HMA

HEALTH MANAGEMENT ASSOCIATES

Medication Management for Committed Youth at Division of Youth Corrections Facilities

Performance Evaluation

August 2014

Research and Consulting in the Fields of Health and Human Services Policy, Health Economics and Finance, Program Evaluation, Data Analysis, and Health System Restructuring

ATLANTA, GEORGIA • AUSTIN, TEXAS • BOSTON, MASSACHUSETTS • CHICAGO, ILLINOIS • DENVER, COLORADO
HARRISBURG, PENNSYLVANIA • INDIANAPOLIS, INDIANA • LANSING, MICHIGAN • NEW YORK, NEW YORK • OLYMPIA, WASHINGTON
SACRAMENTO, CALIFORNIA • SAN FRANCISCO, CALIFORNIA • SOUTHERN CALIFORNIA • TALLAHASSEE, FLORIDA • WASHINGTON, DC

LEGISLATIVE AUDIT COMMITTEE
2014 MEMBERS

Senator Steve King
Chair

Senator Lucia Guzman
Vice-Chair

Senator David Balmer
Representative Dan Nordberg
Representative Dianne Primavera
Representative Su Ryden
Representative Jerry Sonnenberg
Senator Lois Tochtrop

OFFICE OF THE STATE AUDITOR

Dianne E. Ray
State Auditor

Monica Bowers
Deputy State Auditor

Andrew Knauer
Legislative Audit Manager

Kara Trim
Legislative Audit Supervisor

Health Management Associates
Contractor Evaluators

August 6, 2014

Members of the Legislative Audit Committee:

This report contains the results of a performance evaluation of the medication management practices for committed youth at the Department of Human Services, Division of Youth Corrections. The evaluation was conducted pursuant to Section 2-3-103, C.R.S., which authorizes the State Auditor to conduct evaluations of all departments, institutions, and agencies of state government. The report presents our findings, conclusions, and recommendations, and the responses of the Department of Human Services.

Sincerely,

Donna Strugar-Fritsch
Managing Principal

88 KEARNY STREET, SUITE 1850, SAN FRANCISCO, CALIFORNIA 94108
TELEPHONE: 415.489.2021 | FAX: 866.328.6201
WWW.HEALTHMANAGEMENT.COM

This page intentionally left blank.

TABLE OF CONTENTS

This page intentionally left blank.

Glossary of Terms and Abbreviations

AACAP – American Academy of Child and Adolescent Psychiatry

ABPN – American Board of Psychiatry and Neurology

AIMS – Abnormal Involuntary Movement Scale

APA – American Psychiatric Association

CHP – Correctional Health Partners

Department – Colorado Department of Human Services

Division – Division of Youth Corrections

DOT – Direct Observation Therapy

EHR – Electronic Health Records

FDA – United States Food and Drug Administration

HMA – Health Management Associates

MAR – Medication Administration Record

QMAP – Qualified Medication Administration Persons

This page intentionally left blank.

MEDICATION MANAGEMENT FOR COMMITTED YOUTH AT DIVISION OF YOUTH CORRECTION FACILITIES

Performance Evaluation, August 2014
Report Highlights

Division of Youth Corrections
Department of Human Services

PURPOSE

Evaluate the Division of Youth Correction's (Division) medication management practices for committed youth.

BACKGROUND

- The Division's mission is to protect, restore, and improve public safety through services and programs for youth offenders, ages 10 through 21.
- Under statute once a youth's legal custody transfers to the Division, the Division assumes duties that include providing the youth with ordinary medical care.
- The Division oversees 10 state-operated secure facilities and 38 contractor-operated facilities that provide secure, staff-secure, and community-based settings.
- The average daily population of committed youth for Fiscal Year 2013 was approximately 851, of which 86 percent are in facilities (state or contracted facilities) that provide on-site medical care.

OUR RECOMMENDATIONS

The Department should:

- Ensure that committed youth receive appropriate treatment and medication by implementing a system of robust clinical oversight of medication prescribing practices at all facilities.
- Strengthen informed consent policies covering psychotropic medications.
- Reduce the risk of medication errors by requiring uniform practices across state and contractor facilities to improve medication administration practices.
- Require that facilities monitor the effects and outcomes of treatments for youth with high-risk conditions and medications.
- Ensure that state-operated facilities comply with all applicable federal and state laws regarding the handling and disposal of controlled substances.

The agency agreed or partially agreed with these recommendations.

EVALUATION CONCERN

The Division does not ensure that facilities that provide on-site medical care for committed youth adopt and follow industry standards and best practices in prescribing, administering, and monitoring prescription medications.

KEY FACTS AND FINDINGS

- In 24 of the 60 cases in our judgmental sample of youth medical records, facilities did not adhere to Division policies and/or national standards, meaning either that the Division lacks controls to ensure that prescribers follow accepted practices or the controls are not working. For example, in 22 cases the record did not indicate what diagnosis or symptoms prescribed medications were intended to treat.

- In 11 cases we reviewed the youth had asthma but for 8 of these cases, rather than conducting diagnostic work, the facility provided treatment based solely on the youth reporting that he or she had asthma, which is inconsistent with the National Heart, Lung, and Blood Institute Asthma Guidelines.

- In 13 cases we found no evidence that medical staff obtained consent for treatment with psychotropic medications and in another 6 cases no evidence that the facility had discussed the benefits and risks of all mediations being given a youth.

- For 57 cases in our sample youth were prescribed psychotropic medications. We found almost no evidence that vital signs such as blood pressure, weight, and heart rate were taken when youth entered the facility or when medications were changed, in accordance with national standards.

- In three of five facilities we reviewed, nurses prepared medications for youth at discharge, violating state pharmacy regulations that define the practice of pharmacy and generally only allow pharmacists to dispense medications.

- Some facilities do not comply with state rules for disposal of prescription drugs classified as hazardous waste and federal rules for disposal of controlled substances. For example, two facilities had no procedures to render medications classified as hazardous waste unusable before disposal and only one facility uses a process fully compliant with federal rules to dispose of controlled substances.

This page intentionally left blank.

RECOMMENDATION LOCATOR
Agency Addressed: Department of Human Services

Rec. No.	Page No.	Recommendation Summary	Agency Response	Implementation Date
1	27	Implement a system of robust clinical oversight of medication prescribing practices at all state-operated facilities and contract facilities that provide on-site medical services by: (a) developing written policies and guidelines on psychiatric diagnoses, conducting baseline testing, and monitoring psychotropic medication use; (b) requiring contract facilities to adhere to the guidelines developed in part "a"; (c) requiring contract facilities to provide prescription drug data to identify high-risk practices; (d) developing a registry for complex conditions (e.g. asthma, and diabetes) and monitor compliance with evidence-based practices for the conditions; (e) conducting regular chart reviews at facilities to monitor diagnosis, monitoring, and other clinical requirements; (f) establishing peer review of selected cases; and (g) developing a mechanism to systematically and identify complex cases for clinical review.	a. Agree b. Agree c. Partially Agree d. Partially Agree e. Partially Agree f. Partially Agree g. Partially Agree	a. July 2015 b. July 2015 c. July 2015 d. July 2015 e. July 2015 f. July 2015 g. July 2015
2	34	Ensure that prescribers are consistently informing youth and/or families about the risks and benefits of medication being prescribed and obtain consent for all psychotropic drugs by: (a) improving its informed consent policy for psychotropic drugs to identify when it is required, who can consent, whether consent can be verbal, and how it must be documented; (b) clarifying its policies to ensure that specific consent for psychotropic drugs is not part of the blanket consent to treat; and (c) requiring all facilities to create implementing procedures to comply with "a" and "b".	a. Agree b. Agree c. Agree	a. November 2014 b. November 2014 c. December 2014

RECOMMENDATION LOCATOR
Agency Addressed: Department of Human Services

Rec. No.	Page No.	Recommendation Summary	Agency Response	Implementation Date
3	43	Establish a uniform system to strengthen medication administration practices at all facilities by: (a) requiring state-operated facilities to implement a uniform means of documenting execution of prescriber orders; (b) requiring that state-operated facilities implement methods to ensure prescriber orders are executed; (c) requiring all prescribers at state-operated facilities document progress notes in Trails; (d) requiring state-operated facilities to implement procedures to enter prescriber orders in Trails in a central location; (e) requiring facilities to transcribe and execute physician orders within a specified period of time including holidays and weekends; (f) requiring all facilities to have uniform procedures based on best practices for translating orders onto medication administration records for tapering of medication; (g) outlining minimum expectations for all facilities to conduct direct observation of youth swallowing medications; (h) ensuring all facilities have written implementing procedures for all Division policies; and (i) expanding the audit process to include review items found in this evaluation.	a. Agree b. Agree c. Agree d. Agree e. Agree f. Agree g. Agree h. Agree i. Agree	a. March 2015 b. December 2014 c. September 2014 d. December 2014 e. July 2015 f. March 2015 g. March 2015 h. July 2015 i. July 2015

RECOMMENDATION LOCATOR
Agency Addressed: Department of Human Services

Rec. No.	Page No.	Recommendation Summary	Agency Response	Implementation Date
4	55	Improve the medication monitoring practices at all its facilities by working with its primary care and psychiatric providers to establish a set of written guidelines that will apply to state- and contractor-operated facilities. The written guidelines should include: (a) a list of high risk conditions and medication requiring explicit monitoring; (b) the type and frequency of drug-specific and condition-specific monitoring that facility must conduct; (c) requiring facilities to have implement written processes for staff and prescribers to document and communicate medication monitoring results; and (d) requiring facilities to have implementing procedures for part "a."	a. Agree b. Agree c. Agree d. Agree	a. July 2015 b. July 2015 c. July 2015 d. March 2015
5	62	Strengthen its oversight of the handling and disposal of controlled substances at state-operated facilities by: (a) requiring state facilities to create procedures for inventorying controlled substances; (b) auditing facilities to ensure practices align with Division policies; (c) requiring facilities to have pharmacies prepare medications for youth upon discharge; (d) strengthening its drug disposal policies to ensure compliance with state and federal regulations; and (e) requiring facilities to have pharmacies conduct on-site audits and provide technical assistance annually.	a. Agree b. Agree c. Agree d. Agree e. Partially Agree	a. December 2014 b. July 2015 c. November 2014 d. July 2015 e. July 2015
6	68	Evaluate the feasibility, cost and benefits of implementing a single electronic records system at the Division to be used by all state-operated facilities, and methods to ensure contractors can exchange information with the Division's electronic health records system.	Agree	March 2015

This page intentionally left blank.

Overview of the Division of Youth Corrections

Chapter 1

The Colorado juvenile justice system is decentralized among several state and county entities. Specifically, the Judicial Branch tries and sentences youth and manages youth probation; the Department of Public Safety oversees community diversion programs; county departments of social services administer youth placed in out-of-home placements in the child welfare system; and the Division of Youth Corrections (the Division) within the Department of Human Services oversees youth detention, commitment, and parole. The Division's mission is to protect, restore, and improve public safety through a continuum of services and programs that effectively supervise juvenile offenders, promote offender accountability to victims and communities, and build skills and competencies of youth to become responsible citizens. The Division further defines its mission as being to provide the right services at the right time, by quality staff, using proven practices, in safe environments, and embracing restorative community justice principles.

The Division oversees youth between the ages of 10 and 21 who have been detained, committed, or paroled. Typically, detained youth have been arrested but not yet adjudicated but youth can also be sentenced to up to 45 days in detention. Detained youth are in the Division's physical, but not legal, custody. Committed youth have been convicted of a crime in juvenile court, and their legal custody has been transferred to the Division. Finally, paroled youth are those who have been committed to the Division's custody and later released into the community with some remaining oversight by the Division.

The Division oversees 10 state-operated secure facilities and 38 contractor-operated facilities that provide secure, staff-secure, or community-based settings. Secure facilities have locked doors and windows, perimeter fencing and patrols. All the state-operated facilities, and two contractor-operated facilities are secure facilities. Staff-secure facilities, all 13 of which are contractor-operated, have line of site supervision of youth by facility staff and can have unlocked exit doors or doors on time-delay opening to allow youth to leave of their own free will. Finally, the 25 community-based facilities are the least secure type of facility and are located in residential settings and have unlocked doors. In addition, community-based facilities do not provide on-site medical care to youth in the facilities, but instead send them out to community medical providers.

All the Division's community based facilities are contractor-operated. The average daily population of committed youth for Fiscal Year 2013 was approximately 851, including about 364 youth (43 percent) at state-operated facilities and about 487 youth (57 percent) at contractor-operated facilities. Additionally, of the 851 youth making up the average daily population in Fiscal Year 2013, about 729 (86 percent) were in facilities that provide on-site medical care.

Many of the contractor-operated facilities are owned by a single entity that operates two or more facilities under contract to the Division. Additionally, the contract-operated facilities are licensed and monitored by the Division of Child Welfare, which is also within the Department of Human Services. The Division of Child Welfare 24-hour Licensing and Monitoring Unit issues licenses to the contractor-operated facilities and ensures the facilities comply with licensing standards, such as staff/child ratios, facility cleanliness, food preparation, etc. The contractor-operated facilities do not exclusively house and treat Division of Youth Corrections youth but also provide services to youth placed there by county social services or their legal guardians.

According to statute, Section 19-1-103(73)(a), C.R.S., once a youth's legal custody transfers to the Division, the Division assumes the duty to provide the youth with food, clothing, shelter, and ordinary medical care. State- and contractor-operated facilities have contracted or employed physicians that provide psychiatric care and prescribe psychotropic medication for the youth in the facilities. Facilities also employ or contract with physicians or mid-level providers to address medical issues in the youth, including prescribing non-psychotropic medications. It should be noted that the focus of this report is on medication monitoring practices related to committed youth.

As part of its oversight role, the Division promulgates broad policies on medical and mental health care services with which all facilities must comply. Each facility is expected to develop its own implementing procedures that comply with Division policy.

Funding

The Division is primarily funded through the state General Fund. However, the Division also receives some federal funds through grants and sub-grants, including Medicaid and the federal School Breakfast and Lunch Programs for areas of operation excluding medical services. In Fiscal Year 2013, the Division had a total budget of about $124 million and spent roughly $7 million on medical services at state-operated facilities and the two secure contract-operated facilities. The amount expended to provide medical services to youth at non-secure, contract-operated facilities is not readily available. The Division spent approximately $28 million to place youth at non-secure contract-operated facilities in Fiscal Year 2013, which does not include the provision of medical services to

youth at those facilities since committed youth in non-secure, contractor-operated facilities receive medical services paid for through Medicaid. The Division reports that about $633,000 was spent on prescription medication at its state-operated and secure contracted facilities in Calendar Year 2013, with about $516,000 (82 percent) being spent on psychotropic medications and $117,000 (18 percent) on general (non-psychotropic) medications at state-operated facilities.

Medication Monitoring

The Division contracts with Correctional Health Partners (CHP), which is a health care management organization that specializes in providing health services for incarcerated individuals, to provide medical services, including prescription medication, for all state-operated facilities and two secure contractor-operated facilities. The Division fills all prescriptions through CHP for youth housed in state-operated facilities, which procures the drugs and provides them to the facilities in patient-specific, labeled blister cards. In comparison, the contractor-operated facilities, with the exception of the two secure facilities operated by contractors, are not served through CHP. Each facility has an arrangement with a pharmacy provider (which may be a corporate provider) that delivers prescriptions via mail, or a local pharmacy provider. Nearly all prescriptions are billed by the pharmacy to Medicaid.

Youth in the juvenile justice system are a unique and vulnerable population. A youth entering a juvenile justice system may have acute or chronic mental health conditions, such as attention deficit/hyperactivity disorder or a learning disability; a physical injury or limitation; a recent history of drug abuse; and/or other complex needs. Many of these chronic and persistent conditions can be treated with medication. The use of medications in any setting carries a variety of risks, including the potential for drug interactions among multiple medications, negative side effects, and the possibility of overmedicating to make a youth's behavior more manageable instead of using a comprehensive treatment approach involving individual and family therapy, appropriate behavior management protocols, and ongoing assessments. In recent years, pediatric psychiatry professionals have raised concerns about the excessive or inappropriate use of psychotropic medication to treat youth involved in the juvenile justice system, the child welfare system, and more broadly in the community. Additionally, if the medication is not dispensed properly, taken as prescribed, or properly monitored, there is a risk that a youth may over- or under-use the medication, may sell or trade the medication to another youth, or that the medication will not be effective for that youth.

Purpose and Scope of Evaluation

The Office of State Auditor contracted with Health Management Associates (HMA) to conduct an evaluation of the Division of Youth Corrections medication monitoring practices. The review was initiated, in part, to evaluate the Division's controls to protect against the risks noted above that may exist in any setting in which medical care is provided. HMA conducted work on this project between March and June 2014. The overall objectives of the evaluation were to assess (1) the prescription medication prescribing practices at a sample of five state- and contractor-operated facilities, (2) the Department's process for ensuring that facility staff properly prescribe medication for committed youth and youth are adequately monitored once they are prescribed medication for potential adverse side effects and medication effectiveness, and (3) the Division's practices and procedures for monitoring state- and contractor-operated facilities to ensure that the facilities adhere to applicable statutes, rules, Division policies, and industry best practices for dispensing medication to committed youth. Specifically, we evaluated the following areas:

- Whether the Division has adequate procedures in place to assure that medications for psychotropic and medical conditions prescribed for committed youth at its state-operated and contracted facilities that provide on-site medical care are prescribed within acceptable standards of evidence-based clinical guidelines and quality of care standards.

- Whether the prescriber obtained appropriate informed consent for all medications prescribed to a youth.

- Whether the Division has an adequate monitoring and oversight system in place to ensure that committed youth consistently receive medications as ordered by medical and psychiatric prescribers.

- Whether the Division has an adequate system in place to ensure that youth prescribed medications, particularly psychotropic medications, are adequately monitored for adverse side effects and to ensure the medications are clinically effective.

- Whether the Division had sufficient processes in place to ensure that state- and contractor-operated facilities that house and treat committed youth appropriately safeguard medications on the premises and comply with applicable state and federal rules and Division policies for controlled substances.

Evaluation Methodology

The HMA team provided a multi-disciplinary assessment. Team members included three registered nurses (one of whom is certified as a Correctional Health Care Professional by the National Commission on Correctional Health Care), a licensed pharmacist experienced in the operation of state mental health and correctional facilities, a physician with extensive experience in prison, jail, and juvenile detention operations and board-certified in internal medicine, and a mental health practitioner with extensive experience auditing health care in detention settings. The team also consulted with a board-certified child and adolescent psychiatrist who practices in the Denver area and has experience with public and private sector treatment of juveniles, including experience at some Division facilities. The team conducted on-site activities at a sample of two state- and three contractor-operated facilities.

To accomplish the evaluation objectives, HMA:

- Evaluated Division policies and audit standards and facility implementing procedures at the two state- and three contractor-operated facilities in HMA's sample related to medical and psychiatric services and specifically prescription medication prescribing and monitoring, the use of psychotropic medications, medication monitoring for youth with co-occurring chronic diseases i.e. asthma, diabetes, and monitoring of high risk medications.

- Reviewed state and federal statutes and regulations related to the Division's administration of medical care and in particular the legal requirements for controlled substances and administration of medications in residential settings.

- Evaluated the Division's contract with CHP to provide medical administrative management services for the Division's medical managed care program at state-operated facilities and one contract facility, and subsequent contract amendments #1 through #4 as well as the Division's contracts with the three contractor-operated facilities to identify the requirements related to medical management of youth at those facilities.

- Interviewed Division management staff about oversight of health care and medication practices.

- Interviewed executives from CHP about health care and medication practices in Division facilities.

- Based on current evidence-based guidelines and standards of practice, developed a reviewer guide for psychotropic medications and medications used to treat

common medical conditions in adolescents. It addressed clinical indications for use, maximum daily dose, cautions/contraindications, medical work-up prior to initiating therapy, and medical monitoring.

- Reviewed the prescription drug reports that CHP provides to prescribers and the Division.
- Conducted site visits to two state- and three contractor-operated facilities that provide on-site medical care. During each visit HMA:
    - Observed a medication pass, observed the medication rooms, and reviewed medication storage and disposal practices and documentation.
    - Interviewed facility staff and providers to discuss clinical approaches, practices, and documentation of medication ordering, administration, monitoring, and safeguarding.
    - Reviewed the paper and electronic medical records for a judgmental sample of 60 cases. The sample selection methodology for this judgmental sample is described in the Sample Selection section below. Reviewed, where they existed, facility-specific medication monitoring policies.
- Conducted case reviews for services provided to committed youth during 2013. The HMA team's goal was to conduct case reviews using the full medical record and the Medication Administration Records (or MAR, which records the medications given by staff to patients) for each case.
- Compared clinical oversight practices in the sample of facilities with standard and emerging oversight practices in other managed care and residential treatment settings.
- Considered prevailing standards of practice in psychotropic medication monitoring, including any written requirements and guidance pertaining to standards of care and medication monitoring protocols that are provided by the Division or CHP, and recognized guidelines for monitoring related to particular classes and types of psychotropic drugs.

Sample Selection

Sample of Facilities. The HMA team worked with Division leadership to identify the sample of facilities to include in the analysis. Factors included the volume of DYC committed youth, the types of services provided at the facility, and the average length of stay. The five facilities selected (two state-operated and three contractor-operated that

provide in-house medical services) represent a large volume of the DYC committed youth with the most serious mental health conditions and who receive the most psychiatric care.

Sample of Cases. The HMA team obtained and analyzed the 2013 prescription data from CHP and the pharmacy serving the contractor-operated facilities to identify medications, combinations of medications, and the following factors for use in selecting a judgmental sample of cases for review:

- Youth who received multiple classes of psychotropic medications during the year
- Youth who received several types of psychotropic medication simultaneously
- Youth treated for diabetes, asthma, and tuberculosis and also on psychotropic medication
- Youth on specific medications, such as: Desmopressin, a powerful anti-diuretic used to treat bedwetting; Spironolactone, a diuretic; Neurontin (gabapentin) and Topamax (topiramate), used to treat bipolar disorder.

For each facility, HMA identified fifteen or more cases that were of interest. Some records were not available on site because the youth had been transferred elsewhere or for other reasons. As a result, the team reviewed 60 cases, 58 of which involved psychotropic medications.

It should be noted that we selected a judgmental sample to ensure we reviewed cases for youth receiving psychotropic medications, since these medications are a focus of the review. By reviewing the sample and identifying errors in the prescribing, administration, control, and disposal of medications, we were able to identify where controls were lacking or were not operating as intended. A statistically valid sample is not required to reach qualitative conclusions, such as whether a process is operating as intended. At the same time, a judgmental sample cannot be used to project to an entire population and determine with certainty how frequently a problem occurs across the entire population.

Medication Management for Committed Youth

Chapter 2

Youth in the juvenile justice system are a unique and vulnerable population. According to the American Academy of Child and Adolescent Psychiatry, children in state custody often have biological, psychological, and social risk factors that predispose them to emotional and behavioral problems. These factors include, among others, genetic predisposition, in utero exposure to substance abuse, and a history of trauma. In addition, the National Alliance on Mental Illness reports that 75 percent of boys and 65 percent of girls in juvenile justice facilities have at least one mental illness. These children often have not received consistent medical and psychiatric treatment, coordinated treatment planning, or long-term oversight of their medical and psychological treatment over the course of their lives. The committed youth under the Division of Youth Correction's (Division) charge are among the most complex youth in the state; many have long histories of abuse, neglect, criminal behavior, and mental health and substance abuse issues. Treatment of their behavioral health and medical needs can be complex and challenging.

Committed Youth and Psychotropic Medication

Many committed youth in Division facilities are prescribed psychotropic medications for conditions that include depression, bipolar disorder, post-traumatic stress disorder, attention deficit disorder, and others, and for symptoms that include anxiety, aggression, insomnia, and more. Among child and adolescent professionals, it is now increasingly recognized that these conditions, widely manifest in youth who end up in the Corrections system, reflect physiologic and neurologic changes that are often the result of sustained stress and the emotional, psychological and physical trauma occurring during development periods. As part of what is referred to in the literature as "trauma informed" approaches to care, the rationale for the use of psychotropic medications with children is to break the cycle of distorted and destructive impulses, and to improve receptivity to cognitive and milieu therapies. As part of treatment, drug dosages are often "tapered" up to achieve optimal results and down to wean from the medication class or change to another drug within the class of medications. Many of the psychotropic medications used

have significant side effects. For example, antipsychotic medications can cause significant weight gain, high blood pressure, abnormal blood lipid and glucose levels, and abnormal muscle movements, and medications to treat mania or bipolar disorder can damage the kidneys and liver. Several psychotropic medications interact adversely with medications to treat diabetes and other conditions in the adolescent population to create cardiac arrhythmias, blood disorders, and other problems.

The Division's Managed Medical Care Services vendor for state-operated facilities, Correctional Health Partners (CHP), provided us with data for all prescriptions ordered for committed youth in state-operated facilities for 2013. Approximately 43 percent of all committed youth in the state resided in state-operated facilities in 2013. In total, CHP filled more than 8,100 prescriptions for committed youth in 2013. We selected four commonly used classes of psychotropic medication and analyzed the data provided by CHP to illustrate the volume of medications prescribed to committed youth. Table 1 shows that many youth receive several different medications or dosages of medications for a condition, which reflects the complexity of stabilizing their psychiatric symptoms. For example, 98 youth received 581 different prescriptions (not refills) for amphetamines (prescribed for attention deficit disorder) meaning that, on average, a youth treated with amphetamines had a new prescription (either a change in dosage or change in medication) almost 6 times during the year. The same patterns of frequent dosage or medications appear for other classes of psychotropic medication represented in the table.

Table 1 Selected Psychotropic Prescriptions Provided to Committed Youth by CHP in 2013

Medication	Use	# Unique Youth	# Unique Prescriptions
Amphetamines	Attention Deficit Disorder	98	581
Anticonvulsants	Bipolar Illness	94	545
Antidepressants	Depression	304	1317
Antipsychotics	Psychosis	177	610

Source: Correctional Health Partners (CHP) Prescription Data

The Division's Role to Ensure Provision of Health Care Services

The mission of the Division is rooted in the criminal justice system. But the Division is also a provider of a broad range of medical care services, referred to in statute as the obligation to provide ordinary care. Like its larger counterparts – adult prison systems – Division medical care services fall under standards developed by accrediting bodies such as the National Commission on Correctional Health Care and the American Correctional Association.

The Division's status as a medical care provider and as the legal entity responsible for its population's medical care and health status is parallel to that of a diverse correctional system with multiple locations serving a defined population. Large correctional systems,

like state prison systems, are increasingly using practices to assure that evidence-based clinical guidelines are used by practitioners and are increasingly measuring performance indicators in assessing the quality of care. Accrediting standards for correctional health care, including in juvenile settings, set forth standards along these lines. Responsibility for clinical oversight in these organizations ultimately resides in a single medical authority, that in turn establishes systematic processes and multi-disciplinary approaches such as engaging teams to review and establish clinical guidelines, conduct peer review, and review complex cases, either at individual facilities or centrally as resources allow.

As part of its role, the medical oversight authority in a multifaceted system such as youth corrections sponsors systematic efforts to review evidence-based guidelines and engage its groups of practitioners to agree on modifications that may be warranted for a particular setting or population. Broadly across professions, practitioners are expected to adhere to guidelines for standards of care and treatment protocols with exceptions for circumstances where, in the practitioner's professional judgment, an alternative course of treatment is preferred. Practitioner decisions are subject to peer review and the prescriber is expected to document the rationale for treatment outside of the guidelines. Clinical guidelines are typically reviewed and updated annually, in light of evolutions in clinical evidences and standards of practice. The Division of Youth Corrections reports that as an overall approach and due to limited available resources, it has simply expected its health care practitioners to follow accepted guidelines set forth by the regulating or governing body of the applicable profession rather than providing and enforcing its own guidelines.

The Division has separate policies for medical care services and mental health care for state-operated and contractor-operated facilities. The policies generally mirror one another and are separate to reflect the differing legal status between the two types of facilities and the Division. The facilities are obligated to develop implementing procedures for Division policies. This process is intended to assure a large degree of uniformity across the facilities while allowing the facilities flexibility in how to implement the policies. The Division also has organized approaches to quality improvement and regularly conducts audits of selected aspects of health care. Specifically, the Division's quality assurance staff conducts annual on-site audits of all state-operated facilities and selected contractor-operated facilities. The audits include, among other steps, reviews of facility implementing procedures, files reviews, staff interviews, and data analysis.

The Division's clinical oversight structure and approach should generally parallel that in a multi-site correctional system, such as a state prison system. The Division's management of committed youth is complicated by the fact that roughly half of committed youth are housed in 38 private contract facilities that are licensed and that also provide services to youth outside of the Division system, such as youth involved in the child welfare system. However, the Division's oversight should provide assurance that

committed youth in all facilities that provide medical services on-site receive health care and medications under a single medical authority, employ evidence-based guidelines, and engage providers representing all settings in the process of developing and applying such guidelines. It should use a single set of indicators to identify complex cases and a uniform process to target and evaluate prescription drug outliers, polypharmacy (the simultaneous use of multiple classes of medications and/or multiple medications within a class of drugs), the off-label use of psychotropic medications (use for conditions not approved for the medication by the US Food and Drug Administration), and other high-risk circumstances.

HMA's analysis of the Division's policies, practices, and cases found that Division oversight and monitoring in several important areas was significantly different in its state-operated and contractor-operated facilities and that the Division's policies and associated facility implementing procedures were not sufficient to assure that medication prescribing was uniformly appropriate, that medications were uniformly administered as ordered, and that medications prone to misuse were not uniformly safeguarded. The Division also has exercised limited enforcement of policies and contractual obligations in state-operated and contractor-operated facilities. The findings and recommendations in this report relate to the need for the Division to develop a culture of an integrated single health system in which all youth receive treatment within the same mainstream of practice regardless of the facility that houses them. Such a culture would include the oversight of medical and psychiatric prescribing, a uniform standard for clinical monitoring of high risk medications and conditions, uniform standards for timely and accurate execution of all provider orders, uniform practices for administering and safeguarding medications, and a standardized and effective approach to obtaining informed consent for medications. Evaluating the Division's existing resources to improve medication management practices was not within the scope of this evaluation. However, according to the Division, establishing a single system approach, which would involve enhanced oversight of contract facilities, would require additional resources. Our findings discuss these issues in detail.

Medication Prescribing Practices

Safe and appropriate use of psychotropic medication in adolescents is an evolving practice in which research lags behind practice and psychiatrists bring different approaches to the diagnosis and treatment of symptoms, conditions, and disease states. For example, there is divergence of opinion in how to consider the impact of a youth's trauma history in his/her diagnosis and treatment. In recent years, pediatric psychiatry professionals and the public have raised concerns about the excessive or inappropriate use of psychotropic medication to treat youth involved in the juvenile justice system.

Evidence-based prescribing practices for adolescents continue to emerge, as they have for medical conditions, through professional dialogue, peer review, experience, and research.

It is standard practice across the field of medicine that doctors prescribe medications for a diagnosed condition or a specific indication with clear expected effects on targeted symptoms. This is a sensitive aspect of prescribing psychotropic medications for adolescents, because there is divergence of opinion in what constitutes a diagnosis and practitioners can disagree on psychiatric diagnoses. However, this divergence does not alleviate the need for a prescriber to identify a condition or symptom prior to prescribing a medication.

Data on prescription drugs, typically provided by the entity filling prescriptions, can be a powerful information source for assessing prescribing practices, identifying outliers in drug use, and in developing "registries" of patients with specific conditions for the purpose of tracking the treatment of specific conditions within a population. Prescription drug data is timely, readily available, and relatively easy to use. Registries can be complex tracking databases for specified conditions, or they can be rather simple spreadsheets that track incidents of a diagnosis within a population.

Correctional systems address medication prescribing practices through a variety of activities, including chart and documentation reviews, formal and informal peer review, disease registries, and case discussions presented in a multi-disciplinary format, through continuing medical education, and in other ways.

What work was performed and what was its purpose?

We compared clinical oversight practices in state-operated and contracted facilities with standard and emerging oversight practices in other correctional settings that were noted earlier.

The HMA team reviewed the Division's current contract with CHP dated May 9, 2011 to provide medical administrative management services for the medical managed care program at state-operated facilities and one contract facility, and all subsequent amendments to the contract.

We reviewed the prescription drug reports that CHP provides to prescribers and the Division.

We reviewed the report "Psychotropic Medication Guidelines for Children and Adolescents in Colorado's Child Welfare System: Solutions for Coordinated Care" (July 2013) developed by Colorado's Department of Health Care Policy and Financing and Department of Human Services, and reports and clinical guidelines from the American

Psychiatric Association, the American Academy of Child and Adolescent Psychiatry, and the American Academy of Pediatrics.

We reviewed Division policies and the audit standards the Division uses to assess compliance with its policies for medical and psychiatric services at state-operated and contract facilities, and we reviewed the associated facility implementing procedures for our sample of five facilities. At each of the five facilities reviewed, we interviewed facility health care staff and administrators and contracted or employed prescribers. We discussed clinical approaches and oversight with psychiatric prescribers. We interviewed Division leadership and executives from CHP about policy, clinical practice, and field audit activities.

We reviewed 60 case files at the five facilities we visited; the cases were selected judgmentally with the intent of identifying issues related to the scope of this evaluation. File reviews used the available components of paper and electronic records, which varied across and within facilities. While we could not review each of the 60 cases or medications within them on every variable, when viewed as a whole, our observations were uniformly agreed upon by the five reviewers. We also assessed for polypharmacy in psychotropic medications. Polypharmacy is the treatment of a youth with several classes of medications or with more than one drug within a class simultaneously.

This work was conducted to ascertain whether the Division is able to assure that medications for psychotropic and medical conditions prescribed for committed youth at its state-operated and contracted facilities are prescribed within acceptable standards of evidence-based clinical guidelines and quality of care standards.

How were the results of the work measured?

The physicians, psychiatrists, and other medical staff employed at state- and contractor-operated facilities are all expected to adhere to the specific standards applicable to their professions. For example, a child psychiatrist who has completed a child and adolescent psychiatry residency and successfully passed the certification examination in general psychiatry given by the American Board of Psychiatry and Neurology (ABPN), and the additional certification examination in the subspecialty of child and adolescent psychiatry would be expected to adhere to the guidelines, standards, and position statements put forward by the ABPN. Further, facilities are licensed as residential child care facilities by the State, and two are further designated as behavioral health facilities. As such, they are expected to have 24-hour-awake staff, and can treat mental illness. However, these professional standards and licensing requirements for the medical care provided to youth do not relieve the Division of its responsibility under Section 19-2-403, C.R.S., to provide for the care and rehabilitation of youth committed by the District Court to the custody of the Colorado Department of Human Services. To fulfill this responsibility, the

Division should adopt best practices in overseeing its health system, including to ensure the practice expectations and medical delivery systems in place at all facilities that treat committed youth operate according to professional standards of care and monitor treatment outcomes across all facilities.

Treatment for Asthma and Diabetes. We assessed medical records to determine whether care for asthma, and diabetes - medical conditions that are prevalent in this population - was rendered in accordance with nationally recognized evidence-based practices. We referenced the following, each of which addresses practices for diagnosing, treating and monitoring specific conditions seen in committed youth:

- National Institutes of Health: National Heart, Lung, and Blood Institute Asthma Guidelines which calls for plans of asthma care to include asthma severity to be identified in each case and for the level of asthma control to be determined at each encounter the patient has with primary care.

- American Diabetes Association Clinical Practice Recommendations and Practice Statement, which recommend regular blood glucose monitoring as often as four times a day for adolescents with insulin-dependent diabetes.

General Prescribing Practices. We assessed whether drugs were prescribed in accordance with Division policies. For psychotropic medications, we explicitly measured whether medications were prescribed as required by Division Policy 15.4, which states that all drug prescriptions must be accompanied by written documentation including the rationale for use.

We reviewed the accreditation guidelines for juvenile detention facilities promulgated by the American Correctional Association and the National Commission on Correctional Health Care. These entities have established accrediting standards for the provision of health care services in correctional settings that include the expectation that a facility establish and document a working, defensible, diagnosis for each individual that is treated. Establishing the diagnosis is a critical foundation for prescribing medications.

Also, the 2013 report "Psychotropic Medication Guidelines for Children and Adolescents in Colorado's Child Welfare System: Solutions for Coordinated Care" recommends the following guidelines: *"The baseline of an assessment of a child or adolescent prior to initiating psychopharmacological treatment is complex. It must involve the evaluation of a myriad of biological, psychological, and social variables. The actual purpose of the assessment is multi-faceted and includes:*

1. *The establishment of a therapeutic relationship with the patient and parent/guardian*
2. *The formulation and establishment of a working diagnosis*

3. *The identification of target symptoms*
4. *The development of a comprehensive treatment plan."*

This report focuses on the child welfare system and does not explicitly apply to the Division's committed youth. However, Division staff participated on the committee that produced the report and it is generally recognized that committed youth often come through the state's child welfare system. The guidelines reflect the standard of practice for all psychotropic medications used for children and adolescents in all settings, including correctional settings.

Off-Label Use. Off label use refers to use of a medication beyond the express purposes identified by the FDA. The Division does not have any policies addressing off-label use of medication. We assessed off-label use of two psychotropic medications: Topiramate and Gabapentin. Both have been used off-label in the past to treat bipolar disorder in adolescents, but have not been found clinically efficacious and their use in adolescents has declined significantly. Therefore, a firm justification for the choice of these drugs should be documented by the prescriber, as well as the symptoms they are targeting, particularly in light of numerous other psychotropic medications approved for bipolar disorder in adolescents.

Psychotropic Polypharmacy. The Division does not have any policies explicit to the simultaneous use of multiple psychotropic medications or classes of them. The "Psychotropic Medication Guidelines for Children and Adolescents in Colorado's Child Welfare System: Solutions for Coordinated Care" report calls for prior authorization requirements as safeguards within the Colorado Medicaid program when three or more psychotropic medications are used simultaneously in a youth.

Prior authorization requires that a prescriber obtain approval from a clinical oversight entity before the medications will be provided as prescribed. These recommendations, while not requirements for the Division, reflect growing concern among health care professionals and the lay public about the dangers – known and unknown - of psychiatric polypharmacy in adolescents. Additionally, healthcare systems often use pharmacy data to monitor psychotropic polypharmacy practices at facilities and develop guidelines for prescribers and prior authorization requirements.

What problems did the work identify?

Treatment of Specific Conditions. We noted several cases in several facilities in which the youth presented complex medical and behavioral health conditions which were handled well with good communication among the pediatric and psychiatric providers, close attention to lab work, communication with the youth and even teachers and counselors about the youth's response to treatment, and good clinical progress and

outcomes. However, we noted other cases in which treatment of a youth's asthma or diabetes was not well coordinated. Specifically:

- In 11 of the 60 cases reviewed, the youth had asthma. One of the 11 youth was referred to a pulmonologist and received a detailed work up and plan of care. In the other ten cases, there was no clinical work up of the condition, no baseline testing of the youth's breathing capacity, and no asthma plan of care. The youth's report of a history of asthma was acted upon by the medical team with no diagnostic work to affirm or refute the asthma diagnosis. In other words, the facilities did not apply the National Heart, Lung, and Blood Institute Asthma Guidelines that call for identifying the severity of the condition or level of control. In addition, we found one case where the facility did not determine the effect of a rescue inhaler, which would also be consistent with the National Heart, Lung, and Blood Institute Asthma Guidelines. Specifically, committed youth are not allowed to keep rescue inhalers on person, they must ask for them from staff, which means that staff know when rescue inhalers are used and could follow up with appropriate assessment. However, in one case in our sample where the youth used the inhaler, there was nothing in the record indicating assessment or peak flow testing of the youth after the inhaler was used or other inquiries about his breathing.

- We identified four cases of diabetes in our sample of 60 cases, including three using insulin. In two instances, a youth was co-managed with a diabetic specialty center, however, documentation between the providers was scant. This is concerning because the youth's test results to assess the overall level of diabetic control over time indicated sub-optimal control. One youth was treated with Metformin (an oral agent used for Type II diabetes) and was evaluated by pediatrics only at the start of a three month stay. In all cases we could not identify the frequency of finger-stick blood glucose testing or where the results were documented. One contract facility did not have a finger-stick glucometer in its medical clinic. Thus, the files indicated that three of these youth were not undergoing the regular blood glucose monitoring called for by the American Diabetes Association Clinical Practice Recommendations and Practice Statement and for the fourth youth the documentation was insufficient for us to determine the frequency of such monitoring. Care coordination is challenging and youth with diabetes are often managed less than optimally. However, the committed youth are in small, closed environments in which care coordination can and should be more robust.

General Prescribing Practices. Out of the 60 cases in our sample, we found that Division policies were not adhered to or national standards were not followed in 24 cases

(40 percent) of in one or more of the categories described below. These findings indicate either that the Division's controls to ensure that prescribers are following accepted practices are lacking or that they are not operating as intended. Specifically:

- In 6 cases representing 10 percent of our sample, reviewers noted there was no documentation of a diagnosis for the symptoms being treated, or of the steps taken to arrive at a diagnosis. In other cases, reviewers noted that diagnosis was unclear, uncertain, or seemed to change throughout the youth's stay without a clear or documented rationale.

- In 44 out of our 60 sampled cases we had sufficient elements of the medical record to evaluate whether an indication or targeted symptom for a medication was included by the prescriber. Of these, in 22 cases (50 percent), one or more medications did not have an indication/targeted symptom. Looking at the cases from the standpoint of the number of prescriptions, the 44 cases involved 364 unique prescriptions and, of these, 88 (24 percent) did not include an indication/targeted symptom for use.

- In 3 cases or 5 percent of the sample, the prescriber noted that the youth was requesting a medication or a specific dosage of the medication. The prescriber provided the medication as requested without additional documentation as to the rationale or targeted symptoms, beyond the youth's request. Two of the cases involved psychotropic medications, the other involved treatment for an uncommon condition for which the youth had been treated in the past.

- In one case, the medication ordered – Tegretol – calls for an EKG prior to beginning the medication because of its propensity to cause cardiotoxicity, but this test was not conducted on the youth.

While this was not quantified, in most instances where psychotropic medications that call for baseline laboratory testing and vital signs were ordered, we could not find evidence that baseline evaluations were completed prior to the medications being given.

Off-Label Use. We found two cases in our sample of 60 in which Neurontin (gabapentin) was prescribed off-label, with no indications or rationale for the drug's use or a diagnosis to which it was targeted. In addition, we found seven cases in which Topamax (topiramate) was prescribed off-label, with no indications or rationale for the drug's use or a diagnosis to which it was targeted. In the past, these two drugs have been prescribed for off label uses. However, current thinking is that there are more effective alternatives, and at the very least, the rationale for the use of these specific drugs for off-label purposes should have been well documented. These nine cases represent 15 percent of the sample reviewed.

Psychotropic Polypharmacy. We found 18 cases in our sample of 60 in which multiple classes of psychotropic medications or multiple psychotropic drugs within a class were used simultaneously. While the use of multiple medications simultaneously may be justified, the Division does not currently have a prior authorization process in place for polypharmacy and we did not find any evidence of practices by the Division, its contracted medical authority, or its pharmacy vendor to use this data or other information to assess the appropriateness of psychiatric polypharmacy in committed youth.

Why did the problems occur?

Division policies require a medical authority at contracted facilities and provide for medical administrative management services at its state-operated facilities. However, the Division has not formally adopted clinical guidelines for psychiatric care, including explicit guidelines for establishing psychiatric diagnoses and baseline testing and monitoring of psychotropic medication use. Additionally, the Division does not operate a structure for robust clinical oversight, particularly for psychiatric care, across all facilities in a uniform manner. In the absence of such a structure, the Division cannot assure a single standard of care for its youth. The cause of the problems we identified varies based on the type of facility, state- or contractor-operated, involved.

State-operated facilities. For its 10 state-operated facilities, the Division contracts with CHP to provide medical administrative management services for the Division's medical managed care program. Services include a single medical authority responsible for clinical decisions, primary care and psychiatric providers who serve youth on site, utilization review for off-site services, a prescription drug program, payment of off-site claims, and other administrative services. In addition, the CHP medical director serving as the Division's "single medical authority" is both a provider and the health authority, which, because there are no other physicians involved in the oversight process, presents a conflict of interest in his oversight of the care he provides. This conflict could contribute to a lack of independence in the oversight the medical director provides to state-operated facilities.

The Division and CHP monitor prescription drug use at state facilities by reviewing and analyzing selected elements of the pharmacy data provided by CHP for the state-operated facilities. However, the Division does not use a formalized process that targets specific high-risk medication issues, patterns of prescribing, or clinical conditions. The Division also does not make optimal use of this prescription drug data to support clinical oversight or to develop patient registries of youth with specific conditions across the system.

In an amendment signed June 18, 2013, the Division's contract adds responsibility for CHP to assist the Division with monitoring and improving the psychiatric delivery system, which includes the use of psychotropic medication. The amendment requires

CHP to "provide assistance to the Division to enhance the overall psychiatric delivery system, provide fidelity in delivering psychiatric care, monitor the quality of psychiatric services across the Division and provide administration and supervision of the contracted psychiatrists." As of June 2014, these additional responsibilities have not been fully implemented. According to CHP, it engaged a new psychiatrist in the spring of 2014 to expedite this work, which is limited in scope to the services provided at the state-operated facilities.

Contract facilities. For contracted facilities, Division policy requires that a single medical authority be in place but relies on each facility to operate its own oversight. The Division does not have access to prescription drug data from its contracted facilities (except for the Betty K. Marler Youth Services Center, which uses CHP as its pharmacy provider). It does not have a regular process of identifying off-label use of drugs, youth with complex medical conditions, appropriate medication monitoring, polypharmacy, or significant variation in the approach of psychiatric prescribers.

All facilities: Division policy does not require any facilities – state- or contractor-operated – to report on youth with specific medical conditions, and therefore has no information on the prevalence of asthma, diabetes, and other conditions in its population. Without that information, it cannot assess appropriateness of treatment or design interventions to improve the treatment of those conditions.

Additionally, to date, the Division has not conducted chart reviews from the perspective of clinical oversight of prescribing practices. The Division also does not conduct case reviews with providers in contractor-operated facilities. Chart reviews could be conducted either in "grand rounds" (i.e., multidisciplinary group reviews), through continuing education, or in other venues. Chart and case reviews can be done using a risk-based approach to efficiently use staff resources to focus on cases the Division identifies as appropriate for review.

In summary, the Division does not exercise its full authority in its contract with CHP or with contractor-operated facilities. The Division can, under its authority and with the appropriate contract modifications, conduct greater oversight and improve uniformity across both state- and contractor-operated facilities. The Division could develop a process to conduct clinical case reviews, develop and monitor clinical guidelines for medical or psychiatric conditions, identify off-label use of drugs, develop "registries" of youth with complex medical conditions and evaluate their care, and identify and address polypharmacy or significant variation in the approach of psychiatric prescribers in all facilities.

Improved monitoring to provide assurance that youth committed to both state- and contract-operated facilities are receiving proper medical care requires resources in the

form of psychiatric physician time, medical director time, and Division staff time for data analysis, policy and guideline development, case reviews, and heightened interaction with all clinicians treating committed youth. The Division reports that it does not have the staff or resources to sufficiently oversee the medical practices at all facilities.

Why do these problems matter?

We find that the Division is currently unable to sufficiently assess and address all of the following across the facilities serving committed youth:

- The appropriateness of treatment of specific conditions.
- General prescribing practices, especially those involving psychotropic medications.
- Off-label use of psychotropic medications.
- Polypharmacy involving psychotropic medications.

Ensuring youth receive care in accordance with professional standards of care protects both the youth and the Division. Failure to adhere to medical best practices in medication management can expose committed youth to medications that are not appropriate for their medical conditions and lead to unintended side effects. Even where drugs are appropriate for a youth's psychiatric condition, the side effects can cause diabetes, heart disease, and metabolic syndrome. We noted cases in our review involving significant weight gain, abnormal blood lipids, changes in liver function, thyroid changes, and cardiac rhythm disorders that resulted from psychotropic medication. Professional standards for monitoring these serious side effects are critical to the youth's health. Further, optimal control of conditions such as asthma and diabetes is closely tied to youth's overall response to treatment. Youth must learn to self-manage these chronic conditions in order to successfully transition into society.

The potential hazards and controversy over off-label use of psychotropic drugs and poly-psychopharmacology are heightened where they involve adolescents. While neither on its face may be a clinical problem in a particular case, both call for assurance that the practices are easily identified in the prescription drug data, subject to clinical monitoring for appropriateness, include the ability to question providers, call for corrective action, and sanction providers if necessary.

Medical best practices aid facilities in avoiding clinical complications for all conditions, which helps create a safe and stable environment at the facilities. The Division can also benefit from implementing medical best practices in defending the care provided to committed youth in any lawsuits or allegations of inadequate or inappropriate medical

treatment. Standard practices that align with medical best practices provide evidence that the Division fulfilled its duty to provide quality medical care to youth in its custody.

Recommendation No. 1:

The Department of Human Services (Department) should implement a system of robust clinical oversight of medication prescribing practices at all state-operated facilities and contract facilities that provide on-site medical services, which should include fully utilizing the medical and psychiatric clinical leadership positions in its contract with Correctional Health Partners. Specifically, the Department should:

a. Develop written policies and clinical guidelines for medical and psychiatric care, including explicit guidelines for establishing psychiatric diagnoses and conducting baseline testing and monitoring of psychotropic medication use.

b. Require in the contracts that all contracted facilities assure their medical and psychiatric prescribers ascribe to the clinical guidelines recommended in part "a" above.

c. Require reporting by all contracted facilities of prescription drugs provided to committed youth, and use the data to create prescribing profiles, identify cases of off-label use, polypharmacy, contraindicated drug combinations, and other clinically relevant factors.

d. Develop a registry (i.e., tracking system) of committed youth with asthma, diabetes, and other selected complex conditions, and a mechanism to monitor compliance with evidence-based practices for these conditions.

e. Conduct regular chart review at all facilities to monitor for a wide variety of documentation, diagnosis, monitoring, and other clinical requirements related to medication prescribing.

f. Establish peer review of selected cases and assure that no one reviews his/her own care.

g. Develop a mechanism for prescribers and facilities to systematically identify and recommend complex cases for a clinical case review and informal case discussions, which could include a multidisciplinary format, continuing medical education, or other methods.

Department of Human Services Response:

a. Agree. Implementation Date: July 1, 2015

With respect to medical care, the Department adheres to Clinical Guidelines in Family Practice and has policies related to the provision of ordinary medical care for youth pursuant to C.R.S. 19-2-403. The Department will conduct a full review of all current policies and procedures to identify areas that warrant improvement to meet industry guidelines, including an explicit reference to applicable practice guidelines.

With respect to psychiatric care, every psychiatrist prescribing narcotics has a separate license through the Drug Enforcement Agency (DEA). They are overseen by the American Board of Psychiatry and Neurology, and by the American Academy of Child and Adolescent Psychiatry. Psychiatrists adhere to the "Practice Parameters" published by the American Academy of Child and Adolescent Psychiatrists. The Department will ensure an explicit reference to applicable guidelines in the Managed Medical Care Services vendor contract. The Department will develop a policy that requires all state-operated and contract facilities to adhere to nationally recognized guidelines reflecting industry best practices, including those related to establishing psychiatric diagnoses, conducting baseline testing, and monitoring of psychotropic medication use.

b. Agree. Implementation Date: July 1, 2015

The Department agrees to include specific language in contracts requiring contractors to assure their medical and psychiatric prescribers ascribe to the nationally recognized guidelines reflecting industry best practices, including those related to establishing psychiatric diagnoses, conducting baseline testing, and monitoring of psychotropic medication use, referenced in part "a".

c. Partially Agree. Implementation Date: July 1, 2015

The Department agrees to require reporting by all contracted facilities of prescription drugs provided to committed youth, and to assess the resources needed in order to explore how to use the data to create prescribing profiles, identify cases of off-label use, polypharmacy, contraindicated drug combinations, and other clinically relevant factors so that we can create profiles, and establish and analyze trends over time.

d. Partially Agree. Implementation Date: July 1, 2015

The Department will develop a simple tracking system for committed youth in state-operated facilities with complex conditions. The data will be reviewed on a monthly basis to ensure care coordination.

The Department will add specific language in contracts requiring contractors who have on-site medical services to submit information on a monthly basis in the same format. The Department agrees to assess the resources needed to combine this information with the simple tracking system developed for the state-operated facilities, and to develop a mechanism to monitor compliance.

e. Partially Agree. Implementation Date: July 1, 2015

The Department will develop a standardized checklist, and will require the Division of Youth Corrections' Medical Operations Coordinator or designee to conduct chart reviews at state-operated facilities once per quarter.

The Department agrees to assess the resources needed to utilize a standardized checklist and conduct regular chart reviews at contracted facilities.

f. Partially Agree. Implementation Date: July 1, 2015

The Department agrees that the concept of peer review of selected cases has a great deal of merit. The Department contracts for the services of one physician. In order to have a peer review at state-operated facilities whereby the Division of Youth Corrections' contracted medical authority does not review his own cases, additional resources will be required. The Department will conduct an assessment to determine what resources are needed to develop a systematic peer review process in state-operated facilities.

The Department agrees that peer review of selected cases of youth in Division of Youth Corrections' contracted placements that have on-site medical services has merit. The Department would have significant difficulty predicting the financial impact such a process would have upon contract providers. However, the Department agrees to engage providers in order to determine the financial impact of such a requirement, and contractually require a peer review process if sufficient resources can be obtained.

The Department will meet with contract providers to estimate the financial impact of a peer review process by January 31, 2015, and if resources can be obtained to support a process, contract language for SFY 2016 will be in place by July 1, 2015.

g. Partially Agree. Implementation Date: July 1, 2015

The Department currently conducts formal case reviews through the use of Multi-Disciplinary Team meetings at the point of assessment and as needed throughout the period of commitment, which include information on both medical and psychiatric care. Complex cases are informally discussed quarterly at the Pharmacy Utilization and Treatment Management Committee meeting with treating psychiatrists. Complex

case reviews are also currently conducted on an as-needed basis with medical and facility staff on short notice. The Department does not have the resources to include multiple physicians in the case reviews. The Department will assess what resources are needed to implement a systematic formal case review of complex cases based on criteria established by the Department.

The Department agrees that formal review of cases of youth in Division of Youth Corrections' contracted placements that have on-site medical services has merit. This requirement may have financial implications for programs. The Department will meet with contract providers to estimate the financial impact of a systematic formal case review of complex cases by January 31, 2015, and if resources can be obtained to support a process, contract language for SFY 2016 will be in place by July 1, 2015.

Evaluator's Addendum (parts 1c through 1g):

These recommendations are focused on the Department ensuring that medications given to youth in the legal custody of the Division of Youth Corrections facilities are managed in accordance with established standards, including Division of Youth Corrections policies, applicable professional guidance, and best practices. The recommendations provide the Department flexibility to develop implementation strategies that improve medication management using existing resources.

Consent for Psychotropic Medication

Seeking informed consent for medical treatment is a complex element of the doctor-patient relationship across the health care system. Consent forms for invasive procedures are common, but practices to seek and document informed patient consent for medication therapies are far less formalized and uniform. Informed consent for psychotropic medications carries an additional layer of complexity because often the patient's judgment or ability to understand technical information is impaired by the mental condition being treated. Nonetheless, the expectation that prescribers seek informed consent for psychotropic medication is widely held, if poorly executed.

As noted earlier, many of the psychotropic medications used to treat conditions in committed youth are powerful drugs with serious and sometimes irreversible side effects. Youth and their families, where appropriate, should fully understand the intended use of a proposed medication, the expected results, and the possible side effects. The prescriber is obligated to disclose this information and to document the youth and/or family's informed consent to its use.

According to American Academy of Child and Adolescent Psychiatry (AACAP), informed consent for psychotropic medications is a necessary component of a psychiatric

treatment plan. The concept of informed consent for a specific prescription drug or class of drugs differs from blanket consent to treatment, which is a more generic approval of the institution or provider's authority to diagnose and treat medical conditions that arise. Informed consent implies that the patient or legal guardian understands and approves of the particular medication, type of medication, or other intervention prescribed for a specific condition, and has considered the potential side effects and drug interactions that the medication or treatment presents to his/her unique situation. Specifically, the AACAP states the following:

> *"Informed consent and assent for the use of medication is necessary. This means that the prescriber provides feedback about the diagnosis and educates the youth and family regarding the youth's diagnosis and the proposed treatment and monitoring plan. The parents must be informed and have a full understanding of the risks and benefits of any medications as well as options for alternative or complementary treatments before they give their consent to the prescriber for a medication trial.*
>
> *While consent for a trial of medicine must be obtained from parents and guardians, it is also necessary for the youth to give assent. The youth needs to have a developmentally appropriate understanding of why the medication is being prescribed and its risks and benefits. If the youth refuses to start a trial of medicine, it is not advisable to try to force the youth to take medications unless the situation is an emergency and the safety of the child or others is under immediate threat. All medications have side effects which can sometimes be serious. Deciding whether to take a medicine requires knowledge of both the likelihood of benefit as well as the risks of harm from taking a medication."*

What work was performed and what was its purpose?

The HMA Team reviewed Division policies requiring consent for psychotropic medication and other treatments. The Team also interviewed prescribers and inquired about consent procedures at our sample of five facilities. Finally, the Team reviewed the prescriber notes for our sample of 60 case files for consent documentation.

The purpose of the review was to determine whether the prescribers obtained consent for all medications, obtained consent for some of the medications or for some but not all elements of consent, or none of the medications. HMA also assessed whether facility and provider consent practices comply with Division policies and Colorado state law. HMA did not measure consent for changes in medication dosages.

How were the results of the work measured?

Colorado law allows minors age 15 and over to consent to mental health treatment and medical treatment without parental involvement (Sections 13-22-103 and 27-65-103, C.R.S.).

Division policy12.12 addresses a blanket consent to treatment process obtained at the youth's initial assessment process and a youth's right to refuse treatment. This policy does not address informed consent for a specific treatment or medication.

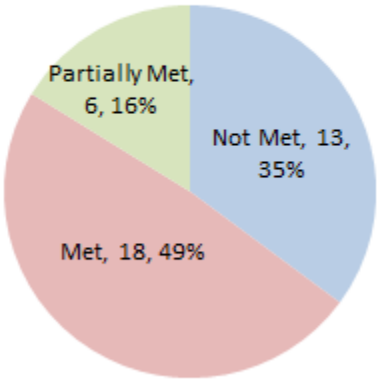
Division policy 15.4 addresses informed consent for specific psychotropic medications, stating:

> *C. Specific consent for the use of a recommended psychotropic medication shall be obtained from the parent or legal guardian of all juveniles under the age of 15, whenever possible. Reasons for failure to obtain the specific consent prior to the medication of a juvenile shall be documented i**n the juvenile's medical file.***
>
> *D. The medical record of each juvenile who receives a psychotropic medication shall have written documentation of the juvenile and/or the juvenile's parent or legal guardian having received and understood*

What problems did the work identify?

Of the 60 cases HMA reviewed, there were 37 for which we had enough documentation to allow us to determine from the prescriber's notes whether he/she had reviewed the risks, benefits, and indications for psychotropic medications with the youth and/or the parents/guardians and obtained consent for the psychotropic medication(s) prescribed in 2013. The team assessed whether there was documentation in each medical file that the prescriber discussed with the youth and/or parents the benefits, risks, and potential side effects of medications prior to prescribing. As shown in figure 1, in 18 (49

Figure 1 Consent to Psychotropic Medication Documented by Prescriber



Source: HMA Case Reviews

percent) cases, the criterion was met, meaning that we were able to find documentation of a full discussion regarding each individual drug and consent for its use. However, in 6 (16 percent) cases, the criterion was partially met, either because the documentation was not present for all medications prescribed or because the prescriber discussed only one of the items, such as the benefits but not the risks and side effects. Finally, in 13 (35 percent) cases we were unable to find any documentation that appropriate information was provided and consent obtained.

Why did the problem occur?

The principle of informed consent generally applies to all medications and treatment. However, the Division's policies only require that specific informed consent be obtained for the use of psychotropic medications, not for other medications or specific treatments. Additionally, the policies on consent are not clear about whether the blanket consent for medical treatment, obtained when a youth is initially assessed, is sufficient to cover psychotropic medications.

Further, policy 15.4, that addresses consent for psychotropic medications, does not identify whether the consent must be written or may be verbal; if it may be verbal, in what instances; or what specific conditions in which consent is required for psychotropic medications. In other words, they do not differentiate between consent:

- For a specific class of drugs and all medications within that class.
- For every drug within a class every time it is prescribed.
- For every dosage change of a drug that has been consented to.

Finally, the Division has not ensured that facilities have standard implementing policies to address policies 12.12 or 15.4. For instance, the contracted facilities each address informed consent within their corporate policies, but the Division has not required their corporate policies to conform to Division policies.

The lack of clarity in policies on general consent and consent for psychotropic medications, and the lack of conforming implementing procedures has resulted in confusion at the facilities and significant variation among facilities in how consent is gathered for psychotropic medication. The following table shows each facility's description of psychotropic medication consent practices.

Table 2 Psychotropic Medication Consent Practices by Facility				
Facility 1	Facility 2	Facility 3	Facility 4	Facility 5
Require consent from parents for all youth regardless of age.	Request written consent but mostly get verbal. Require parental consent to 18.	Get only verbal consent: for youth under 15, from parents, for youth 15 and older from youth.	May get blanket consent from parents, as a courtesy for all ages. Get verbal only from youth 15 and older.	Get verbal blanket consent from youth under 15 then get written from parents. Get verbal blanket from youth 15 and older.
Source: HMA summary of information provided by the 5 facilities reviewed regarding medication consent practices.				

All facilities told us that they understood that youth could consent to their own medication at age 15; however, as can be seen in the chart, two facilities (#1 and #2) chose to require parental consent over age 15 as well. In addition, two facilities (#4 and #5) were clearly non-compliant with policy requiring when specific consent for the use of a recommended psychotropic medication be obtained. In addition, some facilities pursued written consent from parents/guardians for children under 15 and others sought verbal but not written consent from parents/guardians, while another relied on the initial consent for treatment signed upon admission to the system.

Why do these problems matter?

Committed youth are in the legal and physical custody of the state of Colorado and, as such, the Division has responsibility for ensuring that youth receive safe, high quality medical care while in custody. An accepted standard for medical care is the principle of informed consent for medications and procedures. Informed consent can only be given when a consenter is provided all information necessary to allow an educated choice regarding his or her care.

Policies that require parental consent beyond the legal requirements create delays in care and can place youth at risk for poor outcomes including over- and under-treatment that are potentially harmful and unnecessary. As shown in Table 2 above, facility #1 requires parental consent for all youth even though youth are allowed to give consent once they are 15 years old. Similarly, facility #2 requires parental consent for youth up to age 18 even though the youth can provide consent once they turn 15.

Recommendation No. 2:

The Department of Human Services should ensure that prescribers are consistently informing youth and/or families about the risks and benefits of medications being prescribed and obtaining consent for all psychotropic drugs by:

a. Improving its informed consent policy for psychotropic medications to clearly define what constitutes informed consent, when consent is required (e.g., dosage changes, different drugs within the same class of medications, etc.), who can give consent for youth of what ages, whether consent can be verbal, and what documentation of consent must be in the medical file.

b. Improving its blanket consent to treatment policy to clarify that it is not intended to govern informed consent to specific psychotropic medications.

c. Requiring that all facilities that provide on-site medical services create implementing procedures that demonstrate compliance with the revised policies recommended in parts "a" and "b" above, governing informed and blanket consent for medications and treatment.

Department of Human Services Response:

a. Agree. Implementation Date: November 1, 2014

The Department will improve its informed consent policy and protocol as outlined in the recommendation.

b. Agree. Implementation Date: November 1, 2014

The Department will modify its current "Consent to Treat" form as indicated in the recommendation.

c. Agree. Implementation Date: December 1, 2014

The Department will require that all facilities create implementing procedures that demonstrate compliance with the changes in both 2 (a) and 2 (b) above.

Medication Administration in Accordance with Physician Orders

The treatment of committed youth in facilities operated by or under contract to the Division involves frequent use of psychotropic medications from all classes of psychopharmacology. Treatment is often complex since (1) the medications prescribed are frequently "titrated" – doses are slowly increased or decreased over time in order to achieve optimal clinical outcomes, and (2) committed youth carry a high likelihood of drug diversion through "cheeking" medications (pretending to swallow pills but hiding them inside the mouth for later retrieval) and other forms of avoidance such as dropping medications into shirt sleeves. These medications can be hoarded for later misuse or suicide attempts, sold/traded to other youth, or just thrown in the trash. Colorado law

allows medications to be administered by a licensed nurse or a person who has completed the state's Qualified Medication Administration Persons (QMAP) training.

The Colorado Trails (Trails) system is used as the medical record in all state-operated facilities and at one facility that is state owned but contractor-operated. Trails has a template for prescribers to use for orders, but not all prescribers use it. Trails also has a template for progress notes that medical and psychiatric prescribers can use. Trails also has a template for a current medication list, which is used very inconsistently within and between facilities. Contractor-operated facilities use their own electronic medical records or a traditional paper medical record, both of which have distinct sections for documenting orders. For example, one contractor-operated facility we visited had a traditional paper record and the other facility had a corporate electronic medical record that included progress notes, orders, and a current medication list.

About half of the committed youth in the 12 facilities where CHP acts as the pharmacy provider received medication in 2013 and collectively had more than 8,000 prescriptions filled. Many of these prescriptions are administered more than once a day. With this volume of medication administration, occasional errors are certain to occur. However, it is important for any system with responsibility for providing health care to implement adequate controls to minimize errors in medication prescribing and administration.

What work was performed and what was its purpose?

The HMA team reviewed Division policies for medical and mental health services and the implementing procedures for all five facilities we reviewed. We reviewed how medication error reporting requirements, which were recently updated by the Division for all state-operated facilities, were being implemented at the two state-operated facilities in our sample. The team reviewed the medical records for a judgmental sample of 60 cases and interviewed prescribers and nursing administrators about policies and practices and about the ordering process. We interviewed nursing staff, medication coordinators, and QMAP certified counselors about medication procedures, ordering, and the Medication Administration Record (MAR), which identifies which medications a youth is to receive and when, and is used to document medication administration. Finally, we observed a staff providing medication to youth during a "medication pass" at each facility.

At each facility, team members attempted to reconcile three sources of medication ordering information: the prescriber's order, the MAR, and the medication list in the medical record. We looked for the documentation of each source of data and discussed the processes used at the facility. Each is important: the prescriber's order should be reflected precisely on the MAR and the MAR documentation should verify that the medication was given as ordered. The medication list documents all of a youth's current medications, and should reconcile with the orders and the MAR.

This work was conducted to determine whether committed youth at the facilities consistently receive medications as ordered by medical and psychiatric prescribers, and to determine whether procedures are in place at the facilities to ensure medications are actually ingested.

How were the results of the work measured?

Medication administration practices in residential settings across the health care system – hospitals, nursing homes, residential treatment facilities, and prisons – require that medication orders be documented by the licensed prescriber and transcribed onto a MAR by a nurse. Medications must be documented and administered in precise accordance with the physician order, which notes medication, dosage, route, frequency, and duration. New medication orders are generally expected to begin within 24 hours of the order, across the health care setting. Timely initiation of psychotropic medication orders and antibiotics for acute infections is the standard of care.

Ordering of medications in any health care facility involves several steps. First, the prescriber writes the order, either on a formal order form, through a computerized order entry system that also goes directly to the pharmacy, or (less often) within a progress note. Next, a nurse "takes off" the medication order and "executes" the order. Executing an order includes sending the order to the pharmacy to be filled (if electronic ordering is not in place), noting it on the MAR so that staff know to administer the medication, and perhaps ordering any standing lab work that goes with the medication. In the final step of the ordering process, the nurse initials and dates the order, which is proof that the nurse has executed the order. Where orders are verbal, the nurse writes the verbal order and there is an additional step whereby the prescriber signs the written order to confirm its accuracy. These steps are the documentation trail that assures that physician orders are carried out. It is common practice for orders to be executed within 24 hours, except when they are ordered sooner than that, such as "today" or "stat."

Additional steps occur to update a list of the patient's current medications, unless there is an electronic health record that automates that function. The list of current medications is an important source of information, especially in emergencies, when a new provider becomes involved, and when patients are transferred between facilities.

Further, standard practice in correctional and mental health settings calls for procedures to ensure that patients ingest the medications they are prescribed. "Direct observation therapy" (DOT, also referred to as mouth checks) is an important component of assuring compliance with prescription drug therapy, especially in patients with a high likelihood of diversion. At a minimum, medication staff should assure that youth are not able to drop medications down their sleeves and should thoroughly check the inside of the mouth after the youth has swallowed a pill with water and spoken a few words. Added steps,

such as requiring the youth to ingest cereal after taking a medication, offer additional protection against cheeking.

Committed youth should receive medication ordered for them with minimal errors and should take all medications as ordered unless the right to overtly refuse medication is exercised and documented.

What problems did the work identify?

We reviewed the sample of 60 medical files to identify and assess the overall process for prescribing medication. Where the MAR and the order were available for review, we compared them to determine if medications were initiated correctly and in a timely manner. This analysis was not conducted on every single medication change during the period of review, but rather to establish whether the process was effective and accurate for a sample of medications. The analysis revealed the following types of inconsistencies and errors, which indicate that youth sometimes receive the wrong medications and that starting, stopping, or titrating of medications does not always occur in a timely manner and/or in accordance with the prescriber's orders. The inconsistencies and errors were observed in all facilities, regardless of the type of medical record.

- Several cases in which the wrong dose was transcribed from the prescriber's order onto the MAR. The information on the MAR directs staff on the medication to be given, dosage, route, frequency, and duration. Thus, if the MAR contains the wrong dosage, it is likely an incorrect dosage was administered.

- Several instances in which we could not reconcile the order to what was actually administered. Examples include the following:

    - A nurse's note dated September 9, 2013 indicates the start date for Seroquel, an antipsychotic medication, as September 9, 2013; however, the MAR has a start date of September 6, 2013, three days earlier.

    - An order/note for Zoloft, an antidepressant, dated September 9, 2013 for start date; however, the MAR indicates start date of September 6, 2013, three days earlier.

    - An order to discontinue Concerta, a medication to treat attention deficit disorder, on April 23, 2013 following an order to discontinue the same medication on March 14, 2013, and no indication that the medication had been re-prescribed in the five week period between the two discontinuation orders.

- A progress note in Trails that Citalopram, an antidepressant, was ordered on March 3, 2013 but the physician order documented in Trails shows that it was ordered on February 26, 2013.
- A progress note to increase the dosage of Citalopram on April 25, 2013 but the MAR indicates the dosage was not increased until May 1, 2013.
- An order to titrate Trazadone, a medication for depression, panic attacks, and aggression, to 50 mg written on July 6, 2013; however, the record and medical summary in Trails indicate the titration occurred on August 26, 2013.

In cases where we tried to reconcile the medication list in the record to orders and to the MAR, we found it was extremely difficult to match the documents and in three cases there were clear discrepancies among the three sources. The drugs administered per the MAR did not reconcile to the medication list, or the physician orders didn't reconcile to the medication list, or we couldn't tie a medication on the MAR (and thus administered to the patient) to an order.

We found one case in which medication was given to the wrong patient (which is actually two errors) and cases in which the administration of psychotropic medications was delayed between two and five days from order date. These cases did not involve controlled substances which may have extra steps involved in filling prescriptions. Further, we reviewed one file in which a psychiatrist note stated "…seems that the plan to taper Risperdal never happened."

At one facility where the psychiatric prescriber is not required to document progress notes in Trails we also observed that the staff nurse attempted to enter orders for psychotropic medications from the prescriber's paper progress note into Trails in order to create a complete record in Trails, but entries were made days, weeks or months after the progress note was written. When queried by HMA, the nurse reported that this was her standard practice and acknowledged that late entries were common. Lengthy delays in entering information into Trails creates a risk that information will be incomplete or incorrect and causes the Trails record to be inaccurate until the entries are made.

We observed Direct Observation Therapy (DOT or mouth checking) practices that varied significantly in their thoroughness. The purpose of DOT practices are to ensure that youth are actually ingesting the medications given. As an example of the wide variation in practices, we found that two of the five facilities we reviewed required youth to swallow pills with water, chew and swallow dry cereal, drink more water, show the inside of the mouth to the nurse, and then blow as if on a candle. This is an example of a rigorous DOT procedure. In contrast, one facility just watched the youth swallow pills with water and did not look into the mouth afterward. Further, only one facility required youth to

push up their shirtsleeves before giving them medication, so they could not drop pills into their sleeves.

Why did the problem occur?

Facilities Using Trails as the Medical Record. The Division has not instituted policies, procedures, or a uniform system for prescribers, nurses, and other staff at facilities using Trails to follow in executing prescriber orders, administering medications, or documenting their administration practices. We found that facilities use differing practices that are generally not consistent with mainstream of medical practice in which physician orders are documented on explicit forms in standardized manners and the orders are executed and documented in a uniform fashion. For example:

- The Division has not implemented the use of a document or template in which the nurse initials and dates his/her execution of an order. As a result, supervisors or prescribing physicians cannot readily ascertain which orders were executed, when, or by whom.

- The Division does not have policies to help ensure that prescriber orders that are in progress notes in Trails or on paper are executed in a timely and accurate fashion. For progress notes in Trails, the prescriber is supposed to email notice to the nurse that an order awaits execution but we saw no evidence of any practice to ensure that the physician order was executed. In one facility, the psychiatrist stated that the process for medication orders to be executed based on progress notes in Trails or on paper "was only reliable about 80% of the time." He designed his own work-around of generating a separate list of medications he orders each day and providing it directly to the nurse. Where the progress note is on paper, the nurse is supposed to "take off" the order but there are no policies to ensure the order gets communicated by the prescriber to the nurse and thus ensure the order is executed. The problems with paper notes is particularly important for psychiatric medications because the Division reported that while medical prescribers almost always enter progress notes in Trails, some psychiatric prescribers use only paper progress notes.

- The Division does not require that facilities articulate procedures by which physician orders embedded in progress notes are routinely entered into Trails in the template for medications and/or onto the Trails medication list. As a result, there can be variations in the medications listed in these documents and they may not reconcile to the MAR, which we observed and which make the list of current medications unreliable as a resource to patient care.

All Facilities. In addition to concerns that are specific to the facilities using Trails, we also found that the Division does not have policies for all facilities related to a variety of tasks, such as:

- Transcribing and executing physician orders within a specified period of time.
- Having a back-up procedure to execute medication orders if nursing is not on site. Nursing coverage is limited in many facilities; there is often no weekend coverage and there may be no coverage on weekdays when a nurse is ill, on vacation, etc. As a result, physician orders may sometimes not be "taken off" until the nurse returns, causing delays of several days in administering the ordered medications.
- Clearly transcribing orders onto the MAR for "tapering" medications – adjusting doses of the same medication up or down over time. We found these practices vary across and within facilities but do not align with best practice, as described below. Poor practices in this area are a major contributor to medication errors across the health care system. An example of best practices follows:

  Order: Seroquel 150 mg in a.m. and 100 mg at h.s.(bedtime) for 3 days, then 100 mg in a.m. and 75 mg at h.s. for 5 days then 50 mg at h.s. for 5 days then dc (discontinue). Written on June 3.

  The MAR (shown below) clearly specifies which dose is given on which day (blanks) and clearly indicates the days the dose in question does not apply (red X). The QMAP staff can clearly see what is to be given on each day and time.

June MAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Seroquel 150 mg in a.m.	x	x	x				x	x	x	x	x	x	x	x	x	x	x
Seroquel 100 mg at hs	x	x	x				x	x	x	x	x	x	x	x	x	x	x
Seroquel 100 mg in a.m.	x	x	x	x	x	x						x	x	x	x	x	x
Seroquel 75 mg at hs	x	x	x	x	x	x						x	x	x	x	x	x
Seroquel 50 mg at hs	x	x	x	x	x	x	x	x	x	x	x						x

- Direct Observation Therapy (DOT) to minimize youth cheeking, hoarding, and/or diverting medications. Nor does the Division's audit program for medication passes specifically include DOT observations.

Finally, the Division does not ensure that all facilities develop implementing procedures that are consistent with policies and guidance, nor does the Division review facility procedures for adherence to other Division guidance. One way the Division could ensure that facility procedures align with policies is to require facilities to submit their written procedures to the Division for review and approval, including when any significant changes are made to the written procedures. In addition, the Division conducts annual

audits of selected facilities and the audit includes observation of medication passes. However, the audits do not address all of the issues the HMA team found. Expanding what is covered in audits is another way the Division could better ensure that facilities follow policies.

Why do these problems matter?

The issues we found place committed youth and the facilities at risk for medication errors, adverse clinical outcomes, and less than optimal overall outcomes of the youth's treatment plan. Each of these findings related to prescriber orders contributes to the possibility of youth receiving medications in error, not receiving medications in a timely manner, receiving the wrong doses of medications or medications at the wrong times, or not receiving medications the prescribers have ordered.

In addition, these findings create a clinical environment in which a prescriber or nurse cannot readily determine the current medication regimen of a youth. This exposes the youth to poor outcomes in the event of a crisis or emergency calling for a current medication list.

Since the publication of the seminal report on medical errors "To Err is Human," (The Institute of Medicine, 1999), enormous efforts have gone into researching medication errors and making medication practices safer. However, almost no research has focused on medication errors in mental health or correctional settings, and none of them focused on youth. One study examined the incidence of medication errors in a mental health setting (Grasso BC, Genest R, Jordan CW, Bates DW. *Use of Chart and Record Reviews to Detect Medication Errors in a State Psychiatric Hospital.* Psychiatr Serv. 2003, 54:677-681). We reviewed this study as part of our evaluation because our focus was largely on psychotropic medications, which would also represent a significant proportion of the medications given in a mental health setting. In the study, care of 31 state psychiatric inpatients was retrospectively studied over 2 months of care. Nine errors were self-reported by staff using the usual incident reporting process, whereas the independent multidisciplinary review team conducting the study found 2,194 errors for the same 31 patients and episodes of care.

Table 3 Findings from Study, *Use of Chart and Record Reviews to Detect Medication Errors in a State Psychiatric Hospital*				
Type of Error	Number of Errors	Percentage of Total Errors	Number of Error Opportunities	Number of errors per1,000 patient-days
Prescription	239	11	1,566	165
Transcription	498	23	1,589	344
Administration	1,443	66	21,033	997
Dispensing	14	<.01	22,000	10
Source: Grasso BC, Genest R, Jordan CW, Bates DW. Use of Chart and Record Reviews to Detect Medication Errors in a State Psychiatric Hospital. Psychiatr Serv. 2003, 54:677-681				

Of the errors, 19% were rated as having a low risk of harm, 23% as having a moderate risk, and 58% as having a high risk. Table 3, taken from the study, shows that 88% of errors were attributable to the processes involving transcription of physician orders and medication administration. The study highlights the very large gap between self-reported errors and what can be found on retrospective analysis by external reviewers. It also reports errors per 1,000 patient days of care, which is a rate that the Division could readily apply, but does not. While our review was not as thorough and comprehensive as the review performed in this study, the errors we identified through our review and the lack of policies requiring rigorous and uniform medication administration practices indicate that there could be a high number of unrecognized errors across its facilities.

The findings related to inconsistent or insufficient DOT contribute to the possibility of youth cheeking, hoarding, and/or diverting medications, all of which compromise the health care of the youth cheeking the medication, and can compromise the health of youth who gain access to diverted drugs.

Recommendation No. 3:

The Department of Human Services should implement policies and procedures that establish a uniform system to strengthen the medication administration practices at all of its facilities that provide on-site medical services by:

a. Requiring that state-operated facilities implement a uniform means of documenting the execution of each prescriber order.

b. Requiring that state-operated facilities implement methods to ensure that prescriber orders that are written in progress notes in Trails or on paper are executed.

c. Requiring that all prescribers (medical and psychiatric) for state-operated facilities document progress notes in Trails.

d. Requiring that state-operated facilities implement processes to ensure that prescriber orders are entered into Trails in a central location to ensure a current schedule of medication for each youth is readily accessible. This could include the facilities conducting periodic reconciliations of the MAR, prescriber orders, and current medication list.

e. Requiring facilities to transcribe and execute physician orders within a specified period of time, including provisions for how orders will be managed to comply with the required time periods when nursing is not on site or on weekends, holidays, and unexpected absences.

f. Requiring all facilities to implement uniform procedures for translating orders onto the MAR for tapering medications that are consistent with best practices and provide clear direction for administering medications.

g. Outlining minimum expectations for all facilities to conduct direct observation of youth swallowing medications, including additional steps to use in cases where youth have been found cheeking medications.

h. Implementing methods to ensure that all facilities have written implementing procedures that align with the Department's policies and guidance.

i. Expanding the audit process to include review of the issues found during this review, including the processes facilities use to document physician orders, transcribe the orders, and execute orders in an accurate and timely manner.

Department of Human Services Response:

a. Agree. Implementation Date: March 1, 2015

The Department will issue a Directive Memorandum requiring the implementation of a uniform means of documenting the execution of each prescriber order, to include deadlines by which full compliance must be met. The Department will verify implementation of the new means of documenting the execution of each prescriber order.

b. Agree. Implementation Date: December 31, 2014

The Department will issue a Directive Memorandum requiring that state-operated facilities develop and implement a method to ensure that prescriber orders that are written in progress notes in Trails or on paper are executed, to include deadlines by which full compliance must be met. A multi-disciplinary statewide team will convene to determine the standardized protocol, and implement the protocol statewide. The Department will verify implementation through quarterly monitoring.

c. Agree. Implementation Date: September 1, 2014

The Department will issue a Directive Memorandum requiring that all prescribers (medical and psychiatric) for state-operated facilities document progress notes in Trails, to include deadlines by which full compliance must be met. The Department will verify implementation through quarterly monitoring.

d. Agree. Implementation Date: December 31, 2014

The Department agrees that the state-operated facilities should ensure that prescriber orders are entered into Trails. However, limitations in Trails may prevent the Department from entering the orders in the template for medications and/or onto the Trails medication list. The Department will assess the specific manner in which compliance can occur.

e. Agree. Implementation Date: July 1, 2015

The Department will develop procedures requiring state-operated facilities to transcribe and execute physician orders within 24 hours, including provisions for how orders will be managed to comply with the required time periods when nursing is not on site or on weekends, holidays, and unexpected absences.

For contract providers that have on-site medical services, the Department will add specific language to contracts requiring facilities to transcribe and execute physician orders within 24 hours, including provisions for how orders will be managed to comply with the required time periods when nursing is not on site or on weekends, holidays, and unexpected absences.

f. Agree. Implementation Date: March 31, 2015

The Department will convene a multi-disciplinary statewide team to determine the standardized protocol, and implement the protocol statewide by March 31, 2015.

g. Agree. Implementation Date: March 1, 2015

The Department will revise policy to reflect minimum expectations for all facilities to conduct direct observation of youth swallowing medications, including additional steps to use in cases where youth have been found “cheeking” medications.

h. Agree. Implementation Date: July 1, 2015

The Department will conduct a review of all medical and psychiatric care implementing procedures at state-operated facilities and will require all implementing procedures align with policy and guidelines. The Department will ensure that contract

providers who have on-site medical services have policies and procedures that conform to DYC policy.

i. Agree. Implementation Date: July 1, 2015

The Department will revise audit standards to include review of the processes facilities use to document physician orders, transcription of orders, and execution of the orders as prescribed by protocol.

Monitoring of Medication Effectiveness and Safety

Professional standards for delivering high quality health care services require that systematic evidence-based processes be established to monitor the effects of treatment and progress toward expected levels of improvement. Reactions to medication must be monitored both for efficacy (i.e., producing desired effect), and for safety (i.e., not producing undesired and detrimental effects). Generally, medication monitoring activities consist of clinical testing or lab work as well as physical observation of and reports by those taking the medications. More specifically, medication monitoring consists of activities to assess whether medications prescribed are addressing the diagnosed condition; that prescribed medications are not causing adverse side effects or drug interactions; and to produce recommendations and action steps to adjust or change medications to ensure that individuals experience optimal clinical outcomes.

Although psychiatric medications can be very effective at treating mental illness in youth, many medications can also cause side effects or adverse reactions that must be regularly and specifically monitored and managed. In addition, when multiple psychiatric medications are used simultaneously in treatment, patients should be monitored for potential drug interactions. There are also specific interactions between psychotropic medications and other medications. For example, Lamotrigine (used to treat bipolar disorder) can decrease the kidney's clearance of Metformin (used to treat diabetes). Some experts even recommend that these two medications not be used together.

What work was performed and what was its purpose?

We evaluated the provisions in place for providing health care services to committed youth focusing on medication management, including how the Division ensures that medication monitoring practices are adequate and how state-operated and contracted facilities carry out medication monitoring activities. Specifically:

- We considered medication management/monitoring practices as a whole but with a particular focus on the use of psychotropic medications, medication monitoring

for youth with co-occurring chronic diseases such as asthma and diabetes, and monitoring of atypical and high profile medications.

- We interviewed Division staff and evaluated policies and contracting requirements pertaining to medical management for youth residing in state run and contracted private facilities.
- We considered prevailing standards of practice in psychotropic medication monitoring, including any written requirements and guidance pertaining to standards of care and medication monitoring protocols that are provided by the Division or its contractor CHP, and recognized guidelines for monitoring related to particular classes and types of psychotropic drugs.
- We interviewed clinical staff in the facilities, including treating psychiatrists, nurse practitioners and nurse care managers.
- We reviewed the paper and electronic medical records for a judgmental sample of 60 cases from state-run and contracted facilities. The sample was selected to capture cases with certain characteristics relevant to assessing the monitoring of medication effectiveness and safety, including treatment with psychotropic medications as well as diagnoses of certain chronic conditions.

The purpose of our work in this area was to determine if the Division has systems in place through its policies, contract requirements, oversight practices, and the implementing policies and protocols established by its state run and contracted facilities that result in adequate monitoring of youth receiving medications, particularly psychotropic medications, as part of their treatment plans.

How were the results of the work measured?

The duty to provide medical care includes providing comprehensive monitoring of all medications prescribed to the youth while in state custody. While not specifically stated in statute, to ensure youth in its custody receive quality medical care, the Division must make sure the state- and contract-run facilities in which it places youth provide medication monitoring in accordance with professional best practices. Adequate monitoring, for purposes of this review, was considered to be activities that should be carried out based on prevailing standards of care and defined policies and practices, to look for signs of both positive reactions to medication therapies and adverse reactions and lack of efficacy, and appropriate and timely actions to adjust medications as necessary.

For committed youth with high rates of behavioral health disturbances, medication management often includes trials with various pharmaceuticals and titrating of dosages

over days and weeks. Some youth are diagnosed with communicable disease and chronic conditions that require the application of specific medication regimens for optimal health and safety. Therefore, as part of the Division's responsibilities for managing a comprehensive health program for committed youth, we expected to see the following standards of care promulgated by the Division and best practices implemented by its state-operated and contracted facilities for medication monitoring of committed youth.

Drug-Specific Monitoring

Due to their powerful effects, guidelines for classes of psychotropic medications require careful monitoring by measuring vital signs, conducting laboratory tests, and making observations at baseline, at the start of a drug regimen, when medication dosages are titrated up or down, and under other special circumstances. For example, one major class of drugs used in the behavioral health treatment of children and adolescents is atypical antipsychotics. Atypical antipsychotics are used for several purposes that include the treatment of schizophrenia, bipolar mania, and major depressive disorder. This class of medication is well-known for creating metabolic abnormalities and weight changes, particularly in younger people, including an increased risk for diabetes and cardiac effects. Examples of atypical antipsychotic drugs prescribed for committed youth include, olanzapine (Zyprexa), quetiapine (Seroquel), and aripiprazole (Abilify).

The American Academy of Child and Adolescent Psychiatry (AACAP) promulgated a guideline for the use of these atypical antipsychotic medications in children and adolescents which calls for assessment of vital signs, weight and body mass index testing, and lab work to test blood sugar and lipid levels. These tests should occur at the time of medication initiation or change and at regular intervals (at a minimum of every 12 weeks and every 4 weeks for weight measurements).

The American Academy of Child and Adolescent Psychiatry's practice parameter on the use of psychotropic medications states: "*Close monitoring as the dose of medication is being lowered and, for a period of time thereafter, ensures that withdrawal symptoms and early signs of relapse/recurrence are identified quickly.*"

Division Policy 15.4 calls for a monthly case review to be conducted for all youth receiving psychotropic medications. The review is to be conducted by behavioral health and medical staff including the prescribing clinician/psychiatrist to address clinical indicators and the benefits and/or justifications for the prescribed medication use.

Condition-Specific Monitoring

Abnormal muscle movement is a neurological symptom associated with the prolonged use of antipsychotic medications. It can be irreversible and should be carefully monitored in youth. According to the guideline for use of psychotropic drugs promulgated by the

AACAP, baseline and regular evaluation of abnormal involuntary movement scales using the Abnormal Involuntary Movement Scale (AIMS) is expected practice when antipsychotic medications are used. For example, medication monitoring guidelines for atypical antipsychotics such as olanzapine and quetiapine and for mood stabilizers such as trileptal recommend monitoring for abnormal movements and AIMS assessment at least every 6 months.

In addition, the treatment protocols for certain chronic conditions, such as diabetes and asthma, are well-settled in the medical community, requiring specific monitoring activities to prevent exacerbations and ensure early intervention. For example, blood glucose testing is necessary to validate appropriate insulin and blood sugar levels in youth with diabetes. Also, for individuals with asthma, peak flow readings (i.e. the fastest rate of airflow the individual's lungs can generate), physical assessment of symptoms, and monitoring the use of rescue inhalers are necessary to assess the levels of severity and control of symptoms.

Recording and Communicating the Effects of Medication

Pharmaceutical management, particularly of psychotropic drugs, is prolonged over time, and an accurate and complete historic record of prescriptions, reactions, and effects is critical for appropriately assessing and revising treatment plans that are most effective. In a residential treatment environment, appropriate monitoring consists of observations, communications, and decisions that are the relative responsibilities of the entire treatment team (resident, psychiatrist, nurses, etc.) related to the course of prescribed medications. For example, when prescribing a medication, information should be provided to the treatment team about what to look for and what activities need to be done, such as laboratory tests, to appropriately monitor the treatment effects. Team members who administer the medications should inform the prescriber if there are interruptions in youth taking the medicine, such as if a youth refuses one or more doses, or other circumstances interfere with the course of treatment. Processes should ensure that monitoring laboratory tests are carried out, results reviewed, and notes and decisions recorded about the effects of medication to guide staff about either continuing or changing medications.

Feedback to the prescriber on the effects of medication is extremely important. According to the AACAP, *"When psychotropic medications are part of a youth's treatment plan, it is essential that the prescriber of these medications participate actively with the treatment team. Treatment planning should include discussions by the whole team about the assessment of target symptoms, behaviors, function, and potential benefits and adverse effects of treatment options. The prescriber should be expected to advise on the efficacy of medications and interactions between pharmacotherapy and other treatment modalities and strengths-based activities."*

Division policy 12.4 indicates that "Significant results of medical examinations, diagnostic tests, and/or the identification of problems shall be forwarded by medical staff to a physician to be reviewed. The review shall be documented in the medical record." Division policy 12.10 addresses circumstances when a youth refuses a prescribed medication, calling for notification of medical personnel and signing of a refusal form.

What problem did the work identify?

We found wide variation in the policies and practices across facilities and among psychiatric prescribers in the approach to medication monitoring, including which drugs are closely monitored and what criteria are followed for baseline testing and ongoing monitoring for efficacy and side effects throughout the course of a medication regimen.

Drug-Specific Monitoring. Of the 60 sample cases reviewed, 57 (95 percent) involved youth being prescribed psychotropic medications. Frequently prescribed medications included atypical antipsychotics such as olanzapine (Zyprexa), resperidone (Risperdal), and quetiapine (Seroquel). Based on the prevalence of use and monitoring standards for use of atypical psychotropic medications and mood stabilizing medications, we would have expected to see blood pressure, weight, Body Mass Index, pulse, and heart rate noted on most committed youth. However, of the records we reviewed, we found almost no instances where vital signs were recorded at baseline (upon entering the facility) or before or after the start of particular medications.

We also saw cases in which lab testing was not conducted as expected, either at the start of a medication (such as kidney and thyroid function testing before starting Lithium) or during treatment (such as Lithium blood levels during treatment or blood lipids and glucose levels during treatment with antipsychotics or insulin). Of 41 cases in which reviewers could assess medical monitoring, we found:

- For 29 cases (71 percent) the expected clinical monitoring occurred.
- For 10 cases (24 percent), the expectations for medical monitoring were “partially met,” meaning that monitoring was appropriate for some but not all medications prescribed for the youth or that only some of the monitoring tests were completed.
- For 2 cases (5 percent), expected monitoring was not done at all.

Additionally, of 48 cases in which lab tests (primarily blood tests) were ordered and documentation of the results were found, we could not confirm that the providers had reviewed some or all of the test results in 15 (31 percent) cases. Some of these involved abnormal lab results that warranted additional action such as a repeat test or further evaluation, which also did not occur. We also noted one case of a youth who had high blood pressure and two abnormal EKGs, who, though his psychotropic medications were

changed, was not referred to a cardiologist for additional consultation. Given that the youth could be expected to use psychotropic medications in the future, a cardiology consult was expected.

Finally, based on available progress notes, we were able to count the documented visits between a prescriber and youth receiving psychotropic medications in 50 of the 60 cases we reviewed. According to Division policy, these youth should have been evaluated by psychiatry monthly. However, in 18 (36 percent) of the 50 cases, youth were seen less than monthly. Findings varied by facility as seen in Table 4, which is based on youth on psychotropic medications and the frequency of psychiatric prescriber visits during the months in 2013 that each youth was in the facility. At the extremes, one male youth was seen 13 times during a stay of 4.5 months, and a female youth detained for 12 months and on numerous psychotropic medications was seen just 5 times.

Table 4 Cases Seen Monthly by Psychiatry

Frequency of Psychiatric Visits					
	Total Cases	**Monthly or More**		**Less than Monthly**	
Facility		#	%	#	%
1	10	6	60%	4	40%
2	10	7	70%	3	30%
3	10	9	90%	1	10%
4	10	5	50%	5	50%
5	10	5	50%	5	50%
TOTAL	**50**	**32**	**64%**	**18**	**36%**

Source: HMA record review

Condition-Specific Monitoring. Of the 60 cases reviewed, 38 youth receive antipsychotic medication. These medications can cause abnormal involuntary muscle movements and their use calls for routine explicit evaluation for this side effect. During our interviews of staff and psychiatric prescribers, we inquired about the routine use of AIMS testing or other assessment of abnormal muscle movements. Just one of the five facilities in our sample reports conducting AIMS testing. We also found cases in two facilities where the presence or absence of involuntary muscle movement was mentioned in a psychiatrist's notes, but a full AIMS test was not conducted and there was no protocol for AIMS testing.

In addition, the 60 cases we reviewed included 11 cases where asthma was diagnosed, indicating the need for medication management. Of these cases, we found no evidence that asthma specific monitoring occurred. One of the asthma cases we reviewed had been referred to a pulmonologist for an asthma evaluation, but we found evidence for none of

the 11 cases that clinical evaluation of asthma status had been assessed with peak flow measurements and/or specific assessment of asthma symptomatology.

Recording and Communicating the Effects of Medication. Among the cases reviewed, there were numerous examples where medication dosages where changed, medications stopped and others added. However, we found the facilities varied widely in using effective methods to record and communicate the effects of medications. In one facility, the prescriber had designed a form that is used by youth, teachers, and counselors to provide feedback on symptoms and side effects on a monthly basis. However, in the other four facilities there was no formal, written, mechanism in place by which staff could report symptoms or side effects to the prescriber, or a process for the prescriber to inform staff that a youth's medications had been changed. In one of these four facilities the prescriber attends the weekly care management meetings and discusses each case with staff. While this practice allows for some feedback to the prescriber and direction to staff, this feedback and direction could be delayed by up to a week and does not ensure that all necessary information is passed between the prescriber and the staff.

Discontinuation of a medication also calls for careful monitoring. We did not see practices in any of the five facilities we reviewed that recognized the need to communicate and report on youth conditions when psychotropic medications were discontinued. In particular, attention to youth whose medications were discontinued subsequent to the youth's refusal of them was not addressed by staff.

Finally, we asked psychiatric prescribers about if/how they are notified of refusals and missed appointments. Table 5 illustrates the variations in practices that were reported.

Table 5 Notice to Psychiatric Prescribers of Patient Non-/Adherence

Is the psychiatrist notified of:	Facility 1	Facility 2	Facility 3	Facility 4	Facility 5
Medication refusals?	No	Yes	Yes	Yes, weekly	Yes
Missed appointments?	No	Usually	Yes	Yes	Yes

Source: HMA created based on interviews with psychiatric prescribers at each facility.

As shown in the table, one facility has no process for informing prescribers about either refused medications or missed appointments, one facility delays the notification of refused medications by up to a week, and one facility does not always report missed appointments.

Why did the problems occur?

Inadequate Division policies and guidelines. The Division does not have written policy or mechanisms in place that promote consistent best practices across all state-operated and contracted facilities for monitoring the side effects of psychotropic medication and

monitoring of specific health conditions. A sound way for identifying broad clinical guidelines that can be effectively applied across treatment settings is to convene and/or arrange for a process to involve representatives (e.g., medical directors and/or clinical nursing representatives) from each facility to participate in reviewing and developing consensus for what should be required as medication monitoring best practices. The Division has not provided for such a process at all of its facilities, nor has it specifically required facilities to adhere to a consistent set of national and locally endorsed guidelines for monitoring of medication. For example, Division policy 12.9 requires a treatment plan be developed for any condition that requires close medical supervision. However, there is no definition that guides what conditions may qualify or what such a treatment plan should include, particularly related to monitoring protocols for a chronic condition such as diabetes or asthma, or for particular classes and specific psychotropic medications. In the face of well-recognized guidelines for important monitoring activities such as checking for abnormal muscle movement, an effective practice would be for the Division to provide more robust and detailed policies.

Similarly, the Division has not articulated an expectation that facilities provide a formal means for psychiatric prescribers to advise their staff of signs and symptoms to monitor related to medication changes, expected outcomes of medication interventions or a means for staff to report observations to the prescriber.

A useful starting point from which the Division could customize its own guidelines is the Los Angeles County Department of Mental Health's "Parameters for Use of Psychotropic Medication in Children and Adolescents." This comprehensive guideline was updated in September 2013 and identifies, for each class of psychotropic medication, all of the following:

- Clinical indications for use
- Frequency of dosage change
- Concomitant medication use
- Complications and side effects
- Cautions and contraindications
- Medical work-up (before starting treatment)
- Medical follow up (during treatment)

In addition, both the American Psychiatric Association (APA) and the AACAP provide extensive practice guidelines for specific conditions and medications. The AACAP

guidelines may be less specific because less scientific data are available for children and adolescents

Inadequate and variable implementing policies and protocols. The Division has not provided guidance to all facilities concerning expectations for facility-specific policies and protocols that reflect the realities of that facility's treatment environment. These policies and protocols must be adequate to guide consistent standards of practice such as under which circumstances and at what intervals to conduct AIMS testing, how to communicate to providers notice of refused psychotropic and other essential medications and missed appointments, and ways to ensure that prescribers are aware of test results. Four out of five of the facilities reported that implementing policies do not exist that specifically address monitoring for abnormal muscle movements. In addition, protocols for routinely monitoring psychotropic medications varied widely across the facilities. Two facilities had no formal monitoring protocols for specific psychotropic medications. Of the three facilities with explicit protocols, one facility had protocols for 4 drugs, one had protocols for 20 drugs, and one had protocols for 45 drugs.

We also found that the facilities we reviewed typically do not have facility-specific protocols or tools, such as checklists and other reminders for specific monitoring activities, (e.g., lab tests, physical assessments) that would provide caregivers supports to ensure that they conduct the monitoring activities required for particular physical conditions or types of medication. Only two out of five facilities had tools to aid staff in monitoring and documenting symptoms associated with chronic conditions, such as asthma and diabetes. In many health care settings, decision supports and monitoring guidelines are being imbedded in electronic health records, but even in paper form, including these monitoring tools in a chart or otherwise making them available to staff, is a prevailing standards of practice.

Inadequate recording and communication practices. Careful clinical documentation fosters coordinated and timely care, including the timely institution and/or discontinuing of medications. Careful documentation, therefore, is critical for patient safety, to prevent avoidable complications from inappropriate treatment and mitigate risks from delays in receiving appropriate treatment. Division policies offer limited guidance regarding the basic information that must be captured and reported in the course of care for youth, and its policies are not specific about the timeframes and methods for how clinical information must be noted. Variability and gaps in documentation were prevalent, more so in some facilities than others. In part, this appeared to be the result of hybrid documentation systems involving paper and electronic files. Additionally, facilities vary in the electronic record systems they use, as well as in the ways that paper files are maintained.

Why do these problems matter?

Inadequate monitoring of psychotropic medications and chronic health conditions creates significant health risks for youth. Guidelines point to the increased risk for movement disorders in youths compared to adults. Negative side effects of psychotropic medications, some of which are potentially irreversible, can at the least further complicate the progress of youth experiencing complex and difficult courses of behavioral health treatment. At the extreme, side effects like involuntary muscle movements can cause permanent neurologic damage.

Side effects of some psychotropic medication take time to build up and early detection is vital to avoid permanent effects. Similarly, medical conditions like asthma have symptoms of tightness in the chest and shortness of breath that can be confused with anxiety. Worsening symptoms of asthma can result in a sudden physical crisis that can lead to death. The negative effects of diabetes can affect a youth's energy, cognition, and more long range physical health depending upon levels of control. Certain medications compound diabetes and lack of insulin/glucose regulation can result in life threatening episodes.

Timely information about medication refusals and/or missed psychiatric appointments are also extremely important to prescribers. Slow notice or failure to notify prescriber of refused medication and/or missed appointment places youth at risk for treatment lags or delays and adverse outcomes. Lack of consistent and adequate documentation leads to potential treatment errors, delays, and increased risks for negative health outcomes.

Recommendation No. 4:

The Department of Human Services should improve the medication monitoring practices at all of its facilities by working with its primary care and psychiatric providers to establish a set of written policies and guidelines that will apply to both state-operated facilities and contract facilities that provide on-site medical services regarding medication monitoring. The written policies and guidelines should:

a. Establish a set of policies and guidelines for state- and contractor-operated facilities specifying the high risk conditions and medications that require explicit monitoring.

b. Stipulate the type and frequency of drug-specific monitoring and condition-specific monitoring that facilities must conduct for both detrimental and desired effects of medications and how the results of monitoring will be documented.

c. Require facilities to implement formalized, written processes for staff and prescribers to document and communicate about medication monitoring results.

d. Require that all facilities prepare written implementing procedures that align with the policies and guidance recommended in part "a".

Department of Human Services Response:

a. Agree. Implementation Date: July 1, 2015

Full implementation of this recommendation requires additional resources. The Department agrees to establish a set of policies and guidelines for state-operated facilities specifying the high-risk conditions and medications that require explicit monitoring. Extension of these guidelines to contract facilities that provide on-site medical services would require (1) an investigation into whether the contracted facilities' accreditation and/or licensing requirements address high-risk conditions and medications that require monitoring, and (2) significant additional resources to monitor compliance. The Department agrees to include contract specific language in contracts requiring contract facilities to follow the guidelines as set forth in Division policies established for state-operated facilities and/or their accreditation and licensing requirements. There is a concern, however, that without additional resources, compliance monitoring will not be feasible. The Department will explore options to secure the resources necessary to monitor compliance.

b. Agree. Implementation Date: July 1, 2015

Full implementation of this recommendation requires additional resources. The Department will develop guidelines on the type and frequency of drug-specific monitoring and condition-specific monitoring state-operated facilities must conduct for both detrimental and desired effects of medications and how the results of monitoring will be documented. Extension of these guidelines to contract facilities that provide on-site medical services would require (1) an investigation into whether the contracted facilities' accreditation and/or licensing requirements address high-risk conditions and medications that require monitoring, and (2) significant additional resources to monitor compliance. The Department agrees to include contract specific language in contracts requiring contract facilities to follow the guidelines as set forth in Division policies established for state-operated facilities and/or their accreditation and licensing requirements. There is a concern, however, that without additional resources, compliance monitoring will not be feasible. The Department will explore options to secure the resources necessary to monitor compliance.

c. Agree. Implementation Date: July 1, 2015

Full implementation of this recommendation requires additional resources. The Department agrees to require facilities to implement formalized, written processes for staff and prescribers to document and communicate about medication monitoring

results. Extension of these guidelines to contract facilities that provide on-site medical services would require (1) an investigation into whether the contracted facilities' accreditation and/or licensing requirements address high-risk conditions and medications that require monitoring, and (2) significant additional resources to monitor compliance. The Department agrees to include contract specific language in contracts requiring contract facilities to follow the guidelines as set forth in Division policies established for state-operated facilities and/or their accreditation and licensing requirements. There is a concern, however, that without additional resources, compliance monitoring will not be feasible. The Department will explore options to secure the resources necessary to monitor compliance.

d. Agree. Implementation Date: March 1, 2015

Full implementation of this recommendation requires additional resources. The Department agrees to require that all state-operated facilities prepare written implementing procedures that align with the policies and guidance recommended in part "a." Extension of this to contract facilities that provide on-site medical services would require (1) an investigation into whether the contracted facilities' accreditation and/or licensing requirements address high-risk conditions and medications that require monitoring, and (2) significant additional resources to monitor compliance. The Department agrees to include contract specific language in contracts requiring contract facilities to follow the guidelines as set forth in Division policies established for state-operated facilities and/or their accreditation and licensing requirements. There is a concern, however, that without additional resources, compliance monitoring will not be feasible. The Department will explore options to secure the resources necessary to monitor compliance.

Safeguarding of Prescription Medications

The safeguarding of prescription medications in residential facilities and health care settings is a vital component of medication management. Specifically, safeguarding includes:

- Inventory and responsibility for controlled substances.
- Repackaging of prescription drugs for use after release from a facility.
- Proper disposal of prescription drugs and separating controlled and non-controlled substances to minimize environmental hazards.

Many of the drugs used in the treatment of committed youth fall under the definition of controlled substances. Inventory management of controlled substances is necessary to

prevent diversion and abuse of these substances while ensuring that they remain available for those youth to whom they have been prescribed.

Repackaging of medications consists of providing doses of a medication or multiple medications to a patient to allow for self-administration. Repackaging of medications is often necessary when youth are leaving a facility and need a supply of their medication to ensure that their treatments can continue until they are able to secure medications on their own.

Medical waste includes wastes generated in a health care setting in the diagnosis, treatment, immunization, or care of patients. Proper management of waste generated in a health care setting begins with the identification and segregation of wastes that require special handling and treatment because of their biological, chemical, physical and/or radiological characteristics. The waste generator is responsible for determining if its waste is regulated as medical waste, hazardous waste, radioactive waste, or ordinary solid waste, and if it is subject to air quality or water quality regulations. This requires an understanding of federal, state and local statutes, regulations and policies, as well as policies and procedures used at the facility.

What work was performed and what was its purpose?

HMA reviewed federal regulations, Colorado State Board of Pharmacy regulations, and Division policies. The team conducted interviews with nursing staff and QMAP certified counselors at a sample of five facilities about controlled substances medication practices, such as maintaining inventory, secure storage, and disposal. We observed controlled substances logs, storage, and disposal functions. We reviewed the implementing procedures in place at each of the sample facilities. We observed medication passes and medication rooms at each facility. We reviewed a PowerPoint training presentation entitled “DYC Medication Administration: Procedures” that the Division presented to its state-operated facilities in March 2014. This work was done to ascertain conformance at facilities with applicable state and federal rules and Division policies.

How were the results of the work measured?

Controlled Substances Inventory Control.

Colorado Code of Regulations (6 CCR 1101-1 Section 7.2) requires facilities such as those operated by the Division and its contractors, to put in place physical access controls such as double locking controlled substances, and inventory controls such as creating an inventory of controlled substances when they enter the facility and conducting counts of controlled substances at the end of each shift. Specifically, the regulation requires that all controlled substances shall be stored under double lock, and be counted and signed for at the end of every shift in the presence of either two QMAPs or a QMAP and a qualified

manager. The regulation does provide that if the preceding procedure is not possible, the QMAP going off-duty shall count and sign for the controlled substances and the next on-duty QMAP shall verify the count and sign. If the count cannot be verified, the discrepancy shall be immediately reported to the facility administrator.

Division policy S 12.10 covering the security and storage of controlled substances and other medications states that all controlled substances shall be secured and monitored by authorized medical personnel. Any theft or unexplained loss of a controlled substance shall be reported immediately to the Director of the facility, the Health Authority, the Regional Manager, and the Director of the Division of Youth Corrections.

The Division's audit standards for this policy state that consistent with applicable laws and regulations, the proper management of pharmaceuticals shall operate based on guidelines which establish a procedure for medication receipt, storage, dispensing, labeling, administration, delivery, and disposal, including a system of record keeping which accounts for controlled substances.

Repackaging of Prescription Drugs. Board of Pharmacy regulations (3 CCR 719-1 Section 3.00.75) state that the placement of a prescription into another outer container and the labeling of the container with a patient's name or any other identifying information constitutes the "Practice of Pharmacy" as a function of preparation, packaging, labeling and delivery. Regulations (3 CCR 719-1 Section 3.01.10) also state that only pharmacists, pharmacy interns, and pharmacy technicians under the direction of a pharmacist are allowed to perform functions that constitute the practice of pharmacy.

Pharmaceutical Waste Disposal. According to the Colorado Department of Public Health and Environment, Division facilities are considered "Medical Waste Generators" for the purpose of storing and subsequently destroying waste pharmaceuticals. Pharmaceutical waste must be managed according to its designation. Specifically, any waste designated as controlled substance waste must be disposed of following federal regulation 21 CFR 1307.21 which states that the controlled substance must be disposed of separately from other waste and must be co-signed by an authorized person. Further, any waste medications designated as hazardous waste must be stored and disposed of following 6 CCR 1007-3 which states that wasted medications stored on site should be rendered unusable in some fashion to prevent diversion, and must be disposed of in a way that ensures they will not end up in a solid waste landfill.

What problems were identified?

Controlled substances inventory control. The three contractor-operated facilities in our sample all had sufficient inventory controls related to controlled substances. However, the two state-operated facilities we visited had none of the mandatory processes to manage the inventory of controlled substances, and simply handled them precisely as

they do all other medications. One had implementing procedures to address controlled substances but the practice of those procedures was not in evidence. The other had no implementing procedures to address requirements or other applicable regulations for controlled substances. Specifically, neither facility created a master inventory of controlled substances entering the facility or conducted a count of controlled substances at the end of each shift to account for medications administered or wasted during the shift. Further, controlled substances were mixed in with non-controlled substance medications in the medication carts rather than being stored in a separate, double-locked receptacle.

Prescription drug repackaging. When a youth is being discharged, the facilities will provide a supply of several days or more of the youths' prescription drugs to be taken as ordered until the youth establishes a relationship with a community provider. In two facilities (one state-operated and one contracted) the pharmacy processes an order for discharge medications and provides them in labelled prescription bottles. However, in three facilities (one state-operated and two contracted) the nurse removes the youth's unit dosed medications from their labelled packaging and places them into prescription bottles or envelopes, labels them, and provides them to the youth at discharge. This latter practice is a clear violation of state pharmacy regulation, which specifies such activity as the practice of pharmacy any may only be carried out by pharmacists, pharmacy interns and pharmacy technicians (under the direction of a pharmacist).

Pharmaceutical waste disposal. Facilities use a variety of practices to dispose of medications that are outdated, contaminated, refused by patients, or otherwise require disposal. The practices vary in the extent to which they comply with state rules for disposal of prescription drugs classified as hazardous waste. Specifically, two of the facilities had no procedures for rendering medications unusable before disposal or ensuring that they would not end up in a solid waste landfill. Two other facilities only had procedures for rendering controlled substances unusable. For the final facility, it was unclear whether their mode of disposing of these waste medications would ensure that they did not end up in a solid waste landfill.

Additionally, facilities vary in practice and in compliance with federal rules for disposal of controlled substances. Just one facility uses a process fully compliant with federal rules. Two other facilities are compliant with the need to co-sign for controlled substance waste medications but do not dispose of controlled substances separately from their other waste medications. Finally, two facilities do not have procedures either to co-sign for all controlled substances or dispose of them separately from their other medical waste products.

Why did these problems occur?

With respect to safeguarding controlled substances, only one facility has an implementing procedure that adheres to the Division's policy on controlled substance safeguarding. In addition, the Division has not audited facilities for compliance with its policy on controlled substances. Finally, the Division has not required its pharmacy provider, CHP, to review the controlled substance practices at the facilities to which it provides medication, which is a standard feature of many prescription drug arrangements.

With respect to re-packaging medications for release, the Division has not provided any policy or guidance to state-operated or contracted facilities regarding the need for their pharmacies to package medications for release. Additionally, CHP has not provided guidance to the facilities to which it provides medication or required them to obtain discharge medications through the pharmacy.

The Division is only now implementing a policy related to the disposal of medical waste. Specifically, the PowerPoint presentation "DYC Medication Administration: Procedures" was provided to its state-operated facilities in March of this year. The presentation, which includes information on the Division's new policy and procedures for disposal of medical waste, had not yet been fully implemented at the time of our review. The new policy should help bring about compliance with federal regulations with respect to requiring co-signature for disposal of controlled substances. However, there are two areas where the new policy may still not comply with state and federal requirements. Specifically, the new policy does not provide sufficient instruction to assure that facilities will comply with federal rules for controlled substances. For example, this new policy does not require that controlled substances be secured throughout transfer to a destroying facility or that they always be disposed of separately from other medication waste. The new policy also does not require that discarded medications be placed in tamper-proof receptacles and/or otherwise require that they be rendered unusable, which is an important safeguard to prevent diversion.

Finally, the Division does not require that its contracted facilities submit implementing procedures that demonstrate compliance with its policies and/or with state and federal law for medication disposal.

The Department reports that it does not have sufficient staffing resources available to ensure that all of its facilities fully comply with state and federal regulations on hazardous waste and controlled substance.

Why do these problems matter?

In the absence of vigilant inventory control and management of controlled substance waste, controlled substances are easily diverted for illegal use and/or sale. Additionally,

improper safeguarding of controlled substances violates federal and state requirements, which places the Division at risk for penalties.

Using nursing staff to repackage medications for discharge places nurses in violation of their scope of practice and violates state Board of Pharmacy regulations. Both place the Division at risk for penalties.

Finally, improper disposal of medical waste can have adverse effects on the environment and the public. Medications and other hazardous wastes can leach into ground water if not properly disposed of in sealed containers.

Recommendation No. 5:

The Department of Human Services (Department) should strengthen its oversight over the handling and disposal of controlled substances at all of its state-operated facilities by:

a. Requiring all state-operated facilities to create implementing procedures for inventorying controlled substances that comply with Department policies and state and federal law.

b. Auditing state-operated facilities to ensure that their actual practices for inventorying controlled substances comply with policy.

c. Modifying its policies to require that all state-operated facilities have their pharmacists prepare medications for medications to accompany youth at discharge and requiring facilities to create implementing procedures.

d. Further strengthening its drug disposal policies to ensure compliance with all federal and state regulations regarding the disposal of controlled substances, and medical waste that has been classified as hazardous waste.

e. Requiring pharmacies at all state-operated facilities to conduct on-site audits and provide technical assistance regarding inventory management, controlled substance practices, drug disposal, and other medication management practices at least annually. Results of the audits should be provided to the facilities and to the Department, and the Department should require corrective action as appropriate.

Department of Human Services Response:

a. Agree. Implementation Date: December 31, 2014

The Department will convene a multi-disciplinary statewide team to create implementing procedures for inventorying controlled substances that comply with policy, state, and federal law.

b. Agree. Implementation Date: July 1, 2015

The Department will revise audit standards to review practices for inventorying controlled substances.

c. Agree. Implementation Date: November 1, 2014

The Department agrees to develop implementing procedures for state-operated programs and to have the off-site pharmacist for state-operated programs prepare medications for discharge, or to ensure youth have a prescription for medications upon discharge when fulfillment of a medication order is not possible prior to discharge.

d. Agree. Implementation Date: July 1, 2015

Full implementation of this recommendation requires additional resources. The Department agrees to further strengthen its drug disposal policies to ensure compliance with all federal and state regulations regarding the disposal of controlled substances, and medical waste that has been classified as hazardous waste.

Strengthening policies will likely require contracting with a pharmacy to evaluate all facilities. This consultation will therefore require additional resources. The Department will seek the resources needed to complete the evaluation.

e. Partially Agree. Implementation Date: July 1, 2015

Full implementation of this recommendation requires additional resources. The Department agrees that having pharmacies conduct on-site audits and provide technical assistance would improve practice.

The Department currently does not have resources to implement this recommendation. The Department will explore options to secure the resources necessary to monitor compliance.

Evaluator's Addendum (part 5e):

Ensuring that state-operated facilities are complying with federal and state laws and Department policies in the area of safeguarding controlled substances and medical hazardous waste is part of the Department's responsibility as a provider of medical care. Given the problems found with facility practices during this evaluation, the Department needs to implement processes to actively monitor facilities to ensure compliance with state and federal regulations for safeguarding medications to prevent controlled substances from being diverted and medical hazardous wastes from affecting public health.

Electronic Health Records

The use of electronic health records (EHRs) is becoming standard in the health care community. Adopting electronic health record systems can help improve the delivery and quality of medical care and reduce the cost of care.

EHRs provide a single unified record for a patient that can be shared across multiple locations with ease. They standardize the recording of medical care and health information; allow for improved medication management, health registries, and alerts or reminders; and support the use of evidence-based practices for disease management by prompting clinicians about necessary care. They also can provide excellent data to assess health care quality, provider productivity, and compliance with clinical best practices. Some of the key functions of a medical record are to (1) document the appropriate course of care and provide a rationale for the recommended treatment, (2) provide essential information to various members of the health care team, (3) enhance continuity of care over time and among providers, and (4) enable communication within the medical team attending to the patient.

Interoperability among multiple EHRs is growing as well, allowing differing systems to "speak" to one another and exchange data in a uniform manner. This is improving continuity of care as patients move across health care settings, particularly through the use of standardized electronic templates for the exchange of clinical information developed for care coordination.

Currently, the Division and its contractors use various combinations of paper-based medical records and electronic files. State-operated facilities maintain paper records for some health care documents and record some medical information in Trails, the state's web-based system. Contractor-operated facilities, with the exception of the one state-owned, contractor-operated facility, which uses Trails, use either paper records or their own individual EHRs.

What problems did the review identify and why did they occur?

An evaluation of the Division's health records system was not within the scope of this review. However, health records establish a documentation trail that is critical for helping to ensure that treatments align with diagnoses, are provided as ordered by the prescriber, are modified based on documented effects, and that those responsible for oversight of the health care system can monitor the system. As described in the report, the HMA team reviewed a sample of medical records, both paper and electronic, available at each of the five facilities we visited to evaluate medication management practices. Throughout HMA's review of records and procedures the state- and contractor-operated facilities, we encountered difficulties compiling a complete medical history, identifying key

information and components within a file, and understanding whether professional medical standards had been followed by medical providers. The lack of complete documentation hindered our evaluation and would also impede the Division in conducting a thorough review of the health care provided at facilities.

The Trails system, which is used as the medical record system for youth in all state-operated facilities, was originally designed as a case management system for children in the child welfare system and specifically to collect reliable information about children involved in the foster care and adoption systems. Trails is used by all 64 counties as the official record for child welfare cases. Over time, the Department has added modules to Trails so that medical information from child welfare clients and youth committed to the Division could be recorded in Trails. However, Trails does not adequately function as a medical record because it does not, among other things:

- Include a physician order feature such as one finds in an EMR.
- Support computerized prescription order entry.
- Auto-create a current list of medications.
- Auto-create a current problem list.
- Capture the execution of prescriber orders.
- Prevent altering clinical information and notes by another party.
- Readily produce reports from the data therein.

None of the facilities using Trails had a unified, complete medical record that could be reviewed at one time during our visits. Even at a single facility, medical record processes are not standardized. As examples, at a given facility using Trails:

- Medication Administration Records (MARs), which are paper-based and record all the medications administered to patients, are scanned into the EHR on some patients and not others.
- MARs for some months may be scanned while those for other months are not.
- Scanned MARs may be located in differing places within Trails, even in the same record.
- Providers may or may not enter progress notes into the EMR according to personal preference.

- A current medication list may or may or may not exist and if it exists, may or may not be accurate.
- Lab results may or may not be scanned into Trails.
- Consent forms may or may not be scanned into Trails.

We noted the unusual practice at one facility using Trails where the psychiatrist/psychiatric nurse practitioner do not chart in Trails. The nurse attempts to enter psychiatric orders into Trails to create a complete record, but this may occur weeks after the encounter and did not occur in every instance observed. At the contracted facilities, we found both EHRs and paper records.

In all the facilities we found that staff generally knew their way around the unique practices within their facilities, and the irregularities—such as paper physician orders filed under the chart's tab for nursing notes—but in an emergency or with new staff, a complete record of current medications, recent orders and progress notes, allergies, and history would be very difficult to produce.

The Department should study the feasibility of implementing an electronic health record system at the Division. The study should consider inter-operability with other state and county systems and methods for contractors to assure that their EHRs can communicate with a Division EHR for sharing selected information such as diagnoses, lab tests, medication lists, and patient histories to enhance the continuity of care for youth moving between state- and contractor-operated facilities, increase efficiencies, and allow the Division to more readily monitor selected health care indicators in all committed youth.

The Department recognizes the limitations of Trails as an EHR system but has not yet begun investigating the feasibility of implementing a stand-alone alternative EHR system, largely due to concerns regarding the resources needed to implement such a system. The primary barrier to adopting EHRs rests with the often significant up-front costs—the purchase of software and hardware as well as an initial loss of productivity—that are inherent in the implementation of any new electronic information system. At a time when states and health care organizations are trying to reduce costs, allocating capital to new information systems presents a significant challenge for policymakers and administrators. One possible source of funds that may be accessible to help support the implementation of an EHR system is federal incentives available to providers who serve youth enrolled in Medicaid. Incentives from the Medicaid Electronic Health Record Incentive Program can reach $63,750 per prescriber over six years. However, the incentives are paid to the provider, not an institution such as the Division, so the Division's ability to access this source of funds would be based on the willingness of its contract providers to share any such incentives with Division.

Why does this finding matter?

During our review, the HMA Team noted that migrating the state-operated facilities to a comprehensive EHR could provide significant benefits for patient care, particularly with respect to maintaining a historical record regarding each youth's diagnoses, treatment plans including medications, and health changes. It could also reduce duplicative diagnostic tests when youth move between facilities and enhance the transition of the youth to community-based care at release. Such a system would also facilitate the increased oversight of the state- operated facilities that is recommended in many of the findings in this review. The goals of implementing an EHR are to streamline clinical and administrative processes, improve quality of care and patient safety, and reduce the cost of care. A single EHR is not a panacea but the benefits often associated with EHRs include the following:

Increased access to and integration of patient information. Improving access to patient data wherever and whenever clinical decisions are made is one of the key benefits of an EHR. Additionally, because patient data are brought together in one place, continuously updated, and immediately accessible to the treatment team, the EHR affords an integrated view of patient care that is often difficult to achieve via a paper-based record. For example, in an EHR the psychiatric clinicians receiving committed youth from assessment centers could see the testing and diagnostic work done to support the diagnoses and medication protocols the youth bring with them. The potential for fragmentation of clinical information is a common criticism of paper-based records.

Increased decision support. An EHR can never take the place of clinical judgment and experience. However, it can actively provide options and explanations that improve the clinician's efficiency and compliance with accepted practice guidelines. For example, EHRs can prompt physicians to enter progress notes when medication orders are changed, provide alerts to potential drug interactions, remind physicians to order lab work for certain medications, and automatically recognize and flag abnormal lab results for follow-up.

Increased efficiencies. EHRs increase efficiencies by reducing the time spent in repeatedly documenting health information when patients move across settings. For example, paper-based records often require duplicate data entry of the same patient information or observational data onto multiple forms. EHRs also solve the problem of illegible handwritten notes and physician orders, and contribute significantly to the reduction of prescription drug errors. EHRs also provide for a more standardized organization of the patient's information, potentially yielding increased efficiencies for quality improvement and oversight processes. This may be an important factor in considering EHR adoption if chart auditing requirements expand significantly.

The current variety and incompleteness of the health record systems being used in state-operated and contracted facilities make external chart audits to evaluate the chronology of care extraordinarily difficult or impossible to conduct and could hamper a legal defense of a case. Thus, we believe the condition of contracted and state facility medical records creates both clinical risk to committed youth and legal risk to the Division, and it is sufficiently outside of community practice to warrant changes.

Recommendation No. 6:

The Department of Human Services (the Department) should evaluate the feasibility, costs, and benefits of implementing a single electronic health records (EHR) system at the Division of Youth Correction (Division) that would be used by all state-operated facilities. Analysis should include the ability to access federal Medicaid EHR incentives and methods to ensure that contractors use EHRs that can exchange information with the Division's EHR system.

Department of Human Services Response:

Agree. Implementation Date: March 1, 2015

The Department agrees that an evaluation of the feasibility, costs and benefits of implementing a single electronic health record (EHR) system at the Division of Youth Corrections would be beneficial.

The electronic version of this report is available on the website of the
Office of the State Auditor
www.state.co.us/auditor

A bound report may be obtained by calling the
Office of the State Auditor
303.869.2800

Please refer to the Report Control Number below when requesting this report.

Report Control Number 1351P

Report Control Number 1351P