Running head: EFFECTS ON COMPLIANCE PERFORMANCE

Compliance Performance: Effects of a Provider Incentive Program

and Coding Compliance Plan

Brooke Army Medical Center

San Antonio, Texas

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# Report Documentation Page

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Abstract

The purpose of this project is to study provider and coder related performance, i.e., provider compliance rate and coder productivity/accuracy rates and average dollar difference between coder and auditor, at Brooke Army Medical Center (BAMC) as a function of data dated performance (i.e., baseline vs. post-program implementation) and select attributes and experience/training variables. For BAMC's provider incentive program, analysis reveals statistical significance for record compliance rates with data dated measures, $F(1,103) = 4.74$, $p = .03$. For the coding compliance program, analysis reveals statistical significance for coding accuracy rates with data dated measures, $F(1,16) = 9.67$, $p < .01$. Statistical significance was not found for coding productivity rate, $F(1,16) = 2.08$, $p = .17$, and coding average dollar difference, $F(1,16) = 3.29$, $p = .09$, with data dated measures. Health leaders can use these findings to establish programs and effective policies to improve upon provider and coder performance to improve coding and billing compliance.

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According to an audit conducted by the Office of the Inspector General (OIG), the Health Care Financing Administration (HCFA), now known as Centers for Medicare and Medicaid Services (CMS), experienced inaccuracies in 30% of all claims paid out in fiscal year (FY) 1996 (Prophet & Hammen, 1998). These inaccuracies amounted to approximately $23.2 billion annually, or 14% of total Medicare fee-for-service payments (Prophet & Hammen). Prophet and Hammen provided HCFA's response to address the OIG audit with the following:

1. Increased number of prepayment reviews;

2. Increased postpayment reviews of medical necessity and medical record documentation supporting claims

3. Overpayment recovery;

4. Providers identified by the audit as submitting improper claims will be targeted for more extensive investigation;

5. Increased review of evaluation and management claims (as of October 1998, HCFA plans to increase the number of random prepayment reviews of evaluation and management claims);

6. Demand for more documentation from providers who submit claims; and

7. Increased security measures to prevent submission of claims from improper providers (p. 50).

Because of the OIG's audit, many civilian sector healthcare organizations (HCOs) reviewed their coding and billing processes for inconsistencies to avoid becoming a target. Federal HCOs were treated no different; they were also subjected to civil penalties or criminal prosecution.

*Conditions that Prompted the Study*

In 1998, the Office of the Staff Judge Advocate (SJA) for the U.S. Army Medical Command (MEDCOM) reported to a Criminal Investigation Division (CID) agent that the Uniformed Business Office (UBO) manager allowed fraudulent billing activity at Brooke Army Medical Center (BAMC) (United States Army Criminal Investigation Command, 1999). According to the report, three federal statutes were violated by the UBO manager: (a) Theft or Embezzlement in Connection with Health Care, 18 USC 669; (b) False Statements, 18 USC 1001; and (c) False Claims, 18 USC 287 (United States Army Criminal Investigation Command). The United States Army Criminal Investigation Command identified that the UBO manager deliberately overbilled health insurers, Medicare, and Medicaid. Of the 5,000 claims between 1994 and 1999, CID determined that 4,402 claims were fraudulent equaling a value of $6,146,793 (United States Army Criminal Investigation Command). Of that amount, BAMC received 34% ($2,112,552) for fraudulent claims submitted to health insurers and CMS (United States Army Criminal Investigation Command).

Almost three years after CID's investigation, BAMC still experiences coding inefficiencies, in part, due to multiple changes in Tricare claims-processing practices. In 2002, defense

officials made 123 changes to the Tricare program on 19
occasions in response to recommendations made by the General
Accounting Office that the Department of Defense (DoD) improve
upon claims-processing practices (Funk, 2003). In May 2003, 41
changes were made on four separate days (Funk). As a result of
these many changes and other confounding factors, some of BAMC's
internal inefficiencies have led to undesirable billing
practices as a method of avoiding improper billing. One of these
methods is cancelled billing wherein components or an entire
episode of care is not charged to the patient because of either
inadequate documentation or inaccurate coding, or both (C.
Ballard, personal communication, September 29, 2003). These
types of practices are just a few of the factors responsible for
decreased reimbursements at BAMC for both third-party
collections (TPC) and Medical Service Account (MSA) accounts.
For example, MSA collections resulted in an average annual rate
of 65% bad debt for FY 2000, FY 2001, and FY 2002. The cost to
BAMC was $18.5 million, $19.6 million, and $21.5 million
respectively (D. Ardner, personal communication, October 15,
2003). If improvements in documentation and coding were
realized, BAMC could potentially increase revenue by thousands
or millions of dollars.

    Other factors that contribute to a loss in reimbursement
are coding errors. Coding errors increase workload for coding
and billing personnel resulting in noncompliant TPC claims that
require additional research for adequate documentation.
According to the Health Advisory Board, a recent study on

payment denial rates shows that the cost of handling a record a second time is $115 per record. The study detailed that 42% of the problems were linked to insufficient documentation or no documentation, 12.4% and 30.5% respectively (Patient Administration Systems and Biostatistics Activity, 2003). Intuitively, BAMC's leadership knew it had to start by improving documentation if it was going to even consider addressing any coding issues.

Table 1

Types of Errors Resulting in Improper Payments

| Error Types | % |
| --- | --- |
| Insufficient/No Documentation | 46.76 |
| Lack of Medical Necessity | 36.78 |
| Incorrect Coding | 8.53 |
| Noncovered/Unallowable Service | 5.26 |
| Other | 2.67 |

Prophet, S., & Hammen, C. (1998). Coding compliance: Practical strategies for success. Journal of AHIMA/American Health Information Management Association, 69(1), 50-61.

In any HCO, billing begins with proper documentation of each patient visit. In another study, Prophet and Hammen (1998) highlighted a summary of the different errors discovered in an OIG audit of HCFA payments. Shown in Table 1, "insufficient/no

documentation" was listed as the major contributor to erroneous payments (Prophet & Hammen, p. 50). Without appropriate documentation in a patient's record, HCOs can not justify a bill for services. Usually, they either inappropriately bill a third-party payer or patient, or they are forced to cancel portions or the entire bill altogether. Regardless of the final billing disposition, the end result is lost reimbursement for the HCO. For BAMC, this could mean millions of dollars each fiscal year.

To address this aspect of the billing cycle, BAMC's Resource Management Division (RMD) instituted, in November 2003, a provider incentive program. Essentially, departments would be rewarded for their efforts to improve upon the completeness of documentation for treatment rendered to patients seen in their clinics or wards. These rewards would come in the form of increased funding to those departments that are successful per the requirements stipulated by the incentive program. Success for this program is based off of the established baseline compliance for each department and is defined as:

1. Staying above BAMC's established goal of 90% for those departments with a baseline compliance rate of 90% or more;

2. Improving by a quarterly average of 5% for those departments with baseline compliance rates between 50% and 90%; and

3. Improving by a quarterly average of 10% for those departments with baseline compliance rates of 50% or less (BAMC Resource Management Division, 2003).

With additional funding, department chiefs will have the added flexibility to finance their clinics with additional resources (e.g., additional manpower or better equipment) to improve the department's overall clinical environment. To effectively implement this program, BAMC leaders instituted the program hospital-wide. With this first endeavor underway, BAMC needed to subsequently address its concerns for coding accuracy.

In FY 2002, BAMC's Department of Health Care Operations (DHCO) analyzed the accuracy of claims from the Emergency Department. The analysis highlighted that contracted coders had a 95% compliance rate. In a separate audit, civil service coders had lesser success and achieved a 40% compliance rate (J. Norton, personal communication, October 16, 2003). Speculations for the contracted coders' higher compliance rate were that most were certified coders, whereas civil service coders were usually hired into coding positions without prior experience or certification. DHCO maintains that 74% (i.e., 14 of 19 coders) of all contracted coders at BAMC are certified in contrast to a stark 8% (i.e., 1 of 12) of all civil service coders employed at BAMC (D. Rusing, personal communication, October 16, 2003). To attain a goal of 100% medical coding accuracy (Winkenwerder, 2003), training for contracted coders will have to focus on DoD-unique guidelines and procedures. Civil service coders, in contrast, require training in a mixed bag of both universal coding guidelines and procedures, as well as those that are intrinsic to the Military Health System (MHS) (J. Norton, personal communication, September 9, 2003).

To address their problems in coding, BAMC contracted for services for a business process and compliance analyst that is shown in Figure 1. Beginning in October 2003, the analyst was charged with the responsibility of providing detailed analyses of internal coding and billing and the processes involved. Because a BAMC plan was nonexistent, the analyst initiated the task of writing the coding compliance plan. The final draft plan was completed in October 2003; it was staffed and approved in March 2004. The goal is to eventually integrate the plan with BAMC's Billing Compliance Plan, thus establishing one corporate compliance plan that speaks to both coding and billing procedures at BAMC (D. Hunt, personal communication, October 6, 2003).

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          ┌──────────────┐
          │   Coding     │
          │  Compliance  │
          │   Officer    │
          └──────┬───────┘
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          │   Coding     │
          │  Compliance  │
          │   Manager    │
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    ┌────┴─────┐    ┌──────┴──────┐
    │ Business │    │Auditors/    │
    │Process and│   │Trainers     │
    │Compliance│    │5 personnel  │
    │ Analyst  │    │             │
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Figure 1. BAMC's Business Process Improvement and Coding Compliance Section.

The analyst also assists BAMC's Business Process Improvement and Coding Compliance Section to improve processes

and data quality and to develop policy that improves the accuracy, completeness, flow, and collections of claims (D. Hunt, personal communication, October 6, 2003). This section consists of a compliance manager, business process and compliance analyst, and five auditors (D. Rusing, personal communication, October 16, 2003). DHCO has contracted to fill three vacant auditor/trainer positions to enhance management over coding compliance. These positions were expected to be filled in April 2004.

With a coding compliance plan that effectively communicates BAMC's coding guidelines, coders should experience improved efficiency with greater independence to make concise coding decisions. Additionally, the coding compliance plan will institute an audit process and help to address training shortfalls that will further expand the knowledge, skills, and abilities (KSAs) of each coder. With competent coders, documentation should improve due to increased interaction between trained department coders and providers when correcting inconsistencies. By improving coding competency, improved coding accuracy should result in a decrease of denied claims, thus decreasing the UBO's workload to remedy payment denials. In effect, BAMC should see increased revenues due to lower billing denial rates.

*Statement of the Problem or Question*

Does implementing a provider incentive program and coding compliance plan at BAMC provide a cost-effective solution to improve overall coding performance?

*Literature Review*

    With a struggling economy, corporate misconduct, and mounting budget deficits, the federal government continues to enforce responsible fiscal spending as a means of decreasing unjustifiable costs to government-funded programs and entitlements. To support government efforts, federal activities, like the Department of Health and Human Services' (HHS) OIG, are responsible for implementing statutory laws passed by Congress. As stewards of the Nation's limited resources, these agencies display no leniency toward any evidence of corporate fraud and abuse (Ulsher, 2003). For example, the Department of Justice (DOJ) does not actively apply fines and penalties to healthcare organizations or third-party billing entities for honest billing mistakes. However, the DOJ expects these institutions to implement internal procedures that will guarantee the correctness of submitted claims. Hospitals that do otherwise could be portrayed as disregarding the law for the benefit of maximizing profits by turning what would seem to be honest billing mistakes into fraudulent claims, which are subject to civil penalties or criminal prosecution (Averill, 1999).

    With the authorization embodied in the Inspector General (IG) Act, the OIG ensures effective HHS programs and operations by defending them against fraud, waste, and abuse (Office of Inspector General, 2003). The OIG's methods of defense include unfettered and impartial audits, investigations, and evaluations (Office of Inspector General). Emphasizing critical projects for the OIG and HHS, the OIG publishes a fiscal year work plan for

each of the HHS major activities (i.e., CMS, public health agencies, and the Administration for Children, Families, and Aging) (Office of Inspector General).

In the CMS chapter of the OIG's Work Plan for Fiscal Year 2004, Health Care Fraud is one of two projects addressed. The OIG's Office of Investigations probes persons and organizations that charge Medicare and Medicaid for services not rendered, claims that sway payment codes to overestimate reimbursement amounts, and other bogus claims submitted to gain program resources (Office of Inspector General, 2003). Additionally, the work plan also includes a project known as the Compliance Program Guidance to the Health Industry (Office of Inspector General). Since this project's inception, the OIG continues to emphasize the integration of voluntary corporate compliance plans as a method of assisting healthcare institutions from avoiding severe penalties for inappropriate billing categorized as fraud, waste, and abuse (Ulsher, 2003).

*Reasons for Coding Compliance Plan*. Compared to any other reason, avoiding civil or criminal prosecution seems to be the primary reason for implementing a coding compliance plan. In today's healthcare environment of narrow profit margins, HCOs cannot afford severe losses in revenue merely due to coding inaccuracies. Within the MHS, monetary penalties will only exacerbate budget shortfalls that currently threaten daily operations in every MTF. For civil actions, the False Claim Act allows the government to recover triple the amount of damages and an additional $5,000 to $10,000 for each deceptive claim

(Clark, 1999). For example, a HCO that overbills Medicare by
$75,000 for services rendered on one patient can be
investigated, and if overbilling is determined, the HCO can be
liable for up to $235,000. With just an additional handful of
these cases, penalties could easily reach into the millions.
Because of these harsh penalties, the government primarily uses
the False Claim Act to deter people and institutions from
committing health care fraud. Taking false statements in
connection with claims submitted to Medicare and Medicaid,
kickbacks, and conspiracies to defraud the government are just a
few of the charges that can be filed against an individual or
organization (Clark). With the advent of qui tam or
'whistleblower' lawsuits, HCOs can expect a greater possibility
of lawsuits from ex-employees, competitors, or former federal
agents, especially since whistleblowers can receive as much as
30% of what the government recovers (Clark). In today's
healthcare environment, any pecuniary penalty will only decrease
the already narrow profit margins of most HCOs and intensify
budget shortfalls within the MHS.

    In an attempt to increase an organization's operating
income, opportunities for increased reimbursements can be
achieved with improved coding accuracy. As most healthcare
executives should know, coding is not an exact science, but with
thorough documentation and better coding practices, there are
opportunities that reimbursement rates will improve. Reviews
from consulting organizations show that providers can lose
around one to four percentage points from their bottom lines to

inaccurate billing for outpatient services (Micheletti, 2002).
Organizations do tend to lose revenue as a result of
underbilling due to either a lack of understanding proper coding
practices or to poor billing practices; based on the conditions,
BAMC may employ both (C. Ballard, personal communication,
September 29, 2003). Although CMS does not mandate corporate
compliance programs as a condition of Medicare/Medicaid
participation, the DoD does view corporate compliance plans as
an approach to quality DoD healthcare.

     To advance medical treatment facilities (MTF) into first
rate healthcare organizations, the Honorable Dr. William
Winkenwerder, Jr., the Assistant Secretary of Defense for Health
Affairs, draws attention to the MHS Strategic Plan as a guide
for MTFs to achieve health and healthcare benchmark standards
(Winkenwerder, 2003). To perform benchmark comparisons, MTFs
must first address the need for maintaining quality data. During
the provision of healthcare, quality data is derived from full
documentation performed by healthcare providers followed by
accurate coding of patient visits. Without complete
documentation and accurate coding, there is little evidence for
the provision of quality medical care (Winkenwerder).

     Other benefits for improved coding compliance are the
ability to correctly identify population health requirements,
the capability to better allocate resources through operations
and demand management with accurate data, the ability to improve
processes and obtain reimbursement for services rendered, and
the capacity to lessen liability (Winkenwerder, 2003). In the

MHS, insufficient documentation and inaccurate coding make MTFs targets for OIG audits and investigations. If the OIG finds MTF involvement in fraudulent activity, MTFs could be penalized with heavy fines and severe judgments. Having a corporate compliance plan helps to minimize this liability since the 1991 Sentencing Guideline for Organizations mandates reduced criminal punishment for organizations with an operational compliance plan (Clark, 1999).

Although an implemented compliance program will not prevent healthcare institutions from criminal or civil prosecution or stringent administrative actions, the Army Medical Department (AMEDD) maintains numerous other reasons for MTFs to develop and implement corporate compliance plans. Because corporate compliance plans help to reduce legal liability (e.g., malpractice settlements), Ulsher (2003) maintains that the plan will improve the recruitment process by having the AMEDD appeal to a larger pool of competent and motivated employees and providers who desire less litigation liability. Furthermore, the plan will preserve the AMEDD and subordinate organizations' reputations by aligning management decisions through increased command involvement, in effect, reducing the potential for an audit and sheltering MTFs from unwanted negative publicity (Ulsher).

*Coding Compliance Essentials.* Because coding compliance has encountered years of debate, there are many suggestions for an effective coding compliance program. Averill (1999) identifies five essential components for a coding compliance program –

*detection*, *correction*, *prevention*, *verification*, and *comparison*. *Detection* involves spotting records with possible coding compliance problems. *Correction* focuses on conducting medical chart audits and correcting mistakes. With hard work and management emphasis, *prevention* can be attained with proper education of coders and providers to prevent future coding compliance errors. *Verification* occurs with the provision of an audit trail of all coding compliance actions taken by an organization. Finally, *comparison* refers to benchmarking coding patterns against external norms.

As an example of these coding compliance essentials, Winkenwerder (2003) requests the military services take the following actions:

1. Establish a coding compliance plan within each MTF. The plan, at a minimum, should include training and an audit plan for evaluating coding compliance;

2. Incorporate external auditors as part of the compliance plan;

3. Ensure that all MTFs have the appropriate coding resources available [e.g., International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) or most current edition; Current Procedural Terminology (CPT), 4th Edition or most current edition];

4. Ensure tools are available to assist in the correct coding of encounters (e.g., Coding Clinic for ICD-9-CM, coding assist software);

5. Ensure that certified coders are available to assist in coding functions;

6. Ensure that coding instructors and auditors are current in and adhere to the DoD coding guidance and coding standards in the civilian medical community;

7. Establish the following coding standards:

   a. 100% of all outpatient encounters [other than ambulatory procedures visits (APVs) that require higher levels of effort both medically and administratively] should be coded within three business days of the encounter,

   b. 100% of APVs should be coded within 15 days of the encounter,

   c. 100% of inpatient records should be coded within 30 days after discharge,

   d. 100% medical record coding accuracy; and

8. Include coding performance in military and civilian performance evaluations (p. 1-2).

*Coding Compliance Elements.* Prophet and Hammen (1998) identify the government's recommendation as key elements for inclusion in a corporate compliance program. The first element involves developing a *code of conduct* that is founded on the organization's commitment to ethical and accurate coding per regulatory requirements and the American Health Information Management Association (AHIMA) Standards of Ethical Coding. The next element - *written policies and procedures* - focuses on internal policies and procedures for coding. Next, *internal*

*coding practices* should detail procedures for internal coding practices to include coder actions for coding situations that are not explained in official coding guidelines. Then, an element of *documentation* is necessary to explain to coders, as well as providers, the medical record documentation required for accurate coding. Also, a section on *medical necessity* should incorporate guidelines for essential medical treatment as stipulated in the OIG's Model Compliance Plan for Clinical Laboratories. Lastly, an updated *chargemaster* should be included after an annual review by a designated representative.

If using encoder computer applications, *computer software* should be an element that discusses coder actions if an apparent error is identified in the output of the encoder software. An element for *payment policies* should be incorporated into the program to explain code assignment in coding policies and procedures. In the event the need for a *consulting firm* arises, a section that includes policies and procedures involving contracted services for coding consulting firms is recommended. Prophet and Hammen (1998) advises organizations to stray away from consulting firm contracts that pay on contingency since the government has determined that this arrangement increases the potential for upcoding, unbundling, and other exploitation that increases Medicare program costs. As alluded to earlier in preventing future flawed claims, an element of *education and training* should specify qualifications and experience of the coders employed by the organization. This element should also discuss the organization's ongoing education program.

Subsequently, a section on *communication* that addresses procedures for communicating changes in coding guidelines or regulations should be included in the coding compliance plan.

To assure *auditing and monitoring*, a coding compliance program should include internal evaluation for consistency of the organization's coding practices. As an adjunct, an *external audit* could help by impartially evaluating risk and provide much needed recommendations to correct problems. *Data monitors for compliance* provides for the element of Averill's *comparison* component in that data monitors compare the organization's coding performance against state and national norms (Averill, 1999). Additionally, the element of *disciplinary action* should be addressed to further elucidate to organizational employees, as well as entities collaborating with the organization, that any violation of established compliance policies and procedures will result in immediate reprimand or termination of services or contracts. Finally, Prophet and Hammen (1998) identified *corrective action* as an element to address coding or billing practices that could be interpreted as fraudulent activity. Corrective actions may include modifications to policies and/or procedures, employee discipline and education, and computer system reprogramming that may require additional training for coders throughout the organization.

Aside from what has been recognized, Clark (1999) stresses the creation of a compliance officer position to ensure the implementation of the code of ethics. The compliance officer is also responsible for documenting all reports of suspected

fraudulent activity and the corrective actions taken as a result of the reports. The duties and responsibilities of the compliance officer should also be addressed in the coding compliance plan in addition to providing an annual evaluation on how effective the compliance plan is operating. Also highlighted by Clark, an interim compliance plan should be placed into operation until the compliance plan is approved. All in all, the components for coding compliance must fit well with the established workflow of the HCO.

*Workflow Considerations*. Averill (1999) identifies two separate workflow methods that work best with an encoder system. The first involves the coder performing the coding compliance measures while the record is being coded. The other alternative is to have an independent coding compliance review performed by an internal or external auditor.

Averill (1999) describes the compliance review process performed by the coder. First, the coder will complete records coding and then store the initial code sets in a coding compliance system database. With an encoder system, a coding compliance worksheet can be generated to identify potential coding compliance errors. The coder then reviews each of the potential errors making any needed changes based on the guidance provided by the encoder system. The coding supervisor or auditor reviews the record if the coder cannot work out all of the coding compliance errors identified. After fixing all errors, the final code set is sent to billing and stored in the coding

compliance system database. With this method, advantages and disadvantages exist.

The advantages of having the coder perform the coding compliance review are that the chart is readily available and that the coder is familiar with the account being reviewed (Averill, 1999). Furthermore, the coder immediately realizes the errors, which sustains the coder's training and education. As a result, this workflow method places emphasis on prevention. Because errors are promptly corrected, billing delays and the need for impartial auditing are minimized. The imperfections to this workflow are that the reviews are less independent and that coding productivity is negatively affected because of the added time for coder self-compliance reviews. The alternate method for workflow slightly differs with greater emphasis on impartial reviews.

With increased independent reviews, the coder finishes the initial coding of the record and stores the code set in the coding compliance system database (Averill, 1999). Coding compliance worksheets are generated as each record is coded or after a batch of records is completed and sent to an impartial auditor. The independent auditor performs the correction of potential coding compliance errors and sends the revised code sets to billing. These code sets are stored in a coding compliance system database. This workflow method of increased independent review does have its advantages and disadvantages.

The advantages to having the coding compliance review performed by an internal or external auditor are that the coder

maintains his productivity level and the coding compliance reviews are unbiased because of the independent auditor (Averill, 1999). The disadvantage is that charts may not be readily available or familiar to the independent auditor. Also, feedback on potential errors and required corrective actions may take longer to get back to the coder, potentially resulting in billing delays. Disadvantages such as these are just a few of the potential barriers that appear while establishing complex coding compliance systems and procedures.

*Potential Barriers.* In a study performed by Scott, Clary, and Smith (1999), barriers existed when attempting to enhance coding compliance at Methodist Hospital. The first barrier was that "…too many staff members [were] involved in the program" (Scott et al., p. 26). When a program becomes too large, communication usually is the first affected. Once communication is ineffective, programs are mismanaged resulting in vague priorities that become inefficient and costly to operate. The next barrier evolves around multiple management layers. Once again, communication can prove to be difficult because information is misdirected and direction is misinformed resulting in confusion, misunderstanding, and disagreement throughout various organizational levels. Another barrier to consider when implementing a coding compliance program is its effect on workload. When implementing a detailed compliance plan, the workload necessary at every step of the compliance process involves additional time. For example, providers who thoroughly document can expect to see fewer patients in the

course of a day, and coders who perform compliance reviews can
expect reduced coding productivity. Nonetheless, determining the
correct workload mix for providers and coders is often met with
much apprehension. Another topic that faces much anxiety is when
opposing views exist between providers and coders on the issue
of proper documentation. HCOs must develop a means of resolving
these matters quickly to alleviate delays in coding and billing.
Otherwise, a lack of commitment can foster an environment of
increased errors because of incomplete actions and program
misunderstanding. As a barrier to effective assessment of a
compliance program, an incomplete database can also make
tracking a program's progress difficult. Prior to implementing
any program, time should be taken to establish the metrics
necessary to track progress. To satisfy metric requirements,
auditors should know the data compilation required for effective
management of the program. Lastly, the structure and location of
the coding staff and providers should be assessed for
efficacious coding operations. If communication is affected,
centralizing the coding staff may move processes and systems
toward efficiency and effectiveness for the coders. However,
what may be an improvement for the coders may have the
reciprocal effect for providers. Because of these potential
barriers, planning is necessary to ensure that the coding
compliance program is headed in the right direction.

*Purpose*

Primarily, this study will determine if BAMC's provider
incentive program in conjunction with an implemented coding

compliance plan are cost-effective endeavors that improve upon providers' efforts for medical record completeness and increases coders' productivity and accuracy. In theory, potential reimbursement at BAMC should improve as a result of complete medical records and accurate coding. Secondly, the purpose of this study is to determine if certain provider/coder attributes have a significant correlation to higher performance.

The objectives of the study are to:

1. Monitor the effects of the provider incentive program as it affects providers' record documentation compliance rates;

2. Analyze the effects of auditing and training addressed by the coding compliance plan;

3. Observe the conduct of training for coders; and

4. Survey providers and coders to establish descriptive statistics and to determine predictive factors for improved coding performance.

### Method and Procedures

The study involved four of BAMC's clinics. The clinics are Emergency Department (ED), Internal Medicine Clinic (IMC), Family Medicine Services (FMS), and Troop Medical Clinic (TMC). The study is a concurrent cohort study consisting of two parts.

First, the study focused on BAMC's provider incentive program. The study attempted to capture the program's effect on providers' efforts to improve their clinic's medical record compliance rate. Once providers improved on documenting patient care, BAMC should experience improved accuracy in coding, which

should reflect positively on billing and collections. The data initially included 170 provider candidates, but 110 were removed because they were *unavailable*, *non-providers*, or *had less than 30 patient encounters*. Some providers were identified as being unavailable for the February data pull, thus reducing the sample size by 33. The provider data set also consisted of non-providers (e.g. allied health personnel). Consequently, non-providers were identified and taken out of the data set reducing the sample size by 8. Another criterion was that the study would only consider providers with at least 30 patient encounters. This criterion reduced the sample size by 69. Consequently, the sample size for providers for the first data pull remained at, $n$ = 60. Due to normal attrition, training rotations, and deployments, the provider sample size lessened for the February data set by 17 providers to, $n$ = 43. Because the provider incentive program encompassed all departments at BAMC and available resources were limited, this study could not establish a provider control group involving the four identified clinics.

　　Second, the study focused on the effects of a coding compliance plan that addresses training and audits as a means of improving coding compliance at BAMC. The sample size originally consisted of, $n$ = 10 coders. The sample size decreased to, $n$ = 8; one coder moved from the ED and into the obstetrics/ gynecology clinic, a clinic that was outside the scope of the study. Another coder was unavailable during the second data pull due to medical reasons. There are 6 civil service coders and 2 contracted coders. As with the provider incentive program, a

control group could not be established internal to BAMC to determine the effects of the compliance plan. Precluding coders from abiding with the plan or excluding coders from receiving training were not prudent business decisions for BAMC. The combination effects of both the provider incentive program and the coding compliance plan should impact overall coding compliance.

*Variables for Providers*

*Independent Variables (Provider Attributes).* Independent variables by individual providers were*: Clinic (categorical data), Education Level* (continuous data), *Employment Type* (categorical data), MTF Experience (in months) (continuous data), and *Formal Training* on medical record documentation as it relates to coding and billing compliance (dichotomous data). If statistical significance was found for *Formal Training*, the following variables would be analyzed: *Elapsed Time* from most recent training (in months) (continuous data) and *Pre-BAMC Formal Training* received (categorical data)/ *Formal BAMC Orientation Training* prior to treating patients at BAMC (categorical data)/ *Formal BAMC Sustainment Training* while treating patients at BAMC (categorical data). Formal training was defined as dedicated training separated from patient care activities.

*Dependent Variables (Provider Performance – Baseline and Post-Program Implementation).* All data was compiled for the month of August 2003 and February 2004 for each provider assigned to the four clinics. Dependent variable for compliance

rate was *compli*, which was operationally defined as the number
of compliant medical records divided by the total number of
records (continuous data). The standard is .90 compliance as
established by RMD.

*Variables for Coders*

 *Independent Variables (Coder Attributes).* Independent
variables by individual coders were: *Clinic (categorical data),*
*Education Years* completed (continuous data), *Education Level*
(continuous data), *Employment Type* (dichotomous data), *Pre-BAMC*
*Coding Experience* (in months) (continuous data), *BAMC Coding*
*Experience* (in months) (continuous data), *Certified Coder*
(dichotomous data), and *Formal Training Frequency* (categorical
data).

 *Dependent Variables (Coder Performance – Baseline and Post-*
*Program Implementation).* All data was compiled by-coder for the
month of August 2003 and March 2004. Dependent variable for
productivity was *product* (continuous data), which was
operationally defined as the total number of coded patient
visits divided by the total number of days worked divided by 80,
which is the daily standard for records coded in BAMC's
outpatient setting. This metric provided a productivity rate for
each coder. Dependent variable for accuracy was *accuracy*
(continuous data), which was operationally defined as the coding
accuracy rate. As determined by the auditing process, the rate
was determined by taking the total number of correct codes
assigned by a coder divided by the total number of codes
identified by an auditor for the following: E/M codes, CPT-

primary/secondary codes, diagnoses-primary/secondary codes, and modifier codes. The standard at BAMC is 100% compliance, which means the coder's work should match the auditor's results. To convert the assessed coding accuracy rate of each coder into a dollar value, another variable was *avgdoll* (continuous data). This variable was operationally defined as the average dollar difference for all records audited for each coder taking into account the coding differences between a coder and the auditor. The standard is that there should be no difference between a coder's assigned codes and an auditor's review, thus there should be a difference of zero dollars.

   *Hypothesized Functional Relationship.* Both providers and coders are important stakeholders who share considerable interest and responsibility to ascertain the most reimbursement as allowed by law. For most HCOs, reimbursement is the key to sustained competitive advantage for for-profit organizations and survival in not-for-profit institutions.

   BAMC, a federal not-for-profit institution, seeks to maintain its going concern by way of legally recouping the most reimbursement possible for the quality healthcare it provides to its patients. To do this, BAMC relies primarily on two components – complete documentation and accurate coding. For complete documentation, BAMC expects its providers to document each patient visit in accordance with billing requirements (i.e., CMS and health insurers). Without adequate documentation, providers can not expect coders to precisely code the level of effort that providers exert into treating their patients. On the

other hand, coders will have to correctly capture every aspect of a patient's visit from available documentation by identifying the correct number and types of codes to cover BAMC's costs for providing healthcare. A coder's success in correctly coding every patient encounter is essential to ensuring that BAMC is appropriately reimbursed for services rendered, especially for medical care provided to non-beneficiary patients that are captured in MSA accounts. With complete documentation and accurate coding, BAMC can theoretically expect to see a decline in their claims denial rate, an increase in their reimbursements, and increased flexibility with budgetary dollars. With this, BAMC leaders implemented the provider incentive program and approved a coding compliance plan as a means of working towards this goal.

If these relationships hold, then other MTFs should implement similar incentive programs and coding compliance plans as a way of standardizing procedures and systems to improve overall productivity and accuracy for direct improvement in billing and collections.

*Hypotheses*

*Null Hypothesis (H0$_1$).* A provider incentive program will not have an impact on provider compliance rates at BAMC.

*Alternate Hypothesis* (HA$_1$). A provider incentive program will have an impact on provider compliance rates at BAMC.

*Null Hypothesis (H0$_2$).* Provider attributes *or experience/training* do not have a correlation with provider compliance rates.

*Alternate Hypothesis (HA$_2$).* Provider attributes or experience/training do have a correlation with compliance rates.

*Null Hypothesis (H0$_3$).* A coding compliance plan will not have an impact on coder productivity or coding accuracy at BAMC.

*Alternate Hypothesis* (HA$_3$). A coding compliance plan will have an impact on coder productivity or coding accuracy at BAMC.

*Null Hypothesis (H0$_4$).* Coder attributes or experience/training do not have a correlation with coder productivity/accuracy rates.

*Alternate Hypothesis (HA$_4$).* Coder attributes or experience/training do have a correlation with coder productivity/accuracy rates.

*Statistics*

The alpha level was set at the p = .05 level for data set analyses. Data files were constructed for both provider and coder data sets. Means and standard deviations were also computed for both sets. General Linear Model (GLM)-Univariate Analysis of Variance (ANOVA) will be performed for select independent variables to dependent variables to determine statistical significance. Specifically for the provider data set, dependent variable for *Compliance Rates* (compli) ($Y_{P1}$) was analyzed by *Data Dates* (pdatadat) ($X_{P1}$) and, if significance is found between *Data Dates*, each of the following: *Clinic* (provclin) ($X_{P2}$), *Education Level* (edlevel) ($X_{P3}$), *Employment Type*

(employed) ($X_{P4}$), *MTF experience* (experien) ($X_{P5}$), and whether the provider had any *Formal Training* (formtng) ($X_{P6}$). For the coder data set, dependent variables for *Productivity Rate* (product) ($Y_{C1}$), *Coding Accuracy* (accuracy) ($Y_{C2}$), and *Average Dollar Difference* (avgdoll) ($Y_{C3}$) were analyzed by *Data Dates* (cdatadat) and, if significance is found between *Data Dates*, each of the following: *Clinic* (codclinc) ($X_{C1}$), *Education Years* (edyears) ($X_{C2}$), *Education Level* (edlevel) ($X_{C3}$), *Employment Type* (employed) ($X_{C4}$), *Pre-BAMC Coding Experience* (prebamc) ($X_{C5}$), *BAMC Coding Experience* (bamcexp) ($X_{C6}$), *Certified Coder* (certifie) ($X_{C7}$), and *Formal Training Frequency* (tngfreg) ($X_{C8}$).

Pearson correlations were performed on audit reviews with the following variables to determine inter-rater reliability: (a) *Met CMS Guidelines* (metcms), (b) *E/M Codes* (emcode), (c) *Primary CPT Codes* (primcpt), (d) *Secondary CPT Codes* (seccpt), (e) *Primary Diagnosis Codes* (primdx), (f) *Secondary Diagnosis Codes* (secdx), and (g) *Modifiers* (modifir). The values within variables are integer data.

*Validity and Reliability*

To address *translation validity*, professionals employed at BAMC using established standards easily translated the constructs of provider and coder performance. For example, the standard for coding accuracy is 100%. BAMC auditors translated a coder's accuracy rate as the number of correct codes assigned by a coder to the number of correct codes possible as determined by an auditor. At face value, this method was an adequate method of determining a coder's accuracy with the intervention of an

unbiased internal auditor from DHCO performing the review. The methods to determine provider compliance rates evolved from the collective efforts of professional individuals employed with healthcare financial, coding, and billing qualifications. Like coding accuracy, methods for provider compliance rates and coder productivity rates were established in similar ways.

As for *content validity*, each variable of interest for the study was developed to mirror BAMC pre-established methods. The methods of determining provider compliance rates and coder productivity/accuracy rates were replicated to operationally parallel both programs and to reduce disparate constructs between the study and BAMC operations. Coder productivity rates were not pre-established by BAMC. The method used to operationalize this variable was to first determine BAMC's standard and then to identify BAMC's definition of successfully meeting that standard. This process was conceptually similar to the methods used for the remaining variables in the study. In terms of *criterion-related validity*, measures for provider compliance and coder accuracy were relevant for predictive validity in that high provider compliance rates and high coder performance rates should result in increased coding accuracy, in reduced denial management, and in increased gains to BAMC's bottom line.

In terms of *reliability*, the study incorporated elements that were available to any DoD healthcare organization. Productivity and accuracy measures were drawn from the Composite Health Care System (CHCS) for both baseline and program

implementation data collections. To reinforce r*eliability*, an analysis for inter-rater reliability was performed between the two auditors who conducted the medical record audits. Both auditors reviewed 20 of the same records. The study included a correlation coefficient that depicted the consistency between both auditors' KSAs.

*Procedures*

The first step in this project was to establish a baseline for provider compliance rate and coder productivity and accuracy rates. To accomplish this, the baseline data for provider compliance rates were drawn from the CHCS for the month of August 2003 for ED, IMC, FMS, and TMC. Specific information were queried from CHCS for the following data fields for each clinic: Date-Time of Patient Encounter, Medical Expense and Performance Reporting System (MEPRS) Code, Clinic Description, Compliance Code, Provider's Name, and E/M Code. Data were then sorted in ascending order by MEPRS Code, Clinic Description, and Provider's Name. After the initial sort, data were dichotomized into clinic-separate spreadsheets.

After each clinic separate spreadsheet was created, the data were sorted again in ascending order by Provider's Name, Compliance Code, and E/M Code. Each clinic-separate spreadsheet was scrutinized to cull out individuals in the Provider's Name column who were non-providers, were scheduled to be unavailable during the second data pull in February/March 2004, or had less than 30 patient encounters during the month of August 2003. Non-providers were defined as those who were not any of the

following: physician, physician assistant, or nurse practitioner. The availability of providers from the August 2003 data pull was necessary for the February 2004 data to look at pre- and post-program implementation effects. To ensure there were an adequate number of patient encounters to gather statistically significant provider compliance rates, 30 patient encounters was a criterion for providers to be included in the study.

After the pool of providers was established, provider compliance/noncompliance rates were then determined for each provider by taking their number of compliant/noncompliant records by compliance code category and dividing by their total documented records during August 2003. Compliance codes (see Table 2) for provider documentation were also used to measure the frequency of documentation compliance and non-compliance by-provider and by-clinic. Compliance rates for codes 2A and 2B were integrated before computing compliance rates. To measure the effects of compliance/noncompliance, a data column was created to input dollar values for each E/M code assigned to each patient record. Solely for the purposes of descriptive statistics, a potential reimbursement and non-reimbursable rate were determined to compare against clinic provider compliance rates just as a method of capturing the effects of non-compliance by-clinic.

Table 2

Provider Compliance Code Categories

| Code | Category |
| --- | --- |
| 2A | Compliant with CMS |
| 2B | Compliant at lower E/M level |
| NC 1A | Not compliant - No counter signature |
| NC 1B | Not compliant - Insufficient supervision |
| NC 1C | Not compliant - Non-credentialed provider |
| NC 1D | Not compliant - Insufficient other (e.g., illegibility, no date, no time, etc.) |
| NC Multi | Not compliant - Combination of two or more non-compliant codes |

To assess coding performance, twenty records were randomly selected for each coder. The records selected met the following criteria: (a) selected among records within August 2003 for each coder in the four clinics/departments involved in the study and (b) records will, to the maximum extent possible, include account types – MSA with Other Health Insurance (OHI) (non-beneficiary) and TPC OHI (beneficiary). MSA (non-beneficiary) accounts are usually turned over to Defense Finance and Accounting System (DFAS)-Denver for collections after a lapsed amount of time – 90 days for non-beneficiaries without OHI and 180 days for those with OHI (J. Rheney, personal communication, September 23, 2003). U.S. Army Medical Command reimburses BAMC

with funds to make up for uncollectable reimbursements due to bad debt. Because these accounts physically leave BAMC's purview, collecting MSA account data would be difficult due to limited oversight by BAMC's RMD personnel. Remaining accounts involve treatment of beneficiaries without OHI for which dollars are available for care in BAMC's budget. After identifying providers for the study, compliance rates and E/M dollars lost due to noncompliance were calculated for each provider. Next, DHCO compiled the coder data set using another method.

By using FY 2003 outpatient data visit for IMC, TMC, and FMS, DHCO pulled data from CHCS with diagnosis and procedures that were linked to an established criteria set to perform record audits for each coder (D. Hunt, personal communication, March 1, 2004). First, the MEPRS codes for IMC, TMC, and FMS were used (i.e., BGAA, BAAA, and BHAE/BGAE). The next criteria established were inclusive dates for the first data pull, August 1-30, 2003. Appointment status was another criterion used by selecting appointment types *kept*, *walk-in*, and *s-call* (i.e., sickcall). Logically, the next criterion was to select records that were edited by assigned coders in the IMC, TMC, and FMS. From this, another criterion was based on an insurance flag of *yes*. This produced a pull list of 823 records. The pull list was then given to medical holdover soldiers to randomly pull, for each coder, 20 records with matching documentation.

The selection of ED records was performed at an earlier date and used the same selection criteria, except that a family member prefix (FMP) of *98\** was used to pull MSA coded visits

from MEPRS code BIAA. The criteria returned a pull list of 37
records for the two coders assigned to the ED. Because the pull
list did not return the minimum 20 records per coder, another
criteria set was used by replacing the FMP to anything not like
*98\**. This iteration produced a sample of 1,172 records to
randomly select from, thus ensuring each coder had 20 records
for the audit process. Both pull lists were given to medical
holdover soldiers and patient administration personnel to
randomly pull records with matching documentation.

   To establish a baseline for coding productivity, clinic
data were reviewed to determine the productivity rate per coder.
CHCS was queried for the number of records coded by coders for
each workday in August 2003. The total records by-coder was
computed and divided by the number of days the coder worked in
August 2003 to establish the average records coded per day.
Coder accuracy rates were determined by means of an audit
performed by DHCO auditors. A coder's assigned codes were
compared to the auditor's review for the correct possible codes
in the following categories: (a) E/M codes, (b) CPT-
primary/secondary codes, (c) diagnoses-primary/secondary codes,
and (d) modifier codes.

   The second step of the project entailed the development and
administration of a provider/coder survey (see Appendix A) to
ascertain provider/coder demographics [i.e., *Age* (continuous
data), *Gender* (dichotomous data), *Hispanic* (dichotomous data),
and *Race* (categorical data)], provider/coder education, and
training/experience background. Prior to distributing the

surveys, a review of each survey's contents was performed by BAMC legal counsel and the installation's civilian personnel office to identify potential legal or civilian personnel issues. After the survey was revised to include a Privacy Act statement, it was administered to all providers and coders identified in the study for ED, IMC, FMS, and TMC. Survey data were consolidated into a spreadsheet and coded into the Statistical Package for the Social Sciences (SPSS) software application. Of the surveys received, one provider did not identify her *Age* and three coders did not answer the question of *Race*. For the provider's age, the aggregate mean *Age* was used. As for the missing *Race* data for the three coders, the *Race* category *White* was used as the default. By using provider/coder attributes and experience/training background as independent variables, a GLM–Univariate ANOVA was performed to determine if there was any statistical significance to performance.

The third step of the project was to gain a better understanding of how post-audit training was conducted. The method used to train the coders to correct coding deficiencies was observed. Observations were documented to assess training methods used to address deficiencies for each coder. These observations are addressed in the discussion section.

The fourth step reassessed provider and coder performance after the conduct of training or program implementation. For provider post-program implementation data, provider compliance rates were drawn from the CHCS in much the same way as the August 2003 data for all four clinics, except that the query was

restricted to February 2004 data. Only those providers that were identified in the August 2003 sample were selected for the second data pull. Providers had to meet the same criteria (i.e., availability, a provider, and encountered at least 30 patients) to be considered for the study. The same method of configuring separate-clinic spreadsheets occurred to determine provider performance data.

For post-program implementation coder data, a second data pull occurred using much of the same methods previously outlined for the August 2003 data pull. DHCO used FY 2004 outpatient visit data for the ED, IMC, TMC, and FMS from CHCS with diagnosis and procedures that were linked to established criteria. (D. Hunt, personal communication, March 16, 2004). First, the MEPRS codes for ED, IMC, TMC, and FMS were used (i.e., BGAA, BAAA, BHAE/BGAE, and BIAA). The next criterion established was the inclusive date of March 1-9, 2004. (Note: This time frame was limited because the coder training session occurred just the week before and time was needed to perform the second record audit.) Extending the time to wait for records would mean that there would be insufficient time to successfully complete this project by April 2004. Appointment status criterion remained unchanged with the use of appointment types *kept*, *walk-in*, and *s-call* (i.e., sickcall). The next criterion was to identify records edited by coders assigned to the ED, IMC, TMC, and FMS. From this, a sample of records was pulled based on an insurance flag of *yes*. This produced a potential sample of 497 records. This, however, did not provide an

adequate number of records for each coder. Consequently, DHCO performed another data pull by changing the insurance flag to *no*. The pull list was further refined with a random selection criterion that used FMPs ending with 21, 4, or 32. The end result was a second sample of 41 records. Both pull lists were then given to medical holdover soldiers to randomly pull, for each coder, 20 records with matching documentation. Unfortunately, DHCO discovered that the TMC was backlogged in coded records, thus disallowing a randomized selection of records. As a workaround DHCO had no other choice but to secure TMC records that were done with coding and readily available for the second record audit. Not exercising this workaround would mean that the TMC would be precluded from the study.

Nonetheless, to conduct the assessment, an initial GLM-Univariate ANOVA of the sampling distribution of the mean between baseline performance data (i.e., August 2003 data) and post-program implementation performance data (i.e., February/March 2004 data) was performed. This statistical assessment will help to determine if there is any statistical significance between performance rates for August 2003 and February/March 2004. If statistical significance exists, additional analyses would be performed to find the variables that influenced the initial significance.

## Results

This section communicates acquired results by first providing descriptive statistics for both providers and coders followed by inferential statistics. Descriptive statistics

include the mean, standard deviation, and minimum/maximum for each variable and correlation coefficients for analyzed independent-to-dependent variables. Inferential statistics include the results of GLM-Univariate ANOVA including $F$ score and probability.

*Descriptive Statistics*

    *Provider Data Set.* Appendix B provides an array of histograms to provide a graphical depiction of providers' demographic, education, experience/training, and performance data. Descriptive statistics for provider demographic data are shown in Table 3 and include *Age, Gender*, and *Hispanic*. The mean *Age* for providers in the sample is approximately 42 years-old. *Gender* reflects that there is a majority of male providers in the study as compared to females (33%). A large majority of providers are not of *Hispanic* descent (90%).

Table 3

Descriptive Statistics-Provider[a] Demographic

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Age[b] (age) | 42.10 | 9.77 | 28 | 72 |
| Gender[c] (gender) | .67 | .48 | 0 | 1 |
| Hispanic[d] (hispanic) | .10 | .30 | 0 | 1 |

[a]n=60

[b]Values in years.

[c]0=Female, 1=Male

[d]0=No, 1=Yes

Categorical data for provider demographics are reflected in Figures 2, 3, 4 and 5 for provider distribution by *Clinic*, *Race*, *Education Level*, and *Employment Type*, respectively. For *Clinic*, most of the providers in the sample are from the ED (38%) compared to the FMS (27%), the IMC (18%), and the TMC (17%). The largest represented *Race* is White at 85% of the provider sample. Most providers (65%) have completed a doctorate level degree as the highest *Education Level* followed by a master's degree (30%) and bachelor's degree (5%). For *Employment Type*, most providers are military (52%) followed by contracted providers (32%) and then civil service providers (17%).



Figure 2. Provider Distribution by Clinic.

Figure 3. Provider Distribution by Race.
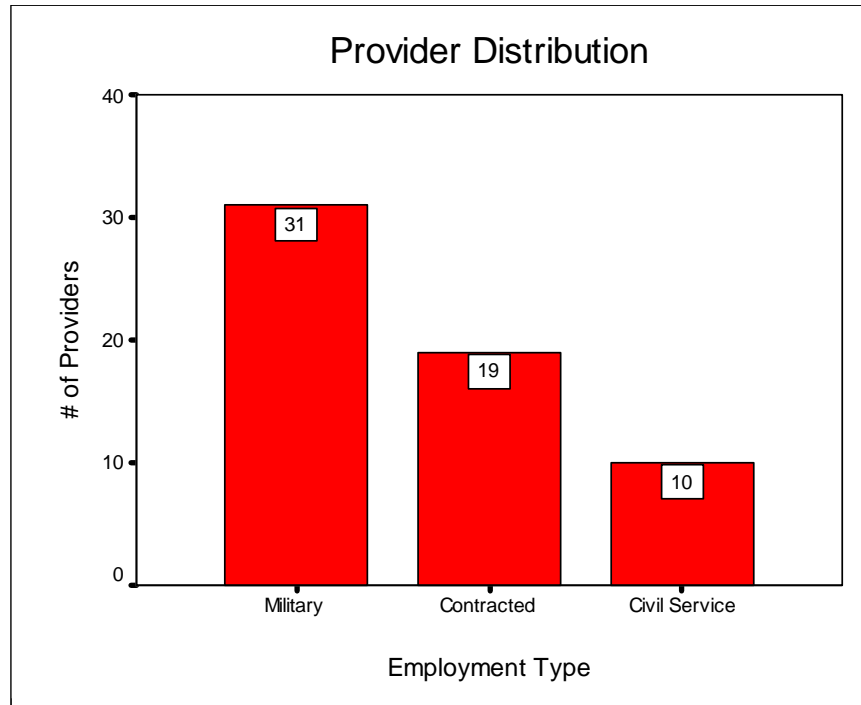


Figure 4. Provider Distribution by
Education Level.

Figure 5. Provider Distribution by
Employment Type.


Descriptive statistics for provider experience/training data
is shown in Table 4 and include *MTF Experience, Formal Training,*
and *Elapsed Training Time.* The mean number of months that
providers have had experience in MTFs is about 90 months (i.e.,
approximately 7.5 years). For *Formal Training*, little less than
half (48%) of providers did receive training on medical record
documentation. Of the providers who had received formal
training, these providers identified that it had been an average
of approximately 31 months since receiving their training.

Table 4

Descriptive Statistics for Provider[a] Experience/Training

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| MTF Experience[b] (experien) | 90.37 | 95.13 | 7 | 420 |
| Formal Training[c] (formtng) | .48 | .50 | 0 | 1 |
| Elapsed Time[d] (elaptime) | 31.31 | | | |

[a]n=60

[b]Values in months.

[c]0=No, 1=Yes

[d]Values in months since previous formal training.


Categorical data describing the number of hours of formal training received by providers (e.g., Pre-BAMC, during BAMC orientation, and post-BAMC orientation) are reflected in Figures 6, 7, and 8, respectively. About 72% of providers identified that they did not receive any formal training on medical record documentation before coming to BAMC. The percentage of providers that were identified as not receiving any formal training during BAMC orientation was 82%. Additionally, 67% of providers claimed to have received no formal training on medical record documentation upon completion of orientation.
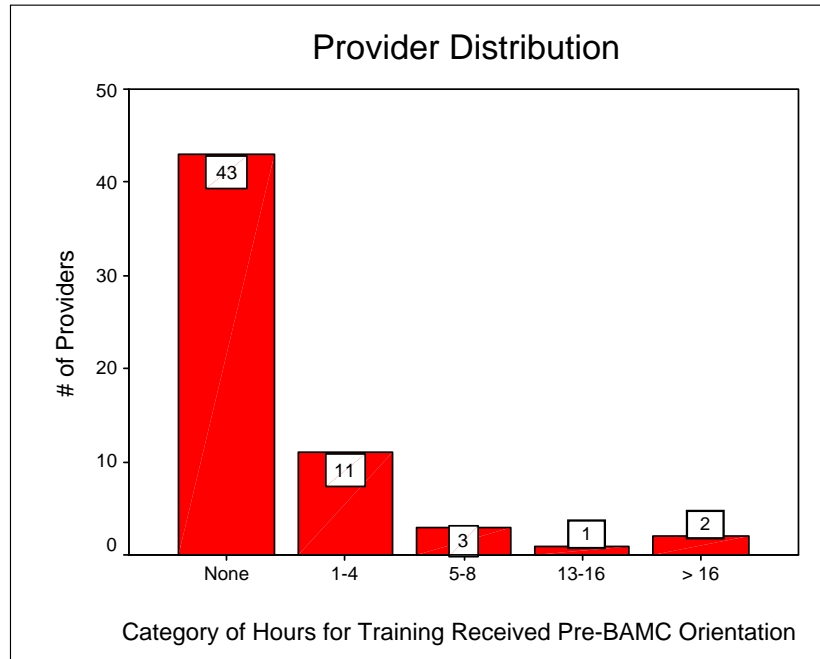
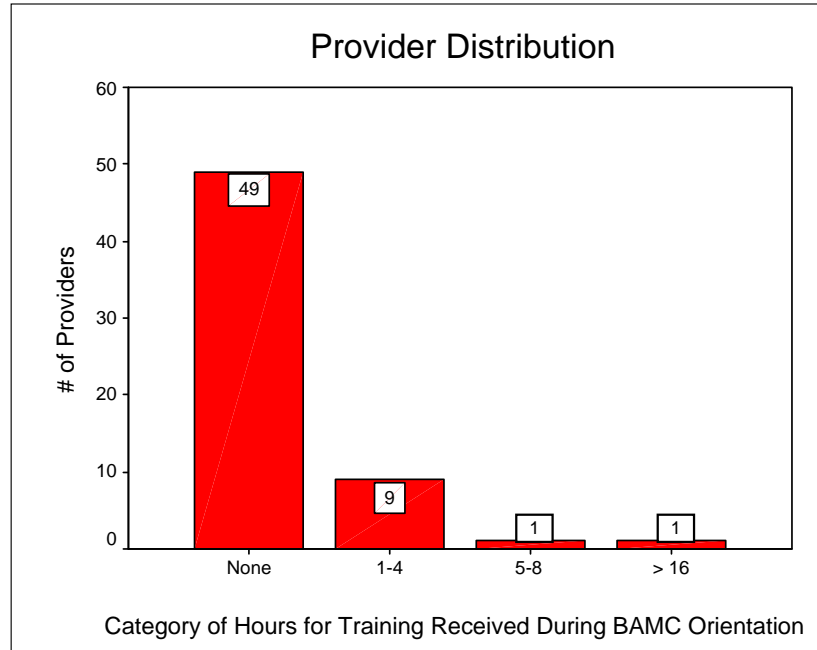Figure 6. Provider Distribution by Category of Training Hours (Pre-BAMC).



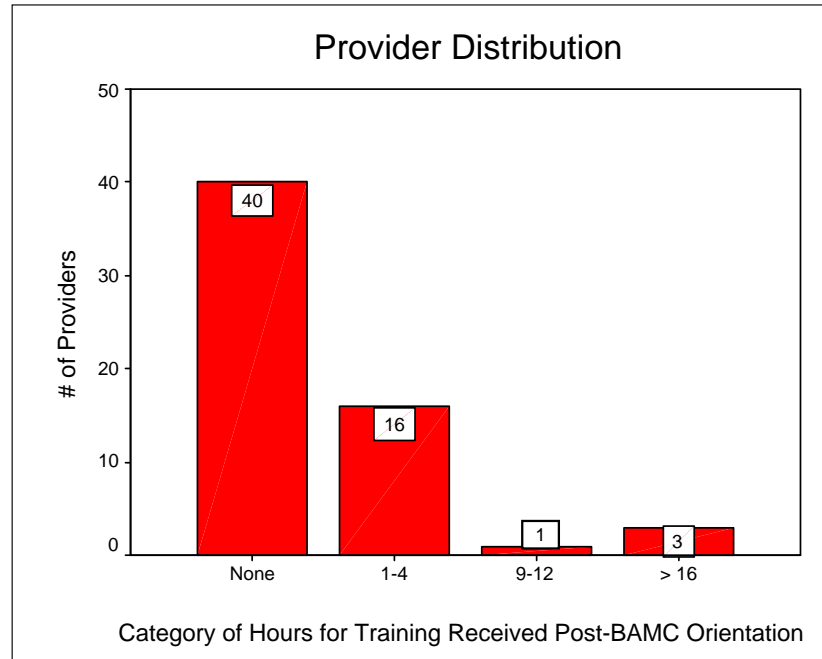Figure 7. Provider Distribution by Category of Training Hours (BAMC Orientation).

Figure 8. Provider Distribution by Category
of Training Hours (Post-BAMC Orientation).

Descriptive statistics for August 2003 provider performance
is shown in Table 5; Table 6 reflects descriptive statistics for
February 2004 provider performance. Both include *Record
Compliance Rate, Dollars Lost to NC,* and *Percent Dollars Lost to
NC*. For *Record Compliance Rate*, the baseline rate is less than
the post-program implementation rate by .07. Average E/M dollars
lost to non-compliance is less for baseline performance as
compared to post-program implementation performance by $854.61.
Conversely, the rate of E/M dollars lost to non-compliance for
post-program implementation is less than that of the baseline
data by .07.

Table 5

Descriptive Statistics for August 2003 Provider[a] Performance Data

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Compliance Rate[b] (compli) | .86 | .17 | .48 | 1.00 |
| E/M Dollars Lost to NC[c] (emdoll) | 2,586.35 | 3,762.83 | .00 | 11,977.91 |
| Rate E/M Dollars Lost to NC (per$doll) | .13 | .16 | .00 | .52 |

[a]n=60

[b]Rate for medical record documentation.

[c]Values in dollars.

Table 6

Descriptive Statistics for February 2004 Provider[a] Performance Data

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Compliance Rate[b] (compli) | .93 | .14 | .29 | 1.00 |
| E/M Dollars Lost to NC[c] (emdoll) | 3,440.96 | 10,981.90 | .00 | 59,997.57 |
| Rate E/M Dollars Lost to NC (per$doll) | .06 | .11 | .00 | .38 |

[a]n=43

[b]Rate for medical record documentation.

[c]Values in dollars.

*Coder Data Set.* Appendix C provides an array of histograms to provide a graphical distribution of coder demographic, education, experience/training, and performance. Descriptive statistics for coder demographic data is shown in Table 7 and include *Age*, *Gender*, and *Hispanic*. The mean *Age* for coders in the study is approximately 46 years-old. *Gender* reflects a

majority of female coders in the study as compared to males
(25%). A majority of coders are of *Hispanic* descent (75%).

Table 7

Descriptive Statistics-Coder[a] Demographic Data

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Age[b] (age) | 46.25 | 8.24 | 32 | 55 |
| Gender[c] (gender) | .25 | .46 | 0 | 1 |
| Hispanic[d] (hispanic) | .75 | .46 | 0 | 1 |

[a]n=8
[b]Values in years.
[c]0=Female, 1=Male
[d]0=No, 1=Yes

Figures 9 and 10 depict categorical data for coder
demographics reflecting coder distribution by *Clinic* and *Race*,
respectively. Distribution was based on availability of coders
through the duration of the study. FMS at 37.5% had the most
coders compared to the ED at 25%, the IMC at 25%, and the TMC at
12.5%. Coders selected only two racial categories. Of the two,
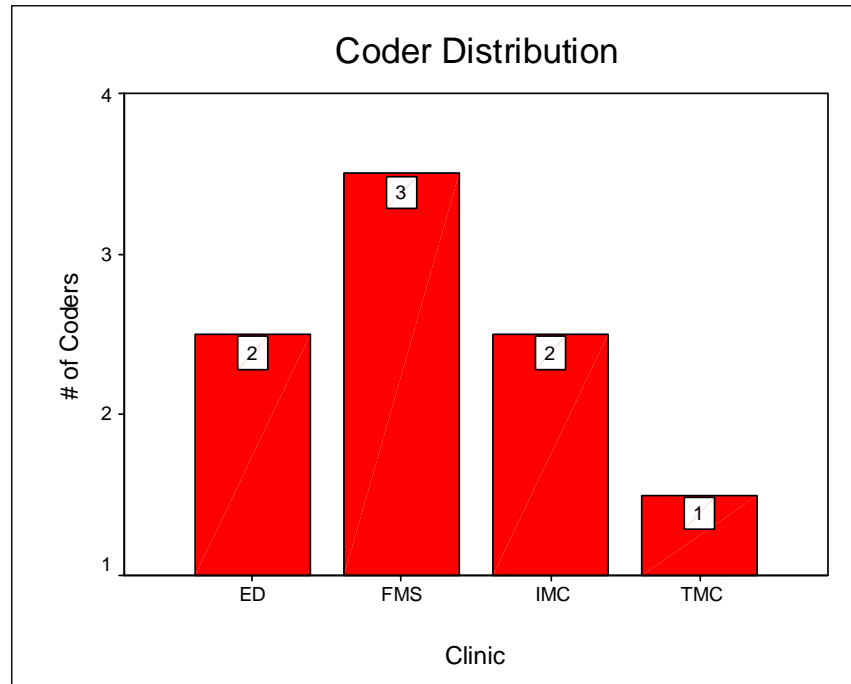the most represented *Race* was White (87.5%) compared to Black
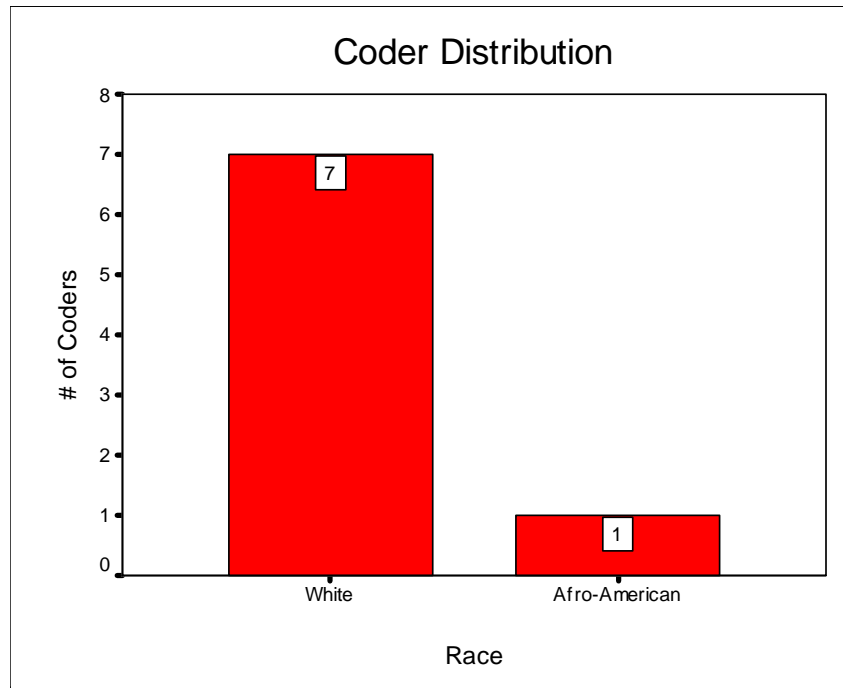(12.5%).

Figure 9. Coder Distribution by Clinic.



Figure 10. Coder Distribution by Race.

Descriptive statistics for coder education, experience, and training are shown in Table 8 and include *Education Years, Pre-BAMC Experience, BAMC Experience, and Certified Coder.* Most coders have an average of approximately 14 years of education. Coders in the study had an average of approximately 21 months of coding experience before being employed by BAMC. Coders also responded that they had an average of approximately 39 months coding experience while at BAMC. As expected, there is a majority of coders that are not certified coders (62.5%).

Table 8

Descriptive Statistics - Coder[a] Education/Experience/ Training Data

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Education Years[b] (edyears) | 14.25 | 1.58 | 12 | 16 |
| Pre-BAMC Experience[c] (prebamc) | 20.50 | 18.94 | 0 | 56 |
| BAMC Experience[c] (experien) | 38.50 | 32.74 | 7 | 420 |
| Certified Coder[d] (certifie) | .38 | .52 | 0 | 1 |

[a]n=8

[b]1=Values in years.

[c]Values in months.

[d]0=No, 1=Yes

Categorical data for coder demographics are reflected in Figures 11, 12, and 13 for coder distribution by *Education Level*, *Employment Type*, and *Training Frequency,* respectively. Most coders (50%) have a high school diploma as their highest *Education Level* completed. Most are employed as government civil service employees (75%) followed by those who are contracted coders (25%). When asked how often coders received training, approximately 63% responded as receiving training at BAMC on a quarterly basis.
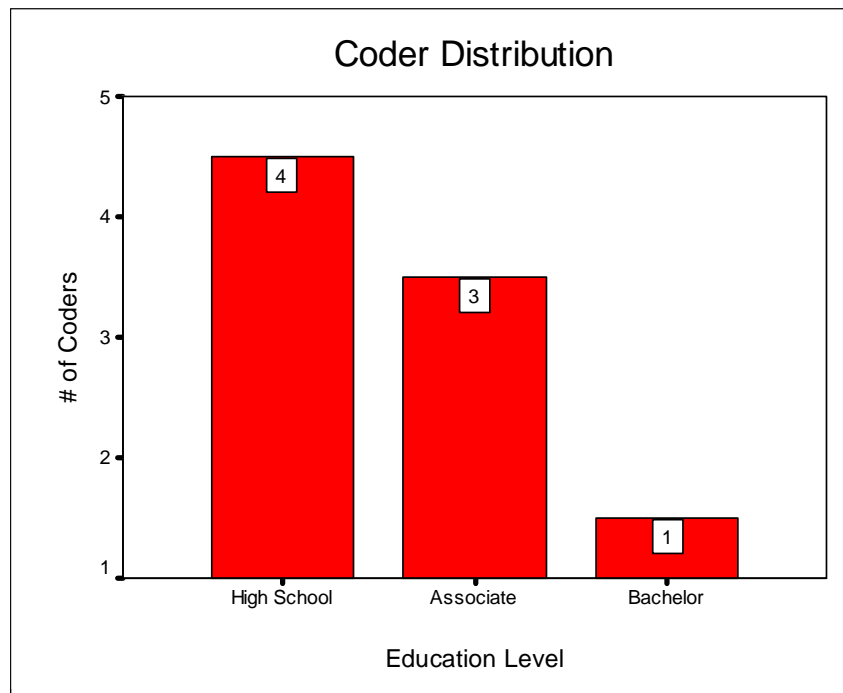
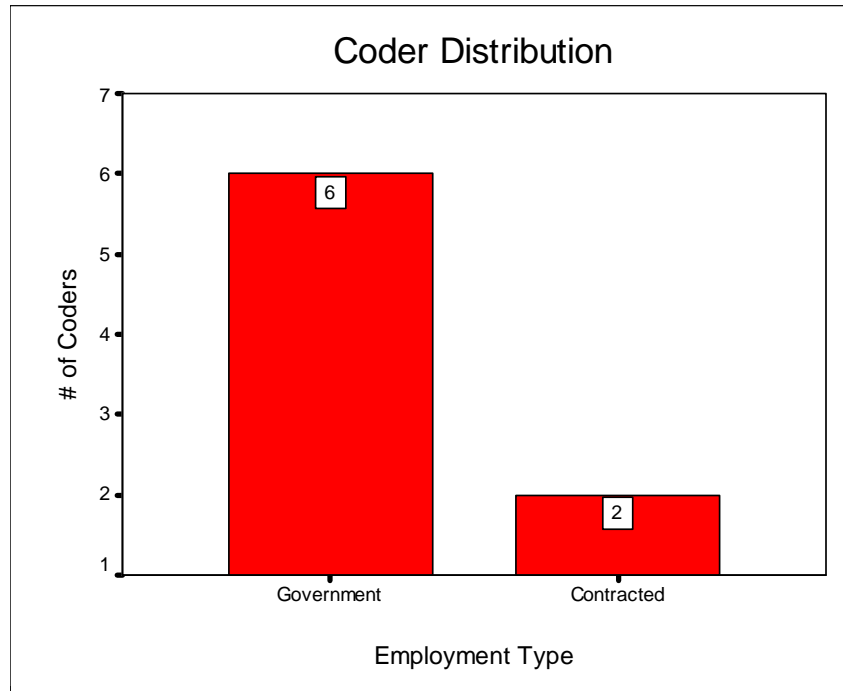Figure 11. Coder Distribution by Education Level.

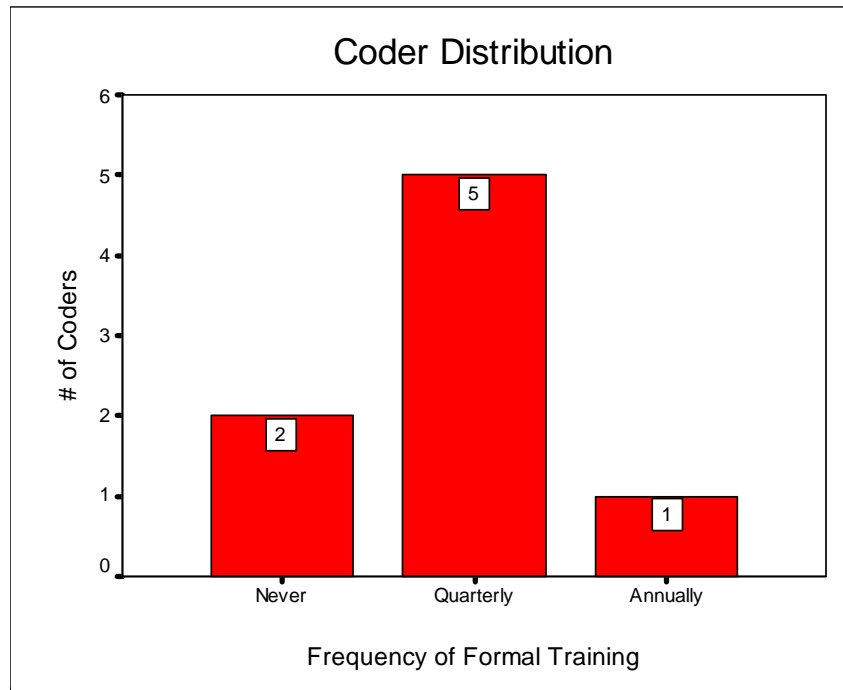Figure 12. Coder Distribution by Employment Type.



Figure 13. Coder Distribution by Frequency of Formal Training.

Descriptive statistics for August 2003 coder performance is shown in Table 9, while Table 10 reflects descriptive statistics for March 2004 coder performance. Both include *Productivity Rate, Coding Accuracy,* and *Average Dollar Difference.* For *Productivity Rate*, the baseline rate is considerably less than that of post-program implementation by .21. Coding accuracy, at face value, reflects an improvement between baseline performance and post-program implementation performance with an increase of .09. On the other hand, the *Average Dollar Difference* for post-program implementation is a negative $22.00 from the standard of achieving a $0 difference when compared to the baseline performance, which is at $9.91 from the standard.

Table 9

Descriptive Statistics - Coder[a] August 2003 Performance Data

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Productivity Rate[b] (product) | .74 | .32 | .46 | 1.37 |
| Coding Accuracy Rate[c] (accuracy) | .80 | .04 | .75 | .87 |
| Average Dollar Difference[d] (avgdoll) | 9.91 | 25.56 | -12.34 | 65.48 |

[a]n=8

[b]Quotient for # of records divided by # of days worked is divided by 80.

[c]# codes identified by coder divided by # of possible codes by auditor.

[d]Total dollar difference divided by # records audited. Values in dollars.

Table 10

Descriptive Statistics – Coder[a] February 2004 Performance Data

| Source | M | SD | Min | Max |
|---|---|---|---|---|
| Productivity Rate[b] (product) | .95 | .27 | .63 | 1.43 |
| Coding Accuracy Rate[c] (accuracy) | .89 | .07 | .73 | .95 |
| Average Dollar Difference[d] (avgdoll) | -22.00 | 42.69 | -118.33 | .89 |

[a]n=8

[b]Quotient for # of records divided by # of days worked is divided by 80.

[c]# codes identified by coder divided by # of possible codes by auditor.

[d]Total dollar difference divided by # records audited. Values in dollars.


Because BAMC is moving toward increased contracting services for coders and contracts were rewritten to require certification, the study reviewed performance by employment type and certification status for coders. In regard to productivity, certified coders outperformed uncertified coders by an average of .12 (baseline) and .11 (implementation) as shown in Figure 14. Figure 15 shows certified coders also outperformed uncertified coders in coding accuracy by an average of .04 (baseline) and .02 (implementation). Certified coders have also maintained a preferred average dollar difference as compared to uncertified coders by $7.39 (baseline) and $7.68 (implementation) as reflected in Figure 16.
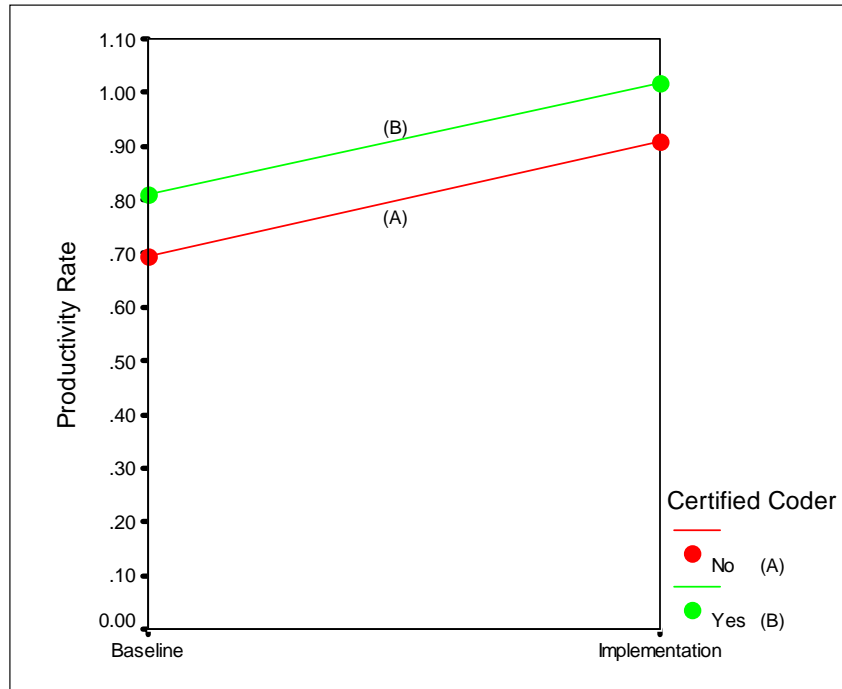
Figure 14. Baseline to Program Implementation Comparison of Coder Productivity Rate Averages by Coder Certification Status.
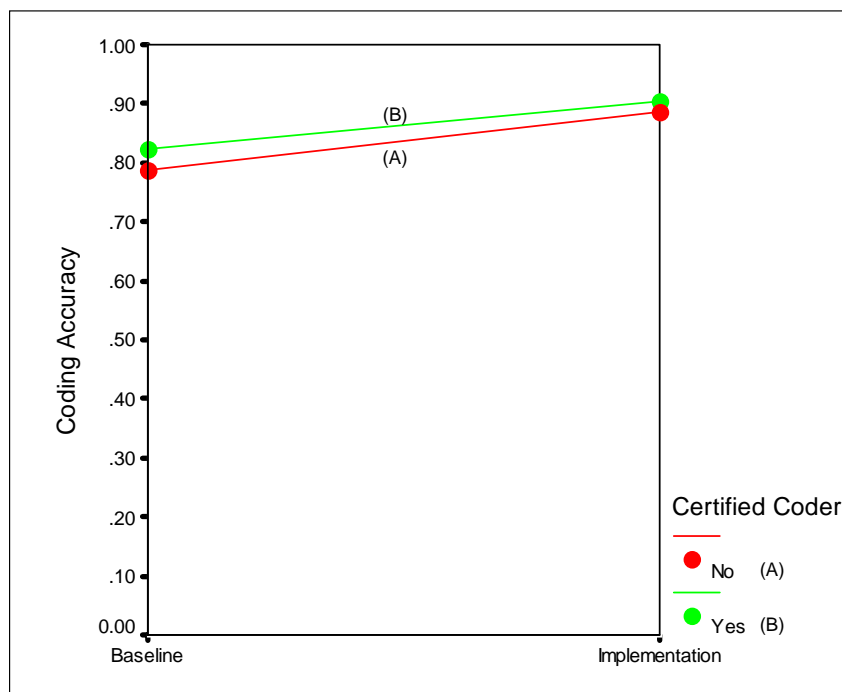


Figure 15. Baseline to Program Implementation Comparison of Coder Accuracy Rate Averages by Coder Certification Status.
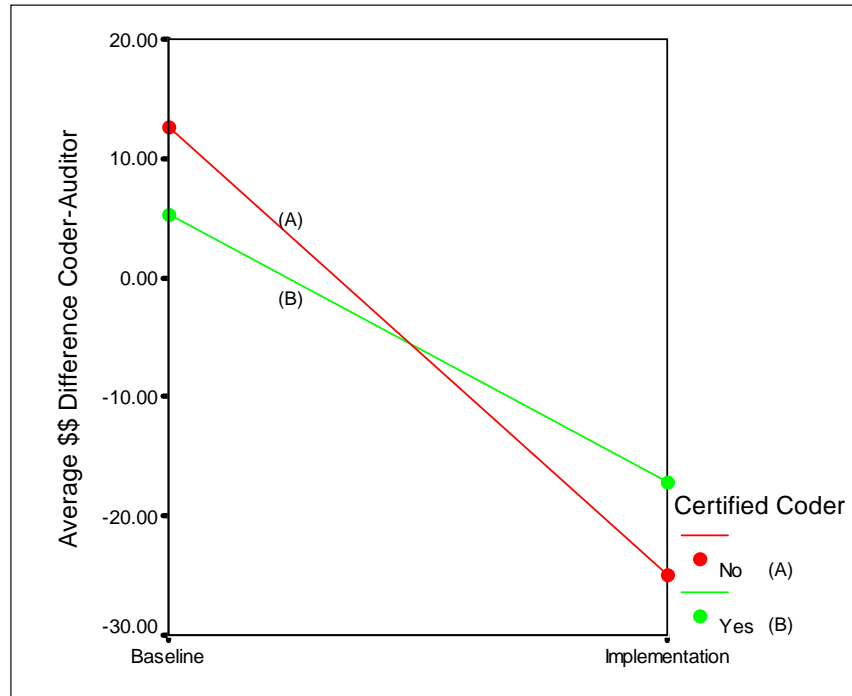
Figure 16. Baseline to Program
Implementation Comparison of Coder/Auditor
Dollar Difference Averages by Coder
Certification Status.
Note: Standard for Average Dollar Difference is $0.

When performance is reviewed by employment type, the study found some interesting results. Figure 17 shows that government civil service coders outperformed contracted coders in productivity by an average of .28 (baseline) and .19 (implementation). Another interesting result, shown in Figure 18, is that the average government coder was equally or slightly more accurate in coding than contracted coders by matching baseline performance or slightly outperforming contracted coders by .01 (implementation). Figure 19 reflects opposing results between baseline and implementation performance with contracted coders outperforming government coders by $2.53 (baseline) while the reciprocal occurred with government civil service coders

achieving a better average dollar difference by $5.66
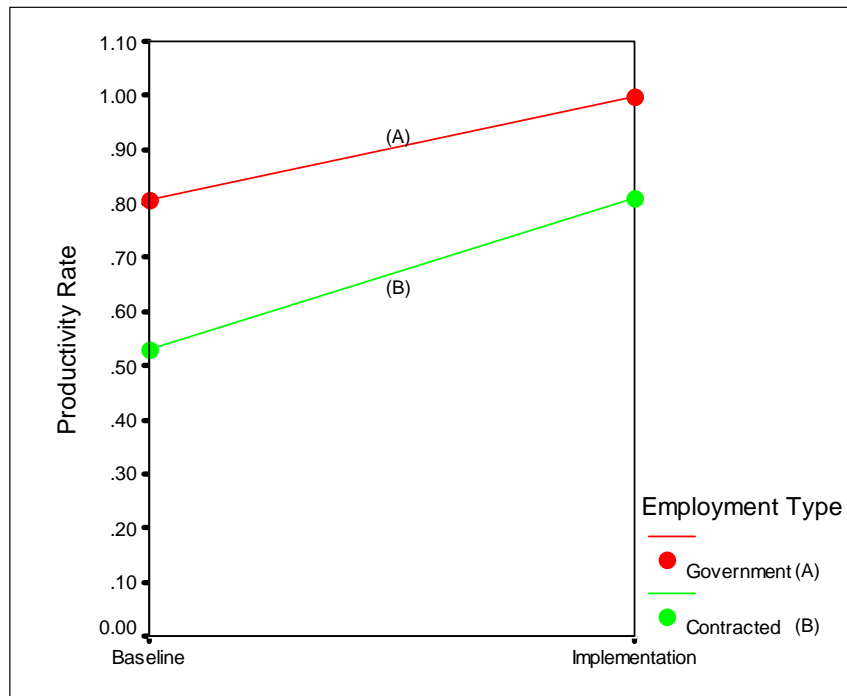
(implementation).



Figure 17. Baseline to Program
Implementation Comparison of Coder
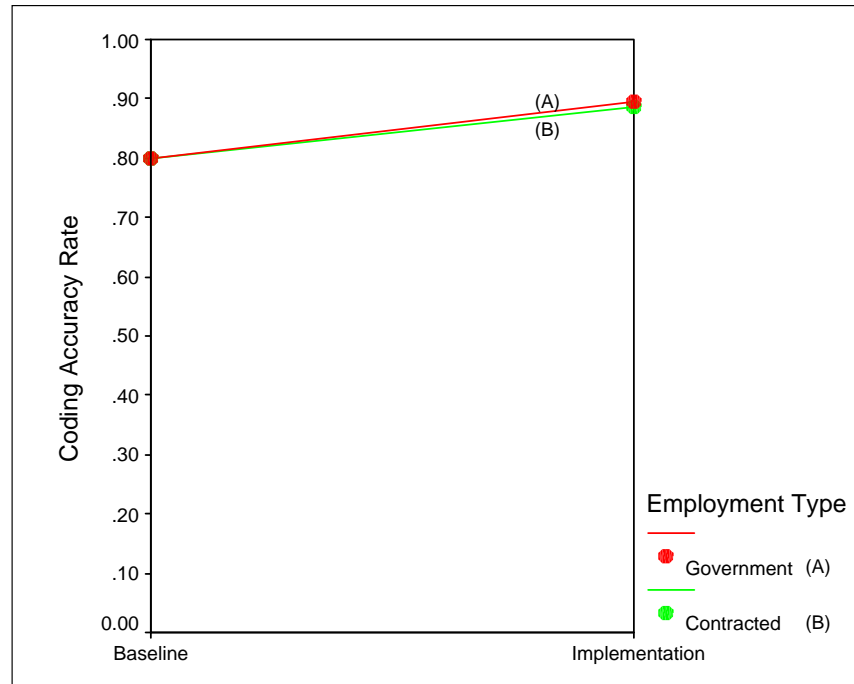Productivity Rate Averages by Employment
Type.

Figure 18. Baseline to Program
Implementation Comparison of Coder Accuracy
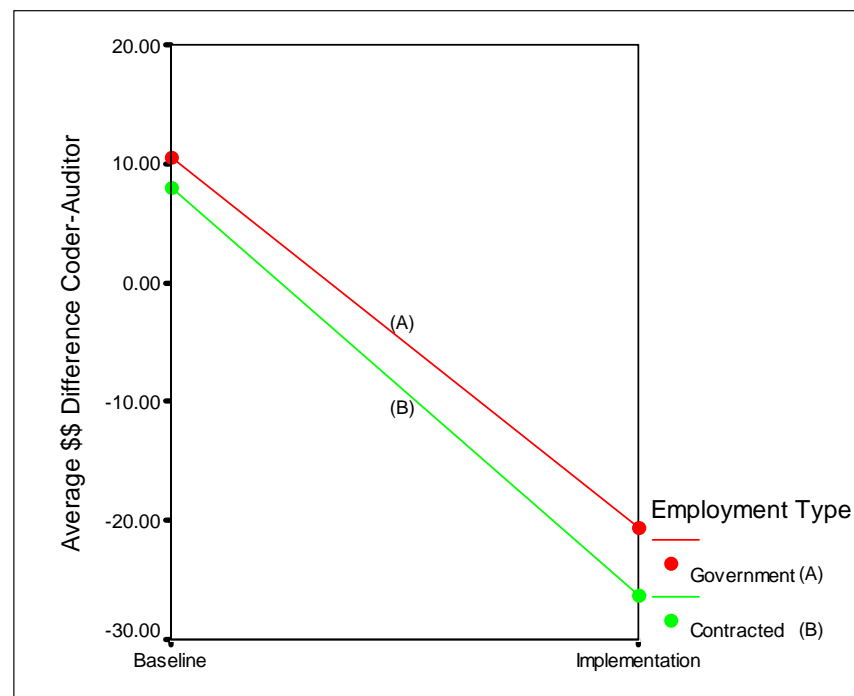Rate Averages by Employment Type.



Figure 19. Baseline to Program
Implementation Comparison of Coder/Auditor
Dollar Difference Averages by Employment
Type.

*Inferential Statistics*

   *Provider Data Set.* After performing inferential statistics, statistical significance was found in the sample of 60 providers from the four outpatient clinics at BAMC. The variable of interest is *Record Compliance Rate*. The effects of pre- and post-program implementation (i.e., *Data Date)* on *Record Compliance Rate* were evaluated. On the average, providers experienced a provider record compliance rate of .86 $^{\pm}$ .16 during the study. In comparison, the implementation compliance rate (.93) was greater than the baseline compliance rate (.86). The GLM-Univariate ANOVA between *Data Date* and *Record Compliance Rate* was significant with $\underline{F}(1,103) = 4.74$, $\underline{p} = .03$. Because there is statistical significance, the Null Hypothesis, $H0_1$: A provider incentive program will not have an impact on provider compliance rates at BAMC, is rejected. The Alternate Hypothesis, $HA_1$: A provider incentive program will have an impact on provider compliance rates at BAMC, is accepted. After performing analyses on select independent variables in regard to *Data Date*, statistical significance was discovered for the variables of interest *Record Compliance Rate* and independent variables, *Clinic* ($\underline{F}(3,103) = 4.75$, $\underline{p} < .01$) and *Employment Type* ($\underline{F}(2,103) = 4.62$, $\underline{p} <. 05$). Additional analyses also found statistical significance with the interaction among independent variables, *Employment Type* and *MTF Experience*, and dependent variable, Record Compliance Rate ($\underline{F}(6,103) = 5.11$, $\underline{p} <. 001$).

   Spearman's rho (nonparametric) and Pearson's r (parametric) were used to analyze relationships between dependent variable

*Record Compliance Rate* and the following independent variables:
*Clinic, MTF Experience,* and *Formal Training*. Statistical
significance was found with the following: *Clinic* (Spearman's
rho = .60, $\underline{p}$ < .001). As a result of this finding, the Null
Hypothesis, $H0_2$: Provider attributes or experience/training do
not have a correlation with provider compliance rates, is
rejected. The Alternate Hypothesis, $HA_2$: Provider attributes or
experience/training do have a correlation with provider
compliance rates, is accepted.

   *Coder Data Set.* Inter-rater reliability for the two
auditors (see Appendix F) resulted in a significant correlation
coefficient using Pearson's $\underline{r}$ test. The analyses found the
following variables to be statistically significant at $\underline{p}$ = .01
level: *Met CMS Guidelines*, *Possible # of Primary CPT Codes*,
*Possible # of Secondary CPT Codes*, *Possible # of Secondary
Diagnosis Codes*, and *Possible # of Modifiers*. Two variables,
*Possible # of E/M Codes* and *Possible # of Primary Diagnosis
Codes*, could not be computed by SPSS because both auditors had
correlation of $\underline{r}$ = 1.0.

   Upon performing statistical analyses, statistical
significance was found with only one of three dependent
variables analyzed. First, statistical significance was not
found with the variable of interest *Productivity Rate*. The
effects of pre- and post-program implementation (i.e., *Data
Date*) on *Productivity Rate* were evaluated. In comparison, the
implementation productivity rate (.95) was greater than the
baseline productivity rate (.74). On the average, coders

experienced a coder productivity rate of .84 $\pm$.31 during the

study. The GLM-Univariate ANOVA between *Data Date* and

*Productivity Rate* was not significant at $\underline{F}(1,16)$ = 2.08, $\underline{p}$ =

.17.

Next, statistical significance was discovered with the

variable of interest *Coding Accuracy*. The effects of pre- and

post-program implementation (i.e., *Data Date*) on *Coding Accuracy*

were evaluated. In comparison, the implementation accuracy rate

(.89) was greater than the baseline accuracy rate (.80). On the

average, coders experienced a coding accuracy rate of .85 $\pm$.07

during the study. The GLM-Univariate ANOVA between *Data Date* and

*Coding Accuracy* is significant at $\underline{F}(1,16)$ = 9.67, $\underline{p}$ < .01.

Lastly, statistical significance was not found with the

variable of interest *Average Dollar Difference*. The effects of

pre- and post-program implementation (i.e., *Data Date*) on

*Average Dollar Difference*. As a result of the audit, coders

experienced an average dollar difference of -6.04 $\pm$37.77 during

the study. In comparison, the implementation dollar difference

average of ($22.00) was further away than the baseline dollar

difference average of $9.91 in terms of dollar units from the

standard $0 difference. The GLM-Univariate ANOVA between *Data

Date* and *Average Dollar Difference* was not significant at

$\underline{F}(1,16)$ = 3.29, $\underline{p}$ < .10.

Because there is statistical significance between *Data Date*

and *Coding Accuracy*, Null Hypothesis, $H0_3$: A coding compliance

plan will not have an impact on coder productivity or coding

accuracy at BAMC, is rejected. The Alternate Hypothesis, *$HA_3$:* A

coding compliance plan will have an impact on coder productivity or coding accuracy at BAMC, is accepted.

After performing analyses on other independent variables in regard to *Data Date* and each dependent variable, statistical significance unexpectedly was discovered for the variable of interest *Average Dollar Difference* and independent variables *Clinic* [$\underline{F}(3,16) = 11.74$, $\underline{p} < .01$] and *Pre-BAMC Experience* [$\underline{F}(4,16) = 10.79$, $\underline{p} < .01$].

Spearman's rho and Pearson's $\underline{r}$ were used to analyze relationships between dependent variables *Productivity Rate*, *Coding Accuracy*, and *Average Dollar Difference* with the following independent variables: *Clinic*, *Education Years*, *Education Level*, *Employment Type*, *Pre-BAMC Coding Experience*, *BAMC Coding Experience*, *Certified Coder*, and *Formal Training*. Statistical significance was found between *Productivity Rate* and *BAMC Coding Experience* ($\underline{r} = .57$, $\underline{p} < .05$). As a result of this finding, the Null Hypothesis, $H0_4$: Coder attributes or experience/training do not have a correlation with coder productivity/accuracy rates, is rejected. The Alternate Hypothesis, $HA_4$: Coder attributes or experience/training do have a correlation with coder productivity/accuracy rates, is accepted.

## Discussion

While conducting this project, the objective was to identify effects of two BAMC corporate programs – the provider incentive program and the coding compliance program. If there were any findings, what were causing them? Also, what do these

relationships mean and what are their implications? Prior to any discussion, it is of importance to establish that the sample size of groups within clinics was less than the preferred sample size of at least 30 providers or coders. Accordingly, the results from this study should be judiciously interpreted when clinic differences are discussed.

Notwithstanding, the objective of monitoring the effects on record documentation compliance rates by implementing a provider incentive program was achieved. As a result of BAMC's provider incentive program, the aggregate compliance rate average improved by .07 in just a little over three months of program implementation as shown in Figure 20. Improved performance rates for the ED, FMS, and TMC were most responsible for this improvement. The IMC was the only clinic that resulted in a lower compliance rate after implementation of the provider incentive program as shown in Figure 21.
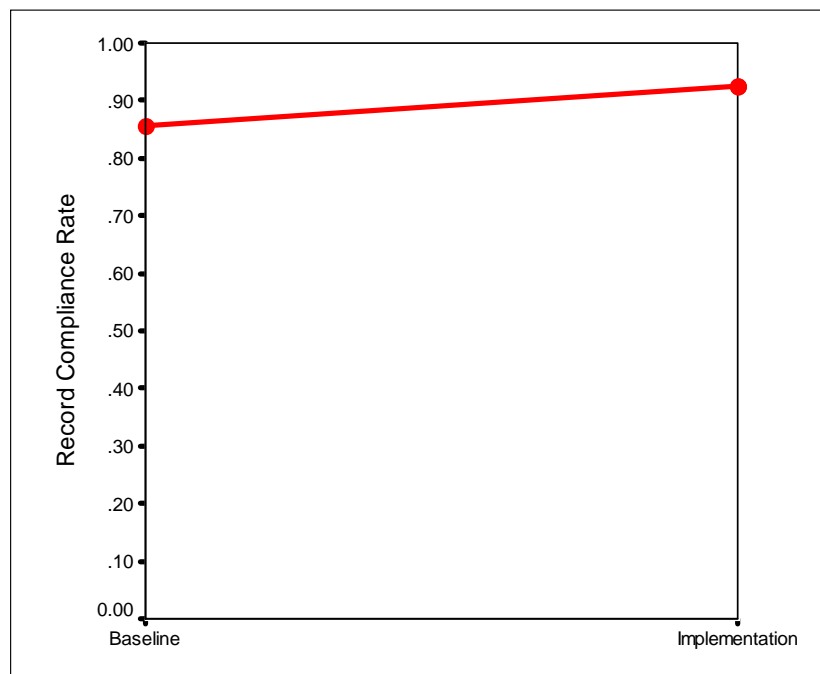


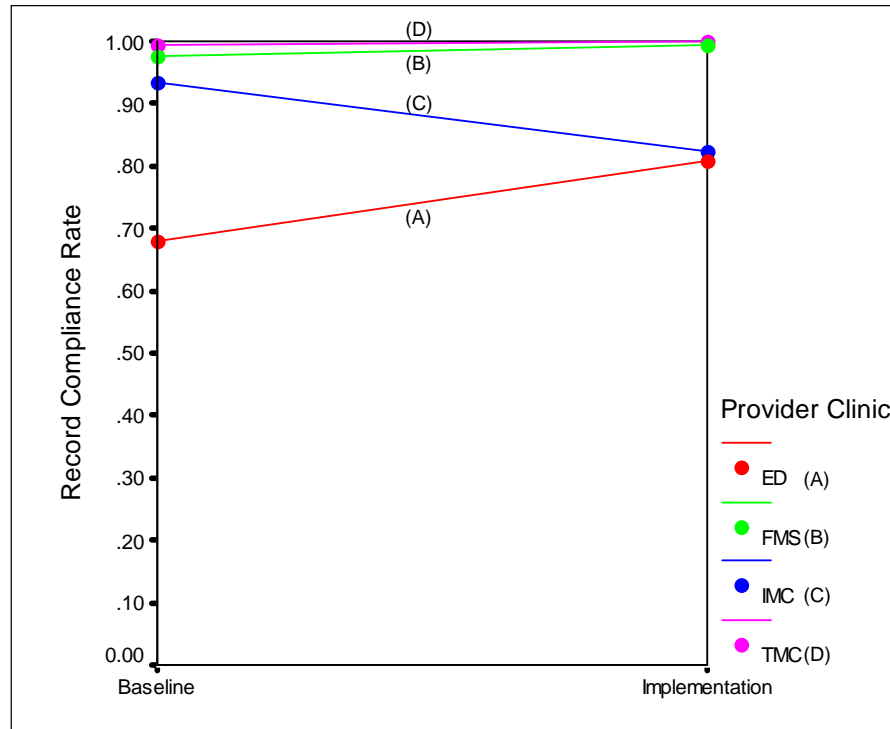Figure 20. Baseline to Program Implementation Comparison of Provider Compliance Rate Averages.

Figure 21. Baseline to Program
Implementation Comparison of Provider
Compliance Rate Averages by Clinic.

After reviewing the compliance rates for the IMC, it was
plain to see that a majority of IMC providers (80%) had lower
post-program compliance rates from their baseline rates. So,
what caused this to happen? After reviewing each independent
variable, *Employment Type* seemed to be a logical variable to
analyze given that by-type military and contracted providers
improved their overall compliance rates, whereas civil service
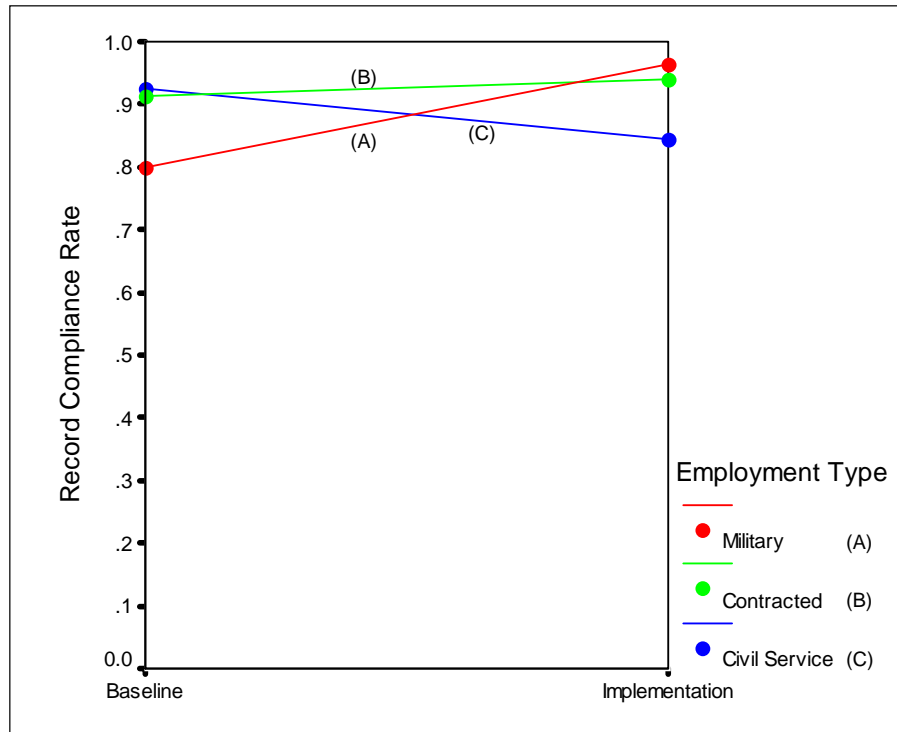providers showed a marked decline (see Figure 22).

Figure 22. Baseline to Program
Implementation Comparison of Provider
Compliance Rate Averages by Employment
Type.

When considering *Employment Type* by *Clinic*, the IMC had the largest percentage of civil service providers compared to other clinics in the study as shown in Figure 23, which provided some explanation as to why average record compliance rates were lower for the IMC. The question is why did performance decline for civil service providers. Analyses showed that MTF experience coupled with employment type had a significant interaction on record compliance rates. One possible explanation is that those who have had extended experiences in MTFs may not have readily adapted to the new requirements that were derived from outpatient itemized billing (OIB) to meet documentation compliance.

<figure>


**Provider Distribution**

Employment Type-Clinic

# of Providers

| Bar | Value |
|---|---|
| ED | 4 / 19 |
| FMS | 4 / 6 / 6 |
| IMC | 5 / 4 / 2 |
| TMC | 1 / 5 / 4 |

**Employment Type**
- Civil Service
- Contracted
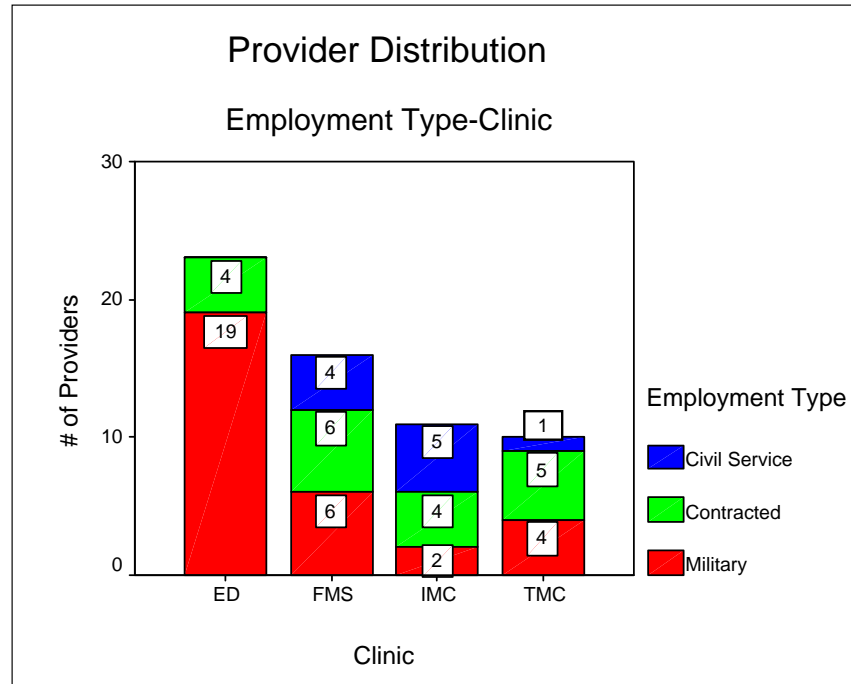- Military

Clinic
</figure>

Figure 23. Provider Distribution by Clinic
and Employment Type.

On the other hand, a more rational explanation could be
that for the time period studied the IMC needed to increase
management oversight of medical record documentation.
Considering the percentages for non-compliant records, the IMC
had a marked increase from baseline to post-program
implementation rates for non-compliant records, shown in Figure
24, as a result of "NC 1D" or other insufficient reasons, such
as illegibility, no date, no time, etc. (.92% to 11.27%). There
was also an increase in non-compliance rates as a result of "NC
MULTI" or multiple errors in documentation, such as counter-
signature, insufficient supervision, non-credentialed provider,
etc. (3.68% to 7.68%). Closer attention to what had caused
documentation to become non-compliant is necessary for future
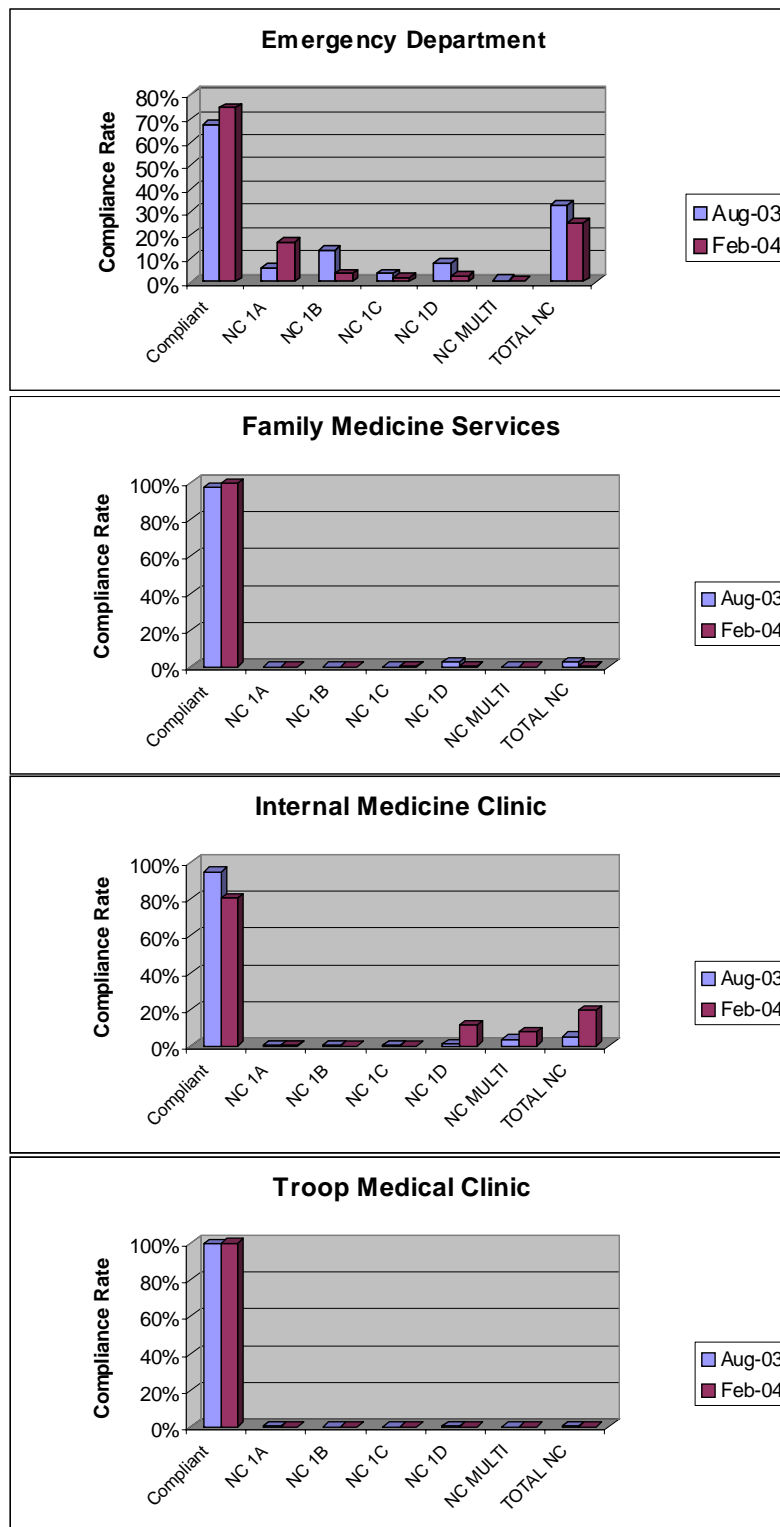successes in improving the IMC's record compliance rate.

Figure 24. Baseline (Aug-03) to Program Implementation (Feb-04)
Comparison of Clinic-Provider Compliance Rates.
Note: Compliant consists of both compliance codes 2A and 2B. Refer to Table 2 for code
category explanation. Total NC is the sum of all non-compliant codes.

As shown in Figures 21 and 24, the most improved clinic was the ED whose rate increased by .13. Compliance rates for the FMS and TMC increased by .02 and .01 respectively. Although the FMS and TMC improved by a small margin, their efforts are not diminished in any way since their overall post-program implementation compliance rates are at or approximately 1.00, the highest rates among all four clinics. The ED's considerable improvement can be attributed, in part, to an ongoing project that was initiated in FY 2003 by Major Peter Lehning in cooperation with the DHCO (Lehning, 2003). Their project focused particularly on improving the ED's processes of coding and billing. Consequently, the ED had received the most attention for documentation compliance and coding compliance as compared to the other three clinics in this study. Since the revenue involved is substantial for ED services, BAMC has unsurprisingly focused on this department in hopes of improving upon provider compliance rates. Because of Major Lehning's study and the provider incentive program, the ED's improved productivity performance could possibly be explained by an increase in management supervision, command involvement, and increased resources. For the FMS and TMC, the provider incentive program was enough to ensure additional interest and attention by clinic chiefs and providers to communicate and track process improvement, thus resulting in enhanced performance rates.

Concerns exist in two areas to this part of the study in relation to provider compliance rates; they are budget and training shortfalls. First, budget shortfalls, that are all too

common in DoD MTFs, threaten the continued existence of BAMC's provider incentive program. The pledge to provide monetary rewards to departments for continued improvement is threatened by BAMC's current budget, which was approved by Congress prior to terrorist acts on September 11, 2001. The concern is that without a legitimate program BAMC may experience continued degradation in compliance rates. Therefore, it is crucial that compliance rates are monitored as originally established in the provider incentive program regardless of the status for available funding of rewards. It would be interesting to see if the monitoring alone of performances for clinics and providers will be sufficient to ensure continued improvement with compliance rates. Otherwise, a careful review should be made to reinstate the monetary reward as the primary motivator for continuous improvement. Because it is too important, this metric should be included in periodic update briefs to BAMC leaders and communicated down to clinic chiefs to improve upon or sustain command involvement and oversight.

The second concern surrounds training shortfalls due to a relatively informal training program for providers on medical record documentation. The study highlighted that formal training is sporadic at best with 71% stating they had no formal training before arriving at BAMC, 82% stating they had no formal training during BAMC orientation, and 67% stating they had no formal training since completing BAMC orientation. As a teaching hospital, a large number of interns and residents receive some on-the-job training in the course of treating BAMC's patients.

This informal training method only produces cyclical levels of documentation compliance due to interns/residents transitioning to and from BAMC each summer. Compliance rates are expected to drop at the onset of the transition and eventually improve over time as interns/residents receive some training during their rotation. Since providers have no more than a handful of hours in proper documentation and compliance rates are highly dependent on the KSAs of its providers, then it would be prudent to establish a hospital orientation training program that standardizes documentation skills for new interns, residents, and providers. Afterwards, training should be conducted for all providers on a periodic basis since documentation requirements for third-party reimbursement may change often in any given year. Additionally, it is important to train the medical staff since they are expected to educate and reinforce documentation standards with their interns and residents. Another good reason for the current medical staff to receive periodic training is that 52% of providers who did receive formal training have not had any training in the last 2 to 20 years. Combine this figure with those who have had no training and the percentage of providers in the study that have not had any training within the last 24 months is a substantial 77%. With a greater understanding of what providers should document, all BAMC providers could help to minimize the variance inherent in cyclical compliance rates through better documentation in medical records. The outcome should manifest in improved overall coding productivity since coders will not have to waste any time

looking for proof of medical care rendered or follow-up with

providers for documentation. Additionally, coding accuracy will

improve because adequate documentation will be available for

coders to promptly assign the proper codes.

In regard to coding compliance, three coder performance

metrics were analyzed; they were productivity rate, coding

accuracy rate, and average dollar difference. In reviewing coder

performance between baseline and post-program implementation,

there were overall improvements in productivity and coding

accuracy. The overall trends for these two performance measures
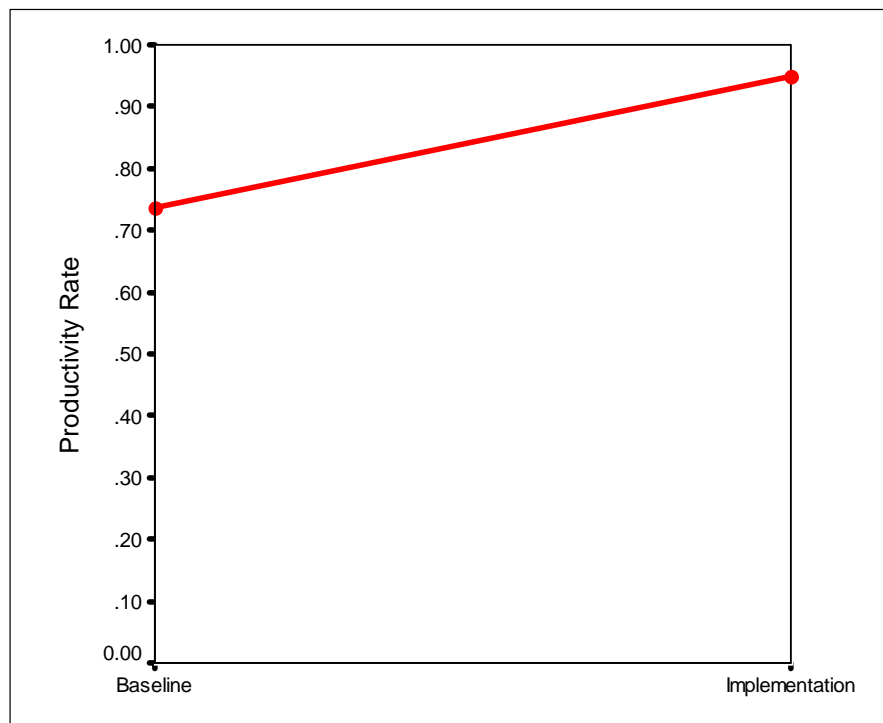
are positive (see Figures 25 and 26).



Figure 25. Baseline to Program
Implementation Comparison of Coder
Productivity Rate Averages.
Note: Rate of 1 is equal to 80 records coded per day
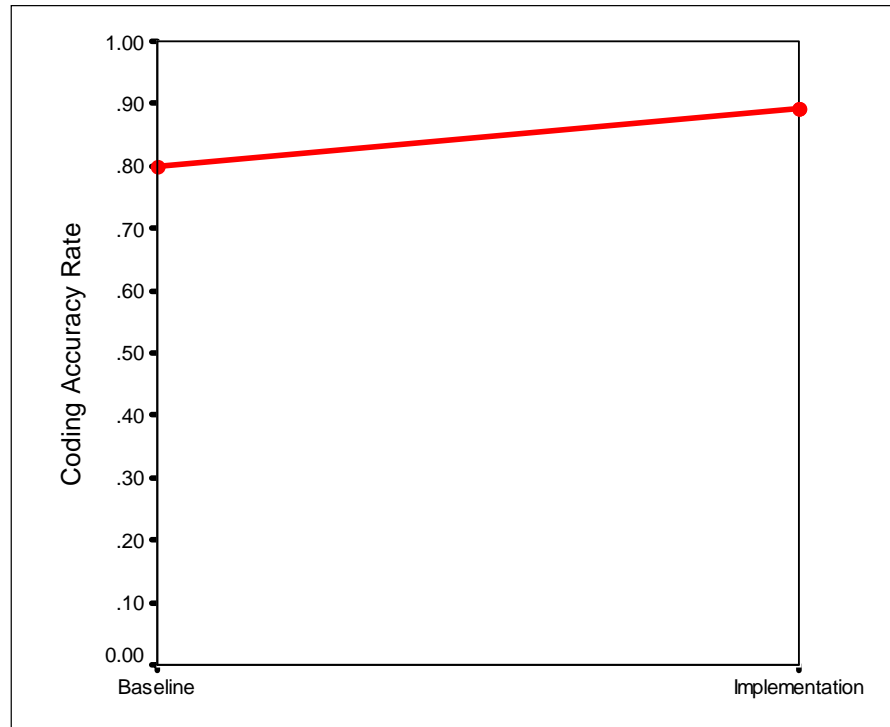by a coder in the outpatient setting.

Figure 26. Baseline to Program
Implementation Comparison of Coder Accuracy
Rate Averages.

In reviewing productivity performance by clinic, the study
found that each clinic improved with the IMC's marginal
productivity rate exceeding all other clinics (see Figure 27).
In regard to clinic coding accuracy, Figure 28 reflects that
each clinics' performance improved except for the ED. Aside from
attributing the cause of this degraded performance to chance, ED
coders did not attend the same coder training session conducted
by DHCO. Instead, ED coders were more or less counseled by the
UBO auditor who used a training technique similar to that of a
counseling session. Limited discussions of coder problem areas
as well as a brief description of auditing tools were discussed.
Because the ED coders had a separate training session, a

possible explanation as to why the ED resulted in a lower coding accuracy rate post-program implementation is that the quality of training performed between the UBO auditor and DHCO auditor differed.
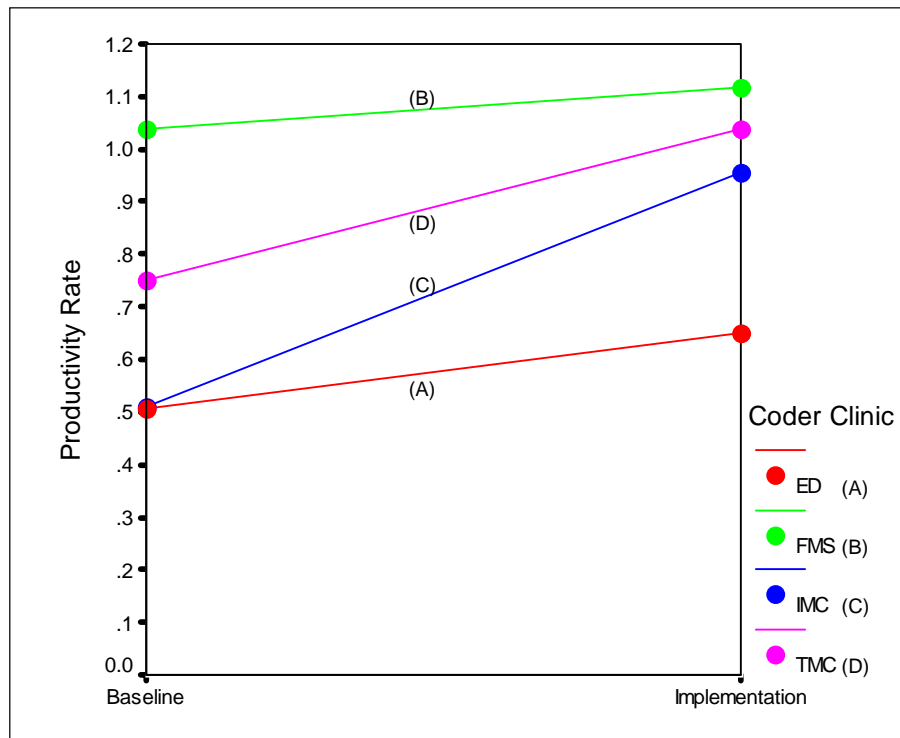
Figure 27. Baseline to Program Implementation Comparison of Coder Productivity Rate Averages by Clinic.
Note: Rate of 1 is equal to 80 records coded per day by a coder in the outpatient setting.
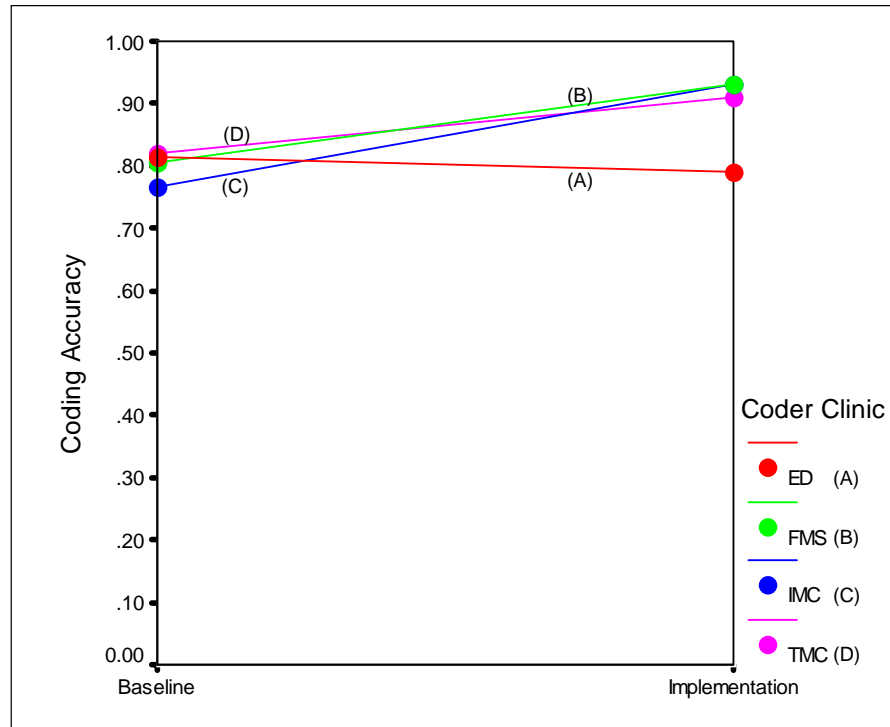
Figure 28. Baseline to Program
Implementation Comparison of Coder Accuracy
Rate Averages by Clinic.


     The DHCO training session was an observed event. DHCO

conducted the training for all coders in the study except those

assigned to the ED. The coders training session covered the

following material during the training session: typical causes

of coding errors, common coding errors, E/M concerns, patient

history, elements of history of present illness, review of

systems, 1997 examination, medical decision making, office visit

and procedures, preventive medicine service, and ICD-9-CM items

(see Appendix E). Overall, the session was professionally

conducted with an auditor from DHCO conducting the training.

Open discussions helped to resolve critical concerns for the

coders. Coders identified concerns or problem areas and the

instructor promptly provided feedback. The instructor also provided a copy of the audit tool and discussed its use during the audit process of each coder. Open discussions, interaction among all coders, and the associated training that was focused on coder errors established an environment conducive to learning that BAMC coders did not get from their video-teleconference (VTC) training sessions. When asked, the coders responded that they preferred the focused training and, if possible, would like to meet on a monthly basis.

As shown in Figure 29, average dollar difference results show that coders' overall performance changed from an upcoding average of $9.91 to a downcoding average of negative $22.00. The swing from positive to negative (see Figure 30) was mostly due to large ED bills that were inaccurately coded causing the ED to go from an average dollar difference of $46.93 to a negative average of $84.73. After reviewing the FMS, IMC, and TMC figures, the remaining clinics reflected a positive trend moving towards a zero dollar difference between coder and auditor coding.
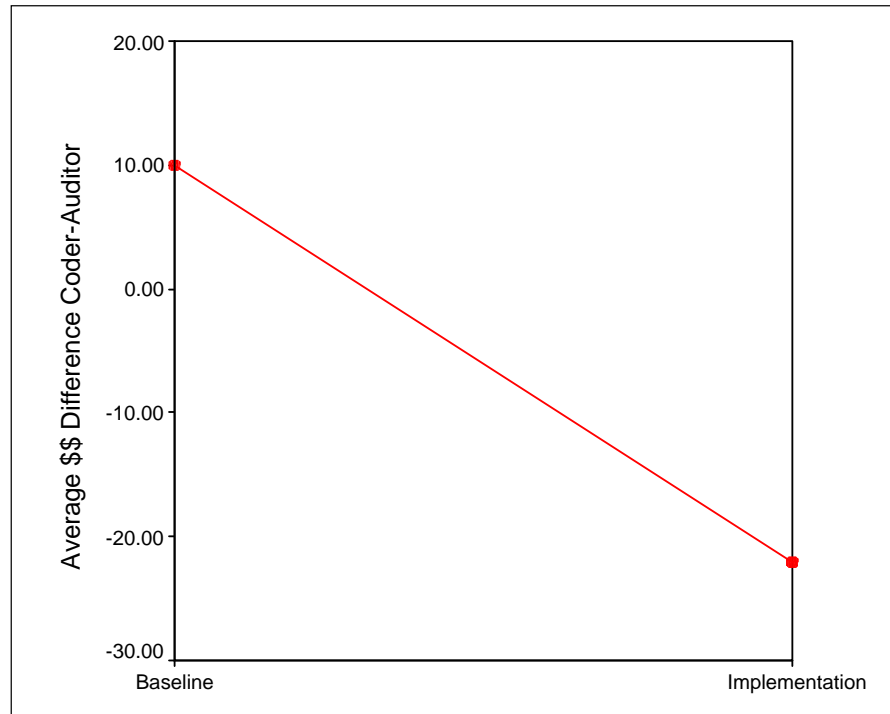
Figure 29. Baseline to Program
Implementation Comparison of Coder/Auditor
Dollar Difference Averages.
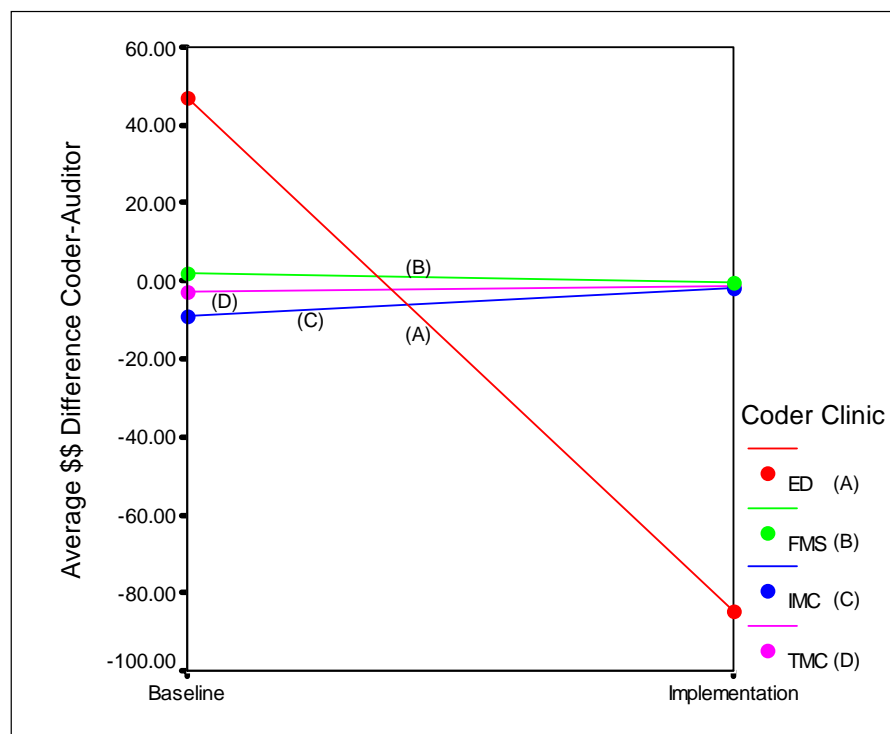Note: Standard for Average Dollar Difference is $0.



Figure 30. Baseline to Program
Implementation Comparison of Coder/Auditor
Dollar Difference Averages by Clinic.
Note: Standard for Average Dollar Difference is $0.

Because certain attributes for coders were highlighted as considerable contributors to BAMC's coding compliance program, the study attempted to measure the importance of both coder certification and employment type. The study did find that certified coders had better productivity and accuracy rates as well as preferred average dollar differences. This finding is particularly important since BAMC is working to have all coders certified. There are two aspects affecting this change. The first is to ensure that all contracted coders are certified. DHCO has taken the straightforward task of adding this stipulation to future contracts for coding services. Secondly, BAMC will have to take on the more difficult task of persuading government civil service coders to actively work toward coding certification. Presently there is no incentive for government coders to obtain certification.

Another contributing factor to coding compliance revolved around the belief that employment type made a considerable difference in performance. The belief was that government coders performed at a lower level because a majority are uncertified and have had none to limited prior experience before employment as a coder. The study found that, in terms of productivity, government coders were more productive than contracted coders were. Also, government coders as a group were equally competent in as far as coding accuracy.

Given that certification and government civil service coders produce better coding performance, BAMC should establish an incentive program to reward government civil service coders

for achieving certification. Presently, DHCO is working to have government coders receive a promotion to a higher pay grade/level. Unfortunately, the effort seems to be stymied and is taking longer than expected possibly due to restrictions to spending against BAMC's budget. After speaking with some government coders, much consternation exists because the only certified civil service coder has not to-date been recognized or rewarded for her achievement. As a result, it would seem that government coders need to see positive action before they fully invest personal funds and time to achieving certification.

In an effort to explain the lack of significance for productivity rate and average dollar difference, there are factors that might have had an effect. First the variability for both variables of interest was considerable. Secondly, both variables did not have an intervention like the coder training session that would have focused coding supervisors and coders on improving these performance measures. Seemingly, the primary reason that productivity was not addressed is that BAMC's focus is presently on accurate coding. Also, the standard of 80 records per day per coder is not a measure of success agreed to by all in supervisory positions and above. Given that there is some ambiguity on the productivity standard, action must be taken to resolve this dissimilar interpretation of the standard, so coders can work towards meeting the daily productivity standard expected of them. Finally, the sample size was especially small with only eight coders available for all four clinics.

Although limited statistical significance existed for coders, a discussion of BAMC's coding compliance program in regard to some of the suggestions underscored in the literature review provides some constructive comments that would help to direct improvement of the program. In regard to the five program essentials identified by Averill (1999), BAMC needs to address a few areas of concern to ensure an effective compliance program. The primary reason that BAMC has some deficiencies is that its coding compliance program, like many other DoD MTFs, is in its infancy stage of implementation. Instituted by the FY 2000 National Defense Authorization Act, the DoD was given the authority to begin changing the method of charging from "reasonable costs" to "reasonable charges" beginning in CY 2002 (Uniformed Business Office, 2001). Because additional time was needed, the implementation date was pushed to the beginning of the following FY beginning in October 2002. As a result, OIB was put into practice to bring the DoD on line with the practices in the civilian healthcare sector as well as the Veterans Affairs. Hence, BAMC continues to improve outpatient billing processes and systems to ensure compliance at every phase of the revenue cycle. Since OIB is just a little more than a year and half old to-date, BAMC will continue to adjust its processes and systems accordingly by analyzing inefficiencies and making incremental improvements along the way. Even so, the Achilles' heel to BAMC's coding compliance program starts with *detection*.

With *detection*, BAMC does not have an efficient system of easily spotting records with potential coding errors. BAMC's

current method of *detection* is internal audits, which was exactly the process that was done for this study. The auditing process is performed manually and, as a result, is time consuming and an inefficient response to correct individual coding errors. To perform a BAMC audit, DHCO randomly selects a very small percentage of records based on time availability and the number of auditors on-hand. Each month, a minimum of 30 and up to approximately 200 records will be audited for a number of purposes, such as data quality reports, by-clinic request, and projects. Given the thousands of BAMC patients treated per month, most patient encounters will not receive any review by BAMC auditors before bills are generated and distributed through UBO. In response to improving coding compliance, BAMC has taken action to hire additional auditors and coders effective April 2004, however, the addition of a handful of auditors/coders will not significantly increase the number of records audited. To address this concern, BAMC is waiting for the Coding Compliance Editor, a computer software application that will improve on the *detection* of coding errors. This software application, however, will not be immediately available since it remains in the pilot test phase.

Because *detection* is considerably limited, BAMC's coding compliance program can not expect to improve in the essential component of *correction*. As a result of BAMC's limited capacity to detect errors from coded records for thousands of patient visits each month, the high occurrence of coding errors left uncorrected and billed to third-party payers means that BAMC

will not discover many of these errors until they are returned
as denied claims. This is especially a problem for BAMC since
their UBO will continuously have to cope with a potentially high
denied claims rate. By the time BAMC receives notice of a denied
claim, *correction* may be too late. Some of these denied claims
require additional documentation that can not be found because
of the elapsed time from when the coding occurred and when the
claim was denied. In some cases, these claims end up either
revised (i.e., down-coded) or unresolved (i.e., cancelled). For
cancelled bills, the inability to capture the dollars lost is
especially taxing on BAMC's budget. As a recommendation made by
Dr. Winkenwerder, one option that BAMC could exercise is
contracting services out to an external agency that has the
capability to provide timely response on coding errors. However,
BAMC will need to improve in other areas, such as hiring more
coders, training providers/coders, and equipping the coding
staff with the proper tools (e.g., coding software) before
contracting is even considered.

Because BAMC has an intermittent training program for its
coders, the essential component of *prevention* is also a concern.
Presently, coding training evolves around periodic VTC sessions.
Coders receive good information from these training sessions,
but these sessions do not address individual coding
deficiencies. *Prevention* relies heavily on *detection* to identify
coding errors specific to each coder and then on a training
program that is both consistent and responsive to prevent future
coding errors. Aside from BAMC's VTC coding sessions, coders do

not have a training program that can provide constant and
immediate feedback on their individual coding performances.
Without an effective training program, BAMC coders will
continuously commit the same errors until an effective
intervention corrects identified coding deficiencies.

BAMC also has some improvements to be made with
*verification*, in that BAMC does not have an effective system of
providing an audit trail of all coding compliance actions made
on each visit. *Verification* presently seems to be handled on a
case-by-case basis with relatively time consuming research after
the fact. With the implementation of BAMC's coding compliance
plan, a process of investigating suspected compliance violations
will require the need for a database system that maintains an
audit trail of all code changes and coding compliance-related
actions per patient encounter.

With any effective program, performance metrics should be
compared to external norms. BAMC does not compare its coding
productivity or coding accuracy against other MTFs. As a result,
the essential component of *comparison* will need some work. Some
of the problem for this is actually beyond BAMC's control in
that coding compliance programs seemed to be either new-fangled
or unstructured programs in DoD MTFs. Therefore, *comparison* is
somewhat difficult if BAMC is looking for coding compliance
rates from similar or like hospitals. Because benchmarking
against other MTFs is important, the logical approach would be
for healthcare leaders at service branch level, if not at DoD,
to develop and standardize provider/coder performance metrics

rather than having this decentralized at lower echelons, such as at the regional medical command level. In lieu of established DoD MTF compliance norms, BAMC could compare norms against any civilian hospital with similar services or organizational structure but care should be taken in comparing against a metric that could possibly be derived using a different methodology.

To discuss findings in relationships between variables studied, attempts to establish predictive attributes from certain provider and coder demographic data were precluded from the study because of concerns for potential backlash from equal opportunity proponents and union representatives toward a study that correlated individual traits (e.g., age, gender, and race/ethnicity) to performance levels. Other provider/coder characteristics in regard to experience/training background were surveyed to identify their significance to provider/coder performance rates. Notwithstanding, employment type was significant with provider compliance rates. There was no significance to providers' documentation compliance rates for the following independent variables: *Education Level*, *MTF Experience*, and *Formal Training*. Also, coding accuracy was the only variable of interest that had a significant relationship with the independent variable BAMC coding experience. Other dependent variables did not have any significant relationships with any independent variable. A factor that could have affected this could be found in the sample size for coders. Determining the effects of any independent variable in this study will require additional research to specifically identify cause-

effect relationships with provider/coder performance measures.
As a result, the study did have limitations which could be
improved upon in the future.

Some of the limitations are easily corrected. First, the
time frame was inadequate to analyze actual effects of a
provider incentive program along with a fully implemented coding
compliance plan. Only five months, November through March, were
available during the study to provide some analysis on the
initial effects of these programs. Because BAMC's coding
compliance plan was approved just at the beginning of March,
there was no way to determine what effects the plan would have
on coding performance since the plan was not immediately
distributed throughout the hospital. Nonetheless, this study did
analyze the auditing and training process for coders, which is
an integral part of BAMC's coding compliance plan. Additionally,
time was a significant factor when considering the number of
coders and the number of records that two auditors could manage
within an established time. More time would have possibly
allowed additional coders to be audited to help increase the
coder sample size. Recommend conducting a follow-up longitudinal
study to track changes for both the provider incentive program
and coding compliance plan.

Secondly, the sample size of coders was not sufficient to
establish statistical significance with coder performance.
Either more time or an increase in available auditors is needed
to adequately address the shortfall of coders in the study.
Another option is the use of coding software that helps to speed

up the process of identifying coding errors. Recommend use of the most feasible option given parameters.

Third, the study did not observe any formal training that would affect provider compliance rates. Also, only one coding training session was observed after the completion of the initial internal audit because of the limited time available. Many providers and coders expressed a desire to receive formalized training. Coders even wanted routine (e.g., monthly) training sessions to keep up with changing guidelines or to receive feedback on coding performance. An analysis of the effects of an established training plan for both providers and coders would be a step toward improving provider and coder performance rates. Recommend that training programs for providers and coders are developed, implemented, and measured to determine the effectiveness of the training program.

Fourth, this study did not analyze effects of compliance rates and coding productivity/accuracy rates toward billing compliance and collection rates. An analysis of denial rates and collection rates should be included into the study. Recommend establishing additional criteria to measure effects on critical revenue cycle components.

Fifth, this study did not establish any control groups. The importance of control groups is important to determine effects of applied interventions on variable(s) of interest. Recommend establishing control groups for providers/coders with regard to training or program implementation.

Conclusion

The conduct of this study did find that BAMC's provider incentive program and auditing/training process were cost-effective methods to improving coding performance. Although a few predictive factors were established, the study does highlight the effects of institutionalizing a provider incentive program and coding compliance audit/training process. The overall effect is an improvement in overall provider compliance rates for medical record documentation and coding productivity and coding accuracy rates. With improvements in these two components of the revenue cycle, BAMC should expect to see improved coding compliance in the four clinics studied.

The expectation was that continued command emphasis and supervision at every level of management would positively impact on provider and coder performances at BAMC. Additionally, it is expected that an established training program will help to better prepare providers and coders. Being relatively new, room for improvement exists in every aspect of BAMC's coding compliance program. If steady incremental improvements are realized, compliance rates and coding accuracy should theoretically manifest in increased reimbursements, decreased denials, and a reduced possibility of an OIG audit. The utility of these results will solidify the necessity of effective management oversight by way of provider incentives and coding compliance for DoD MTFs.

Recommendation

Because the Global War on Terrorism has increased BAMC's workload and consumed considerable resources, BAMC can become increasingly dependent on additional sources of funding to support their mission of providing medical care to soldiers and their families.

In an effort to improve on documentation compliance, a front-end approach is recommended to establish a standardized training program that provides documentation training to new interns/residents and medical staff during the orientation phase. Initial documentation training should also be followed by quarterly training to review changes or updates of documentation requirements, thus helping to reduce the variability of documentation compliance rates from one department/clinic to another. Realizing that this will affect productivity, the reality is that BAMC could experience increased efficiencies in the billing process and increased revenue from better documentation/coding and reduced supply expenditures.

To ensure continuous improvement, a recommendation is that BAMC should continue to monitor documentation compliance on a quarterly basis by-department and, if resources permit, by-provider. Continuing provider performance monitoring will ensure uninterrupted management oversight from senior level executives through department chiefs to clinic chiefs and individual providers, thus ensuring a top-to-bottom effort to improve upon medical record documentation-the prevalent contributor to improper payment errors when performed inadequately.

In regard to coders, recommend that BAMC improve upon its ability to detect coding errors using software application that can easily batch coded patient visits and expeditiously identify potential errors. Another aspect that will improve upon prevention of errors is a training program for coders. BAMC coders need a training program that will address the many changes that occur in coding guidelines. By providing quality training sessions, coders can receive updated guidance on coding practices, expect timely feedback on their coding performance, and be given an forum to discuss challenges and share resolution to the problems that they experience on a daily basis. With an established training program, BAMC coding compliance program will emphasize prevention rather than correction of errors prior to billing as a component of claims denial management. If correction is the emphasis, BAMC will be better served if actions occur within the clinic for two reasons: (1) the correction of errors is more manageable at the clinic level because personnel are more familiar with each patient visit and (2) the aggregate number of clinic personnel is significantly greater than the UBO personnel who are usually overwhelmed with correction of erroneous bills generated by the clinics.

As highlighted earlier, certification shows promising signs of improved performance for coders. Also, the fact that civil service coders during the study had better productivity and were equally as accurate as their contracted counterparts shows that BAMC may experience improved coding compliance if civil service coders are given the incentive to achieve certification.

Discussions with civil service coders surfaced a desire to be certified, but a state of discouragement exists because of the absence of incentives that would encourage their commitment of additional personal time and funds. In the past, DHCO has supported and requested a promotion incentive for a civil service coder who achieved certification; needless to say, DHCO's efforts to date were unsuccessful. Accordingly, a recommendation is that BAMC should review incentives for civil service coders to encourage individuals to seek certification. A modest pay increase for achieving certification may more than pay for itself with accurate coding that results in improved billing practices and higher revenue.

Appendix A

**Provider's Survey**

This survey has been approved for distribution by the Deputy Commander for Administration, Brooke Army Medical Center (BAMC).  The survey is administered in support of a study conducted to determine if the provider incentive program is having a positive effect on coding productivity and accuracy. Please read each question carefully and answer them to the best of your ability.

**Privacy Act Statement**: Your participation in this survey is voluntary, however failure to answer all questions may result in your answers being disregarded in the study.  The identifying information (your initials and the last four of your social security number) is requested to allow the surveyor to match up your survey responses with your performance data to assist in determining the effectiveness of the provider incentive program. The demographic information is asked to study whether there are any socio-economic groups for which the training is less effective.  This information may identify whether any modifications to the program are necessary prior to training future groups. Your survey will be shared only with those individuals who are involved in conducting this study.  Your survey will remain confidential and will be filed in a separate folder maintained by the surveyor, and will not be maintained in your competency document folder or personnel folder.

| | |
|---|---|
| Please provide your initials (first / middle / last  - last four) (ex: jat - 1234) □ □ □ - □ □ □ □ | |

**1.** What is your age? ☐ years-old

**2.** What is your gender?  ◉ Male    ☐ Female

**3a.** Are you Hispanic?  ☐ Yes   ☐ No

**3b.** What is your race? (Select one)

☐ White    ☐ Afro-American   ☐ Asian / Pacific Islander

Other ☐

**4.** What is the highest level of education you've completed? (Select one)    ☐ Masters    ☐ Doctorate

**5.** Are you a (Select one):
☐ Military Provider?  ☐ Contracted Provider?  ☐ Government-Hired Provider?

**6.** How many years/months have you been a provider in a military medical treatment facility?

Year(s): ☐    Month(s): ☐

**7a.** Have you received any formal training on **medical record documentation** as it **relates** to **accurate coding and billing**?

☐ Yes   ☐ No

**7b.** If **Yes** to question 7a, how long ago did you receive this training?

Year(s): ☐    Month(s): ☐

**7c.** If **Yes** to question 7a, how many hours of **medical record documentation**:

➢     Training did you receive **prior** to being hired by BAMC (Select the most appropriate)?

☐ None  ☐ 1 - 4 hours   ☐ 5 - 8 hours   ☐ 8 - 12 hours   ☐ 12 - 16 hours   ☐ More than 16 hours

➢     Orientation training did you receive **prior** to seeing patients at BAMC (Select the most appropriate)?

☐ None  ☐ 1 - 4 hours   ☐ 5 - 8 hours   ☐ 8 - 12 hours   ☐ 12 - 16 hours   ☐ More than 16 hours

➢     Sustainment training did you receive **while** you were seeing patients at BAMC (Select the most appropriate)?

☐ None  ☐ 1 - 4 hours   ☐ 5 - 8 hours   ☐ 8 - 12 hours   ☐ 12 - 16 hours   ☐ More than 16 hours

Upon completion of the survey, please forward this survey via email on Outlook to MAJ Joseph Tudela @ joseph.tudela@amedd.army.mil.

Appendix A

### **Coder's Survey**

This survey has been approved for distribution by the Deputy Commander for Administration, Brooke Army Medical Center (BAMC).  The survey is administered in support of a study conducted to determine if the coding compliance plan is a cost-effective instrument to improving coding productivity and accuracy. Please read each question carefully and answer them to the best of your ability.

**Privacy Act Statement**: Your participation in this survey is voluntary, however failure to answer all questions may result in your answers being disregarded in the study.  The identifying information (your initials and the last four of your social security number) is requested to allow the surveyor to match up your survey responses with your performance data to assist in determining the effectiveness of the coding compliance plan. The demographic information is asked to study whether there are any socio-economic groups for which the training is less effective.  This information may identify whether any modifications to the program are necessary prior to training future groups. Your survey will be shared only with those individuals who are involved in conducting this study.  Your survey will remain confidential and will be filed in a separate folder maintained by the surveyor, and will not be maintained in your competency document folder or personnel folder.

| |
|---|
| Please provide your initials (first / middle / last  - last four) (ex: jat - 1234) ☐☐☐ **-** ☐☐☐☐ |
| **1.** What is your age? ☐  years-old |
| **2.** What is your gender?  ◉ Male      ◎ Female |
| **3a.** Are you Hispanic?  ☐ Yes    ☐ No<br><br>**3b.** What is your race? (Select one)<br><br>☐ White      ☐ Afro-American      ☐ Asian / Pacific Islander<br><br>Other: ☐ |
| **4.** What is the highest level of education completed? (Select one)<br><br>☐ High School      ☐ Associate      ☐ Bachelor      ☐ Masters      ☐ Doctorate |
| **5.** Are you a: (Select one)  ☐ Government-Hired Coder?      ☐ Contracted Coder? |
| **6.** How long have you been a coder **prior** to employment at BAMC?  Years: ☐  Months: ☐ |
| **7.** How long have you been a coder **while** employed at BAMC?  Years: ☐  Months: ☐ |
| **8a.** Are you a **certified** coder?  ☐ Yes    ☐ No<br><br>**8b.** If **No** to question **8a**, are you actively engaged in becoming certified?  ☐ Yes    ☐ No<br><br>➢ If **Yes** to question **8b**, which training/certification program are you actively using?<br><br>☐<br><br>Continued on next page… |

> If **No** to question **8b**, what is preventing you from taking action to become certified? (Select your primary reason.)

☐ Personal Funds      ☐ Lack of Time      ☐ Lack of Interest      ☐ Lack of Information

Other: _____

---

**9.** Have you read BAMC's coding compliance plan?      ☐ Yes      ☐ No

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**10.** How often do you receive BAMC formalized training on coding guideline updates? (Select one)
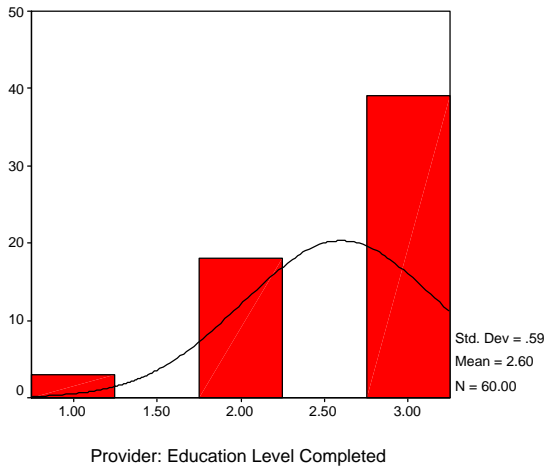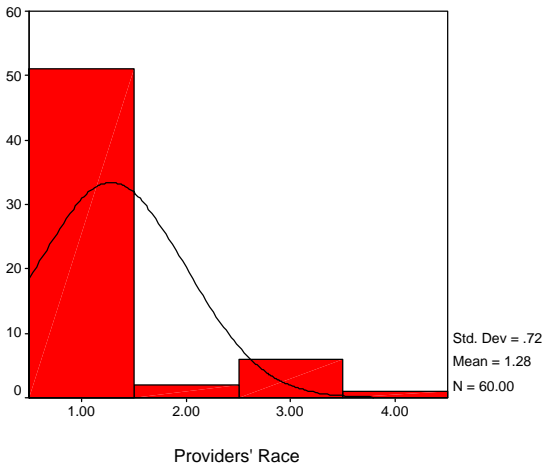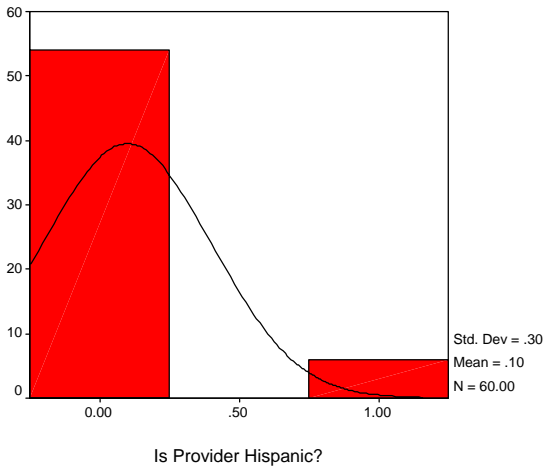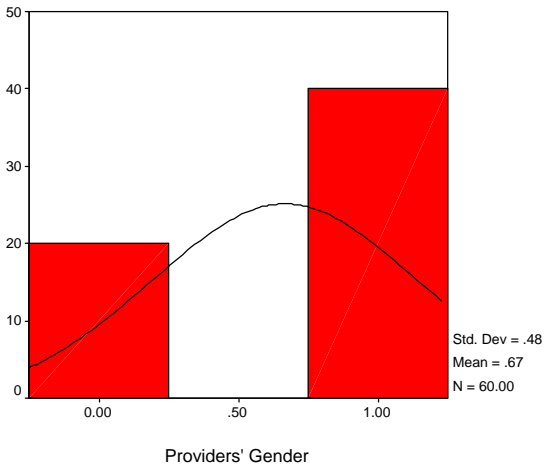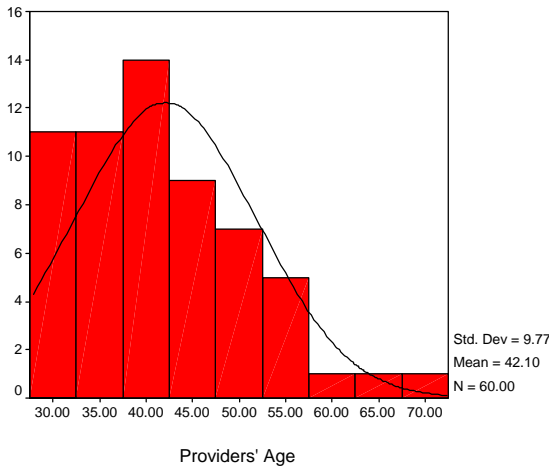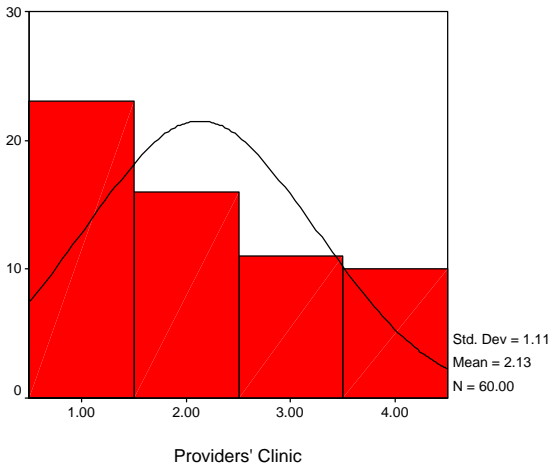
☐ Never   ☐ Annually   ☐ Semi-annually   ☐ Quarterly   ☐ Monthly   ☐ Weekly

---

**11.** How long has it been since your most recent formal training occurred? (Enter **0** if you selected Never for question **10**.)  Years: _____   Months: _____

Upon completion of the survey, please save your survey and then forward the completed survey via Outlook email to MAJ Joseph Tudela @ joseph.tudela@amedd.army.mil.
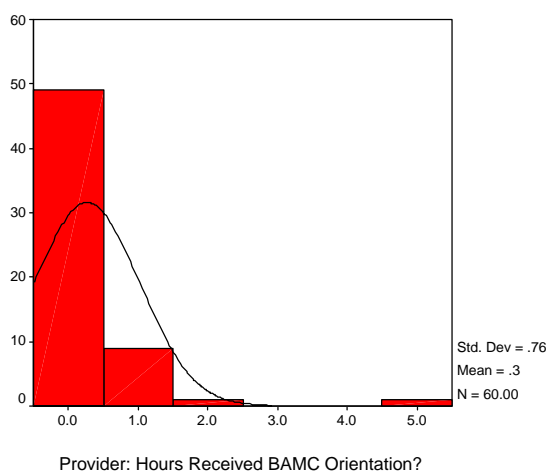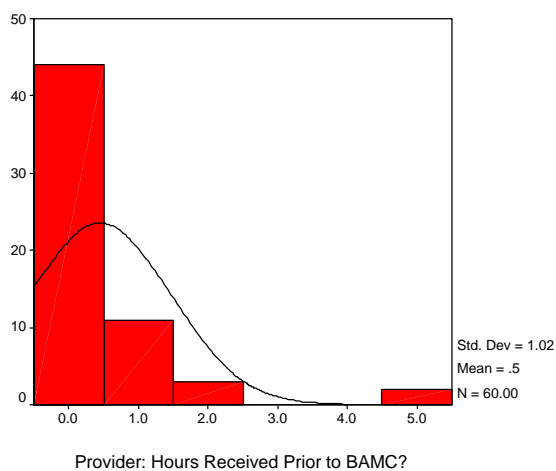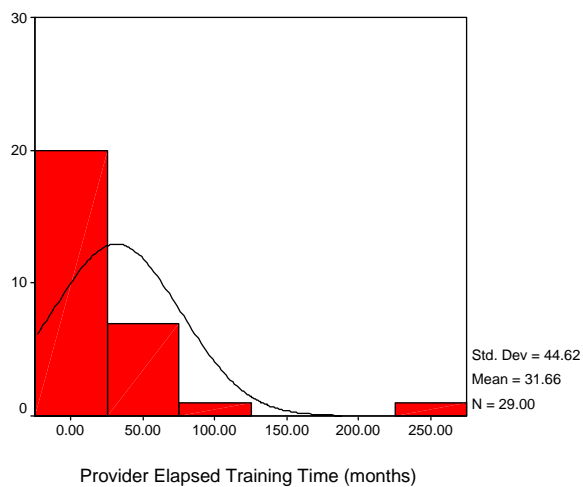
Appendix B

Provider Data Set (Histogram – Demographics)



Std. Dev = 1.11
Mean = 2.13
N = 60.00

Providers' Clinic

Std. Dev = 9.77
Mean = 42.10
N = 60.00

Providers' Age

Std. Dev = .48
Mean = .67
N = 60.00

Providers' Gender

Std. Dev = .30
Mean = .10
N = 60.00

Is Provider Hispanic?

Std. Dev = .72
Mean = 1.28
N = 60.00

Providers' Race

Std. Dev = .59
Mean = 2.60
N = 60.00

Provider: Education Level Completed

# Appendix B

## Provider Data Set (Histogram – Demographics) (continued)



Providers' Employment Type

Std. Dev = .76
Mean = 1.65
N = 60.00



Providers' MTF Experience (months)

Std. Dev = 95.13
Mean = 90
N = 60.00



Provider Received Formal Training?

Std. Dev = .50
Mean = .48
N = 60.00



Provider Elapsed Training Time (months)

Std. Dev = 44.62
Mean = 31.66
N = 29.00



Provider: Hours Received Prior to BAMC?

Std. Dev = 1.02
Mean = .5
N = 60.00



Provider: Hours Received BAMC Orientation?

Std. Dev = .76
Mean = .3
N = 60.00

Appendix B

Provider Data Set (Histogram - Demographics) (continued)



Std. Dev = 1.13
Mean = .5
N = 60.00

Provider: Hours Received BAMC Post-Orientation?

Appendix B

Provider Data Set (Histogram - Performance) (continued)



Std. Dev = .17
Mean = .86
N = 60.00

Aug 03: Provider Record Compliance Rate (%)



Std. Dev = .14
Mean = .93
N = 43.00

Feb 04: Provider Record Compliance Rate (%)



Std. Dev = 3762.83
Mean = 2586.35
N = 60.00

Aug 03: Provider Dollars Lost to Noncompliance ($)



Std. Dev = 10981.90
Mean = 3440.96
N = 43.00

Feb 04: Provider Dollars Lost to Noncompliance ($)



Std. Dev = .16
Mean = .13
N = 60.00

Aug 03: Provider Percent Dollars Loss to Noncompliance (%)



Std. Dev = .11
Mean = .06
N = 43.00

Feb 04: Provider Percent Dollars Loss to Noncompliance (%)

Appendix C

Coder Data Set (Histogram - Demographics)



Coder Clinic

Std. Dev = 1.04
Mean = 2.3
N = 8.00



Age

Std. Dev = 8.24
Mean = 46.3
N = 8.00



Gender

Std. Dev = .46
Mean = .25
N = 8.00



Hispanic

Std. Dev = .46
Mean = .75
N = 8.00



Race

Std. Dev = .35
Mean = 1.13
N = 8.00



Number of Education Years Completed?

Std. Dev = 1.58
Mean = 14.25
N = 8.00

# Appendix C

## Coder Data Set (Histogram - Demographics) (continued)



Std. Dev = .74
Mean = 1.63
N = 8.00

Education Level Completed?



Std. Dev = .46
Mean = 1.25
N = 8.00

Employment Type



Std. Dev = 18.94
Mean = 20.50
N = 8.00

Coding Experience before BAMC (months)?



Std. Dev = 32.74
Mean = 38.50
N = 8.00

Coding Experience at BAMC (months)?



Std. Dev = .52
Mean = .38
N = 8.00

Certified Coder?



Std. Dev = 1.06
Mean = 1.63
N = 8.00

Frequency of Formal Training

## Appendix C

## Coder Data Set (Histogram - Performance) (continued)



Std. Dev = .32
Mean = .74
N = 8.00

Aug 03: Productivity Rate = (# Coded Records/Day)/80



Std. Dev = .27
Mean = .95
N = 8.00

Mar 04: Productivity Rate = (# Coded Records/Day)/80



Std. Dev = .04
Mean = .80
N = 8.00

Aug 03: Coding Accuracy = (# by Coder/# by Auditor)



Std. Dev = .07
Mean = .89
N = 8.00

Mar 04: Coding Accuracy = (# by Coder/# by Auditor)



Std. Dev = 25.56
Mean = 9.91
N = 8.00

Aug 03: Average $$ Difference Coder-Auditor



Std. Dev = 42.69
Mean = -22.0
N = 8.00

Mar 04: Average $$ Difference Coder-Auditor

Appendix D

Inter-Rater Reliability (Pearson's r)

**Correlations**

| | | Meets CMS Guidelines? (Auditor #1) | Meets CMS Guidelines? (Auditor #2) |
|---|---|---|---|
| Meets CMS Guidelines? (Auditor #1) | Pearson Correlation | 1 | 1.000** |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |
| Meets CMS Guidelines? (Auditor #2) | Pearson Correlation | 1.000** | 1 |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Correlations**

| | | Possible # of E/M Codes (Auditor #1) | Possible # of E/M Codes (Auditor #2) |
|---|---|---|---|
| Possible # of E/M Codes (Auditor #1) | Pearson Correlation | .a | .a |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |
| Possible # of E/M Codes (Auditor #2) | Pearson Correlation | .a | .a |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |

a. Cannot be computed because at least one of the variables is constant.

**Correlations**

| | | Possible # of Primary CPT Codes (Auditor #1) | Possible # of Primary CPT Codes (Auditor #2) |
|---|---|---|---|
| Possible # of Primary CPT Codes (Auditor #1) | Pearson Correlation | 1 | 1.000** |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |
| Possible # of Primary CPT Codes (Auditor #2) | Pearson Correlation | 1.000** | 1 |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix D

Inter-Rater Reliability (Pearson's <u>r</u>)

**Correlations**

| | | Possible # of Secondary CPT Codes (Auditor #1) | Possible # of Secondary CPT Codes (Auditor #2) |
|---|---|---|---|
| Possible # of Secondary CPT Codes (Auditor #1) | Pearson Correlation | 1 | 1.000** |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |
| Possible # of Secondary CPT Codes (Auditor #2) | Pearson Correlation | 1.000** | 1 |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Correlations**

| | | Possible # of Primary Dx Codes (Auditor #1) | Possible # of Primary Dx Codes (Auditor #2) |
|---|---|---|---|
| Possible # of Primary Dx Codes (Auditor #1) | Pearson Correlation | .[a] | .[a] |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |
| Possible # of Primary Dx Codes (Auditor #2) | Pearson Correlation | .[a] | .[a] |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |

[a]. Cannot be computed because at least one of the variables is constant.

**Correlations**

| | | Possible # of Secondary Dx Codes (Auditor #1) | Possible # of Secondary Dx Codes (Auditor #2) |
|---|---|---|---|
| Possible # of Secondary Dx Codes (Auditor #1) | Pearson Correlation | 1 | 1.000** |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |
| Possible # of Secondary Dx Codes (Auditor #2) | Pearson Correlation | 1.000** | 1 |
| | Sig. (2-tailed) | . | . |
| | N | 20 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix D

Inter-Rater Reliability (Pearson's _r_)

**Correlations**

|  |  | Possible # of Modifiers (Auditor #1) | Possible # of Modifiers (Auditor #2) |
|---|---|---|---|
| Possible # of Modifiers (Auditor #1) | Pearson Correlation | 1 | 1.000** |
|  | Sig. (2-tailed) | . | . |
|  | N | 20 | 20 |
| Possible # of Modifiers (Auditor #2) | Pearson Correlation | 1.000** | 1 |
|  | Sig. (2-tailed) | . | . |
|  | N | 20 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix E

Coder Training Slides

# Coder Training

Baylor Study

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## Typical Causes of Coding Errors

- Failure to review the entire record
- Selection of incorrect primary diagnosis
- Selection of incorrect code(s)
- Coding diagnoses/procedures not validated by record content
- Coding only from the index
- Missed modifiers
- Unbundling of procedures

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## Common Coding Errors

- Do not code diagnoses documented a "probable", "suspected", "questionable"," rule out", or working diagnosis.
- Use E codes (missing or incorrect code selection)
- Do not use V65.49 (other specified counseling)

Appendix E

Coder Training Slides (continued)

## Evaluation and Management

- ❑ Who can use these?
- ❑ Nurses and Technicians -99211 or 99499
- ❑ Not every visit needs an E&M code
  If there is a better way of reflecting the work, use 99499 as a holding place in ADM.

## Evaluation and Management E/M

*What makes up an E/M?*

- ❑ History
- ❑ Exam
- ❑ Medical Decision Making
- ❑ Counseling and Coordination of care
- ❑ Time

## History

- ❑ Chief Complaint
- ❑ History of Present Illness
- ❑ Review of Systems
- ❑ Past Medical, Family & Social History

Appendix E

Coder Training Slides (continued)

## Elements of an HPI:

Elements of an HPI:
Location    Severity    Timing      Modifying Factors
Quality     Duration    Context     Signs/Symptoms

- Brief HPI - Consists of 1-3 elements

- Extended HPI - Consists of 4 or more elements or if using 1997 E&M guidelines, the status of at least three chronic or inactive conditions

Note:  **The HPI may be documented by ancillary staff and reviewed by the clinician.  Provider should document concurrence and/or changes as necessary.**

## Review of Systems

Constitutional    ENMT      GI          Integumentary
Endocrine         Eyes      GU          Hemat/Lymph
Cardiovascular    Musculoskeletal Neurological
Allergy/Imm       Respiratory     Psychiatric

OR
"All other Negative" or "Unremarkable"

Note:  The patient's positive responses and negatives for the system related to the problem should be documented.

## 1997 Examination

- **Recognized System/Body Areas**
  - **Constitutional**
  - **Eyes**
  - **Ears, nose, mouth, Throat**
  - **Neck**
  - **Respiratory**
  - **Cardiovascular**
  - **Chest/breasts**
  - **Gastrointestinal/abdomen**
  - **Genitourinary**
  - **Lymphatic**
  - **Musculoskeletal**
  - **Skin**
  - **Neurologic**
  - **Psychiatric**

Appendix E

Coder Training Slides (continued)

## Medical decision making

☐ Medical decision making refers to the complexity of establishing a diagnosis and/or management option

- *Number of diagnoses or treatment options*
- *Amount and/or complexity of data reviewed*
- *Risk of complications and/or morbidity or mortality*

## Office visit and Procedures

☐ The coding of an office visit (E&M code) is included in the minor office surgery. (Typically)

☐ Although, an office visit can be coded separately when the visit is for a separate and significant E&M service above and beyond the procedure performed.  Different diagnosis are not required.

*In these cases, modifier -25 must be added to the appropriate E&M code.*

## Preventive Medicine Service

☐ Preventive services are services performed in the absence of complaints or symptoms for the purpose of detecting any new diseases, as well as to protect by way of risk factor reduction against future disease. Preventive medicine service codes 99381-99429 are used to report the preventive medicine evaluation and management of infants, children, adolescents, and adults. Codes are based on patient status (new or established) and age. Immunizations and ancillary studies involving laboratory, radiology, or other procedures are separately reported.

Appendix E

Coder Training Slides (continued)

## Office visit and Procedures

- ❑ Diabetic foot tech/nurse ~ use 99499 if the provider is overseeing the clinic then use 2A (compliant)
- ❑ Injections

## ICD-9-CM

### Coronary Artery Disease

-Use 414.01 for a patient with CAD and no past history of a CABG.

Physicians rarely include information regarding the type of graft in the physician statement, but it is almost always available in the medical record.  If the medical record makes it clear that there has been no previous bypass surgery, code 414.01, can be assigned.

## Clean-up

- ❑ Use the "FCUO" appropriately
- ❑ Make sure that you list "all"  residents, nurses and technicians as secondary providers in ADM
- ❑ 72 hour turn around
- ❑ Q0091 obtaining screening pap
- ❑ Do not code off the problem list
- ❑ V68.1 RX refill

Appendix E

Coder Training Slides (continued)

## Questions for Coder

- Encoder grouper
- Coding guidelines
- CMS website
www.cms.hhs.gov
- Coder/Biller Network

## Questions or Concerns

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