AHRQ Grant Final Progress Report

Title of Project: Improving Warfarin Management in Competitive Healthcare

Principal Investigator and Team Members:

- Principal Investigator: James M. Levett, MD
- CAT Clinic Coordinator: Carla S. Huber, ARNP
- Project Coordinator: Joan Atkinson, RN, PCI
- Project Director, Mercy Medical Center: Curtis Reynolds, MD
- Project Director, St. Luke's Hospital: Mary Ann Osborn, RN, MA
- Program Administrators: Tonya Arnold and Debbie Mrkvicka
- Metrics and Website Coordinator: Pat Thies, RPh
- Curriculum: Nancy Glab, RN, MS
- Project Assistants, Iowa Quality Center: Gary Nesteby and Deb Oliver

Organization: Kirkwood Community College

Inclusive Dates of Project: 07/01/2005 through 06/30/2007
NCE July 1, 2007- June 30, 2008

Federal Project Officer: Robert Borotkanics, Program Official; Olamide Adeniyi, Grants Manager; Joan Metcalfe, Grants Management Officer

Acknowledgment of Agency Support: As stipulated in the Award Letter, all published reports, both formal and informal, acknowledge AHRQ's grant support by stating: "This project was supported by grant number 5 U18 HS015830 from the Agency for Healthcare Research and Quality." In addition, if a manuscript results from this grant project, the Principal Investigator will promptly notify the Project Officer of its acceptance and the date it is scheduled to be published.

Grant Award Number: Year One: 1 U18 HS015830-01; **Year Two:** 5 U18 HS015830-02.

Structured Abstract

Purpose: Create a community model of care delivery/patient safety using ISO 9001 principles**.**

Scope: Community anticoagulation clinic employing ISO principles/evidence-based guidelines to improve patient safety/management

Methods: Iowa Quality Center Consultants educated healthcare and community leaders and staff about ISO 9001 principles. The CAT Clinic utilizes ISO and evidence-based principles.

Results: Eight ISO executives; four staff training sessions held. The CAT Clinic developed an electronic medical record/database, enrolled 250 patients, collected data on numerous metrics, and showed improved patient care. Percent of INRs in range improved from 49% to 65%; the number of times a nurse contacted a physician decreased from a high of 20% to 1%; the percent of INRs > 5 decreased from 3% to 1%. The CAT Clinic developed a "compliance assessment" tool to measure warfarin compliance. The CAT Clinic compliance score increased from 97% to 99%. The CAT Clinic tracks complications like bleeding or clotting and whether these require emergency room treatment/hospital admission. Bleeding/clotting events requiring hospital admission remained < .02% of all patient visits. The Cedar Rapids Healthcare Alliance (CRHA) was created to oversee the CAT Clinic and other community projects. The CRHA became 501(c)(3) certified in July 2007.

Key Words: CAT Clinic – Community Anticoagulation Therapy Clinic, Cedar Rapids Healthcare Alliance (CRHA), INR – International Normalized Ratio (lab test to measure blood thickness/thinness).

Purpose (Objectives of Study). The goal of the project is to create a community model of care delivery and patient safety using IS0 9001 principles as a framework of cooperation. The model is a horizontal model of integration that involves establishing an anticoagulation clinic that employs evidence-based practice guidelines to improve the safety and management of patients on anticoagulation therapy across a local competitive healthcare system. The overall aim will be accomplished by utilizing an ISO 9001 quality management system framework for coordinated care management, supported by quality tools and training, informed by evidence-based practices, and sustained long term through evaluation of a new payer-supported fee structure.

Specific Aims as Stated in the Proposal

1. Educate and train partners on principles of ISO 9001 quality management principles
2. Establish an anticoagulation clinic
3. Determine other uses of the ISO 9001 framework within the healthcare community

Scope

Background: Use of anticoagulation within the inpatient and outpatient settings has expanded greatly in recent years. It is estimated that over 2.0 million patients in the United States are taking warfarin, and we believe that between 3,000 and 4,000 patients in our community take warfarin on a regular basis. Cedar Rapids has a high proportion of elderly patients who are at particularly high risk for adverse drug events (ADEs). Establishing an anticoagulation clinic within our community will allow standardization of protocols for prescribing warfarin, improved monitoring of patients on warfarin, and improved communication with patients. These features of the clinic will improve the culture and safety within the community and reduce errors, ADEs, and readmission for complications in patients taking warfarin. This project specifically addressed the National Quality Forum safe practices, 2005, items 1, Creation of a healthcare culture of safety, and 18, Utilization of dedicated anti-thrombotic services that facilitate coordinated care management.

Context: Healthcare spending in 2003 was $1.7 trillion annually and is expected to double by 2012. Payment increases in Medicare and Medicaid reimbursement are not expected to cover cost increases incurred by providers, and resulting inequities will affect hospital and provider staffing, recruitment, and financial stability. Current payment mechanisms have not been effective in curbing the high demand for services, and the insurance system fails to provide support for the over 42 million that are uninsured. Other system problems outlined by the Institute of Medicine include issues of patient safety; practice disparity; medical liability; and the slow adoption of best care practices by providers.

Settings: Solutions to solve this serious predicament have not been forthcoming. Various proposals have involved changing the reimbursement system to align incentives, reducing provider reimbursement, moving to a single-payer system, tort reform, and quality initiatives. Most studies have stressed that healthcare problems are basically system-based problems, requiring changes in quality and process concepts for significant improvements to occur. One solution getting attention is the adoption of quality concepts, which have been proven in the industry but are not yet established in the healthcare marketplace. Industry tools are best exemplified by the Baldrige criteria, Six Sigma, lean concepts derived from the Toyota Production System model, and the ISO 9001 set of quality standards.

There are many reasons for a healthcare facility to obtain ISO certification. Establishing an ISO 9001 quality management system provides for work performance consistency and enables the discovery of causes of poor performance. It stresses the process approach; defines goals and objectives for quality; and provides benchmarks to measure improvements. Quality management requires customer focus and continual improvement. It provides for accountability within the system and ensures that the most important functions are carried out. It establishes a clear document system throughout the organization; a common language across the organization; and common identifiers for customers/patients.

Anticoagulation clinics have been developed and utilized throughout the United States and Europe for over 10 years. They have been shown to be effective in improving anticoagulation control; reducing the number of INR tests required to maintain good control; improving patient safety; reducing readmissions and complications; reducing the potential for errors in dosing; improving patient convenience; and improving the efficiency of doctor and nurse time. Although the advantages of anticoagulation clinics are clear, most clinics that we have evaluated in this project are managed by an individual hospital or physician practice and are designed to serve only the patients of that entity. We have not found examples of anticoagulation clinics designed to serve a community of providers representing competing practices and hospitals. Our proposal is unique in that we propose to establish an anticoagulation clinic for the entire community using ISO 9001 QMS principles as the basis or framework for cooperation.

Participants: Cedar Rapids is a northeastern Iowa community with a population of 150,000 and a healthcare service area of approximately 300,000. Cedar Rapids is located in Linn County, which has a population of 192,000 — 12.2% over age 65. The two competing, nonprofit hospitals have a shared medical staff of 350 physicians working in various office settings.

Incidence and Prevalence: We estimate that between 3,000 and 4,000 patients within our community are currently taking warfarin for various indications. At the onset of the grant, two cardiology offices managed about 2,000 patients on warfarin. A random sample of 100 patients at one of the cardiology clinics indicated that 81% were over the age of 60, and 56% were over the age of 75.

Management of International Normalized Ratio (INR) levels and dosage adjustments were made by the individual physician and staff using different methods and algorithms. No set protocol has been established, and there was no coordinated oversight to the process. Communication with patients and education was done through the physician's office on a case-by-case basis.

Adverse drug events (ADEs) were evaluated in both hospitals, and it was found that approximately 25% were related to warfarin therapy (defined as INRs > 5.0).

Participants in our PIPS project included both hospitals; two cardiology clinics; Physicians' Clinic of Iowa; Kirkwood Community College; The Iowa Quality Center; Rockwell Collins; Wellmark Blue Cross/Blue Shield; and various other employer and community groups.

Patients were referred to the CAT Clinic by local participating physicians.

Refer to the attached graphs (**Appendix A**) for baseline data related to satisfaction surveys, percent of INRs in range, compliance scoring, physician contacts, hospital admissions, INRs > 5, and other

metrics.

Methods

Study Design – The project will establish a Community Anticoagulation Therapy (CAT) Clinic in Cedar Rapids, Iowa. The Clinic will serve the two partner acute care hospitals and physician practices that wish to enroll their patients. The unique feature of the research will be the utilization of ISO 9001 quality management system principles to design a system of care that will be employed to establish and operate the Clinic. Partners will be informed on how utilization of ISO 9001 core principles can offer a model for a documented quality system; a foundation for information accuracy; and a building block for continuous improvement. Utilizing the ISO framework will provide evidence of good management practices aiding in consistency and efficiency.

A major employer in our community, Rockwell Collins, agreed to assist in the project. Rockwell engineers utilized their expertise in building avionics systems to design mistake-proof features to ensure patient safety and minimize errors. Wellmark Blue Cross/Blue Shield of Iowa provided a matching grant of $25,000 in Year One and Year Two of the project and has agreed to evaluate cost and outcome data in order to determine the feasibility of establishing a management fee that will provide a means of long-term support for the clinic. Cost and outcome data will be analyzed by the Delta Group, utilizing established clinical and risk adjustment algorithms.

Data Sources/Collection/Interventions/Measures

- **Aim #1**

  1. The Iowa Quality Center (IQC) provided consultation for the ISO 9001 training sessions.

- **Aim #2**

  1. The CAT Clinic began seeing patients in February 2006. To date, 250 patients have been enrolled in the clinic. A controlled document system was established for the CAT Clinic (**Appendix B**). This document system adheres to the ISO 9001 quality management system standards for healthcare providers. The system requires documented procedures for the following:
     - Control of Documents
     - Control of Records
     - Corrective Action
     - Preventive Action
     - Control of Nonconforming Product
     - Internal Audit Process
  2. It was identified early in the development of the CAT Clinic that there was a need for an electronic medical record that could collect data and improve processes in the clinic. The team reviewed four existing anticoagulation software programs and found that none were able to provide all that was needed. The partnership with Rockwell Collins provided engineers who developed a robust software system that improved patient flow, care processes, and the ability to collect meaningful outcome and process data.
  3. There were several teams developed to assist with different components of the grant. These teams were:
     - PIPS Management
     - Metrics
     - Health Literacy

- Survey (patient and provider satisfaction)
- ISO Training
- Web Development
- Database Development

- **Aim #3**

1. The PIPS team members began to identify other uses for ISO early on. The IQC provided training to staff from several healthcare entities about ISO principles, auditing, and quality management tools.
2. The CRHA identified the possibility of becoming a Patient Safety Organization, a Regional Health Information Organization, or a Value Exchange Organization.
3. The CRHA also identified early on that more grant applications would be needed in order to continue to fund the CAT Clinic and other CRHA community projects.

Limitations: included slow referral of patients to the CAT Clinic by local physicians. There was no written plan in place to roll out the program to local physicians. Having no marketing or public relations plan also limited spread of information about the CAT Clinic and CRHA.

Results

Outcomes

- **Aim #1**

  Eight ISO Executive Training and **four** staff training sessions were completed**.** Sessions provided information about the ISO 9001 system and information about the progress of the CAT Clinic. Session participants included physicians; personnel from both the community hospitals; physician office staff; local laboratory administrators; and other education and local business leaders**.** Each training session included a breakout session in which participants were given a question to brainstorm. Various quality management exercises (relationship diagram, brainstorming) were utilized for the breakout sessions (see samples of attached agendas in **Appendix C**). In January 2007, a national ISO 9001 expert, Mickey Christensen, spoke about *"The Good, Bad, and Ugly of Quality Management."* ISO 9001 Auditor Training was provided in November 2008 with 20 attendees. Attendees included individuals from Physicians' Clinic of Iowa; the CAT Clinic; Kirkwood Community College; Mercy Medical Center; and, St. Luke's Hospital.

- **Aim #2**

  Many tools were developed including:

  - Over 70 ISO CAT Clinic documents – including process patient flow chart, risk assessment form, warfarin protocols, warfarin complication guideline, and customer feedback. Many of these forms are features of the Warfarin Patient Management System database.
  - Anticoagulation Management Staff Education materials
  - Compliance Scoring Scale
  - Warfarin Patient Management System database and electronic medical record
  - My Guide to Warfarin Therapy – patient education booklet

An internal audit of the CAT Clinic was conducted on October 23, 2007. No nonconformances or

observations were noted. Two opportunities for improvement were discussed: first, the need to develop preventive actions, and second, to add all the steps of the Error Report to the database so that duplication in documentation does not occur (more efficient).

Principal findings included improvement in many of the clinical metrics (**Appendix A**). The improvement in percent of INRs in range was seen early on and indicates less bleeding and clotting events. Patient and provider satisfaction was measured prior to enrolling patients in the CAT Clinic. Patient satisfaction improved when care was provided by the CAT Clinic. Provider rated satisfaction with usual care at 70%-92%. Satisfaction with care provided by the CAT Clinic is 100%. The CAT Clinic also evaluated four warfarin software packages and found that most could not collect metrics needed by the Clinic. Rockwell Collins engineers then designed a database that is used as an electronic medical record and easily collects metrics. Cost metrics were not assessed due to time constraints of the grant. We plan to measure these during the third quarter of 2008.

Health literacy issues were recognized early on. Nursing instructors at Kirkwood Community College developed and tested a patient education tool, "My Guide to Warfarin Therapy," that utilized many of the principles recommended by health literacy experts. The Guide has been well received by patients (compliance scores have increased) and, to date, both community hospitals and one cardiology clinic are using the binder. In April 2008, AHRQ revised the layout of the Guide and also translated the Guide into Spanish. The CAT Clinic also participated in a health literacy work group convened by the Iowa Health System (IHS), of which St. Luke's Hospital in Cedar Rapids is an Affiliate. The Guide has been provided to the IHS for use in their affiliate hospitals and clinics. To date, two IHS hospitals and one physician's office utilize the Guide for patient teaching. The CAT Clinic has received 53 requests to reprint the Guide for use in various institutions.

- **Aim #3**

  The Cedar Rapids Healthcare Alliance has found many other uses for ISO 9001 in the community.

List of Publications and Products

Levett, JM, Huber, CS, Atkinson, JM. A Tool to Assess Compliance in Anticoagulation Management, *Advances in Patient Safety: New Directions and Alternative Approaches.* submitted for publication in the AHRQ Journal on 1-8-08. No confirmation of publication has been received at this time.

Hurley, B, Levett, JM, Huber, CS, et al. Lean Six Sigma Tools to Compare INR Measurements from Different Laboratories, *Advances in Patient Safety: New Directions and Alternative Approaches.* submitted for publication in the AHRQ Journal on 1-8-08. No confirmation of publication has been received at this time.

Levett, JM, Huber, CS, Atkinson, JM. Establishing a Cooperative Community Healthcare Model Using Lean-Sigma and ISO 9001 Quality Management Principles, AMGA 2008 Annual Conference, March 6-8, 2008, Orlando, FL.

Huber, CS. Establishing a Cooperative Community Healthcare Model Using Lean-Sigma and ISO 9001 Quality Management Principles, Iowa Quality Center/American Society for Quality Spring Quality Conference, April 17, 2008, Cedar Rapids, IA.

My Guide to Warfarin Therapy. Partnerships In Implementing Patient Safety, contract No. U18 HS015830. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/consumer/coumadin.htm

Prescription for Community-Base Healthcare Includes ISO 9001. Jacobsen J. Making the Case For Quality, February 2008. American Society for Quality. http://www.crhealthcarealliance.org/News/ASQ-Case-Study-Feb-2008.gen.html

Appendix A - Cedar Rapids Healthcare Alliance
CAT Clinic Data March 2008

CAT Clinic Metrics and Methodologies

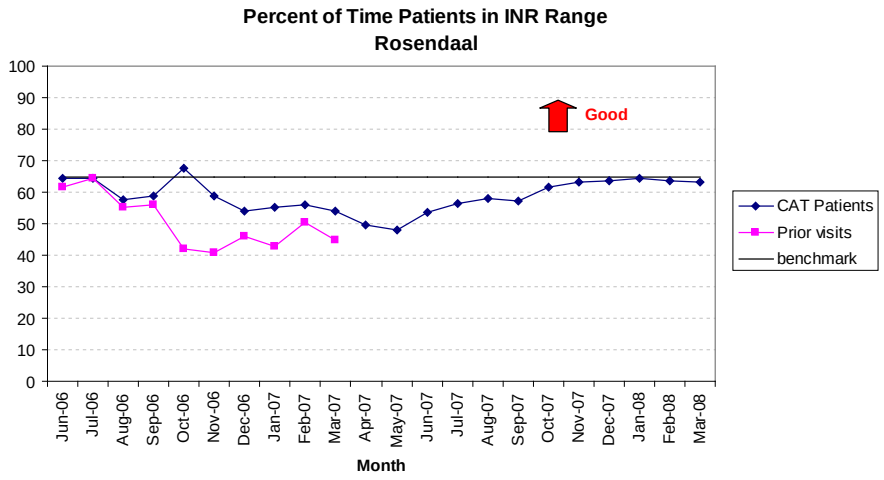
METRIC										METHODOLOGY		
Process							Event			Operational Definitions	What data is collected	Who captures data and how
Referral	Appointment	Clinical Records	Risk Assessment	Patient Ed.	Patient Compliance	Warfarin Protocol	Event #	Ranking*	Description			
						X	1	1	Complications not requiring admission	All minor bleeds necessitating an assessment/intervention by a healthcare provider not requiring an admission and all INRs > 5	Medical Records	Database
						X	2	1	Number of dose changes	Number of dosage adjustments per 100 days of therapy	Medical Records	Database
						X	3	1	Number of times physician contact	Percent of INR results requiring contact with the referring physician for patient management	Medical Records	Database
			X				5	3	Length of time on warfarin therapy	Actual number of days of total continuous therapy (combined pre- and clinic therapy)	Medical Records	Database
						X	6	1	Number of corrective action plans	Number of corrective actions plans per patient per course of therapy	Medical Records	Clinic Staff
						X	7	1	Time in therapeutic range or percent of patients in range	Percent of patients within therapeutic range after 1 month of admission to the clinic, and percent of patients within therapeutic range after 2 weeks of initiation of therapy	Medical Records	Database
				X	X		8	3	Failures of patient to follow clinic dosage order	Average score per patient on compliance assessment scale (see separate scale tool)	Medical Records	Database
					X		9	1	Missed lab reports	Number of missing patient lab reports that performing lab is called about per lab per day	Medical Records	Clinic Staff
				X	X		10	1	Failure of patient to report for lab work as scheduled	Number of lab draws not performed within 2 days of scheduled appointment per patient per course of therapy	Medical Records	Database
						X	12	3	Customer satisfaction	Average score upon completion of survey tool	Medical Records	Clinic Staff
	X				X	X	14	1	Education received	Score upon completion of pre-test compared with score upon completion of post-test	Medical Records	Database
X							14	4	Number of provider referrals	Number of current patients managed per month, and number of new patient referrals per month	Medical Records	Database

Appendix A - Cedar Rapids Healthcare Alliance
CAT Clinic Data March 2008

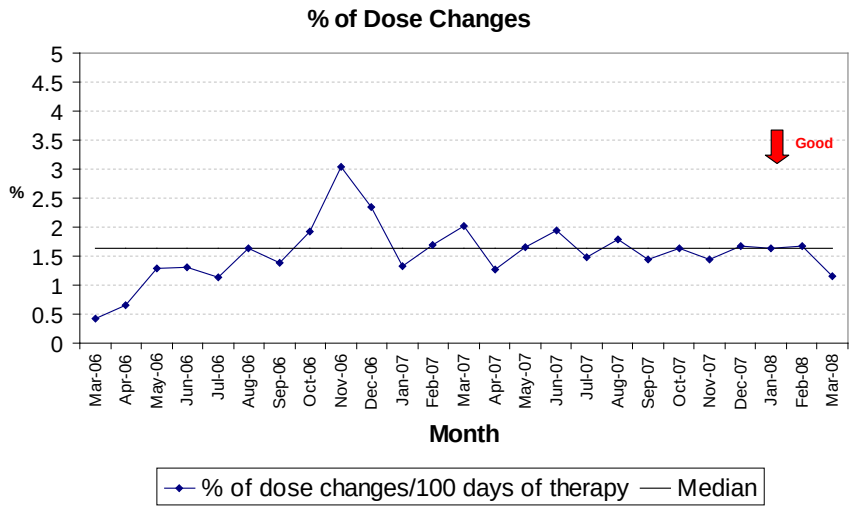
Hospital Metrics and Methodologies

METRIC										METHODOLOGY		
Process							Event			Operational Definitions	What data are collected	Who captures data and how
Referral	Appointment	Clinical Records	Risk Assessment	Patient Ed.	Patient Compliance	Warfarin Protocol	Event #	Ranking*	Description			
					X	X	1	1	Admissions for bleeding	Those admissions for identified ICD-9 codes (see separate listing) that also include either the E934.2 or 790.92 coagulation related code.	ICD-9 Codes, E-Code(s)	BC/BS and Delta
							1.a		Sub-event: Deaths due to anticoagulant therapy	Subset of above with death as the discharge disposition.		Hospital Risk Managers/QI
					X	X	2	1	Admissions for thromboembolic event	Those admissions for identified ICD-9 codes (see separate listing) that also include either the E934.2 or 790.92 coagulation related code.	ICD-9 Codes, E-Code(s)	BC/BS and Delta
							2.a		Sub-event: Deaths due to anticoagulant therapy	Subset of above with death as the discharge disposition.	Subset of above with death as discharge disposition	Hospital Risk Managers/QI
					X	X	3	1	Hospital costs for patients followed in the CAT Clinic	Those admissions for identified ICD-9 codes (see separate listing) that also include either the E934.2 or 790.92 coagulation related code and were managed immediately prior to hospitalization by the CAT clinic.	Total costs of hospitalization LOS, mortality and readmission rates for identified admissions	Delta/Hospital Staff
							3.a		Sub-event: Clinically adjusted charge/cost and LOS	Subset of the above.	Subset of 3 for costs and LOS	Delta/Hospital Staff
							3.b		Sub-event: Risk-adjusted complications - mortality	Subset of the above.	Subset of 3 for mortality	Delta/Hospital Staff
							3.c		Sub-event: Risk-adjusted complications - readmissions	Subset of the above.	Subset of 3 for readmissions	Delta/Hospital Staff

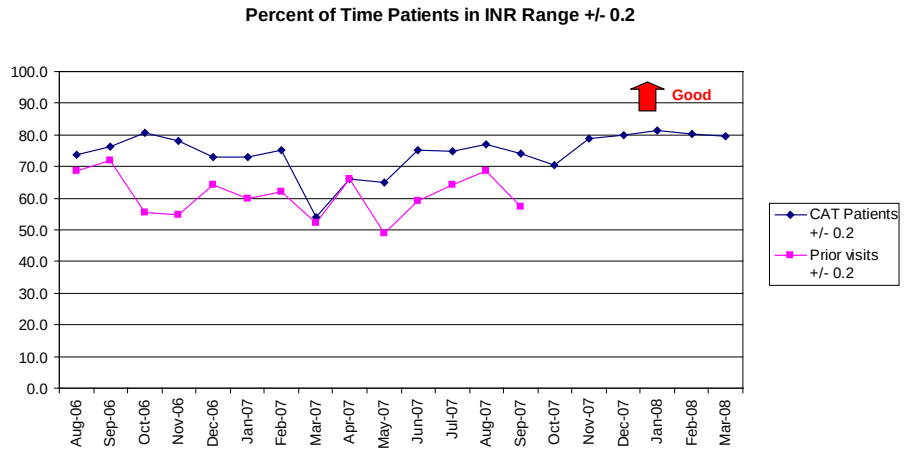
Appendix A - Cedar Rapids Healthcare Alliance
CAT Clinic Data March 2008



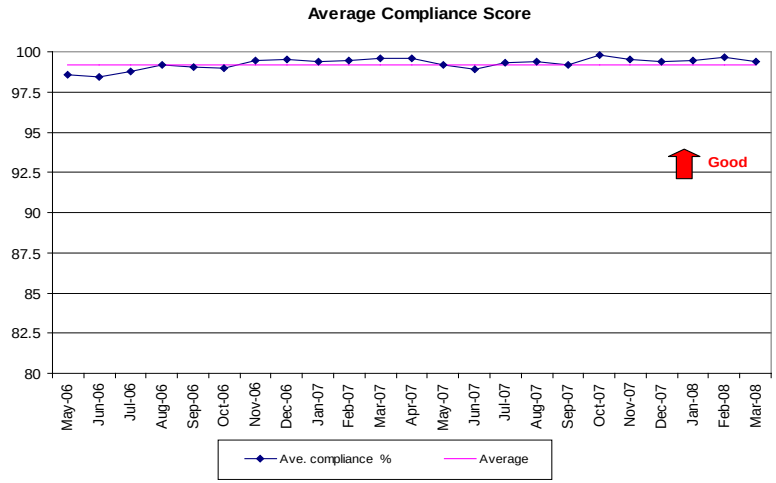
The percent of time patients were in INR range (their blood was not too thin or too thick) was about 46% prior to enrollment in the CAT Clinic and now is close to 65%. This means there should be less chance of bleeding or clotting.



There should be fewer dosage changes as patients are in INR range a greater percent of the time.

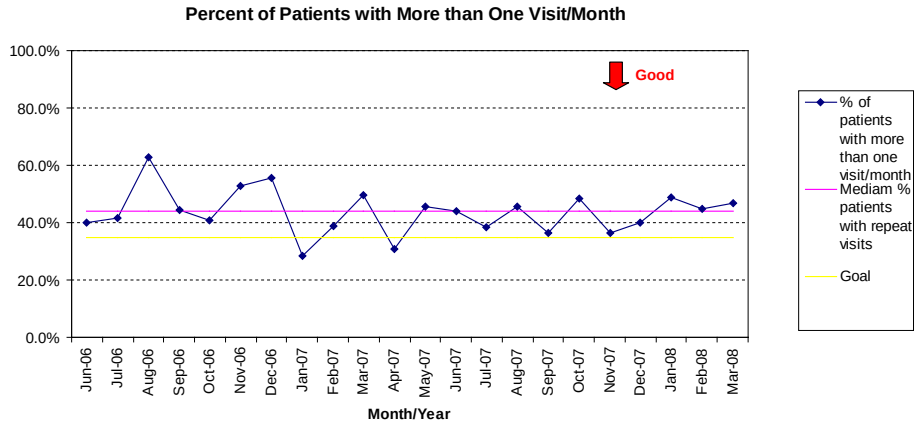


These data are similar to that on the first graph on this page. This graph shows the percent of time patients are in INR range plus or minus 0.2. Patients enrolled in the CAT clinic are in tighter range 15%-20% more than before they were enrolled in the CAT Clinic.

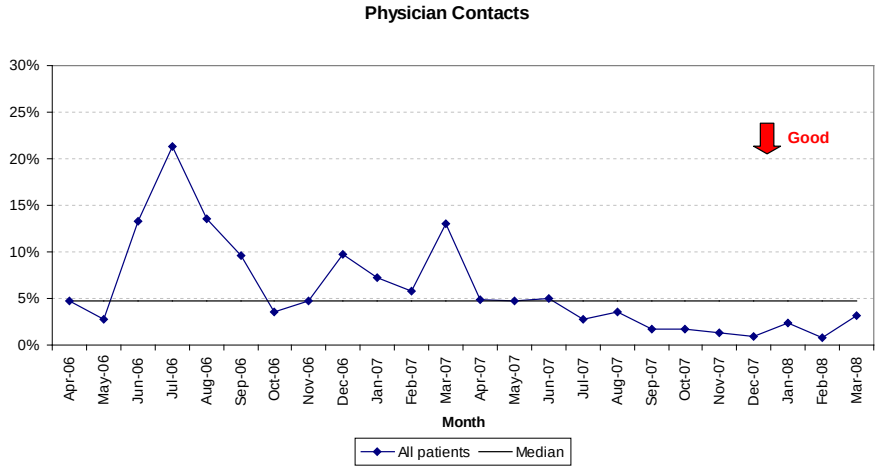


This score measures patient compliance regarding changes in medications, diet, alcohol use, missed or extra warfarin doses, and adding or discontinuing an antibiotic, aspirin, or NSAID (like ibuprofen or naproxen), or amiodarone. An increase in the CAT Score indicates better compliance with Coumadin®/warfarin therapy.

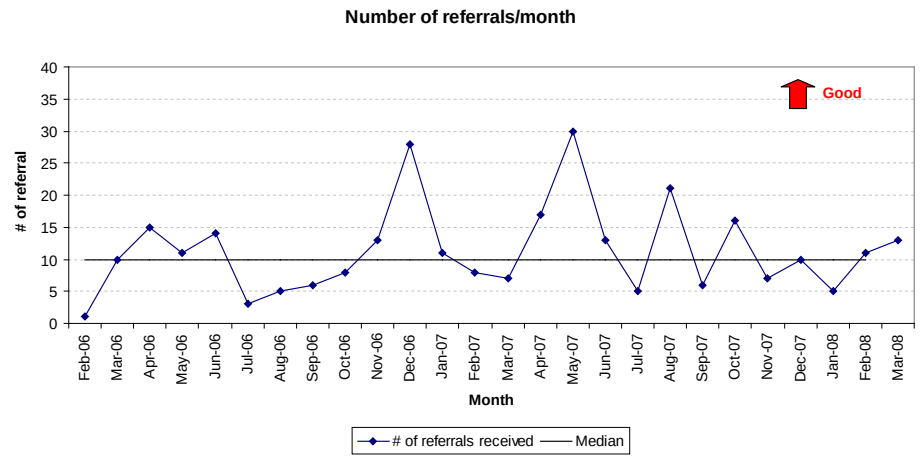
Appendix A - Cedar Rapids Healthcare Alliance
CAT Clinic Data March 2008

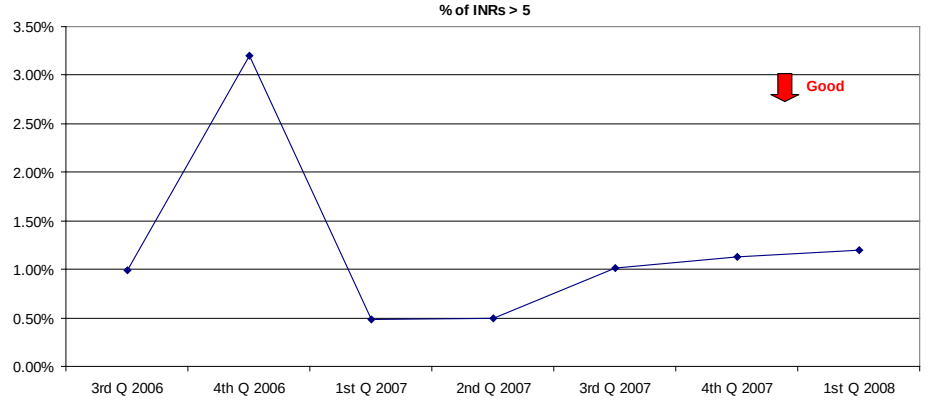


This graph is the number of patients that need an INR repeated each month. As patients are in their INR range a greater percent of time, the number of patients who need to repeat an INR each month should decrease.



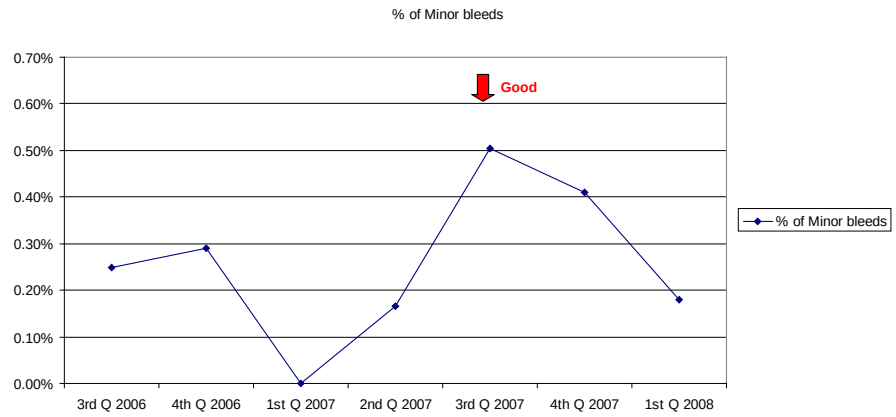
This graph shows a decrease in the number of physician contacts (the number of times the CAT Clinic nurse needs to contact the referring physician). This number should decrease as patients are in INR range a greater percent of the time.



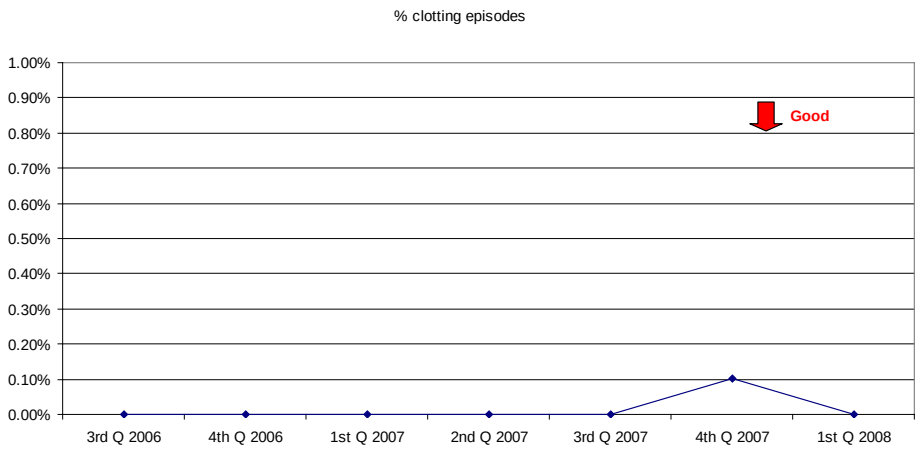


The graph shows the percent of INRs greater than 5. There have been two associated major bleeds in 2007 (requiring hospitalizations) with INRs greater than 5 (benchmark 7%, Chiquette, Amato, Bussey, 1999).

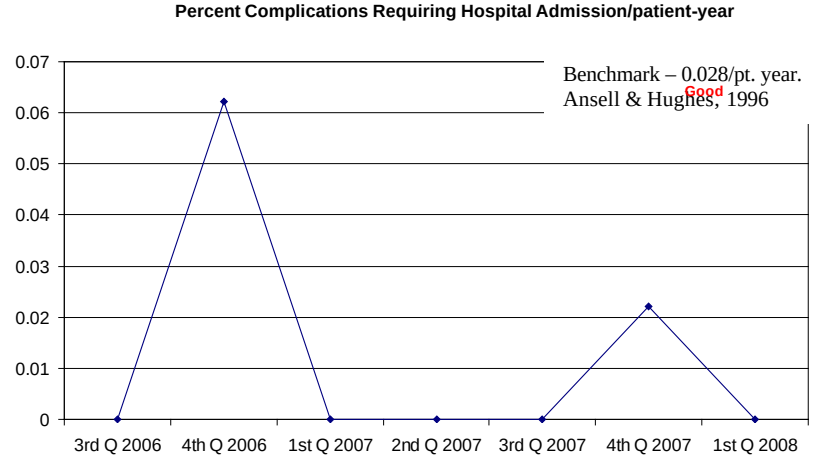
Appendix A - Cedar Rapids Healthcare Alliance
CAT Clinic Data March 2008



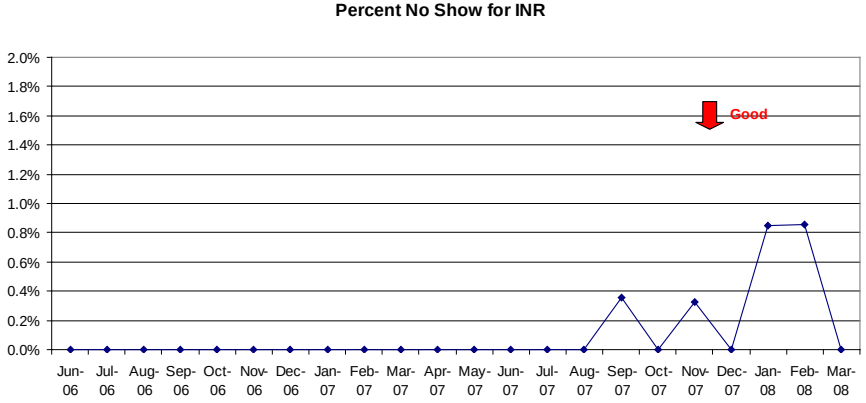
This graph shows the percent of minor bleeds not requiring hospital or ER admission (nose bleed, more bruising, gum bleeding, etc.). 4th Q 2007, 1 patient with bruising, 3 reports of nose bleeds.



Clotting Events – One clotting event in December. Patient off warfarin for 10 days prior to dermatologic/plastic surgery. After TIA, treated with Lovenox until INR reached 2.

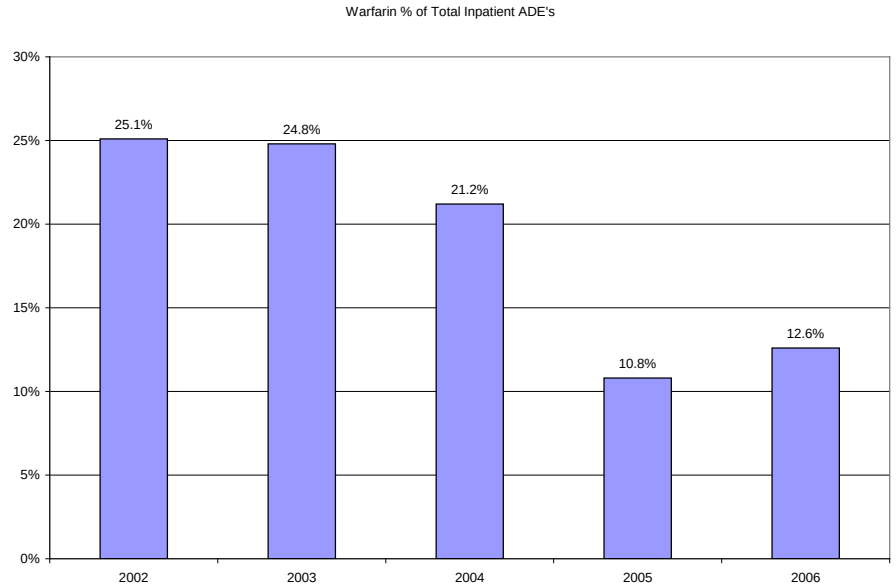


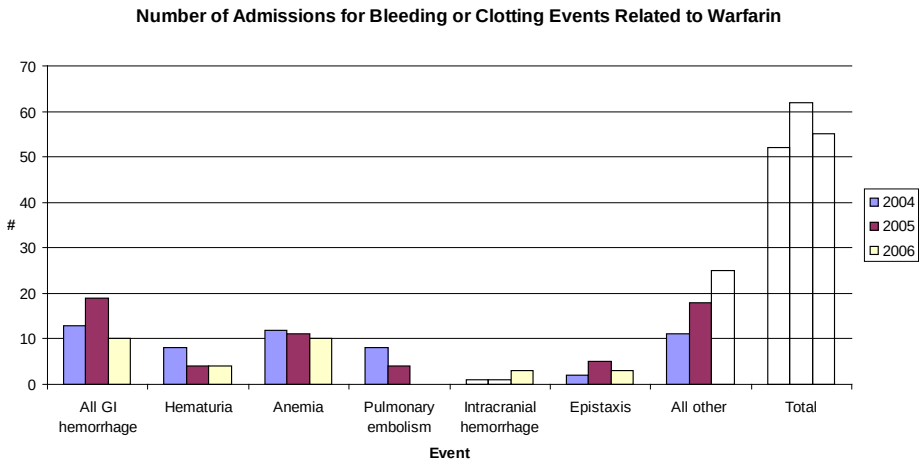
Hospitalizations - There was one hospitalization in January '07 for an INR greater than 5. The patient had no bleeding and, once her Grave's disease was corrected, her INRs have been stable. One hospitalization in November was due to GI bleed. Patient started amiodarone 2 weeks prior to high INR and did not notify the CAT clinic. Patient also on ASA.

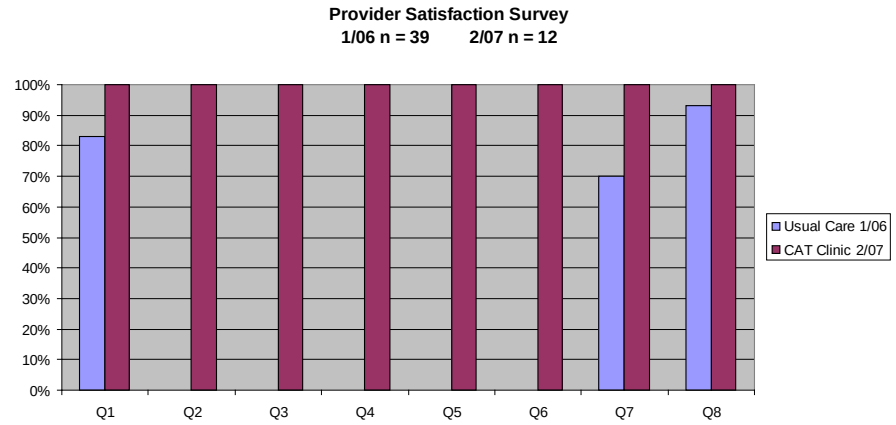


This chart shows the percentage of patients that do not show for INRs within 2 days of scheduled INR. In January and February, the same two patients did not show for 2 days but did have INR drawn on day 3.

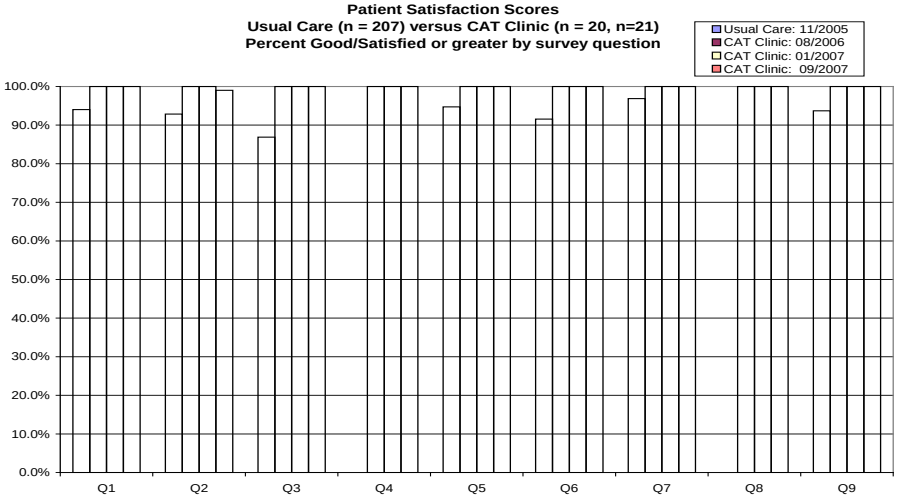
Appendix A - Cedar Rapids Healthcare Alliance
CAT Clinic Data March 2008



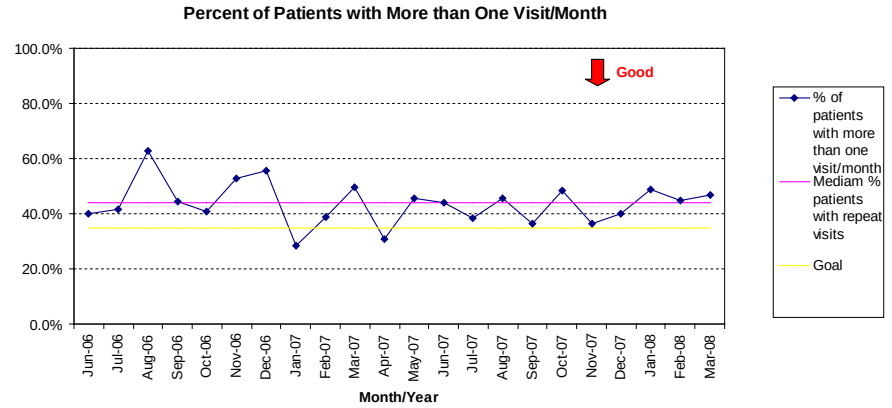




A baseline survey was conducted in 2006, to evaluate satisfaction with



anticoagulation management at two cardiology clinics. Questions for the baseline survey did not match all CAT Clinic survey questions. Therefore, comparison will be conducted with follow-up CAT Clinic surveys. The questions that show improvement relate to provider satisfaction with the CAT Clinic services, how the CAT Clinic meets patient needs, and if the patient is satisfied with CAT Clinic services.	Patient satisfaction surveys achieve at least 70% return rate.



This graph shows the percent of patients with more than one INR per month. If the percent of repeat INRs decreases, then patients should be in INR range a greater percent of the time and there should be less bleeding and clotting events.

Other Metrics:

- Zero deaths related to anticoagulation therapy
- Zero missed lab reports due to daily list of patients due for INR; if CAT Clinic does not received a lab result for a patient on the list, the patient is contacted to ask if they had their INR drawn that day
- There were no corrective action plans
- Length of time on warfarin therapy is available but sometimes unreliable, because patients do not remember how long they have been taking warfarin

Community Anticoagulation Therapy Clinic

Appendix B

DOCUMENT TITLE	NUMBER	DATE
Master List	**3002CATC**	7/05/07

Document Title	Number	Approval Date	Revision
Administration	**1000**		
Accounting	**1500**		
Human Resources	**2000**		
Job Description Process	2001CATC	12/16/05	0
Training–Competency Process	2002CATC	12/16/05	0
Training-Competency Template	2003CATC	12/16/05	0
Nursing Training-Competency Record	2004CATC	2/24/06	1
Clerical Training-Competency Record	2005CATC	12/16/05	0
Quality Improvement	**2500**		
Quality System	**3000**		
Document Numbering Procedure	3001CATC	12/16/05	0
Master List	3002CATC	See Above	0
Control of Documents	3003CATC	12/16/05	0
Document Template Form	3004CATC	12/16/05	0
Document Approval Process	3005CATC	12/16/05	0
Document Request Approval Form	3006CATC	12/16/05	0
Customer Comment Process	3008CATC	12/16/05	0
Comment Form	3009CATC	12/16/05	0
Control of Records	3010CATC	12/16/05	0
External Document Master List	3014CATC	08/15/06	0
Internal Audit Procedure	3016CATC	12/16/05	0
Internal Audit Attributes	3017CATC	12/16/05	0
Internal Audit Schedule	3018CATC	12/16/05	0
Internal Audit Plan Form	3019CATC	12/16/05	0
Internal Audit Checklist	3020CATC	12/16/05	0
Internal Audit Opening Meeting Agenda Checklist	3021CATC	12/16/05	0
Internal Audit Closing Meeting Agenda Checklist	3022CATC	12/16/05	0
Internal Audit Attendance Log	3023CATC	12/16/05	0
Nonconformance Form	3024CATC	12/16/05	0
Internal Audit Report Form	3025CATC	12/16/05	0
Corrective-Preventive Action Procedure	3026CATC	12/16/05	0
Corrective-Preventive Action Form	3027CATC	12/16/05	0
Corrective-Preventive Action Log	3028CATC	12/16/05	0
Control of Nonconforming Product	3030CATC	12/16/05	0
Incident Report Form	3031CATC	12/16/05	0
Patient Flow in Anticoagulation Clinic	3032CATC	08/25/06	2
Warfarin Error Reporting Process	3033CATC	08/25/06	1
Warfarin Error Reporting Form	3034CATC	08/25/06	1
Warfarin Error Reporting Log	3035CATC	08/25/06	0
Appointment	**3500**		
Appointment Process	3501CATC	12/16/05	0
Overview of CAT Clinic Service	3502CATC	2/24/06	1
Reception	**4000**		
Registration	**4500**		
Introduction Letter	4501CATC	12/16/05	0
Patient Agreement	4502CATC	02/23/07	1
Patient Instruction Form	4503CATC	12/16/05	0
Referring Office Script	4504CATC	2/27/06	0

Appendix B

Medical Records	**5000**		
Clinic Record Process	5001CATC	2/23/07	2
Medical Record Release	5002CATC	12/16/05	0
Medical Record Release Form	5005CATC	12/16/05	0
Medical Record Release Log Sheet Form	5006CATC	12/16/05	0
Notice of Information Practices	5007CATC	1/1/06	0
Acknowledgement of Notice of Information Practices	5008CATC	1/1/06	0
Business Associate Agreement	5014CATC	1/1/06	0
Nursing	**5500**		
Patient Teaching Process	5501CATC	08/25/06	1
Patient Teaching: Knowledge Assessment	5505CATC	12/16/05	0
Patient Teaching: Five Steps to Safer Health Care	5506CATC	12/16/05	0
Patient Teaching: Web Sites	5507CATC	08/25/06	0
Physician	**6000**		
Referral Process	6001CATC	12/16/05	0
Referral Form	6002CATC	02/23/07	3
Risk Assessment of CAT Clinic Patient	6003CATC	12/16/05	0
Physician Communication Record	6004CATC	2/24/06	1
Readmission to CAT Clinic	6005CATC	12/16/05	0
Physician Acknowledgement of Guidelines Process	6006CATC	2/24/06	1
Physician Acknowledgement of Guidelines Form	6007CATC	2/24/06	1
Protocols	**6500**		
Guidelines for Optimal INR Range and Duration of Warfarin Therapy	6501CATC	12/16/05	0
Initiation of Warfarin Guideline	6502CATC	2/23/07	2
Management of Supratherapeutic INR	6503CATC	12/16/05	0
Missed/Overdue Labs	6504CATC	02/23/07	1
Changing from Coumadin to Warfarin	6505CATC	12/16/05	0
After Hours Coverage	6506CATC	2/24/06	1
Discharge from CAT Clinic	6507CATC	12/16/05	0
CAT Clinic Discharge Order	6508CATC	12/16/05	0
Discontinuation Form	6509CATC	12/16/05	0
Prescription Guideline	6510CATC	2/24/06	1
Warfarin Guideline for INR Target Range of 2-3	6511CATC	08/25/06	2
Warfarin Guideline for INR Target Range of 2.5-3.5	6512CATC	08/25/06	2
Overdue Patient Letter	6513CATC	12/16/05	0
Compliance Scoring Process	6514CATC	3/5/07	0
Warfarin Compliance Assessment Scale	6515CATC	3/5/07	0
Business Office	**7000**		
Financial Assistance Policy	7001CATC	7/5/07	0
Laboratory	**7500**		
Diagnostic Testing	**8000**		
Marketing	**8500**		
Information Services	**9000**		
OSHA	**9500**		

Appendix C

Cedar Rapids Healthcare Alliance
Working Together for Patient Safety.

Executive Training Session III
Thursday, June 22, 2006
4:00 PM - 6:00 PM

AGENDA

- Welcome/Introductions
- Update on CAT Clinic
- Report on AHRQ Conference
- Business Perspective – Healthcare Impact on Community
- Report from Today's Staff Training
  - Break
- Leadership's role in addressing four Community Healthcare Opportunities – Small Group Exercise
- Report out to Full Group
- Future View
  - Year 2 of PIPS Grant
  - September 25th, 3-5 PM Next session
- Wrap-up

Appendix C

Cedar Rapids Healthcare Alliance
Working Together for Patient Safety.

Executive Training Session IV
Monday, September 25, 2006
3:00 PM-5:00 PM

AGENDA

THEME - CRHA's Role in the Future of Healthcare in Cedar Rapids Community

3:00-3:20 **Background of Community Anticoagulation Clinic and Vision for the Future**
Dr. James Levett

3:30-3:40 **Update on Community Anticoagulation Therapy (CAT) Clinic**
Carla Huber

3:30-3:50 **Lean/Six Sigma Analysis of Current Processes in Anticoagulation Management**
Tim Taylor and Brion Hurley, Rockwell Collins

3:50-4:00 **Health Literacy Issues in CAT Clinic Patients**
Nancy Glab, Kirkwood Community College

4:00-4:20 **Break**

4:20-4:30 **Business Case for Quality in Healthcare**
Dr. Barb Muller, Wellmark BCBS

4:30-4:40 **The Present and Future State of Community Healthcare Projects**
Donna Cooper, PCI

4:40-5:00 **Moderator for Community Dialogue**
Lee Clancey, Facilitator of Q & A period

Adjourn

Appendix C

Cedar Rapids Healthcare Alliance
Working Together for Patient Safety.

Executive Training Session V
Monday, January 8
4:00 PM-6:00 PM

AGENDA

Welcome

4:00-5:00	**Mickey Christensen, national expert on ISO and healthcare**
	"The Good, Bad, and Ugly of Quality Management"
5:00	**Refreshment Break**
5:10	**Update on CAT Clinic**
5:15	**Update on CRHA Activity**
5:25	**Small Group Activity**
5:40	**Report Out**
5:55	**Wrap-Up**

Appendix C

Cedar Rapids Healthcare Alliance
Working Together for Patient Safety.

Executive Training Session VI
Thursday, April 19, 2007
4:00 PM-6:00 PM

AGENDA

THEME - CRHA's Role in the Future of Healthcare in Cedar Rapids Community

4:00-4:20	**Welcome to Session** **Brief review of Agenda** **Update on CRHA Activity** Dr. James Levett
4:20-4:30	**Update on Community Anticoagulation Therapy (CAT) Clinic** Carla Huber
4:30-4:35	**Training Opportunities Available through PIPS Grant** Deb Oliver, Training Lead
4:35-4:45	**Papers for submission at NPSF/AHRQ Meeting** Dr. James Levett
4:45-5:05	**Break**
5:05-5:15	**National perspective: Value-driven Healthcare and Value Exchanges**
5:15-5:25	**Local perspective: Value-driven Healthcare and Value Exchanges**
5:25-5:35	**Creation of Value Proposition**
5:35-5:45	**Small Group Exercise – Brainstorming and Hits & Hot Spots**
5:45-5:55	**Report out of Small Group Activity**
5:55-6:00	**Wrap-Up**
6:00	**Adjourn**

Appendix C

Cedar Rapids Healthcare Alliance
Working Together for Patient Safety.

Executive Training Session VII
Wednesday, June 27, 2007
4:00 PM-6:00 PM

AGENDA

THEME: Grant Summary/Future Opportunities for the Cedar Rapids Healthcare Alliance

4:00	**Welcome to Session** Jim Levett
4:05-4:25	**Update on Community Anticoagulation Therapy (CAT) Clinic** Carla Huber
	Physician Comments
	Summary of Training Deb Oliver
4:25-4:45	**CRHA Activity and Opportunities** Jim Levett
4:45-5:05	**Break**
5:05-5:10	**Kirkwood Perspective as Grant Administrator**
5:10-5:15	**Retreat for PIPS Grant Review – Tentatively scheduled July**
20th 5:15-5:25	**Feedback from Previous Small Group Exercises** Jim Levett
5:25-5:40	**Small Group Exercise** **"How do we promote the CRHA to gain increased support?"**
5:40-5:55	**Report out of Small Group Activity**
5:55-6:00	**Wrap-Up**
6:00	**Adjourn**

Appendix C

Executive Training Session VIII

Tuesday, January 29, 2008 4:00 PM-6:00 PM

AGENDA

- Welcome and background of CRHA – Jim Levett, MD
- CAT Clinic update – Carla Huber, ARNP
- National perspective: Regional Health Information Organizations (RHIOs) and Value Exchanges
- Panel introduction and short presentations: Sharing healthcare quality data at the community level
    - Ted Townsend, Chief Executive Officer, St. Luke's Hospital
    - Mark Valliere, MD, Chief Medical Officer, Mercy Medical Center
    - Dave Ver Woert, Vice President of Employee Benefits for TrueNorth Companies
    - Shane Wolverton, Principal, The Delta Group

    - Kay Halloran, Mayor of Cedar Rapids, moderator
    - Jim Levett, MD, President, CRHA, moderator
- Break

- Panel question/answer session with attendees

- Background: Key community issues identified by the CRHA strategic plan:

    - CRHA will develop a plan to decrease community-acquired infections that are resistant to antibiotics.
    - Establish a community healthcare workforce plan based on a community assessment of projected medical and nursing needs by 2015.
    - Decrease childhood obesity and diabetes.
    - Decrease adverse drug events (ADEs) in the elderly by establishing consistent medication reconciliation at times of transition from one point of care to another.
    - Increase consumer access to healthcare quality indicators in language that is consumer friendly and promotes health literacy and informed choices.
    - Increase disease prevention strategies by promoting employer-based wellness programs.