Assessment of the implementation of action plan against cutaneous leishmaniasis in Morocco: case of Essaouira focus

Boussaa S.1*, Daoudi M2, Ouzennou N1

Abstract

Background: Leishmaniases are a group of infectious diseases transmitted by phlebotomine sandflies, and their distribution depends on the presence of vectors, parasites, reservoirs and susceptible hosts in the same environment. Essaouira province is one of the active focus of Leishmania tropica cutaneous leishmaniasis (CL) in Morocco, where these diseases present a major health problem. Moroccan Ministry of Health has launched a national Program for Surveillance and Control of Leishmaniasis (Programme national de lutte contre les leishmanioses PNLL), in order to diagnosing and treating human cases and controlling the transmission of the disease.

Objective & Methods: A cross-sectional observational study was conducted in Essaouira province in order to describe the state of the implementation of 2013-2016 action plan of PNLL in this CL focus.

Results: The results highlight the lack and the instability of human resources in the study area which negatively affect the installation and the implementation of control actions. According to the program components, local staff is well involved in screening, diagnosing and treating human cases; while vector control actions are limited.

Conclusion: Our recommendations place greater emphasis on the specific training, information of the staff and the strengthening of vector control activities.

Keywords: Control program, Response plan, Cutaneous leishmaniasis, Essaouira province, Morocco

 Résumé

Contexte : Les leishmanioses sont des maladies parasitaires à transmission vectorielle dont la répartition géographique est liée essentiellement à la présence de phlébotome vecteur. Ces maladies constituent un problème de santé publique au Maroc où la Province d’Essaouira est parmi les foyers actifs de la forme cutanée (CL) à Leishmania tropica. Le programme national de lutte contre les leishmanioses (PNLL) est lancé par le Ministère de la santé avec l’objectif de réduire l’incidence de la maladie au niveau des sites actifs. Suite auquel, des plans d’action stratégique ont été programmés en vue de renforcer l’action de riposte.

Objectif et Méthodes : Notre étude est menée à la province d’Essaouira avec l’objectif d’évaluer le processus d’implantation et de la mise en œuvre du plan d’action 2013-2016 au niveau de ce site pilote.

Résultats : Les résultats soulignent l’implication efficace du personnel de santé dans le dépistage et la prise en charge des patients, alors que la mise en œuvre de la composante lutte anti-vectorielle reste très limitée. Au niveau de la zone d’étude, nous avons noté l’insuffisance et l’instabilité des ressources humaines comme facteur limitant l’atteinte des objectifs du plan de riposte.

Conclusion : A la lumière de ces résultats, nous insistons sur la formation spécifique et l’information du personnel concerné, puis le renforcement des activités de la lutte antivectorielle dans les foyers actifs afin d’atteindre les objectifs du programme.

Mots clés : Programme de lutte, Plan de riposte, leishmaniose cutanée, Province d’Essaouira, Maroc.
Introduction

Leishmaniases are a group of infectious diseases caused by protozoa of the genus *Leishmania* and transmitted by the haematophagous Diptera: Phlebotomine Sandflies (Psychodidae, Phlebotominae). They are among the most neglected tropical diseases and have represented a major health threat over the past 20 years in Morocco [1].

Two clinical forms of leishmaniases are endemic in Morocco [2]: visceral leishmaniasis (VL) and cutaneous leishmaniasis (CL). VL is caused by *Leishmania infantum*, while CL is caused by *L. infantum*, *L. major* and *L. tropica*, which has the largest geographic distribution in the country [3].

In 1997, the Moroccan Ministry of Health has launched a national Program for Surveillance and Control of Leishmaniasis (*Programme national de lutte contre les leishmaniose PNLL*), which aimed to diagnosing and treating human cases as early as possible, controlling the population of vectors and eliminating reservoir hosts [4]. Unfortunately, these strategies did not reduce the cases in endemic areas nor avoid the occurrence of the disease in areas that were previously free from the disease [5].

This official program is still active, and in order to deal with the worrying actual epidemiological situation, Moroccan Ministry of Health sets up a process of revitalizing the control strategy. It is about the 2010-2012 action plan, then the 2013-2016 action plan, targeting the most active CL focus. This is the case of Essaouira Province, a city located in the centre of the country covering an area of 6,335 km², with 450 527 inhabitants, and an urbanization rate of 21% [6].

Essaouira province is among the 17 pilot sites of Morocco, where the action plan has been implemented. It is an active focus of CL marked by a high incidence of the disease. The disease in Essaouira is described as being anthropoctic; with *Leishmania tropica* is the causative agent and *Phlebotomus sergenti* is the putative vector [7].

The number of recorded cases of CL in Essaouira is, respectively, 36, 56 and 79 during the years 2012, 2013 and 2014 [6, 8, 9].

Evaluation is an essential management tool for the improvement of public health actions and programs. In the present study, we describe and assess the state of implementation of the PNLL strategy and its action plan 2013-2016 in Essaouira province, an endemic area of CL caused by *L. tropica*.

Material and methods

A cross-sectional observational study was carried out in three rural public health centers (Had Dra, Hanchan and Smimou) of Essaouira Province during 2016 (Figure 1). After obtaining authorization from the regional and local services of the Moroccan Ministry of Health, our survey was conducted during three months (October-December) for collecting data about leishmaniasis control activities in the study area.

A self-administered questionnaire was used for data collection from all health professionals in the study area after formed consent. The questionnaire took approximately 30 minutes to complete. The first section of the questionnaire covered the profile of participants (age, gender, specialty, experience...), while in the second section; data about knowledge and practice related to the 2013-2016 action plan of PNLL were collected.

In addition, direct observation of leishmaniasis control activities was conducted by using observation grid standardized according to the national guide of a fight against the leishmaniasis [10].

Results and discussion

In this paper, we set out the findings of an evaluation that assesses the degree of implementation of the PNLL Action Plan 2013–2016 in Essaouira Province.

Essaouira is an endemic area of CL, and consequently, it is one of the 17 pilot sites, where the action plan has been implemented by Moroccan Ministry of Health. Our investigations were conducted in primary health care facilities of three rural localities (Figure 1): Had Dra (8 984 inhabitants [11]), Hanchan (4 698 inhabitants [12]) and Smimou (2 675 inhabitants [6]), where 90% of leishmaniasis cases in Essaouira province were recorded [11].

![Fig 1. : Study area](image)

According to Champagne [11], assessment process contributes to the understanding of the relative effect of organizational and contextual determinants in the implementation of the response plan (RP) actions in health organizations.
Thus, thirteen (~93%) local health personals, from the three primary health care facilities of Essaouira province, have participated in our investigation; namely tree physicians, nine nurses, and one hygiene technician (Table 1).

Table 1: Distribution of participants according to the position and participation in training

<table>
<thead>
<tr>
<th>Local health staff profil</th>
<th>Received training related to 2013-2016 action plan</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicien</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nurse</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Hygiene technician</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>13</td>
</tr>
</tbody>
</table>

Out of the total number of participants, eleven health personal (~85%) have a professional experience of more than five years (Fig. 2). Therefore, the majority of the staff was assigned to national health services during the setting up the action plan 2013-2016.

Fig 2.: Distribution of participants according to their professional experience

However, eight out of a total of thirteen participants (~61%) did not receive any information or training related to the PNLL program or its response plan (Table 1). This lack of specific training can be explained by the movement and the instability of the Health staff, knowing that the PNLL program training is organized only for medical personnel in endemic areas.

In addition, we highlight, by the present study, the lack of local health professionals. Indeed, the density of 14 health professionals per more than 16 000 inhabitants is significantly lower than standards. WHO [12] suggests at least 23 health professionals (including medical doctors, nurses and midwives) per 10 000 population for adequate coverage rates.

The lack and the instability of human resources are among the limiting factors of the implementation of the PNLL response plan, as concluded by Rhajaoui [13] in CL foci of BeniMellal and Settat.

For diagnosing and treating human cases, 84.6% of the staff participate in screening activities (Table 2), among them 53.8% contribute to mass screening (mostly in schools), 53.8% in active screening and 61.5% in passive screening. These findings showed a significant involvement of local health professionals in screening activities, since 100% of screening and diagnosing cases received adequate leishmaniasis treatment.

Table 2: Distribution of staff according to the modality of participation in monitoring and screening activities

<table>
<thead>
<tr>
<th>Activities</th>
<th>Participation (%)</th>
<th>Mass Screening</th>
<th>Active Screening</th>
<th>Passive Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profession</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicien</td>
<td>100</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Nurse</td>
<td>77.8</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Hygiene technician</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>84.6</td>
<td>53.8</td>
<td>53.8</td>
<td>61.5</td>
</tr>
</tbody>
</table>

Referring to the 2013-2016 action plan objectives, these activities remain insufficient. Thus, the coverage rate of local schools was 58.8% in 2016 (against 100% as objective); and the screening coverage rate by locality was 9.2% (against 80%). Local health staff justified this gap by insufficient staff, equipment and materials.

In fact, other indicators are frequently used in the monitoring and evaluation processes, such as material and equipment availability.

According to PNLL program guide [1], the availability, of sampling and case treatment materials as well as information systems, is necessary to carry out the activities of the program. In the study area, two out of the three primary health care facilities had the sampling equipment, while 100% of them had a valid information system and the treatment material, including Glucantime®.

Barry [11] and Berwik [15] recommended actions to successfully run a program in health and social services. These actions are based on a good knowledge of the program objectives and mechanisms. In the present study, knowledge of the local staff about the annual and monthly frequency of screening activities was limited. According to PNLL Guide, active screening should be carried out once every three months through the year in the endemic and affected localities, while local staff reported twice a year (seven responses) or once a year (one response) and five participants did not answer.

Regarding the active screening in schools, 61.5% of local staff reported many propositions (Table 3), 30.8% did not answer, while only 7.7% confirmed
that it should be programmed once a year in December as specified in the PNLL program guide.

Well implemented vector control through integrated vector management can play an important role in the elimination and control of leishmaniasis according to WHO recommendations. The vector control relies on different methods (chemical, physical or biological actions), according to the vector species but also according to the epidemiological and socioeconomic context.

Integrated vector control management (IVCM) aims to reduce dependence on chemicals in public health programs. In the present study, relating the vector control component, the majority of the staff does not have sufficient knowledge of vector control actions.

The results showed that 69.2% of the personnel had no information about the IVCM national and regional committees and only the hygiene technician was involved in vector control actions. The same results were noted in Settat and Beni Mellal focus where the vector component was also less developed [12].

Conclusion

In sum, despite the serious involvement of the local staff in case screening, diagnosis and treatment, the shortage of health professionals with a lack of specific training and exchange of information hinder the proper implementation of control actions in this study area.

These results emphasize the importance of the leadership and expertise of the local managers for the IVCM Committee installation and to facilitate the implementation of this action plan.

References


Authors information:
1 ISPITS-Higher Institute of Nursing and Technical Health Occupations, Marrakech, Ministry of Health, Morocco.
2 Microbial Biotechnologies, Agrosciences and Environment Laboratory (BioMAgE), Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco.

Competing interests:
None declared.

List of abbreviations:
CL. Cutaneous Leishmaniasis
IVCM. Integrated Vector Control Management
PNLL. National Program for Surveillance and Control of Leishmaniasis
RP. Response Plan
VL. Visceral Leishmaniasis
WHO. World Health Organization