

Hospital bed management: from planning to implementation in a hospital service

RESUMO | Objetivo: A falta de leitos hospitalares no Brasil é queixa comum entre usuários do Sistema Único de Saúde. Objetivo: Relatar a experiência da construção de um Serviço de Gerenciamento de leitos e apresentar a atuação do enfermeiro como gestor, em prol da visibilidade e fortalecimento da classe de enfermagem. Método: Relato de experiência da implementação da gestão de leitos de um hospital público estadual de médio porte, em um município do interior do estado de São Paulo. Resultado: A partir da implantação houve mudanças no perfil dos indicadores dos setores assistenciais, com a utilização dos leitos aproveitados em sua capacidade máxima. Observou-se a diminuição da fila de espera para internação em consequência do acesso oportuno e ordenado à vaga. Conclusão: Pode-se inferir que o gerenciamento de leitos é efetivo e eficiente na gestão hospitalar com resultados operacionais e financeiros satisfatórios e um fator preponderante para a segurança e satisfação dos clientes.

Descritores: Serviço Hospitalar de Enfermagem; Organização e Administração; Ocupação de Leitos.

ABSTRACT | Objective: The lack of hospital beds in Brazil is a common complaint among users of the Unified Health System. Objective: To report the experience of the construction of a Bed Management Service and to present the nurse's role as manager, for the visibility and strengthening of the nursing class. Method: Experience report of the implementation of bed management in a public hospital of medium size, in a city in the interior of the state of São Paulo. Result: From the implementation there were changes in the profile of the indicators of the care sectors, with the use of beds used to their maximum capacity. A reduction in the waiting list for hospitalization was observed as a result of the timely and orderly access to vacancies. Conclusion: It can be inferred that the management of beds is effective and efficient in hospital management with satisfactory operational and financial results and a preponderant factor for the customers' safety and satisfaction.

Keywords: Hospital Nursing Service; Organization and Management; Bed Occupancy.

RESUMEN | Objetivo: La falta de camas hospitalarias en Brasil es una queja común entre los usuarios del Sistema Único de Salud. Objetivo: Relatar la experiencia de la construcción de un Servicio de Gestión de camas y presentar la actuación de la enfermera como gestora, para la visibilidad y fortalecimiento de la clase de enfermería. Método: Relato de experiência da implementação da gestão de lechos de um hospital público estadual de médio porte, em um município do interior do estado de São Paulo. Resultado: A partir da implementação houve mudanças no perfil dos indicadores dos setores assistência, com o uso de camas utilizadas ao seu máximo de capacidade. Observou-se a diminuição da fila de espera para internação em consequência do acesso oportuno e ordenado à vaga. Conclusão: É possível inferir que a gestão de camas é eficaz e eficiente na gestão hospitalar com resultados operacionais e financeiros satisfatórios e um factor preponderante para a segurança e satisfação dos clientes.

Palabras claves: Servicio de Enfermería Hospitalaria; Organización y Gestión; Ocupación de Camas.

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INTRODUCTION

Health is everyone's right and the State's duty, as provided for in article 196 of the Brazilian Constitution.⁽¹⁾

In the meetings of the Regional Board of Health III – DRS III Araraquara, the lack of hospital beds is a frequent subject, and the debate on vacancies for hospitaliza-

tion is recurrent, since this Board covers 24 municipalities, whose total population is about 1,000,000 inhabitants. At this time, the situation experienced by Brazilian citizens who need care in public hospitals does not correspond to what the legislation determines. Indicators and the population have pointed to health as one of the country's main problems. In the field of public health, the shortage of beds in hospitals is one of the most common complaints from users.

The difficulty of hospital beds is a globally discussed issue, with overcrowding on the constant agenda.⁽²⁾ This is due to the high demand of patients and the low supply of beds, which makes hospitalization difficult and causes an increase in the number of patients in emergency rooms

or at the exit of the Intensive Care Unit, triggering delays in the transfer of patients who are in conditions of discharge.⁽³⁾

The lack of beds results in relevant problems such as the cancellation of elective surgeries, delay in the admission of patients with medical emergencies and their allocation to inappropriate beds (clinical versus surgical, female versus male). Added to this scenario is the difficulty of transferring patients between wards, with possible postponement of discharges from the Intensive Care Unit (ICU), which can increase the length of hospital stay.⁽⁴⁾

Assistance or financial efforts must be made to optimize beds, since their number does not grow at the same speed as the demands for hospitalization.⁽⁵⁾

There is a concern with regard to the

Illustrative Photo: Freepik



sustainability of the public health system, in line with improvements in the planning of bed occupancy, changing, for example, the management policy of this sector, which can make it possible to achieve an improvement in the flow of patients and obtain important results for the context.^(6,7) The biggest challenge for health institutions is to manage the growing demand for hospital admissions, without an increase in the transfer of the budget.

It is known that the implementation of the bed management sector brings several benefits to the health institution, such as the increase in the occupancy rate, the better use of the installed capacity, the contribution of the physician and patient client satisfaction. It is essential to clearly identify the processes that interact in the occupation of beds, define goals to monitor the results achieved, measure them, check them, act on the results and propose improvements.⁽⁴⁾

UK hospital nurses are increasingly being included on the bed management agenda and the work they do on a daily basis is extremely important to the quality of patient care and the efficiency of the organisation.⁽⁸⁾

The implementation of this management in hospital health services is a preponderant factor for the safety and satis-

faction of customers, and its operational and financial result can bring highlights to the institutions that implement it, since investing in innovative experiences has become a differential in the health scenario.

Thus postulated, especially when facing the financially possible reserve in view of the scarcity of available beds, in 2015 the Hospital Estadual Américo Brasiliense, focusing on the needs of our users, aiming to facilitate their access and use the institution's beds at their maximum installed capacity, began the planning and implementation of the Hospital Bed Management Service.

Américo Brasiliense State Hospital (HEAB - Hospital Estadual de Américo Brasiliense) proposes a management model with practical application of theoretical concepts of Quality Management and some of its tools. To carry out this project, process interaction, process mapping and standardization of protocols and flows were used.

Quality Management has as its principle the management of processes due to its efficiency in the search for customer satisfaction and continuous improvement of its work tasks, managing them in order to define them, describe them, analyze them, document them and improve them permanently and in an interconnected way. And, to become efficient, the main activities and stages of the process need constant evaluation, carried out through the use of indicators that translate the expected quality in the tasks of each stage of the care process.⁽⁹⁾

Public health organizations need to develop work focused on reducing costs (elimination of waste and rework), efficient use of the resources offered by the SUS, increasing the quality of services provided (reducing failures and variability in processes and results) and training leaders to identify points of managerial criticality, and use quality tools to carry out improvements, as a management model.⁽⁹⁾

Proportionality, from the point of view of the criterion of the strict need for

improvement actions evidenced by the queues for timely access to hospitalization, justifies the need for the project. Its proposal arose, based on our commitment to the health care network, resulting from the challenge of emergency care units in managing the growing demand for hospital admissions, without an increase in the supply of available beds. Crowded hospitals leave crowded emergency care units. In this context, they consider themselves "incapable" of receiving more patients.⁽²⁾

The purpose of bed management is part of offering the guarantee and realization of the right to health as the fundamental right that it is, minimizing queues and delays that are harmful to the patient's health, and reducing failures and variability in the processes involved from admission to hospital discharge of patients.

In this way, the objective of this work was to report the experience of building a Bed Management Project and present the role of the nurse as a manager, in favor of the visibility and strengthening of the nursing class.

METHOD

This is an experience report, with an approach that sought to list some steps applied for the implementation of the Hospital Bed Management Service in order to contribute to the management of good health practices.

This work was carried out at the Hospital Estadual Américo Brasiliense (HEAB) care complex, managed by a non-profit Social Organization (SO) and accredited with excellence by the National Accreditation Organization (ONA - Organização Nacional de Acreditação), linked to the Coordination of Management of Health Services Contracts (CGCSS - Coordenação de Gestão de Contratos de Serviços de Saúde), of the São Paulo State Health Secretariat (SES-SP). As of August 2010, an agreement was signed for the management of HEAB, between SES-SP and the Hospital das Clínicas of the Faculty of Medicine of Ribeirão Preto, University

of São Paulo (HCFMRP-USP), with the intervention of the Foundation for Teaching, Research and Assistance - FAEPA of the Hospital das Clínicas of the Faculty of Medicine of Ribeirão Preto, University of São Paulo (FAEPA).

It is characterized as a public teaching and reference hospital, located in the city of Américo Brasiliense and region in the interior of the state of São Paulo, of medium complexity and with 76 active beds. It presents a great demand for clinical and surgical hospitalizations, exclusively insured by the SUS, meeting requests from all over the state, especially from the municipalities belonging to the Regional Health Directorate III - DRS III - Araraquara, as already mentioned in the Introduction.

Due to the high demand and the current number of active beds, in January 2015, the Board of Hospital Estadual Américo Brasiliense - HEAB approved the elaboration of the Hospital Bed Management Project, later resulting in the HEAB Bed Management Service.

The hospitalization unit of the medical clinic was chosen to plan the Bed Management Service of the referred hospital, with 55 active beds, in the period of January / 2015, presenting changes until December / 2019.

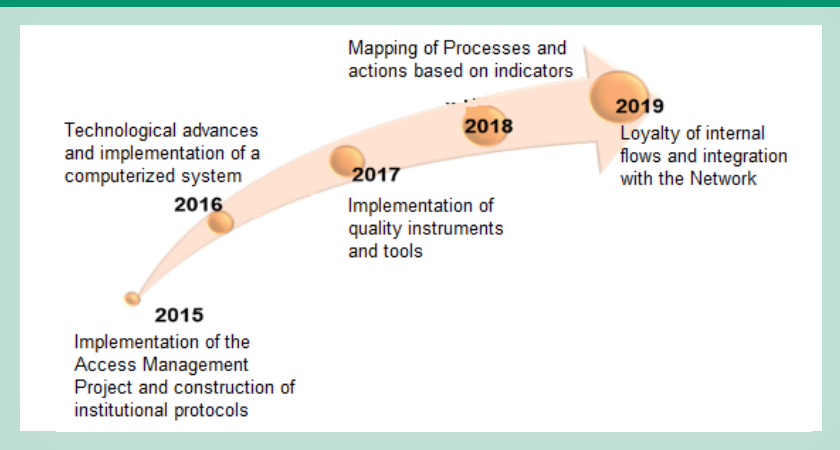
Figure 1 shows the chronology of the implementation of HEAB Bed Management.

EXECUTION OF THE HEAB BED MANAGEMENT PROJECT

Planning

For a project to be effective in its development, it is necessary to appoint a responsible person to lead it. In the United Kingdom (8), Nurses have been increasingly involved in bed management, with daily work that is relevant to the quality of patient care and the efficiency of the organization. (8) Although the decision to admit and treat patients is the responsibility of physicians, nurses are primarily responsible for managing the total bed capacity, which values the performance of this professional. (8)

Figure 1. Bed Management Project Implementation Timeline. State Hospital, Américo Brasiliense, Brazil, 2023.



Source: BRANQUINHO, D.M., Américo Brasiliense, Brazil, 2022.

The HEAB board chose a professional nurse to assume responsibility for the Project, carrying out the planning and implementation of this service. To start planning, technical visits were made to other institutions that had already implemented the service, in order to analyze the role of nurses in bed management and adapt their practices to our management model. The managerial critical points in the current scenario were then identified, involved in the process from admission to hospital discharge, thus making it possible to understand the threats that affected the efficient management of beds.

These points were designated as internal problems, among which the main ones are the absence of a person responsible for bed management (process owner), lack of interfaces and integration with the areas involved, lack of time agreements from admission to discharge of patients, delay in information due to lack of System/Software, high average length of stay, absence of weekend discharges, lack of ICU vacancies, lack of indicators, lack of standard protocols for processes involved in bed management, such as eligibility criteria for admission.

There were also external problems pointed out, such as the institution's lack

of communication with suppliers (Network) and the low reliability of the information described in the hospitalization request forms coming from the Network.

An analysis of the need for changes in work processes considered critical to improve bed turnover was carried out and indicators were defined to monitor routines and processes in order to check results and evaluate future actions. (4)

Implementation

For the construction of specific knowledge, the nurse in charge guided her actions by scientific articles that involved the theme, combined with the practical experience of the collaborators who provided the beds and acted in the admission process at the institution.

However, an interface and integration with all areas involved in the hospitalization process had to be done. Monitoring of all times and routines was carried out through indicators that would enable security for decision making. The following current times were measured: average length of stay, discharge time, time for bed release for cleaning, average cleaning time and bed composition. Based on these data, the process manager made a pre-diagnosis, pointing out where he should

act.

The areas involved such as nursing, maintenance, cleaning, laundry, treasury and clinical staff are key integration elements for the success of the implementation. Everyone should know how much an idle bed costs, whether because of a broken light bulb, lack of trousseau to compose, even as a ban on minor renovations.⁽⁵⁾ Through monthly meetings, the loyalty of time agreements for the release of the bed and definition of roles, presenting the degree of importance of each area and the impacts caused when there are failures in the delivery of processes.

It can be said that the implementation gained strength when all areas had an understanding of what their deliveries were and their degree of importance to achieve a hospital discharge.

In order to organize the systematization of the sector's activities, there was a need to invest and provide technological support associated with modern management practices, customizing a computerized system, enabling the visualization and control of beds automatically in real time. The initial idea was to create a bed management system that would allow the integration of hospitality, nursing, nutrition and maintenance teams, directly reflecting

on the quality of patient care.

By creating a panel of beds in our system, it was possible to manage the data simultaneously and effectively. The bed panel was configured by the systems analyst and allowed the registration of the wards and their beds, maintaining several attributes also regarding the occupying patient, such as name, service according to the specialty to be attended, sex, cost center and state. Bed classification is one of the most important attributes for bed management, and it is a determining factor in accommodating patients according to their needs.⁽¹⁰⁾

Important current differential aspects

Bed management, also aiming at completeness, equity and ensuring timely and adequate access to health for the transvestite and transsexual population, carried out an adjustment in the institution.

By means of normative acts by the institution's internal working groups, the process of distributing beds for people who have made a social gender transition was adapted, changing the way they present themselves socially, regardless of the gender assigned at birth, which should be allocated to the bed of the gender to which they identify.

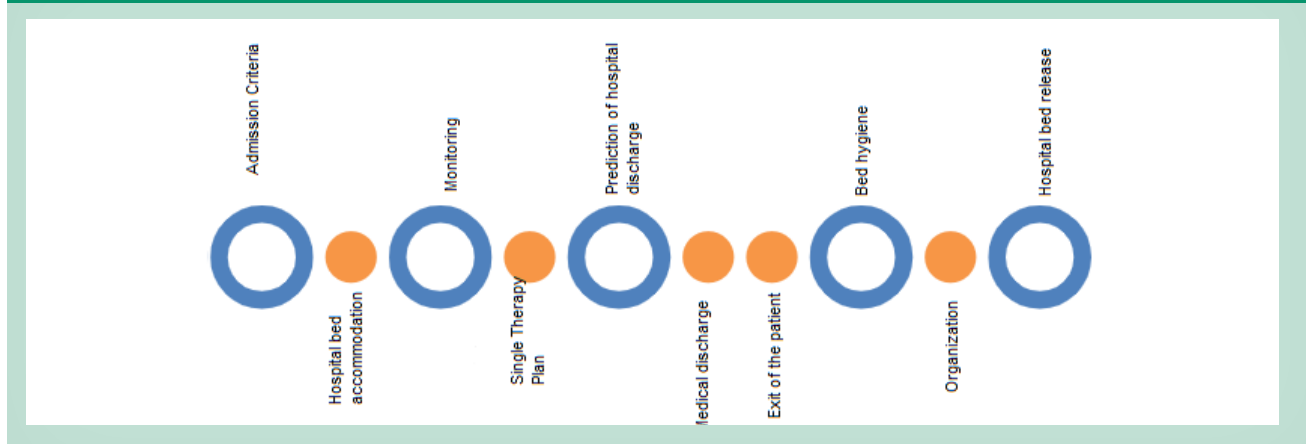
It is the responsibility of bed distribution professionals to offer space for the person to expose the gender that best defines them and/or in which bed they want to be accommodated.

Indicator

Strategic indicators were defined for monitoring and decision-making based on pre-diagnosis, to understand current performance. The institution's strategic indicators were studied, with the aim of increasing the rate of bed turnover, to understand the practical paradigms that directly influenced turnover, work on reducing the average stay of patients and increase the bed occupancy rate. The mentioned indicators correspond, respectively, to the bed utilization index and the monitoring of these indicators would, in fact, provide objective evidence, to compare the evolution and track the effectiveness, efficiency and effectiveness of the Project.

The bed utilization index can be extracted from the average length of stay, which is the ratio between the total number of patients/day and the total number of patients who left the hospital in a given period, including deaths. Represents the

Figure 2. Execution of the Bed Management Project, at the strategic and operational level, involving the patient flow from admission to hospital discharge. State Hospital, Américo Brasiliense, Brazil, 2016.



Source: BRANQUINHO, D.M., Américo Brasiliense, Brazil, 2016.

average time in days that patients were hospitalized. ⁽¹⁰⁾ Also contributing to the hospital occupancy rate is the percentage ratio between the number of patients/day and the number of beds/day in a given period, but considering for the calculation of beds/day in the denominator the beds installed and listed in the hospital register, including blocked beds and excluding extra beds. ⁽¹⁰⁾

Process mapping

To carry out the mapping of processes, the development of flowcharts and protocols was used as a technique, which involved the process from admission to hospital discharge, thus favoring the work routine of employees, avoiding rework and waste, enabling alignment and training of the entire operational level in standards.

Execution of Bed Management Processes

To manage a process is, first of all, to visualize it. This is possible by using process analysis techniques that allow detecting failures and opportunities for improvement, highlighting critical tasks and eliminating tasks that do not add value or that are duplicated, trying to take the organization to a different level from the current one and equal to the one that top management wants. ⁽¹¹⁾ The mapping is carried out by using a technique to represent the different tasks required, in the sequence in which they occur, for the realization and delivery of a service. ⁽¹¹⁾ Figure 2. demonstrates the sequence of its steps and how it was performed in HEAB.

Admission Criteria

It effectively involves the Bed Regulation System. The Secretariat of the State of São Paulo, understanding regulation as an important public health management tool, which has among its objectives the equity of access implemented through dynamic actions, carried out in an equitable, orderly, timely and rational manner, created the Central for Regulation of Health Service Offers (CROSS - Central de Regulação

de Ofertas de Serviços de Saúde), which brings together actions aimed at regulating access in the hospital area, contributing to the comprehensiveness of care, providing the adjustment of the available care offer to the immediate needs of the citizen. ⁽¹²⁾

To ensure the transparency of case acceptances at HEAB, and streamline the patient admission process, we implemented the use of the CROSS portal initially as an exclusive regulation tool. After implementation, an attempt was made to maintain a dialogue with the Regulation Center and the municipalities belonging to the DRS III network - Araraquara, thus enabling the identification of demands in the region, with a view to breaking down barriers and bringing services closer together.

The Access Management is responsible for carrying out the monitoring of the said system, following up and directing the training, continuously, training every employee who starts activities in the institution and proceed with the reorientations when any change occurs. In the current context, the absence of standard protocols describing the eligibility criteria for admitting cases, slowed down the acceptance process for our medical team.

With the objective of helping the medical team to speed up the process of accepting cases, the development, together with the medical coordinators, of the eligibility protocol for accepting cases and training of the entire operational level. Thus, there was a direct reflection on the increase in our occupancy rate.

Agreements were also established with the regulatory center and other institutions belonging to the DRSIII - Araraquara, in order to define and standardize these criteria with them, allowing the correct direction of patients.

Monitoring by the Internal Regulation Nucleus (IRN)

The IRN constitutes the interface with the Regulation Centers to outline the profile of the complexity of the assistance that your institution represents within the

scope of the SUS and provide outpatient consultations, diagnostic and therapeutic support services, in addition to hospital beds, according to pre-established criteria for care, in addition to seeking hospitalization vacancies and diagnostic and therapeutic support outside the hospital for hospitalized patients, when necessary. ⁽¹¹⁾

As the implementation presented results for the administration, the project gained strength and to ensure the monitoring of the bed management process and full-time access to users, HEAB implemented the Internal Regulation Nucleus (IRN), coordinated and trained by the nurse managing the beds.

Prediction of hospital discharge

Capacity problems were further compounded by the lack of discharge of patients on weekends, which resulted in higher capacity at the beginning of the week. The absence of discharges on weekends causes an increase in the average stay and lack of beds available for new admissions.

An awareness was raised about the importance of effective discharge programming, thus enabling bed management to work with predictability of discharges to accept new cases. These solutions don't require anyone to work harder, but they do require them to work differently. ⁽²⁾

In view of this, work was carried out with the medical team to build the medical therapeutic plan, thus enabling the entire multidisciplinary team to carry out their care plan, based on the probable date of discharge, described according to the reason for hospitalization in medical evolution in the multidisciplinary medical record. A timely discharge according to the therapeutic plan drawn up for each patient makes it possible to schedule care for the entire team, making the patient's stay safer, thus minimizing the occurrence of early discharges, improving the quality of care provided.

Hospital bed hygiene

There are a multitude of opportunities

for process improvement within the institution. While they have value, institutions often choose to focus on the “low-hanging fruit” that ultimately do nothing to improve the problems patients face. (2) As examples, we have the improvement of nursing reports, the quick cleaning and recovery of beds. In the case of HEAB, the agreements made with the hygiene and cleaning sector made it possible to monitor the time of the team to release the bed.

Release from the hospital bed

It is the last stage of the process culminating in positive results of the Bed Management Process. The release of the bed completes the hospitalization process, thus making the bed available to care for a new patient and start the process again.

Evaluation of the implementation of the HEAB Bed Management Project

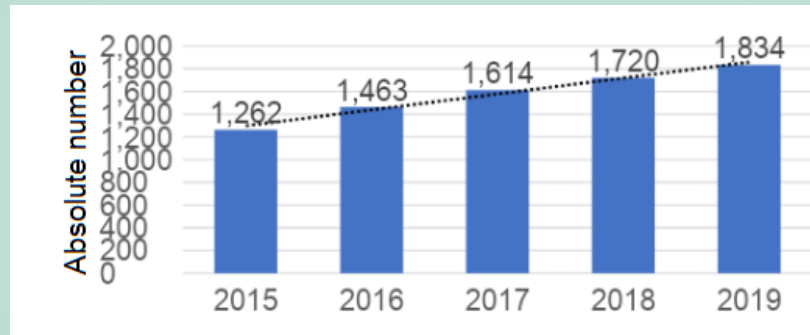
Quality tools were adopted as management tools to define, measure, analyze and guide improvements. Effective solutions are measured by their ability to increase capacity.⁽²⁾

To detect the results of changes, trend charts were used, thus enabling the analysis of the historical evolution of the indicators. Data from the outcome indicators were extracted from the HEAB Hospital Information System, processed by the HCFMRP.

Graph 1 shows the evolution of hospitalizations of users belonging to DRS III Araraquara. Its progressive increase over the years can be seen, meaning the expansion of access for hospitalization, after the implementation of the Bed Management Service.

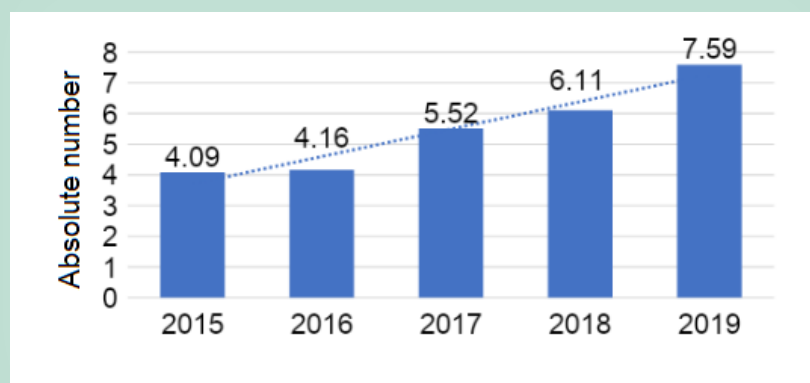
Based on these results, it is possible to notice significant evidence that the HEAB Bed Management Service would be achieving, with its implementation in the sector, the increase in the bed turnover rate, as shown in Graph 2, without reducing the quality of the service provided, as

Graph 1. History of medical clinic departures, billed from January 2015 to December 2019, Hospital Estadual, Américo Brasiliense, Brazil, 2023.



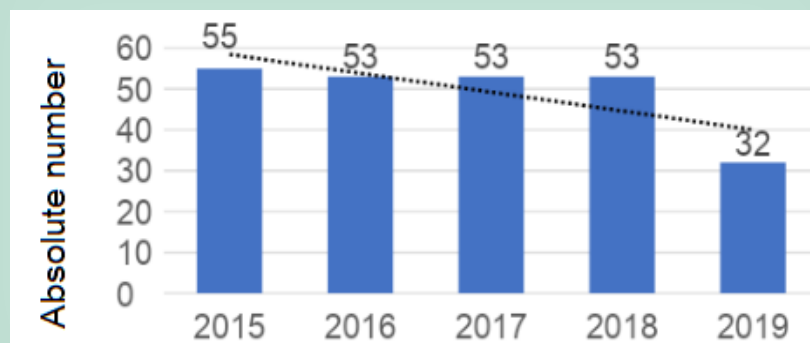
Source: Hospital Information System, State Hospital, Américo Brasiliense, Brazil, 2020.

Graph 2: History of bed turnover from January 2015 to December 2019, State Hospital, Américo Brasiliense, 2023.



Source: Hospital Information System, State Hospital, Américo Brasiliense, Brazil, 2020.

Graph 3: History of the number of medical clinic beds, active operations from January 2015 to December 2019, State Hospital, Américo Brasiliense, Brazil, 2023 .



Source: Hospital Information System, State Hospital, Américo Brasiliense, Brazil, 2020.

evidenced by the National Accreditation Organization - ONA (Organização Nacional de Acreditação), which carries out periodic evaluations and keeps the hospital accredited with excellence.

It should also be noted that in this period, as a result of the management of these beds, the institution was able to gradually reduce the number of beds available (Graph 3), and even increase the number of clinical hospital departures. In this way, it also helped the institution to improve its financial management and the use of resources from the unified health system (SUS), allowing it to invest these savings in equipment improvements and the quality of materials involved in the care of these patients.

CONCLUSION

On the planning of the HEAB Bed Management Project

After a diagnostic evaluation of the

current condition of the bed distribution process in the hospital, we can conclude that the implementation of the Bed Management Project effectively resulted in the Bed Management Service at HEAB, contributing to the strengthening of hospital management as a whole. The hospital has a culture of continuous improvement and the use of quality tools helps to ensure safe and qualified care.

The implementation of the Bed Management Project pointed out that managing the capacity of the beds and making them available to meet the demand of patients contributed to the maintenance of hospital efficiency, enabling changes in the profile of the indicators of the sectors, and the use of available beds

On the implementation of the HEAB Bed Management Project

The Project showed that its development provided access to patients for hospitalization, observing the decrease in

the waiting list, as a result of timely and orderly access to the vacancy, maintaining its maximum service capacity, evidenced by the increase in bed turnover, in addition to meaning greater effectiveness of services for users and efficiency in the use of SUS resources.

In this way, the Bed Management Service was consolidated, which provides greater effectiveness in organizational aspects, improving communication between all sectors, thus facilitating work processes, benefiting not only external customers and suppliers, but also employees.

It is worth noting that the nurse's performance in management can contribute to the scenario of new practices and different roles in favor of visibility and strengthening of the nurse's identity.

It is expected that through this experience report, organizations that do not have the Bed Management Service implemented, will be able to use this work as inspiration for new management practices. 🌱

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