APPENDIX 5

2014 PATIENT SAFETY REPORT

California Correctional Health Care Services · Quality Management Committee

2014 Patient Safety Report

January 2015

Background

A key component to a robust patient safety program is system surveillance – collecting and analyzing data to identify health care delivery processes that pose risks to patients. Health risks can come in many forms, including clinical factors that increase the vulnerability of patients to poor outcomes; conditions that disproportionately contribute to hospitalizations or death; and system lapses that show up repeatedly in association with patient harm.

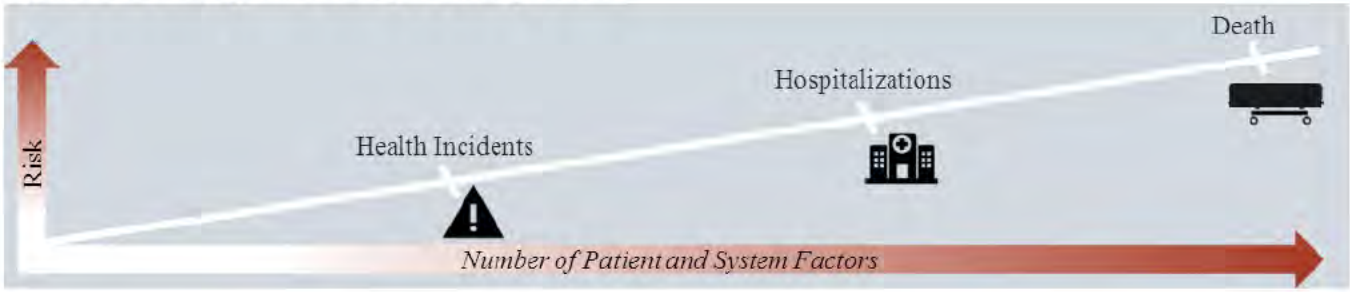
Per policy, California Correctional Health Care Services and the Division of Health Care Services (referred to collectively as "Health Care Services" in this report) are required to conduct system surveillance and issue a Patient Safety Report at least annually as a vehicle to provide important patient safety information to all health care staff.

The 2014 Patient Safety Report focuses on three areas – *inmate deaths, hospitalizations, and events reported through the health care incident reporting system* – to identify which patient and system factors may have contributed to increased patient morbidity and mortality. In addition to subsets of deaths and hospitalizations that are categorized as possibly preventable, all deaths and hospitalizations in 2013 were included in this analysis since system lapses or vulnerabilities occur throughout a continuum of risk and preventability. Drawing a line between preventable and not preventable events can limit understanding of the scope of system risks and opportunities that often cross this line, and therefore can limit our efforts to improve patient quality and safety.

Specifically, this analysis focuses on the following questions:

Patient Factors	Which patient factors (characteristics and conditions) are associated with the highest risks for adverse events and are disproportionately associated with hospitalizations or deaths?
System Factors	What system factors (lapses) related to breakdowns in health care processes are most commonly associated with patient harm?
Interventions	Based on patient and system factors, what subpopulations and process vulnerabilities should be targeted for interventions so improvement efforts have maximum impact on reducing morbidity and mortality and avoiding associated costs?

Figure 1.A Conceptual Model for Risk of Harm



Patient Factors – Characteristics Linked to Adverse Outcomes

To identify factors that place patients at highest risk for adverse events, hospitalization and mortality rates for patients with more than 40 specific characteristics (e.g., age, gender, ethnicity, mental health or disability status) were compared to patients without those characteristics. Patients with the following four characteristics were more likely to be hospitalized or die than patients without these factors:

- Prior Hospitalization within the Past 6 Months
- High Risk
- Age 60 years or older
- Polypharmacy (taking 10 or more medications)

Increased Mortality Risk

The mortality rate in 2013 for inmates without the risk factors listed above was approximately 1 death per 1,000 inmates per year. But mortality risk rose sharply for patients with previous hospitalizations alone or in combination with the other three factors noted above.

The single strongest risk factor for death was a history of prior hospitalization. Patients who had a history of prior hospitalization were 37 times more likely to die than patients who did not have a history of prior hospitalization.[1]

The more of these four factors that are applied to a particular patient, the higher the risk of death. The death rate for patients with all four of these factors was 293 times higher than for inmates without any of these risk factors. See Figure 2.

Figure 2. Death Rates for Patients with Targeted Risk Factors

*Annual death rate among patients with no risk factors.

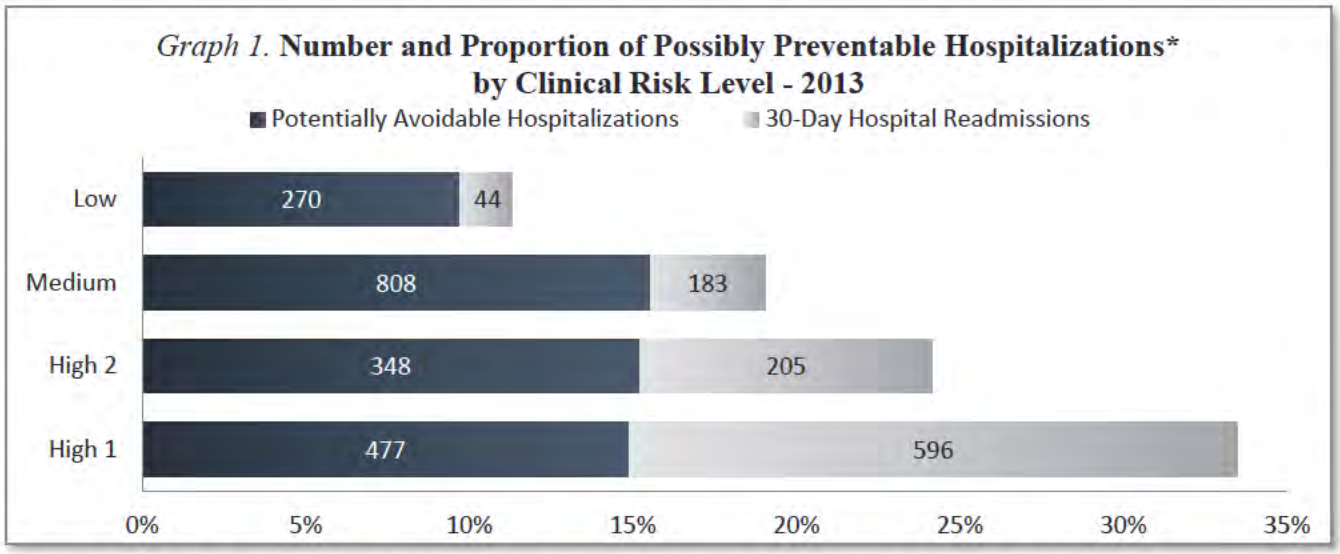
[1]Only patients incarcerated during the entire time period from January to December 2013 were accounted for in calculating death rates. Groups were made mutually exclusive by controlling for risk level, age, prior hospitalization (in 2013 only) and polypharmacy.

Increased Hospitalization Risk

As with increased mortality rates, patients with high risk status and high medication usage were more likely to be involved in possibly preventable hospitalizations (PPH)* than patients without these characteristics. On average, 1 in 76 inmates experienced a potentially preventable hospitalization in 2013. The risk of PPH increased to 1 in 7 for high risk patients and 1 in 11 for patients taking 10 or more medications.

Risk level in general impacted a patient's chances of experiencing a preventable hospitalization – the higher a patient's risk level, the more likely it is that the system of care could fail the patient in some way, resulting in a preventable hospitalization. The rate of PPH among high risk patients is 137 per 1,000 compared to 16 per 1,000 for medium risk and 6 per 1,000 for low risk.

Clinical risk also appears to impact the proportion of hospitalizations that are potentially preventable. Approximately 55% of all potentially preventable hospitalizations in 2013 were for High Risk 1 and 2 patients, who account for only 10% of the total inmate population (Graph 1). Also, while the majority of PPH among the High 1 group were 30-day readmissions, potentially avoidable hospitalizations for patients with ambulatory care sensitive conditions were the majority of PPH among low risk patients.



*Possibly Preventable Hospitalizations include Potentially Avoidable Hospitalizations and 30-Day Hospital Readmissions

By focusing interventions on the 7,639 patients who had one or more of the four risk factors described at the beginning of this section, health care staff could make a substantial impact on inmate mortality and morbidity. For example, by monitoring only current High Risk 1 patients, who make up less than 4% of the entire inmate population, institutions statewide could reduce all potentially preventable hospitalizations by up to 34%.

Patient Factors – Clinical Conditions Linked to Adverse Outcomes

Increased Mortality Risk

Each year, Health Care Services releases an analysis of death review findings, which considers causes of death, trends in mortality, identification and trending of system lapses in care, and identification and trending of preventable deaths.

The most recent report shows that five causes of death listed in rank order below accounted for nearly 80% of deaths in 2013. These top causes for inmate deaths in California have remained consistent in the past five years, with the exception that homicide sometimes tied with or surpassed overdose as the fifth most common cause of death.

1. Cancer *(excludes liver cancer, which is categorized as liver disease)*
2. Liver Disease
3. Cardiovascular Disease
4. Suicide
5. Overdose *(opiates and methamphetamines were most common drugs)*
6. Homicide

Increased Hospitalization Risk

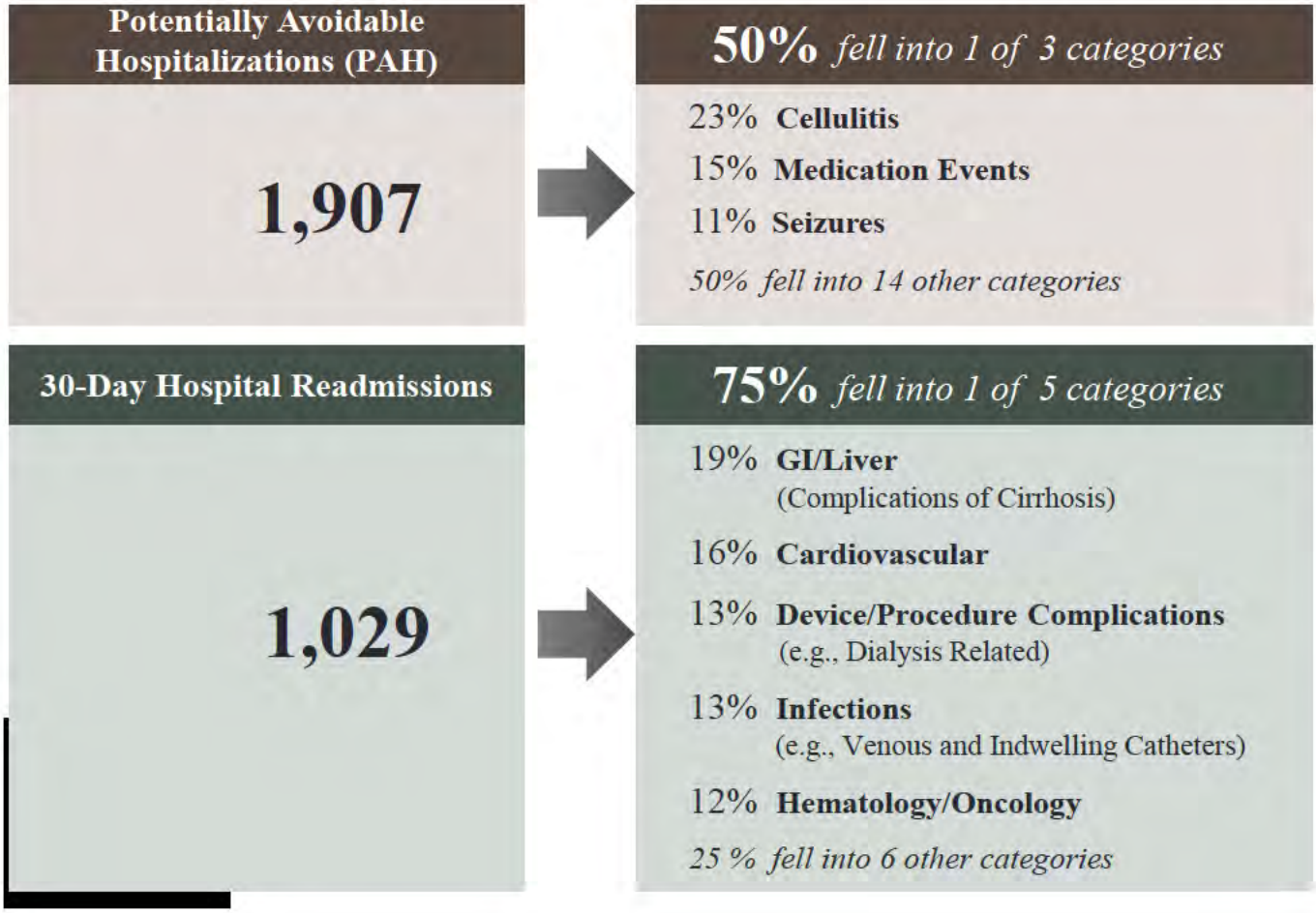
There is significant overlap between the most common conditions associated with hospitalizations and the top five causes of death. Three admission categories out of twelve accounted for more than half (52%) of the 13,563 hospitalizations in 2013 – trauma or poisoning; cardiovascular conditions; and gastrointestinal or liver conditions.

In 2013, 22% of all hospitalizations met the criteria for potentially preventable, with 14% considered potentially avoidable hospitalizations associated with ambulatory care sensitive conditions and 8% considered hospital readmissions within 30-days (Figure 3).

Figure 3.Potentially Preventable Hospitalizations in 2013

The most prevalent conditions within these broad categories that disproportionately contributed to PPH are shown in Figure 4.

Figure 4.Diseases or Conditions Causing a Majority of Potentially Preventable Hospitalizations in 2013



System Factors – Lapses Linked to Increased Risk of Adverse Outcomes

Lapses Noted in Death Reviews

Per the 2013 Death Review Analysis, there were 303 identified lapses in care in the 366 deaths that occurred during the course of the year. About 90% of those lapses fell into eight out of fifteen total categories. See Table 1.

Table 1. Most Prevalent System Lapses Identified in 2013 Death Reviews

Type of Lapse	Total Number of Lapses – All Deaths	Percentage of All Lapses Identified in 2013	Deficient Processes by Complete Care Model Domain**
Lapse #1: Failure to recognize, identify or adequately evaluate important symptoms or signs	98	32%	Population and Care Management
Lapse #2: Failure to follow established guidelines for evaluation and/or management of a specific condition	49	16%	Population Management Health Information Management
Lapse #3: Delay in access to care sufficient to result in harm to the patient	24	8%	Scheduling and Access
Lapse #4: Failure to adequately pursue abnormal test results	32	11%	Population and Care Management Health Information Management
Lapse #5:Failure of provider-to-provider communications including botched handoffs	21	7%	Care Management Continuity of Care
Lapse #6: Fragmentation of care such that individual responsibility for patient is waived	22	7%	Continuity of Care
Lapse #8: Medication prescribing error	21	7%	Medication Management
Lapse #9: Medication delivery error	7	2%	Medication Management

**Complete Care Model is synonymous with Patient-Centered Health Home.

Regardless of whether a death was considered possibly preventable or not, the eight predominant system lapses were present; however, there were more lapses per death in those considered possibly preventable. Among the 35 deaths considered possibly preventable, 5 of the 8 types of lapses (1, 3, 5, 6 and 8), or one-third of the 15 lapse types, contributed to 75% of all lapses.

By linking the 2013 Death Review Analysis findings to the Complete Care Model domains that are in the Performance Improvement Plan and displayed on the Dashboard, it appears that process breakdowns occurred most commonly in the following five areas:

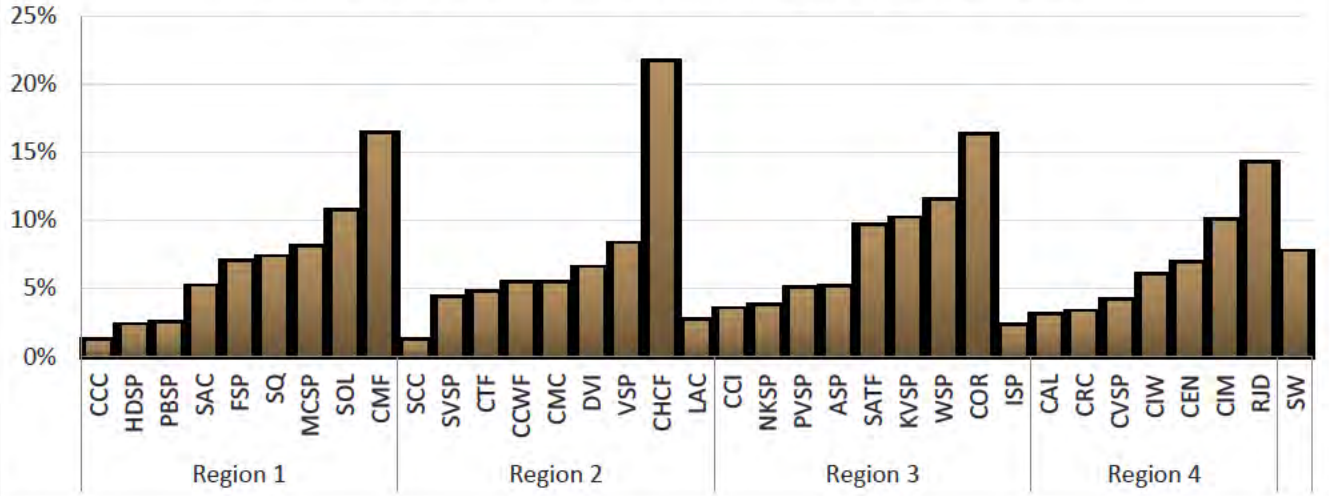
- Scheduling and Access to Care
- Population and Care Management
- Health Information Management
- Medication Management
- Consistent Care Teams

Lapses Noted in Hospitalizations

Though not described in this report, the types of lapses noted in death reviews (as well as lapses collected through the incident reporting system detailed on page 9) are the same types of process breakdowns that occur in potentially preventable hospitalizations. This should not come as a surprise since avoidable hospitalizations are associated with breakdowns in the core processes of the Complete Care Model.

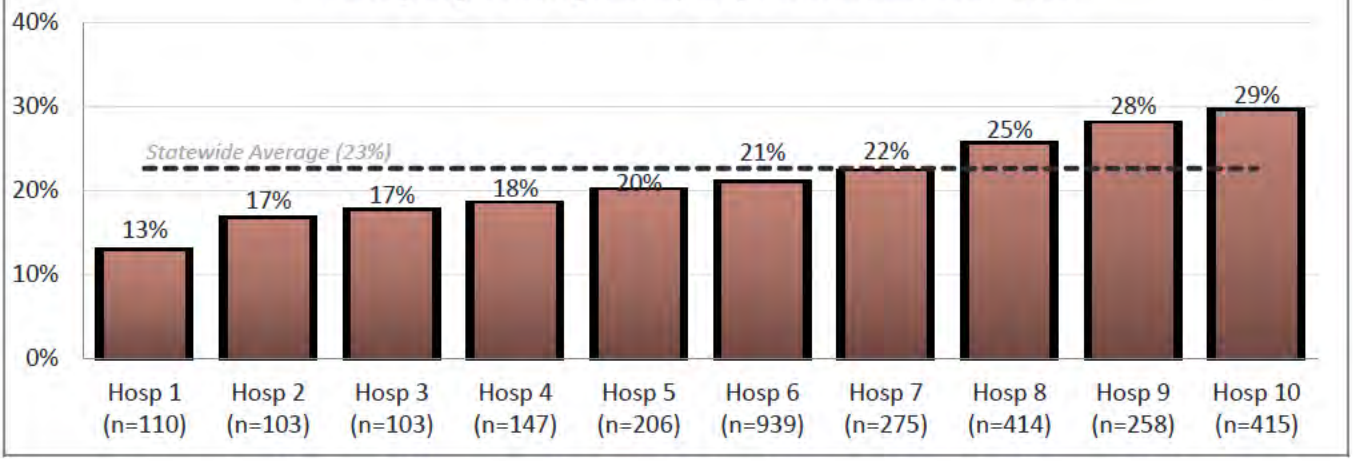
Another way to look at system lapses related to hospitalizations is at the institution and community hospital level. A review of 30-day readmissions assigned at the institutional level shows wide variation among readmission rates statewide (ranging between 1% and 22%). This variation may be related to differences in patient populations as well as unnecessary variation related to quality concerns at an individual institution and/or community hospital. See Graph 2.

Graph 2. **Proportion of 30-Day Hospital Readmissions - 2013**



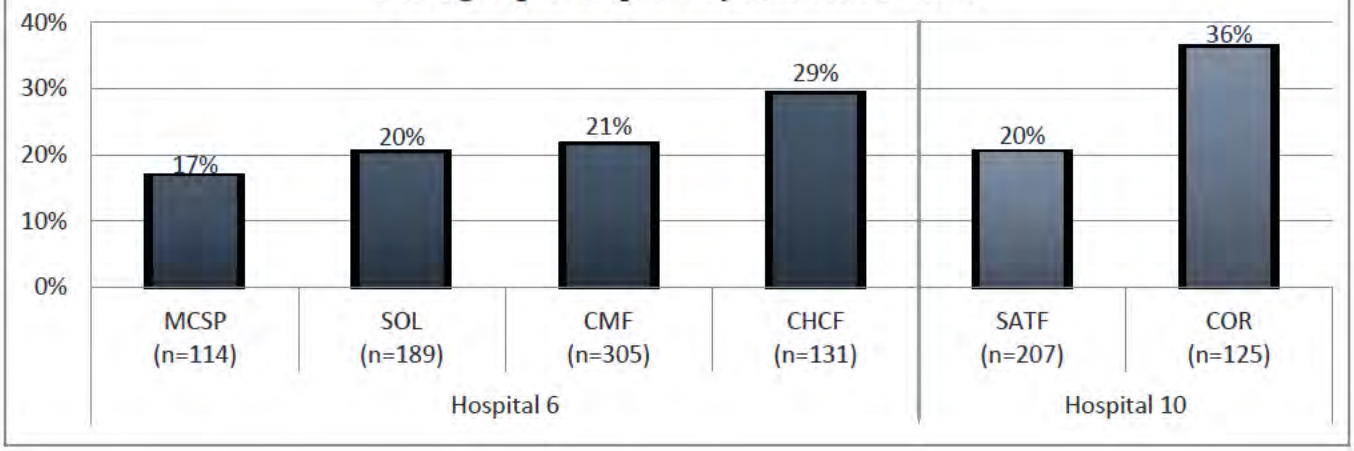
An analysis of hospitals with more than 100 CDCR patient admissions in 2013 was performed to better understand the contributions to variation made by institutions and community hospitals. Among these hospitals, *readmission rates* within 30-days focusing only on *high risk patients* ranged from 13% of total admissions to 29%. See Graph 3.

Graph 3. **Hospital Readmission Rates for High Risk Patients Only Among Top 10 Hospitals by Days to Readmission - 2013**



To illustrate the variability among institutions in their contributions to 30-day readmissions, a sub-analysis was performed on institutions with at least 100 *high risk* admissions occurring at predominately one community hospital (e.g. Hosp 6 and Hosp 10). The readmission rate to Hospital 6 was approximately *50% higher for CHCF* compared to SOL and CMF, and the readmission rate to Hospital 10was *80% higher for COR* compared to SATF even though SATF accounted for half of all admissions because its total inmate population is double that of COR. See Graph 4.

Graph 4. **Hospital 30-Day Readmission Rates for High Risk Patients Only Among Top 2 Hospitals by Institution - 2013**



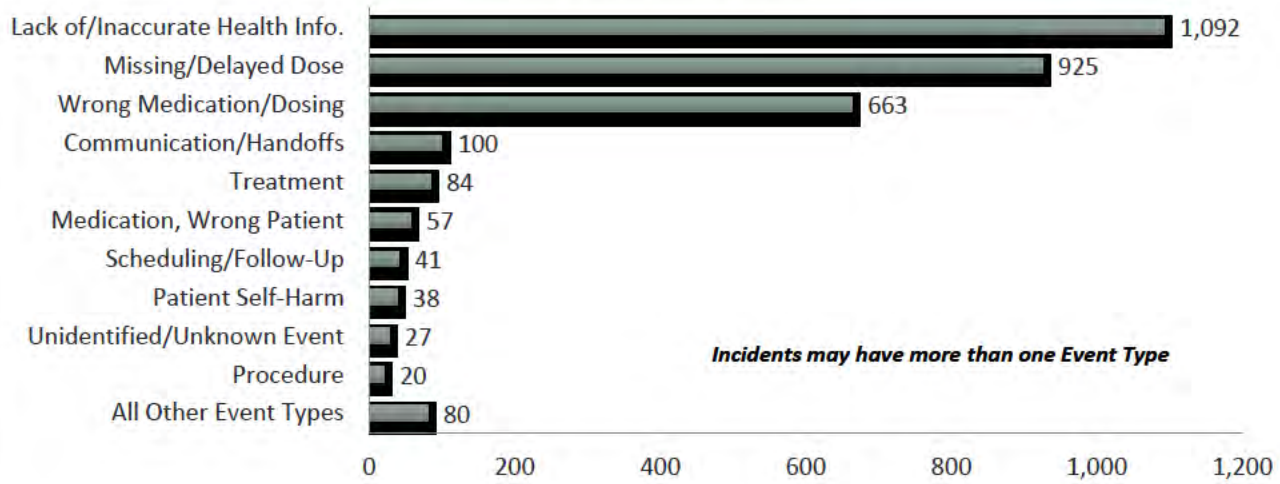
Lapses Noted in Health Incident Reporting

Health Care Services uses a standardized taxonomy to analyze trends in health incident reporting. Currently, when a staff member completes the health care incident reporting form, he or she classifies the event using 17 possible event types. Since there are often multiple factors that lead up to an incident, a single incident may contain more than one event type.

From January 2013 to July 2014 there were approximately 2,000 health care incidents reported statewide with 3,127 associated system lapses. More than half of the reported system lapses (53% overall) pertained to medication management issues – missing or delayed doses of medication, wrong medication or dosing, and medication administered to the incorrect patient.

Just as health information problems emerged as a major issue in preventable deaths, it is also the most common single type of system lapse in health incident reporting – delay in availability of health information or incomplete/inadequate documentation represented 35% of the system lapses reported. See Graph 5.

Graph 5. **Health Care Incidents Reported by Top 10 Event Types - January 2013 to July 2014**



Although Health Care Services is doing a better job of reporting incidents since the Health Incident Reporting System was first implemented in mid-2013, there is still underreporting by most institutions.

In fact, 44% (or 856) of the total incident reports received from January 2013 through June 2014 were submitted by only 5 of the 35 institutions across the state. Over half of all institutions submitted 25 or fewer incidents over the past year, which suggests that most institutions are not actively contributing to early detection and prevention of system breakdowns.

As previously noted in the Patient Safety Culture Report, underreporting is associated with fear of punishment. And underreporting is strongly associated with increased risk to patients. Specifically, when patient safety survey results were compared to various measures of institution performance to see if there was any correlation between health care services culture and patient care outcomes, initial findings suggested a meaningful inverse relationship between institution readmission rates and the proportion of an institution's health care staff who perceive less punitive responses to errors.[2]

This means that if more staff thinks mistakes will not be held against them, that institution is likely to have fewer potentially preventable 30-day readmissions. In fact, local patient safety culture is a stronger predictor of readmission rates than the clinical complexity of an institution's patients.[3] These findings reinforce how attitudes about adverse event transparency can help reduce avoidable patient harm.

What You Can Do to Reduce Your Patient's Risk for Morbidity and Mortality

This report has highlighted major patient and system factors that increase the risk of harm, as evidenced by reviews of deaths, hospitalizations and health care incidents, and many of these factors are amendable to interventions that reduce the risk. Recommendations noted below address some of the major vulnerability factors described in this report and are generally organized by the domains in the Statewide Performance Improvement Plan and Dashboard.

Population and Care Management

Who are your patients at higher risk of hospitalization or death compared to other patients? How consistent has their care team been and how frequently are they evaluated by care team members? Is their care discussed during team huddles and how many of these patients do you have on your panel? As discussed in this report, a relatively small subset of patients disproportionately carry the burden of risk, including those who are elderly, High Risk 1, prescribed 10 or more medications, or have been hospitalized in the past year, as well as those with advanced conditions such as end-stage liver disease.

- Use the **Master Registry** to identify patients with the high risk characteristics described in this report (all relevant patient factors are reported). You can filter the Master Registry by patient panels. Check the Master Registry at least weekly to identify new arrivals to a specific patient panel or to the institution as a whole, especially patients who meet the risk factors described in this report. Click here to access the Master Registry.

- Consider placing a **medical hold** prior to transferring patients with high risk characteristics or conditions. The gaps in medication delivery, specialty services or diagnostic services, and regular care team management that can occur during patient transfers could be devastating

[2] a) proportion of institution survey respondents reporting a non-punitive response to errors and b) institution readmission rate: $r=-.57$, $r^2=0.33$, $p<.001$

[3] a) proportion of institution patients with a high clinical risk classification and b) institution readmission rate: $r=.56$, $r^2=0.31$, $p<.001$ (note that there is no meaningful relationship between the proportion of high risk patients and the proportion of survey respondents reporting a non-punitive response to errors: $r=-.31$, $r^2=0.09$, $p=.089$)

clinically to these patients in a way that they are not to the vast majority of the lower risk patient population. Click here to access Medical Hold training materials.

- Ensure staff know where to find tools and resources. For example, the Mental Health Program has a substantial **library of suicide prevention and crisis intervention** information and tools. Click here to access Mental Health SPR FIT Tools.

- Use the new **ESLD Registry**, which lists patients within assigned panels that have end-stage liver disease (ESLD) and alerts providers when a patient needs to be screened or have a follow-up appointment. Click here to access the ESLD Registry. Training on the new registry and current guidelines for ESLD care will be offered in early 2015, and participants will receive continuing education credits.

- Use updated **Mental Health Registries** to identify and monitor patients on different psychotropic medications. The registries, which cover antidepressant and anti-psychotic medications, as well as mood stabilizers, remind providers to order diagnostic studies and complete assessments and certain forms, as required per the most current statewide guidelines. Click here to access the Mental Health Registries. Coming soon: a web page on the QM Portal that connects you to prescribing and monitoring guidelines, forms, a registry user's guide and training materials.

- Watch for the new statewide **Infection Control Program**, currently in development. Policies, procedures, training, and tools will be coming to the field in 2015. In addition, there are Patient Safety Initiatives in progress that address **prevention and management of infections** related to Central and Peripheral Venous Catheters and Indwelling Urinary Catheters and Wounds as well as prevention of high impact **medication errors**.

Scheduling and Access to Care

- Use the Scheduling Process Improvement Initiative tools posted on the QM Portal to improve access to medical services at your institution. In 2013, Health Care Services implemented a statewide **Scheduling Process Improvement Initiative (SPI)**, which resulted in development of materials to help institutions improve their medical scheduling processes, including a sample Local Operating Procedure, process maps ("swim lanes") that outline the roles and responsibilities of staff in various scheduling processes, and tip sheets (e.g., "Five Things You Should Be Doing Now"). Click here to access the SPI site.

- Review Dental Program scheduling and tracking best practices and apply them as appropriate to improve access to dental services. Click here to access DSTS Best Practices.

Medication Management

- Conduct **medication regimen reviews** and address medication compliance issues. Health Care Services recently issued a Polypharmacy Registry identifying patients taking 10 or more medications, a sample Local Operating Procedure to help institutions establish a system for medication reviews, and forms and other tools to offer guidance to staff performing reviews. Click here to access Polypharmacy Improvement Initiative tools.

- **Electronic Health Record System** implementation will transform the way we do business – especially in medication management. The system incorporates a number of measures that protect patient safety, from computerized physician order entry to bar-coding that matches inmate identification to medication labels and alerts staff when inconsistencies are found.

Health Information Management

- Review the **Executive Report in Health Information Management** and use the information to develop local improvement initiatives. Because health information management is a quality improvement priority statewide and a key element of Complete Care Model implementation, Health Care Services released the executive report in October 2014 with detailed recommendations for improving institution processes. Click here to access the Executive Report.

Health Care Incident Reporting

- Provide training to all institution staff on how to use the **Health Incident Reporting System**. Training materials are available on-line at the Patient Safety Portal. Click here to access Patient Safety training materials.

- Use existing meeting forums, such as staff meetings and improvement committee meetings, to **let staff know** when a health care incident report raised awareness about system gaps and ultimately **resulted in a better health care process**. An institution's survey results for *Non-Punitive Response to Errors* is significantly influenced by staff perceptions of *Feedback and Communication about Errors* and *Communication Openness*. This suggests that transparently broadcasting errors that occur, and the plans to fix their root causes, help staff become more comfortable with reporting errors. Click here to access Patient Safety Culture Survey Results.

Interdiction and Substance Abuse Treatment

- Support the Drug Interdiction Program. Division of Adult Institutions is implementing an **interdiction program to reduce drug trafficking** at institutions in efforts to reduce drug overdoses and violence and improve substance abuse treatment outcomes. The interdiction program will include drug detection dogs, ion scanners, and increased use of urinalysis. Click here for more information about the Drug Interdiction Program.