Leishmaniasis Epidemiology, Burden and Stigma

Dr Alvaro Acosta Serrano, PhD
alvaro.acosta-serrano@lstmed.ac.uk
Worldwide distribution of Cutaneous Leishmaniasis

Countries reporting imported CL cases
- Turkey - 1069
- Brazil - 222
- Jordan - 165
- France - 74
- Lebanon - 16
- Colombia - 21
- Suriname - 12
- Greece - 12
- Egypt - 8
- Morocco - 5
- Mexico - 5
- Qatar - 3
- Ukraine - 4
- Bulgaria - 3
- Armenia - 1
- Bangladesh - 1
- Paraguay - 1
- Romania - 1
- Russian Federation - 1

Number of new CL cases reported, 2016
- >5,000
- 1,000 - 4,999
- 100 - 999
- =100
- No autochthonous cases reported
- No data
- Not applicable

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 2018. All rights reserved

Data Source: World Health Organization
Map Production: Control of Neglected Tropical Diseases (NTD)
World Health Organization 2017
Medically important *Leishmania* species

**Species**

- **Leishmania**
  - **Sub-species**
    - **Old world**
      - *L. major*
      - *L. tropica*
      - *L. aethiopica*
      - CL, DCL
    - **VL**
      - *L. donovani*
      - *L. infantum*
      - *L. chagasi*
      - CL, DCL
    - **New world**
      - *L. braziliensis*
      - *L. peruviana*
      - *L. panamensis*
      - *L. guyanensis*
      - MCL

**Viannia**
Leishmaniasis: a spectrum of diseases

Cutaneous (CL)

Diffuse Cutaneous (DCL)

Mucocutaneous (MCL)
In animal models:
- Disease resistance associated with a Th1 response
- Disease susceptibility linked to a Th2 response

In humans:
Response similar to animals, albeit less polarised
Factors involved in CL transmission and disease outcome

- Parasite species
- Sandfly species
- Saliva
- Gut microbiome
- Animal reservoir
- Genetics
- Immunity
- Skin microbiome
- Parasite species
Cutaneous Leishmaniasis: Disease Burden

- Approximately 12 million people infected
- >1 million new cases occur each year
- Endemic in over 88 countries
- Hotspots:
  - 90% MCL occur in Bolivia, Brazil and Peru
- No vaccine to prevent or treat CL
- Most countries still using highly toxic drugs
- No affordable RDT
- Vector control works, but it is insufficient
Cutaneous Leishmaniasis – War & Displacement (Syria and Conflict Area)


Al-Salem et al 2016
Leishmaniasis spread in LA from Venezuelan migrants?

Venezuela’s exodus

Population of Venezuelans, ’000, September 5th 2019

- Colombia 1,408
- Mexico 46,1
- Ecuador 330
- Peru 861
- Chile 288
- Guyana 36,4
- Brazil 179
- Argentina 145
- Uruguay 8.5
- Paraguay 0.5
- Caribbean 111
- Panama 64.6
- Costa Rica 29.5

*No data

Source: Regional Inter-Agency Coordination Platform for Refugees and Migrants from Venezuela

The Economist Sept, 2019
CL scarring, stigma and mental health problems (1)
CL scarring, stigma and mental health problems (2)

Credit: Dr Lee Haines
CL scarring, stigma and mental health problems (3)

FREE PUBLIC EVENT ON THE SIDELINES OF ECTMIH 2019

Better than boiling oil or amputation?

Stories behind the treatment needs of two of the world’s most neglected tropical diseases.

 choc 16 September 2019, 14:00-15:30

 Foresight Centre, 1 Brownlow St., Liverpool, UK

www.dndi.org

Pip Stewart
(Journalist, writer, explorer)
Re-calculating CL burden

- Jorge Alvar (DNDi)
- José Postigo (WHO)
- Peter Hotez (Baylor)
- Iván D. Vélez (PECET)
- Waleed Al-Salem (MoH, KSA)
- Julian Eaton (LSHTM)
- K. Mondragon-Shem (LSTM)
- Lee R Haines (LSTM)
- Emily Adams (LSTM)
Re-calculating CL burden

VIEWPOINTS

A new perspective on cutaneous leishmaniasis—Implications for global prevalence and burden of disease estimates

Freddie Bailey¹,², Karina Mondragon-Shem³, Peter Hotez⁴, José Antonio Ruiz-Postigo⁵, Waleed Al-Salem⁶, Álvaro Acosta-Serrano³,⁷, David H. Molyneux¹,³,*
Re-calculating CL burden

Active CL

Treatment

Inactive CL (scarring)
## Re-calculting CL burden

<table>
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<tr>
<th>Author</th>
<th>Study year</th>
<th>Reported</th>
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<th>Estimated</th>
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N.B. The studies below the dotted line (…) refer to Global Burden of Disease (GBD) studies conducted by the Institute of Health Metrics and Evaluation (IHME)

*MCL included

**Abbreviations:** GBD, Global Burden of Disease; GHO, Global Health Observatory; WER, Weekly Epidemiological Record

[https://doi.org/10.1371/journal.pntd.0005739.t001](https://doi.org/10.1371/journal.pntd.0005739.t001)

New calculations: prevalence of inactive CL in >40 million people
RESEARCH ARTICLE

Cutaneous leishmaniasis and co-morbid major depressive disorder: A systematic review with burden estimates

Freddie Bailey\textsuperscript{1,2,*}, Karina Mondragon-Shem\textsuperscript{1,3}, Lee Rafuse Haines\textsuperscript{1,3}, Amina Olabi\textsuperscript{1}, Ahmed Alorfi\textsuperscript{4}, José Antonio Ruiz-Postigo\textsuperscript{5}, Jorge Alvar\textsuperscript{6}, Peter Hotez\textsuperscript{7}, Emily R. Adams\textsuperscript{1}, Iván D. Vélez\textsuperscript{8}, Waleed Al-Salem\textsuperscript{4}, Julian Eaton\textsuperscript{9,10}, Álvaro Acosta-Serrano\textsuperscript{1,3}, David H. Molyneux\textsuperscript{1,*}
Minimising impact of CL scarring – Areas needing attention

• Development and implementation of affordable molecular tests (no molecular test available)

• Introduction of safer drugs and treatment methods (most countries still using antimony as first line)

• Increase disease awareness in endemic areas

• Stigma and mental health problems
ECLIPSE – Reducing CL stigma in endemic areas

• Empowering people with Cutaneous Leishmaniasis: Intervention Programme to improve patient journey and reduce Stigma via Community Education (ECLIPSE)

• Co-led by Dr Helen Price (parasitologist) and Dr Lisa Dikomitis (medical anthropologist) with teams in Brazil, Ethiopia, Sri Lanka

• Newly funded project for £4.6M starting on 1st November 2019

Dr Helen Price: h.price@keele.ac.uk
Dr Lisa Dikomitis: l.a.Dikomitis@keele.ac.uk
Twitter: @ECLIPSE_Keele
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**Baylor**
- Peter Hotez

**PECET**
- Iván D. Vélez