WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL RESEARCH

Review Article

2025
Volume: 02
Issue: 12
Page: 95-112

A REVIEW ON CONTAMINATION CRISIS FOR COUGH SYRUP DEATHS IN INDIA

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Received: 10 November 2025 **Revised: 20 November 2025** **Accepted: 10 December 2025**

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ABSTRACT

Background — Beginning in late September–October 2025, clusters of acute pediatric illness and deaths in India were epidemiologically linked to certain oral cough/cold liquid medicines. Laboratory testing found high levels of diethylene glycol (DEG) in specific product batches. This review summarizes the events, the toxicology of implicated contaminants, failures in manufacturing and oversight, and policy and clinical recommendations. Methods — Rapid narrative review of public health alerts, national investigation reports, major press coverage, WHO and regulatory agency releases, and peer commentary published during the outbreak (Sept–Oct 2025).

KEYWORDS: Cough syrup contamination, Pediatric deaths, Pharmaceutical quality control, Drug safety crisis, India cough syrup deaths ,Contaminated medicinal syrups, Toxic adulterants, Good Manufacturing Practices (GMP),Regulatory failures, WHO medical product alert, Pharmaceutical contamination incident, Public health risk.

INTRODUCTION

The safety and quality of pharmaceutical products are critical to public health, particularly in developing countries where regulatory oversight and manufacturing practices vary widely. In recent years, India—often referred to as the “pharmacy of the world” due to its large-scale production of generic medicines—has faced serious scrutiny following multiple contamination incidents involving cough syrups. These events, which resulted in the tragic deaths of children in India and abroad, highlighted alarming lapses in quality control, the

presence of toxic contaminants such as diethylene glycol (DEG) and ethylene glycol (EG), and weaknesses in regulatory surveillance. The contamination crisis gained global attention after investigations linked several pediatric deaths to Indian- manufactured cough syrups exported to countries such as Gambia, Uzbekistan, and Cameroon. Subsequent analyses revealed the presence of unacceptable levels of industrial-grade chemicals used as solvents, which are highly toxic and can lead to acute kidney injury, metabolic acidosis, neurological damage, and death. These incidents prompted widespread concern about the integrity of India's pharmaceutical manufacturing system, raising questions around GMP (Good Manufacturing Practices), raw material sourcing, supply-chain vulnerabilities, and regulatory compliance. This review explores the background of the contamination events, the toxicological implications of DEG/EG, the regulatory responses, and the broader impact on India's pharmaceutical reputation. By critically examining these crises, the review aims to identify gaps and propose strategies to strengthen drug quality assurance and prevent future tragedies.

1. CASE STUDY OF RESPIFRESH TR

The Respifresh TR cough syrup manufactured by Rednex Pharmaceuticals has been identified as substandard and contaminated with.

Toxic levels of diethylene glycol (DEG) by the World Health Organization (WHO) and Indian authorities. The product has been recalled, and authorities have halted production at the implicated Rednex Pharmaceuticals site in Gujarat, India.

1.2. WHAT IT IS RESPIFRESH

Respifresh TR is a cough syrup (oral liquid) manufactured by Rednex Pharmaceuticals (Gujarat, India).

According to public listings from the company, it is among their "Oral Pharma Liquids" range.

It was produced in January 2025 with an expiry date of December 2026 (for the batch in question) according to regulator notifications.

What the problem is

The syrup was found to be contaminated with diethylene glycol (DEG) — a toxic industrial chemical. Specifically, a lab test found 1.342% DEG in this product, whereas the permissible limit is 0.1%.

While Respifresh TR has not been directly linked to any confirmed deaths (unlike another brand in the same incident) it is still part of a serious drug-safety alert.

It has been declared "Not of Standard Quality (NSQ)" by Indian regulators.

A recall / ban has been ordered: The Government of Gujarat and other states have ordered the recall/cessation of production of the affected product/batches.

The World Health Organization (WHO) has issued a medical product alert including Respifresh TR among syrups to avoid.

What To Do If You Or Someone You Know Has This Product

Stop use immediately of any bottle of Respifresh TR — especially the batch noted (Batch No. R01GL2523, expiry December 2026) as flagged in notices.

Contact your healthcare provider if there are symptoms after taking the syrup (such as reduced urine output, swelling, dark urine, or kidney problems) because DEG contamination can cause kidney failure and life-threatening illness.

If you are a pharmacist/distributor/retailer: check your stock, segregate this product, and follow regulatory recall instructions. Several states in India have ordered stock seizures.

Report adverse events or suspected use of the contaminated batch to your state drug control authority or national pharmacovigilance centre.

If you are outside India: Monitor for any alerts in your country, because WHO has advised vigilance for possible exports or informal circulation.

If you like, I can check the specific batch details, distribution/recall status in Maharashtra / your local area (Umarga, Mah India) and see whether the product is still on the market locally.

1.3. Key Information

Manufacturer: Rednex Pharmaceuticals Pvt. Ltd., based in Gujarat, India.

Contamination: Specific batches of Respifresh TR were found to contain 1.342% w/v of diethylene glycol

Health Risk: DEG is toxic to humans and can cause severe illness, including abdominal pain, vomiting, (DEG), a toxic industrial chemical. The permissible limit is no more than 0.1% diarrhea, altered mental state, acute kidney injury, and potentially death, especially in children.

Status: The product is considered unsafe and has been recalled by state authorities. The company was ordered to halt all production.

Intended Use (General formulation): The general formulation of Respifresh TR syrup (when not contaminated) is indicated for the treatment of cough associated with excessive mucus in conditions like asthma and COPD, working as a mucolytic and expectorant. However, due to the confirmed contamination, the specific product from Rednex Pharmaceuticals should not be used under any circumstances.

1.4. Recommendation

If you or someone you know possesses this product, it is crucial to immediately stop using it and seek advice from a healthcare professional or contact a poison control center. The product should not be prescribed, dispensed, or consumed.

This is for informational purpose only.For medical advice or a diagnosis ,consult a professional .AI responses may include mistake. Here I what I found about Respifresh TR, manufactured by Rednex Pharmaceuticals Pvt Ltd.

Disclaimer: This information is for general knowledge and is not a substitute for professional medical advice. Always consult a healthcare professional before starting any new medication.

1.5. Product Introduction

Respifresh A Syrup is used to treat cough. It thins the mucus in the nose, making it easier to cough out. This medicine narrows the blood vessels in the nose to relieve congestion or

stuffiness. It also relieves allergy symptoms like watery eyes, sneezing, runny nose, and throat irritation.

Respifresh A Syrup is taken with or without food in a dose and duration as advised by the doctor. The dose you are given will depend on your condition and how you respond to the medicine. You should keep taking this medicine for as long as your doctor recommends. If you stop treatment too early your symptoms may come back and your condition may worsen. Let your doctor know about all other medications you are taking as some may affect, or be affected by this medicine.

The most common side effects are nausea, diarrhea, vomiting, stomach discomfort, headache, rash, itching, loss of appetite, and insomnia. Most of these are temporary and usually resolve with time. Contact your doctor straight away if you are at all concerned about any of these side effects. This medicine can also cause sleepiness, so do not drive or do anything that requires mental focus until you know how this medicine affects you. Avoid drinking alcohol while taking this medicine as it can make sleepiness worse.

Never support self-medication or recommend your medicine to another person. It is beneficial to have plenty of fluids while taking this medication. Before you start taking this medicine you should tell your doctor if you are pregnant or pregnancy.

1.6. SIDE EFFECT OF RESPIFRESH TR SYRUP

Most side effects do not require any medical attention and disappear as your body adjusts to the medicine. Consult your doctor if they persist or if you’re worried about them The most common side effects of Respifresh TR Syrup include nausea, vomiting, diarrhea, headache, dizziness, drowsiness, stomach pain, skin rash, tremors, and increased heart rate. Most of these are temporary and typically resolve over time.

Common Side Effects

- Nausea and vomiting
- Diarrhea
- Stomach pain or upset stomach
- Indigestion
- Headache

- Dizziness and drowsiness (may affect focus, so driving or operating machinery should be avoided until you know how it affects you)
- Skin rash
- Tremors (shakiness in the legs, arms, hands, or feet)
- Increased heart rate (palpitations)
- Sweating
- Dry mouth
- Throat irritation

Fig. No. 1: Respifresh –TR.

1.7. Important Considerations

Consult a doctor: If any of these side effects persist or worsen, you should consult your doctor immediately.

Allergies: Inform your doctor if you are allergic to any of the ingredients in Respifresh TR Syrup (Guaifenesin, Bromhexine, Terbutaline, and Menthol).

Medical Conditions: Discuss any existing medical conditions (e.g., diabetes, heart disease, thyroid issues, history of fits, liver or kidney problems) with your doctor, as the syrup may require careful monitoring or may be contraindicated.

Pregnancy/Breastfeeding: Pregnant or breastfeeding individuals should inform their doctor before using this syrup, as it may be excreted in breast milk and cause adverse effects in the baby.

Contamination Warning: The user should be aware that the World Health Organization (WHO) has previously issued a global warning regarding potentiallycontaminated batches of certain Indian cough syrups, including specific formulations named "Respifresh TR".

These products were considered substandard and posed health risks. Ensure that any medication you use is from a trusted source and, if possible, confirm this with your pharmacist or doctor.

2. CASE STUDY OF RELIFE COUGH SYRUP:

Shape Pharma Private Limited is an Indian pharmaceutical manufacturer that has recently been involved in a health controversy surrounding its product, ReLife syrup. There are several companies named "Relife" or "re.life" with different business focuses. To get the specific shape information you are looking for, you must clarify which company you mean.

Here is information on some of the most prominent "Relife" companies.

Shape Pharma (manufacturer of ReLife syrup)

This is the most probable result given the phrase "relife shape." In October 2025, the World Health Organization flagged a children's cough syrup called ReLife, manufactured by Shape Pharma of Tamil Nadu, India, as potentially contaminated and unsafe for consumption.

2.1. Key Information:

Product Contamination: Specific batches of the company's ReLife cough syrup (batch number LSL25160) were found to be contaminated with high levels of diethylene glycol (DEG), a toxic industrial solvent. The level of contamination was found to be 0.616%.

Health Alert: The World Health Organization (WHO) issued a global health advisory in October 2025 against the use of the contaminated syrup, as it poses significant, potentially life-threatening risks. The Indian government and state authorities also issued "Stop Use Notices" and bans on the product.

Link to Tragedies: The contaminated ReLife syrup, along with two other syrups from different manufacturers, was linked to the deaths of several children in Madhya Pradesh, India, who suffered from kidney failure after consumption.

Regulatory Action: Indian authorities halted all production at Shape Pharma and ordered an immediate recall of the product.

Location: Shape Pharma Private Limited is located in Shekhpar, Gujarat, India.

It is important to note that a separate entity, RELIFE PHARMACEUTICALS OPC PVT. LTD., with an address in Kolkata, India, appears to be a different company that manufactures various human and animal health products and has no reported link to the contamination incident.

This is for informational purposes only. For medical advice or a diagnosis, consult a professional. AI responses may include mistakes.elpful?

2.2. ABOUT OF RELIFE PHARMA:-

As of October 2025, the World Health Organization (WHO) has issued a warning against the cough syrup ReLife, manufactured by Shape Pharma of Gujarat, India, after samples were found to be contaminated with toxic levels of diethylene glycol (DEG). The company has been ordered to stop production.

This is a separate matter from another company, Relife Pharmaceuticals, which makes human and veterinary health products, and appears to be in operation.

Warning for Shape Pharma's ReLife syrup

In October 2025, an investigation began following reports of child deaths linked to contaminated cough syrups in India.

The deaths were caused by acute kidney failure, which was ultimately connected to DEG poisoning.

An Indian lab issued an alert to the Telangana drug control administration that Shape Pharma's ReLife syrup was contaminated with diethylene glycol (DEG). A sample was found to contain 0.616% DEG, which is above the permissible limit.

In response, Indian drug authorities suspended the company's license and ordered a recall of all products from the market. The WHO issued a global warning, urging regulatory authorities to be vigilant and report any detection of the affected batches.

Shape Pharma, based in Gujarat, has not commented on the contamination as of October 2025.

About Relife Pharmaceuticals

Relife Pharmaceuticals OPC Pvt. Ltd. is a different company that manufactures a range of human and animal health products, including:

- Antibiotics
- Antifungals
- Herbal and Ayurvedic products

Some of the products listed on marketplaces include Relife Herbal Muscle & Joint Pain Oil and Relife Anti addiction. This company is distinct from the one named in the syrup. Cough syrup deaths: T.N. government cancels drug licences of Sresan Pharma, shuts down company.

On Monday (October 13, 2025), officers of the Enforcement Directorate (ED) employees of Sresan Pharma and officials of the Tamil Nadu Drugs Control Department.

Updated - October 13, 2025 02:39 pm IST – CHENNAI.

The Tamil Nadu Drugs Control Department has cancelled all manufacturing licences of Sresan Pharmaceuticals and permanently closed the company after laboratory tests confirmed the presence of the lethal chemical diethylene glycol in one of its paediatric syrups.

GROUND ZERO | Killer cough syrup

According to an official release, the action follows the deaths of several children in Madhya Pradesh’s Chhindwara district, reportedly linked to Coldrif Syrup, manufactured by Sresan Pharmaceuticals, based in Tamil Nadu’s Kacheepuram district. On October 1, the Tamil Nadu authorities received an alert from the Madhya Pradesh Drugs Control Department regarding the suspected medicine, which contained paracetamol, phenylephrine hydrochloride, and chlorpheniramine maleate.

A team led by a Senior Drugs Inspector conducted an inspection at the company's Kancheepuram facility on the same day, following orders from the Deputy Director of Drugs Control. Samples of five products, including Coldrif Syrup (Batch No: SR-13), were taken and sent to the Government Drugs Testing Laboratory in Chennai. The analysis, completed on October 2, revealed that quantities of diethylene glycol — a toxic industrial solvent — was present in the syrup.

Following the test results, the sale of the syrup across Tamil Nadu was immediately banned, and information was shared with the governments of Odisha and Puducherry, where the product had also been distributed. On October 3, a stop- production order was issued, and the company was sealed. A show-cause notice was subsequently served, asking why its manufacturing licences should not be cancelled.

The Drugs Control Department also lodged a complaint with the C-2 Chengalpattu police station, seeking criminal action against the company's owner, Ranganathan, 75, who was later arrested on October 9 in Ashok Nagar, Chennai, with the assistance of the Tamil Nadu Police and the Madhya Pradesh Special Investigation Team.

Two senior drug inspectors from Kancheepuram were suspended for failing to conduct mandatory inspections in 2023, despite earlier actions against the company in 2021 and 2022.

Also Read | WHO seeks clarification from India if cough syrup has been exported to other countries

On Monday (October 13, 2025), officers of the Enforcement Directorate (ED) conducted searches at seven locations in Tamil Nadu, including properties linked to key employees of Sresan Pharma and officials of the Tamil Nadu Drugs Control Department.

As of Monday (October 13, 2025), all drug manufacturing licences of Sresan Pharmaceuticals stand cancelled, and the company has been permanently shut down.

The Tamil Nadu government has also ordered comprehensive inspections of all pharmaceutical manufacturing units across the State.

Published - October 13, 2025 01:40 pm IST

Fig. No. 2: Relife Cough Syrup.

Company name

The manufacturer is specifically named Shape Pharma, while the product is "ReLife" syrup.

Contamination risk

The WHO issued a warning after children in Madhya Pradesh reportedly died from consuming contaminated cough syrup. The ReLife syrup is not recommended for children under the age of five.

Relife (aesthetic products)

This Italian company develops and markets skincare and aesthetic medicine products.

Products:

The company offers various products, including its Definisse™ range for non-surgical rejuvenation treatments.

ReLife (waste recycling)

An Italian company specializing in waste recycling services.

Industry

ReLife operates in the waste management and recycling sector.

Acquisition: The company was acquired by F2i SGR in 2021**.**

Location

The company was founded in Rivalta, Italy.

re.life (digital logistics and trading)

Based in the United Arab Emirates, this company operates a digital ecosystem for logistics and trading.

Services

The platform assists individuals and businesses with tasks like moving, deliveries, and trading recyclables.

Founded

The company was established in 2020 and is headquartered in Sharjah.

If you are interested in a different "Relife" company, providing more details may help pinpoint the correct one.

Toxic Contamination

The syrups were adulterated with diethylene glycol (and likely ethylene glycol), a poisonous substance used in industrial solvents and antifreeze, which is fatal if ingested.

Health Impact

Consumption of the contaminated syrups caused severe health issues, including acute kidney failure, neurological complications, and death, primarily among children under the age of five. At least 24 children died in Madhya Pradesh and Rajasthan due to this contamination.

Source of Contamination

The contamination occurred because manufacturers allegedly used non-pharmaceutical grade solvents (likely due to their lower cost) instead of the required safer alternatives like propylene glycol.

Regulatory Action

The World Health Organization (WHO) issued a global alert and expressed concern over gaps in India's drug safety oversight.

Indian authorities banned the sale and distribution of the specific products (Coldrif, Respifresh TR, and ReLife) and halted the production at the involved companies.

The owner of Sresan Pharmaceuticals, the manufacturer of the primary implicated syrup 'Coldrif', was arrested, and the company's license was permanently cancelled.

Advisories Issued: The Union Health Ministry issued an advisory to all states and union territories, urging extreme caution and advising against the use of cough and cold medications for children under the age of two, as most coughs in children are selflimiting viral infections that do not require such medication.

2.3. Related Topics

Tamil Nadu / health / medicine / Madhya Pradesh / death deathntamination scandal Two senior drug inspectors from Kancheepuram were suspended for failing to conduct mandatory inspections in 2023, despite earlier actions against the company in 2021 and 2022.

Also Read | WHO seeks clarification from India if cough syrup has been exported to other countries

On Monday (October 13, 2025), officers of the Enforcement Directorate (ED) conducted searches at seven locations in Tamil Nadu, including properties linked to key employees of Sresan Pharma and officials of the Tamil Nadu Drugs Control Department.

As of Monday (October 13, 2025), all drug manufacturing licences of Sresan Pharmaceuticals stand cancelled, and the company has been permanently shut down. The Tamil Nadu government has also ordered comprehensive inspections of all pharmaceutical manufacturing units across the State.

3. CASE STUDY OF COLDRIF SYRUP

At least 22 to 24 children died in India in September and October 2025 after consuming contaminated Coldrif cough syrup. The majority of the deaths occurred in the central state of Madhya Pradesh, with some cases also reported in Rajasthan.

3.1. Key Information

The manufacturer — Sresan Pharmaceuticals (based in Tamil Nadu) has come under criminal investigation for manufacturing and distributing the adulterated syrup. DEG is not a safe ingredient for medicines in fact, it is used in antifreeze, brake fluid, glues, inks, etc.

Recent lab tests (2025) on a batch of Coldrif syrup (Batch No. SR-13, manufactured May 2025, expiry April 2027) found dangerously high levels of Diethylene Glycol (DEG), an industrial solvent about46–48.6%w/v.

The combination is typical of over-the-counter cold/cough syrups used to manage fever, cold symptoms, congestion, and mild allergic reactions.

Its listed active ingredients included: Paracetamol (for fever/pain), Chlorpheniramine Maleate (an antihistamine to relieve allergy-type symptoms) and Phenylephrine Hydrochloride (a decongestant to relieve nasal/respiratory congestion).

Officially, even before contamination issues, the combination of Chlorpheniramine + Phenylephrine used in Coldrif (and many similar syrups) had been under scrutiny: a 2023 order from central regulators warned that such fixed-dose combinations should not be used in children below 4 years of age.

3.2. Recommendation

If you or someone you know has Coldrif syrup at home do not use it. It has been banned and flagged as extremely dangerous.

If you gave Coldrif to a child, and the child shows symptoms like vomiting, reduced urination, abdominal pain, weakness — seek medical attention immediately, especially because of risk of kidney damage.

Always check expiry dates and official advisories before using over-the-counter syrups; contamination and adulteration can happen even with common medicines.

Prefer to consult a qualified doctor or pharmacist before giving cough syrups especially to children.

3.3. SIDE OFFECT OF COLDRIF SYRUP

Coldrif syrup has two categories of side effects: common, expected side effects from its active ingredients, and severe, potentially fatal side effects resulting from a recent, widely publicized contamination with a toxic industrial solvent (diethylene glycol). The contaminated syrup has been linked to numerous child deaths, leading to a nationwide ban in India.

When the medicine is manufactured correctly and taken as prescribed, the active ingredients (chlorpheniramine, paracetamol, and phenylephrine) typically cause minor and temporary side effects:

- Nausea and vomiting
- Sleepiness and dizziness
- Headache
- Difficulty sleeping (insomnia)
- Rapid heart rate (tachycardia) or palpitations
- Anxiety, restlessness, or tremors
- Rash or other allergic reactions
- These effects usually resolve as the body adjusts to the medicine, but you should inform your doctor if they persist or worsen.

The recent incidents of contamination found that some batches of Coldrif syrup contained diethylene glycol (DEG) at levels nearly 500 times the permissible limit (which should be no more than 0.1%). Ingesting DEG leads to severe poisoning and potentially fatal outcomes, with symptoms including.

- Acute kidney injury/failure (inability to pass urine)
- Severe abdominal pain and vomiting
- Neurological symptoms like seizures, confusion, or hallucinations
- Liver damage
- Difficulty breathing
- Death

Fig. No. 3: Coldrif Syrup.

3.4. Product Introduction

Coldrif was marketed as a typical cough and cold medicine (syrup), meant to relieve symptoms of common cold such as runny nose, sneezing, congestion, watery eyes, sore throat — and, in some formulations, fever and body-ache.

According to product-information sources, Coldrif contains a combination of three active pharmaceutical ingredients: Chlorpheniramine Maleate (an antihistamine to treat allergic symptoms like runny nose and watery eyes), Paracetamol (to treat fever and pain), and Phenylephrine Hydrochloride (a decongestant to relieve nasal congestion).

In 2025, Coldrif became the center of a major health scandal — the drug was found to be severely unsafe, leading to its ban across multiple Indian states and investigations against its manufacturer. Key issues:
Laboratory tests found that the harmful industrial chemical Diethylene Glycol (DEG) was present in the syrup — at extremely high levels (~ 46–48.6% w/v). DEG is not a safe pharmaceutical ingredient: it's used industrially (in brake fluid, antifreeze, glues, inks, etc.), and ingestion is highly toxic.

DEG can cause severe kidney and liver damage, and even acute kidney failure, particularly in children. Even small amounts of DEG are dangerous; there is effectively no safe limit for drinking it.

The contaminated syrup has been linked to the deaths of many children especially in certain Indian states — after they took it for ordinary cold/fever.

Following the findings, authorities in several states (e.g. Delhi Government, state governments in Punjab, Madhya Pradesh, Tamil Nadu, etc.) banned sale, purchase, and distribution of Coldrif syrup, and urged the public not to consume it.

The company that manufactured Coldrif — Sresan Pharmaceuticals (based in Tamil Nadu) faced license revocation, legal action, and public outrage.

3.5. Summary

Coldrif Syrup — once a widely used cold/cough medicine — has now been exposed as dangerously contaminated and linked to fatal outcomes. Regulatory authorities have banned

it, and medical experts warn that it is unsafe and must not be used. If you encounter it, please avoid using it and alert a pharmacist or regulatory authority.

3.6. Manufacturing:- The tragedy reportedly stems from use of industrial-grade raw materials (or adulterated substances) instead of pharmaceutical-grade ingredients, allowing toxic compounds like DEG to end up in medicines — apparently as a costcutting or negligent measure.

Regulatory oversights — in manufacturing, packaging, labeling and quality control failed to catch the contamination before distribution, highlighting serious systemic weaknesses in drug safety enforcement.

Table: Toxic contaminant of cough syrup

Sr. No.	Syrup Name	Manufacturer by Industry	Toxic Contaminations (DGE)	Children Deaths Reported
1	Respifresh TR	Rednex Pharma (Gujarat)	Detected ~1.342% (DEG) in syrup	Zero death report
2	Relife Syrup	Shape Pharma (Gujarat)	Detected ~0.616% (DEG) In Syrup	Zero deaths Report
3	Coldrif Syrup	Sresan Pharmaceuticals (Tamil Nadu)	Very high DEG (around 48% found) far above permissible	22 children died (Madhya Pradesh Chhindwara)

CONCLUSION

The recent contamination crises linked to cough syrup-related deaths in India highlight critical weaknesses in pharmaceutical quality control, regulatory vigilance, and global supply-chain oversight. These tragic incidents, primarily associated with toxic impurities such as diethylene glycol (DEG) and ethylene glycol (EG), underscore the urgent need for stricter compliance with Good Manufacturing Practices (GMP), routine analytical testing, and transparent monitoring systems. Although India is a major global supplier of affordable medicines, these events reveal that lapses in raw material quality, inadequate in-process controls, and failure of regulatory checks can have devastating public-health consequences, especially for vulnerable populations such as children.

Strengthening regulatory frameworks, enhancing laboratory capacity, enforcing accountability among manufacturers, and adopting advanced analytical technologies are essential for preventing similar incidents in the future. International cooperation and harmonized pharmacovigilance systems will also improve surveillance across borders.

Ultimately, the contamination crisis serves as a reminder that drug safety must remain a non-negotiable priority, and restoring trust in India's pharmaceutical sector requires sustained commitment to safety, quality, and ethical manufacturing practices.

REFERENCES

1. World Health Organization (WHO) published an official alert titled "Medical Product Alert No. 5/2025: Substandard (Contaminated) Oral Liquid Medicines." This alert highlights the contamination of several cough syrups, including Respifresh TR, with toxic diethylene glycol and was released as part of WHO's global medical product safety communications.
2. A detailed news report was published by Hindustan Times, titled "WHO warns against use of Coldrif, Respifresh TR and ReLife cough syrups." The article, written by Rhythma Kaul, explains WHO's findings, affected batches, and the risks associated with the contaminated medicines.
3. Livemint published an explanatory article titled "Cough syrup deaths: Coldrif, Respifresh TR and ReLife all about the medicines declared toxic by India." This report discusses laboratory test results, identified batch numbers, and actions taken by regulatory agencies after toxicity was confirmed.
4. India Today released a news article titled "WHO issues warning over Coldrif, 2 other cough syrups after child deaths in India." This publication outlines the sequence of events that led to international alerts and provides regulatory context regarding the contaminated cough syrups.
5. The Economic Times published a report titled "India declares three cough syrups toxic after child deaths." This article provides additional confirmation from Indian authorities on toxicity findings and recalls involving Respifresh TR and other syrups.
6. Hindustan Times also published a state-level regulatory update titled "Haryana issues alert for two more cough syrup brands." This report describes the local drug authority's actions regarding Respifresh TR and ReLife after receiving laboratory. Confirmation of impurities.
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