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Research (compare and contrast) two automated hospital dispensing systems - PYXIS, OMNICELL, etc. List the pros and cons of each system.

## AUTOMATED HOSPITAL DISPENSING SYSTEMS.

A hospital automation system is a set of elements put together to facilitate the processes and activities in a hospital. It’s mainly designed to eliminate the manual running of activities in a hospital. These systems can be designed in different ways and they operate in different ways but they are all aimed at achieving almost similar objectives (David & Brown 2010).   
Among the many automated hospital dispensing systems are the PYXIS, OMNICELL which have products like the OMNICELL’ s OMNIRX, and PYXIS‘ s MEDSTATION among others. For the purpose of this research, two systems PYXIS and OMNICELL will be used; these are two brands of automated dispensing and medication systems that aide hospitals to effectively plan, manage, and control inventory and ensure patient safety. They also help the hospitals operations and activities to comply with joint commissions and other industry standards that have been set (Perini, & Vermeulen, 1994).   
Both systems have an interactive user interface or screen where the nurse or any other user enters his or her credentials in order to be allowed to use the system. The user is expected to log in using a username and a password in order to gain access. On gaining access, the nurse then selects the patient in the system, and then selects the proper medication for the patient; only the available medication for that patient will be active in the system and can be dispensed. The system then dispenses the medication to the patient, an activity report on medication and a discrepancy report on medication in case the actual physical medication count varies with the count in the computer system (Perini & Vermeulen 1994).   
However, despite the similarities there are some contrasts with regard to operation and services offered by each of the mentioned systems (Perini & vermeulen 1994). The PYXIS system supports decentralized medication management and has barcode scanning to help in ensuring accurate medication dispensing. It also contains features that will prevent loading of wrong medication dispensing and safety precautions for high risk medications (David, & Brown, 2010).   
These features associated with this system have resulted in several advantages experienced by several hospitals and health care facilities. Result in maximization of security of high-risk and high alert medication through the use of CUBIE pocket technology (Murray, 2000). Increased order turnaround time due to the integration of several technologies supported by PYXIS (Murray, 2000). Increased availability of medication as a result of decentralized medication management hence reduced time to first dose and less missing doses (Murray 2000). Increase medication safety and decrease risk of diversion with med analytics installed in the PYXIS medstation system. (Perini & vermeulen 1994)   
However the system has few disadvantages. There is long waiting queue of patients lining to get medication which may result in medication not being given in time (Murray, 2000). Additional training and technical help; the users of the system need to be trained and additional technical assistance is required from time to time (David, & Brown, 2010).   
On the hand the OMNICELL system have a customer inspired design which help to create a user friendly and customized system. The system has an inbuilt printer that is integrated to its dispensing cabinet thus increasing the built-in safety. The system comes with varied sizes of cabinets, formats and styles with varied security levels and user options to customize medication and the management of the system. It has a flexibility that allows integration of additional cabinets in the event of system expansion. Most OMNICELL systems are modular thus easily upgraded to protect loss on investment instead of an overhaul replacement of the system the existing system can be upgraded to suite the changing system needs; this is done by only replacing the console. OMNICELL products are majorly certified thus increasing their acceptability and user confidence (David, & Brown, 2010).   
The system has several advantages which include: reduced medication error and enhance patient safety through guiding lights technology which helps in prevention of taking wrong medication. The alerts provide clinical safety check by use of barcodes that help nurses to confirm identity of medication (Murray, 2000).   
The system, just like PYXIS, helps in improving compliance and reduces diversion through improved tracking of medication throughout the distribution process (Murray, 2000).   
It also improves the efficiency in hospitals by reducing manual steps to be followed, easy and simple access to cabinets; medications and supplies can also be combined in one cabinet to allow quick retrieval of all items. In-built printers reduce time spent hand labeling (David, & Brown, 2010). It has a tighter inventory control which reduces costs. The system has user focused interface with high resolution display which is easy to use.   
Some of the disadvantages of the system include: Training and retraining of users on the use of the system and incase of upgrade the system users need to be retrained (Perini, & Vermeulen, 1994). The system also needs constant technical assistance. Downtime system failure and inflexibility. In case of system failure the operations of the facility may be halted (David, & Brown, 2010). There are also the aspects of cost and space issues; the cost incurred in installation, training and maintenance of the system is high. The system will also need space where it is to be installed (Murray, 2000).   
Despite the slight difference in the nature of operation, the technology adopted and architectural difference the two systems have almost the same benefits and are used for the same purpose in the health sector (Perini, & Vermeulen, 1994).

## Maximize the security of high-risk and high-alert medications with the proprietary CUBIE® pocket technology.

Integrate the Pyxis MedStation system with Pyxis Connect, Avera McKennan Hospital & University Health Center saw a reduction in order turnaround time from 2. 5 hours to 16 minutes. 2   
Increase medication availability through decentralized medication management. A study of seven hospitals indicates that as the number of medications managed through ADCs increases, the result is reduced time to first dose and fewer missing doses. 3

## Help decrease the risk of diversion and increase medication safety with the Med Analytics service for the Pyxis MedStation system.

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