

AIR WAR COLLEGE

AIR UNIVERSITY

THE EFFECTS OF INCENTIVE PROGRAMS
ON
CLINICAL PRODUCTIVITY AND QUALITY

by

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Contents

	<i>Page</i>
Certificate.....	i
Contents.....	ii
Illustrations.....	iii
Tables.....	iv
Biography.....	v
Introduction.....	1
Civilian Pay-for-Performance Programs.....	2
Military Pay-for-Performance Programs	12
Recommendations.....	20
Conclusion.....	23
Appendix A.....	25
Bibliography.....	28

List of Illustrations

	<i>Page</i>
Figure 1. AFMS RWP Production to Target Trend	17
Figure 2. AFMS RVU Production to Target Trend.....	17

Tables

	<i>Page</i>
Table 1. Army HEDIS Metrics.....	15
Table 2. Air Force HEDIS Metrics	16

Biography

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Introduction

Productivity and quality are key components in a successful healthcare organization. In today's complex medical environment, many organizations are looking for ways to increase productivity while improving clinical outcomes and the quality of care. One approach taken by both medical groups and healthcare payers is to provide incentives for increasing productivity or improving healthcare quality. In the civilian healthcare industry, this approach is often referred to as a Pay-for-Performance (P4P) program. Under P4P models, individual providers or medical groups can receive monetary bonuses for increasing output or improving quality of care based on meeting predetermined goals or measures. Providing an incentive to increase output ensures maximum use of provider time to meet patient needs.¹ The focus of quality incentives is to promote better health outcomes and lower the long-term cost of care. These quality measures may be based on preventive care or disease-management standards. In the long term, prevention and disease management can lead to reduced costs while improving the patient's quality of life.² For these various reasons, many organizations have looked to P4P for improving overall performance.

Incentive programs based on P4P concepts have been implemented at different levels in the military healthcare system. The Air Force Medical Service (AFMS) introduced its business plan model in 2003 to provide financial incentives to military treatment facilities (MTFs) that increased overall productivity. Similarly, the Army Medical Department (AMEDD) developed the Performance-Based Adjustment Model (PBAM), which gives a bonus to MTFs that utilize

¹ Robert A. Levy, *Using Pay for Performance to Raise Productivity and Lower Cost Throughout the MHS*. CRM D0016623.A2/Final. (Alexandria, VA: Center for Naval Analyses, December 2007), 6.

² Trust for America's Health, "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities," <http://healthyamericans.org/reports/prevention08/Prevention08.pdf>, (July 2008), 3.

evidence-based medical practices and improve clinical outcomes.³ The PBAM incentives are based on compliance with preventive care and quality indicators such as the Health Plan Employer Data and Information Set (HEDIS) measures. The Navy recently implemented a Performance Based Budget (PBB) system that also provides incentives for both quality and workload. Unlike the Army and Navy programs, the AFMS currently does not have a financial incentive tied to quality of care or clinical outcomes. The AFMS does have a strong focus on prevention and quality indicators, but compliance with these measures is not linked to the MTF's budget.

This paper will provide a review of both civilian and military incentive programs aimed at improving clinical productivity and the quality of healthcare. The review will focus on the impact of incentive programs on provider performance, predominantly related to quality indicators. The paper will highlight what factors are recommended by key professional organizations to enhance productivity under a P4P model. It will also include an analysis of implementing an incentive program that includes quality indicators. Based on the analysis of civilian and military P4P approaches, several recommendations can be made regarding what incentive programs would best improve prevention and stimulate clinical productivity in the Air Force. An incentive program that focuses on both prevention and clinical productivity could provide a balanced approach to improving performance and ensuring quality of care.

Civilian Pay-for-Performance Programs

Pay for performance is not a new idea. P4P models have been used in non-healthcare industries for a number of years. Beginning in the 1980s, this approach was adopted by several civilian healthcare organizations, predominantly managed care activities, in an effort to control

³ Lt Gen Eric B. Schoomaker, "Army Helps Improve Survival Rate, Sustain Force," *US Medicine*, January 2008, <http://www.usmedicine.com/column.cfm?columnID=258&issueID=107>.

costs and improve quality and productivity.⁴ Today Medicare, Medicaid, and many private employers and civilian health plans have implemented various forms of pay for performance.⁵ There are currently over 150 P4P-type programs in the United States. The majority of these programs were implemented in the past 10 years.⁶

P4P is a payment model that typically provides a monetary bonus for meeting specific performance measures. The bonus can be based on level of effort or quality indicators. Some models may also include disincentives for negative outcomes or performance, although this approach is not widespread.⁷ The most common quality indicators used in P4P models are HEDIS measures developed by the National Committee for Quality Assurance (NCQA).⁸ HEDIS measures provide a standardized tool focused on prevention and outcome metrics related to clinical quality.⁹ When used in a P4P model, a bonus may be given for performing a test, such as a mammogram, or for meeting a certain outcome, such as a hemoglobin A1c (HbA1c) test result of 9% or less for a diabetic. Some models pay the bonus based on the overall number of tests performed, while others only pay a bonus if a certain standard is met, such as 75% of eligible patients receiving a mammogram. The advantage of using HEDIS measures is that it provides an established approach with measurements that are relevant, scientifically sound, and feasible.¹⁰ Additionally, many healthcare organizations already collect HEDIS information.

⁴ Gary J. Young, Douglas A. Conrad, and Andrew Fallat, "Practical Issues in the Design and Implementation of Pay-for-Quality Programs," *Journal of Healthcare Management* 52, no. 1 (January/February 2007): 11.

⁵ R. Adams Dudley and Meredith B. Rosenthal, *Pay for Performance: A Decision Guide for Purchasers*, AHRQ Publication No. 06-0047 (Rockville, MD: Agency for Healthcare Research and Quality, April 2006), 1.

⁶ Kevin B. O'Reilly, "P4P Found to Have Little Impact on Care Quality," *AM News*, 4 August 2008, <http://www.ama-assn.org/amednews/2008/08/04/prl20804.htm>.

⁷ Dudley and Rosenthal, *Pay for Performance*, 9.

⁸ Robert A. Levy and Patricia Netzer, *Using Pay for Performance in the MHS*. CRM D0017688 A1.Final (Alexandria, VA: Center for Naval Analyses, March 2008), 6.

⁹ National Committee for Quality Assurance, "The Basics: Performance Measurement," <http://www.ncqa.org/tabid/441/Default.aspx> (accessed 11 November 2008).

¹⁰ Ibid.

HEDIS indicators form the basis of measurement for one of the larger P4P models in healthcare, the Bridges to Excellence (BTE) program. The BTE program, implemented in 2002, was developed in coordination with the NCQA.¹¹ Over 100 employers and national health plans now participate in the BTE program, which focuses on both cost-effectiveness and improved healthcare.¹² The BTE program is funded by employers and currently operates in 18 states.¹³ BTE gives physicians bonuses from \$50 to \$160 per patient for achieving objectives for HEDIS measures related to diabetes, cardiac care, spine care, and patient management.¹⁴ Although there are a range of approaches to P4P, the focus on quality indicators is common in many of the programs today. With the growth of P4P models in the healthcare sector, many professional organizations publish recommended guidelines for implementing a P4P program. These guidelines emphasize a quality approach to P4P models.

Both the American Medical Association (AMA) and American Academy of Family Physicians (AAFP) outline factors to consider when developing a P4P program. AMA states P4P programs should be implemented with the goal of promoting quality patient care and should focus on rewards, not penalties. The AMA also believes that rewards should not be based on a physician's ranking among peers, although it does not provide an explanation for this recommendation. Additionally, AMA advocates the use of pilot programs prior to full implementation.¹⁵ Both AMA and AAFP maintain that a key component of any P4P program is the use of current evidence-based measures. The two organizations recommend basing rewards on both performance improvement and achievement of specific performance benchmarks. The

¹¹ Levy and Netzer, *Using Pay for Performance*, 6.

¹² Proquest, "Diabetes; Bridges to Excellence Physician Reward Program Expands National Presence – From Maine to Georgia," *Biotech Week*, 5 September 2007, <http://proquest.umi.com/pqdweb?did=1327383191&sid=1&Fmt=3&clientId=43494&RQT=309&VName=PQD>.

¹³ O'Reilly, "P4P Found to Have Little Impact."

¹⁴ Proquest, "Diabetes; Bridges to Excellence."

¹⁵ American Medical Association, "Guidelines for Pay-for-Performance Programs," <http://www.ama-assn.org/ama1/pub/upload/mm/368/guidelines4pay62705.pdf>.

AMA and AAFP guidelines also suggest physician involvement in developing a P4P model. The AAFP brings up an important point to avoid incentives that “place physicians at odds with their patients” and could lead to fragmented care or deselecting patients.¹⁶ Other professional organizations provide similar guidance for P4P programs.

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) developed principles for implementing a P4P program in support of high quality care. It includes many of the same recommendations as the AMA and AAFP, such as the use of valid and reliable performance measures and a sliding scale of rewards to recognize improvement and achievement of targets. JCAHO also proposes using a combination of financial and nonfinancial incentives in a P4P program. An example of a nonfinancial incentive is public recognition of performance. Furthermore, JCAHO advises using incentives that support a team approach to delivering healthcare.¹⁷ In reviewing the guidelines from JCAHO and other professional organizations, four common themes emerge as components for a successful P4P program. These are:

- Focus on clinical quality
- Use of evidence-based measures
- Utilize rewards to achieve a benchmark, not penalties
- Reward both achievement of a target and improvement of performance measures

Many of these themes can be found in the design of existing pay-for-performance models. Several studies were conducted in recent years to look at the effectiveness of these P4P programs. One study focused on the impact of P4P programs in Massachusetts from 2001-2003. This study involved 5 nonprofit healthcare plans with almost 4 million beneficiaries and 5,350 primary care managers (PCM) in 154 physician groups, which represented over 90% of the state’s PCMs. All five healthcare plans collected data and reported annually on HEDIS

¹⁶ American Academy of Family Physicians, “Pay-for-Performance,” <http://aafp.org/online/en/home/policy/policies/p/payforperformance.html> (accessed 2 October 2008).

¹⁷ Joint Commission on Accreditation of Healthcare Organizations, “Principles for the Construct of Pay-for-Performance Programs,” <http://www.jointcommission.org/PublicPolicy/pay.htm>.

measures. The study looked at 13 HEDIS indicators that were being reported on by physician groups with P4P programs, although not every group reported on all 13 HEDIS measures. Groups under the P4P model had the potential to earn \$100,000 or roughly \$1,000 per physician. The researchers compared this performance to groups that did not participate in P4P programs, but reported on these HEDIS metrics. In all, there were 18 different contracts from the five healthcare plans that provided P4P incentives based on at least two HEDIS indicators. This resulted in 30 contract-measure pairs analyzed in the study. The results of this study showed that performance on HEDIS measures improved for every metric in both the P4P and non-P4P groups.¹⁸

The Massachusetts' study found that 73% of the contract-measure pairs (22/30) showed improvements that were statistically insignificant between P4P and non-P4P organizations. In 13% of the contract-measure pairs (4/30), the P4P organizations achieved significantly better HEDIS performance than the non-P4P group. On the other hand, 13% of the contract-measure pairs also showed more improvement for non-P4P organizations than the P4P groups. Therefore the researchers could not determine any correlation between P4P and improved performance.¹⁹ However, the study noted several possible reasons for the inconclusive results.

One factor could be that the amount of the potential bonus was too small to provide enough incentive to significantly change performance. It is also possible that the nonincentivized groups anticipated future P4P requirements or public reporting of HEDIS performance, which could have increased their attention on these quality indicators. Similarly, the non-P4P group's performance may have improved merely because they focused on what was

¹⁸ Steven D. Pearson, Eric C. Schneider, Ken P. Kleinman, Kathryn L. Coltin, and Janice A. Singer, "The Impact of Pay for Performance on Health Care Quality in Massachusetts, 2001-2003," *Health Affairs* 27, no. 4 (July/August 2008): 1168-1171.

¹⁹ *Ibid*, 1171.

being measured by their organization. In fact, improvement in HEDIS measurements during this timeframe occurred nationally, with Massachusetts overall performance in line with other healthcare organizations in the US.²⁰ NCQA has noted “meaningful improvements” in its HEDIS measures over the past 5 years,²¹ which could be a result of reports published on the overall performance of US healthcare related to these quality indicators. Clearly, healthcare organizations nationwide are focusing on HEDIS measures regardless of participation in P4P programs.

In 2006, a report for the *Annals of Internal Medicine* looked at 17 studies related to P4P programs. The goal of this review was to determine the effectiveness of P4P programs on quality indicators. Only studies that had a comparison group or baseline data were included in the report. In these studies, financial incentives could be given at the group or individual provider level for achieving a target or making improvement over baseline performance.²² None of the studies included penalties for not achieving specific measures. Additionally, no studies looked at the effect of nonmonetary incentives, although the researchers noted this aspect could play an important role in P4P.²³ Twelve studies looked at process measures (predominantly tests and services for preventive care); two studies examined access to timely and appropriate care; two studies focused on a combination of these measures; and one study centered on patient experience.²⁴

The results of *Annals of Internal Medicine* review showed “partial or positive effects of financial incentives on measures of quality” in five of six studies at the provider level and seven

²⁰ Pearson, Schneider, Kleinman, Coltin, and Singer, “Impact of Pay for Performance,” 1174.

²¹ National Committee for Quality Assurance, “The Basics: Performance Measurement.”

²² Laura A. Petersen, LeChauncey D. Woodard, Tracy Urech, Christina Daw, and Supicha Sookanan, “Does Pay-for-Performance Improve the Quality of Health Care?” *Annals of Internal Medicine* 145, no. 4 (15 August 2006): 267-268.

²³ Ibid, 269-270.

²⁴ Ibid, W-67 – W-71.

of nine studies at the group level.²⁵ However, in three of the studies improvement in prevention services was actually based on better documentation, not an increase in preventive care. One concern with the P4P programs was the potential for gaming the system or adverse patient selection, where a provider may avoid seeing extremely ill patients that may not achieve desired outcomes for quality measures. One of the access-to-care studies found apparent gaming of the system or adverse patient selection, but this was not evident in the other access study. Overall, the *Annals of Internal Medicine* report found that providers and healthcare groups did respond to financial incentives, although in a few cases the response could not be linked to improved care.²⁶

Similar to the Massachusetts study, which was not part of the *Annals of Internal Medicine* report, the researchers suggested that the size of the bonus may have affected the results. Four of the studies cited low financial incentives as a possible explanation for the minimal impact of P4P programs on quality measures. According to Meredith B. Rosenthal, PhD, the principal author of a large study on PacifiCare Health System's P4P program,²⁷ the minor impact has "nothing to do with overturning the theory of pay-for-performance. It can be explained by the way in which these programs have been implemented, and at the top of the list is that the size of the bonus is too small."²⁸ Typically, the bonus amounts equate to less than 5% of the physician's annual income. Many times the P4P programs in the civilian sector apply only to a small percentage of patients in a provider's panel, so the incentive is diluted.²⁹ One of the studies recommended an incentive amount of at least 5% of a provider's income.³⁰ Other factors may also impact P4P outcomes, such as the criteria for qualifying for a bonus. Complex

²⁵ Petersen, Woodard, Urech, Daw, and Sookanan, "Does Pay-for-Performance," 269.

²⁶ *Ibid.*, 268-269.

²⁷ The PacifiCare study results were included in the research published in the *Annals of Internal Medicine*.

²⁸ O'Reilly, "P4P Found to Have Little Impact."

²⁹ Arnold M. Epstein, Thomas H. Lee, and Mary Beth Hamel, "Paying Physicians for High-Quality Care," *The New England Journal of Medicine* 350, no. 4 (22 January 2004): 408-409.

³⁰ Petersen, Woodard, Urech, Daw, and Sookanan, "Does Pay-for-Performance," 269.

qualification criteria were a factor that limited bonuses for participants in a Medicare/Medicaid P4P project.

In 2005, the Centers for Medicare and Medicaid Services (CMS) implemented a demonstration project to determine the effects of P4P programs on both cost and quality of care. The 4-year project includes 10 large medical practices with 5,000 physicians and 224,000 Medicare beneficiaries.³¹ For the project, CMS defined 27 quality markers related to diabetes, hypertension, congestive heart failure, coronary artery disease, colon cancer screening, breast cancer screening and vaccinations.^{32 33} Additionally, CMS estimated an annual cost to provide care for patients based on their medical conditions and appropriate preventive services. To qualify for a bonus payment, medical groups in the demonstration project had to meet both quality and financial benchmarks. On the quality side, the groups must reach a certain target or achieve a specific level of improvement in at least 25 of the 27 markers. The medical practices also had to achieve actual costs less than 98% of the initial estimate.³⁴

Results of the demonstration project's first 2 years showed both cost savings and quality improvements. CMS stated the demonstration project saved it \$17.4 million in the second year. All 10 medical practices made improvements in the quality measures. However, only four of the medical groups received incentive payments from the demonstration project, which totaled \$13.8 million. The six remaining groups did not receive a bonus, even though they met the quality targets, since they did not meet the CMS goals for financial performance. In the first year of the project, only two groups received incentive payments amounting to \$7 million. Overall, the

³¹ Jennifer Lubell, "P4P Money Slow to Come," *Modern Healthcare* 38, no. 33 (18 August 2008), <http://proquest.umi.com/pqdweb?did=1543519031&sid=1&Fmt=3&clientid=43494&RQT=309&VName=PQD>.

³² Ibid.

³³ Center for Medicare and Medicaid Services, "Medicare Begins Performance-based Payments for Physician Groups," <http://www.cms.hhs.gov/apps/media/press/release.asp>.

³⁴ Lubell, "P4P Money Slow."

majority of practices participating in the demonstration project did not receive significant bonuses under this program, despite lowering costs and making improvements in quality. The groups that did not receive bonuses found the financial benchmarks complicated and suggested limiting the bonus to quality measures, which should impact costs in the long term.³⁵ The CMS example emphasizes important factors to consider in P4P program design. These include the need for reasonable targets to achieve a bonus and developing a program with easy-to-understand goals for performance incentives.

Another important factor related to P4P program design is ensuring that providers do not perform unnecessary tests or treatment in order to maximize bonus payments. The United Kingdom's P4P model allows patient exclusions to prevent unneeded treatment. Implemented in 2004, the UK's Quality and Outcomes Framework (QOF) program links 25% of a primary care provider's income to their performance based on more than 130 quality indicators.^{36 37} One aspect of the QOF program is that providers may omit certain patients from reporting when a treatment is not appropriate. For example, it may not be appropriate to treat hypertension in an extremely frail patient. In this situation, the patient could be excluded from reporting. This exclusion is designed to prevent physicians from providing unsuitable treatments in order to increase their incentive payment. Nevertheless, physicians could use these exclusions to avoid reporting on patients who did not receive an appropriate treatment or achieve a certain outcome. A team studied the results of exception reporting in the U.K. and found low exclusion rates and few indications of providers gaming the system.³⁸

³⁵ Lubell, "P4P Money Slow."

³⁶ Tim Doran, Catherine Fullwood, David Reeves, Hugh Gravelle, and Martin Roland, "Exclusion of Patients from Pay-for-Performance Targets by English Physicians," *The New England Journal of Medicine* 359, no. 3 (17 July 2008): 274, <http://proquest.umi.com/pqdweb?did=1516218281&sid=1&Fmt=4&clientid=43494&RQT=309&VName=PQD>.

³⁷ Epstein, Lee, and Hamel, "Paying Physicians for High-Quality," 406.

³⁸ Doran, Fullwood, Reeves, Gravelle, and Roland, "Exclusion of Patients."

This team looked at 8,105 medical groups in England, which represents 96% of all primary care practices in the country. Overall, providers excluded about 5.3% of their patients from the QOF program. The most common exclusions for patients were related to providing treatment or achieving an outcome. The least common exclusions were for targets associated with routine checks (such as blood pressure) and offering treatment. In general, these medical groups met performance targets for 90.4% of their reported patients. Excluding patients accounted for a salary increase of about 500 pounds, or less than 0.5% of the average physician's salary. Although allowing exceptions to reporting will always leave room for a practice to game the system, it is an important factor in preventing unnecessary treatments. It also increases providers' acceptance of the P4P program.³⁹ The UK example highlights patient exclusion as one of many critical aspects to consider in P4P implementation. Looking at this study, along with the previously mentioned research, provides evidence of the strengths and weaknesses of P4P programs.

There are several strengths and weaknesses of the civilian P4P models. One of the major strengths is the focus on quality measures, not just productivity. This approach emphasizes improved health outcomes, which can lead to better quality of life for patients and generate cost savings in the long term due to decreased onset of disease. Another strength is that the organizations participating in P4P programs have shown improvements in quality of care based on HEDIS performance or similar indicators. Although in many cases the actual improvement is minimal compared to non-P4P plans, this can still represent improved health outcomes for thousands of patients. A weakness of P4P models is that it could provide disincentives to deselect patients or game the system, although this has rarely been seen in practice. There is also the potential to ignore services and treatments that are not part of the incentive program.

³⁹ Doran, Fullwood, Reeves, Gravelle, and Roland, "Exclusion of Patients."

Additionally, sometimes improvements under P4P models are due to better documentation, rather than an increase in preventive services or treatments. However, this should not lessen the importance of accurate documentation. A final issue is related to P4P programs that provide bonuses for outcome measures, such as decreased HbA1c results for diabetics. A poor outcome does not mean that quality care was not provided to the patient.⁴⁰ Although there are several weaknesses to the civilian P4P model, these could be addressed with appropriate oversight of the incentive program. Some strengths and weaknesses of the civilian model will also be factors in a military P4P program.

Military Pay-for-Performance Programs

In 2003, the Military Health System (MHS) began development of a new budget allocation model for the Defense Health Programs. This new model resulted in implementation of the Prospective Payment System (PPS) and a tri-service business plan tool in 2005. This system represents a P4P-type model, which funds a portion of each service's medical budget based on workload performance. The military P4P model is closer to the civilian P4P models that pay incentives at the group level, since individual providers in the MHS do not receive financial bonuses for performance. Under the PPS, performance is measured by relative value units (RVU) for outpatient care, relative weighted products (RWP) for inpatient care, and mental health bed days. In response to this new budgeting approach, each of the services created versions of business plan models to monitor performance and enhance productivity. The Air Force has the AFMS Business Plan, the Army has its PBAM program, and the Navy recently established its PBB program. These programs have many similar goals, but use different

⁴⁰ Petersen, Woodard, Urech, Daw, and Sookanan, "Does Pay-for-Performance," 269.

methods for achieving objectives. The use of financial incentives and/or disincentives is common in all the service's P4P models.

The AFMS introduced its business plan concept in 2003. Initially utilizing an Air Force tool and later the tri-service business plan tool, the AFMS system adjusts a portion of each MTF's budget based on workload performance. Financial incentives were phased in over a period of 4 years beginning in 2005. MTFs now can earn \$80 for each RVU and \$11,000 for each RWP above target. Although underperformance results in a decrement from the MTF's budget based on these same dollar amounts. Currently, the AFMS Business Plan only adjusts MTF budgets based on RVU and RWP performance. The business plan does not have a financial incentive tied to HEDIS measures, although these indicators are monitored regularly by the AFMS. However, the Army's program does utilize HEDIS measures as part of the incentives in the PBAM.

The Army began testing the PBAM concept in its Southeast Regional Medical Command in 2004 and implemented it across the AMEDD in FY07.⁴¹ Like the Air Force, Army MTF budgets are adjusted based on RVU and RWP performance. In addition, MTFs can receive a bonus for meeting targets related to evidence-based healthcare and clinical outcomes.⁴² The seven HEDIS measures included in this model are:

- Asthmatics on long-term controller medications
- Mammograms Completed (Age 52-69)
- Cervical Cancer Screening
- Colorectal Exams Completed
- Diabetics with LDL <100
- Diabetics with HbA1c testing
- Diabetics with HbA1c <9

⁴¹ Lt Gen Eric B., Schoomaker, Army Surgeon General, briefing, Army Reserve Medical Command Senior Leader Battle Workshop, subject: The Army Medical Department Update, 9 February 2008.

⁴² Schoomaker, "Army Helps Improve Survival."

The goal is for MTFs to reach at least the 90th percentile for these specified HEDIS measures.⁴³ Utilizing percentile scores for incentive payments provides a ranking of the MTF's performance compared to other facilities. For each indicator where they achieve the 90th percentile or above, the MTF earns \$5 per screening. If the MTF scores between the 50th and 90th percentile on an indicator, they earn \$2.50 per screening. No bonus is given for scoring less than the 50th percentile.⁴⁴ The Army's P4P approach was chosen so that AMEDD leadership would focus on quality care factors in addition to clinical productivity.⁴⁵ Like the Army, the Navy's new incentive program also ties a portion of the MTF's budget to quality measures.

In 2008, the Navy's Bureau of Medicine & Surgery implemented its PBB model for facilities in the Continental US.⁴⁶ The PBB model combines workload performance with several quality indicators, including HEDIS measures.⁴⁷ Under PBB, 70% of an MTF's budget is vulnerable to financial adjustments based on performance. The breakout for the MTF budget is 45% based on RVUs, RWPs and mental health bed days, with another 25% focused on different quality indicators. These indicators fall into the following categories (with percentage of budget impact in parentheses):

- Evidence-Based Healthcare (10% of budget)
- Individual Medical Readiness Rates (5% of budget)
- Inpatient Bed Fill Rates (5% of budget)
- Public Health (5% of budget)⁴⁸

This model allows for adjustments due to deployments so that MTF budgets are not negatively impacted by the readiness mission. Since PBB was recently introduced, it is too early to provide

⁴³ COL Paul R. Cordts, briefing, DoD Task Force on the Future of Military Healthcare, subject: Army Medical Department Changes to Improve Healthcare Outcomes, 11 July 2007.

⁴⁴ Briefing, 2008 Military Health System Conference, subject: PBAM Clinical Viewpoint. January 2008, http://74.125.45.104/search?q=cache:pxGvUMA_QsJ:www.health.mil/conferences/2008/MHS/downloads.

⁴⁵ Schoomaker, "Army Helps Improve Survival."

⁴⁶ CDR Annette M. Von Thun, Head, Evidence-Based Programs, briefing, BUMED, subject: Understanding BUMED's Performance-Based Budget (PBB)...A Clinical Quality Perspective, 6 May 2008.

⁴⁷ Levy and Netzer, *Using Pay for Performance*, 17.

⁴⁸ Von Thun, Understanding BUMED's Performance-Based Budget.

an assessment of its effect on clinical productivity and quality. However, looking at the Army and Air Force incentive programs identifies several impacts of the different military P4P approaches.

In general, the Army has seen improvement in many HEDIS measures since implementing PBAM. In just the first 6 months after full implementation, every MTF earned some level of bonus for quality and the Army paid over \$847,000 in incentive payments.⁴⁹ The Army saw statistically significant improvement⁵⁰ in 4 of the 7 HEDIS metrics during the first year of implementation. These improvements were seen in mammograms, cervical exams, colorectal exams, and diabetics with HbA1c of less than 9. The latest available data shows improvement in 5 of 7 metrics from the 2006 figures. These include mammograms, cervical exams, colorectal exams, diabetics with a HbA1c screening, and diabetics with a HbA1c of less than 9. Despite the incentive, some metrics have not seen improvements from the 2006 figures, such as asthmatics with medications and diabetics with an LDL of less than 100, although the latter HEDIS metric did increase from the 2007 results. The Army HEDIS percentages are summarized in the following table.⁵¹

ARMY HEDIS METRICS	OCT 06	OCT 07	OCT 08
Asthmatic w/Meds	96.1%	95.8%	94.4%
Mammogram (Age 52-69)	73.9%	75.8%	75.7%
Cervical Exam	80.9%	81.9%	82.9%
Colorectal Exam	58.9%	61.3%	64.9%
Diabetics w/LDL <100	51.0%	48.1%	50.5%
Diabetics w/HbA1c Screen	84.8%	84.9%	86.0%
Diabetics w/HbA1c <9	72.6%	73.6%	74.0%

Table 1. Army HEDIS Metrics

⁴⁹ Transcript of the Department of Defense Task Force on the Future of Military Care, Defense Health Board Subcommittee, Washington, DC, 11 July 2007.

⁵⁰ Statistically significant changes were defined as $p > .05$

⁵¹ Geraldine E. Elias, Clinical Informatics Branch, HEDIS Data for Army and Air Force, 23 December 2008.

Although the Army provides financial incentives for quality indicators, this is not necessarily the driver of improved HEDIS performance. Even without incentives, both civilian and military medical facilities emphasize HEDIS performance as one measure of quality care. The Air Force regularly monitors MTF's performance related to HEDIS indicators. As a comparison, the Air Force's percentages for the same HEDIS indicators are summarized in the following table.⁵²

AIR FORCE HEDIS METRICS	OCT 06	OCT 07	OCT 08
Asthmatic w/Meds	97.5%	97.2%	96.7%
Mammogram (Age 52-69)	77.0%	75.8%	74.0%
Cervical Exam	83.2%	82.5%	81.9%
Colorectal Exam	61.1%	62.7%	66.1%
Diabetics w/LDL <100	57.2%	52.6%	53.5%
Diabetics w/HbA1c Screen	86.4%	85.7%	85.1%
Diabetics w/HbA1c <9	75.2%	75.2%	74.3%

Table 2. Air Force HEDIS Metrics

The Air Force currently exceeds the Army's performance with respect to HEDIS measures in 4 of these 7 metrics, although one measure has less than half a percentage point difference with the Army's score. However, the Air Force has seen a decrease in HEDIS performance in 5 of these 7 metrics in the last year and in 6 of the 7 metrics as compared to 2 years ago. Appendix A provides a comparison of the Army and Air Force's performance for each of the seven metrics. This comparison shows an overall upward trend for the Army's HEDIS performance in 5 of 7 metrics. Although it cannot be definitively stated that this upward trend is a result of the financial incentives, it does provide some merit to the idea that financial incentives may play a role in improving quality measures. Certainly on the productivity side, the emphasis on increasing RVUs and RWPs has provided incentive to MTFs to focus on workload performance.

⁵² Elias, HEDIS Data.

In terms of workload productivity, the PPS approach has positively impacted Air Force outpatient performance, although inpatient workload dropped since implementation of the business plan. Many MTFs have experienced lower provider FTE availability and reduced beneficiary enrollment at their facilities since 2005. The number of staffed beds at inpatient facilities declined during this same time period. RWPs dropped from 43,803 in FY05 to 35,216 in FY08. Total RVUs for all AFMS facilities went from 6.682 million in FY05 to 7.699 million in FY08. RVUs are expected to increase in FY09 with a target of almost 7.785 million.⁵³ Results of AFMS business plan performance are summarized in the following charts.

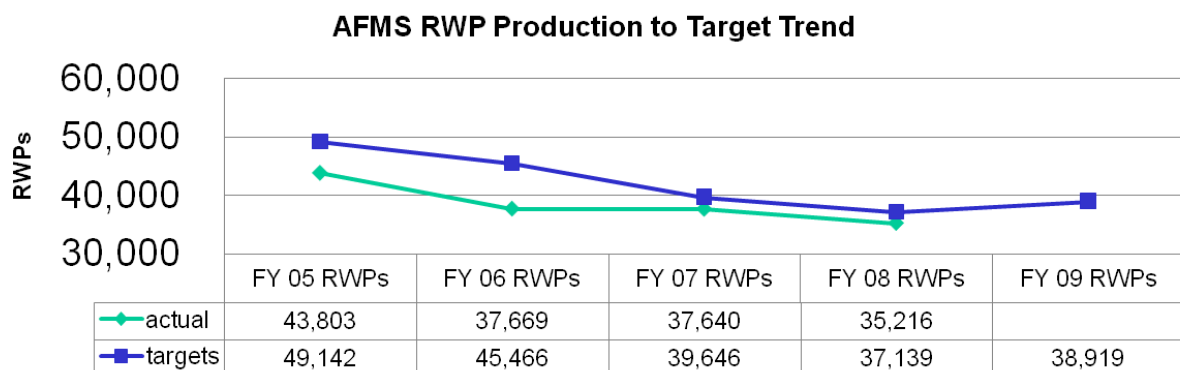


Figure 1. AFMS RWP Production to Target Trend

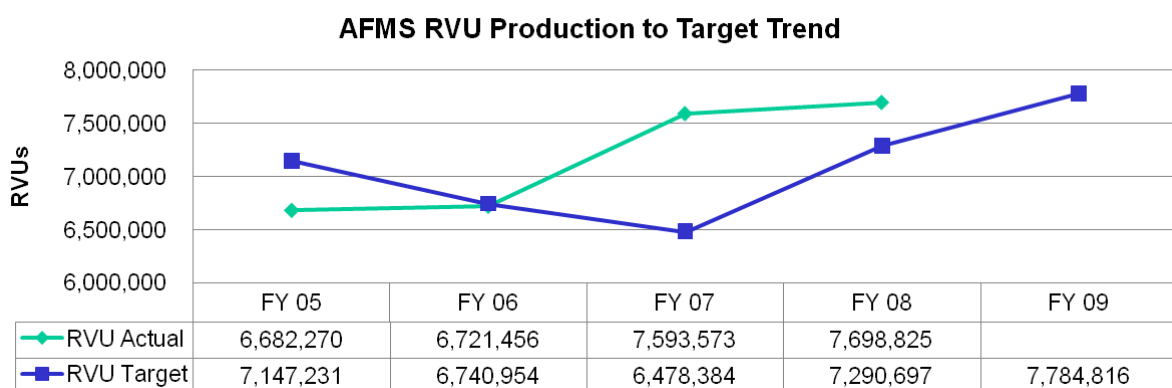


Figure 2. AFMS RVU Production to Target Trend

⁵³ Maj Michael J. Roberts, AFMOA/SGHC, Business Plan Performance Trends, 12 December 2008.

The AFMS Business Plan encourages MTFs to develop realistic targets for workload performance considering the impact of deployments and other resource limitations. The business plan provides a strong incentive to facilities to meet their workload targets, since funds may be pulled for underexecution. Likewise, exceeding targets results in additional funds provided to MTFs to support facility programs. This business plan is the foundation of an overall P4P approach that ties resources to workload and outcomes.

Both Air Force and Army P4P systems have several strengths and weaknesses. Overall, the concept of incentivizing performance is a strength of military P4P models, since it links resources to workload or outcomes. The additional financial incentive for quality in the Army model is one of its strengths. Another strength is that military facilities showed improvement after implementation of P4P-type programs. The Air Force increased outpatient workload, while the Army showed an upward trend in HEDIS performance. In 4 of the 7 HEDIS measurements, the Army's performance since program implementation improved by 1.2 to 2%. For the percentage of colorectal exams completed, the Army's HEDIS score increased by 6% since implementation (the Air Force saw a 5% increase during this same timeframe). However, the Army's performance decreased by 1.7% for one metric and .5% for another metric.⁵⁴ Like civilian P4P programs, it can be difficult to determine if improvement in HEDIS measures was a result of the financial incentives or an increased focus on quality in general. The changes may result from leadership monitoring HEDIS metrics and requiring MTF staff to explain underperformance. Still, the emphasis on rewarding quality is an important aspect of the Army's PBAM program.

One downside to the Army's system is that utilizing percentiles rather than a specific percentage rewards a facility's ranking compared to other MTFs. This can make it difficult for

⁵⁴ Elias, HEDIS Data.

the MTF to determine what level of HEDIS performance qualifies for a bonus, since this is based on their results relative to other facilities. The limited number of quality measures covered by PBAM is also a potential weakness. With only seven HEDIS indicators currently incentivized under the Army system, health issues not included in the model may not receive as much attention. In fact, AMEDD is looking at increasing the number of quality measures covered by incentives.⁵⁵ One weakness of the current Air Force business plan is that it provides financial incentives only for productivity. Even though outpatient performance improved, this incentive did not result in increased RWPs for inpatient facilities. Additionally, the improvements in outpatient performance may be partially due to better documentation. Although accurate documentation is important, it does not mean increased access to care for patients. While the Air Force business plan does provide a valuable incentive, it does not give quality factors equal emphasis in the distribution of MTF financial resources.

Another weakness of military P4P programs is that quality indicators are usually based on data that is available in electronic systems. Although the MHS has electronic capability to pull this information, it could limit what information is focused on in P4P programs. An additional weakness of military P4P systems is that individual providers cannot be financially incentivized for meeting quality or productivity measures. Monetary incentives at the MTF level may not have as much influence on providers. Even if a mechanism were possible to provide individual incentives, it would not be recommended due to the numerous factors impacting performance that are outside of a provider's control. These include deployments, mandatory training, additional duties, wing taskers, and patient compliance. Although it may seem there are more weaknesses than strengths in the military models, this does not necessarily mean that P4P-type programs are without value. The weaknesses indicate important issues to address in a

⁵⁵ Briefing, 2008 Military Health System Conference, subject: PBAM Clinical Viewpoint.

military P4P model. Based on the impacts of P4P-type programs in civilian and military sectors, a number of recommendations can be made regarding financial incentives for clinical performance in the AFMS.

Recommendations

The AFMS business plan provides the financial incentive to MTFs to maximize clinical productivity. The addition of a P4P-type incentive for meeting specific quality indicators could improve prevention activities and healthcare outcomes. Although many times the impact of P4P programs on quality indicators is minimal, and financial incentives to the MTF may have less impact on individual provider performance, the incentives place an important emphasis on quality care. The Army saw improvement in HEDIS metrics since implementation of financial incentives for quality. However, it is important to reiterate that monetary rewards may not be the driver of improved performance. The available research does not definitively show that P4P incentives always lead to performance improvement. Therefore, any modification to the current business plan should take a phased-in approach. This allows the evaluation of results prior to a decision regarding full implementation of quality incentives. The AFMS could initiate a demonstration project at selected MTFs to see if the financial incentives for quality performance result in improvement in specific HEDIS metrics.

The establishment of a pilot project should begin with the formation of a working group with representatives from different clinical and administrative functions. This working group would choose the quality targets and measures for the incentive program. The AFMS could begin with 6-8 indicators with the expectation to add more quality measures in the future. One role of the group would be to compare results of HEDIS performance with nonincentivized Air Force MTFs. Using the same seven HEDIS measures as the Army for the initial program would

allow for additional comparisons of performance. The working group could also analyze the Navy's PBB model as data on this program becomes available. This would help determine the impact of monetary incentives on other measures such as Individual Medical Readiness (IMR) rates. Furthermore, the group could conduct MTF surveys gain feedback on the incentive program.

One option for an AFMS demonstration project is to select MTFs in a single major command with both inpatient and outpatient facilities. These MTFs would be eligible for a bonus based on performance related to quality measures. MTFs reaching a specific target for HEDIS measures and other quality indicators would receive a predetermined financial bonus. The key is to see if these financial incentives result in an upward trend in HEDIS performance for MTFs. The advantage of using HEDIS indicators is that they are standardized and evidence-based measures. The standardization allows for accurate comparisons among facilities. Clinical staff may have more buy-in for the program because it uses evidence-based measures that support early detection and disease prevention. Additionally, since the MHS already monitors many HEDIS metrics, including the ones tracked by the Army, these measures are obvious choices for inclusion in an incentive program. Other measures that could be included in the future are Preventive Health Assessment and IMR rates. The AFMS should allow patient exclusions from reporting if a treatment is not suitable for the individual. To prevent gaming the system, such exclusions could require approval by the Chief of the Medical Staff and/or a waiver from the AFMS.

MTFs meeting a designated target for HEDIS measures would receive a bonus. The financial bonus should be given at the MTF level as part of quarterly incentive payments to provide more immediate recognition of performance. The financial bonus could be based on

either the percentile method like the Army's program or a certain percentage for a specific HEDIS measurement. Establishing a goal based on percentages, such as 85% of cervical exams completed for an eligible population, is probably the simpler method. Although this approach does not reward significant improvement if the overall percentage is less than the goal, it provides a clear understanding of desired targets. Targets could be increased over time to promote continued performance improvement. Disincentives for not meeting targets are not recommended, but nonfinancial incentives can be considered as part of the program.

Monthly recognition of the top five or most improved performers for specific HEDIS measures is a useful nonfinancial incentive. Publishing MTF scores could also encourage improvement of HEDIS performance. Since MTFs fall under the wing structure and not in the AFMS chain, this limits the ability to provide certain nonfinancial incentives such as time off. If utilized, time-off awards for specific teams or individuals would need to occur at the MTF level. One difficulty with using time-off awards is that contractors who are members of a provider team cannot participate because of contractual requirements. Due to these constraints, only the financial bonus and MTF recognition should be determined by the AFMS.

A key aspect associated with a financial incentive is the cost of the program. While specific data is not available to determine the financial impact, this is a critical piece that would need to be developed prior to implementation. Once percentage goals are determined for each HEDIS metric eligible for a bonus, an estimated cost could be developed based on the number of MTFs that currently meet the proposed targets. MTFs that meet or exceed the overall HEDIS goal could be paid a bonus for the number of eligible patients that met the target. Similar to civilian P4P models, the size of the potential bonus could impact effectiveness of the program. If the amount is too small, it may not provide enough motivation to alter performance.

Any pilot project implemented should look at potential second- and third-order effects of the program. There could be unintended effects related to the bonus. If MTFs view the bonus as taking away funds from other important programs, it may be viewed as a negative factor. The program also should not discourage information sharing among MTFs by creating an overly competitive environment. The program should minimize mandatory reporting requirements for best practices to avoid placing additional workload on facilities. MTFs could be encouraged to share their best practices by submitting packages for award programs and storyboards. Lessening these unintended consequences should be one of the goals of the incentive program design.

Certainly there are many challenges with implementing a financial incentive for quality and prevention activities. As mentioned earlier, the AFMS currently exceeds the Army's HEDIS performance for 4 of the 7 metrics. This could indicate that there is no strong need for the Air Force to provide additional incentives. However, at least for the 7 metrics tracked under the PBAM program, the Air Force's scores dropped in 6 of the 7 categories over a 2-year period. The percentage decrease ranged from 0.8% to 3.7%. There may be valid reasons for this change in performance. It also could indicate an opportunity to reverse this trend by adding incentives. A P4P program focused on quality measures may be an effective approach. Since the answer is not clear-cut, a pilot program would provide important data to assess the impact of financial incentives on preventive care and clinical outcomes.

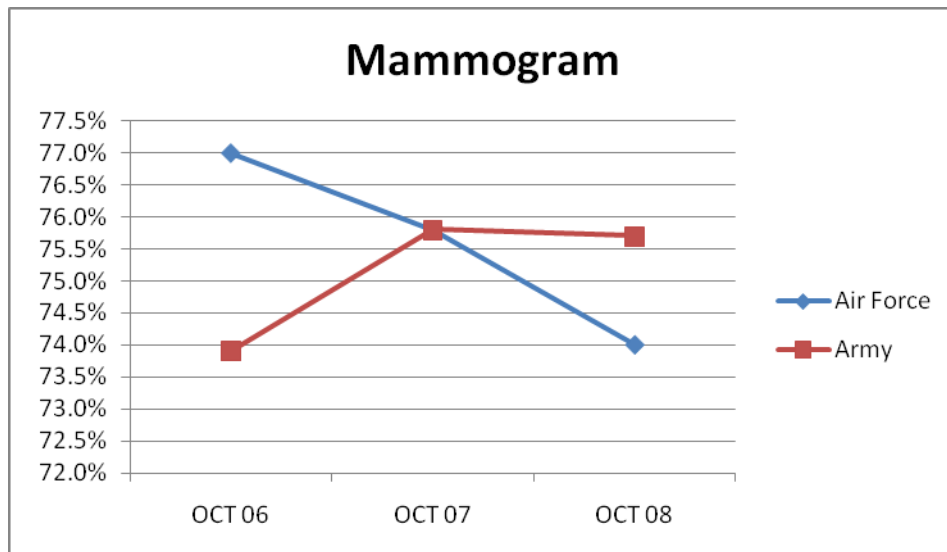
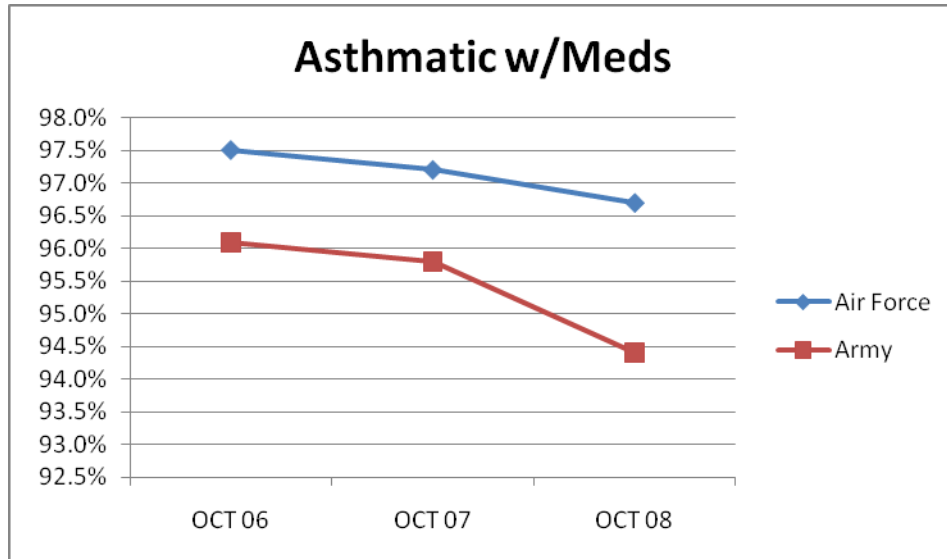
Conclusion

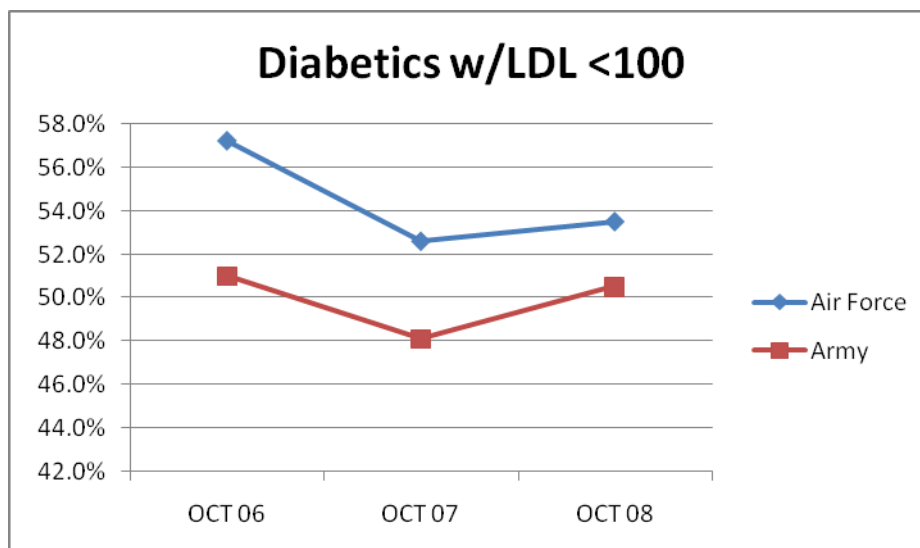
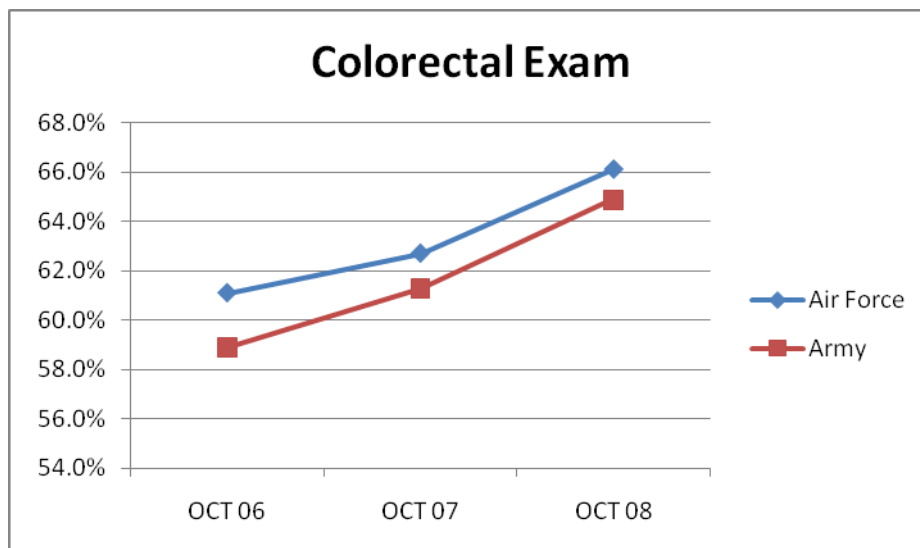
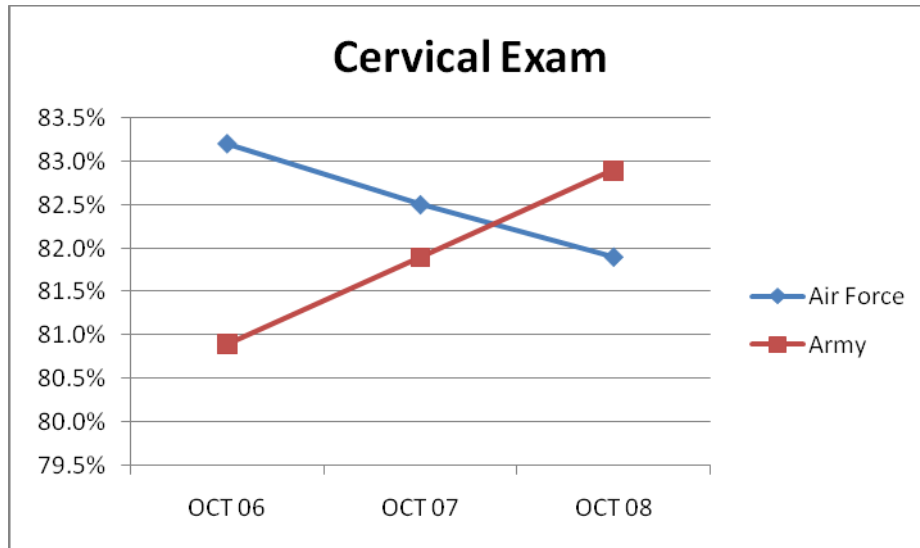
Pay for performance can be a valuable tool for focusing on quality and productivity in both civilian and military healthcare organizations. P4P is commonly used to provide incentives for improving performance based on HEDIS measures and other quality indicators. Although

the impact of P4P models is sometimes minimal, there have been improvements in performance after program implementation. However, many healthcare organizations show improvements in quality measures even without financial incentives. This could be due to increasing attention and reporting on quality measures in the healthcare sector. Additionally, the amount of the financial bonus may be a factor limiting the success of P4P in many facilities. Still, there have been some positive effects on quality measures in organizations that implemented P4P models. Both the Army and the Navy adopted P4P approaches that include financial incentives for meeting specific quality targets. The Navy's program is too new to analyze, but the Army saw improvement in 5 of the 7 HEDIS measures that it tracks under its PBAM program. The AFMS should consider adopting financial incentives for quality measures. A bonus could be given to MTFs meeting specific targets for standardized, evidence-based measures such as HEDIS indicators. Expanding the current AFMS business plan model to include quality measures may provide additional incentives to focus on prevention activities. This would tie resources to workload and outcomes giving emphasis to both clinical productivity and quality in MTF performance.

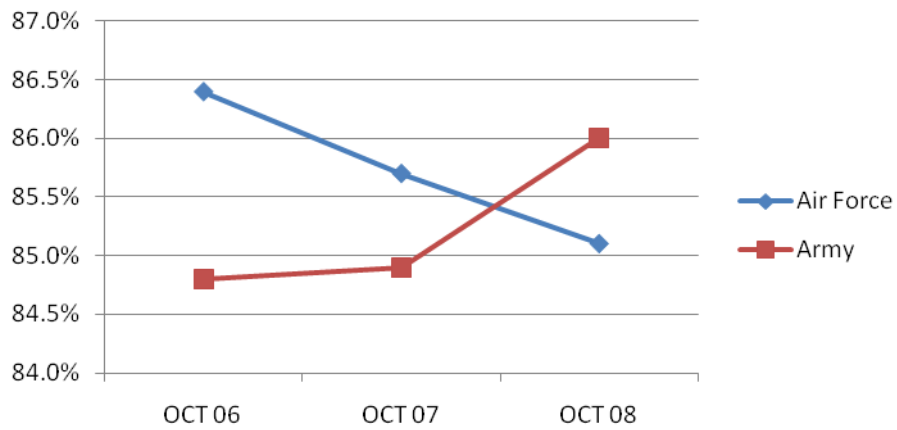
Appendix A

Comparison of Army and Air Force HEDIS Metrics

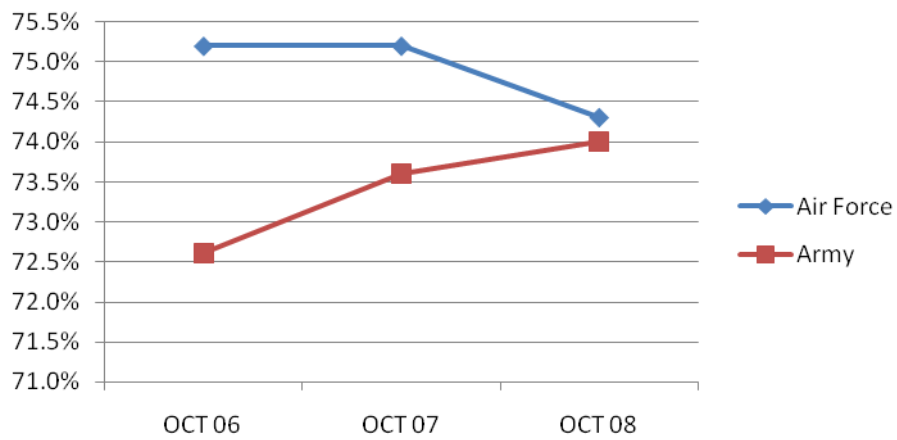




Diabetics w/HbA1c Screen



Diabetics w/HbA1c <9



Bibliography

- American Academy of Family Physicians. "Pay-for-Performance." <http://aafp.org/online/en/home/policy/policies/p/payforperformance.html> (accessed 2 October 2008).
- American Medical Association. "Guidelines for Pay-for-Performance Programs." <http://www.ama-assn.org/ama1/pub/upload/mm/368/guidelines4pay62705.pdf>.
- Briefing. 2008 Military Health System Conference. Subject: PBAM Clinical Viewpoint. January 2008. [http://74.125.45.104/search?q=cache:pxGvUM-A_QsJ:www.health.mil/conferences/2008/MHS/downloads/W_1430%2520\(2\)%2520Paying%2520for%2520and%2520Documenting%2520MTF%2520Value_072.ppt+2008+mhs+pbam&hl=en&ct=clnk&cd=1&gl=us](http://74.125.45.104/search?q=cache:pxGvUM-A_QsJ:www.health.mil/conferences/2008/MHS/downloads/W_1430%2520(2)%2520Paying%2520for%2520and%2520Documenting%2520MTF%2520Value_072.ppt+2008+mhs+pbam&hl=en&ct=clnk&cd=1&gl=us).
- Center for Medicare and Medicaid Services. "Medicare Begins Performance-based Payments for Physician Groups." <http://www.cms.hhs.gov/apps/media/press/release.asp?Counter=1341&intNumPerPage=10&checkDate=&checkKey=&srchType=1&numDays=3500&srchOpt=0&srchData=&keywordType=All&chkNewsType=1%2C+2%2C+3%2C+4%2C+5&intPage=&showAll=&pYear=&year=&desc=false&cboOrder=date>.
- Cordts, COL Paul R. Briefing. DoD Task Force on the Future of Military Healthcare. Subject: Army Medical Department Changes to Improve Healthcare Outcomes. 11 July 2007.
- Doran, Tim, Catherine Fullwood, David Reeves, Hugh Gravelle, and Martin Roland. "Exclusion of Patients from Pay-for-Performance Targets by English Physicians." *The New England Journal of Medicine* 359, no. 3 (17 July 2008): 274. <http://proquest.umi.com/pqdweb?did=1516218281&sid=1&Fmt=4&clientid=43494&RQT=309&VName=PQD>.
- Dudley, R. Adams, and Meredith B. Rosenthal. *Pay for Performance: A Decision Guide for Purchasers*. AHRQ Publication No. 06-0047. Rockville, MD: Agency for Healthcare Research and Quality, April 2006.
- Elias, Geraldine E., MHS Portal Support Manager, Clinical Informatics Branch. HEDIS Data for Army and Air Force. 23 December 2008.
- Epstein, Arnold M., Thomas H. Lee, and Mary Beth Hamel. "Paying Physicians for High-Quality Care." *The New England Journal of Medicine* 350, no. 4 (22 January 2004): 406-410.
- Joint Commission on Accreditation of Healthcare Organizations. "Principles for the Construct of Pay-for-Performance Programs." <http://www.jointcommission.org/PublicPolicy/pay.htm>.

- Levy, Robert A., and Patricia Netzer. *Using Pay for Performance in the MHS*. CRM D0017688 A1.Final. Alexandria, VA: Center for Naval Analyses, March 2008.
- Levy, Robert A. *Using Pay for Performance to Raise Productivity and Lower Cost Throughout the MHS*. CRM D0016623.A2/Final. Alexandria, VA: Center for Naval Analyses, December 2007.
- Lubell, Jennifer. "P4P Money Slow to Come." *Modern Healthcare* 38, no. 33 (18 August 2008): 8. <http://proquest.umi.com/pqdweb?did=1543519031&sid=1&Fmt=3&clientid=43494&RQT=309&VName=PQD>.
- National Committee for Quality Assurance. "The Basics: Performance Measurement." <http://www.ncqa.org/tabid/441/Default.aspx> (accessed 11 November 2008).
- O'Reilly, Kevin B. "P4P Found to Have Little Impact on Care Quality." *AM News*, 4 August 2008. <http://www.ama-assn.org/amednews/2008/08/04/prl20804.htm>.
- Pearson, Steven D., Eric C. Schneider, Ken P. Kleinman, Kathryn L. Coltin, and Janice A. Singer. "The Impact of Pay for Performance on Health Care Quality in Massachusetts, 2001-2003." *Health Affairs* 27, no. 4 (July/August 2008): 1167-1176.
- Petersen, Laura A., LeChauncey D. Woodard, Tracy Urech, Christina Daw, and Supicha Sookanan. "Does Pay-for-Performance Improve the Quality of Health Care?" *Annals of Internal Medicine* 145, no. 4 (15 August 2006): 265-272.
- Proquest. "Diabetes; Bridges to Excellence Physician Reward Program Expands National Presence – From Maine to Georgia." *Biotech Week*, 5 September 2007. <http://proquest.umi.com/pqdweb?did=1327383191&sid=1&Fmt=3&clientId=43494&RQT=309&VName=PQD>.
- Roberts, Maj Michael J., AFMOA/SGHC. Business Plan Performance Trends, 12 December 2008.
- Schoomaker, Lt Gen Eric B. "Army Helps Improve Survival Rate, Sustain Force." *US Medicine*, January 2008. <http://www.usmedicine.com/column.cfm?columnID=258&issueID=107>.
- Schoomaker, Lt Gen Eric B., Army Surgeon General. Briefing. Army Reserve Medical Command Senior Leader Battle Workshop. Subject: The Army Medical Department Update. 9 February 2008.
- Transcript, Department of Defense Task Force on the Future of Military Care. Defense Health Board Subcommittee, Washington, DC, 11 July 2007.
- Trust for America's Health. "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities." <http://healthyamericans.org/reports/prevention08/Prevention08.pdf>. July 2008.

Von Thun, CDR Annette M., Head, Evidence-Based Programs. Briefing. BUMED. Subject: Understanding BUMED's Performance Based Budget (PBB)...A Clinical Quality Perspective. 6 May 2008.

Young, Gary J., Douglas A. Conrad, and Andrew Fallat. "Practical Issues in the Design and Implementation of Pay-for-Quality Programs." *Journal of Healthcare Management* 52, no. 1 (January/February 2007): 10-19.