OFFICE OF THE STATE INSPECTOR GENERAL

Department of Behavioral Health and Developmental Services

Electronic Health Record System

Performance Audit

June 2024

Michael C. Westfall, CPA
State Inspector General

Report No. 2024-PA-005

COMMONWEALTH OF VIRGINIA
Office of the State Inspector General

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June 27, 2024

The Honorable Glenn Youngkin
Governor of Virginia
PO Box 1475
Richmond, VA 23219

Dear Governor Youngkin,

The Office of the State Inspector General (OSIG) completed an audit of the Department of Behavioral Health and Developmental Services (DBHDS) Cerner Millennium Electronic Health Record (EHR) System. An interim report was issued on February 29, 2024. The final report is attached.

OSIG would like to thank Commissioner Smith and his staff for their cooperation and assistance during this audit.

Sincerely,

Michael C. Westfall, CPA
State Inspector General

cc: The Honorable Jeff Goettman, Chief of Staff to Governor Youngkin
Tiffany Robinson, Deputy Chief of Staff to Governor Youngkin
Isabella Warwick, Deputy Chief of Staff to Governor Youngkin
The Honorable John Littel, Secretary of Health and Human Resources
Leah Mills, Deputy Secretary of Health and Human Resources
James Williams, Deputy Secretary of Health and Human Resources
Julie Hammel, Executive Assistant for the Secretary of Health and Human Resources
Lanette Walker, Chief Financial Officer for Health and Human Resources

Senator Ghazala F. Hashmi, Chair of Education and Health Committee
Delegate Mark D. Sickles, Chair of the Health and Human Services Committee
Nelson Smith, Commissioner, DBHDS
Andrew Diefenthaler, Chief of Staff, DBHDS
Angela Harvell, Deputy Commissioner for Facility Services, DBHDS
Russell Accashian, Chief Information Officer, DBHDS
Glendon Schmitz, Chief Information Security Officer, DBHDS
Divyajot Mehta, Director of Internal Audit, DBHDS
Staci Henshaw, Auditor of Public Accounts

Electronic Health Record System

What OSIG Found

EHR Revenue Cycle Not Fully Adopted by All Facilities

Three of 12 DBHDS facilities are not using the Revenue Cycle module of the EHR system for scheduling and tracking appointments for medical services performed. One DBHDS facility, SWVMHI, stopped using the Revenue Cycle module after one appointment and two DBHDS facilities (CCCA, SEVTC) have not implemented the Revenue Cycle module to schedule appointments.

Manual Processes Developed for Scheduling Medical Appointments

Manual processes are being utilized alongside the EHR system functionalities in the appointment scheduling process. OSIG identified instances at 11 of 12 DBHDS facilities where manual processes are in place that either duplicate the functionalities of the EHR system or are performed in lieu of utilizing the functionalities of the EHR system in the appointment scheduling process.

Limited Awareness and Use of Reporting Resources

The Cerner Discern Reporting Portal is where end-users can access and run reports to assist with their job duties. DBHDS does not have clear, comprehensive guidance that effectively communicates the availability, value, functionality, input requirements, and access procedures for reports.

Management concurred with all seven findings and plans to implement all corrective actions by May 1, 2025.

June 2024

HIGHLIGHTS

Why OSIG Conducted This Audit

The DBHDS strategic plan involves continuous facility modernization, focusing on enhancing the adoption of the Cerner Millennium Electronic Health Record (EHR) platform with standardized workflows to improve care, safety, quality, staff efficiency, and regulatory cost savings. This audit was conducted to assess the EHR system with the goal to recommend actions that could result in improvements for staff and provider efficiency in patient care.

What OSIG Recommends

- DBHDS should continue to work with SWVMHI, CCCA, and SEVTC to fully adopt and use the Revenue Cycle to schedule medical appointments.
- DBHDS should work with facilities to identify and eliminate any manual processes that are circumventing the intent of the EHR system.
- DBHDS should establish clear, comprehensive guidance to effectively communicate the availability, value, functionality, input requirements, and access procedures for using the Cerner Discern Reporting Portal.
- DBHDS should develop a standardized process for onboarding and ongoing training for new hires, contractors, and existing employees.

For more information, please contact OSIG at (804) 625-3255 or www.osig.virginia.gov

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REPORT ACRONYMS

The following is an alphabetical list of acronyms used in the report.

CAT – Catawba Hospital
CCCA – Commonwealth Center for Children and Adolescents
CI – Clinical Informatics
CISO – Chief Information Security Officer
COV – Commonwealth of Virginia
CSH – Central State Hospital
DBHDS – Department of Behavioral Health and Developmental Services
DI – Departmental Instruction
DPB – Department of Planning and Budget
EHR – Electronic Health Record
ESH – Eastern State Hospital
HIM – Health Information Management
HWDMC – Hiram W. Davis Medical Center
ITRM – Information Technology Resource Management
NVMHI – Northern Virginia Mental Health Institute
OSIG – Office of the State Inspector General
PGH – Piedmont Geriatric Hospital
SEVTC – Southeastern Virginia Training Center
SIEM – Security Information and Event Management
SVMHI – Southern Virginia Mental Health Institute
SWVMHI – Southwestern Virginia Mental Health Institute
VCBR – Virginia Center for Behavioral Rehabilitation
VDH – Virginia Department of Health
VDOC – Virginia Department of Corrections
VITA – Virginia Information Technologies Agency
WSH – Western State Hospital

BACKGROUND

According to the Centers for Medicare and Medicaid Services, an Electronic Health Record is an electronic version of a patient's medical history that is maintained by the provider over time and may include key administrative clinical data relevant to that person's care under a particular provider. This includes demographics, progress notes, medications, vital signs, past medical history, immunizations, treatment plans, laboratory data, and radiology reports. The data, and the timeliness and availability of it, is intended to enable providers to make better decisions and provide better care. The EHR can improve patient care by reducing the incidence of medical error by improving the accuracy and clarity of medical records. This improves data exchange across healthcare institutions, ensuring that medical practitioners have access to up-to-date patient records.

The DBHDS Departmental Instruction 701 defines clinical records as the repository of all information about the treatment and training of individuals served in DBHDS facilities. These records also include legal documents, consultation reports, and discharge planning. Facility health information management (HIM) departments are responsible for ensuring the integrity of the clinical record and the release of the information contained therein.

Item 281 (C) of the 2018 Appropriations Act directed the Secretary of Health and Human Resources, in collaboration with the Secretary of Administration and the Secretary of Public Safety and Homeland Security, to establish an interagency workgroup to oversee the development of a statewide integrated EHR system. The workgroup included representatives from the Department of Behavioral Health and Developmental Services (DBHDS), the Virginia Department of Health (VDH), the Virginia Department of Corrections (VDOC), the Virginia Department of Planning and Budget (DPB), and the Virginia Information Technologies Agency (VITA). The workgroup was tasked to evaluate common business requirements for electronic health records to ensure consistency and interoperability with other partner state and local agencies and public and private health care entities to the extent allowed by federal and state law and regulations. The goal of the workgroup was to develop an integrated EHR which could be shared as appropriate with other partner state and local agencies and public and private health care entities.

The 2019 Appropriations Act continued the workgroup with a purpose of evaluating DBHDS' solution with the other agencies. In the 2020 Annual Report from the EHR Interagency Workgroup, discussions from the early workgroup meetings resulted in allowing agencies to pursue EHRs that were appropriate to meet specific agency needs and to evaluate the cost effectiveness of pursing separate EHR systems as compared to a statewide integrated EHR.

In 2011, the Siemens Soarian EHR was chosen for DBHDS because it offered the best cost, function, and ability to customize the EHR to meet behavioral health needs. The product was

implemented in three state inpatient hospitals. Soarian was acquired by Cerner in 2015. In September 2018, DBHDS signed a statement of work with Cerner to implement its product, Millennium, at all DBHDS hospitals throughout Virginia with a goal for all 12 DBHDS facilities to have full implementation by the end of 2020. The original timeframe was adjusted to meet the changing demands related to the COVID-19 pandemic; however, the agency was able to implement its EHR system in three waves between August 2020 and March 2021.

By the end of fiscal year 2021, DBHDS had implemented Millennium at all 12 facilities and had shifted to focus on interoperability and data exchange with the Community Service Boards and providers external to DBHDS using two additional Cerner solutions.

SCOPE

The audit scope covered EHR governance, system security, data encryption, enhancements and related program change control, training, communication, and patient referrals for fiscal years 2022 and 2023.

OBJECTIVES

Objectives of this audit were to:

- Determine whether the extent of guidance provided by DBHDS to facilities regarding Cerner Millennium EHR system usage is clear, comprehensive, and supportive of their needs.
- Determine whether logical access controls within the EHR system are appropriate and occur timely, including:
    - Assess whether granting, monitoring, and removal of COV system access is performed within the expected timeline.
    - Assess whether system auditing and monitoring tools are in place to identify suspicious activities.
    - Determine whether the EHR system includes an incident management program, assess whether the program has been tested and verify that reporting requirements are in place to notify appropriate parties in the event of an incident (system administrators, IT staff, etc.).
    - Determine whether DBHDS has established appropriate backup and continuity of services procedures for the EHR system and conducts testing in accordance with COV policy.
    - To verify whether the EHR system's risk assessment has been performed and ensure it complies with COV system security control requirements.
    - Determine whether any third-party users have access to the EHR system and evaluate the adequacy of security monitoring and access controls to meet COV requirements.

- Determine whether the EHR system updates, including application changes, improve/strengthen the ability of facility staff to input patient medical information into the system to enhance patient care, especially the unique needs of each facility.
- Determine whether the EHR training requirements align with the unique needs of each facility.
- Assess user satisfaction with the Cerner Millennium EHR system to identify areas of improvement and/or best practice.
- Determine whether DBHDS regularly and timely communicates system information.
- Determine the effectiveness of workflow process controls in ensuring timely delivery of services ordered or referred for patients.
- Assess the security and compliance of data storage practices to verify that data is securely stored in accordance with COV requirements and prevent unauthorized exporting that may violate HIPAA regulations.

METHODOLOGY

OSIG conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that OSIG plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for the findings and conclusions based on the audit objectives. OSIG believes that the evidence obtained provides reasonable basis for the findings and conclusion based on the audit objectives.

OSIG applied various methodologies during the audit process to gather and analyze information pertinent to the audit scope and to assist with developing and testing the audit objectives. The methodologies included the following:

- Evaluating the update and review of governance documents, specifically DI-701 and the HIM Manual.
- Evaluating Job Aids.
- Assessing access control, system logging, incident response, business continuity and disaster recovery, continuity of operations plans, and system risk assessment.
- Performing a trend analysis of trouble tickets and evaluating the trouble ticket process to include the development of system enhancements.
- Evaluating program change control.
- Evaluating the EHR system training process to include initial and ongoing training, and end user satisfaction.
- Evaluating the communication of system down times, both planned and unplanned, as well as the communication of system enhancements.
- Assessing the effectiveness and efficiency of patient referral workflows to include random sample testwork of medical appointments at all 12 facilities to ensure appointments were attended and results entered into the patient record.
- Assessing data storage for data at rest and data in transition as well as the physical and environmental controls of the data center and data export controls.

FINDINGS

OSIG provided four other findings to DBHDS, separately, related to IT security that are not included in this report. DBHDS management agreed with the conditions observed in the findings and provided OSIG with a corrective action plan.

FINDING #1 – EHR REVENUE CYCLE NOT FULLY ADOPTED BY ALL FACILITIES

The Revenue Cycle module is where scheduling and tracking of appointments, both internal and external to the facilities, is performed. In accordance with the Revenue Cycle Scheduling Training Participant Guide, the Revenue Cycle would be used to schedule appointments, group appointments, and manage appointments.

The process for managing and scheduling appointments includes the following:

- Rescheduling appointments when an already scheduled appointment needs to be changed to a different date, time, or location.
- Modifying appointments which allows users to change details associated with the appointment.
- Cancelling appointments.
- Viewing appointment history which allows users to see all details associated with an appointment, such as:
    - Where the patient is scheduled,
    - When and who performed an action on the appointment,
    - When it was booked,
    - Who confirmed, and
    - Who canceled.
- Documenting any comments associated with the appointment.
- Documenting any orders associated with the appointment.

Three of 12 DBHDS facilities are not using the EHR Revenue Cycle module for scheduling and tracking of appointments for medical services performed. One DBHDS facility, SWVMHI, stopped using the Revenue Cycle module after one appointment, and two DBHDS facilities (CCCA, SEVTC) have not implemented the Revenue Cycle module to schedule appointments.

Facility management at SWVMHI indicated that inadequate training on the use of the Revenue Cycle contributed to the inability to adopt it for scheduling appointments. The DBHDS Director of Clinical Informatics became aware in June 2023 that they were not utilizing the system and has worked with their informaticist to identify and remove the barriers to adoption, including training. The project is still in progress and SWVMHI has established the positions responsible for scheduling the appointments to be fully trained. Their next step is to work with CSH, which has an established process workflow to use the Revenue Cycle for appointments.

CCCA and SEVTC use Excel spreadsheets, Outlook emails and calendars for scheduling and tracking appointments, in lieu of utilizing the Revenue Cycle module. However, the DBHDS Director of Clinical Informatics indicated that CCCA and SEVTC are in the process of planning Revenue Cycle adoption for medical appointment scheduling.

Using the EHR Revenue Cycle to schedule medical appointments helps to ensure more streamlined processes, and more accurate appointment tracking. It facilitates efficient appointment booking, reduces errors, and allows for better management of patient care information.

Recommendations:

1. DBHDS should ensure that facility staff with the responsibility for the scheduling of medical appointments receive proper training to fully understand and use the Revenue Cycle for appointment scheduling.
2. DBHDS should continue to work with CCCA, SEVTC and SWVMHI to fully adopt and use the Revenue Cycle to schedule medical appointments.

DBHDS Management Response:

Management agreed with the conditions observed by OSIG and agreed with the recommendations.

FINDING #2 – MANUAL PROCESSES DEVELOPED FOR SCHEDULING MEDICAL APPOINTMENTS

OSIG discussions with scheduling staff revealed that manual processes were being utilized alongside the EHR system functionalities in the appointment scheduling process. OSIG observed instances where manual processes are in place that either duplicate the functionalities of the EHR system or are performed in lieu of utilizing the functionalities of the EHR system in the appointment scheduling process. Scheduling staff were forthcoming in their usage of excel spreadsheets, Outlook calendars, printing of medical orders, etc. as alternatives to using the EHR system functions. OSIG identified manual processes at 11 of the 12 facilities, for managing appointment scheduling. The specific facilities and examples of manual processes used are as follows:

Facility	**Manual process example**
CAT	The medical provider orders the referral within Cerner and also completes a physical referral form that is signed by the provider and is then scanned into Cerner by the unit secretary. The unit secretary will also provide a physical copy of the referral to the consult coordinator/scheduler. Prior to scheduling the appointment, the consult coordinator/scheduler will compare the paper referral against information entered into Cerner by the provider. The consult coordinator/scheduler enters the patient's name, the referral request date, and the appointment scheduled date into the 2024 Consultation Log (an Excel file) manually, in order to track all appointments.
CCCA	Appointment information, including patient name, when, where, the purpose of the appointment, is recorded on a Microsoft Outlook calendar. The calendar also includes the number of staff to accompany the patient, type of vehicle, restraints (if needed), etc.
ESH	The scheduler maintains an Excel spreadsheet to track monthly appointments. The Health Information Management (HIM) technician completes the remainder of the spreadsheet for dates of follow-up, date appointment results scanned into Cerner, and ESH physician date reviewed and signed off on results of appointment.
HWDMC	An Excel spreadsheet is maintained monthly to track patients attending onsite clinics. Specific fields are updated to denote whether patient is a HWDMC or CSH resident to track "no-shows" from CSH. For offsite appointments, a physical handwritten paper referral order is completed by the HWDMC medical provider requesting the appointment and is given to the scheduler instead of using Cerner.

Facility	Manual process example
NVMHI	The facility uses a separate shared calendar, labeled "Transportation Calendar." The scheduler provides copies of this to the appropriate security/transportation staff one business day in advance. This calendar shows who has an appointment, when and where. Staff indicated that the calendar in the Appointment Details section of Revenue Cycle does not print to show all of the details, such as location.
PGH	The scheduler maintains an Excel spreadsheet with the medical record number, patient name, unit/pod, external provider name, purpose of appointment, appointment date/time, type of transportation.
SEVTC	Appointment information (name of resident, name of outside provider, when, where, and purpose) is recorded on an Outlook calendar. The facility also uses an Excel spreadsheet to track scheduled appointments which contains individual worksheet tabs by patient name.
SVMHI	The facility uses a Teams Calendar to track appointments. A copy of the calendar is handed out to nursing staff, so they are aware of who has appointments that day.
SWVMHI	The Ward Clerk puts the appointment on a shared Outlook calendar and also documents it in a paper book for the nursing staff. The Ward Clerks monitor the appointments in the shared calendar while nursing staff monitor the appointments in the paper book (with multiple copies at each nursing location).
VCBR	The facility uses an Excel spreadsheet to monitor scheduled appointments. The appointments are created by the scheduling manager for security and transport. The spreadsheet includes patient name, appointment location, and appointment time.
WSH	The facility uses a WSH-developed Microsoft Access database "Clinic Appointment," which generates a detailed appointment sheet. The sheet will accompany the patient during the appointment. Information on the appointment sheet includes patient picture, demographics, known allergies, lab results, referral request forms, etc.

OSIG conducted an overall survey of DBHDS staff, whose job duties were impacted by the EHR system, including survey questions about the Revenue Cycle. Comments from DBHDS facility users indicated that some users were having issues with the scheduling appointment process. Some notable survey comments were:

- The appointment system (Revenue Cycle) is not good for tracking appointments. The treatment plans do not automatically pull in data for medical treatments from primary care, which does not align with DBHDS comprehensive treatment planning policy.
- Facility staff do not receive alerts or reminders of upcoming appointments or missed appointments.
- The appointment system (Revenue Cycle) was not designed to be used in the way DBHDS needs to utilize it. The reporting mechanisms are clunky or non-existent, tracking of appointment attendance and appointment notification must still be done manually. Ordering of consults, referrals and labs is convoluted and difficult for providers to remember the details of. It is not an intuitive or user-friendly process.
- If there is a component of being able to track appointment attendance, it is not being utilized here, nor are upcoming appointments. We are still using email weekly to notify providers of specialist appointments. Some patient/time specific information would work well on a sticky note, which they have used at other facilities.
- Rev Cycle should not be so complicated. Having to set up the back-end information for each individual appointment is very time consuming.

Properly managing patient medical care is critical to the well-being of the patients at DBHDS facilities. Medical appointment scheduling aims to ensure that the DBHDS patients receive the treatment they need. Better understanding and use of the appointment scheduling process will allow the facility to schedule patient appointments in advance, decrease patient wait time, and increase patient satisfaction and patient care. The development of manual processes circumvents the purpose of the EHR appointment scheduling process and may create confusion for future staff trained to use the EHR appointment scheduling system. Additionally, the use of manual processes may reduce staff time and productivity by creating redundant tasks leading to inefficiencies and increased likelihood of errors.

Recommendations:

1. DBHDS should ensure the medical appointment scheduling process is understood and is being used properly at all facilities, to include:
    - Evaluating the reason for the manual processes and if a system update is required to improve the functionality of the appointment scheduling process.
    - Providing follow-up training with facility staff regarding the appointment scheduling process.
    - Ensuring that new staff are properly trained on the appointment scheduling process going forward.
2. DBHDS should also work with facilities to identify and eliminate any manual processes that are circumventing the intent of the EHR system.

DBHDS Management Response:

Management agrees with the conditions observed and recommendations by OSIG but would like to offer the following observations:

Please note that pulling medical appointment data to treatment plans and automatic appointment alerts were not original requirements of the system. While appointment status can be tracked, process and people alignment are needed and can be addressed in the corrective action plans proposed in Appendix 1. The features and functionalities identified are helpful in assessing needs for system ongoing improvement and future state.

FINDING #3 – MEDICAL APPOINTMENT DETAILS NOT PROPERLY UPDATED IN THE EHR SYSTEM

The Appointment with Action Details report provided by DBHDS was used to assess the medical appointment scheduling process. For the nine facilities using the appointment scheduling module, ten appointments from each facility for FY2023 were selected for testing. If the report population for FY2023 for any facility was under ten, all appointments were reviewed. A total of 87 (6%) out of 1,541 medical appointments population were tested.

Exceptions were noted for 14 (16%) of the 87 appointments as follows:

- Five of the 87 appointments did not note whether or not the patient attended the appointment.
- Five of the 87 appointments did not have documentation to determine the results of the appointment.
- Five of the 87 appointments were missing the hardcopy documents that should have been scanned into the system.
- Three of the 87 appointments were missing evidence of review of the facility medical provider, via documented sign-off.
- Two of the 87 appointments had a delay in scanning the documents into the system. In one instance, the patient went to the appointment on June 12, 2023, and results were not scanned into the EHR system until October 23, 2023. In the other instance, the patient went to the appointment on April 26, 2023, and the results were not scanned into the EHR system until May 13, 2023.
- One scheduled neurosurgery appointment was missed because the patient had an emergency room visit, which is acceptable. However, the results of the emergency room visit were not documented in the patient record. There was only a notation in the file that the neurosurgery appointment was canceled because the patient was at the emergency room.
- One of the appointments noted a delay in scheduling the appointment. An order placed by the medical provider on June 20, 2023, stated that the patient needed a medical appointment scheduled. The scheduler did not access Cerner until August 2, 2023, to schedule the medical appointment for August 14, 2023.

Facilities do not have a standard process/guidance document to walk through the specific steps for scheduling medical appointments. Generally, the workflow for scheduling a medical appointment offsite from the DBHDS facility happens as follows, though it may vary from facility to facility:

Step	Process
1	Ordering provider enters order in PowerChart module
2	Scheduling team schedules the appointment in Revenue Cycle module and confirms appointment
3	Packet of medical documents/records is prepared to accompany the patient
4	Patient is transported from facility to appointment
5	Appointment occurs
6	Patient is transported back to the facility
7	Packet created in Step #3 is returned along with documents/records of information regarding what happened at the appointment
8	Information from appointment is scanned into Cerner and sent to ordering provider
9	Ordering/covering provider reviews the appointment information in Cerner and responds as appropriate
10	Order is moved from future status to completed in Cerner by the ordering/covering provider

Properly managing patient medical care is critical to the well-being of the patients at DBHDS facilities. Medical appointment scheduling aims to ensure that the DBHDS patients receive the treatment they need. Ensuring that medical appointment information is properly and timely updated in the system ensures that proper facility personnel can evaluate the results to ensure that patients are receiving proper treatment. Better understanding and utilization of the process will allow the facility to schedule patient appointments in advance, decrease patient wait time, and increase patient satisfaction and patient care.

Recommendations:

1. DBHDS should ensure the medical appointment scheduling process is understood and is being used properly at all facilities.
2. DBHDS should establish standardized guidance identifying the key steps of the scheduling workflow in Cerner while allowing flexibility for adaptation to each facility's unique needs, where required.

DBHDS Management Response:

Management agrees with the conditions observed by OSIG and the recommendations.

Finding #4 - Limited Awareness and Use of Reporting Resources

As part of OSIG's testing of the medical appointment scheduling process, DBHDS provided the report Appointment with Action Details, from the Cerner Discern Reporting Portal. This report contains information such as history of patient medical appointment requests, appointment scheduling, and appointment referral type. The Cerner Discern Reporting Portal is where end-users, based upon their privileges, can access and run reports that could assist with their job duties. DBHDS does not have clear, comprehensive guidance that effectively communicates the availability, value, functionality, input requirements, and access procedures for reports.

OSIG used the Appointment with Action Details report to select a sample of scheduled appointments to test the appointment scheduling process at those facilities using the Revenue Cycle for scheduling appointments. Based on OSIG's onsite interviews with facility personnel involved in the appointment scheduling process, there is limited awareness and use of reporting resources for appointment management.

The interviews with staff at the nine facilities where appointment scheduling testing was performed indicated the following:

- Staff are not familiar with the Appointment with Action Details report, and therefore, are not using the report.
- Staff know the Cerner Discern Reporting Portal exists but are not using it and would like to learn more about it.
- Staff have accessed and run reports from the Cerner Discern Reporting Portal but found it difficult to enter the required information to run reports.
- Staff find it difficult to navigate the Portal to locate the report they would like to access and run.

Enhancing reporting resources improves patient care management by optimizing medical appointment scheduling for timely access to treatment. It also allows for management oversight and tracking where available in the system.

Recommendations:

1. DBHDS should establish clear, comprehensive guidance to effectively communicate the availability, value, functionality, input requirements, and access procedures for using the Cerner Discern Reporting Portal, by position and value to the facility.
2. DBHDS should provide training on the reports identified, to ensure staff understand their functionality and use of the output for reports that provide value to their positions.

DBHDS Management Response:

Management agreed with the conditions observed by OSIG and agreed with the recommendations.

We agree that the training should be provided to the staff for whom it would be applicable.

FINDING #5 – NO UNIFORM PROCESS FOR ONGOING EHR TRAINING

Electronic Health Records (EHR) system training, to include materials for onboarding and ongoing training, is not uniform in content and method of delivery across the 12 DBHDS facilities. Each individual facility has responsibility for onboarding and ongoing training content development and delivery for the EHR system for their new hires, contractors, and existing employees. Although some facilities have created their own user manuals for training, there is no central manual to ensure consistency across DBHDS.

From interviews conducted with an array of DBHDS employees during audit planning:

- Employees reported having no formal continuous training. The facility sends out emails to update staff on new processes and/or system changes.
- Employees reported that most ongoing training occurs on-the-job ("at the elbow") and often through the designated facility superusers.
- Employees reported that they sometimes work with other facilities to share and update practices and train staff as needed.

From interviews conducted during fieldwork with various staff including facility directors, clinical informaticists, training coordinators, nurse educators, health information management and nursing directors from six of the 12 DBHDS facilities (CCCA, HWDMC, NVMHI, SEVTC, VCBR, WSH):

- Employees at all six facilities reported that each individual facility has responsibility for ongoing training.
- Employees at three of six facilities reported that ongoing training is not standardized across the 12 facilities.
- Employees at all six facilities reported that the basic structure of training for the EHR system is general overview of the EHR system incorporated into the employee onboarding/orientation, followed by training sessions prior to working in the department/unit on how the system is used by their specific role, and then completed by on the job ("at the elbow") support and more focused role specific training once in the department/unit.
- Employees at three of six facilities reported that the basis for the training materials has been a combination of the initial training materials from Cerner and those developed by the individual facility to meet their needs.
- Employees at three of six facilities indicated that updated training materials developed at individual facilities are not consistently shared amongst the 12 DBHDS facilities due in part to the many differing processes – not all of the 12 DBHDS facilities provide the same type of care or service. The training materials used are a combination of the initial learning materials provided by Cerner and those further developed by individual facilities to meet their needs.

Enhanced knowledge of the system could significantly improve the efficiency and effectiveness of the facilities' staff, minimizing the time and frustration associated with documenting patient files in the EHR. Additionally, an opportunity exists to promote consistency across facility practices in using the EHR system, lessening the potential development of manual processes and workarounds to accomplish various tasks.

Recommendations:

1. DBHDS should develop a standardized process, where possible, across all 12 DBHDS facilities for onboarding and ongoing training for new hires, contractors, and existing employees. The training should be consistent in both content and method of delivery and incorporate a centralized reference guide that can be regularly updated to reflect any changes.
2. DBHDS should work with facilities on the customization of training for any varied/specialized services at the facilities.

DBHDS Management Response:

Management agreed with the conditions observed by OSIG and agreed with the recommendations.

In March 2023, DBHDS Central Office adopted effective and efficient EHR use as an objective under their strategic plan. As noted by OSIG, variations in training are influenced by differences in services provided, resources and clinical workflows. Some variation, where needed, is not undesirable given the distinction between learning the tool (EHR and functionalities) and how to apply the tool (unique clinical workflows) based on some facility specific processes.

A set of essential EHR learning content can support user EHR efficacy. Efforts led by clinical informatics (CI) group started in the Fall of 2023 with assessment of current state, testing tools for EHR training development, and training of the CI group on vendor tools meant to help improve EHR user efficiency. The intent is to develop standardized curriculum, where possible, for EHR users across facilities.

FINDING #6 – EHR ENHANCEMENT REQUESTS NOT PROPERLY REVIEWED AND APPROVED

DBHDS facilities are not properly reviewing and approving EHR enhancement requests prior to submission to the EHR team. The established process and expectation of the EHR team is that enhancement requests be reviewed and approved by the EHR committee at the facility prior to submission to the central office EHR team. DBHDS has not established sufficient criteria for the expectations of the facility EHR Committees' review.

The Commonwealth's Information Security Standard SEC530 CM-3 and the superseded SEC501 CM-3 both state, "Configuration change control for organizational systems involves the systematic proposal, justification, implementation, testing, review, and disposition of system changes, including system upgrades and modifications."

OSIG noted the following items that resulted from insufficient review by the facility EHR committee:

- Seven of 27 requests tested in the sample were for enhancements that the system was already capable of or were counterintuitive to DBHDS strategic goals in implementing the EHR.
    - One request of the seven was submitted by the facility despite the facility acknowledging that "it was apparent that this was an educational issue and not an enhancement."
- Facilities could not provide support for review and approval of requests for 22 of 27 requests tested in the sample.
- Procedures used to review requests at the facility level are either non-existent or high level.

If the facility committees have not sufficiently reviewed and approved enhancement requests, the central office EHR team's efficiency will suffer as they will have to spend time filtering tickets that weren't denied at the facility level.

Recommendation:

A standard set of minimum criteria needs to be established for the facility committees to use in their review of requests. Examples of such criteria should include:

- Denying enhancement requests for already available features in the system or counter intuitive to DBHDS strategic goals.
- Denying requests for enhancements that are not actual improvements to the system.
- Maintaining support and documentation for the approvals and denials of the EHR committees at the facilities.

DBHDS Management Response:

Management agreed with the conditions observed by OSIG and agreed with the recommendations.

The agency added that while acknowledging potential improvements in the enhancement request process at the facility level, it's crucial to note that our organizational review board and change management teams thoroughly evaluate all tickets for patient safety, regulatory compliance, financial considerations, and system impact. Concerns raised by OSIG may inadvertently question patient safety at DBHDS when challenges in request management are common even in more mature and better resourced healthcare organizations. A recent study[1] identified request volume and end-user request clarification as key challenges, emphasizing the need for better standards in this field. I urge the OSIG report to recognize this as an administrative efficiency opportunity, rather than a patient safety issue, given the described robust control mechanisms in place. In addition to planning policy and procedures development for this fiscal year, DBHDS has appointed clinical informaticists at each facility to help address optimization request management. Some tickets in the audit predate the hiring of these informaticists and resumption of respective facility EHR committees.

[1] Ravi A, Arvisais-Anhalt S, Weia B, Khanna R, Adler-Milstein J, Auerbach AD. Governance of Electronic Health Record Modification at US Academic Medical Centers. Applied clinical informatics. 2023;14(5):843-854. doi:10.1055/a-2150-8523

FINDING #7 – INCOMPLETE OR INACCURATE INFORMATION FIELDS IN THE TICKET TRACKING SYSTEM

DBHDS uses a ticket tracking system named BugTrack to monitor and assign tasks related to enhancement requests for the EHR system. As the ticket tracking system is the system of record for requests, it is important for data integrity and reliability that information keyed is complete and accurate. While there is an expectation that the data in the ticket tracking system is kept up to date, there is not a written policy outlining expectations related to the data entry and processing of enhancement requests.

EHR analysts are not updating reporting fields in BugTrack to reflect actions taken on the ticket. Exceptions noted related to documentation in the reporting field that had either a significant number of exceptions or fields with significant impact. For the 1,176 tickets opened and closed by DBHDS staff since the beginning of FY23, 96% had more than one tracking field incomplete or inaccurate, as follows:

- For 1,039 tickets, the version field was not updated. This field reflects which release note the resolution was included in, if the ticket was not implemented, or if resolution did not result in a system change. By not keeping this field up to date, management is unable to run a report to quickly identify the disposition of requested enhancements.
- For 1,001 tickets, the approval status field was incomplete or inaccurate. This field is used to quickly identify if a requested enhancement is pending approval, is approved, or there was no approval needed. Without keeping this field up to date, management is unable to quickly identify where tickets are in the approval process.
- For 480 tickets, OneMind/AMS Status field was inaccurate. This field is used to give a high-level status of the ticket without having to open and review detailed updates. By not keeping these fields up to date, users do not have an accurate view of ticket status. For example, the number of tickets "waiting on an end user" or 'in queue for prioritization" would be inaccurate.
- For 381 tickets, the category field was unspecified or inaccurate. This field identifies which area of the EHR the request relates to, such as Revenue Cycle or Clinical Pod. By not keeping this field up to date, management is unable to use the information available to identify trends and group related requests.
- For 54 tickets, the Type field was not selected. This field identifies the type of ticket, such as 'Task,' 'Break/Fix,' 'Enhancement,' 'Education,' etc. As this system is used to monitor and track a variety of tasks related to the EHR system, management is unable to track and identify trends related to the type of tasks being completed by analysts if this field is not complete.

Recommendations:

1. Management should develop policies and procedures that govern data integrity in the ticket tracking system. These policies should include guidelines on status update documentation standards and expectations on how often a ticket should be updated.
2. Analysts should accurately complete and update tracking fields determined to be significant by DBHDS management. Significant fields should be defined by ticket type and documented in the policies and procedures developed in the above recommendation.

DBHDS Management Response:

Management agreed with the conditions observed by OSIG and agreed with the recommendations.

AUDIT RESULTS

This report presents the results of OSIG's audit of the Electronic Health Record system. OSIG performed the following audit testing with immaterial, if any, discrepancies noted:

- Evaluating the update and review of governance documents.
- Evaluating Job Aids.
- Evaluating program change control.
- Evaluating the communication of system down times, both planned and unplanned, as well as communication of system enhancements.
- Assessing data storage for data at rest and data in transition as well as the physical and environmental controls of the data center and date export controls.

Based on the results and findings of the audit test work conducted of the Electronic Health Record System, OSIG concluded that internal controls were operating properly, except as identified in the report findings.

APPENDIX I – CORRECTIVE ACTION PLAN

FINDING	RECOMMENDATIONS	CORRECTIVE ACTION	DELIVERABLE	ESTIMATED COMPLETION DATE	RESPONSIBLE POSITION
1 - EHR Revenue Cycle Not Fully Adopted by All Facilities	1. DBHDS should ensure that facility staff with the responsibility for the scheduling of medical appointments receive proper training to fully understand and use the Revenue Cycle for appointment scheduling. 2. DBHDS should continue to work with CCCA, SEVTC and SWVMHI to fully adopt and use the Revenue Cycle to schedule medical appointments.	1. DBHDS will initiate an assessment to identify gaps in process, standardize the process informed by facility needs and available resources, develop training based on said process and monitor implementation. 2. CCCA, SEVTC and SWVMHI will continue to assimilate the tool into their medical appointment process, facilitated by their CIs and SMEs.	1. Process map for each facility. 2. System standard operating procedure. 3. Training development and implementation. 4. Institute interim accountability/ support touch points with the CIs from these three facilities.	1. September 1st, 2024. 2. March 1st, 2025. 3. May 1st, 2025. 4. July 10th, 2024.	Director of Clinical Informatics
2 - Manual Processes Developed for Scheduling Medical Appointments	1. DBHDS should ensure the medical appointment scheduling process is understood and is being used properly at all facilities, to include: • Evaluating the reason for the manual processes and if	1. While this can be addressed under finding #1. DBHDS is also considering responding to the vendor's request to participate in the development of the	DBHDS SME participation in product development.	Respond to vendors with resources by July 30th, 2024.	Director of Clinical Informatics

FINDING	RECOMMENDATIONS	CORRECTIVE ACTION	DELIVERABLE	ESTIMATED COMPLETION DATE	RESPONSIBLE POSITION
	a system update is required to improve the functionality of the appointment scheduling process. • Providing follow-up training with facility staff regarding the appointment scheduling process. • Ensuring that new staff are properly trained on the appointment scheduling process going forward. 2. DBHDS should also work with facilities to identify and eliminate any manual processes that are circumventing the intent of the EHR system.	next iteration of this system. This can assure more progressive requirements as identified by DBHDS subject matter experts can be reflected in future upgrades. 2. Assuming this refers to scheduling medical appointments only, it will be completed during process mapping.			
3 - Medical Appointment Details Not Properly Updated in the EHR System	1. DBHDS should ensure the medical appointment scheduling process is understood and is being used properly at all facilities. 2. DBHDS should establish standardized guidance	1. Finding #1 also addresses this item. 2. In Developing the standard process under finding #1, we will inevitably discover the degree	Please see #1	Please see #1	Director of Clinical Informatics

FINDING	RECOMMENDATIONS	CORRECTIVE ACTION	DELIVERABLE	ESTIMATED COMPLETION DATE	RESPONSIBLE POSITION
	identifying the key steps of the scheduling workflow in Cerner while allowing flexibility for adaptation to each facility's unique needs, where required.	of standardization appropriate to fit facilities resources and specific requirements imposed on them.			
4 - Limited Awareness and Use of Reporting Resources	1. DBHDS should establish clear, comprehensive guidance to effectively communicate the availability, value, functionality, input requirements and access procedures for using the Cerner Discern Reporting Portal, by position and value to the facility. 2. DBHDS should provide training on the reports identified, to ensure staff understand their functionality and use of the output for reports that provide value to their positions.	1. For the appointment scheduling, we will add reporting training for those overseeing this process. 2. Since OSIG's EHR implementation audit, Facility Services and IT collaborated to issue release notes on all reports and announce them in our weekly accountable executive (AEs) meetings. The AEs are responsible for ensuring their facility stakeholders are informed. CIs provide consult and	Standard procedure under finding #1.	Please see #1	Director of Clinical Informatics

FINDING	RECOMMENDATIONS	CORRECTIVE ACTION	DELIVERABLE	ESTIMATED COMPLETION DATE	RESPONSIBLE POSITION
		training to all who need it. Some facilities CIs, hired after the OSIG audit, offer reporting training as needed for quality and HIM staff.			
5 - No Uniform Process for Ongoing EHR Training	1. DBHDS should develop a standardized process, where possible, across all 12 DBHDS facilities for onboarding and ongoing training for new hires, contractors, and existing employees. The training should be consistent in both content and method of delivery and incorporate a centralized reference guide that can be regularly updated to reflect any changes. 2. DBHDS should work with facilities on the customization of training for any varied/specialized services at the facilities.	1. Request CIs complete current state assessment, and 2. Engage discipline specific leaders to develop and validate list of training items.	1. Process description with identified roles and artifacts used. 2. Standard training manual.	1. August 1st, 2024. 2. March 1st, 2025.	Director of Clinical Informatics

FINDING	RECOMMENDATIONS	CORRECTIVE ACTION	DELIVERABLE	ESTIMATED COMPLETION DATE	RESPONSIBLE POSITION
6 - EHR Enhancement Requests Not Properly Reviewed and Approved	A standard set of minimum criteria needs to be established for the facility committees to use in their review of requests. Examples of such criteria should include: • Denying enhancement requests for already available features in the system or counter intuitive to DBHDS strategic goals. • Denying requests for enhancements that are not actual improvements to the system. • Maintaining support and documentation for the approvals and denials of the EHR committees at the facilities.	We will work with facility stakeholders to draft policy and procedures for the development and approval of enhancement requests to achieve the objectives described.	Procedure for the development and management of enhancement requests before submission to the DBHDS organizational review board.	September 30th, 2024.	Director of Clinical Informatics
7 - Incomplete or inaccurate information Fields in the Ticket Tracking System	1. Management should develop policies and procedures that govern data integrity in the ticket tracking system. These policies should include guidelines on status update	Develop and distribute DBHDS EHR BugTrack policy to all BugTrack users to ensure the expectations and usage of the ticketing system is being followed and	DBHDS EHR BugTrack Policy	September 30th, 2024	Director, Enterprise Clinical Applications

FINDING	RECOMMENDATIONS	CORRECTIVE ACTION	DELIVERABLE	ESTIMATED COMPLETION DATE	RESPONSIBLE POSITION
	documentation standards and expectations on how often a ticket should be updated. 2. Analysts should accurately complete and update tracking fields determined to be significant by DBHDS management. Significant fields should be defined by ticket type and documented in the policies and procedures developed in the above recommendation.	accurately completed when filling out fields for ticket updates.			