

Medication Compliance Reminder Systems Improve Health and Save Money

The Experience of the
Missouri Medicaid Program

A White Paper

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Healthcare Costs

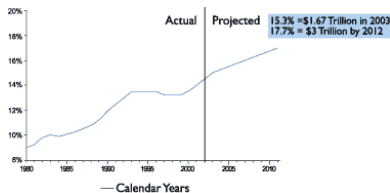
Healthcare costs in the United States account for 15% of the Gross Domestic Product.¹ Although this may be a shocking figure for some, the fact that healthcare costs are spiraling upward comes as no surprise to anyone involved in payment for services.

A common theory states that twenty percent of a population consumes eighty percent of the resources (Pareto's Principle),² and this holds true for the health care industry also. Generally speaking, the largest portion of healthcare benefits is used by a small number of individuals. Berk and Monheit found that 60-70% of the total healthcare expenditures are consumed by ten percent of the population, with the top thirty percent of consumers accounting for 90% of the total healthcare expenditures.³

Healthcare costs can also be looked at by diagnosis. The following facts provide an interesting snapshot of how specific diagnoses impact healthcare expenditures.

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National Health Expenditures as a Share of GDP



*Source: Centers for Medicare & Medicaid Services, (CMS)

- The number of Americans diagnosed with diabetes jumped 49% from 1990 to 2000, with approximately one million new cases diagnosed each year.⁴ The Centers for Disease Control and Prevention estimate that diabetes in the U.S. will increase 165 percent by 2050.
- In 1997, per capita costs of healthcare for people with diabetes was \$10,071 compared to \$2699 for people without diabetes.⁵
- Proper treatment can significantly reduce costs associated with diabetes-related illness. Stabilizing blood sugar at normal levels would raise life expectancy by 1.4 years and reduce the incidence of blindness by 72%, end-stage kidney disease by 87%, and lower extremity amputations by 67%.⁶
- 17 million Americans are affected by asthma. Prevalence has increased over the past two decades for reasons unclear.⁷ These increases have been disproportionately high for members of low income, inner-city, and minority groups.⁸
- There are about 470,000 hospitalizations and more than 5000 deaths each year from asthma, and it is the third leading cause of preventable hospitalizations in the U.S.⁹
- Thirty percent of direct costs of asthma are related to hospitalization and could be reduced with better management.⁹

Managing the Costs

In an attempt to manage these rising healthcare costs, disease management programs are used widely for many chronic diseases, including asthma, congestive heart failure, HIV/AIDS, diabetes mellitus, and hypertension. Disease management evaluates clinical, humanistic and economic outcomes on an ongoing basis with the goal of improving overall health. Disease management emphasizes the prevention of disease-related complications using evidence-based guidelines and patient empowerment tools.¹⁰

Drugs don't work if people don't take them.

--C. Everett Koop, MD



Some of the methods utilized by disease management programs strive to make the delivery of services more efficient or to impact the way that medical providers interact with their patients. They do this by establishing clinical protocols for disease specific care that are based on research. Another facet of disease management focuses on changing patient behavior. This includes reminders to patients to improve adherence to complicated medical routines, and customized health education materials and self-care manuals to help patients better understand their disease and promote empowerment.¹¹

Targeted Solutions

Cutting health care costs by managing treatment is a complex task. Instead of taking on all of the issues at once, another option is to target specific problems that can have an impact on expenses. Medication noncompliance is one problem that has a direct relationship with health care expenditures and is a good target for such a program.

Although medicines comprise only five percent of our total national health care expenditures, when patients take medication as prescribed it can result in significant savings because it reduces the need for more expensive medical treatment.¹² The problem of noncompliance is well documented in the medical literature. The five most common types of noncompliance are:

- not having the prescription filled
- taking an incorrect dose
- taking the medicine at the wrong time
- forgetting to take one or more doses, and
- stopping the medication too soon¹³

This noncompliance has the greatest economic effect when the individual has a chronic disease. The rate of noncompliance for a number of chronic diseases has been documented as follows:¹²

<u>Condition</u>	<u>Non-compliance Rate</u>
Epilepsy	30-50%
Diabetes	40-50%
Hypertension	40%
Asthma	20%
Anticoagulants	30%

When chronic conditions are not controlled by medication, the symptoms increase.



When chronic conditions are not controlled by medication, the symptoms increase. This often results in increased physician visits, a change to a more expensive medication, additional tests or procedures, emergency room visits, and even hospitalizations, all of which add to total expenditures.

Medicaid Programs

State Medicaid programs are in a difficult position in the current economic climate and the need to provide cost effective services is critical. Programs that have been used in managed care and other healthcare settings have come to the attention of Medicaid officials because of their potential to improve quality of care and reduce costs. Credit should be given to states that are experimenting with cutting edge programs to tackle not only their fiscal issues, but also the issue of ensuring high quality healthcare for the patients they serve.

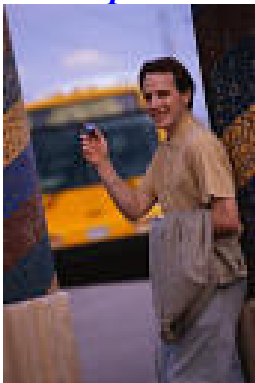
A targeted program to improve compliance can be particularly effective for a Medicaid program. The population serviced by Medicaid tends to be poorer, have less education, and is more likely to be physically disabled than the regular population. In a meta-analysis of 26 studies of compliance among diabetic patients, the factors that related to good compliance were emotional stability, internal and external motivations, perceived benefit of therapy, and supportive social and family structure.¹⁴ Many individuals in the Medicaid population do not have the stability and family structure important in promoting medication compliance.

Patient-based Technology

In 1999, Missouri Medicaid adopted a patient-based technology solution and began an experimental program of providing wireless reminders to enrollees who had a primary diagnosis of diabetes and who were in the top 25% of medical utilization and expense. A matched control group was also selected and in 2003, an outside analyst compared medical costs.

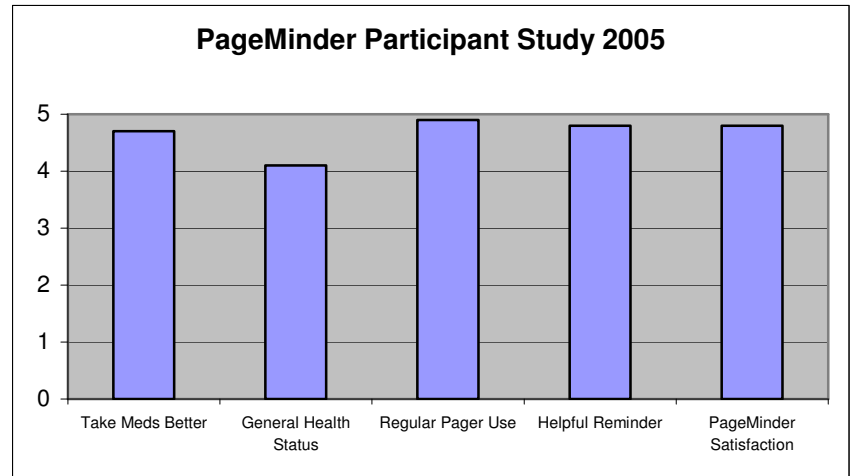
Results are summarized from *PageMinder Project Summary Report*, September 2003, prepared by Melinda Holloway and Tom Diebold for The Division of Medical Services, State of Missouri.¹⁵

Medicaid costs were lower by \$3416 per enrollee over a twelve-month period.



- 1) *Average Medicaid costs were notably lower for pager users.*
Participants who used pagers had average costs of \$948.96 per month. Those who did not use pagers had average monthly costs of \$1233.65. That is a difference per participant of \$3,416.28 per year. The ratio of savings to cost is 7:1.
- 2) *Pager users had fewer Medicaid claims.*
Those who used pagers saw the number of claims increase by only 8% over the period of the study compared to those who did not use pagers. Non-users had claims increase by 21%, two and a half times the rate of pager users.
- 3) *Discontinuance of the pager resulted in a trend of increased Medicaid claims.*
Study participants who discontinued the pager had claims increase by 58.5%.
- 4) *Pager users had fewer Medicaid procedure claims.*
Procedure claims for the pager users throughout the project **decreased** by .5 per participant per month. Pager non-users had an increase in the average number of monthly procedure claims of 2.2 per individual per month for a difference of 2.7 procedure claims per month.

Subsequent studies have indicated a high level of user satisfaction with the reminder system.



Participant satisfaction with the wireless medication reminder program is high with more than 90% reporting themselves “Satisfied” or “Very Satisfied” with the program.



Three Case Studies

John N. is a 62-year old disabled former cook who is a Missouri Medicaid recipient. John had a problem with unstable diabetes that his doctor told him was due to John’s difficulties in complying with his prescribed medication regimen.

John reports that six times in 2003, he lost consciousness and was taken by ambulance to the hospital where he was treated in the emergency room and intensive care unit. He reports that on one of these six occasions, the ambulance bill was \$1900 and the hospital bill was \$121,000.

Despite some misgivings, John enrolled in the Medicaid Wireless Medication Notification Program in early 2004. He was given a pager and instructions on its use during a PageMinder home visit. He receives reminders every morning and evening to take his medication and test his blood sugar. He records the test results in a log that shows that he has achieved stabilization for nearly a year after starting the program. His number of medications has decreased from 11 to 4 and best of all, he feels better and has had no further incidents requiring ambulance, emergency room and intensive care services. John attributes his improved compliance to the reminders.

John has much improved health and the Missouri Medicaid program has saved tens of thousands of dollars on John’s medical care compared to the year before he enrolled in the PageMinder program.

Three Case Studies (continued)

Tracy re-enrolled in the reminder program as a self-payer and reports continuing high compliance and good health outside of the Medicaid program.



Tracy L. is a young mother who was enrolled in the Medicaid program. Tracy reports that she was disabled from the effects of diabetes, but that through improved compliance with her medical regimen, she was able to regain her health to the point that she could return to work. She was no longer eligible for Medicaid and her paged reminders were discontinued.

Tracy found that the additional stress of returning to work, along with the nature of her work as a childcare provider created new problems with strict compliance with her self-care regimen. She then re-enrolled in the reminder program as a self-payer and reports continuing high compliance and good health as well as continuing self-sufficiency for her healthcare outside of the Medicaid program.

Fred W. is a 74-year old diabetic with diminished vision. A Compliance Advisor made a home visit to Fred and completed a detailed Medication Profile. The Profile included a listing of all medications taken, including over-the-counter and natural medications. This profile was processed through the Medlogik[®] database to check for appropriateness, lack of duplication and absence of contraindications. In Fred's case, it was discovered that he was receiving prescriptions from both this primary care physician and from a specialist for the same condition. A quick consultation with the primary care physician by a clinical pharmacist affiliated with PageMinder cleared up the confusion and helped Fred avoid a possible problem due to overmedication. It also saved Medicaid \$701.40 per year for an unnecessary prescription.

About PageMinder

PageMinder is a company that specializes in patient-focused care management with an emphasis on improving adherence to medication and other self-care regimens. Customers include third-party payors; workers compensation and vocational rehabilitation providers; disease interest organizations; retail drug chains; physical rehabilitation organizations; clinical researchers; and a State Medicaid disease management program.

PageMinder is owned and operated by healthcare professionals, and that impacts every aspect of our business.



PageMinder is owned and operated by healthcare professionals, and that impacts every aspect of our business. We understand the importance of medical reminders, and can assist our customers to be more successful in complying with medical routines.

PageMinder began in 1996 with two neuropsychologists who developed the service to assist their clients to be more independent. As **PageMinder** began to grow, it quickly became evident that the service would be beneficial to many others.

Robert Reed is the chief executive officer of **PageMinder**. His experience as hospital CEO, officer of a public healthcare company and founder of several healthcare provider organizations has focused on innovative program development and cost-effectiveness.

Dottie Halfaker, an Occupational Therapist with 18 years experience working in rehabilitation, heads customer service. She is familiar with the issues faced by individuals with diabetes, traumatic brain injury and other challenges and she can assist customers to develop a successful reminder schedule.

PageMinder works with a consulting panel of clinical pharmacists and other healthcare professionals. Specially trained Compliance Advisors carry out home visits and prepare Patient Profiles supporting a continuous process of compliance activities.

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