

# mHealth for the early diagnosis and effective treatment of cutaneous leishmaniasis

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<b>Registration date</b> 08/10/2021	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 28/03/2023	<b>Condition category</b> Infections and Infestations	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Cutaneous leishmaniasis is a parasitic disease of the skin transmitted by small flies. It tends to occur in remote areas where options for diagnosis and treatment are limited. The aim of this study is to find out whether a mobile phone (cellphone) app can improve the follow-up of people after treatment to better measure the side effects (adverse events) of treatment, and how many people are cured.

### Who can participate?

All residents in three specific townships (veredas) of Tumaco municipality, Colombia, who have at least one lesion (sore) due to cutaneous leishmaniasis.

### What does the study involve?

Participants are randomly allocated to be followed up with the help of the app or followed up as normal. Patients make several visits to CIDEIM in Tumaco. Visits 0 and 1 are for diagnostic confirmation and treatment formulation, respectively. Those allocated to the app receive additional home visits by a Community Health Volunteer. More specifically, at Visit 0, patients are assessed by a clinical prediction rule in the mobile app. Presumptive cases are considered as potential participants of the current trial, and a physical examination is performed. Those with active lesions suggestive of leishmaniasis are tested with routine methods. Patients with confirmed cutaneous leishmaniasis receive one of the treatments recommended by the Colombian Ministry of Social Protection: meglumine antimoniate or miltefosine, for 20 or 28 days respectively.

### What are the possible benefits and risks of participating?

No direct benefit is expected although the results could provide evidence about mobile health apps. The possible risks are mostly related to confidentiality, i.e. information from the study becoming known to others. However, the information will be managed in accordance with current security practices and access to identifying information will be restricted.

### Where is the study run from?

Centro Internacional de Entrenamiento e Investigaciones Medicas (CIDEIM) (Columbia)

When is the study starting and how long is it expected to run for?  
February 2014 to December 2017

Who is funding the study?  
National Institutes of Health (USA)

Who is the main contact?  
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**Additional identifiers****EudraCT/CTIS number**

Nil known

**IRAS number****ClinicalTrials.gov number**

Nil known

**Secondary identifying numbers**

20143239

**Study information****Scientific Title**

mHealth for the early diagnosis and effective treatment of cutaneous leishmaniasis: a randomized trial comparing the completeness of assessment of adverse events and therapeutic outcome in those whose follow-up is supported by eHealth, versus standard of care, in parasitologically confirmed cases

**Study objectives**

The use of low-cost technology and open source software will significantly benefit patient care, empower and train community health volunteers, and inform public health decisions and resource deployment.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Approved 29/08/2016, Comité Institucional de Ética de Investigación en Humanos (Institutional Ethics Committee for Human Research) of CIDEIM (Carrera 125 #19-225, Cali, 760031 Colombia; +57 (0)25552164, erey@cideim.org.co), ref: not applicable

**Study design**

Community-based interventional unblinded randomized controlled trial

**Primary study design**

Interventional

## **Secondary study design**

Randomised controlled trial

## **Study setting(s)**

Community

## **Study type(s)**

Diagnostic

## **Participant information sheet**

See additional files

## **Health condition(s) or problem(s) studied**

Cutaneous leishmaniasis (CL)

## **Interventions**

Design:

This is a randomized trial with parallel arms comparing a) follow-up aided by Guaral +ST app to b) standard follow-up led by the IPS (Institución Prestadora de Salud or Institutional Health Service Provider).

Screening, diagnosis and treatment:

Patients make several visits to CIDEIM in Tumaco. Visits 0 and 1 are for diagnostic confirmation and treatment formulation, respectively. Those randomized to the intervention (app) arm receive additional home visits by a Community Health Volunteer (CHV). More specifically, at Visit 0, patients are assessed by a clinical prediction rule (CPR) implemented in the Guaral RPC mobile app. Presumptive cases are considered as potential participants of the current trial, and a physical examination is performed. Those with active lesions suggestive of leishmaniasis are tested via routine parasitological methods (smear or, if negative, culture aspirate). Patients with confirmed CL disease receive one of the treatments recommended by the Colombian Ministry of Social Protection: meglumine antimoniate or miltefosine, for 20 or 28 days respectively.

Randomization:

If a CHV is available, the patient is randomized between the two arms. The sequence was previously prepared by a statistician without contact with the patients. Variable size blocks were used, specifically of length 2, 4, 6, and 8, generated by the blockrand() function of R version 3.3.1, resulting in a sequence with 50 and 25 records for the intervention and control groups respectively, that is, a 2:1 ratio. This sequence is accessed by the CIDEIM's web application for enrollment of patients. The physician and principal investigator only find out each patient's arm after enrollment. After enrollment neither the investigators nor the patients were blinded to the allocation.

## **Intervention Type**

Other

## **Primary outcome measure**

The proportion of participants seen at ideal study week 26, evidenced by standard medical records in the control arm and data entered into the app by the community health worker in the mHealth arm

## **Secondary outcome measures**

1. Adherence calculated as the percentage of the prescribed doses (in ampoules for meglumine antimoniate and in capsules for miltefosine) that are received by the patient during the planned treatment period (20 days for meglumine antimoniate and 28 days for miltefosine), as evidenced by a paper form completed by the patient in the control arm, and this paper form and/or data entered to the app by the community health worker in the mHealth arm
2. Adverse events recorded during the treatment period, in terms of symptoms and frequency in both arms, and of severity in the mHealth arm, as evidenced by a paper form completed by the patient in the control arm, and the paper form and/or data entered to the mobile app made by the community health worker in the mHealth arm
3. Therapeutic response evaluated based on epithelization at week 13, categorized as failure, improvement, or apparent cure; and categorized at week 26 as definitive cure or failure, recorded in person in the control arm, and via app photos in the mHealth arm.
4. The ideal study week when last seen, evidenced by record(s) in a paper form and/or standard medical records in the control arm, and in a paper form and/or mobile app in the mHealth arm

**Overall study start date**

19/02/2014

**Completion date**

21/12/2017

## Eligibility

**Key inclusion criteria**

1. Residence in one of the three veredas (townships) previously identified as:
  - 1.1. Having a relatively high incidence of CL in the Colombia National System of Public Health Surveillance (SIVIGILA)
  - 1.2. Safe to work
  - 1.3. Relatively accessible
2. At least one cutaneous lesion

**Participant type(s)**

Patient

**Age group**

All

**Sex**

Both

**Target number of participants**

69

**Total final enrolment**

104

**Key exclusion criteria**

1. Mucosal leishmaniasis
2. Contraindication to receive treatment in the area of residence, i.e. with condition which requires treatment in the IPS

**Date of first enrolment**

10/01/2017

**Date of final enrolment**

22/06/2017

## **Locations**

**Countries of recruitment**

Colombia

**Study participating centre**

**CIDEIM**

Tumaco

Colombia

528501

## **Sponsor information**

**Organisation**

Centro Internacional de Entrenamiento e Investigaciones Medicas

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**Sponsor type**

Research organisation

**Website**

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**ROR**

<https://ror.org/003s20294>

## **Funder(s)**

**Funder type**

Government

**Funder Name**

National Institutes of Health

**Alternative Name(s)**

Institutos Nacionales de la Salud, US National Institutes of Health, NIH

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

United States of America

## Results and Publications

**Publication and dissemination plan**

Planned publication in a peer-reviewed journal.

**Intention to publish date**

31/12/2021

**Individual participant data (IPD) sharing plan**

The researchers propose to store the datasets in the OSF.io repository (<https://osf.io/>). The data will be publicly available without restriction. As a minimum, they intend to make available those data which are necessary to reproduce analyses in the published paper. They will not share identifiable information such as names, dates of birth, or ages above 89 years.

**IPD sharing plan summary**

Stored in repository

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Participant information sheet</a>	version 1.0	28/01/2016	09/08/2021	No	Yes
<a href="#">Protocol file</a>	version 1.1	15/02/2016	10/08/2021	No	No
<a href="#">Results article</a>	results	27/03/2023	28/03/2023	Yes	No