

THE VALUE OF MEDICATION ADHERENCE: A Business Imperative

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**CENTER FOR HEALTH
VALUE INNOVATION**
INFORMATION EXCHANGE FOR VALUE-BASED DESIGN

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EXECUTIVE SUMMARY

The Center for Health Value Innovation is committed to driving adherence in individual health in order to create a more predictable health cost forecast, thereby producing better health and financial outcomes for the individual and for the organization. When outcomes are improved for both the individual and the organization (or plan sponsor) then business is truly supporting the health of the person. One of the key indicators for improved, predictable outcomes, particularly in chronic care management, is the adherence to medication and treatment protocol. Yet, the cost of non-adherence to medication therapy and its impact to business and productivity is not well understood by plan sponsors in America.

Consider these points from recently published research, each of which shows a connection between medication adherence and total outcomes:

- **Adherence** is associated with lower costs in patients with Coronary Heart Failure. In Medicaid patients, the total health care costs for adherent patients with congestive heart failure was \$5910 (23%) lower than those who were not adherentⁱ
- **Higher co-pays** and cost-sharing delayed the initiation of therapy for patients with hypertension. Doubling the co-pays for hypertensionⁱⁱ therapy reduced initiation of therapy from 54.8% to 39.9% of employees at 1 year after diagnosis, and from 81.6% to 66.2% at 5 years after diagnosis. Further, patients who had not been on Rx therapy started treatment later and were much more sensitive to the burden of co-pays.
- **A cap on Drug Benefits** in Medicare Part D led to poorer adherence to therapy and poorer control of hypertension, lipids, and glucoseⁱⁱⁱ

If employers would only follow common business advice—appropriate investments preserve the economic health and productivity of the company—there would be few doubts as to the benefits of investing in employees' health and wellness. New evidence is pointing to the symbiotic relationship between medication adherence, improved outcomes and total cost. “The plan sponsor must understand that increased levels of spending on medication and coordinated care is exactly what supports increased performance,” says Cyndy Nayer, founder and president/CEO of the St. Louis-based Center for Health Value Innovation (the Center). “Using evidence-based guidelines for clinically effective and financially beneficial investing in workforce health—a value-based approach—can drive improved health and performance for the individual and for the organization.”

Our report, *The Value of Medication Adherence: A Business Imperative*, explores the correlation between medication adherence, outcomes and costs and their effect on workforce performance. We discuss the definition of medication adherence, describe the magnitude of the non-adherence problem, analyze the effect of Value-Based Design on adherence and look at the impact of non-adherence on productivity and on costs. This paper also asks experts in the field for their perspectives on medication adherence and total organizational performance.



UNDERSTANDING THE VALUE OF ADHERENCE – A CONSUMER CAMPAIGN

As the nation's oldest consumer advocacy organization, the National Consumers League (NCL) is leading a groundbreaking multi-year campaign to improve consumer awareness of the importance of medication adherence.

Approximately 50% of Americans have been diagnosed with at least one chronic condition, resulting in regular and long-term consumption of health care by millions of Americans. Still, there is confusion and lack of awareness around the need to adhere to a treatment regimen.

"To really move the needle on adherence we need to engage patients where they are—on the job, at the pharmacy, online, or with their health care practitioner," said Sally Greenberg, Executive Director of NCL.

For more than a century, the National Consumers League has conducted successful initiatives to help consumers take their prescription and over-the-counter medications safely. With initial planning funds from the U.S. Agency for Healthcare Research and Quality (AHRQ), the campaign has continued support from a diverse group of private and public sector partners, including employers, labor unions, government agencies, practitioners, pharmacies, health plans and HMOs, hospital groups, patient advocacy and consumer groups, pharmaceutical firms, pharmacy benefit managers, researchers, academic institutions and more.

The campaign will target millions of consumers and health care practitioners nationwide. It will feature a robust education and outreach strategy, anchored by public service advertising (PSAs) aimed at meeting consumers where they are and delivering a unified message about the importance of safe and appropriate use of medication and the dangers of not following their prescribed treatment regimen. The PSAs will be disseminated through radio and television, print media, the Internet, and outdoor advertising. Consumers, particularly those with chronic conditions, will also be directed to a campaign Web site highlighting health education materials and adherence-related tools for consumers to better manage their medications.

The campaign's core message showcases the benefits consumers will experience by taking medications as prescribed:

- Staying healthier and living longer
- Enjoying greater productivity throughout life
- Experiencing fewer absences from work
- Avoiding costly emergency room visits and hospitalizations
- Reducing overall health care costs (individual and systemic)

"Drugs don't work in people who don't use them!"

— C. Everett Koop,
former U.S. Surgeon General

The campaign will also help consumers connect with the information and tools they need to better take their medications, including links to new technologies, devices, and medication management programs that have been proven effective. "NCL's campaign will support a wide range of evidence-based strategies and measures to address the problem of adherence," explained Sally Greenberg. NCL invites any interested parties to participate in the campaign by joining the working groups that address outreach to those with chronic conditions, outreach to health care practitioners, and campaign evaluation.

In an effort to reinforce the important message of the campaign, health care practitioners will receive targeted materials and training to best utilize their position as an educator and motivator for patients. Medical experts are actively involved in shaping campaign strategies and materials to ensure their usefulness.



NON-ADHERENCE: FOUNDATIONAL CRACKS IN THE ECONOMICS OF BUSINESS

In the discussion of medication adherence, productivity often gets short shrift. It is often pushed into a silo, unrelated to health and wellness, but productivity needs to be woven into the whole fabric of healthcare.

According to the *2008 Towers Perrin Annual Health Care Cost Survey*^{iv} employers spend approximately \$13,308 per year per employee on total direct and indirect health-related costs.

As our country moves steadily away from its manufacturing core and becomes more service-oriented, the business environment has changed. Productivity is no longer measured just by the number of widgets produced but also by health cost escalation, absenteeism and presenteeism. “At the intersection of health and economics, there is a renewed focus on the total productivity that can be saved or even created through improved health. Reduction in risk can reduce time lost, and make time at work more productive, says Robert Kritzler, MD, deputy chief medical officer for Johns Hopkins Health Care and vice president of the Center. “This matters to every business in America. Evidence-based medication adherence, as part of a total health management package, is instrumental in improving the health of our workforce, reducing lost time, and in bending the health cost trend for our companies.”

DEFINING NON-ADHERENCE

Like many other concepts in healthcare, medication adherence has a variety of definitions and standards of measurement. The World Health Organization (WHO) defines poor adherence as any deviation from the prescribed course of medical treatment. Indicators of poor medication adherence range from a patient’s failure to pick up or renew prescriptions, to failure to take prescribed medicine at the prescribed dosage level or at the prescribed interval, to failed persistence and the abandonment of a medication regimen altogether. Poor adherence has been estimated to cost approximately \$177 billion annually in total direct and indirect health care costs.^v

The National Council on Patient Information and Education (NCPIE) defined adherence in 1995 as “following a medicine treatment plan developed and agreed upon by patients and their healthcare professionals. Medication adherence begins at the first “fill” and extends as long as the therapy course agreed to by the physician and the patient.

CAUSES OF NON-ADHERENCE

The reasons for non-adherence are far-ranging, stemming from both the patient and provider and encompassing behavioral, social, financial and medical rationalizations.

Joycelyn Elders, M.D., former surgeon general of the United States, blames non-adherence on the costs of drugs, inconvenience in accessing them and patients’ lack of understanding of their medications’ effectiveness. “If patients were given a better understanding of why they should take their drugs and the repercussions of stopping, they would be more compliant and adherent,” she says, making a distinction between taking a drug as prescribed (compliance) and sticking to a drug regimen as long as necessary (adherence). “Education is key, as simple as a nurse coaching the patient on how to take a particular medication or a pharmacist reinforcing the reasons for taking a specific drug. It has to be a patient-centered approach.”

Joycelyn Elders, MD, former US Surgeon General, says *non-adherence is driven by the cost of drugs, the inconvenience of accessing them, and patients’ lack of understanding of their medications’ effectiveness.*

Dr. Elders puts the problem of non-adherence into perspective by mentioning that fewer than 70 percent of people treated with a prescription of penicillin complete the full course of the drug and, as she notes, that is only a 10-day regimen.



Published data by RAND Corporation indicate that the biggest contributors to non-adherence are increased cost sharing, regimen complexity, innate beliefs about medications, worry over side effects and concern on whether the drug is necessary. Proposed solutions are adding a pharmacist to the care team, providing medication therapy management services and including adherence components in electronic medical record standards.^{vi} “Over and over again, we see that access, affordability and communication barriers are derailing medication adherence,” says Jan Berger, MD, Advisor to the Center.

THE REPERCUSSIONS OF NON-ADHERENCE

Just imagine: patients who do not take their medications as prescribed by their doctors cost the U.S. healthcare system an estimated \$290 billion in avoidable medical spending annually due to poorer health, more frequent hospitalizations and a higher risk of mortality.^{vii} This is frightening news uncovered by the New England Healthcare Institute (NEHI), a nonprofit health policy organization, and reported in *Thinking Outside the Pillbox: A System-wide Approach to Improving Patient Medication Adherence for Chronic Disease*.

According to NEHI, one-third to one-half of patients—especially those with chronic illnesses—improperly follow prescriptions, leaving themselves vulnerable to hospitalizations and medical risk. The higher spending, the report says, could be avoided if patients adhered to medication orders given by physicians. This leads to increased costs for the plan sponsor, typically the employer.

VALUE-BASED DESIGNS SUPPORT MEDICATION ADHERENCE

Value-Based Design” (VBD) is an engagement tool that is part of an evidence-based approach to improving health and performance. VBD engages the employee, the employer/plan sponsor, and the clinician in appropriate behavior change for improved outcomes. The four steps to value-based designs are succinct:

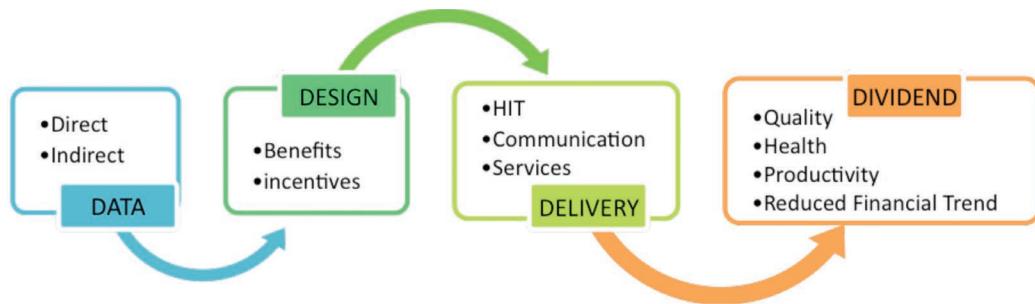
- 1) It uses **Data** to
- 2) Invest in **Designs** through insurance plans and incentives that
- 3) Change behaviors through **Delivery** of a selection of coordinated services (health information technology (HIT), communication and coordinated onsite and off-site care) to
- 4) Drive **Dividends** through improved quality, health, productivity and financial outcomes—a total performance approach. ©2008 Center for Health Value Innovation

Taking a global view, WHO estimates that only about 50 percent of patients typically take their medications as prescribed and has proposed developing an initiative to improve worldwide rates of adherence to therapies commonly used in treating chronic disease. The WHO has such high expectations as to the value of medication adherence that it estimates a 10:1 return on investment. [“Adherence to Long-Term Therapies—Evidence for Action. WHO. 2003.]

Other alarming statistics on adherence reveal that:

- Nearly three out of four Americans report that they do not always take their medications as directed.
- Almost half of those polled said they had forgotten to take a prescribed medicine.
- Nearly one-third had not filled a prescription they were given.
- Nearly 30 percent had stopped taking a medication before the supply ran out.

[National Community Pharmacists Association and Pharmacists for the Protection of Patient Care Adherence Survey 2006]



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VBD engages the employee, employer/plan sponsor and the clinicians for a healthier, more productive workforce and a predictable health cost trend that supports business goals. It marries the total performance of the individuals with the total performance of the organization for financial strength in the marketplace. VBD can influence choice of care providers, appropriate and persistent treatment for chronic care, and adoption of preventive care and wellness—all documented as having a strong influence on health status, performance, quality and financial cost trend—by removing financial barriers and creating a culture of health. [\[www.vbhealth.org\]](http://www.vbhealth.org)

“The most compelling aspect of value-based design is its ability to change patients’ behaviors—specifically how it can positively impact their medication adherence,” says Brian Sweet, Chief Clinical Pharmacy Officer for WellPoint, based in Indianapolis, and Board Director of the Center. “We’ve seen that even a slight increase in drug adherence—through techniques such as member phone calls, pharmacist outreach and waived drug copayments—can result in a lower use of medical services and improvement in measures of health. Over time, this can result in better overall health outcomes and savings for the employer and the patient.” WellPoint data confirm that when adherence is 80 percent or better for members on statins, the total per member per month cost would be \$120 less than for those who are non-adherent.

Albert Tzeel, M.D., medical officer for the Great Lakes Region for Humana in Milwaukee and Board Director of the Center warns adopters of VBD to be patient. “Compounding interest is the eighth wonder of the world,” he says, emphasizing that the return may be small at first but has the potential to grow. A value-based design is an investment strategy that takes time to mature.

Value-based designs translate into specific roles for employers in promoting medication adherence:

- 1) Improve access and affordability that promotes consumer adherence to the treatment regimen, particularly in chronic care;
- 2) Use meaningful rewards to promote adherence and shared responsibility for outcomes;
- 3) Communicate the successes of adherence throughout the company—better health status, lower out-of-pocket costs, better team performance, reduced economic burden.

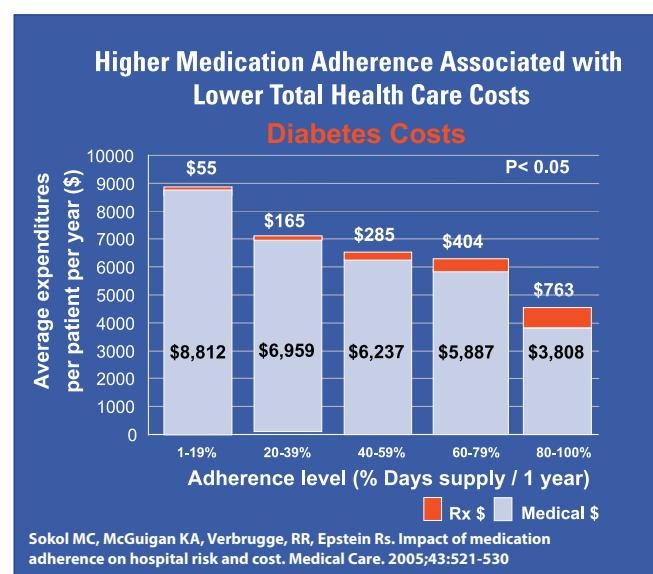
Cyndy Nayer, co-founder and CEO of the Center, points out two unmistakable and foundational elements that are integral to VBD:

1. *Engagement must be based upon an active accountability on the part of the plan sponsor and the employee.*
2. *The plan sponsor must have an investment philosophy that begins with prevention and wellness. That includes the reduction in total risk that accrues due to the improvement in adherence.*

Adherence Improves Outcomes

“Show me the data,” says Michael C. Sokol, M.D., corporate medical director for Merck and Board Advisor to the Center. “To drive change and get employees on board, you have to demonstrate credible outcomes; employers won’t take anything on faith.”

Sokol was one of the early pioneers in value-based design, long before he went to work at Merck. His research showed that increasing dollars for medication to control diabetes actually resulted in the lower total costs of patients, due to reduction in inpatient days, outpatient days, and emergency room visits.



His research shows that, among diabetes patients, those with high levels of adherence had total annual health care costs of \$4,500, while patients with low levels of adherence had almost twice the total annual health care costs totaling \$8,750. The study also showed that those with the highest adherence rate for diabetes medication adherence (80 to 100 percent) were nearly half as likely to be at risk for hospitalization than those who were less than 20 percent compliant.^{viii}

Ron Loepke, MD, Chair of the Integrated Benefits Institute (IBI) and co-chair of the American College of Occupational and Environmental Medicine Section on Health and Productivity, expands on the message of medication adherence. “Our research has shown that the top five health conditions driving total medical/prescription drug and health-related productivity (presenteeism/absenteeism) costs for employers are depression, obesity, arthritis, back/neck pain and anxiety. Furthermore, our multi-employer study showed that on average, for every one dollar of medical/pharmacy costs, there are \$2.30 of presenteeism/absenteeism costs.”^{ix}

Our multi-employer study showed that on average, for every one dollar of medical/pharmacy costs, there are \$2.30 of presenteeism/absenteeism costs,” says Ronald Loepke, M.D., co-chairman, American College of Occupational and Environmental Medicine (ACOEM) Section on Health & Productivity.

“When employers look beyond healthcare benefits as a cost to be managed and, instead, to the benefits of good health as an investment to be leveraged, they begin a transformational process that can dramatically impact their entire workplace health strategy. In fact, good health is good business,” Loepke continues.

To estimate the toll on total costs, Thomas Parry, president of San Francisco-based Integrated Benefits Institute (IBI), says that there has to be a single database for pharmacy and medical claims, along with self-reported data on absenteeism and presenteeism. Parry believes that many organizations tie productivity to improving technology and forget about the role that health plays. “Once organizations realize the impact of health on productivity, the dynamic changes,” he adds.

“You are overlooking an outcome if you don’t ensure productivity. You can’t just look at medical cost savings,” he says. “The more fractured the data, the larger the tendency to minimize the costs in any one silo,” says Thomas Parry, president of Integrated Benefits Institute. *“When you carve out care, you carve up the person.”*

THE ULTIMATE OUTCOME: PRODUCTIVITY

“When we talk about medication adherence, we have to consider the total productivity costs of non-adherence, from unscheduled absences to short-term disability (STD) to presenteeism,” says Wayne Burton, M.D., retired Corporate Medical Director, JPMorgan Chase. “It is a wise value-based decision to invest in medication adherence, especially for chronic medical conditions such as depression, in order to lower direct and indirect health care cost trends and improve employee productivity on the job.”

A 2007 report by Burton and colleagues explored the association of under-managed depression and non-adherence to treatment. Non-adherent employees with depression—who are not adherent with their total medication regimen—have shown rates of short-term disability (STD) 46.1 percent higher than those who were adherent. The average duration of an STD claim is 46 workdays per year, a significant drain on an employer’s resources.^x

“When we talk about medication adherence, we have to consider the total productivity costs of non-adherence, from unscheduled absences to short-term disability (STD) to presenteeism,” says Wayne Burton, M.D., retired Corporate Medical Director, JPMorgan Chase.

Using Value-Based Levers to Drive Adherence. The Center has identified 3 categories of levers, or performance tuners, that can drive better adherence, and these apply to medication adherence for chronic care. Creating incentives and insurance plan designs that promote the use of valuable services, including medication adherence, will drive financial improvement for the plan sponsor. Lowering the cost of valuable treatments, coordinating this with appropriate care, and improving the competency of the individual to manage his or her own condition are the steps to adherence.





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Levers that could be used to improve adherence in medication management include [but are not limited to]:

- * Reduction in total cost of the medication
- * Reduction in total cost when individual participates in condition management coaching
- * Reduction in the insurance premium or co-insurance for cost of medication and/or condition management
- * Use of primary care physician or other in-network care provider for evidence-based screenings and reports
- * Reduction in costs of behavioral health or EAP coaching to improve long-term treatment adherence.

“The real value proposition,” says Jack Mahoney, former Corporate Medical Director for Pitney Bowes and the Center’s Chief Medical Officer, “is the predictable, sustainable reduction in total health cost trend when patients are adherent to medication and treatment therapies. The most important step is the first prescription fill—it’s a wise business move to reduce the access barriers to the care prescribed and reinforced with evidence-based guidelines. Then, mobilize any and all resources to support the longer-term adherence for medication, treatment (including physician visits and labs) and good lifestyle habits that reduce risk.”

Effect of VBD Practices on Adherence

Jack Mahoney, MD MPH, co-founder and chief medical officer of the Center (and retired global health strategist for Pitney Bowes) recommends that employer sponsors not confuse tactics with strategies and not pigeonhole their approaches. “Once you identify the primary outcomes you want to achieve, back into the steps that support those outcomes—accessibility through lower copayments and eliminating structural barriers—and if you don’t contribute to those efforts, costs will be higher. The key element is adherence based on evidence-based medicine and appropriate care.”

Dr. Mahoney subscribes to a three “C” program—commitment, concern and cost. “Define the outcome first based on evidence-based medicine. In this case, it is adherence. Commitment means the employee understands his or her condition, commits to change, receives the right support and is willing to do what is necessary or at least realizes what is necessary. Second, make sure changes aren’t disruptive to eliminate any concerns employees might have. Finally, ensure drugs are affordable—that’s the cost factor,” he says. “It all comes down to ensuring that people have access to quality care management, a quality health care provider and information.”

To support adherence over time, Nayer adds two more “Cs”—communication and community. Communication must reinforce the patient frequently, not just one time per year, supporting the change and reinforcing the good behavior of medication adherence. Community-building is important, as each person receives reinforcement from peers; highlighting and publicizing success is key to population-based improvement in medication adherence.

You have to decide on the outcomes you want to achieve, when you want to achieve them, and how you arrange the pieces to get there,” says Jack Mahoney, MD, Chief Medical Officer for the Center for Health Value Innovation



James Sandridge, vice president, business development for OptumHealth, a health and wellness company in Golden Valley, Colo., also notes that receipt of information must be driven by the consumer. "If it doesn't resonate, the information won't be relevant. It has to be delivered at the right time so the information can be successfully used to spur action," he says. "We have to leverage information to become part of managing health. Technology is the support for gaining that control."

CREATING A CULTURE OF HEALTH THROUGH ACCOUNTABLE ADHERENCE

Many organizations have shown there is a business case for VBD and medication adherence:

Using levers to improve medication adherence has been shown to work by large and small companies, such as Pitney Bowes, Detroit Regional Chamber of Commerce, Caterpillar, QuadMed, State of Maine, Polk County FL, and many others. [case studies available at www.vbhealth.org]. Financial trend reductions have been calculated by actuaries advising these companies, showing reductions in total health cost trends up to 35% - a number that can be very important to a plan sponsor.

QuadMed developed its culture of health by reducing access barriers for appropriate care, rewarding physicians for care that resulted in improved outcomes and using electronic medical records (EMRs) with evidence-based guidelines. Co-payments are waived for services and prescription drugs for all diabetes patients if they participate in a diabetes disease management program and are compliant with treatment regimens. The results have shown increased adherence and a reduction in A1c, blood pressure and cholesterol levels; a 4.9 percent reduction in health cost trend year over year; and a decrease in per employee per year costs. [Nayer C, Taylor ML, Kritzler R, Mahoney J, Zastrow, R. "Co-Pay Incentives; Medicare Advantage (Part D) Can Replicate Successes of Commercial Payers. Center for Health Value Innovation, March 2009.]

If you can enhance adherence, it's a no brainer," says Raymond Zastrow, M.D., the Center's vice president for health evidence, and president of QuadMed, a subsidiary of Quad/Graphics. "The medicine isn't any good if it sits on the shelf. You have to keep people engaged in their care, combined with exercise, proper nutrition and prevention." QuadMed integrates its healthcare, pulling its health and wellness together under one roof, which Dr. Zastrow calls "our microcosm of health and wellness."

The City of Springfield, Ore., a municipality with 241 employees, excluding fire and police, developed a value-based model similar to the one deployed in Asheville, N.C.–waived copayments and coinsurance for drugs and physician visits related to diabetes control and one-on-one counseling by pharmacists to encourage compliance with medications, screenings, foot and retinal exams and physician and lab visits. The total costs of care, including diabetes medication, rose. But the study results showed improved A1c levels, mean serum cholesterol, LDL and HDL and reduced sick days for the intervention group. The control group also had its copayments waived but received educational materials instead of pharmacist counseling. While it showed improvement in some biometrics, they were not as large as those for the intervention group.

Caterpillar, a construction and mining equipment manufacturer based in Peoria, Ill., drives adherence by combining information, financial incentives and behavior change. Looking at medication adherence, Michael Taylor, M.D., medical director for health promotion at Caterpillar and CHVI chairman, says that when generic statins were made accessible through waived co-pays, the percentage of patients taking the drugs nine months later increased from 70 to 80 percent. The company's drug trend has decreased annually, health risks are reduced, and savings are re-invested in the workforce health initiatives.

[Nayer C, Taylor ML, Kritzler R, Mahoney J, Zastrow, R. "Co-Pay Incentives; Medicare Advantage (Part D) Can Replicate Successes of Commercial Payers. Center for Health Value Innovation, March 2009.]



CONCLUSION

"Think of adherence holistically; as drug costs increase, medical costs will decrease," Mahoney says. "Employers look at total cost and average cost/person, and as they both rise, employers become frustrated. They need to look underneath those costs and realize that this presents a great opportunity to invest in keeping people well."

When considering the medication adherence conundrum, employers and plan sponsors will be best served to look across business silos to see the total impact on the organization. If unscheduled absences, safety and workers' comp claims, and unavoidable care can be enhanced through appropriate medication adherence, then the investment makes good business sense. Expanding the focus to include the investments made in prevention and wellness (including, again, reduction in unscheduled absences and avoidable expenses due to under-managed conditions) will provide the best viewpoint for making the adjustments.

Remember, too, that reducing co-pays alone, without coordinated care management and communication, will not result in sustainable adherence nor sustainable financial trend reduction. People choose how they will manage their health, and the reasons for ignoring the appropriate care can be varied. Surveys, communication, and rewards that keep people compliant and adherent do work.

"Making personal health management, including adherence to recommended therapies, an expectation of good work habits is fundamental to achieving long-term management of chronic diseases," says Michael Taylor, MD, Medical Director for Health Promotion for Caterpillar and Chair of CHVI. "Creating opportunities for success, removing cost barriers when possible, and reinforcing the behaviors that promote health and performance are the key messages for the employees, the C-Suite, and the community at large."

"Value is the natural dividend of quality and cost," says Nayer. "The value of medication adherence is not only the health of the individual but also the health of the community—healthy people are active, involved, focused and contributing to the general welfare of their neighborhoods. If we are to produce a healthier America, we must stop focusing on the unit cost of health care and, instead, focus on the health of our people and their communities. In this case, Value drives Performance, Performance drives Productivity, Productivity drives improved Outcomes, and Outcomes drive the dividends of improved health quality and financial trends. It's the alignment of improved health, wealth and performance that fuels the sustainability of our businesses. Identify the outcomes needed, who can provide them, and who can benefit from them. That's the essence of value-based design, and it's a recipe for medication adherence through affordable, accessible, outcomes-based care."

"Action must be taken as part of a concerted program coupled with disease management or similar interventions.

'Value-based' means that positive outcomes are the ultimate goal, and barriers to those positive outcomes must be addressed," Dr. Mahoney says.

*[Mahoney J. "Value-based Benefit Design: Using a Predictive Modeling Approach to Improve Compliance." *Journal of Managed Care Pharmacy*. 2008 July; 14(6 supplement B): 3-8.]*



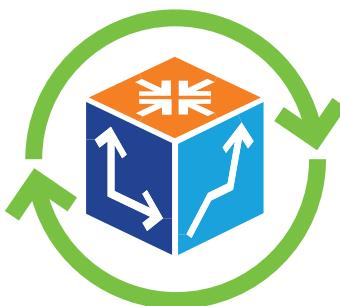
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THE CENTER FOR HEALTH VALUE INNOVATION

was founded as the information exchange for value-based designs. As the repository for the business-based evidence and the clearinghouse for future innovation, we invite you join our work and fuel the knowledge of levers, impact, outcomes, and success.

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