Overall compliance was 94.3% in November 2010 compared to 77.3% in April 2010.

7. Since August 2010, Dr. Alvarez has led and facilitated a system-wide multidisciplinary CQI team to measure and improve processes related to inmate Health Care Requests (HCR). A computer-supported data base was established as of October 1, 2010. In December 2010, there were 6,990 HCR's, of which 4,849 were related to medical issues. The average time period between the time CHS received these requests and the time that the requests were triaged (screened and assigned an action) was 14.1 hours. Based on recommendations from the NCCHC pre-survey team, the improvement team has made several revisions designed to decrease the time to triage.
8. The current CHS Continuous Quality Improvement Annual Plan is well-structured and includes the following elements: Scope; Structural Framework and Communication; CQI Council; Quality Oversight Committee, CQI Initiatives for FY 2010-2011; Performance Measures; Measurement and Methodology; Education and Training; Confidentiality; Annual Evaluation; and Resource Information. The current Annual Plan is consistent with the requirements for accreditation of the National Commission on Correctional Health Care. It is also comparable in its content and scope with CQI plans associated with major community-based health care organizations.

9. CHS/MCSO 2010 monthly statistical reports also show: a) average Daily Census (ADC) in the LBJ Infirmary was 47.7 days; b) average Length-of-Stay (LOS) for patients in the LBJ Infirmary was 19.8 days.
10. CHS/MCSO 2010 monthly statistical reports also show: a) average number of monthly offsite Specialty Appointments was 227 of which 207 (91.2%) were kept; b) among the average monthly number 20 Specialty Appointments not kept, 5.8 were classified as canceled by the outside provider, 6.0 to being in Court, and 2.7 to MCSO issues.
11. CHS/MCSO 2010 monthly statistical reports also show: a) average monthly offsite emergency service transports were 150.7, of which 76.8 were transported by non-MCSO staff; b) among the average number of 76.8 of patients transported by non-MCSO staff, 71.2 were by outside ambulance from CHS and 4.5 by the Phoenix Fire Department from CHS.
12. CHS/MCSO 2010 monthly statistical reports also show: a) average monthly number of Health Care Grievances was 153.8, which is a rate of 0.68 per 1000 Average Daily Population (ADP); percent of Health Care Grievances Resolved without Sustained of Partially Sustained outcome was 99.63%

13. CHS/MCSO 2010 monthly statistical reports also show: a) average monthly number of Occurrence Reports received was 105.2, which is a rate of 0.43 per 1000 ADP; b) average monthly number of inmate injuries associated with Occurrence Reports was 15.2.
14. The CHS Clinical Guidelines for Diabetes were revised as of September 29, 2010. During my recent site visits, I discussed with Dr. Alvarez the need to add routine dental/periodontal evaluation to the list of actions necessary for all patients diagnosed with diabetes. I will also be discussing with Dr. Alvarez the need to cross-reference the diabetes clinical guideline with the guideline for hypertension. The reason for doing this in because targets for blood pressure control need to be more stringent than those for patients whose only cardiovascular risk factor is hypertension.
15. Review of the 4th Avenue Intake Pre-Booking Refusals for January and February demonstrates that CHS has a active patient safety program in place to refer to outside medical facilities those persons needing immediate further evaluation and treatment prior to booking. Over the two month period, fifty-five such patients were referred to offsite medical facilities prior to booking at the 4th Avenue facility. Clinical reasons for these pre-booking refusals and offsite medical referrals were varied. They included a spectrum of traumatic injuries, uncontrolled diabetes, hypertensive

emergencies, delirium tremens, drug withdrawal syndromes, infections, cognitive impairment and other neurologic deficits. The volume and timeliness of these pre-booking refusals and offsite medical referrals are consistent with the requirements of Paragraph 6 of the SAJ.

16. CHS recently conducted patient satisfaction surveys in all of its outpatient clinic locations. The survey methodology preserved patient anonymity and the questions were appropriate and consistent with those employed in patient satisfaction surveys by community-based health care organizations. While the results were specific to each of seven CHS locations, the overall levels of patient satisfaction were positive. The highest rates of positive responses (87 to 98%) were to the question, "I feel the medical staff treat me with respect." Somewhat lower rates of positive responses (72 to 90%) were to the question, "I am able to see someone from the medical staff in a timely manner when I have a medical problem."

17. A review of average mortality rates for persons in custody of the Maricopa County Jail system shows a significant decline in death rates for 2008-2010 in comparison with the previous three to seven years. These average annual mortality rates are expressed per 100,000 local jail inmates, which is the convention used to compare the fifty largest jail jurisdictions by the U.S. Bureau of Justice Statistics. For example, there were six deaths of persons in jail custody in

Maricopa County in 2008, during which the average daily jail population was 9,236. The calculated death rate would then be 64.96 per 100,000 local jail inmates. These aggregate death rates encompass deaths due to all causes, including illnesses, suicide, accidents and homicide. Based on information for 2007 from the Bureau of Justice Statistics, 51.4% of deaths of people in custody in U.S jails were due to illnesses, not including AIDS; 3.9% to AIDS; 25.9% to suicide; 7.2% to drug or alcohol intoxication; 1.6% to accidents; 1.8% to homicide; and 8.3% to other or unknown causes. The average MCJ total mortality rate for the three year period of 2005-2007 was 152/100,000 compared to 61/100,000 the three year period of 2008-2010. This 60% decline in mortality is remarkable. It is likely associated in part with improvements in health care quality and access, although other as yet unidentified factors may have contributed.

18. Timeline for Implementation of Pharmacy and Electronic Health Record Systems – Please refer to Part E, CAP-10 of this Sixth Report.

## Part C – CHS Update on Nursing Staffing

On March 22, 2011, Thomas Tegeler, CHS Executive Director, provided me with the following summary concerning work that

he and Katie Wingate are doing to improve the scope and quality of CHS nursing services. I have chosen to include their complete analysis in this report for the following reasons. First, it contains a useful description of the complex processes that must be completed in order to expand the number of available nurses. Second, it reflects the knowledge and insight that Mr. Tegeler and Ms. Wingate are applying as they identify and respond to challenges in improving nursing care services. Finally, a number of the specific actions proposed in their analysis and plan are appropriate for inclusion in the Corrective Action Plan that I have included in this Sixth Report.

The CHS analysis in nursing staffing is as follows:

"CHS staffs 6 jails and 9 health care facilities in the Maricopa County Jails system. Currently the workforce at CHS is comprised of 88.3 FTE Registered Nurses, 58.6 FTE Licensed Practical Nurses, 63 FTE Correctional Health Technicians, and one discharge planner (RN). Staff funding for 24/7 coverage at the clinics was reduced in 2005 allowing for 24/7 coverage at the following clinics: Mental Health Housing Unit, Infirmary, and Intake. Due to an increase in medically complex patients, the majority of clinics had no choice but to expand back to 24/7 coverage. Unfortunately this expansion occurred with no additional nurses, which has added a burden to the existing staff, particularly in providing the necessary nursing support during the day shift. Registry costs have escalated to ensure coverage. Recently, CHS surveyed nursing staff to gauge interest in 12 hours shifts which would allow us to increase coverage and at the same time reduce registry costs. The results indicated that a significant number of nurses were

interested in exploring alternative scheduling including 12 hour shifts. Clinics that are currently operating 24/7 include the Infirmary, Mental Health Housing Unit, Lower Buckeye Jail Outpatient, 4th Avenue Intake, Durango and Estrella. We anticipate that the revised staffing patterns for these clinics will include 12 hour shifts whenever possible to help stabilize RN coverage. Plans are underway to expand to 12 hour shift coverage at Tents and Towers, currently staffed on dayshift for 10 hours. CHS plans to convert the 4th Avenue Outpatient Clinic to 24/7 coverage in the future. It is calculated that additional LPN's will be needed to receive medications delivered directly to the medication rooms of the clinics as opposed to a central drop off location and redistribution along with a transition from stock medication to patient specific. This change will be necessitated by Federal and State regulations."

**Proposed Nursing Staffing**

"For budget year FY12, we initially proposed adding 11 FTE's including 6 RN, 2 LPN, and 3 CHT. The additional positions will allow us to partially staff the Self Surrender Unit, which currently diverts nurses from LBJ Outpatient when self surrender numbers are overwhelming or when the one dedicated Self Surrender nurse is off duty. Further, we are proposing that RN coverage be expanded in the Self Surrender Unit to 24/7 to handle those patients as well as ICE coordination. To address discharge planning needs, these nurses will be responsible for coordinating this activity at LBJ Intake since Westside clinic patients are transported there for discharge or transfer to other facilities, including the state prison. Full time coverage for Self Surrender will probably necessitate adding additional staff. Recently the CHS Medical Director shared plans to expand physician coverage at Intake that will require additional staff, including providers as well as clinical and administrative support. Maintaining the flexibility to respond quickly to evolving clinical needs balanced with the constraints of the county budget is a challenge for CHS, both clinically and administratively. In the past two budget cycles,

CHS has been fortunate to see an increase in clinical staff, including 9 medical detention offices to assist with patient transports within the clinics. As we move forward, a stand-alone supplemental request for FY12 funding will be submitted to address the staffing needs not addressed in the initial budget. In addition, data is being collected to support the level of staff necessary for expanding coverage and emergent processes."

**Proposed Timeline**

"Upon the start of Fiscal Year 2012 which begins July 1, 2011 CHS HR will begin the recruitment process. Typically it takes 1–2 weeks to get applications, another 2 weeks to complete interviews, selection, and credentialing process. We anticipate Tents/Towers will be converted to 12 hours first. Expanding 24/7 coverage at the 4th Avenue Outpatient clinic will be challenging since more nurses will be needed. and the status of the county budget has not been finalized. LPNs will be hired as quickly as possible due to DEA requirements. Additional staffing at Self-Surrender is planned for early August. RN and CHT positions to support the expanded physician coverage at Intake will take place after recruitment in July but no later than late August 2011."

## Part D - Medical Record Reviews

1. A CHS patient with MCP # P713874 was screened at the 4th Avenue Intake unit at 11:29 AM on 11/09/10. His prior medical history included diabetes, seizures, hypertension, and eye cataracts. His blood glucose (sugar) level was elevated and he received insulin as well as orders for Neurontin (to prevent seizures), Simvastatin

(for elevated blood lipids) and aspirin. The following day, he was seen in the 4th Avenue Jail Clinic. Throughout the day, he was treated with insulin plus intravenous fluid for uncontrolled diabetes. Subsequent blood sugar measurements on 11/11/10, 11/12/10, 11/13/10, 11/14/10, and 11/15/10 showed continued uncontrolled diabetes. On 11/15/10, the patient had an apparent seizure likely due to low rather than high blood sugar. He was treated by a nurse who should have informed a physician but did not do so. The patient had other probable seizures due to low blood sugar on 11/17/10 and 11/18/10, both of which were treated by a nurse who did not inform a physician. The patient was admitted to the LBJ Infirmary on 11/20/10. I reviewed this patient's record with the CHS Medical Director, Dr. Jeffrey Alvarez, who agrees that this patient with Type I insulin dependent diabetes should have been referred to the LBJ Infirmary either on the day of his jail admission or on the following day. Dr. Alvarez also agrees that the CHS nurses who treated this patient for probable hypoglycemic seizures on three separate days should have called a physician to evaluate this patient. As a follow-up, I recommend that this patient's record be reviewed with the nurses involved to ascertain why they did not inform a physician and be counseled as appropriate. Another pertinent recommendation is that

<u>the CHS procedure for tracking and follow-up of "man-down" events should be reviewed to be sure that timely communication with and follow-up by a physician always occurs</u>.

2. A patient with MCJ # P629538 has severe advanced liver disease. On 10/30/10 at 2:20 PM, the patient complained of "liver" pain and had a fever with temperature of 101.1. He was evaluated by a nurse who did not inform a physician. The patient continued to have abdominal pain and fever overnight and the following morning. At 7:05 PM, a physician was called and directed that the patient be sent to an outside hospital emergency department where the patient was admitted and had surgery for appendicitis. He was hospitalized for a week before returning to the LBJ Infirmary where his subsequent care has been appropriate.

3. A patient with MCJ # P716240 was screened at the 4th Avenue Intake Unit on 11/18/10 and reported being on the Humulin form of insulin. His blood sugar was moderately elevated and he had a prior history and an episode of diabetic ketoacidosis and Mallory-Weiss syndrome (upper gastric or esophageal bleeding from arteries that may rupture due to extreme vomiting). He was treated the following day for recurrent vomiting and diabetes. Treatment included intravenous fluids and a

blood test showed an elevated white blood count and other results that suggested possible dehydration. After being sent back to his housing unit, he was seen the next day because of vomiting bloody fluid. He was then assessed further and referred to an outside hospital where he was admitted for two days for treatment of diabetic ketoacidosis. This patient's record illustrates, as have multiple other prior cases, the risk of lapses in treatment and evaluation of patients who receive intravenous hydration in jail facilities outside of the LBJ Infirmary.

4. A patient with MCJ # P704310 is a 56 year old man who gave a history of high blood pressure when he was screened at the 4th Avenue Intake Center on 10/06/10. Several appropriate anti hypertensive medications were ordered and given on 10/07/10. On 10/08/10, a physician observed that the patient might be exhibiting altered mental status and wanted to refer him to an outside emergency department for further evaluation. However, the patient refused. Dosages of antihypertensive medications were increased and the drug Neurontin (usually used for treatment of pain or to prevent seizures) was prescribed at a higher dose based on information from the patient's treatment prior to jail entry. On 10/13 and 10/16/10, the patient complained of headaches. He was observed to be disoriented on

10/16/10 and was sent to an outside hospital where he was admitted and treated effectively for acute kidney failure. The acute kidney failure may have been due to toxicity from one or more of his medications (Diovan and Neurontin) and inadequate fluid intake in the jail. Based on retrospective review of the medical record, it is clear that the intended referral to an ED on 10/08/10 was medically indicated. Once the patient refused, the best alternative course would have been to send this patient to the LBJ Infirmary for more detailed evaluation including timely laboratory tests such as a basic metabolic panel which was not drawn at the jail until 10/15/10, one day prior to transfer to the outside hospital. This patient's medical conditions were complex and he was not able to give the CHS physicians clear information about his multiple medications and prior medical history on intake. However, review of this patient's medical record demonstrates multiple lapses in continuity and coordination of care; need to be more proactive in acquisition of laboratory results for such complex patient's whose clinical conditions are not well understood on admission to the jail; timely referrals to the LBJ Infirmary; and more effective procedures and systems to track and care for such patients. <u>As such, I recommend that this case be reviewed and discussed formally with all CHS providers in an appropriate</u>

conference so that all staff can benefit educationally and participate in considering quality improvement-related options.

5. A patient with MCJ # 670869 was screened at 4th Avenue on 06/18/10 at which time he was noted to have abdominal, thigh and skin sequelae of six previously treated gunshot wounds. Over the next two months, he was seen by CHS staff for complaints of abdominal pain. A CT scan of the abdomen was requested on 08/27/10, approved on 09/03/10 and done on 09/17/10 at which time the results identified presence of chronic abscesses in subcutaneous extraperitoneal abdominal tissues. The patient was sent to a hospital where he was further evaluated and treatment with antibiotics was initiated. This patient's condition was unusual and subtle in some respects. Nevertheless, I believe it would be worthwhile for CHS to further review why there was a three week delay between the ordering and performance of the abdominal CT scan.

6. A patient with MCJ # P712610 was screened at the 4th Avenue Jail on 11/05/10 and reported taking Coumadin to prevent a recurrence of deep venous thrombosis in his legs. Although an appropriate dose of Coumadin was ordered and administered, the patient's medication administration record indicates that Coumadin was not given the next three days after intake and also on

11/31/10. It is unlikely that the initial three day lapse would have resulted in a recurrence of venous thrombosis. However, this medication error is indicative of the ongoing need for better systems and staff performance in documenting and assuring the reliability of administration of essential medications including Coumadin.

7. A 43 year old patient with MCJ # P687337 was screened at the 4th Avenue Jail on 08/13/10. He gave a history of a prior stroke, left sided weakness and treatment with Dilantin and Neurontin to prevent seizures. Over the next 10 days, the patient manifested signs of Dilantin toxicity which was confirmed on a blood test on 08/23/23. During an 18 day stay in the jail, medical evaluation and management of this patient's anticonvulsant therapy failed to meet an appropriate standard of care.

8. A female patient (MCP # not available) was treated in the Estrella Jail for abscesses of the hip between 07/31/10 and 01/10/11. Several antibiotics were prescribed and there is documentation in the medical record concerning possible allergy to Bactrim, although the patient's history was not typical for such an allergy. The patient was Spanish-speaking and Plaintiffs Counsel expressed concern about her knowledge of the possible allergy. On two dates, the patient was cared for by Dr. Alvarez who is

fluent in Spanish. Overall, this patient's medical care was appropriate, although a culture and sensitivity test of fluid from the abscess is always helpful in a jail environment to detect the presence of methacillin resistant staphylococcus aureus and, if present, to determine drug sensitivity levels.

**9.** From 12/23/10 to 01/13/11, a patient with MCJ # P725329 was treated in the Estrella Jail with three anticonvulsant medications – Dilantin, Valproic acid and Tegretol. The medication administration record for a two month period is blank for 30 out of 136 drug administration actions. Because this is a relatively recent record, I recommend that CHS review it carefully in order to better understand why there were so many gaps in care and to determine what aspects of staff education and/or supervision may be merited. This is also another example of the importance of near term implementation of an electronic prescription order entry and medication documentation system.

**10.** A patient with MCJ # P717801 was booked at 4th Avenue Jail on 11/23/10 and gave a history of being on Coumadin. The initial INR test (to monitor and determine subsequent safe and effective doses of Coumadin) was elevated above safe levels and was below effective treatment levels three days later. There was also an initial failure to accept and activate an order for

Coumadin, a failure that was detected by CHS in an Occurrence Report. Subsequent monitoring and adjustment of Coumadin levels were also substandard. Considered in the context of recurrent lapses in clinical and medication management of Coumadin therapy, I recommend that CHS conduct a comprehensive review of its practices, policies, documentation and tracking in this regard. I recognize that problems in administration and safe management of high risk anticoagulation drugs, especially Coumadin, are common in major health care systems and facilities throughout the country. All such systems, including CHS, need to implement more robust and effective methods to enhance safety for patients on these types of high risk medications.

**11.** A 42 year old patient with MCJ # P720402 was screened at the 4th Avenue Jail on 12/04/10 at which time no significant abnormalities or complaints were noted. On 12/10/10, the patient requested to be seen, stating that he had hand and back pain due to "injuries due to abuse beating from guards while handcuffed" on 12/05/10. X-rays of the hand and back were not done until 12/22/10. These x-rays showed no fractures or dislocation except for a flexion contracture deformity of the fifth distal interphalangeal joint, a finding that was identified after a re-reading of the x-rays on 01/03/11. I recommend that CHS further evaluate this patient's hand