



A KNOWLEDGE MANAGEMENT-BASED DECISION-MAKING MODEL FOR PLANNING PATIENT DISCHARGE IN THE NIGERIAN HEALTH CARE SYSTEM

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ABSTRACT

The Nigerian health care system (NHCS) is bedraggled with myriads of problems that had caused a major landslide of setback since independence. More pathetic is the fact that Nigeria health care has no concrete discharge planning (DP) and processes for patients admitted into her hospitals. The process of discharge is a critical phase in hospital management, and correction of it is a major strategy in NHCS. This is a major issue which nobody is looking into as it affects the convalescence of the patients. Effective Discharge Planning (DP) requires practitioners to have appropriate, patient personalized and updated knowledge in order to be able to make informed and holistic decisions about a patients' discharge. This paper examines the role that Knowledge Management (KM) plays in planning an effective discharge plan. This paper also proposes KM models in healthcare and integrates KM with DP in the form of a KM based DP model for Nigeria health care system as the use of information and communications technology will increase productivity and efficiency in healthcare and large amounts of stored data will be of help to decision makers in practice.

Keywords: *Knowledge Management, Healthcare, Discharge Planning, Care, Patient*

INTRODUCTION

In any healthcare system, one essential component is the convalescence of a patient and the discharge planning plays a very important role in patient’s recovery process (Shepperd *et al.*, 2010). Healthcare policies suggest that timely, integrated transition of care from hospital to a community setting is integral to patient recovery, quality of life, independence and longer-term care. A poorly planned hospital discharge can lead to the risks of safety and additional resource costs, inhibit recovery and also to readmission. Discharging patients from the hospital is a complex process that is fraught with challenges. According to the federal ministry of health, there were over 2000 registered hospital discharges in the Nigeria as at 2015.

Better DP will provide advantages to the patients, their families, the social workers, healthcare personnel and the healthcare organization as a whole. These advantages includes, patients feeling actively involved in the planning process, carers will have the right information and advice to help them in their caring role, healthcare personnel receive key information at a timely manner, and the healthcare system will meets its targets and focus on delivery. These areas are needed to be focused on in order to ensure DP is aligned appropriately, such as patient and carer involvement and empowerment, improved processes, healthcare personnel being presented with the right information at the right time to make informed decisions, awareness of certain roles and responsibilities and meeting established targets. This administrative DP is illustrated in Figure 1 below. There is complexity in the clinical decision but with the introduction of KM, the information processing will increase the efficiency of health care services.

DISCHARGE PLANNING (DP)

Hospital discharge describes the point at which inpatient hospital care ends, with ongoing care transferred to other primary, community or domestic environments. Reflecting this, hospital discharge is not an end point, but rather one of multiple transitions within the patient’s care journey (Audit Commission, 2000). The organization and provision of this transitional care involves multiple health and social care, who need to co-ordinate their specialist activities so that patients receive integrated and importantly, safe care. The complexity of coordinating the large number, often based in distinct organizations, leads to the view that hospital discharge can be a vulnerable, time-dependent and high-risk episode in the patient pathway (Ellins *et al.*, 2012).

Element of Discharge process

i. Discharge planning
The discharge plan for the patient and to be sure that patients are discharged at a felicitous time with provision of adequate post-discharge services (Shepperd,*et al.*, 2010). It is a complex process that seeks to determine the appropriate level of services required by the patient and match the patient to an appropriate site of care (Marc *et al.*, 2007). This process should commence at the beginning of hospitalization while the hospital case manager should be involved as soon as it is clear that the patient will need services at home.

ii. Medication reconciliation
It is the process of verifying patient medication lists at a point-of-care transition, to sample out which medications was included, discontinued, or changed relative to readmission medication lists. Performing accurate medication reconciliation is a critical element of a successful discharge transition.

iii. Discharge summary
The primary mode of communication between the hospital care team and aftercare providers is often the discharge summary, raising the importance of successful transmission of this document in a timely fashion.

Patient instructions

At the time of discharge, the patient should be provided with a document that includes language and literacy-appropriate instructions and patient education materials to help in successful transition from the hospital. This should be brief and focused on critical information to the patient, and mainly directed at what the patient needs to understand to manage his or her condition after discharge.

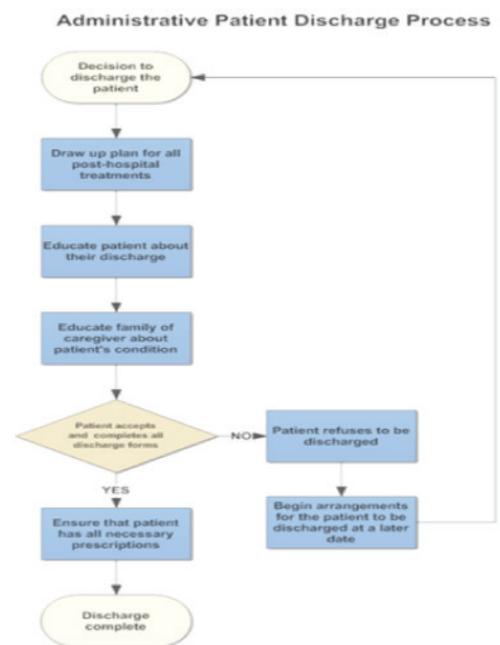


Figure 1: Administrative patient discharge process

THE NIGERIAN HEALTH CARE SYSTEM (NHCS)

The Nigerian health care system is poorly developed. No adequate and functional intelligent knowledge sharing systems and surveillance are developed. To achieve success in health care in this modern era, a system well-grounded in routine surveillance and medical intelligence as the backbone of the health sector is necessary, besides adequate management couple with strong leadership principles.

Nigeria health care has suffered several downfalls. Despite Nigerian's strategic position in Africa, the country is greatly underserved in the health care sphere. Health facilities (health centers, personnel, and medical equipment) are inadequate in this country, especially in rural areas.

According to the 2009 communique of the Nigerian national health conference, health care system remains weak as evidenced by lack of coordination, fragmentation of services, dearth of resources, including drug and supplies, inadequate and decaying infrastructure, inequity in resource distribution, and access to care and very deplorable quality of care. It further outlined the lack of clarity of roles and responsibilities among the different levels of government to have compounded the situation. The use of information and communications technology is not in practice in the Nigeria health care system. There are many more factors and challenges facing the discharge processes in Nigerian Hospitals.

Nigerian Health Insurance Scheme (NHIS)

As an effort by the federal government to revitalize the worsening state of health, the Nigerian health insurance scheme (NHIS) that was established in 2005 by Decree 35 of 1999 provided for the establishment of a governing council with the responsibility of managing the scheme. (NHIS Decree No 35 of 1999) However, Awosika (2005) noted that the scheme was first proposed in 1962 under a bill to parliament by the then Minister for Health with objective such as to: Ensure that every Nigerian has access to good health care services, Protect Nigerians from the financial burden of medical bills, Limit the rise in the cost of health care services, Ensure efficiency in health care services, Ensure equitable distribution of health care costs among different income groups; equitable patronage of all levels of health care, Maintain high standard of health care delivery services within the scheme, Improve and harness private sector participation in the provision of health care services (Awosika, 2005). These objectives are to aid the better health service provision for the average Nigerian citizen from the inception of the admission point and the discharge process. But as noted by Akande, the

objectives and functions of the NHIS according to this present review have hardly attained any height as health care delivery continues to be limited; not equitable and does not meet the needs of the majority of the Nigerian (Akande, 2004).

Challenges of Discharge Planning

Both medical and non-medical are challenge of DP, but most of the Nigeria health care discharges have been due to non-medical reasons (Shepperdet al, 2010). Delays in discharge may compromise the quality of patient care, and reflects a lack of efficiency and effectiveness within the continuum of care and service coordination (DP and ALC Policy Task Team, 2006). Some reasons linked to delayed discharge (Umble&Umble, 2006) include; too many patients admitted to hospital, despite viable alternatives; patients moved inappropriately around and between wards; and a lack of process and process delays which were compounded by system problems. Other challenges include: Increased emergency readmissions, Bed blocking, long waiting lists, insufficient patient data and Discharge of inpatient to wrong/unidentified care etc. Figure 2 shows the consequences of poor DP interconnected.

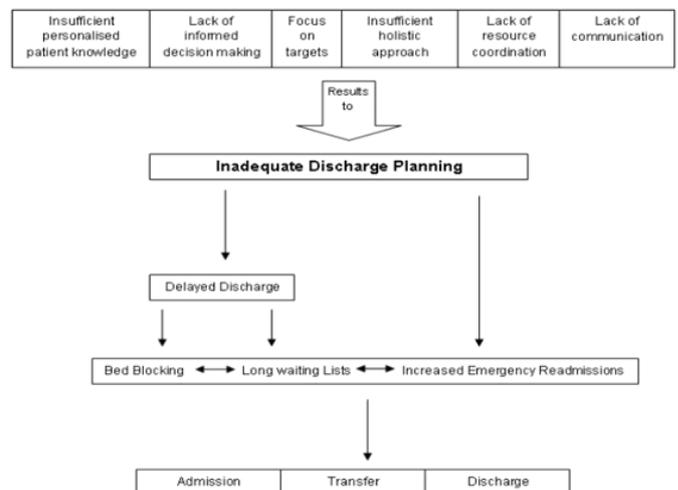


Figure 2: Consequences of poor discharge planning

KNOWLEDGE MANAGEMENT (KM) SOLUTION TO DP IN THE NIGERIAN HEALTH CARE SYSTEM

KM can be looked at as an integrating practice that offers a framework for balancing the myriad of processes, technologies and approaches that provide value. Apena *et al.*, 2015 stated that application of KM techniques can reveal meaningful interaction of people, process and technology to enable knowledge communication as shown in figure 3

below. Organizational challenges dictate height of interaction that brings the process and technology relatively closer to people. As a result of this, KM better enables individuals, systems and organizations to exhibit intelligent behavior in a dynamic and agile environment. KM is about disseminating the right knowledge to the right people at the right time in order to make informed decisions (Wyatt, 2001). Regarding DP, various departments are involved in decision making process. Therefore the ability of KM to enhance collaboration and decision making proves to be advantageous as having the right information and knowledge is important to efficient DP. The ability of KM to seamlessly align an organization's information, practices and people encourages informed decision making, and in the case of the NHS, aligning the 'stakeholders' of DP i.e. the patients, carers and healthcare personnel, with the practices with regards to DP. The use of technologies where needed, will then allow for more efficient DP processes

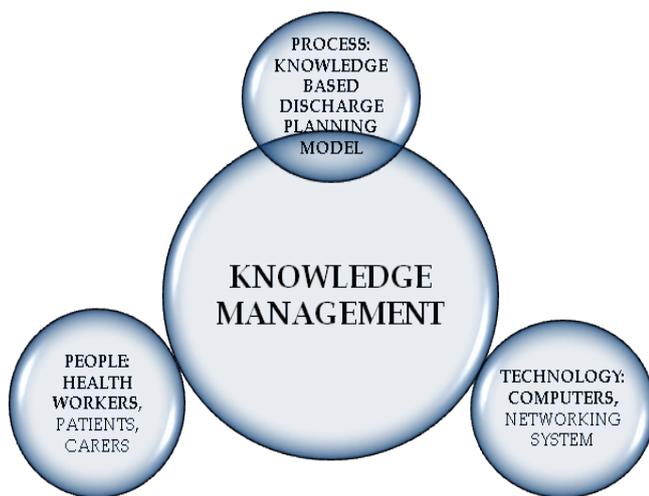


Figure 3: The Knowledge Management Model Adapted from Apena, et al., (2015)

KM FOR DISCHARGE PLANNING

DP involves changes from a temporal stable state to another with an unpredictability of what is to happen next (Holsapple & Joshi, 2001). It is here that the past experiences of doctors and nurses in assessing a situation, deciding on a plan and decision making is useful as during the decision making process, previous knowledge gained by the personnel who actively engage with patients can be extended to fit the situation or the patient at hand. KM is to solve the bottlenecks that occur in the various departments currently in the NHS, in order to improve the DP process through knowledge mapping and identification of possible opportunities for improvement (Roy *et al.*, 2000).

The coordination of the components will help to improve the problems currently faced by inadequate

DP in Nigeria health system. The barriers highlighted above have resulted in problems such as delayed discharge, increased emergency readmissions, long waiting lists and bed blocking, all of which have been attributed to poor DP.

The Knowledge Management Model

1. Knowledge requirements – This is the information that is needed to trigger the commencement of the informed decision-making process (i.e. the need to produce a patient discharge plan);
2. Knowledge assets – These are knowledge bases, tools and technologies that inform and enable the informed decision making process;
3. Knowledge actions – The actions (e.g. data collection, information analysis) that are taken to produce the required knowledge;
4. Knowledge outcome – The cumulative output of the decision-making process (i.e. derived from the knowledge requirements, the knowledge assets and the knowledge actions in steps 1-3);
5. Management and Environmental factors – ‘the real world’ factors which may affect the overall discharge plan, but which when 1, 2, 3, 4 are coordinated, subsequently fall into place as well. It is therefore important to be mindful of these factors and ensure that constraints and possibilities that arise from them (e.g. economic and social conditions) are taken into account;
6. Discharge plan – The end product of the process, which is produced from the previous five components and steps.
7. Lessons from the discharge plan – The lessons that have been learned through the steps in the process and the use of components 1 to 6 are updated to further improve future discharge plans and the discharge planning process. These ‘learning’ will be used to update and improve the knowledge assets (component 2).

Knowledge Outcomes

In order to come up with a better discharge plan, several knowledge outcomes (component 4) have been highlighted as important. These include having personalized knowledge about a patient using improved communication within the communication layers.

i. Improved Internal Communication

The second knowledge outcome as seen in Figure 2 consists of two components, namely, improved internal communication and updated personalized patient information. In order to achieve these outcomes, the knowledge required is, Healthcare personnel knowledge. Healthcare personnel like doctors and nurses have information about how they treated a patient with a similar diagnosis previously,

and they might have knowledge about the patient being treated from the conversations they have had over time with the patient. Capturing tacit knowledge of the healthcare personnel, adds value to the overall decision to discharge making process, as it ensures that a personalized approach is taken.

ii. Improved External Communication

The knowledge outcome of the Improved External Communication layer as seen in Figure 2 is patient empowerments. The patients receive knowledge that is required to recover at home to be aware of the consequences of their actions and also improves interagency collaboration discharges. This information should be shared externally, as the knowledge action is needed to be taken. This would result in patients being provided with the necessary information to recover at home.

iii. Reduction in Human Error

The use of the clinical portal to link personalized patient information and the knowledge of the healthcare personnel in the form of the map of medicine, and knowledge about the treatment, diagnosis and results of a patient will as a result ensure that patients are identified correctly, it will minimize a wrong diagnosis, lab test errors, medication errors and communication errors. It therefore will minimize human error.

iv. Better Resource Coordination

Having the information that is needed will help to coordinate resources better, staff will be assigned accordingly to their roles and responsibility, bed management system will be in place, discharge plan will be documented and can always be tracked, the resources and medical equipment required will be booked if need be in advance using the personalized patient information.

v. Improved Achievement of Targets

Targets such as the number of patients discharged, minimizing emergency readmissions can be met more easily if the processes as described above are aligned. It will be ensured that more patient-centric targets are in place and that cost and expenses will be better managed as better processes are in place.

vi. A Holistic Approach

A holistic approach as shown in Figure 4 will be ensured by using the “Map of Medicine”, the clinical portal and electronic patient records, as the multiple pathology of each patient will be recorded, hidden sources of confusion can be identified, healthcare personnel will have more accountability

as they will be assigned tasks according to their roles, and more informed decision-making will take place as personalized patient information is used, alongside capturing the tacit knowledge that is capable of being made explicit of healthcare personnel. Having all information needed in place, it is proposed that a better discharge plan (component 6) can be produced. The discharge plan will be fed back into the DP process in order to ensure a continuous improvement in the process from component 7

vii. Discharge Plan

This is produce to mitigate future complications when there is an emergency readmission. It is also produced in a timely manner which reduces delayed discharge. The feedback obtained from the discharge plan, which can be obtained by monitoring the statistics of emergency readmissions, delayed discharge, waiting lists, patient satisfaction, healthcare personnel satisfaction, noting lessons learned, and other such information to gauge the success of the measures taken, is used and fed back.

CONCLUSION

The results of DP, when tracked, monitored and documented, help in constant refining of all steps. DP process is cost –effective, allow for enhancement of patients’ and families quality of life and ensure continuity of care between the hospital and community. Funds are saved due to decreased lengths of initial hospital admission and readmission rate (Jackson, 1994).

Based on this, it would be recommended that the NHCS make the best use of web portals as knowledge assets. Portals have been developed and actively used in developed country like the UK. NHCS can partner with the highly developed technology of these countries to enhance information sharing.

The use of suitable Risk Prediction Tools is recommended to minimize the risk to patients when decisions on discharge are being made. Recent years have witnessed advances in Informatics that is, the use of information and communications technology, ICT to increase productivity and efficiency in healthcare as large amounts of data could be stored and will be of help to decision makers in practice.

Another important recommendation is for the NHCS to explore and develop the idea of a personalized Patient Canvas as part of the discharge plan. The patient canvas would provide help to patients who are not too familiar with the use of computers and the internet with a simplified description of their prognosis, symptoms, medication description along with nutritional and exercise recommendations and

links to further reading and help line numbers. With this proposed model, the NHCS through the auspices of the NHIS will be better equipped to improve quality and safety of health care, satisfying the patient and cost reduction.

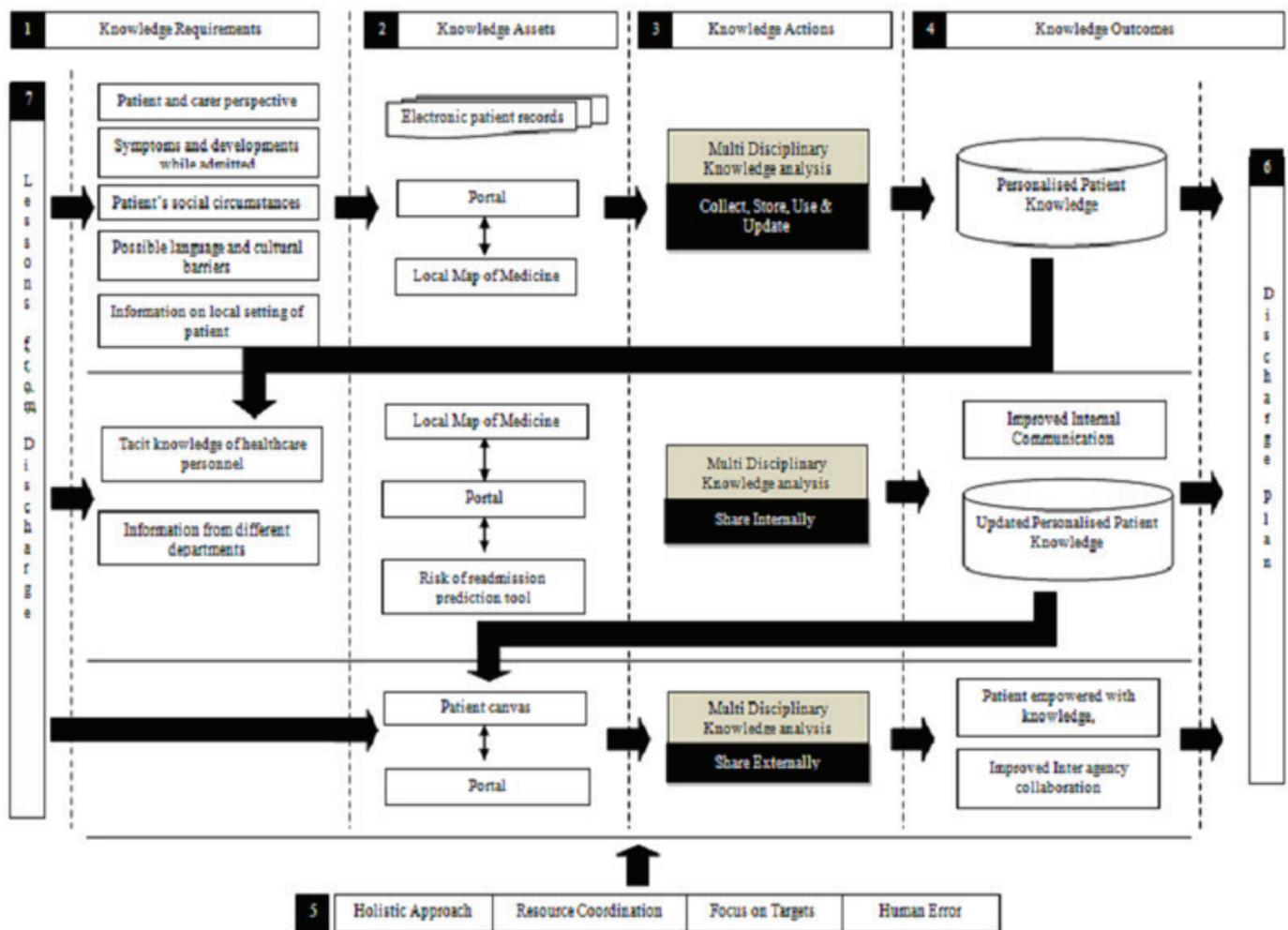


Figure 4: Knowledge based Discharge Planning Model

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