BD Pyxis Supply System

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 Management Information systems are very central in determining the success and flourishment of any business and enterprise. The information systems are used to gather, store, process, and share the information for various business and management purposes. All the successful companies and businesses make use of the best possible management information system to bring efficiency and speed in their work. These systems are very helpful and important also in health science and hospitals to manage data of employees and patients with incorporating medical history management of patients and also pharmacy-related records. The management information system which s going to be discussed and analyzed in this essay is the BD pyxis supply management system. BD Pyxis supply station is a secure inventory management system that is used to provide access to the necessary supplies on a health care facility center and nursing floors. It helps the staff members to manage different tasks including supply usage documentation, clinical workflow improvement, documenting error reduction and reducing errors in documentation. It includes additional system configuration which includes Pyxis half-height unit supply station and EC system with extra capacity. The system with extra capacity is very useful for low-velocity items in a larger number that require the security of a higher level. The main source is the supply management system and BD pyxis supply center gathers data from this management system and provides the supply data related to the patient, user, item and procedure(“BD PyxisTM SupplyCenter server,” n.d.)

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 The supply management system is very effective to use in medical stores and hospitals like other management systems in order to make the relevant tasks easy to perform. In this analytical essay, we will cover many important features of this supply management service and will also cover competitive analysis of the system to suggest further improvement in the management system.

                                    **Server-Side Hardware Requirements**

An enterprise server of BD pyxis is used to manage all the related devices and technologies by using a flexible and scalable hospital server on a single environment that is web-accessible. These servers are mostly installed in the dedicated places of a hospital or places of relevant importance.  Various deployment models and techniques are used to meet various pharmacy and IT-specific criteria with software and hardware options. The hardware server requires a number of components related to computer and IT architecture which are essential to perform the required functions efficiently. The server used in BD Pyxis is not entirely static and fixed rather it is a flexible and scalable hospital server. It means that it can be extended and compressed according to the requirement. The server contains enough memory devices to support a back-up for a huge amount of data because it is very necessary to save the records and history for a longer period of time.

**Server-Side Software Requirements**

The software involved in managing the information and relevant data is running on the back end of the BD Pyxis supply system. The software enables data sharing between HIT systems and the BD Pyxis platform by integrating tools and technologies. HIT system is basically a company that works and provides solutions related to IT requirements of the healthcare section or department. They provide services including management of healthcare records, IT support, cloud computing and also providing remote servers for relevant processes and services. This is possible because of the installed dedicated protocols which are specifically developed to serve the required functions. The server side of the software integrate systems and technologies across the enterprise and store the data into the database. The database manages the record of medicines, equipment, patients and other related items according to the proposed instructions and requirements. The database managed as the server-side software is in accordance with the concept of a standardized formulary database. This renders the information system of pharmacy to act as a single formulary source. This formulary source supports the connectivity of the database with a front-end software portal and determines centralized management and standardization.

                                                **Client-Side Hardware Requirement**

The clients are mainly healthcare workers or IT professionals who are fulfilling their duties in managing pharmacy and medical records and other services related to software and IT. BD pyxis client-side hardware requires a desktop with its full accessories and is deployed with each bed in the award. The physician and medical officer can easily run the BD Pyxis software portal that is installed on each desktop computer. Internet service is connected with each computer and a printer is also attached. The printer is attached in order to print any report of medical records or pharmacy orders to save a lot of time and work.

**Client-Side Software Requirements**

The management system of BD Pyxis supply system has its own dedicated software application and this application is installed on all the desktops specifically deployed for this management Information system. The software application has a state of the art designed graphical user interface providing all the necessary sections and options to enable easy and efficient use of the software portal. The records of individuals are maintained separately and each individual has a separate account on the portal which contains records and information about him/herself. Each user has credentials of login ID and password and their records are constantly managed and updated to ensure efficient and error-free processing and management.

                                    **Competitive Analysis of the System’**

In this section, e will cover market the competitive analysis of the BD Pyxis system with other competitors. BD Pyxis is compared to another management system called MPI. MPI is Master Patient Index which is another information system used in hospitals and pharmacy that connects various patient records across backend databases. The index stores the records of patients at an organization of healthcare and indexes other records for that patient too. It is used to reduce inaccurate patient information and duplicate patient records that can lead to many problems.

            MPI is expected to eliminate near matches and duplicate files of patient’s records but in actual, there are many concerning issues. According to a study, MPI needs constant maintenance and vigilance by the department of HIM in order to render it work and function properly (Bresnick, 2013).  On the other hand, BD Pyxis has not yet reported observing such kind of behavior. It is a fully automated system and updates files and their data regularly without any issue pertaining to confusing close related files and patient records duplication. One merit of BD Pyxis system over MPI is its supply management service using IDN. IDN is a Internationalized Domain Name is very specific and hence there is a negligible chance of confusion between duplicate or close resembles in the record files of patients.

**Recommendations for Improving the System**

No matter how efficient and effective an Information Management System is, there are some issues and areas of improvement. In this section, we will analyze 3 main areas of improvements in BD Pyxis systems for future improvement.

One very important factor of any software application or information management system is its back-end database. The database can affect the working or operation of the management system in many ways. Errors in databases can result in mismanagement of the patient’s records and ultimately may result in any big issue in the future. In the BD Pyxis system, MySQL is used to manage the databases of the portal at the backend which is not as good and accurate are Postgres. MySQL is a relational database while Postgres is an object-relational one. This suggests that it includes functions including function overloading and table inheritance which is responsible for adding accuracy and correctness in dealing with data. So, I will recommend the use of Postgres database at the back-end for record management.
            The second suggestion is related to the hardware-server side of the BD Pyxis supply management system. The use of portable servers is very expensive as it includes maintenance and expenses of wear and tear. Further, they consume a lot of energy and resources so it is recommended to acquire remote services for backup and data management like Amazon Web Services (AWS). This will definitely reduce costs and add efficiency in service.

The third suggestion for improvement is related to enabling remote access of software portal to the physicians, doctors and concerned persons. We know that matters pertaining to hospitals are often emergency-related, so it is recommended that a mobile application should be developed by linking it with the main database of the servers to enable remote login in case of an emergency.

**Conclusion**

            BD Pyxis supply system is an automated medication system of dispensing which is supported by decentralized management of medication. It assists clinicians and pharmacists to dispense the right medication efficiently and safely. It is very feasible to use because of platform flexibility because it provides open and secure inventory management. A console manages the facility by combining a network of secure stations for storage for easy utilization of the service. The measure of safety medication and enhancements help the doctors and paramedical staff to prevent harmful errors, adverse effects of drugs and also the risk of diversion. The information management system is a very reliable and trusted software and hardware solution which provides electronic updates, targeted reports, automation, and data consolidation.

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