


Kala-azar and Surveillance on Kala-azar



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What is *Leishmaniasis*/Kala-azar?

Kala-azar is a **deadly infectious disease**;

Caused By
Leishmania Donovanii (Parasite)


Transmitted By
Phlebotomus argentipes (Sandfly)

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Transmission: Sandfly

- Leishmania transmitted by bite of female sandfly
- Sandfly bite – soundless; dusk to dawn
- Extremely small, may enter mosquito net holes (2.5 mm)
- Poor flyers, short hopping flight – limited range and height (200 yards)
- Breeding grounds appear to be associated with shaded but moist areas, rich with organic matter

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Types & Symptoms of Kala-azar (cont)

Types	Symptoms
New Kala-azar (NKA)	<input type="checkbox"/> Fever for more than 2 weeks <input type="checkbox"/> Residing/ traveling in Kala-azar endemic areas <input type="checkbox"/> Splenomegaly Additional symptoms <input type="checkbox"/> Weight loss , Anemia, Darkening of skin
Kala-azar treatment Failure (KATF) & Relapse Kala-azar (RKA)	<input type="checkbox"/> Diagnosed to have KA with the above mentioned case definition <input type="checkbox"/> History of treatment for KA and no improvement of initial treatment within 6 months (KATF) after 6 months (RKA) or reappearance of symptoms and sign of KA.


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Types & Symptoms of Kala-azar (cont)

Types	Symptoms
Post Kala Azar Dermal Leishmaniasis (PKDL)	<input type="checkbox"/> Residing / travelling in the endemic areas <input type="checkbox"/> History of treatment for Kala-azar any time in the past 1 <input type="checkbox"/> Suggestive skin lesion without loss of sensation, which may be hypomelanotic, macular, papular, nodular or mixed. <input type="checkbox"/> Exclusion of other causes of skin disease like Leprosy, Vitiligo, Pityriasis, Ring worm, Arsenicosis etc. <input type="checkbox"/> 'rk39' positive 2 / Slit skin smear positive/ PCR positive.
Cutaneous Leishmaniasis (CL):	<input type="checkbox"/> CL should be suspected in a person or a case of single or multiple skin ulcer (granulomatous, eschar like) who travelled in an endemic areas of CL (Middle East, South America, Africa etc.).

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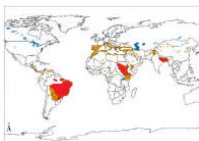
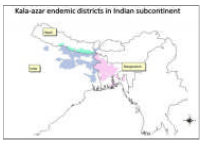
Picture (VL & PKDL)



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Global Disease Burden


- Leishmaniasis (visceral leishmaniasis & cutaneous leishmaniasis) is the third most important vector-borne diseases in the world with an estimated 1.0 to 1.6 million cases per year

Source: WHO (most endemic countries are highlighted in red)

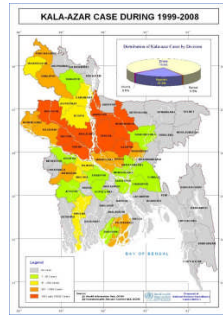
- According to WHO estimates:
 - VL affects 98 countries worldwide and 90% of all VL cases occurs in only 6 countries

- 200 millions population are at risk
- Annually 25,000 to 40,000 cases are reported
- 200-300 deaths occur per year


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VL situation in Bangladesh

- First outbreak was in 1824 in Jessore and killed 70,000 people
- During malaria eradication era VL disappeared from Bangladesh and re-emerged in the early eighties. Since then more than 120,000 cases have been documented
- 45 districts and 130 Upazilas are VL endemic; however, Mymensingh District is the most endemic one.



Source: CDC, DGHS, GIB (2009)

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VL Elimination Program in the Indian subcontinent

- The Government of Bangladesh, India and Nepal committed to eliminate VL from the Indian sub-continent by 2015.
- The elimination target is to reduce VL case **less than one per 10,000 people at sub-district level** in Bangladesh



- Recently the elimination target time is **extended up to 2017** and two new countries (**Bhutan and Thailand**) joined in this initiative

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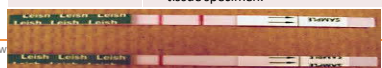

Strategy of National Kala-azar Elimination Program in Bangladesh

- Strategy 1:** Early diagnosis and complete treatment
- Strategy 2:** Integrated vector management (IVM)
- Strategy 3:** Effective disease surveillance
- Strategy 4:** Social mobilization and building partnerships
- Strategy 5:** Operational research

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Strategy 1: Diagnosis & Treatment

Types	Diagnosis
New Kala-azar (NKA)	<input type="checkbox"/> A person from VL endemic area with fever more than two weeks, splenomegaly and positive rk39 rapid test
Kala-azar treatment Failure (KATF) & Relapse Kala-azar (RKA)	<input type="checkbox"/> Diagnosed to have Kala-azar with the mentioned case definition. <input type="checkbox"/> All efforts should be made to diagnose RKA parasitologically by splenic smear or bone marrow examination or PCR.
Post Kala Azar Dermal Leishmaniasis (PKDL)	<input type="checkbox"/> 'rk39' positive <input type="checkbox"/> Silt skin smear positive/ PCR positive.
Cutaneous Leishmaniasis (CL):	<input type="checkbox"/> CL should always be confirmed by demonstration of parasite from the lesion by slit skin smear, skin biopsy or parasite DNA in tissue specimen.

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Treatment of Kala-azar

- Single Dose Lyosomal Amphotericin B
- Multidose Dose Lyosomal Amphotericin B
- Amphotericin B Deoxycholate

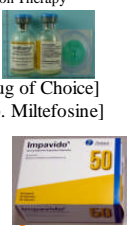
- Miltefosine
- Paromomycin
- Combination Therapy


Kala-azar (VL):

- Liposomal Amphotericin B (AmBisome) [Drug of Choice]
- Combination therapy [Inj. Paromomycin, Cap. Miltefosine]

PKDL:

- Cap. Miltefosine [Drug of choice]
- Liposomal Amphotericin B (AmBisome)



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Strategy 2: Effective vector control through Integrated Vector Management (IVM)

Blanket indoor residual spraying with insecticides (IRS) to all high endemic areas

Distribution of Long Lasting Insecticide Treated Nets (LLIN) in the high endemic areas

Zero vector strategy to all endemic areas

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Strategy 3: Effective Disease Surveillance

- Active Case Surveillance
- Passive Case Surveillance

Recently Web-based surveillance for Kala-azar has been developed

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Strategy 4: Social Mobilization and Building Partnership

Health education and social mobilization through billboard, leaflets, docu-drama etc.

Having strong partnership with all local international donor organizations

Strong advocacy group for the sustainability of the existing activities

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IEC/BCC Materials

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Strategy 5: Clinical and operational research

Clinical trials with miltefosine, combination drug therapy, and feasibility studies for single-dose AmBisome at the sub-district level

Trials have also been conducted with different vector control methods and studies for better diagnostic tools for VL and PKDL.

Another major success of the program is the establishment of a Kala-azar research center at the Surja Kanta (SK) Hospital

The research center at the SK Hospital is open to all researchers who are interested in conducting studies on VL and PKDL.

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Achievement of NKEP

➤ 98% of the Upazila already achieved elimination target.
ONLY TWO UPAZILAS are now above the target

Year	Total Cases	Deaths
2000	7640	24
2001	4283	6
2002	8110	36
2003	5920	27
2004	6892	23
2005	9379	16
2006	4932	23
2007	4824	17
2008	4293	17
2009	3806	14
2010	3376	0
2011	2060	2
2012	1426	0
2013	1068	2
2014	862	3
2015	862	4

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Challenges for Kala-azar Elimination Programme (KEP) in Bangladesh:

- The epidemiological surveillance systems including both disease and vector surveillance need to be strengthened further at the Upazila & district level.
- Awareness needs to be improved to reduce the time in seeking treatment.
- Emergence of drug resistance in *L. donovani*;
- Emergence of insecticide resistance in sandfly.
- A significant proportion of cases of Kala-azar occur in areas close to the international borders amongst the three countries.
- Accessing the tribal population may be difficult due to the remoteness of their areas.
- Kala-azar is re-emerging from upazilas from where case report was stopped in last 3- 5 years.

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Strategy 3: Effective Disease Surveillance

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What is Surveillance

- **Surveillance** is the monitoring of the behavior, activities, or other changing information, usually of people for the purpose of influencing, managing, directing, or protecting them.



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What is public health surveillance?

- Surveillance is the continuous monitoring of the occurrence of a disease (or other important health event) in a population.

Why do we do public health surveillance (PHS)?

- Guide immediate action for cases of public health importance
- Describe and monitor health events and trends through surveillance systems
- Set priorities for the use of resources (time, expertise, technology and money)
- Assist in planning, implementing and evaluating public health interventions and programs
- Evaluate public policy

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Conducting public health surveillance: the five components

- Surveillance consists of five components:
 1. Ongoing, systematic collection of health data
 2. Data analysis
 3. Interpretation of data,
 4. Dissemination of the information, AND
 5. Linking the data to public health practice

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Forms/Types of surveillance


- There are two forms of surveillance
 1. Passive and
 2. Active

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Kala-azar Surveillance in Bangladesh

- Kala-azar surveillance is a part of web-based national disease surveillance system centrally managed by Kala-azar Elimination Programme, Disease control Unit, DGHS.
- Kala-azar elimination program-specific indicators is incorporated in the reporting format.
- In order to strengthen Kala-azar surveillance, KA surveillance units is set up at upazila and district level.
- **NKEP** has access to surveillance data in real time

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Kala-azar Surveillance Units

- **I. Upazila Kala-azar Surveillance Unit**
 - ✓ Head: Upazila Health and Family Planning Officer (UH&FPO)
 - ✓ Focal person: Medical Officer (Kala-azar)
 - ✓ Senior Staff Nurse (SSN)
 - ✓ Statistician
- **II. District Kala-azar Surveillance Unit:**
 - ✓ Head: Civil Surgeon (CS)
 - ✓ Focal Person: MO (CS/DC)
 - ✓ Senior Staff Nurse (SSN)
 - ✓ Statistical Assistant

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Kala-azar Surveillance Units (Cont.)

- **III. Government Medical College Hospitals:**
 - ✓ Head: Director (Hospital)
 - ✓ Focal Person: to be assigned by the Hospital Director
 - ✓ Senior Staff Nurse (SSN)
 - ✓ Statistician
- **IV. Central/National Level:**
 - ✓ Head: Director, CDC, DGHS
 - ✓ Focal Person: Deputy Program Manager (DPM), Kala-azar
 - ✓ Surveillance Medical Officer (SMO)
 - ✓ Data Manager (DM)

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Kala-azar Surveillance in Bangladesh: A Modern Surveillance

- ✓ National Kala-azar Elimination Program is using both:
 1. Passive Surveillance &
 2. Active Surveillance

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Kala-azar Surveillance in Bangladesh (Cont.)

- **Passive Surveillance**
 - Self reported cases identified at health facilities
- **Active Surveillance**

Identification of "suspected cases" of New KA and PKDL by "First Contact Points"⁵

↓


Referral of the suspected cases of New KA and PKDL using prescribed referral form

↓

Diagnosis of the cases at UHC


↓

Reporting of incidence of New KA and PKDL through the web-based disease surveillance system

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Active Surveillance: ACD

- House to house visit for Kala-azar case detection (2013 & 2014)
- Camp: Union (2015) & Village (2012) based
- No Kala-azar Transmission Activity (2014)

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Patient's Follow-up

➤ 1 to 5 Years (Planned)

➤ Outcome of the treated patients may appear as:

- Treatment Failure
- Relapse/Re-infection
- Death
- PKDL

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Use of Surveillance Data

• Who will do the analysis?

National Kala-azar Elimination Program at Central Level

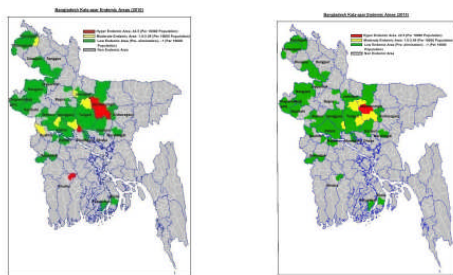
➤ Use of Surveillance Data:

- ✓ IRS Planning (Area Selection)
- ✓ Selection of ACD methods
- ✓ Annual Reports (Trend and Spatial Analysis)
- ✓ CDC Publication
- ✓ As per GoB requirements (others)

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Use of Surveillance Data: Endemic Areas of Bangladesh



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Others surveillance in NKEP

➤ Vector Surveillance

➤ Pharmacovigilance

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