

# Surveillance of human leishmaniasis in Italy: towards the development of an epidemiological model for autochthonous human cases

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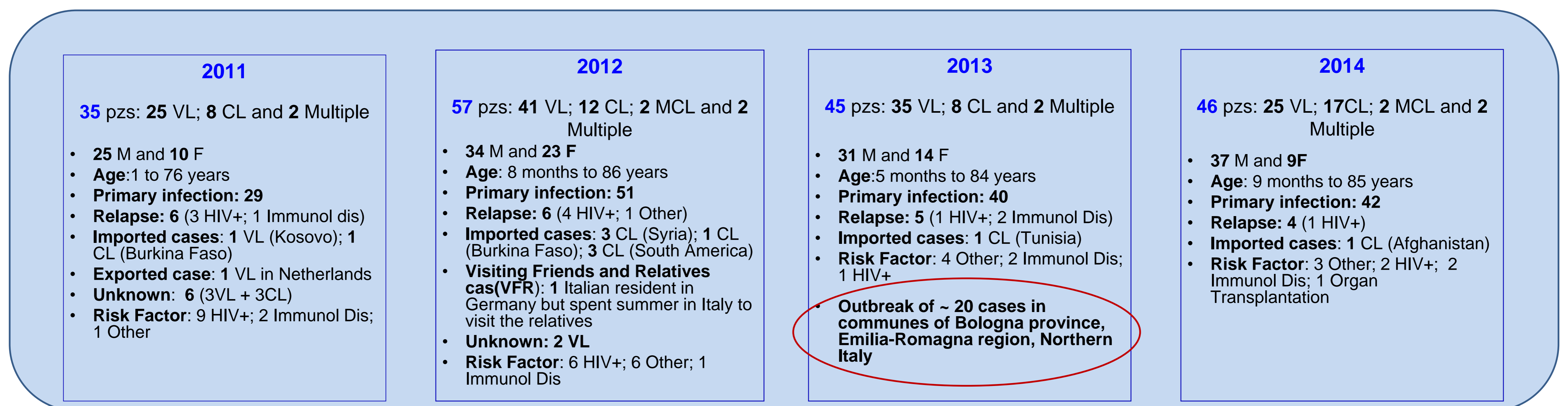
## Background

Zoonotic visceral (VL) and cutaneous leishmaniasis (CL) caused by *Leishmania infantum* are endemic in Italy (Gramiccia et al 2013, Eurosurveillance), however the risk of exotic *Leishmania* introduction is emerging. An epidemiological approach for autochthonous human leishmaniasis surveillance is reported. A human database was implemented by ISS-Italy EDENext partner and applied during 2011-2014 period. Harmonization of diagnostic methods was achieved following WHO guidelines for case definition (WHO, 2010). Attention was addressed to the geographical origin of infections.

## The study

Cases, georeferenced and identified by clinical form, were classified as autochthonous, imported, of unknown origin, and exported. A databases was structured as follows: each row in the spreadsheet represents a single unpublished case using one diagnostic method associated to a sample. In situations where more than one diagnostic method was employed to confirm leishmaniasis in a patient, results from each method were entered as individual rows within the spreadsheet. Following data were entered: Primary infection/Relapse; Start date of symptoms onset; Date of diagnosis; Methods of diagnosis; Type of disease; Sex; Age; Occupation; Risk factor; Clinical signs; Residence; National and/or International travel in endemic areas according to geographical coordinates; *Leishmania* identification; Epidemiological conclusion. Considering that several publications and official case declarations do not report such information, only diagnosis records managed or verified by the ISS Leishmaniasis Reference Centre represented the only source of information.

Figure 1. Italian human leishmaniasis database – Annual data



## Results

In four years of surveillance, 183 cases of leishmaniasis (Fig. 1, 2) were collected with the following trend:

- In 2011, 35 human cases (25VL; 8CL, 2 Multiple - VL with tegumentary involvement) were diagnosed of which 29 were primary infections; 26 autochthonous, 2 (1CL, 1VL) imported, 6 of unknown origin, and 1VL exported to Netherlands.
- In 2012, 57 patients were included (41VL; 12CL; 2 mucocutaneous (MCL) and 2 Multiple) with 51 primary infections; 46 autochthonous, 7 CL imported, 2 of unknown origin and 1VL exported to Germany.
- In 2013, 45 patients were recorded (35VL; 8CL; and 2 Multiple) including 40 primary infections; 41 autochthonous and 1 CL imported cases. An outbreak of VL started in November 2012 in Bologna province, Emilia Romagna region, Northern Italy, Adriatic coast.
- In 2014, 46 patients were included (25VL; 17CL; 2MCL and 2 Multiple) with 42 primary infections; 1CL case was imported.

The most affected age group was 17-50yrs (the age group at higher risk for HIV infection) with 44.3% of cases (VL 74.3%), followed by 51-70yrs (21.8%). Within the age group 17-50yrs, the percentage of males was 74.1% and 69.6% for VL and CL, respectively (Fig. 3). The infant (0-2 yrs) and pediatric (5-17 yrs) cases appear as constant groups. CL cases were not reported in the infant group.

Risk factors were principally categorized in: HIV co-infection; Treatment for immunological disorder and Organ transplantation.

A total of 5 *Leishmania* species were identified: *L.infantum*, the only species detected in autochthonous cases, and *L.tropica*, *L.major*, *L.donovani* complex and *L.panamensis*, isolated from imported cases.

## Conclusions

Data confirmed that leishmaniasis is endemic in most Regions of Italy. Active VL foci were found in Emilia Romagna, Campania, Latium, Liguria, Lombardy, Sicily and Tuscany, while CL foci appeared scattered all over the country. Of note: i) Campania, the most VL endemic Region in years 1990s-2000s showed a sharp drop of cases; ii) An outbreak of VL occurred in Bologna province since November 2012 and cases continue to be reported up to now; iii) The few HIV-coinfected cases were almost represented by relapses of old infections. Thanks to a better CL surveillance, the number of cases recorded in 2014 were similar to those of hospitalized VL cases.

Figure 2. Distribution map of 170 autochthonous leishmaniasis cases. Cutaneous leishmaniasis (left); Visceral leishmaniasis (right)

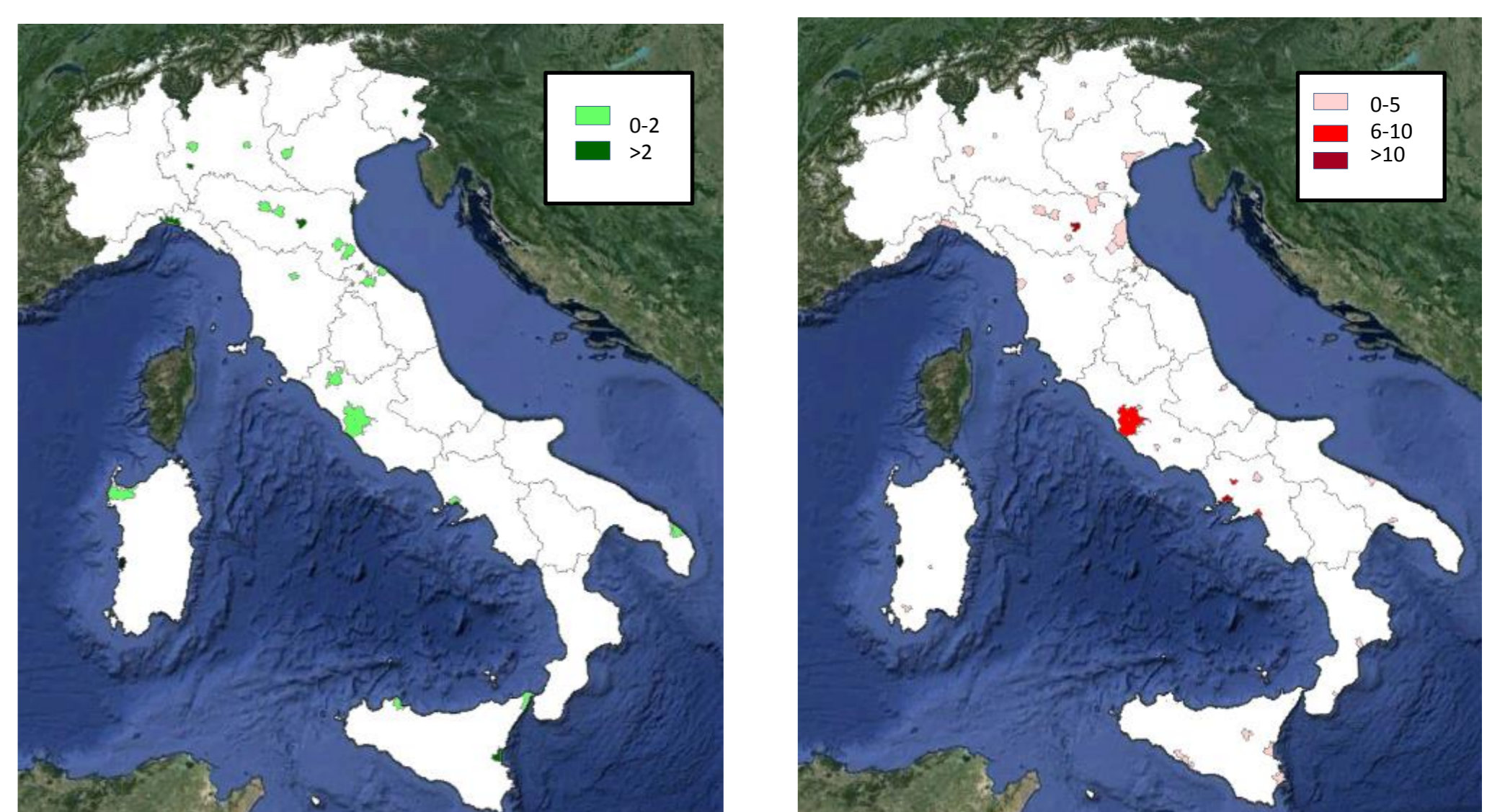


Figure 3. Number of leishmaniasis cases during 2011-2014.

A) VL trend according to sex and age group; B) CL trend according to sex and age group; C) VL trend for age group; D) CL trend for age group

