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The Truth about Drug Regulation in India

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Tracing the evolution of the modern pharmaceutical industry, Truth Pill takes a critical look at the drug regulatory process in India and outlines what needs to be done to make the country a world leader, both in a monetary and ethical way.

In October 2022, the World Health Organization (WHO) released a medical product alert. Four products from Maiden Pharmaceuticals in India had been found to be contaminated with unacceptable amounts of diethylene glycol and ethylene glycol, both toxic to humans. Coincidentally, the prologue of *The Truth Pill* by Dinesh Thakur and Prashant Reddy begins with a description of a similar incident in Jammu in India in 2019, which resulted in the death of 11 children.

In 11 well-researched and referenced chapters, Thakur and Reddy trace the evolution of the modern pharmaceutical industry in the world, certain aspects of its establishment in India, the present position, and examine what needs to be done by the country to be a leader not just in monetary terms but also in an ethical sense.

Modern scientific medicine is less than 200 years old. Two basic discoveries in the 19th century – the cellular structure of most living things (viruses are an exception), and the potential of some living things (germs) to cause disease in others – laid the foundation for the present-day science of medicine. The search for active agents to prevent and cure diseases through vaccines, chemicals, plants, and herbs led to notable successes but also some terrible tragedies. The disasters resulted in the enactment of laws to regulate the pharmaceutical industry.

As the writers state, "Much of drug regulatory law has been written with the blood of citizens who died in hundreds […] This tells us that if a country is governed by a poorly designed and enforced drug regulatory system, people will die. The pharmaceutical industry cannot be trusted to regulate itself."

> The key takeaway is that India can only truly claim to be 'the pharmacy of the world' if it has, and is seen to have, the best practices in drug manufacturing.

This is the fundamental point undergirding all the chapters in the book. Thakur is a chemical engineer with expertise in drug manufacturing processes, and Reddy is a lawyer who has spent considerable effort in unravelling the complex system of laws regulating drug manufacture in India. This has resulted in a book that brings together the science of drug manufacture with what needs to be done by the government to strengthen the regulatory framework. The key takeaway is that India can only truly claim to be "the pharmacy of the world" if it has, and is seen to have, the best practices in drug manufacturing.

Truth Pill gives numerous examples of failures on the part of pharmaceutical manufacturers in India to adhere to standards. Drugs have to comply with standards of purity and also need to be manufactured in facilities that are compliant with world-recognised norms (known as "good manufacturing practices"). The rate at which a drug dissolves, the amount of a drug available in the body (called bioavailability), and the equivalence of a copied drug with that originally approved by the licensing authority (called bioequivalence) are all important in the treatment of diseases.

Unless Indian regulatory requirements and mandatory quality checks are brought on par with the best in the world, there will always be a suspicion that Indian drugs are substandard. Thakur and Reddy cite several instances where Indian drugs were found to be wanting. Adulteration has caused deaths, like in the glycerol tragedy in J J Hospital in Mumbai in 1986, which was investigated by the Justice Lentin Commission. There have been many instances of drugs either not dissolving appropriately or having the therapeutic quantity expected.

The issue of pharmaceutical availability, manufacture, and quality has exercised several governments and has been studied by government committees such as the Hathi Committee in 1975 and the Mashelkar Committee in 2003. However, the response has been far from satisfactory with piecemeal reforms, opaque and badly worded legislation, and the absence of both resources and the will to implement quality standards.

Truth Pill extensively documents and dissects the laws and regulations governing the pharmaceutical industry in India, which makes it very informative. This must be a first in the field of pharmaceuticals in India and the writers deserve praise for this painstaking effort.

Although the functioning of the Indian drug regulatory apparatus is mentioned in several chapters, it is Chapter 5 ('New Drugs and "The Persistent Insolence of the CDSCO..."') that examines the Central Drugs Standards Control Organisation in detail. Sadly typical of several government departments, this organisation lacks the expertise and resources to carry out its mandate. As detailed in the book, it came in for scathing criticism from the Parliamentary Standing Committee on Health and Family Welfare in 2012.

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'Can "Made in India" Generic Medicine be Trusted?' is the provocative title of Chapter 6. There is no direct answer to this question, and it appears as if Thakur and Reddy have evaded giving one. There is, however, much useful information on how bioequivalence is measured, the importance of drug stability, and the importance of ensuring that drug manufacturers in India comply with these requirements.

Thakur and Reddy do not mention that despite the lack of suitable laws and regulations, some Indian drug companies do meet the strict quality norms of North America and Europe as these two regions account for 34% and 15% of the drugs exported from India. The largest number of drug manufacturing facilities outside the US recognised by the United States Food and Drug Authority (USFDA) is in India. The country also manufactures about 60% of global vaccines.

In covering traditional medicines, *Truth Pill* points out that these remedies need to be validated by recognised scientific methods. Several others, including some practitioners of these systems of medicine, have made the same point. Interestingly, Thakur and Reddy point out that the so-called traditional remedies being mass marketed are not really traditional remedies in that they use the processes of manufacture developed for modern medicine though these processes have never been validated for these drugs.

The lax regulation of traditional remedies comes in for searing criticism. Earlier in the book, a case is made that modern drug manufacturing is a complex process where every step must be tested. For example, the binders and excipients used along with the active pharmaceutical ingredient (API) can have serious effects on how a drug is absorbed. In the absence of testing and validation, a drug may not perform as expected.

At this point, it would have been educative if the book had at least a brief chapter on the history of the pharmaceutical industry in India. The strong reservations that public health activists have about the transnational giants in the pharma industry are valid to an extent. The tendency to support the underdog should not, however, come in the way of science and reason. This point is well taken.

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The chapter, 'The Chaos of Indian Pharmacies and their Supply Chains' deals with the condition of pharmacies. Much needs to be done to improve them. In 'Of Drug Advertisements, Promotions and Trademarks', Thakur and Reddy examine the marketing practices of pharma companies. This has been the subject of several books; for example, *The Truth about Drug Companies* by Marcia Angell, the former editor of the *New England Journal of Medicine*. What is new here is the explanation of the laws governing pharmaceutical marketing practices in India.

Finally, in 'The Politics and Levers of Reforming India's Drug Regulatory Framework', *Truth Pill* tackles the question of what needs to be done to reform India's drug regulatory framework. Here, the clarity found in the earlier chapters is missing. Although not explicitly stated, the writers seem to favour a strong central regulator, which has sufficient expertise, resources, and powers to ensure that drug manufacturers in India comply with recognised quality standards. They state the need for clear laws and standards to regulate the manufacture, distribution, stocking, advertising, sale, and export of drugs.

> 'Truth Pill' provides a clear explanation of what needs to be done to ensure that India truly is the pharmacy of the world.

The strong points of the book are the expertise that the writers have on medicines and the law. Thus, there is a clear explanation of the importance of many terms that even doctors struggle with, such as bioequivalence and bioavailability. The lack of a robust legal framework for effective drug regulation and what needs to be done is well explained.

The weak points of the book are the lack of a chapter on the political economy of the drug industry in India, such as the work of Sanjaya Lall and Senaka Bibile on Sri Lanka. Perhaps knowledge of the struggle to establish a drug industry in India would have helped the writers understand why public health activists in the country defend its drug industry.

Of one particular instance, Thakur and Reddy note, "As a manufacturer of drugs, LOCOST and its trustees like S. Srinivasan and Dr. Anant Phadke, who are also prominent public health activists in their own right, have little incentive to push for stricter enforcement of the Drugs and Cosmetics Act 1940 because it would directly impact them in their capacity as persons responsible for running a pharmaceutical manufacturing facility." This opinion is based on an incident where LOCOST was found guilty of and fined for manufacturing substandard enalapril maleate. LOCOST was quick to take remedial action as soon as the issue came to light. It is unfortunate that the authors have made their interpretation despite having received a complete version of the events from Srinivasan (personal communication from Srinivasan). Phadke and Srinivasan have been at the forefront of the long struggle to ensure high quality medicines at reasonable prices, as well as being active on many other public health issues. It is unfair to suggest that just because they are in the business of manufacturing drugs, they will automatically be disinterested in issues of quality and regulation. (*Disclosure: Phadke and Srinivasan are friends of mine.*)

On the whole, this well-researched book provides an understanding of the drug industry and the laws regulating it, as well as some ideas of what needs to be done to ensure that India truly is the pharmacy of the world.

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