



Drug Diversion in the Hospital Pharmacy

Hospital pharmacies are responsible for dispensing drugs including powerful and regulated narcotics to hospital patients including pain medications during and after surgery. The hospital pharmacist is concerned with dispensing the correctly prescribed drug in the prescribed doses and that any unused drug is returned for proper disposal. Pain management medications used during or right after operating room procedures include morphine, hydromorphone, Oxycodone, Fentanyl and other narcotics.

When prescribed for an operation, drugs are often dispensed in an amount in excess of what is *actually* needed, so a sufficient amount is on hand during the procedure. Unused amounts are returned to the hospital pharmacy, if new they should be returned to the hospital pharmacy but any unused drugs are to be properly disposed/destroyed. Diversion often occurs in a scenario where the drugs are earmarked for disposal so as long as a vial of liquid is returned all appears in order. This visual inspection will not determine if a diversion has taken place. Something more is needed!

Diversion of Narcotics

Of great concern are the narcotics used for pain management. These drugs can be used for personal recreation, addiction or distribution. Street value of these powerful narcotics even in small dose can be between \$20-\$80. Drugs like fentanyl have been mixed with other drugs causing adverse effects and even death. Since even well-respected personnel such as nurses, anesthesiologist and doctors can become involved in drug abuse or selling drugs, procedures are needed to accurately track the movement of drugs through the hospital.

Narcotic Control Systems

While many hospitals have procedures in place to record the prescription, dispensing, and return of unused drugs, the methods vary greatly and in many cases are ineffective. Some hospitals rely heavily on computerized systems that record the movement of drugs with bar-code systems, RFID tags, 2-key lock-ups, dual signatures, cameras, and even robots. Still others rely on written records with somewhat lax standards of accountability. With increased regulations hospitals need to move toward more accountability and testing. Without proper monitoring the possibility of diversion increases leading to exposure to drug diversion and opens the hospital for possible litigation.

Risks associated with Drug Diversion

The potential problems with Hospital Pharmacy Drug diversion are far reaching and carry various liabilities. Hospital staff and administration are charged with the care and comfort of patients. In a surgery or post-surgery situation where pain-management medications are prescribed, the first concern is; did the patient receive the pain relief they needed? In a 2014 drug diversion case a Wisconsin hospital nurse was charged with 42 counts of Felony Drug Diversion and 42 counts of Reckless Injury. The nurse substituted water for hydromorphone and then used the drug herself. Thus the 42 doses of hydromorphone were not administered to patients who needed pain-management medication. These patients did not receive additional pain medication, since the prescribed amount of pain medication would have already have been given. Instead of medication that would alleviate their pain they sadly received water. Thus a patient not receiving pain medication unnecessarily suffered excessive pain. The patient has thus received a degree of negligent care and may have grounds to take legal action.

Another problem caused when narcotics such as fentanyl, which is hard to detect by many means of scientific instrumentation are continually abused is the infection of life threatening diseases such as HIV and Hepatitis through syringes used for diversion containing contaminated blood. In Concord NH a radiology technician abusing fentanyl and other power narcotics was charged with infecting 31 patients with Hepatitis C, a life threatening disease that can affect the liver and cause cancer. Over 4000 patients were notified and had to be tested for Hepatitis C. This pattern of abuse of drugs covered 10 states over a 4 year period. These hospitals did not have a mechanism for testing for drug diversion. Now over 50 patients have joined a class action lawsuit against the hospital.

There is a significant risk associated with drug diversion in hospitals that have impaired staff working with patients. Having hospital staff working while impaired, presents an enormous opportunity for mistakes, accidents, and misjudgments that could result in far reaching risks, including death. Should a hospital be found to be the source of the impairing drug, due to a lack of controls, the scope of responsibility potentially expands even further with the hospital then becoming the potential focal point in a negligence action?

Annual financial losses for hospital associated with hospital pharmacy drug diversion are estimated in the millions (2-23-2014 WSJ - **Hospitals Address a Drug Problem**) and include loss of Pharmacy inventory and unreturned drugs.

Testing the contents of vials in addition to tracking the vials.

Hospitals must develop a strong tracking and handling system for drugs that are attractive to those who might abuse them. Steps are needed beyond tracking of just the container of the narcotics but its contents.

Rudolph Research has developed the NDR system a reliable and sufficiently sensitive measurement tool for testing a wide range of drugs used in the Hospital environment. This system creates a unique library of know standards for comparison. Procedures are then be implemented whereby drugs returned to the Hospital Pharmacy are measured and compared to this library to determine if the sample returning matches the original or has been diluted or completely diverted.

Several techniques are capable of testing drugs for diversion with comparable results. But one of the most prescribed and most sought after narcotics dispensed by hospital pharmacies is fentanyl. Fentanyl is prescribed in doses of 20-50mcg/ml. These other techniques cannot identify fentanyl from water at these prescribed levels. Only the Rudolph NDR system has demonstrated the ability to distinguish fentanyl from water with no sample preparation and minimal operator training. The NDR system is sensitive enough to detect diversion of fentanyl even if less than 10% diversion has taken place.

Accidental removal of narcotics can also happen! Technicians or nurses can accidentally remove narcotics from hospital tracking by leaving a vial, tube or capped syringe in a lab coat. When this happens hospital staff can be placed on administrator leave and are often subjected to drug testing which can be personally humiliating and often takes several days for results to be returned. The NDR system could easily measure the substance and determine if a diversion has happened or if this is an unfortunate oversight.

The NDR system can be operated in a password protected environment including several levels of operation including administrator, operator and reviewer. The system offers flexible reporting so this information can be including with systems like Pyxis, Omnicell and others. The NDR will help your institution take the necessary steps in implementing drug diversion strategies. Don't let your institution cause a question like this, from a patient involved in one of the outbreaks caused by diversion "How do you go to the hospital and then walk out of the hospital with hepatitis C from a dirty needle?"

For additional information or to schedule a demonstration please contact Rudolph Research Analytical at 55 Newburgh Road, Hackettstown, NJ, 07840 P. 973.584.1558 | F. 973.584.5440 | info@rudolphresearch.com | www.rudolphresearch.com

Citations and resources

Fentanyl Warnings: https://www.health.ny.gov/professionals/nursing_home_administrator/fentanyl_ltr.htm

Mayo Clinic - Medication Diversion Prevention Coordinator:
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3538481/>

Institutional Diversion Prevention, Detection and Response **Kimberly S. New JD BSN RN**
https://www.ncsbn.org/0613_DISC_Kim_New.pdf