

Medication Adherence: On-site Health Center Analysis

Executive Summary

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Abstract

Due to barriers such as cost, regimen complexity and perceived inefficacy, a substantial percentage of patients do not conform to medical instructions. On-site health centers with on-site pharmacies may improve medication adherence through convenient, holistic and relatively inexpensive care. Accordingly, this study sought to evaluate the influence of these on-site pharmacies on medication adherence. Using a retrospective analysis of electronic prescribing and claims data, medication adherence was assessed among employees and their dependents that received medications from an on-site health center's pharmacy compared with those that used an alternative site. In addition, a sub-analysis of MPR among condition management participants was performed. Overall, the MPR among patients who used the on-site health center's pharmacy was higher than among those who used an alternate source: 54.8% versus 50.7%, respectively. In particular, the MPR was significantly ($P < 0.002$) greater for hypertension patients who used the on-site pharmacy compared with those who did not. In general, the longitudinal analysis did not demonstrate significant differences between groups across time, indicating that medication adherence was relatively consistent over the study period. Across conditions, medication adherence was significantly ($P \leq 0.001$) higher among patients who participated in condition management programs than among those who were not enrolled. Both the on-site health center's pharmacy and condition management program participation positively impacted medication adherence among employees and their dependents.

Background and Aims

Studies indicate that many patients do not take their medications appropriately.¹ This trend, known as medication nonadherence, can affect up to 75% of patients.² Low medication adherence rates contribute to poor health outcomes, decreased quality of life and healthcare costs. In particular, it is estimated that 33% to 69% of hospital admissions in the United States are due to nonadherence, resulting in approximately \$100 billion in excess costs.³

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On-site health centers may improve medication adherence through convenient, high-quality and cost-effective care.^{4,5} The objective of this study was to analyze Cerner's Health Clinic and determine whether the on-site health center improves medication adherence.

Methods

Data were collected for Cerner associates (employees) and their dependents enrolled in Cerner Health. Medication adherence was compared between patients that used the

on-site health center and off-site health care facilities. Only patients who received medication associated with treatment of asthma, depression, diabetes, hypertension or hyperlipidemia between January 1st, 2009 and December 31st, 2009 were included.

For this first phase of research, medication adherence was estimated by patients' medication possession ratio (MPR) and average percentage of medications refilled within 30 days of the expected refill date (known as "Percent Fill"). For this study, the MPR represents the number of days with supplied medication over a period of 365 days. The number of days of medication supplied was estimated by the quantity of pills dispensed and the refill date.

Results

MPR. Overall, the MPR among patients who used the on-site pharmacy was higher than that of patients who used an alternate source: 54.8% versus 50.7%, respectively. In particular, the MPR was significantly ($P < 0.002$) greater for

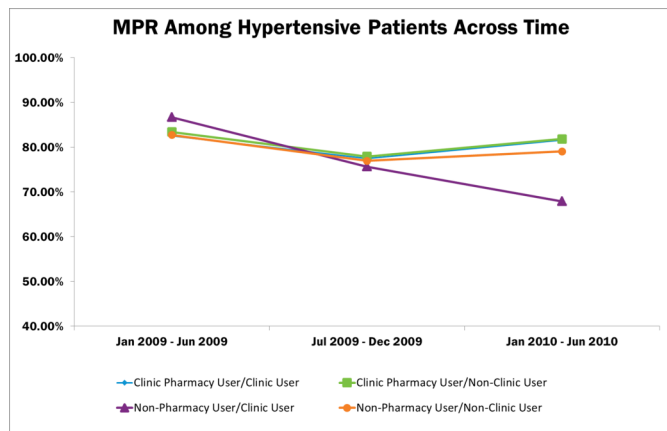
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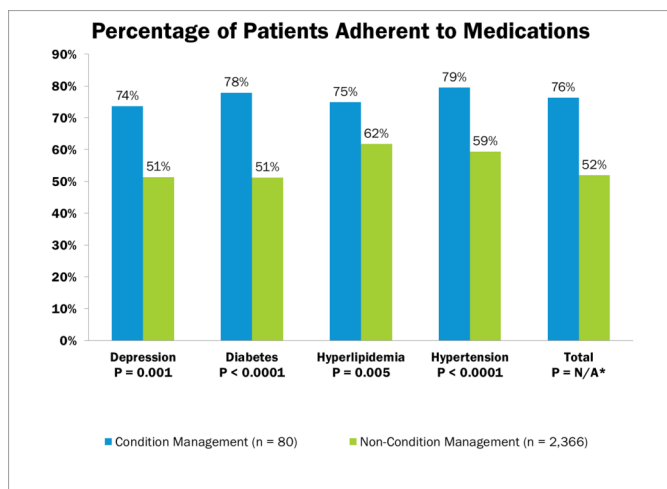
hypertension patients who used the on-site pharmacy compared with those who did not.

Percent Fill. No clear trends emerged in the analysis of medications refilled within the expected 30 days.

Medication adherence over time. In general, the percentage of patients who adhered to their medications did not significantly change throughout the year. Hyperlipidemia treatment was an exception. The MPR of hypertensive patients who used an off-site pharmacy dropped considerably, while it remained stable for those who used the on-site pharmacy.



Condition management participation. Medication adherence was statistically higher among patients who participated in condition management programs. Across conditions, the percentage difference in MPR among condition management participants was as follows: depression (22.3% higher, $P = 0.001$), diabetes (26.7% higher, $P < 0.0001$), hyperlipidemia (13.1% higher, $P = 0.005$) and hypertension (201% higher, $P < 0.0001$).



Limitations

Many of this study's limitations affect both on-site and off-site patients, so it is still possible to infer relative differences

between the groups. For example, the study did not account for patients who stopped their medications because they got better. It is assumed, however, that a similar number of on-site and off-site patients discontinued for this reason. Nonetheless, the results may be limited by underlying behavioral or demographic differences between on-site and off-site patients. That is, patients with certain healthcare needs, motivations or knowledge may have been more likely to seek treatment at the on-site health center. Additionally, Cerner associates and their dependents and the findings may not represent other patient populations.

Conclusions

Patients who use Cerner's Health Clinic, especially those who fill prescriptions at the pharmacy, generally have higher medication adherence than those who use off-site facilities. Nonetheless, not all findings demonstrated clear medication adherence trends. Medication adherence, however, was clearly statistically higher among condition management

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program participants compared with patients not enrolled. Given these results, opportunities exist for medication adherence management programs and additional research.

Citations

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