

Exploring Challenges of pharmaceutical supply chain and prescription related to Multiple Sclerosis Patients covered by Health Insurance Organization In Kerman Province

Abstract

Introduction: Rare diseases, including Multiple Sclerosis (MS), are characterized by challenging treatments, high costs, and low prevalence. This study aims to explore the challenges in the supply chain, procurement, distribution, and prescription of MS medications and propose solutions to improve this system.

Methods: This is a mixed-methods study employing a concurrent triangulation design, consisting of three sections: quantitative, systematic review, and qualitative. The quantitative section includes the analysis of epidemiological and demographic data related to MS in Kerman province, as well as healthcare services received, with a focus on cost, patient visits, frequency of services per patient, and the number of MS patients categorized by insurance type and district under the coverage of the Health Insurance Organization of Kerman province. In the systematic review phase, studies related to improving the pharmaceutical supply chain were identified by searching databases such as Scopus, PubMed, Embase, and Web of Science. Key improvement strategies were extracted and summarized in a table. The qualitative phase involved in-depth and semi-structured interviews with key informants in the MS medication supply chain to examine challenges and propose solutions for improving supply chain management, distribution, and prescription processes.

Findings: According to the findings of the quantitative section, based on the distribution map of MS patients, Kerman city has the highest number of patients (956), while the districts of Rigān and Rāvar have the lowest (7 patients each). Most patients are female (66.65%). The highest and lowest total costs for both years were related to medication and laboratory services. Based on the findings from the systematic review phase, increasing the supply of rare hospital medications, boosting tax credits, covering medications for rare diseases, implementing appropriate pricing frameworks, protecting intellectual property rights and patent protections for drugs, and improving coordination between key stakeholders (including manufacturers, regulators, and consumers) could lead to improvements in the supply chain. Identifying key allocation indicators, engaging pharmaceutical companies with international agencies and organizations, and collaborating with global institutions for drug donations could

improve the distribution phase. Furthermore, strategies such as drug substitution, reusing medications, or researching new uses for existing drugs, as well as prescribing brand-name drugs, could help improve the prescribing process for rare and high-cost medications. According to the qualitative findings, based on interviews with key informants, the main challenges in three areas—procurement, distribution, and prescription—are primarily related to procurement. Key issues include the non-importation of certain drugs, high importation costs, shortages of raw materials, financial constraints in procuring raw materials, national shortages due to sanctions, the lack of coverage for expensive foreign drugs, delayed payments, currency fluctuations, high co-pays for some drugs, the inefficiency of supplementary insurance, and limitations on the number of drugs covered by insurance.

Conclusion: The results of this study indicate that the main challenges in the pharmaceutical supply chain for MS patients lie within the procurement phase. Issues such as sanctions preventing the importation of certain drugs, high import costs, shortages of raw materials, financial challenges in procuring materials, and national drug shortages contribute to the difficulties in supplying medications for MS patients. Furthermore, expensive foreign drugs are often not covered by insurance, exacerbating the problem.

Keywords: Pharmaceutical supply chain, drug distribution, MS patients, specific patients, health insurance, Kerman Province



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By

Golnoush Amini

Supervisor

Dr. Vahid Yazdi Feyzabadi

Advisor

Dr. Mohammad Hossein Mehrolhasani

Dr. Ali Sadatmoosavi

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