Module 3: Chemical Safety and Hazard Management

3.2

Guidelines on Chemical Disposal and Risk Assessment.

Resource Person

Dr. Somnath D. Bhinge
Professor & Head,
Department of Pharmaceutical Chemistry,
Krishna Institute of Pharmacy,
Krishna Vishwa Vidyapeeth (Deemed to be University), Karad, Maharashtra, INDIA

Learning Outcomes

After completing this session, students will be able to:

1. Identify proper methods for classifying and disposing of chemical waste safely and responsibly.
2. Describe the key steps in performing a chemical risk assessment.
3. Apply control measures to minimize chemical hazards based on risk evaluation.

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02 Risk Assessment Guidelines

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Reflection Spot

"Did I follow proper steps for chemical disposal and risk assessment in my last lab activity?”

Chemical Disposal Guidelines

Proper chemical disposal is critical to prevent **harm to humans, animals, and the environment**.

Chemical Disposal Guidelines

Basic Principles

- Always refer to the **Safety Data Sheet (SDS)** for disposal recommendations.
- Label all chemical waste containers with:
  - **Contents and concentrations**
  - **Hazard class**
  - **Date of generation**
- **Segregate waste** by compatibility (e.g., acids vs. bases, halogenated vs. non-halogenated solvents).
- Use **designated containers** with secure lids and compatible materials (e.g., HDPE for corrosives).
- **Never** dispose of hazardous chemicals via regular trash or drains unless explicitly permitted.

Chemical Disposal Guidelines

Disposal Procedures

- Collect waste in appropriate, labeled containers.
- Store in a **ventilated, secure area** until disposal.
- Use authorized chemical disposal services or follow institutional disposal SOPs.
- **Neutralize small quantities of acids/bases**, if trained and allowed, before drain disposal.

Chemical Disposal Guidelines

Special Waste Categories

- **Volatile solvents:** Store in flammable waste containers.
- **Heavy metals:** Use dedicated containers; do not mix.
- **Reactive or explosive chemicals:** Handle under expert supervision.

Risk Assessment Guidelines

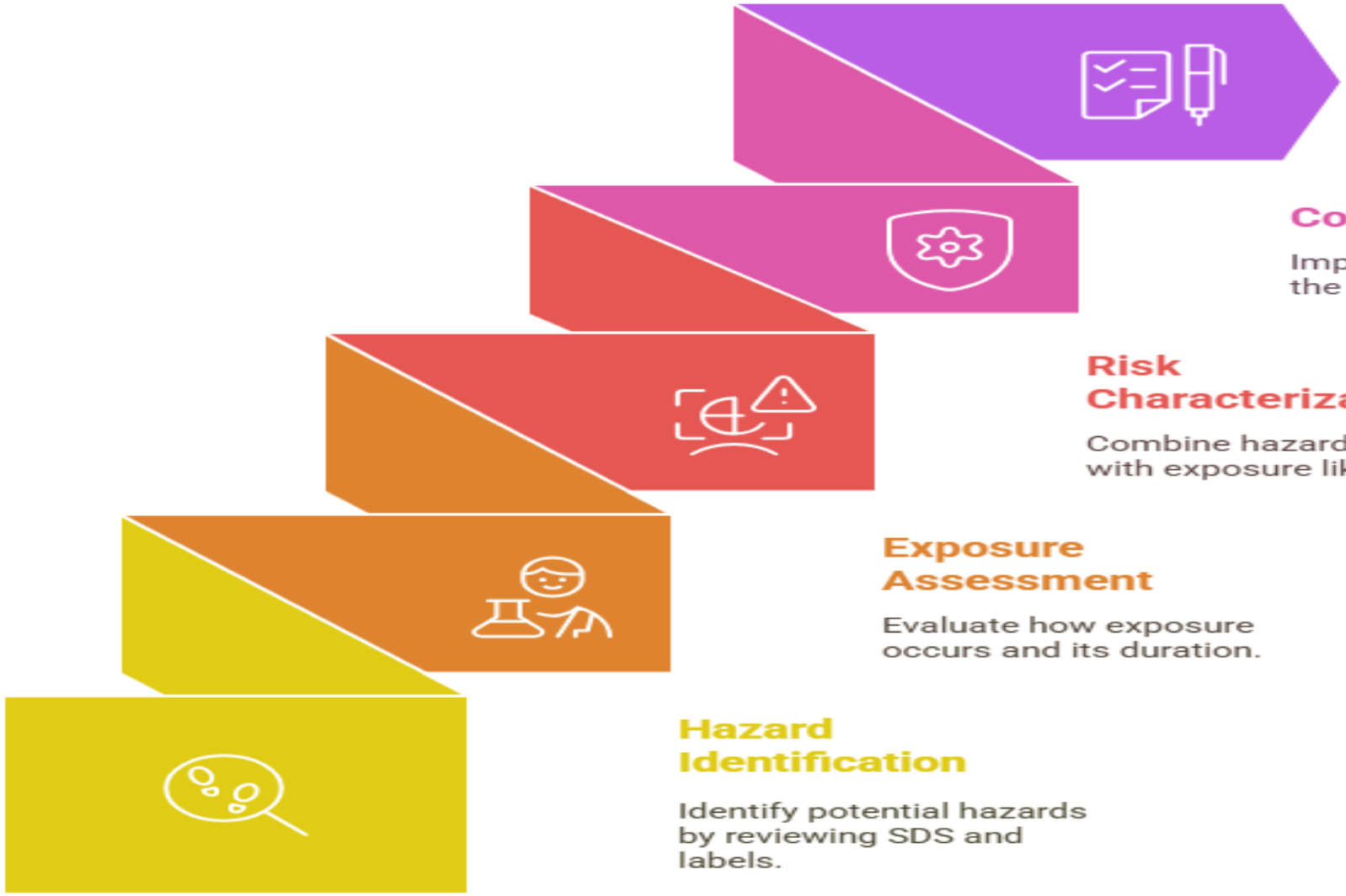
Risk Assessment Guidelines

Risk assessment helps identify and control hazards before chemical handling.

Steps in Risk Assessment

- **Hazard Identification**
- **Exposure Assessment**
- **Risk Characterization**
- **Control Measures**
- **Documentation and Review**

Steps to Effective Risk Management



Documentation and Review

Maintain and update risk assessments regularly.

Control Measures

Implement controls using the Hierarchy of Controls.

Risk Characterization

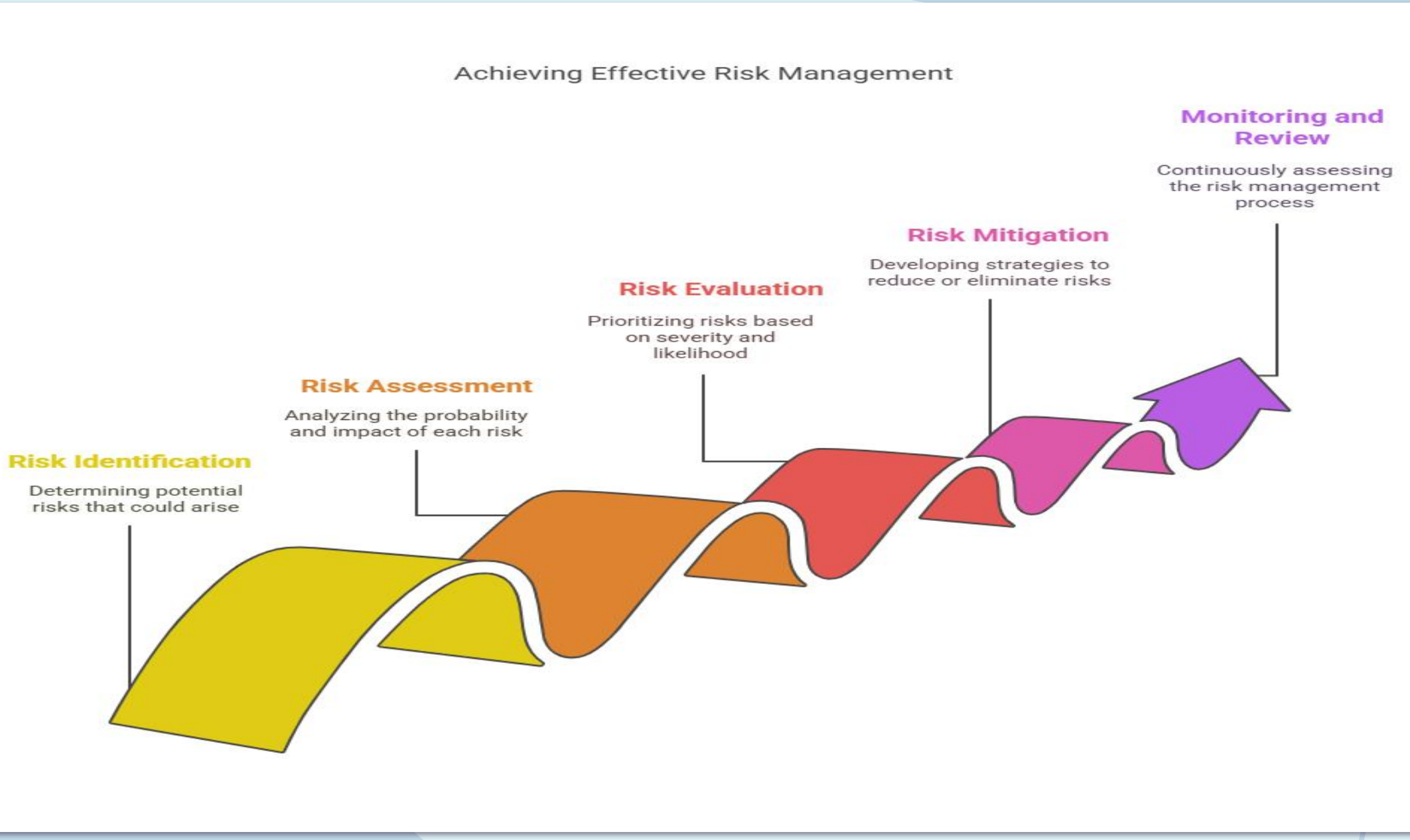
Combine hazard severity with exposure likelihood.

Exposure Assessment

Evaluate how exposure occurs and its duration.

Hazard Identification

Identify potential hazards by reviewing SDS and labels.


Achieving Effective Risk Management
Monitoring and Review
Continuously assessing the risk management process
Risk Mitigation
Developing strategies to reduce or eliminate risks
Risk Evaluation
Prioritizing risks based on severity and likelihood
Risk Assessment
Analyzing the probability and impact of each risk
Risk Identification
Determining potential risks that could arise

Risk Assessment Tools

- Safety Data Sheets (SDS)
- Job Safety Analysis (JSA)
- Risk Matrix Charts
- Institutional SOPs and checklists