

# Strengthening Toxicology Services in Nepal: Addressing the Burden of Poisoning through Poison Information Center and advocacy in Pesticide Regulation

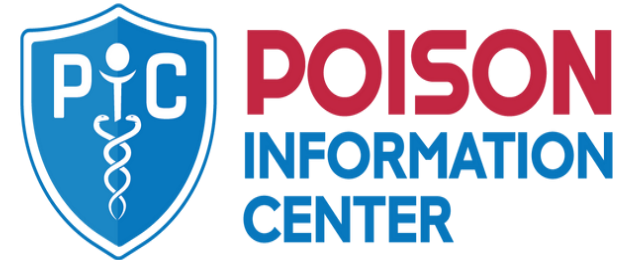
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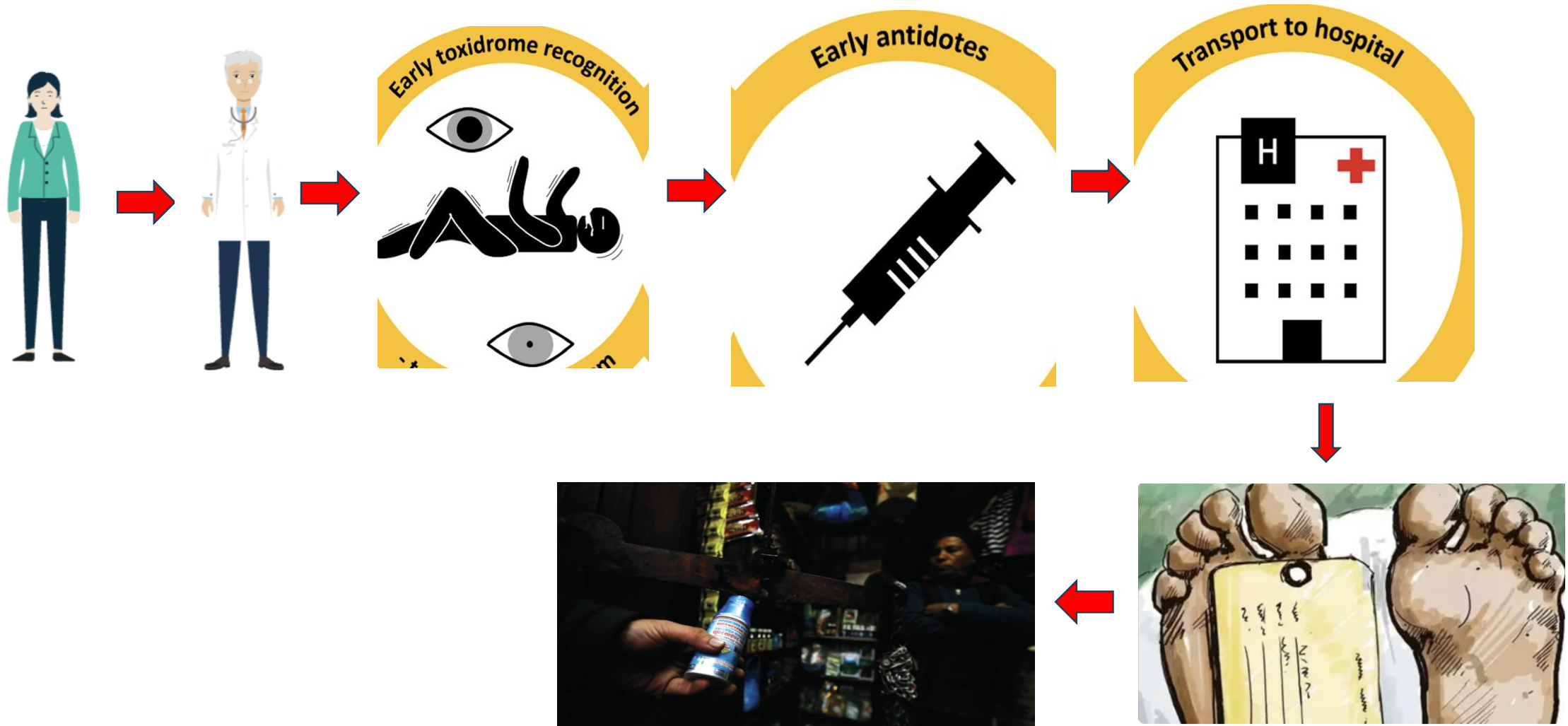
Tribhuvan university



Drug and Toxicology  
Center



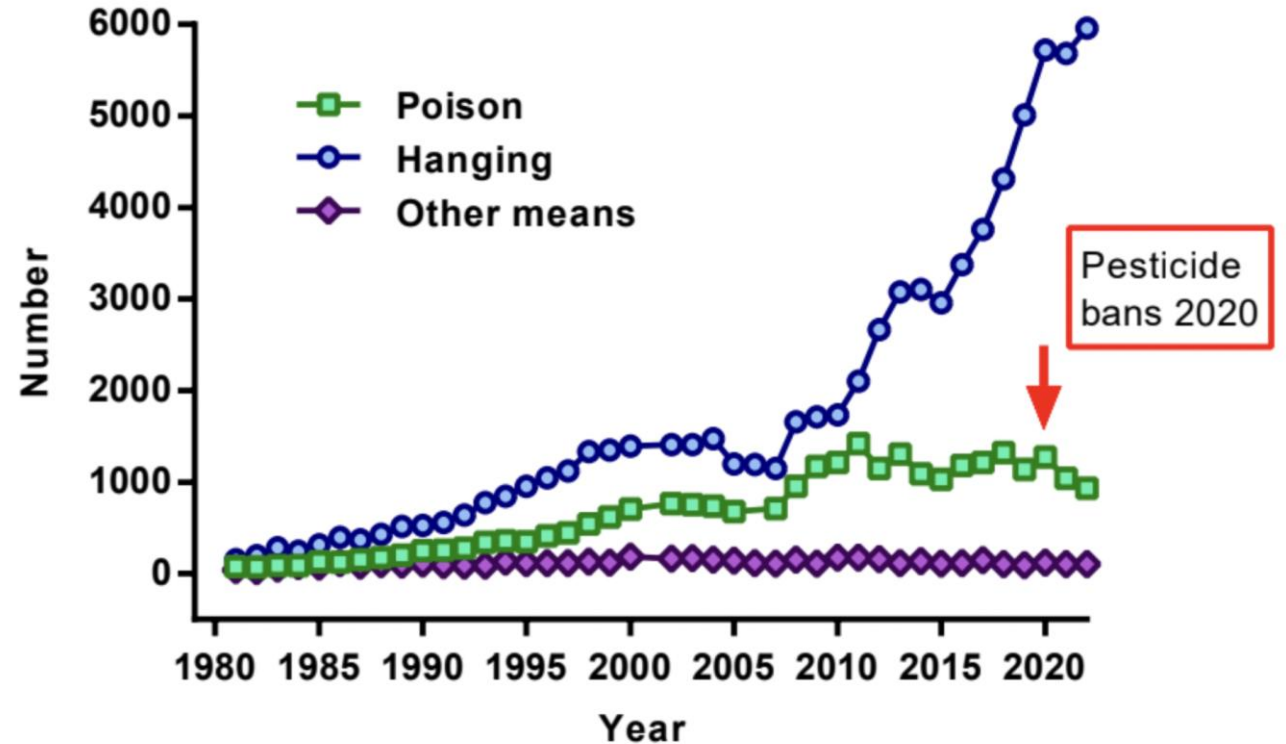
# Story of an 18 year old girl



# Understanding the Poisoning Burden in Nepal: Problem

**7194** deaths from suicide in 2023-2024

**18-20%** of deaths due to poisoning



Suicide numbers in Nepal 1980-2022 ( Source: Nepal Police )

Poisoning is **second most common method of suicide** in Nepal after hanging  
Most cases of poisoning were due to **pesticide self-poisoning**

# Why Enhancing Toxicology Services in Nepal is Critical

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- The Growing Burden of Poisoning in Nepal
  - Significant public health challenge, affecting all age groups
  - Lack of immediate expert guidance often leads to delayed and improper treatment
  - Pesticides, pharmaceuticals, snakebites, and household chemicals are common causes

# Challenges

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Limited **Awareness and Education**

Limited **Toxicology Training** in Medical Education

Easy **Availability** of Highly Hazardous Pesticides (**HHPs**)

**Inadequate** Data and Research



# The Solution ( Poisoning Burden)

Deaths from pesticide self-poisoning is **preventable** and requires the involvement of **multiple stakeholder** and **multi-level**

Expanding clinical toxicology services

- Establishment and Strengthening the



**Poison Information Center (PIC)**

- Establish **dedicated toxicology units** in major hospitals

- Availability of **antidotes, anti-venom** and **essential drugs**

Enhancing **research and policy advocacy**



-  Establishment of first institution based Poison Information Center
-  Regulation of Highly Hazardous Pesticides (HHPs)

# Assessment



Government of Nepal  
Ministry of Health and Population



World Health  
Organization  
Nepal

## REPORT ON EMERGENCY CARE SYSTEM ASSESSMENT AND CONSENSUS BASED ACTION PRIORITIES: NEPAL

Health Emergency and Disaster Management Unit  
Health Emergency Operation Center  
Kathmandu

Facility-Based Care	28	Develop a strategy for a government-run national poison control center for providers and the public
System Organ-	29	Develop regulation mandating initial emergency care



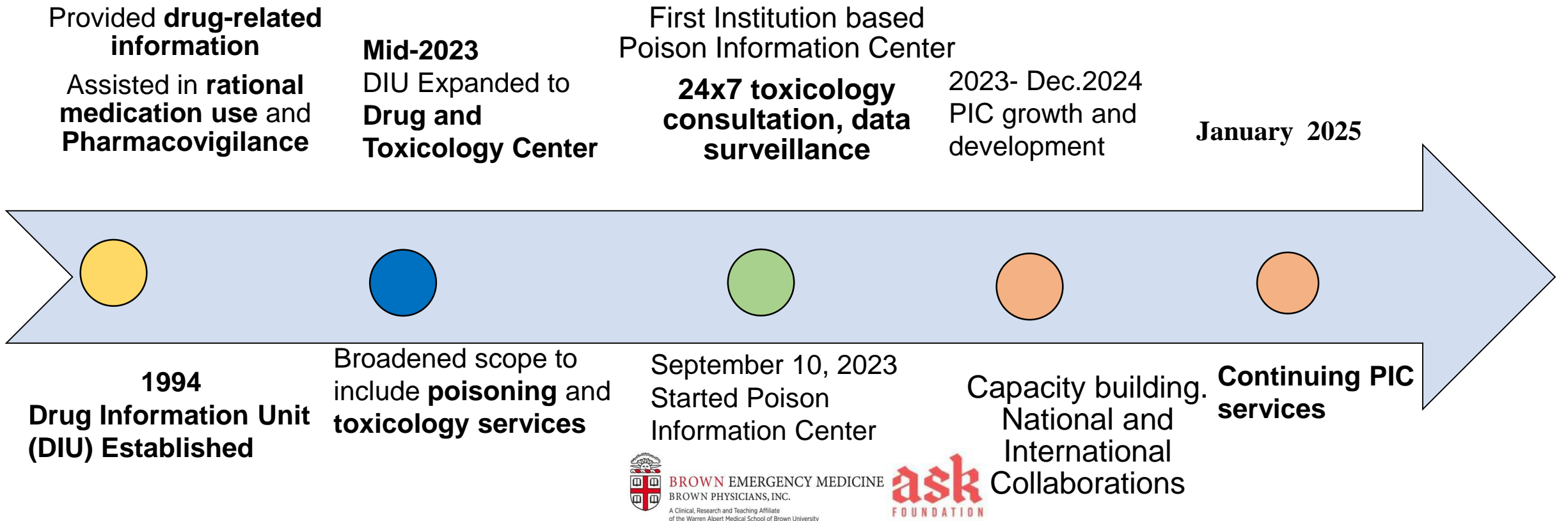
**POISON**  
INFORMATION  
CENTER

# Nepal Poison Information Center



PIC plays a **key role** in surveillance, data collection, and future policy recommendations

# The Journey of PIC



Recently completed its pilot study in December 2024

# Why Poison Information Center

## Health Benefits

- ✓ Reducing morbidity and mortality from poisoning
- ✓ Mild poisoning cases- treated by first-aid measure
- ✓ Severe poisoning cases needs special facilities
  - ✓ Avoid delays and wastage of resources at general hospital treatment facilities
- ✓ Prevent unnecessary use of special antidotes

## Economic Benefits

Significant savings in health care costs

# Services offered by PIC

- Emergency poison advice to healthcare professions **across Nepal**
  - National and International experts help in complicated cases
- Information on toxic substances
- Guidance on first aid measures
- Follow-up assistance and monitoring

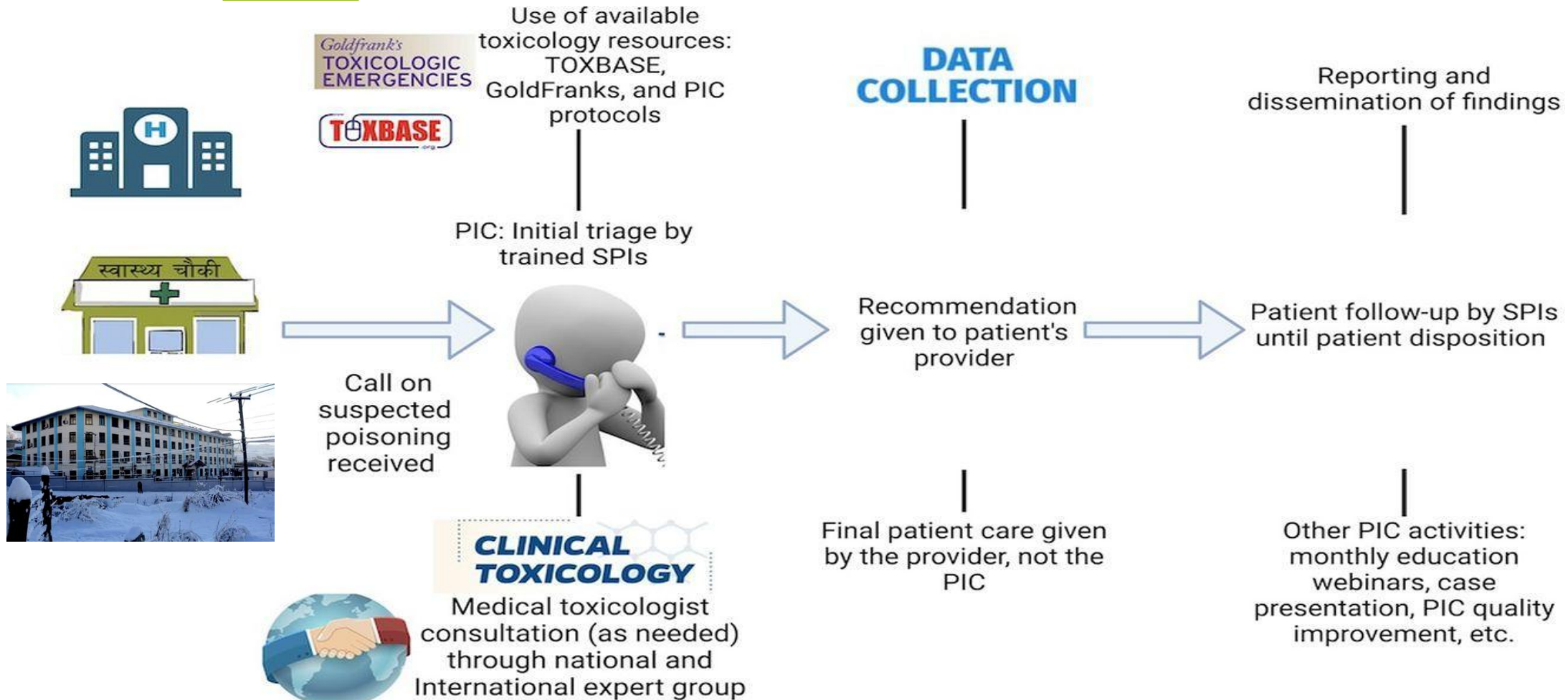
**24 x7** Availability through **01-450-2011**

Specialist in Poison Information (**SPIs**)

Monthly educational webinar on most common poisoning by national and international experts



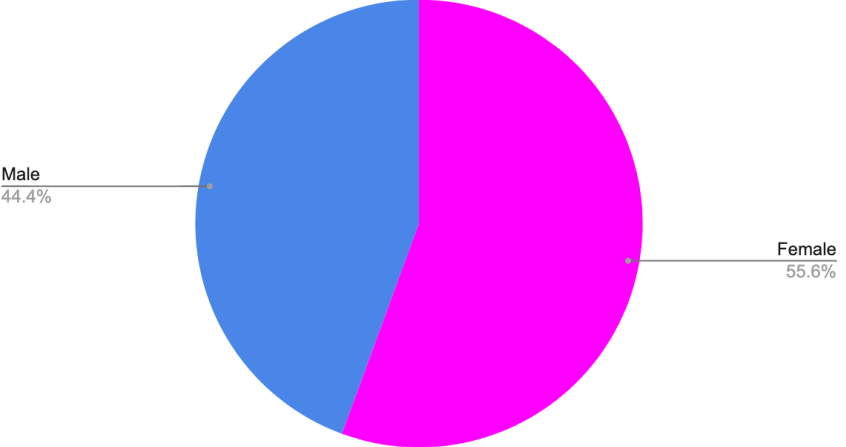
# PIC workflow



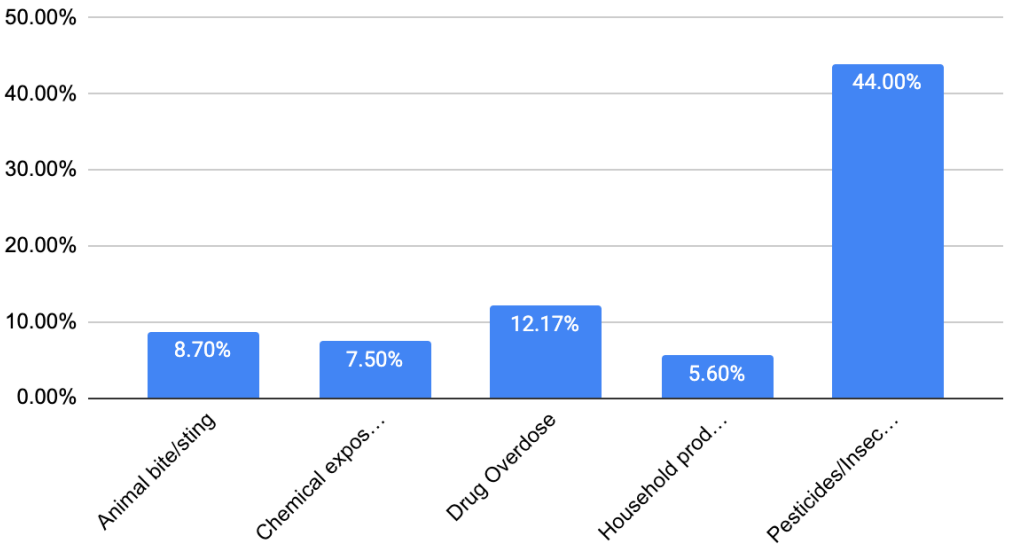


Case data collected by center provides epidemiological data  
This center has received inquiries  
Total cases received: 493

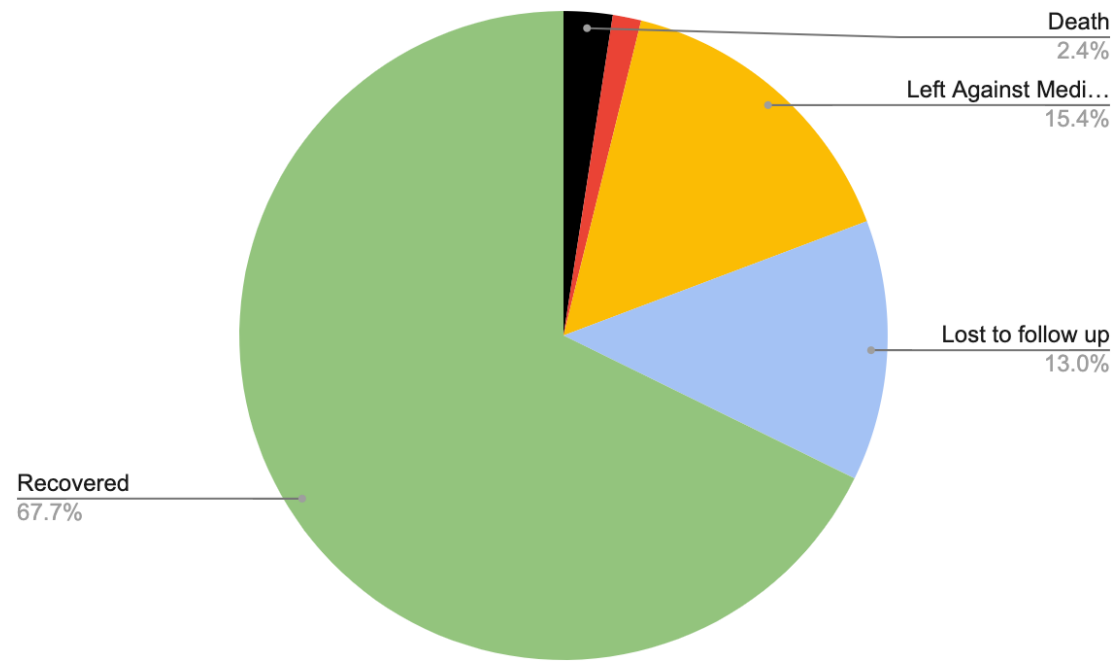
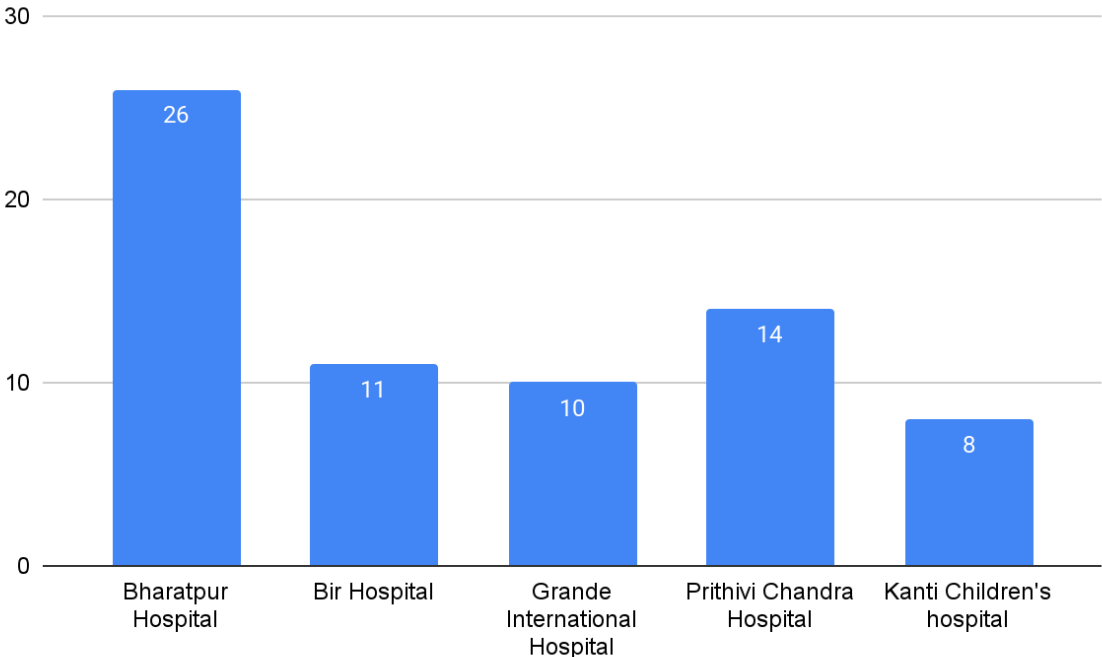
Gender distribution of cases



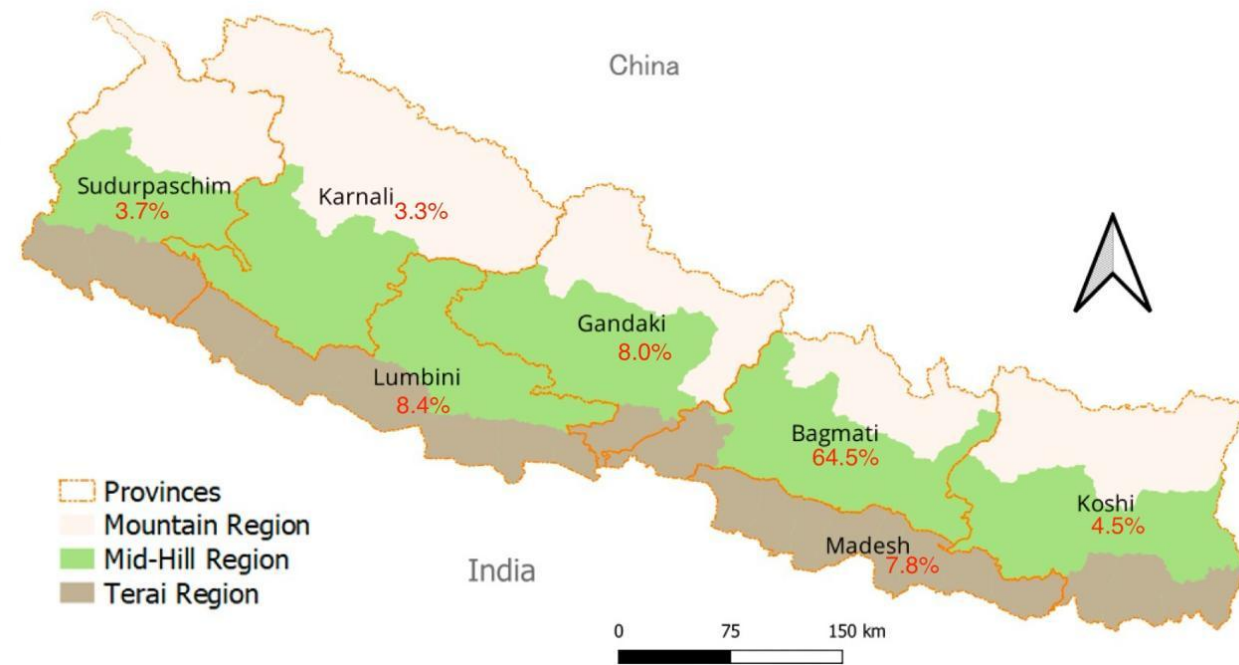
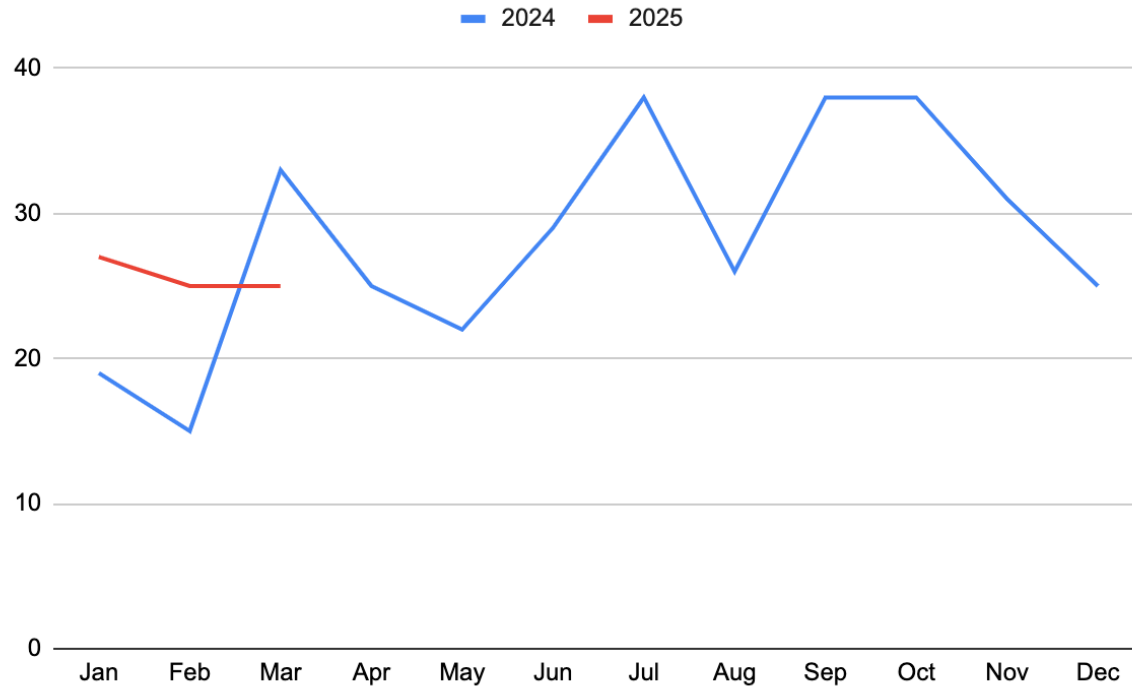
Proportion of top 5 cases



Top 5 hospitals by number of calls received



# Trends of call in Poison Information Center (PIC)



# Achievement

## BMJ South Aisa Awards 2024-25



# Future directions and sustaining of Poison Information Center

- ✓ Cost-effectiveness solution in saving lives
- ✓ To continue saving lives and expanding our vital services
- ✓ Integrate **PIC services** into national healthcare strategies

**Government funding** is the most appropriate and reliable source to secure this critical public health service for the long term, ensuring that healthcare professionals has access to life-saving poison management support

# The Solution ( Poisoning Burden)

## Regulation of Highly Hazardous Pesticides (HHPs)

Deaths from pesticide self-poisoning is **preventable** and requires the involvement of **multiple stakeholder** and **multi-level**

Enhancing **research and policy advocacy**

# Pesticide Poisoning – A Case Study in Policy Impact

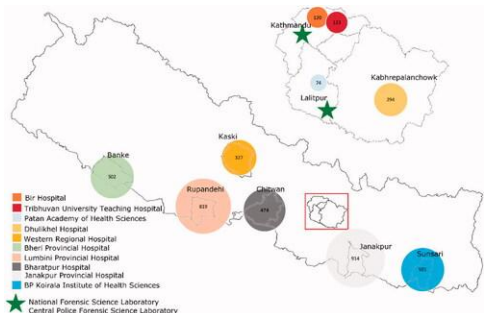
- Challenge:
  - Nepal faced **high pesticide-related deaths** due to **Highly Hazardous Pesticides (HHPs)** particularly OP insecticides and Aluminum Phosphide
  - **Easy accessibility & lack of regulations** worsened the crisis.
- Research and Advocacy Efforts
  - Collected **data on pesticide self-harm & toxicity** to provide strong evidence
  - Engaged **policy stakeholders** (Plant Quarantine & Pesticide Management Center, government bodies)

CLINICAL TOXICOLOGY  
2022, VOL. 66, NO. 1, 46-52  
<https://doi.org/10.1080/15563650.2021.1935993>

CLINICAL RESEARCH

Intentional pesticide poisoning and pesticide suicides in Nepal

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# Pesticide Poisoning – A Case Study in Policy Impact

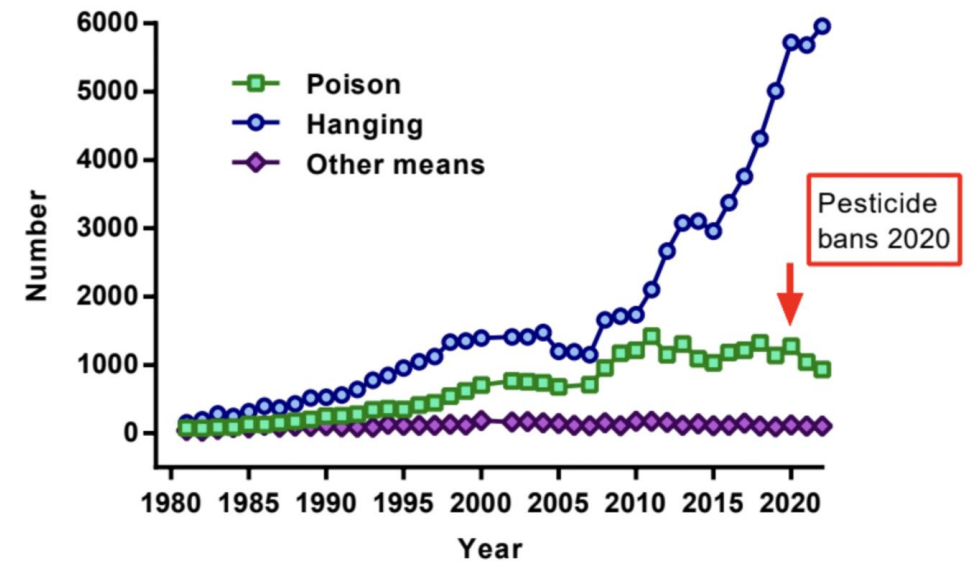
- The Policy Impact
  - Supported the ban on key HHPs based on study findings and advocacy efforts.
  - Reduction in pesticide deaths post-ban



Aluminium phosphide 56%  
(phosphine gas)



Dichlorvos  
(OP)



Suicide numbers in Nepal 1980-2022  
( Source: Nepal Police )

# Conclusion

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- Nepal lacks Clinical Toxicologists & Specialized Training
  - Limited expertise in managing complex poisoning cases.
  - PIC serves as a critical resource for healthcare professionals
  - PIC at TUTH: Bridging the Gap in Toxicology Services
  - Regulation of highly hazardous pesticides save lives
- Poisoning Patterns Are Changing – Continuous Monitoring is Essential
- Collaboration & Sustainability:
  - The future of toxicology services relies on sustained collaboration across disciplines—including Emergency Medicine, General Practice, Critical Care, Internal Medicine, Psychiatry, Public health experts and other key stakeholders—alongside strong governmental support.

"Together, we can save lives and shape the future of  
toxicology in Nepal!"

Lifeline for Poison Emergencies

Hotline:

**01-450-2011**

# Thank You

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