leishmaniasis spread

- Poverty – poor housing, sanitation,...
- Poorly controlled animal reservoirs – dogs, rodents and other wild animals
- Population movement – Migration, travel, conflicts, settlements
- Environmental & climatic changes – Man made and natural
- Others ...adaptation of vectors or new vectors
WHO global leishmaniasis control program focus areas

• Support to National/Regional control programmes to:
  – develop a strategic prevention and control plan
  – Formulate or review national diagnosis and treatment guidelines (case management)
  – Improve capacity in case management, prevention and H.E

• Strengthening surveillance activities

• Outbreak investigations, preparedness and response

• Support WHO CC, identify operational research priority needs, conduct assessments

• Strengthen partnership, coordination, advocacy for resource mobilization
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<th>Year</th>
<th>Targets and milestones for Leishmaniasis control and elimination</th>
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| 2012 | Published post-kala-azar dermal Leishmaniasis case-management and control manual for health workers  
Published guidelines for Eastern Mediterranean Region on case-management of cutaneous Leishmaniasis  
Formulated 5-year strategic framework for controlling cutaneous Leishmaniasis in countries in the Eastern Mediterranean Region  
Updated epidemiological information in endemic countries in Region of the Americas  
Conducted epidemiological assessment in selected endemic countries in the European Region |
| 2013 | Aim to implement national control programmes for visceral Leishmaniasis in 5 endemic African countries (Ethiopia, Kenya, South Sudan, Sudan and Uganda)  
Aim to detect and treat >75% of visceral Leishmaniasis cases in endemic countries in East Africa  
Update maps on cutaneous and visceral Leishmaniasis at subdistrict level in endemic countries in the Region of the Americas  
Adapt guidelines for control of cutaneous and visceral Leishmaniasis in endemic countries in the European Region |
| 2014 | Aim to detect and treat >90% of cases of visceral Leishmaniasis and post-kala-azar dermal Leishmaniasis in the South-East Asia Region  
Complete district-level epidemiological assessment and mapping of cutaneous and visceral Leishmaniasis in 50% of endemic African countries  
Update treatment policy for coinfection with visceral Leishmaniasis and HIV using best available evidence  
Enhance surveillance of cutaneous, mucocutaneous and visceral Leishmaniasis in the Region of the Americas |
| 2015 | Aim to detect and treat all cases of visceral Leishmaniasis and post-kala-azar dermal Leishmaniasis in the South-East Asia Region  
Detect and manage >70% of cases of cutaneous Leishmaniasis in the Eastern Mediterranean Region  
Detect and treat >90% of cases of cutaneous, mucocutaneous and visceral Leishmaniasis in the Region of the Americas  
Detect and treat >90% of cases of cutaneous and visceral Leishmaniasis in all endemic countries in the European Region  
Complete district-level mapping of cutaneous and visceral Leishmaniasis in all endemic African countries |
| 2016 | Detect and treat 90% of visceral Leishmaniasis cases in all endemic African countries |
| 2017 | Aim to verify <1 case/10 000 population per year in 80% of endemic districts and subdistricts in the South-East Asia Region |
| 2020 | Reduce the incidence of visceral Leishmaniasis to <1 case/10 000 population per year at district and subdistrict levels in the South-East Asia Region  
Aim to detect and treat all cases in the African Region, Region of the Americas, the European Region and the Eastern Mediterranean Region  
Detect and manage 85% of cutaneous Leishmaniasis cases in all endemic countries |
Leishmaniasis Control – Key milestones & Targets

2013
Implement VL NCP in 5 E. Africa countries:
- Ethiopia, Kenya, south Sudan, Sudan & Uganda; and
- Detect & treat >75% of VL cases
- Surveillance & mapping in S.America
- Adapt control strategies & guidelines in central Asia

2014
Detect & treat >90% of cases of VL & PKDL in SE Asia;
Mapping for CL & VL 50% of endemic African countries;
Control strategy for endemic central Asia countries of European region;

2015
Detect & treat all cases of VL & PKDL – SE Asia;
Detect & manage > 70% of CL EMR;
Detect & treat >90% of CL, MCL & VL – Americas;
Complete mapping for all endemic countries in Africa.

2017
Verify achievement of elimination target in 80% endemic districts in SEA

2020
Reduce incidence of VL to <1 case/10,000 population/year at subdistrict level;
Detect & treat all leishmaniasis cases in all countries & WHO regions;

World Health Organization
Thank You