



# Role of Decision Support System in Making Health Policy: A Systematic Review

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## ABSTRACT

**Introduction:** The healthcare landscape faces complex challenges requiring evidence-informed policymaking at the macro level (e.g. resource allocation and policy development). Artificial intelligence (AI) has the potential to revolutionize healthcare decision-making by offering improved accuracy, efficiency, and personalized approaches. A decision support system (DSS) is an application that analyzes data to help decision-makers or healthcare providers make better decisions in various areas, such as policymaking. This systematic review aimed to comprehensively assess the current evidence on the impact of AI-powered DSS on healthcare policymaking at the macro level.

**Search Strategy:** Our search included PubMed, Science Direct, Web of Science, Scopus, and search engines (Google and Google Scholar). We included studies that addressed policy making, policy analysis, policy development, and DSS. English full-text studies meeting predefined inclusion/exclusion criteria (e.g. study design, application of DSS in health policy) were included. We also performed the quality assessment of the studies through the STROBE checklist.

**Results:** The review identified 16 relevant studies encompassing one of the AI applications, SDDs. Key findings highlight that AI-driven DSS have been instrumental in informing policy-level decisions, such as resource allocation, epidemiological predictions, and public health interventions. However, algorithmic transparency and integration with existing healthcare systems were also noted.

**Conclusion and Discussion:** According to the available evidence, DSSs have shown considerable promise in enhancing healthcare policymaking, with tangible benefits in policy formulation. The DSS improves the planning of administration, decision-making, and policy-setting processes. The tool is also potentially useful, especially in the initial stages of policy development. Despite the evident advantages, substantial challenges must be addressed to realize DSS's potential fully. Future research should improve algorithm transparency and ensure seamless integration with clinical workflows and policy environments. Addressing these issues will be crucial for the widespread adoption of DSS in healthcare policymaking. Also, it is necessary to move towards more use of DSS, particularly in health policy.

### Citation:

Makhtoomi V, Fakhri N. Role of Decision Support System in Making Health Policy: A Systematic Review. *Iranian biomedical journal*. Supplementary (12-2024): 298.

**Keywords:** Artificial intelligence, Decision making, Decision support system, Health policy, Policy making

