



## Elimination of VL in the Indian subcontinent – is it achievable?

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**DNDi**  
Drugs for Neglected Diseases *initiative*

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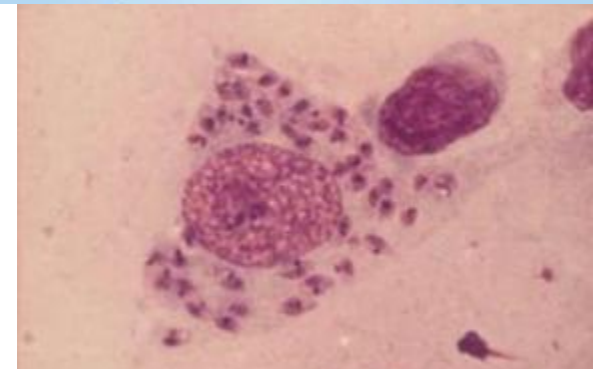
# Leishmaniasis

350 million at risk worldwide (in 98 countries)

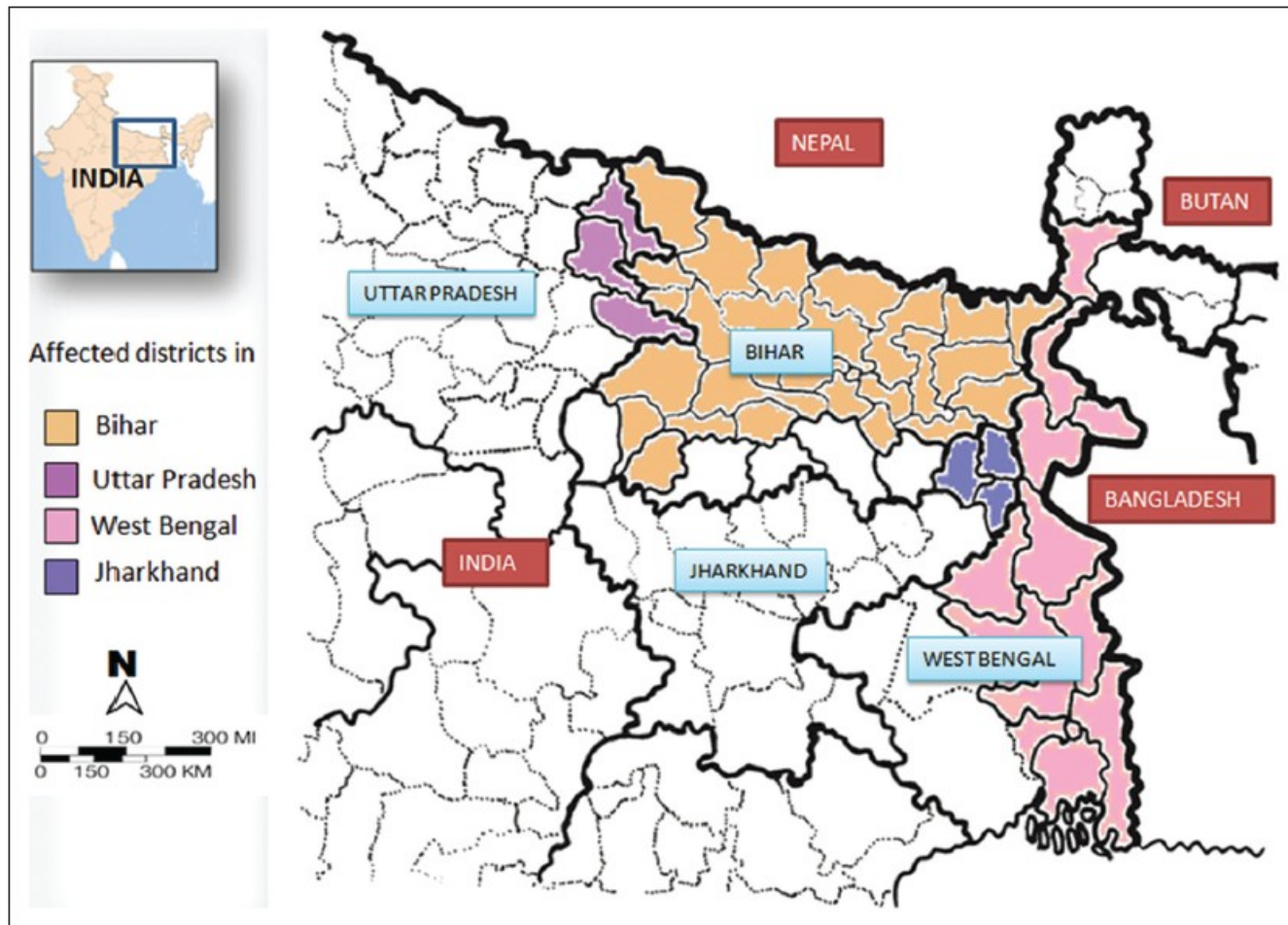
90% in a few countries (India, Sudan, Brazil, Bangladesh, Ethiopia).

Transmitted by the sandflies

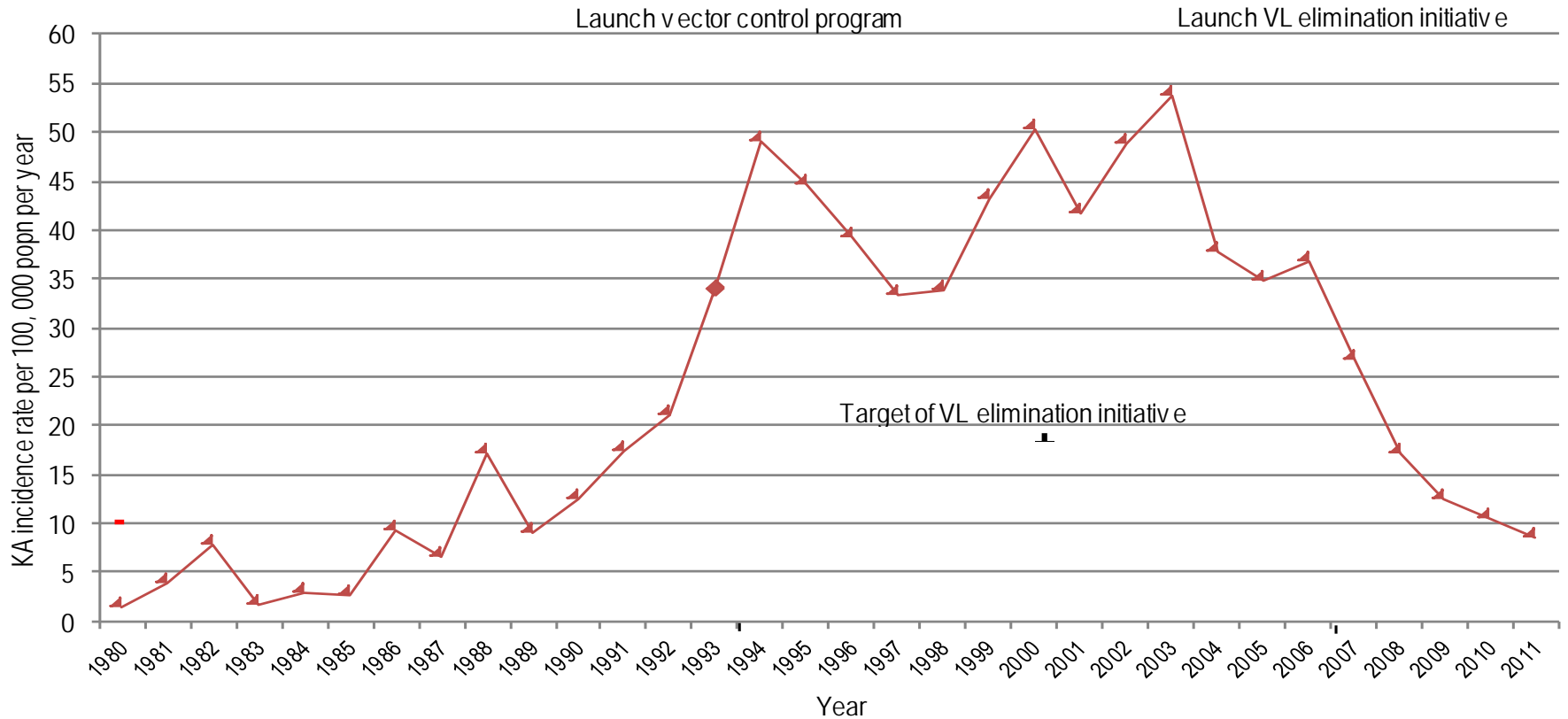
- ❑ 2 types of leishmaniasis:
  - ❑ Visceral (VL): fatal without treatment
  - ❑ Cutaneous (CL): has a spectrum of presentations; typically with self-healing or chronic lesions on the skin.
  
- ❑ Symptoms of VL: prolonged fever, enlarged spleen & liver, substantial weight of loss, progressive anemia
  
- ❑ Treatments needs for VL: Oral, safe, effective, low-cost and short-course treatment



# Map of the areas of VL



# Decreasing incidence in India



# Declining Trend in Bangladesh



# Trends of VL cases

- Reported number of cases are declining in all three countries
- In India and Bangladesh there is not a systematic reduction but variable
- Reasons could be attributed to either vector control or drug effectivity or ruptures as both have influence the burden

# Treatment Assessment

Is it the reason for trends

- SBV : the effectivity reduced by 30% in 1977, the dose was increased two cycles improved efficacy but again 1983 decreased to 86% effectivity
- Pentamidine was used from 1983 at 99% efficacy decreased to 70-75% in 1990s.
- Amphotericine B : 99% in 1993 and reduced to 93-94% 2011.



# Treatment Assessments contd

- Miltefosine(MF): in 2002 was 95% and in 2010 reduced to 90.3%
- Liposomal Amphotercine B : Single (SDA )and multiple dose regimen at present above 97% ,
- Combination Therapy 8 to 10 days . 97% effective

Miltefosine and Paramomycin

Single dose Liposomal Amphotericine B and  
Miletefosine



# History of VL Programs

- 1<sup>st</sup> time National Malaria Eradication Program (NMEP) intensive dichlorodiphenyltrichloroethane (DDT) spraying between 1953 and 1964. The number of VL cases decreased from 60,000 to almost nil during 1955-56.
- 2<sup>nd</sup> time "Kala-azar control program" during the 1977 outbreak. DDT spraying was done for 3 years.
- 3<sup>rd</sup> time was during the 1991-92 outbreak "Kala-azar control program". Again discontinued after 1995
- Elimination program 2005

# Memorandum of Understanding between Bangladesh, India and Nepal on the Elimination of Kala-azar, WHO/Geneva, 2005

- The objective of this programme is to reduce the incidence of VL below 1 case per 10,000 inhabitants per year by 2015 in endemic areas
- Current VL elimination strategies involve
  - early case detection,
  - effective treatment
  - vector control by indoor residual spraying
  - Other like Long lasting nets (LLIN)

# Elimination Strategy

## Four phases

- Preparatory phase of two years: to develop common tools to control
- Attack phase of five years: to control and reduce the burden of VL to less than 1/10000
- Consolidation phase of three years : maintain the control the burden
- Maintenance of two to three years

# Support to programme

- TDR/WHO support: Phase I to V operational research studies on active case finding, case management, vector control, etc

Monitoring and  
evaluation **tool kit**  
for indoor residual  
spraying

August 2010

Kala-azar elimination in Bangladesh, India and Nepal

**Indicators** for monitoring  
and evaluation of  
the kala-azar elimination  
programme

August 2010

Bangladesh, India and Nepal

# Program Initiatives by Countries

- Deployment of oral Miltefosine for treatment in 2005 now newer treatments are in process implementation
- Improve the vector controls spraying by indoor spraying rather than fogging
- Nepal & Bangladesh changed from DDT to Synthetic pyrethroids for vector control
- Communication and other educational materials were developed according to guidelines

# Program need to Strengthen

- Early diagnosis complete treatment,
  - Case surveillance/reporting through active and passive case detection
- Effective vector control
  - Need to be strengthened vector management with a focus on IRS, insecticide treated bed nets and environmental management
- Social mobilization and education of the population at risk

# Challenges

- Predominantly driven by asymptotically infected hosts
- Cases of PKDL may appear years after infection, reservoir to initiate the next epidemic
- To prevent re-emergence of infection after local extinction in formerly endemic regions, low vector densities should be maintained
- Combined with active case detection in humans as well as effective treatment in controlled area



# Treatment Challenges

## Limitation of treatments

- Parenteral not easy to administer
- Requires training to administer & monitor safety
- Cost & logistic support

*Post Elimination the challenge would be to maintain the effort with the current Treatments.*

*For maintenance of elimination easy to administer, safe oral treatment would be necessary for sustained efforts at ground level*

# Potential to Eliminate

- Depends on sustained efforts both at implementing & political level
- Sustained Efforts to continue after reaching elimination
- Parts of India have successfully eliminated VL like Tamilnadu so there is potential to replicate the model in the region



# Thank You