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A Review on Pharmaceutical Marketing and Management

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Abstract: *Pharmaceutical marketing and management occupy a distinct position among commercial disciplines because they operate at the intersection of profit-driven business objectives and public health responsibility. This review examines the strategic, operational, and ethical dimensions of pharma marketing and management, drawing on recent literature covering promotional practices, digital transformation, supply chain operations, and regulatory oversight. The review finds that traditional promotional tools such as medical representative (MR) visits, free drug samples, and continuing medical education (CME) sponsorships remain influential in shaping physician prescribing behaviour, even as digital channels, artificial intelligence (AI), and data analytics increasingly reshape how companies engage healthcare professionals (HCPs) and patients. On the management side, the Indian pharmaceutical supply chain continues to face structural challenges including fragmentation, import dependence on active pharmaceutical ingredients (APIs), cold chain limitations, and counterfeit products, even as digital tools and regulatory reforms attempt to close these gaps. Ethical concerns persist around inducements, exaggerated promotional claims, and inconsistent enforcement of codes such as the Uniform Code for Pharmaceutical Marketing Practices (UCPMP), which became legally binding in 2024. The review concludes that a balanced, ethically anchored, and technologically integrated approach to marketing and supply chain management is essential for the pharmaceutical sector to serve both commercial and public health goals sustainably.*

Keywords: *Pharmaceutical marketing, pharma management, promotional strategies, supply chain management, medical representatives, UCPMP, digital marketing, ethical marketing, healthcare professionals, pharmaceutical industry India*

I. INTRODUCTION

The pharmaceutical industry is unlike most other commercial sectors because the "customer" for a medicine is rarely the same person who chooses it. Physicians typically decide what gets prescribed, pharmacists influence what gets dispensed, and patients are often the last link in this decision chain. This three-way structure makes pharmaceutical marketing a fundamentally different exercise from consumer product marketing, one that has to inform, persuade, and comply with regulation all at once.

The World Health Organization defines pharmaceutical marketing broadly as any activity undertaken by a manufacturer or distributor to promote the prescription, supply, purchase, or use of medicinal products, including advertising, sponsorship, and other promotional formats directed at either healthcare professionals or the general public. Pharmaceutical management, meanwhile, extends beyond promotion into the operational backbone of the industry — procurement, manufacturing, distribution, inventory control, and logistics — all of which determine whether a medicine actually reaches the patient who needs it, in usable condition, at the right time.

India occupies a particularly interesting position in this global picture. It is often called the "pharmacy of the world" due to its role as the largest supplier of generic medicines by volume, yet its domestic supply chain still struggles with fragmentation, infrastructure gaps, and heavy reliance on imported raw materials. At the same time, Indian regulators have tightened the ethical framework governing promotional conduct, most notably through the 2024 revision of the UCPMP, which converted a previously voluntary code into an enforceable regulation.

This review paper aims to consolidate current literature on three interconnected themes:

(1) the strategies and tools used in pharmaceutical marketing, (2) the operational and logistical challenges in pharmaceutical management, particularly within the Indian context, and (3) the ethical and regulatory tensions that arise when commercial incentives meet patient welfare obligations. The objective is to provide pharmacy students and early-career researchers with a structured, evidence-based understanding of how marketing and management functions shape access to medicines and influence the credibility of the pharmaceutical profession.

II. MEANING AND SCOPE

Pharmaceutical marketing identifies patient and healthcare needs, develops a product's value proposition, communicates scientific product information, and ensures the medicine reaches appropriate users through lawful channels.

Pharmaceutical management covers the internal systems that make this possible: strategy, finance, operations, quality, supply chain, people management, regulatory affairs, and performance monitoring.

For a herbal or OTC product, marketing may include consumer education and retail visibility; for prescription drugs, communication is primarily directed toward qualified healthcare professionals and must be evidence-based.iris.who+1

A. Core Objectives

- Improve patient access to safe, effective, quality-assured medicines.
- Achieve sustainable sales, market share, profitability, and brand equity.
- Communicate accurate benefits, risks, dosage, and appropriate-use information.
- Build trust with healthcare professionals, distributors, pharmacies, hospitals, and patients.
- Maintain compliance with drug-approval conditions, promotional rules, and pharmacovigilance requirements.iris.who+1

B. Marketing Process

Stage	Key activity	Typical output
Market research	Study disease burden, prescriber behavior, competitors, price sensitivity, and unmet need	Market opportunity assessment
Segmentation	Divide the market by specialty, geography, patient type, hospital/retail channel, or prescription potential	Target customer segments
Targeting	Select the highest-priority segments	Target doctor and territory list
Positioning	Define how the brand should be perceived versus alternatives	Brand promise/value proposition
Strategy	Set product, price, distribution, and promotion plans	Annual marketing plan
Implementation	Train field force, launch campaigns, manage distribution and inventory	Sales and promotional execution
Control	Track sales, prescriptions, stock, campaign response, and compliance	Corrective actions and reporting

C. STP framework Segmentation

The market can be segmented using:

- Therapy area: Diabetes, dermatology, cardiology, gastrointestinal disorders, etc.
- Customer type: General physicians, specialists, hospitals, pharmacies, wholesalers, patients.
- Geography: National, state, district, urban, rural, or territory level.
- Behavior: High-, medium-, and low-potential prescribers; formulary versus non-formulary hospitals.
- Patient characteristics: Age, disease severity, affordability, adherence needs, and comorbidities.

D. Targeting

Targeting means selecting segments where the product has a clear clinical and commercial fit. A new antidiabetic product, for example, may prioritize diabetologists, endocrinologists, high-volume general physicians, and hospitals with diabetes clinics.

E. Positioning

Positioning expresses the product's distinct, supportable value. It should be based on approved indications and evidence, such as convenience, dosage form, tolerability profile, quality standardization, affordability, or patient adherence support—not

F. Marketing mix: 4Ps

Element	Pharmaceutical application
Product	API/formulation, dosage form, pack size, label, stability, quality, approved indication, safety profile, and patient information
Price	Manufacturing cost, trade margins, competitor price, affordability, reimbursement, government price controls, and profit margin
Place	C&F agents, stockists, wholesalers, retail pharmacies, hospitals, e-pharmacies where permitted, and cold-chain logistics
Promotion	Medical representative detailing, scientific literature, CME support within rules, digital communication, patient education, samples where allowed, and advertising for eligible OTC products

In pharmaceutical practice, a fifth practical element is often added: **People**—medical representatives, product managers, key-account managers, regulatory personnel, pharmacists, and customer-support teams.

G. Product Management

A product manager or brand manager is responsible for the product's commercial and strategic lifecycle. Their role connects medical, regulatory, sales, manufacturing, supply chain, market research, and finance functions.

Key responsibilities include:

- Preparing the annual brand plan and sales forecast.
- Developing scientific promotional material with medical and regulatory review.
- Studying competitors, market trends, and prescriber feedback.
- Designing training material for medical representatives.
- Monitoring availability, stock-outs, product complaints, and sales performance.
- Managing lifecycle actions such as line extensions, new pack sizes, relaunches, or new indications.

H. Sales-force management

Medical representatives (MRs) are a major communication channel in prescription-drug marketing. They provide approved scientific information to healthcare professionals, collect market feedback, support lawful sample distribution, and help ensure availability through the trade channel.

A sales manager typically handles:

- Territory design and doctor-list classification.
- Recruitment, induction, product training, and field coaching.
- Call planning and coverage frequency.
- Sales-target setting and incentive administration.
- Monitoring field activity, secondary sales, and distributor stock.
- Ensuring ethical conduct and compliance by representatives.

In India, companies are accountable for the actions of their MRs and other employees under UCPMP 2024.pib.gov+1

I. Distribution and supply chain

Pharmaceutical distribution aims to provide the right medicine, in the right quantity and condition, at the right location and time.

Main channel flow:

Manufacturer → Carrying & Forwarding agent → Stockist/wholesaler → Retail pharmacy or hospital → Patient

Important management areas include:

- Demand forecasting and production planning.
- Inventory control, expiry-date management, and batch traceability.
- Cold-chain maintenance for temperature-sensitive products.
- Prevention of stock-outs and overstocking.
- Product returns, recalls, complaint handling, and reverse logistics.
- GDP and quality-system compliance.

III. RESULTS AND DISCUSSION

A. Traditional Promotional Strategies Remain Influential

Across multiple studies, medical representative (MR) visits consistently emerge as the single most influential promotional tool affecting physician prescribing behaviour. One study quantified MR-led "doctor detailing" as accounting for roughly 33 percent of promotional significance, followed by CME programs and health camps (18 percent), product sample distribution (16 percent), and gifts to doctors, chemists, and stockists (14 percent). Other reviews similarly report that personal engagement by MRs, free drug samples, sponsored travel, and continuing medical education funding significantly shape doctors' prescription choices, alongside supporting materials like visual aids, leaflets, and audio-video resources.

Promotional tool	Reported relative influence
MR visits / doctor detailing	~33% (highest-rated tool)
CME programs and health camps	~18%
Free drug sample distribution	~16%
Gifts to doctors/chemists/stockists	~14%
Sponsoring schemes to doctors	~12%
Cash discounts and stockist incentives	Combined ~7%

This pattern indicates that despite the rise of digital tools, in-person and relationship-based promotion has not been displaced — it continues to function as the backbone of pharmaceutical detailing, particularly in markets like India where physician-patient trust dynamics remain strong.

B. Digital Transformation and the Shift Toward Data-Driven Marketing

A clear trend across recent literature is the accelerating shift toward digital and AI-enabled marketing. Industry surveys indicate that over 85 percent of pharmaceutical companies are becoming data-driven, using predictive analytics and automation to personalize patient engagement and adjust campaigns in real time. In a 2025 industry survey, AI and machine learning were selected by 72 percent of marketing executives as the digital trend that excites them most, followed by data-driven targeting and personalization (52 percent) and interactive content formats such as quizzes and infographics (30 percent). Digital advertising spend in the healthcare and pharma sector reflects this shift, with 2025 estimates placing digital ad spend at approximately 24.8 billion US dollars, up 13.3 percent year-over-year and now accounting for more than three-quarters of total industry advertising expenditure. Companies are increasingly deploying omnichannel strategies that blend traditional MR detailing with search engine marketing, content marketing, email campaigns, mobile health applications, and social media outreach on platforms such as LinkedIn and Instagram to reach both HCPs and patients. However, this digital expansion has not gone unchecked. Regulatory scrutiny of direct-to-consumer (DTC) advertising has intensified, with U.S. authorities directing stricter enforcement on misleading drug advertisements across television and social media channels in 2025, and proposals to require fuller side-effect disclosures in advertising formats. This tension between marketing innovation and regulatory tightening is a recurring theme across the literature and suggests that future promotional strategy will need to be "compliance-by-design" rather than compliance-as-an-afterthought.

C. Supply Chain and Logistics Management Challenges in India

On the management side, the Indian pharmaceutical supply chain reveals a set of persistent structural weaknesses. Studies describe the distribution network as highly fragmented, involving more than 20,000 to 60,000 registered manufacturing and distribution units and over 550,000 retail pharmacies, which complicates inventory visibility, cold chain integrity, and quality control across the chain. Indian pharmaceutical companies reportedly spend roughly one-third of their revenue on supply chain management activities, with SCM costs amounting to an estimated 13 percent of India's GDP contribution from the sector — figures substantially higher than global averages, largely attributable to inadequate transportation infrastructure. A recurring set of operational issues appears consistently across the literature: degradation of temperature-sensitive medicines during transit, shipping of expired products, complex network design with large numbers of stock-keeping units (SKUs), outdated hospital information systems with poor inter-organizational connectivity, and difficulty forecasting demand accurately. One recent analysis further quantifies the cost architecture of pharmaceutical SCM, attributing 25 percent of costs to manufacturing, 20 percent each to procurement, inventory management, and distribution, and the remaining 15 percent to transportation.

India's dependence on imported active pharmaceutical ingredients (APIs) compounds these vulnerabilities. Nearly 70 percent of India's API requirements are met through imports, primarily from China, creating exposure to global trade disruptions and price volatility. In response, companies have begun adopting "China+1" sourcing strategies and investing in domestic API production capacity, while simultaneously exploring digital supply chain solutions such as ERP systems, blockchain-based traceability, and IoT-enabled monitoring to reduce fragmentation-driven inefficiencies.

Counterfeit medicines represent another significant management challenge, with higher incidences reported in Tier 2 and Tier 3 cities across states such as Bihar, West Bengal, Uttar Pradesh, and Gujarat. Regulatory testing data cited in the literature found that out of 7,500 samples tested over a recent six-month period, 284 were found to be "not of standard quality," underscoring persistent gaps in surveillance and cross-state coordination. The table below consolidates the key supply chain challenge categories identified across the reviewed studies.

Challenge category	Key issues reported
Fragmentation	20,000+ manufacturing units, 550,000+ retail pharmacies
Import dependence	~70% of APIs imported, mainly from China
Cold chain and quality	Temperature excursions, medicine degradation in transit
Counterfeit products	Higher incidence in Tier 2/3 cities; weak surveillance
Cost structure	Manufacturing 25%, procurement/inventory/distribution 20% each, transport 15%
Technology gaps	Manual paperwork, outdated hospital IT systems

D. Ethical and Regulatory Dimensions

Ethical tension is arguably the most sensitive theme running through pharmaceutical marketing literature. Studies focused on the Indian context report that while 85 percent of marketing executives claim awareness of ethical codes, only about 60 percent had received formal ethics training in the preceding year, and incentive-driven sales targets correlated significantly with higher frequencies of ethically questionable practices (correlation coefficient of 0.64). Physicians surveyed in the same research reported that 72 percent of promotional claims were perceived as sometimes exaggerated, and 48 percent had experienced direct prescription pressure from promotional activity.

The Uniform Code for Pharmaceutical Marketing Practices (UCPMP), historically a voluntary guideline, was revised in March 2024 into a legally enforceable code addressing transparency around free samples, CME event sponsorship, brand reminders, and an outright ban on inducements to doctors. Despite this stronger framework, enforcement gaps remain; the literature cites a case in which the Department of Pharmaceuticals reprimanded a multinational company for sponsoring foreign trips for doctors worth approximately 1.91 crore rupees, in violation of UCPMP provisions. Other studies similarly find that while some Indian companies demonstrate reasonable adherence to ethical guidelines, others continue unethical promotional conduct, with the primary drivers being weak regulatory enforcement, intense market competition, and profit-oriented incentive structures for sales personnel.

Taken together, these findings suggest that codification alone is insufficient without parallel investment in ethics training, incentive-structure reform, and consistent regulatory enforcement across states — a conclusion echoed across nearly all the Indian-focused studies reviewed here. This aligns with the broader observation that pharmaceutical marketing must balance commercial competitiveness with its underlying public health mandate, a tension that shapes nearly every strategic and operational decision examined in this review.

E. Integrating Marketing and Management for Sustainable Outcomes

The literature increasingly frames marketing and supply chain management not as separate functions but as interdependent systems. When promotional strategy and distribution logistics are well integrated, companies are better positioned to serve patients reliably, remain competitive, and meet compliance requirements simultaneously, whereas disjointed marketing and operations tend to amplify problems such as stock-outs, counterfeit exposure, and reputational damage from unmet promotional claims.

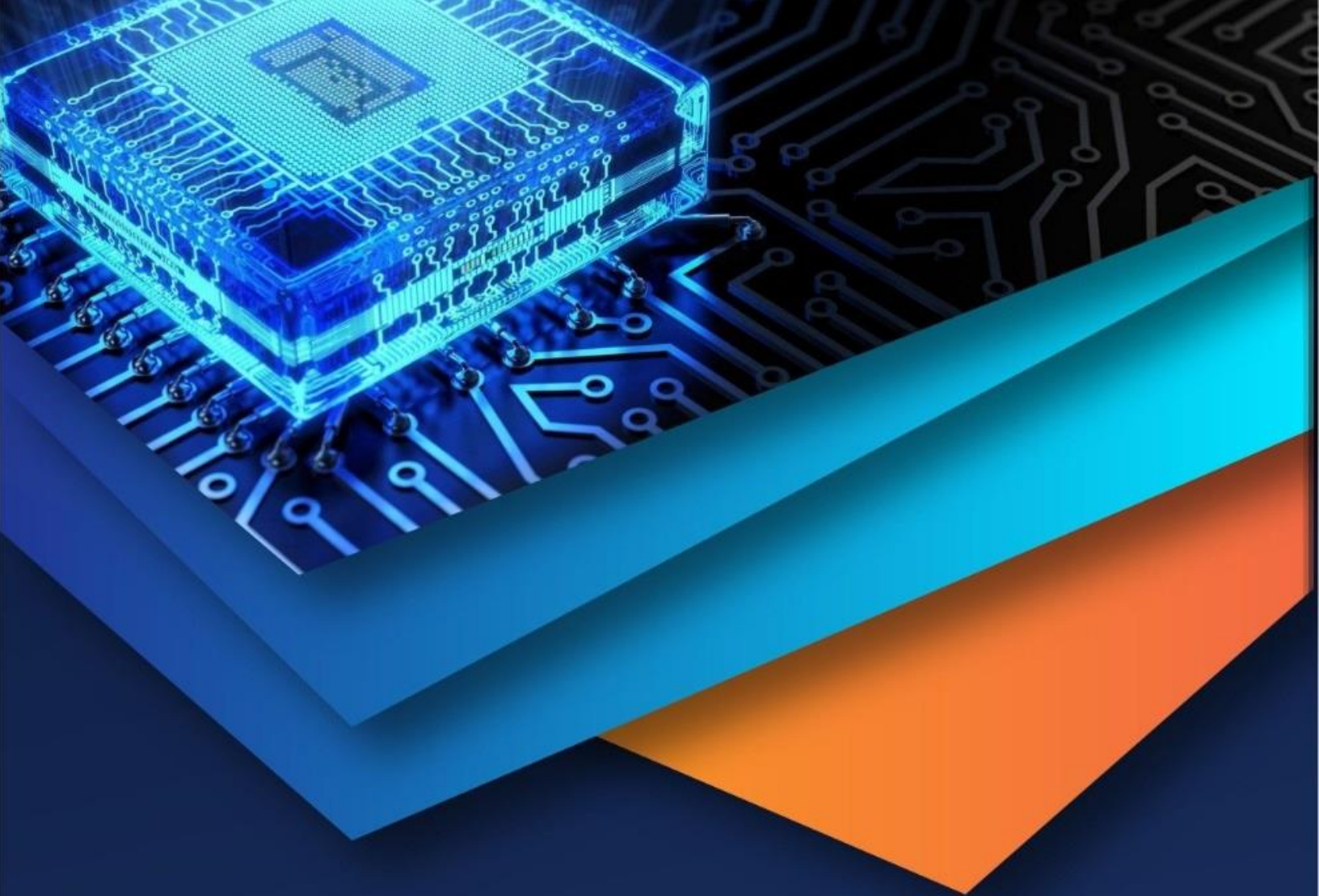
Emerging opportunities — including AI-based demand forecasting, blockchain-enabled transparency in both promotion disclosure and supply chain traceability, and platform-based patient engagement ecosystems — appear repeatedly in the literature as pathways to strengthen trust and operational efficiency across the sector.

IV. CONCLUSION

Pharmaceutical marketing and management sit at a genuinely unique crossroads of commerce and public health obligation. The evidence reviewed here shows that traditional relationship-based promotion, especially through medical representatives, continues to dominate prescribing influence even as digital and AI-driven marketing rapidly expands, particularly in patient engagement and data-driven targeting. On the operational side, India's pharmaceutical supply chain remains constrained by fragmentation, API import dependence, cold chain gaps, and counterfeit risk, though digital tools and stronger sourcing diversification are gradually addressing these weaknesses. Ethical and regulatory tightening, exemplified by the legally binding UCPMP 2024, signals a broader industry shift toward accountability, though enforcement consistency remains an open challenge. Future research and practice should prioritize the integration of ethical marketing conduct with resilient, technology-enabled supply chain management to ensure that pharmaceutical companies can meet both commercial objectives and their fundamental responsibility to patient welfare.

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