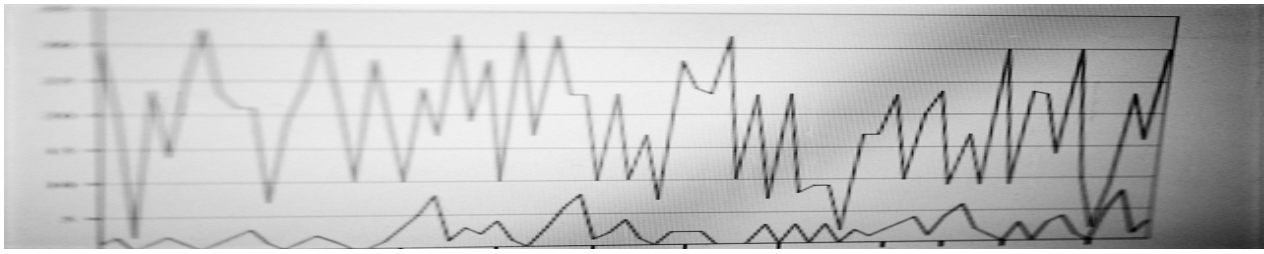
APPENDIX 6

California Prison Health Care Services

Quality Management Committee

Patterns and Trends in Inmate Mortality

2009



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Overview – Annual Death Analysis

Since 2006, the California Prison Health Care Services (CPHCS) has conducted an annual review of inmate deaths to monitor trends in inmate mortality, identify lapses in care and reduce unnecessary deaths among California prison inmates. Over the past three years, this process has been refined to reduce inter-reviewer variation and to categorize departures from standard of care with the use of a standardized taxonomy.

When an inmate dies, a board-certified physician or licensed mid-level provider from the Clinical Support Unit (CSU) evaluates the care that was provided to the inmate and completes a death review summary within ten weeks of the date of death. Recorded on a standardized template, the death review summary identifies lapses in care and provides preliminary findings including the extent to whether the death may have preventable, as well as recommendations.

The CSU reviewer then presents the preliminary findings and recommendations to the Death Review Committee, a multidisciplinary group chaired by a physician manager. This committee votes to accept or modify the death review with respect to preliminary findings, including the classification of type of death, preventability of death, and the severity of departures from the standard of care, as well as specific recommendations. The Death Review Committee refers facility systemic lapses to appropriate institution managers, and individual performance concerns to the appropriate peer review authority.

At the end of the calendar year, a medical expert aggregates the information contained in the death review summaries submitted for the year in the annual death analysis. The annual death report has standard elements, such as analysis of death rate, cause of death, and degree of preventability, which can be compared with prior year reports, and includes the following information:

- Inmate death rates over time;
- Primary causes of death among CPHCS patients;
- Recurrent lapses in care that may be related to preventability of deaths;
- Proportion of preventable, possibly preventable, and not preventable deaths to prior years as a quality of care indicator;
- Recommended improvements to the CPHCS health care delivery system to reduce unnecessary deaths.

In 2009, the CPHCS statewide and regional executive staff who are members of the Quality Management Committee and Health Care Operations Committee requested a supplemental report to the annual death report, which would focus on the four major causes of deaths that made up approximately two-thirds of the deaths in 2009 as a way to leverage opportunities to improve the quality of care and reduce avoidable morbidity, costs and mortality.

It is to be understood that the death review process has limitations, and as a consequence the conclusions presented in this analysis may vary from other available reports. Some of the limitations of the death review process include paper-based medical records, off-site peer-review, and inter-reviewer variability in attribution of preventability, cause of death, and category of death, and lapses in care. Despite these limitations, the information gathered related to systemic lapses in each of the main categories of death have guided targeted corrective actions.

Methodology – 2009 Analysis of Inmate Deaths

Each year, a disproportionate number of patient deaths occur at the California Medical Facility (CMF), which is the only male institution with a hospice program. Many times, patients who are terminally ill are sent to this institution for end-of-life care. In the 2009 supplemental analysis, deaths that occurred at the hospice facility at California Medical Facility were reassigned to the sending institution, in order to evaluate the care provided by an institution prior to the diagnosis of a terminal disease.

Analyses of death rates were performed by age, race, gender, and by various institutional characteristics or "missions" to possibly identify unusual "outliers," such as high death rate within a specific type of institution (e.g. reception centers) or specific ethnicity. These analyses did not show any unusual patterns except an expected higher death rate at CMF, as a result of the hospice program.

In the 2009 sub-analysis of inmate deaths, the four main medical causes of death – cardiovascular disease, cancer, liver disease, and accidental death due to overdose – were particularly emphasized in identifying lapses in care and developing recommendations for system improvements because they account for a high proportion of deaths. Out of fifteen (15) categories of national leading causes of death, almost two-thirds of all inmate deaths fell into these four causes.

Although this report focuses on 2009 deaths, it should be noted that first quarter 2010 death data does not show any significant changes from the main causes of death reported for 2009. But the death review process for 2010 will be undergoing further revisions most notably, the death review analysis will be occurring on a quarterly basis, in order to implement system improvements in a timely manner. Findings and recommendations will be submitted to the Quality Management Committee and Health Care Operations Committee for review and appropriate action.

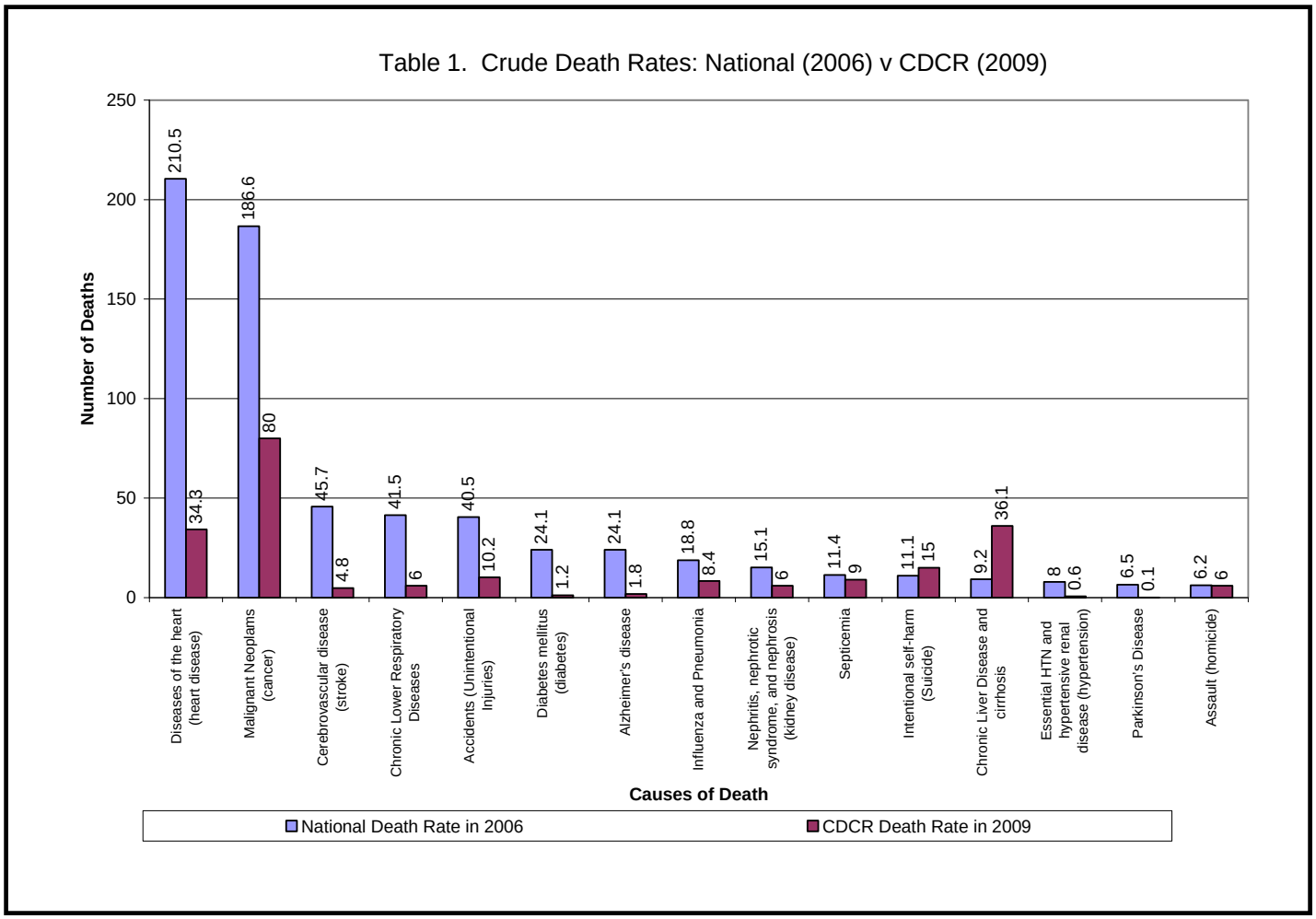
Findings – Death Rate Comparison and Major Causes of Death

The total number of inmate deaths for 2009 was 395. The inmate census used for this analysis was 166,294, which was the census on December 31, 2009.

Comparison to National Death Rates

Table 1 below is a chart comparing the crude death rates per 100,000 within the CPHCS population with the national crude death rate from 2006, which are the most current published. It should be noted that these rates have not been age adjusted.

The CPHCS inmate-patient population tends to have a lower death rate than the national rate. This is most likely attributable to the overall younger population base. However, CPHCS death-rates specific to liver-related diseases and suicides were higher than the national rates



Causes of Death

Sixty-seven percent (67%), or more than two-thirds of all non-suicide related deaths that occurred in 2009 were linked to four causes of death shown below.[1]

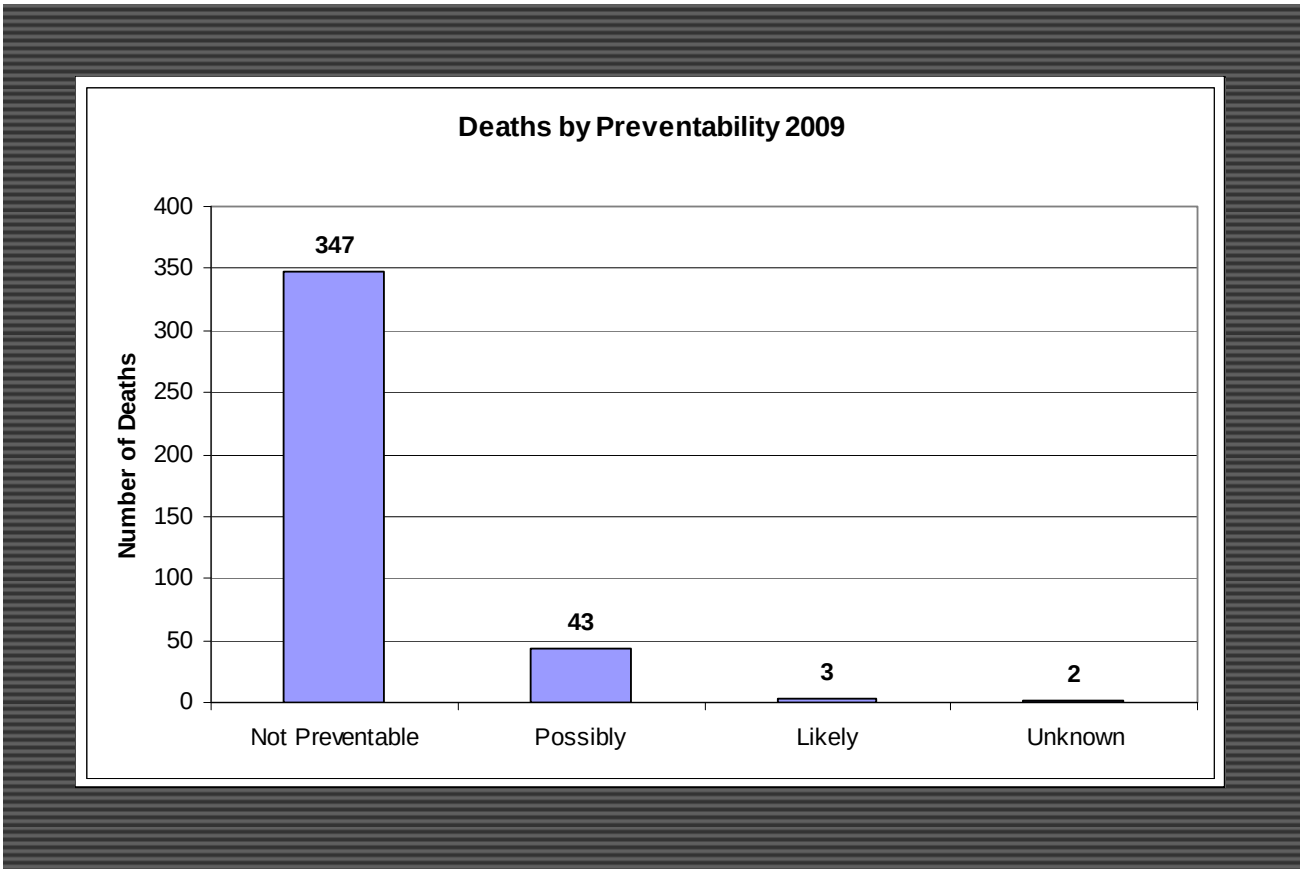
- Cancer (n=133),
- Liver disease (n=60),
- Cardiovascular disease (n=57),
- Accidental deaths due to opiate over-dose (n=14).

Analysis of Preventability

Table 2 below is a chart showing degree of preventability of all deaths categorized as *not preventable*, *possibly preventable*, or *unclassified*. The two cases deemed "unknown" represent cases still under investigation. It is also worth noting, that in 2009, there were fewer "possibly preventable" and "likely preventable" deaths than any previous year.

Table 2

[1] Suicides were excluded from this analysis but are thoroughly reviewed elsewhere.



- The three likely preventable deaths did not fall into the four leading medical causes of death.
- The number of possibly preventable deaths was 43, or 10.9% of the deaths in 2009, and there were two deaths that were not classified with respect to preventability.
- Of the 43 possibly preventable deaths, almost one half (48%) occurred in three categories: cardiovascular disease (n =9), cancer (n=10), and liver disease (n=3).

Findings – Lapses in Care

To develop recommendations for improving clinical practice and patient care, all inmates who died in 2009 from one of the four major medical causes of death were categorized in terms of lapses in care, using the taxonomy developed for previous death reports by the outside medical expert.

Cardiovascular Disease

Under this cause of death, the majority of departures from standard of care can be grouped into the following categories:

1) Failure on the part of individual physician, midlevel, or nurse to recognize, evaluate, or treat important symptoms or signs,
2) Failure to follow clinical guidelines,
3) Delay in access to the appropriate level of care;
4) Medication prescribing errors, and

5) Medication delivery errors.

In nearly all records reviewed in deaths attributed to cardiovascular disease, cardiovascular disease risk factors were only partially documented and often were entirely absent from the last twelve months of the health care record. This common omission could be categorized as either "failure on the part of individual physician, midlevel, or nurse to recognize, evaluate, or treat important symptoms or signs" or "failure to follow clinical guidelines."

Furthermore, within the category of cardiovascular disease, there were 9 "possibly preventable" deaths, which account for **20.9%** of the 43 deaths in this category. Of these 9 possibly preventable deaths, three were considered "delay/failure in access to appropriate level of care" as well as "delay/failure in emergency response."

In one case, there were too infrequent chronic care visits (greater than 6 months apart) for a patient with a history of a cerebrovascular accident, while another patient with known cardiovascular disease was transferred to an out of state correctional facility. These cases are examples of "failure to follow clinical guidelines".

Another area where significant systemic lapses in care were found was in medication management for patients with known cardiovascular disease or known risk factors for cardiovascular disease. "Medical prescribing errors" were found in many cases in varying degrees. Some of these failures could also be classified as "failure to follow clinical guidelines," as the use of these different medications have long been accepted as standard of care in patients with cardiovascular disease or those with known risk factors. Please see Table 2 for a summary of these lapses in care.

Table 2

Medication / Prescribing Error	Prevalence of Error
Failure to prescribe **aspirin** in both secondary prevention candidates and moderate- to high-risk primary prevention candidates	12 of 50 cases (24%)
Failure to prescribe a **statin** for patients with known coronary artery disease (CAD), or risk-equivalent diseases	6 of 34 cases (17.6%)
Failure to prescribe an **ACE-Inhibitor** for patients with known CAD, or risk-equivalent diseases.	4 of 34 cases (11.7%)
Failure to prescribe a **B-Blocker** for patients with known CAD, or Risk-equivalent diseases.	1 of 34 cases (2.9%)

Overdose

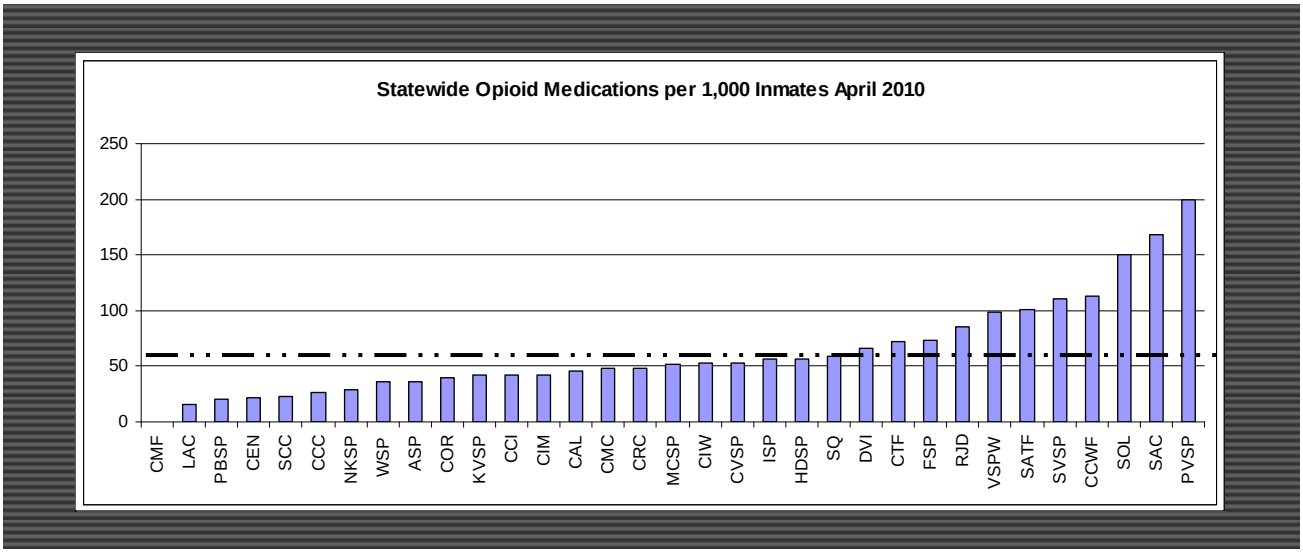
Among overdose-related deaths, most systemic lapses of care could be primarily grouped into two categories:

1) Patient non-adherence with suggestions for optimal care, and
2) Failure/delay in emergency response.

Of the fourteen (14) overdose-related deaths, **only one of the inmates had an active prescription** for the opiate that was found in lethal levels in the post-mortem toxicology studies. Heroin was present in at least four of these cases, and morphine, which cannot be crushed and floated unlike methadone was involved in most cases. These findings suggest that **diversion** of another patient's medication were major factors contributing to overdose deaths within CDCR.

A recent study of CPHCS pain medication prescribing practices shows that prescribing rates for opioid medications varies significantly throughout the state, ranging from 15 prescriptions per 1,000 inmates to nearly 200 prescriptions per 1,000 inmates, which suggests that there are opportunities to reduce unexplained variation in prescribing practices. Please see Table 3. Ensuring that patients receive appropriate pain management, which decreases the likelihood that patients will resort to aberrant behaviors and diversion of medication, will be a critical strategy in reducing overdoses.

Table 3



In the deaths related to overdose, the emergency medical response was reviewed in 13 of the 14 cases where records of post-response review could be found. In four of 13 cases, **Narcan was not used** in resuscitative efforts; and in these cases, resuscitative measures were delayed with administration times ranging from 26 minutes to 47 minutes. In the other nine cases, Narcan use was documented in the records during resuscitative efforts while in the Triage and Treatment Area (TTA). However, in those cases, time from initiation of code to administration of Narcan ranged from 6 minutes to 41 minutes, most occurring in the 22-25 minute range. These findings suggest a **delay in administration of Narcan,** a potentially life-saving antidote in opiate overdoses, which could be considered a "delay/failure in emergency response."

Cancer

There were a total of 133 deaths attributed to malignant neoplastic disease. While a majority of these deaths were not preventable, in several cases, there were opportunities to improve the quality of primary care and "delays in access to appropriate level of care." In some cases, a referral to specialty service was submitted on a routine basis rather than as a more appropriate high priority referral, or a high priority referral was not successfully scheduled within the 14-day timeframe mandated in policy. Follow-up appointments also sometime occurred too far out, potentially allowing for further delays in the diagnostic and/or therapeutic process.

Furthermore, there was the possibility that inmate-patients were **not consistently screened for preventable cancers such as colo-rectal and liver cancers according to recommended national guidelines**. Death reviews are generally limited to the care provided twelve months prior to the patients' deaths, and often times, recommended screenings should occur much sooner than within the

last year prior to death. Further investigations are currently being conducted to look more closely at colo-rectal cancer screening among the inmate-patients who died in 2009 from colo-rectal cancer.

Liver Disease

With respect to liver disease-related deaths, the lapses in care tended to fall under "failure to follow clinical guidelines." There were cases where screening for hepato-cellular carcinoma was not done or was incompletely done. This review could not comment on whether screening occurred routinely or whether screening occurred at the recommended time (approximately age 45, or stage 2-3 fibrosis) in patients with chronic inflammation of the liver. Also there was a general lack of documentation as to whether the patients were evaluated for combination therapy for chronic viral hepatitis C. Finally, there were opportunities identified to better screen patients with End Stage Liver Disease (ESLD) for esophageal varices and to manage known portal hypertension and risk of spontaneous bacterial peritonitis.

Overall - Lapses in Care

There was a general lack of documentation regarding discussion of End-of-Life and Advanced Directives. This was particularly true with Cirrhosis/ESLD patients. In the cancer patient subpopulation, end of life care and advance directive options were more frequently discussed, but documentation was still sparse, and this aspect of care was often not addressed or at least documented until the patient had failed treatment and was opting for palliative care and hospice within the last few weeks of life. This would fall under the category of "failure to communicate effectively with the patient."

In addition, there were several cases where inappropriate transfers took place, which delayed or disrupted the diagnostic/therapeutic process, or cases where the patients should have been housed at institutions closer to tertiary medical facilities.

Recommendations

This review has described the most prevalent lapses in care that occurred within the four major categories of medical deaths. Avoidable deaths could be mitigated in these four major categories through development of new policies or modifications to existing policies, creation of decision support tools to support more effective treatment at the point of care, and staff development programs, including case conferences and continuing medical education.

In all care categories, it would be advantageous to distribute routine medical management reports that provide each institution and each primary care team with clinical data that can be used to improve patient care and clinical practice, and implement monitoring tools that can be used for self-assessment at the provider and primary care team level, and for manager reviewers to use.

Under each disease category below, follow-up actions are recommended.

<u>Cardiovascular Disease</u>

- Establish statewide guidelines for anticoagulation management.

- Reiterate chronic care follow-up time frames, particularly in patient populations over 50 years of age and those with known underlying disease.
- Establish a statewide decision support tool for Primary Care Teams to document the cardiovascular disease risk factors, and to have these risk factors placed on the problem list, making them readily available to clinical staff in primary care and acute care situations.
- Establish a decision support tool for Primary Care Teams to prompt them to order medications recommended for secondary cardiovascular risk reduction.
- Provide additional case conferences and ongoing education on identification and management of Cardiovascular Risk Factors and Cardiovascular Disease.
- Provide case conferences on identification and management of Chest Pain and Acute Coronary Syndrome, and appropriate work-up of suspected cardiovascular disease.
- Monitor adherence to clinical guidelines.

Overdose

- Consider implementing a policy change that allows for Narcan to be available in the Emergency Medical Response (EMR) bags for first clinical responders.
- Provide education to medical staff regarding appropriate basic life support measures used during an EMR prior to arrival to the Triage and Treatment Area (TTA) and while in the TTA.
- Provide education to all medical staff regarding Narcan administration in any EMR that involves altered level of consciousness.
- Reiterate use of the appropriate nursing protocol and encounter forms (decision support) that involve altered level of consciousness since these tools reinforce the use of Narcan.
- Consider use of Methadone over long-acting Morphine, since Methadone can be crushed and floated, thereby making it more difficult to divert the medication.
- Ensure that providers are adhering to Pain Management guidelines, particularly requirements to document a thorough assessment including diagnosis and treatment plan, and use of “pain contracts” and urine toxicology screenings prior to starting long-term opiates, randomly during treatment, and at times of suspicion of abuse/diversion.
- Perform routine EMR drills that simulate common and serious emergency situations.
- Distribute medical management reports to institutions and primary care teams to identify unusual patterns of narcotic prescribing.
- Monitor adherence to medication management policy and procedures.
- Monitor adherence to Pain Management guidelines.

Cancer

- Reiterate statewide policies to standardize the procedural aspects of malignancy work-up, including use of medical holds, appropriate transfers from remote institutions, timeframes for diagnostics testing and specialty consultations, and end-of-life/advanced directives discussion/documentation.
- Distribute medical management reports to institutions and primary care teams to facilitate screening for potentially preventable cancers, such as colorectal cancer, in accordance with national guidelines.
- Monitor adherence to clinical guidelines,
- Distribute registry of patients eligible for Fecal Occult Blood Testing (FOBT) / colonoscopy screening to the primary care teams, flagging patients who have not yet received FOBT or colonoscopy services.

Liver Disease

- Issue a decision support tool to prompt clinical staff to screen patients with ESLD for esophageal varices, facilitate evidence-based management of known portal hypertension, and reduce the risk of spontaneous bacterial peritonitis.
- Provide a case conference, ongoing education, and decision support tools to medical staff regarding recommended screening tests and time frames, as well as screening for combination therapy for Hepatitis C Virus (HCV).
- Monitor adherence to clinical guidelines for management of HCV and ESLD.