TREXIN INSIGHT PAPER

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A REVIEW OF DRUG DIVERSION SOLUTIONS

What to consider before selecting a vendor.

In recent years, there has been an influx of drug diversion monitoring solutions that have emerged on to the marketplace. In part because federal regulation (21 CFR 1301.71(a)) states, "All applicants and registrants shall provide effective controls and procedures to guard against theft and diversion of controlled substances" – which is to say that hospitals and pharmacies should be monitoring and auditing for drug diversion. From a compliance perspective, drug diversion monitoring solutions are a modern-day necessity to detect drug diversion confidently and effectively. With most medical records and inventory management systems being accessible electronically, an opportunity has emerged to leverage that data for other purposes, including diversion monitoring. The digitalization of healthcare has significantly changed how to monitor and detect drug diversion. To better understand which diversion monitoring solution would best satisfy specific Client needs, Trexin conducted demos with five of the top vendors and outlined key features of each solution. This Trexin Insight Paper (TIP) will discuss key considerations when selecting a diversion monitoring software and will highlight some differences seen amongst the top monitoring solutions.

TABLE 1.1 COMPARISON OF DRUG DIVERSION MONITORING SOLUTIONS

Vendor/ Software	ADC in Nursing Units, OR, and Central Pharmacy	Coverage – Everyone With Access to Medications	System Integration - EMR	System Integration - ADC	System Integration – HRIS	System Integration – Waste Disposal Systems	Data Feed Frequency - Daily	System Technology – Uses AI and All client Data	Reporting – Populates Data Visualizations and Investigative Reports	Time to Implement – 6 to 8 weeks	Time to Implement – 8 to 12 weeks	Time to Implement – 12+ weeks
A	X	X	X	X	X		X	X	X		X	
B	X	X	X	X			X	X	X		X	
C	X	X	X	X	X		X	X	X	X	X	
D	X	X	X	X	X	X	X	X	X			X
E	X	X	X	X		X	X	X	X			X

AUTOMATED DISPENSING CABINETS (ADC'S)

An ideal drug diversion monitoring solution can provide insight into all inventory systems where medications are kept. This includes central pharmacy storage, automated dispensing cabinets (ADCs) and anesthesia workstations (AWS). Additionally, an ideal monitoring solution is able to audit all transactions within those devices, including receiving inventory, restocking, dispensing, wasting, returning, and expiring of medications. Wherever medications are accessed and handled, the ideal monitoring solution should be able to detect anomalous behavior for review. At a minimum, all the solutions we reviewed gather data and detect suspicious behavior related to ADCs and provider workflows, with a focus on nursing and anesthesia related transactions. To take it a step further, some solutions offer a broader scope of monitoring that includes controlled substance transactions from the central pharmacy inventory. This includes receipt of inventory from wholesalers, dispenses for restocks, and dispenses directly to patients. When assessing diversion monitoring solutions, it is important to understand the scope of coverage the solution offers to determine what other measures need to be implemented to ensure controlled substances are accounted for throughout the entire medication lifecycle.

EMPLOYEE COVERAGE

Similar to ADC coverage, the ideal diversion monitoring solution should review transactions from all employees who handle controlled substances. This includes nursing staff, anesthesia staff (including CRNAs), pharmacy staff, as well as students and interns. In order to adequately monitor all staff, the monitoring solution must monitor transactions from all medication inventory locations as previously described. When determining what constitutes 'suspicious' or 'unusual' behavior, the monitoring solution should consider variables within the employee's role to assign users to appropriate peer groups. For example, nurses should not be compared to pharmacy staff, and anesthesia providers should not be compared to nurses. Furthermore, to truly detect anomalous behavior, the monitoring solution needs to consider employees who staff similar positions. For example, a nurse who works the night shift on an intensive care unit should not be compared to a nurse working the day shift on a pediatric unit. Therefore, several variables must be considered when trying to constitute what is considered suspicious behavior.

All the monitoring solutions that we reviewed consider transactions from everyone who has access to medications. However, most solutions focus on nursing peer groups with less consideration on pharmacy or anesthesia related peer groups. Some solutions further define peer groups to those who worked on the same unit(s) over the same period. A few solutions take it a step further and consider the shift type (day vs night) and duration, as well as how many shifts were worked. One must consider *how* the solution monitors and audits different users and user roles when evaluating the various solutions.

SYSTEM INTEGRATION

The optimal drug diversion monitoring solution integrates data and information from several different sources to detect suspicious behavior and potential drug diversion. At a minimum, solutions should integrate transactional data from the electronic medical record (EMR), ADC's, and HR platform. Advanced solutions may also incorporate data from timecard systems, wholesalers, smart pumps, reverse distributors, and waste identification systems. However, it's equally important to consider the quality of the data being integrated. At the most basic level, diversion monitoring solutions should utilize dispensing and administration data from the EMR and ADC to reconcile all controlled substances dispensed. Additionally, the ideal monitoring solution should incorporate additional data points from the EMR and ADC to identify suspicious behavior. Taking it a step further, the ideal solution uses data from several different systems to paint the most accurate, complete picture of the user's medication activity. This may include time stamps, keystroke logs, timecards, documented pain scores, barcode scanning, charting times, and much more.

All solutions reviewed integrated at least EMR and ADC data. Some solutions also incorporate HR related data which helps further identify the user's role, years of experience at the organization, etc. This information can become helpful when determining whether the behavior identified is due to lack of experience or simply poor practice. Additional solutions offer the ability to integrate data from timecards, wholesalers, and waste identification systems. However, more integration does not guarantee better outcomes. When assessing diversion monitoring solutions, it is critical to determine how the data is used and what value it provides in identifying suspicious behavior at your institution.

DATA FREQUENCY

The time it takes to detect suspicious behavior is a critical factor for the success of any drug diversion program. Delays in detecting certain behaviors can lead to more diversion and ultimately more risk. The obvious solution would then be to intake and process data in real time. However, one must consider the real life implications of a continuous data feed. Operationally and clinically speaking, medication transactions take time. Additionally, diversion cannot be detected if it

doesn't happen. With that said, the ideal monitoring solution should process data at least daily. No exceptions should be made for this requirement when assessing drug diversion solutions. Of all the solutions that were reviewed, all offered a data intake frequency of at least daily. Another consideration is the 'cut off' time for the daily data intake. Patient care does not stop as the clock strikes midnight. Many transactions are started before midnight and completed after midnight. Some monitoring solutions have accounted for this 'cut off' time and have created mechanisms to automatically update and adjust information as they receive the next daily data feed, resulting in the most accurate depiction of the transaction.

SYSTEM TECHNOLOGY

Every day, drug diverters are becoming increasingly more clever in their attempts to steal drugs. Although there are common methods for drug diversion, each confirmed diversion case varies in some form or another. To combat their ingenuity, the ideal monitoring solution should leverage artificial intelligence to learn from previous investigations. By understanding the different variables that contributed to past diversion cases, the monitoring solution is better equipped to quickly identify future diversion cases.

All the solutions that were reviewed utilize artificial intelligence within their platform. Some solutions even use artificial intelligence across their entire network to understand how diversion occurs at other institutions and incorporate those findings into their algorithm to strengthen the platform for all customers. When reviewing diversion monitoring solutions, it's important to understand how the solution will grow and evolve as healthcare becomes increasingly complex.

REPORTS

Diversion monitoring solutions should not only help identify diversion concerns, but they should also help the customer better understand their business. To determine the success (or lack thereof) of a drug diversion program, one must be able to measure business outcomes. These measures help identify areas of opportunity for process improvement and program growth, user productivity, and the return on their investment. The ideal drug diversion solution provides data that allows the customer to know their business inside and out. Aside from tracking business related outcomes, the ideal diversion solution should offer 'standardized' reports and exports with options to filter and customize as the user sees fit.

Each solution reviewed offered several different data exports and reports. Additionally, a few of the solutions considered reports for business related outcomes and Key Performance Indicators (KPIs) that could be customized based on the customer's needs. The biggest difference seen amongst the solutions was the visualization of data and reports. When considering a drug diversion monitoring solution, consider what data and reports are necessary for your institution and how that information is displayed.

TIME TO IMPLEMENT

It's important to consider the amount of time and resources it will take to implement a drug diversion monitoring solution. The time to implement will vary depending on the Client's available resources. However, the ideal solution offers several different support options for implementation and beyond. At a minimum, the solution should offer a project manager and dedicated support team through the implementation process. Additionally, the ideal solution should offer training and education resources as part of the implementation process. Beyond implementation, the ideal diversion solution should offer ongoing support and assistance throughout the length of the contract.

All the solutions reviewed provide assistance through implementation and varying degrees of support thereafter. Some solutions provide different implementation options that can expedite the process. Additionally, some of the solutions reviewed offer hands-on training and onboarding for end users as well as customer support managers throughout the length of the contract. Although the 'time to implementation' should be less of a factor when determining what solution is right for your institution, it is important to consider the level of support necessary for a successful go-live.

The new generation of drug diversion monitoring systems all aim to provide an efficient way to help monitor and detect drug diversion. However, that does not mean that any given hospital or healthcare institution will have similar outcomes regardless of which solution is implemented. When considering a new monitoring solution, it is critical that it aligns with your drug diversion program goals. Contact a Trexin Advisor to see how we can help identify the right drug diversion monitoring solution for your institution.

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