

Measuring Outcomes in Healthcare Economics using Artificial Intelligence: with Application to Resource Allocation

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The quality of service in healthcare is constantly challenged by outlier events such as pandemics and natural disasters. In most cases, such events lead to critical uncertainties in decision making, as well as in multiple medical and economic aspects of a hospital. External (geographical) or internal factors (medical and managerial) at hospitals, lead to shifts in planning, budgeting, and confidence in conventional processes. In some cases, support from other hospitals becomes inevitable. This manuscript presents three intelligent methods that provide data-driven indicators to help healthcare managers organize their economics and identify the most optimum plan for resource allocation and sharing. Using reinforcement learning, genetic algorithms, traveling salesman, and clustering, we experimented with different healthcare variables and presented tools and outcomes that could be applied at health institutes. In this poster, initial experiments are performed; the results are recorded, evaluated, and illustrated.