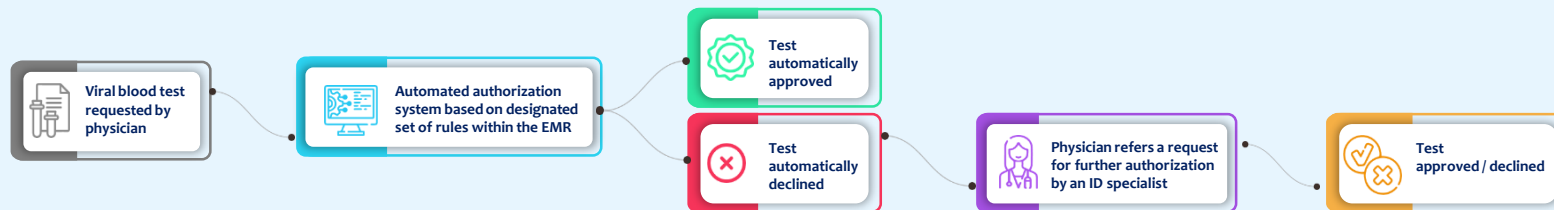


Significant Cost Reductions and Enhanced Clinical Decision-Making Through the Implementation of an Automated Viral Test Request Blocking System

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Background: As demands and costs rise across all aspects of healthcare, blood tests form a significant part of existing health expenses. The purpose of this study was to assess the economic utility of implementing a rule-based system aimed at curtailing unnecessary laboratory tests for infectious diseases.

Methods: An automated blocking system for blood tests, including tests for viral diseases, was designed and implemented within the electronic medical record (EMR) by Maccabi Healthcare Services, a health maintenance organization in Israel that serves over 2.5 million members nationwide.



Test costs were assessed using the standard Israel Ministry of Health price list in Israeli currency (New Israeli Shekel-NIS) and are expressed in 2023 USD (1\$=3.6.2 NIS)

Results:

During 2022, 407,403 requested viral blood tests were recorded. The estimated savings due to declined tests amount to 5.697 million USD.

| Test | Cost per one test- USD | No. of tests requested | No. of tests automatically approved (%) | No. of tests declined and referred to ID authorization (%) | No. of tests approved by ID authorization (%) | Total No. of tests declined (%) | Total amount of USD saved |
|-----------------------|------------------------|------------------------|---|--|---|---------------------------------|---------------------------|
| Hep.C PCR Viral Load | 145.9 | 4,480 | 2,865 (64) | 50 (1.1) | 27 (54) | 1,588 (35.4) | 231,689 |
| EBV IgG, IgM, EBNA | 62.7 | 63,549 | 55,905 (88) | 291 (0.5) | 54 (18.6) | 7,590 (11.9) | 475,893 |
| Varicella Zoster IgG | 62.7 | 53,199 | 30,170 (56.7) | 35 (0.1) | 7 (20) | 23,022 (43.4) | 1,443,479 |
| CMV IgG, IgM, Avidity | 77 | 103,078 | 72,651 (70.5) | 480 (0.5) | 6 (1.25) | 30,421 (29.5) | 2,342,417 |
| Rubella IgG | 38.9 | 79,972 | 52,773 (66) | 57 (0.1) | 7 (12.3) | 27,192 (34) | 1,057,769 |
| Hep.B Surface IgG | 9.72 | 103,125 | 87,958 (85.3) | 104 (0.1) | 72 (69.2) | 15,095 (14.6) | 146,723 |

Conclusions: The implementation of this automated authorization system for specific viral blood tests has enhanced the clinical decision-making process by preventing unnecessary tests and has resulted in significant cost savings, all while preserving physician autonomy.