Health Economics
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A Cost-effectiveness Analysis (CEA) of 3 Interventions to Enhance Laboratory Monitoring of Selected Medications

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Background: Errors and preventable adverse events (ADE) associated with medication prescription and dispensing are common and failure to monitor drug therapy is among the most frequent causes of preventable ADEs.

Methods: We conducted a CEA alongside a cluster-randomized trial that was designed to test the relative effectiveness of 3 interventions aimed at enhancing baseline monitoring of selected medications - we found no other studies that examine this issue. The interventions tested were a patient-specific electronic medical record (EMR) email reminder to the primary care provider (EMR), an automated recorded voice message to the patient (AVM) and a Pharmacy team outreach (Pharmacy) to increase the proportion of patients receiving all guideline-based laboratory monitoring, when compared to usual care (UC).
Most of the data came directly from the trial, with some expert opinion based upon formal data-gathering techniques. The perspective of the analysis was the HMO, and the scope of the analysis includes, within 25 days of follow-up, the costs of obtaining recommended laboratory tests, extra visits associated with abnormal tests (validated from chart review), and performing the intervention. The analysis does not include potential offsets of poor outcomes averted (e.g., cases of lactic acidosis, or liver toxicity). The primary outcome was the cost per completed case within 30 days of dispensing, with a secondary analysis of the cost per additional enrollee with one or more abnormal laboratory tests within 30 days of dispensing.

Results: Pharmacy, the intervention with the greatest proportion of completed cases at 82%, was also the most expensive at $51.60 per patient. The AVM arm yielded 66% completed cases cost of $41.59 per patient. The EMR arm was dominated, because a mix of usual care and AVM is both less expensive and more effective.

Conclusions: Our cost effectiveness analysis indicates that automated voice messaging is the best value for money among the interventions tested. Depending on one's willingness to pay for an additional completed case of laboratory monitoring, the Pharmacy-based intervention may also be an efficient choice. Making this decision probably requires additional information about the harms prevented from completing baseline monitoring.