

# **An expert system for high-throughput collection and analysis of clinical data**

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**Abstract:** Clinical decision-making in everyday medical care is not evidence-based because the evidence base is too vast to learn and too complex to use. The lack of evidence-based decision-making generates poor outcomes for patients but high costs for care. Separate from issues related to using a very large knowledge base, progress in medicine at the clinical level is inhibited by the high cost of clinical research, poor design of clinical research protocols, and limited tools for data analysis. Clinical research programs for the 21st Century need high-throughput technologies for data collection from large numbers of patients and high-throughput data analysis unconstrained by standard concepts of pathophysiology. We present a scheme to show how an expert medical system can address simultaneously the problem of inefficient use of existing knowledge and inefficient methods for generating new medical knowledge at the clinical level.