

## Contributions of health process management and its impact on hospital management



<https://doi.org/10.56238/Connexemultidisdevolpfut-102>

### Alexandre Gomes Vizzoni

PhD in Clinical Research. Coordinator of the Hemotherapy Service of INI-FIOCRUZ National Institute of Infectology Evandro Chagas, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil. E-mail: alexandre.vizzoni@ini.fiocruz.br

### Paulo Henrique da Costa Ferreira

Master and PhD student in Clinical Research. Coordinator of the Academic Secretariat of INI-FIOCRUZ National Institute of Infectology Evandro Chagas, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil.

### Michael Jacob Fagundes

Master in Clinical Research – Coordinator of the Purchasing Service of INI-FIOCRUZ National Institute of Infectology Evandro Chagas, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil.

### ABSTRACT

The role of hospital manager is invariably complex, regardless of the region, in fact that, even in certain aspects, health services are more challenging in some countries, due to the regulation of beds, financing and technologies available. Added to the

extensive list of managerial demands, the requirement for specific knowledge in the management of human and physical resources. The influence of the fragmented model of work organization, in which each professional performs portions of the work without an integration with the other areas involved, has been pointed out as one of the reasons that hinder the accomplishment of a more integrative and better quality health work, both from the perspective of those who perform it and for those who enjoy it. From the moment that health professionals, who work directly with the patient, occupy coordinations, as they ascend in the organization, they begin to perform more administrative tasks. As an example, it is possible to notice that a nurse or doctor who coordinates an inpatient unit, perform more administrative functions and almost no technique. They use their technical expertise to act in the leadership. These professionals, when occupying certain positions, do not always understand the administrative activities. With this, the hospital loses a good technician and may not gain a good boss. This paper has a reflective description about the hospital management process.

**Keywords:** Hospital management, Health process management, Health projects.

## 1 INTRODUCTION

The management of health services is an administrative practice with the purpose of optimizing the functioning of organizations, aiming to obtain maximum efficiency (relationship between products and resources employed), effectiveness (achieving the established objectives) and effectiveness (solving the identified problems). In this process the manager uses knowledge, techniques and procedures that allow him to conduct the operation of the services in the direction of the objectives that have been defined (LOTUPE; Miranda, 2007; YOSHIMI TANAKA; MAMORU TAMAKI, 2012).



The central goal of any health facility is to provide care to its patients safely. The specific set of services that each patient receives according to their needs for their treatment process can be called a hospital product.

However, how would it be possible to measure a hospital product? One of the main alternatives is the use of classification systems for the analysis of the hospital product based on related diagnostic groups (from English, Diagnosis related groups or DRG) (CACACE; Schmid, 2009; NORONHA et al., 1991), a methodology developed to group patients with a similar clinical profile.

The standardization of data collection allows comparing results, being possible to analyze which hospitals are more efficient and identify good practices within the group itself. The analysis can be done with several levels of detail: by hospital, by type of DRG (clinical or surgical) and by MDC (Major Diagnostic Category). It is also possible to analyze mortality rates, acquired conditions and other indicators by DRG to compare the quality of hospitals.

Daily problems in health units are evidenced in a practical, didactic and accessible way through the "narratives", which allow the construction of a "tree of problems", through the graphic representation of a problem-situation (trunk), its main causes (roots) and the negative effects that it causes in the target population of the project (branches and leaves), that is, a clear situation, which has a negative connotation and that is qualified and/or quantifiable (PAIM, 2006; SOUZA, 2015). A problem must always come structured as a predicate (subject, verb, object). As an example, it is possible to cite the situation: "100% of the patients of hospital X do not fill out the authorization form for invasive procedures."

When performing the analysis of an event (problem), it is common to use Root Cause Analysis (from English, Root Cause Analysis or RCA), which is a problem-solving method used to identify the root causes of failures or problems (WU; LIPSHUTZ; PRONOVOST, 2008). A factor is considered a root cause if removing it from the problem failure sequence prevents the undesirable end result from recurring; while a causal factor is one that affects the outcome of an event but is not a root cause. While removing a causal factor may benefit an outcome, it does not entirely prevent its recurrence (FRIEDMAN et al., 2007).

The RCA is a structured approach to identify the factors that are directly influencing the consequences of one or more events in order to identify which behaviors or conditions need to be improved to prevent the recurrence of similar consequences, being this adverse, and to identify what should be learned to promote the achievement of better consequences (BRAITHWAITE et al., 2006; PEERALLY et al., 2017).

For the investigation to be efficient, the team must focus its efforts on small, well-defined areas. A focused and judicious approach will help narrow the investigation of failures by focusing on where the root cause(s) lies. The few essential root causes can be determined, treated and eliminated without



recurrence and the hypotheses obviously must be testable by the team and without loss of time, individual causes must be confronted with their impacts and their relative severities. The limited evidence available suggests that incident management and error reduction can be facilitated through system-wide change programs (BOWIE; SKINNER; DE WET, 2013; GIARDINA et al., 2013).

It becomes clear that different types of professionals or specific technical groups have different views on the same problem. A basic way to mitigate this difficulty of consensus and arrive at a clear and common definition is to try to answer the following simple questions: what is the problem? When did it happen? Where did it happen? What goal of the area was impacted by the problem? These questions should initially be answered with short statements; an object and a defect such as: the tomograph had its electrical component damaged by an increase in temperature in the operating room of the device.

The construction of a "hypothesis" can condense several problems into a single sentence and gives it an explanatory dimension. It consists of a provisional synthesis, which is capable of producing questions and learning questions. Scientific praxis comprises the set of activities performed by scientists with the purpose of producing new scientific knowledge.

For the dialectical theory of knowledge, the practical interaction with the object only grounds the construction of scientific knowledge through theoretical mediation. The nature of the practical relationship is conditioned, the quality of the practice or sensory experience depends on the degree of development of the subject's thought and, on the other hand, on the historical and social conditioning factors arranged in the objective reality that sustains it (ABRANTES; Martins, 2007; FRANCO, 2011).

## **2 MANAGEMENT OF PROCESSES AND PEOPLE IN HEALTH**

The word "process" is commonly used in professional practice, however, not always understood in its essence. Managing by processes represents the integration between all the functions performed by a company in its various departments, contrary to the concept of management by sectors and sections used in organizations. This divergence has greatly confused the understanding of the concept and its scope in the organization.

The influence of the fragmented model of work organization, in which each professional performs portions of the work without integration with the other areas involved, has been pointed out as one of the reasons that hinder the accomplishment of a more integrative and better quality health work, both from the perspective of those who perform it and for those who enjoy it (KILLS; SAUCER OF SAUCERS; SOUSA CAMPOS, 2009).

The purpose of the health work process is, through some therapeutic action, to co-produce health and what defines health work is the need posed by the subject who seeks these services. However, the need is not constituted unilaterally. In the case of health work, the needs of the workers,



of the service users, which should take precedence over the others, and those of the institution are involved (KILLS; SAUCER OF SAUCERS; SOUSA CAMPOS, 2009).

Health work is not completely controllable, since it is based on a relationship between people, in all phases of its realization and, therefore, is always subject to the designs of the worker in his autonomous, private space of concretization of the practice. The health services, then, are the stage of the action of a team of actors, who have intentionality in their actions and who dispute the general meaning of the work. They act by making a mixture, not always evident, between their private territories of action and the public process of work. Everyday life, therefore, has two faces: that of institutional norms and roles and that of the private practices of each worker (FEUERWERKER, 2005).

The importance from the point of view of the process is not restricted to a specific business sector. In the health field, as a result of the nature of the service offered, the processes of health institutions are also the basis for decision-making, which is focused on achieving the goal of providing quality medical care. The in health care processes, the need for interoperability between multiple information systems and the continuous updating of knowledge main challenges of modeling business processes in health (Business Process Modeling or BPM) are the definition of health processes, the multidisciplinary nature of health care, the flexibility and variability of the activities involved in health (BERNONVILLE et al., 2013) .

The perception of work crossing the various functional areas to execute a macro-process (also called business process), brought a new demand to those who implement information technology in organizations: to integrate the various programs and information systems existing in the functional areas, in order to operate in sync with the architecture of the new business processes, of the new management vision required by organizations (SORDI; SPELTA, 2007).

The professional, social and organizational complexity of a hospital requires a much higher requirement with regard to the creation of a Quality Management System (QMS) that aims to obtain the involvement of all stakeholders. The difficulty lies mainly in the multiplicity of interests that it is necessary to reconcile, in the variety of technical specialties that participate in the life of a hospital, in the permanent coexistence of human beings with completely different cultures, origins and formations (BRAVE; EDWARDS; PADILHA, 2012).

Approximately 80% of the problems of a health unit are related to processes and people. The interface of process and people management must be done through Competency Management: to achieve the best efficiency, effectiveness and effectiveness of the organization is necessary the knowledge, skills, creativity, motivation and competence of people. The great challenge of aligning people, their respective performance and competencies with business strategies and organizational objectives appears as an absolute highlight (TRINDADE DA SILVA BARRETO et al., 2011).



It is observed in a health organization a productive system of health care, where the supply sector is integrated as a subsystem to meet the needs of inputs (consumables) and equipment (permanent materials) of those who develop and make available the products, which are the health professionals (LAMBERT; COOPER, 2000).

On the other hand, health care activities are complex activities, based on a production chain that incorporates sequences of actions defined for the generation of its products (the so-called "procedures"). Each procedure demands a specific portfolio of inputs (goods) and work processes (services), whose composition can vary between different organizations and even according to the different types of patients and professionals of the same organization (INFANT; BORGES DOS SANTOS, 2007).

The approach to the integration of health systems and networks involves several interrelated aspects, such as: regulation of services; clinical management processes; conditions of access to services; human resources; information and communication systems and logistical support. The adequate regulation of a network of health actions and services requires the support of an information system aimed at identifying patients (such as the SUS Card); access to electronic medical records by professionals from different units; the control of the availability of beds and vacancies for consultations and examinations; in addition to monitoring the actions developed. The inexistence or malfunction of such an information system hinders the referral of patients, their access to services, as well as the manager's ability to control and evaluate compliance with the established objectives and goals. (GONCALVES; ALMEIDA RODRIGUES, 2010).

The reference comprises the flow of referral of the user from the lower level to the one of greater complexity, conversely, the counter-reference is related to the act of referencing from the level of higher to the lower complexity. To ensure access and care to users at all levels of health care, it is essential to establish the system of reference and counter-reference based on accessibility and continuity of care, otherwise, the absence of this flow may be just a reiterated discourse, with no possibility of implementation. We note the importance, for bed management, of the participation and structuring of the Internal Regulatory Center (NIR) of our hospital unit.

### **3 PUBLIC BUDGET**

It is an instrument for planning and executing public finances. At present, the concept is closely linked to the forecasting of revenue and the fixing of public expenditure. In Brazil, its legal nature is considered to be of law in a formal sense, only. This is related to the merely authorizing nature of the public expenditures provided for therein. The budget contains an estimate of revenues and authorization to carry out direct and indirect public administration expenses in a given year that, in Brazil, coincides with the calendar year.



The public budget is the most relevant management tool and probably the oldest in public administration. It is an instrument that governments use to organize their financial resources. Starting from the initial intention of control, the public budget has evolved and has been incorporating new instruments. In Brazil, the budget has several legal formalities. Its existence is provided for constitutionally, materialized annually in a specific law that "estimates the revenue and fixes expenses" for a given year.

By virtue of the Federal Constitution of 1988, the whole country adopts a budget structure based on three documents: Multiannual Plans – PPA, Budget Guidelines Laws – LDO, and Annual Budget Laws, which apply to the federal, state and municipal governments in the same way. According to the legal precept, the PPA will establish, in a regionalized manner, the guidelines, objectives and goals of the Federal Administration (State or Municipal) for capital expenditures and others arising from them and for those related to continued programs.

When talking about public budget, most people understand that it is about expenses, and the public administrators themselves give much more attention to the spending side than to the inflow of resources. It is natural, because the impact of public spending on citizens is much greater, although often the citizen does not realize how much is reached by public revenue.

The activity-based cost system (of English, Activity Based Costing - ABC) aims to evaluate the production process of the cost and not just the final cost of the service or good. The activity-based costing system does not differ from the volume-based costing system only by changing the bases of indirect cost allocation, but also by the identification it makes of costs per activity and the way it allocates costs to products, through a greater number of bases (BEUREN; ROEDEL, 2002).

Thus, the change from the mode of calculation of costs by absorption (the traditional way) to the view of costs by activity, depends on the change of the departmental management model to a management by processes, showing synchrony of content with that exposed in the previous Concentrations. The activity-based management system aims to help the company achieve its objectives with the lowest consumption of resources, that is, obtaining the same benefits with a minimum total cost. This objective will only be achieved through a set of interconnected measures, which can only be developed with information from the ABC costing method (POMPERMAYER, 2017).

Increasingly, the concepts of economics and accounting have become popular in health for several reasons: exponential advancement of technology, with increasing costs, disputes of resources for other areas, Fiscal Responsibility Law, lack of prioritization of social areas, etc.

Scarcity is the fundamental economic problem of having virtually infinite human desires in a world of limited resources. Society has insufficient means of production and resources to meet the



wants and needs of all human beings. For something to be scarce, it must be difficult to obtain, to produce, or both, that is, its COST of production determines whether it is scarce or not.

The controllership plays an important role in the daily life of institutions. Assisting in the definition of strategies and objectives, in the preparation of the budget, standards, planning, implementation and / or implementation of decision, management and information models are some of the activities that are part of the functions of the controllership, regardless of whether their nature is public or private (SUZART; MARCELLIN; ROCK, 2011).

The discussion on the role of government intervention in the economy, for the purpose of equal allocation of society's resources, is based on the theory of public goods to justify the allocation of national resources between the public and private sectors, to supply part of the goods required by the population. This theory aims to analyze the efficiency in the use of resources by the public sector (SCARPIN; SLOMSKI, 2007).

In the Public Service, the Comptroller bodies, such as the Comptroller General of the Union (CGU), do this through activities such as internal control, public auditing, correction, prevention and fight against corruption and ombudsman.

The government's decisions to spend, tax, regulate or establish a state-owned enterprise directly influence, since decisions are guided by the perspective of which products and services will be produced by the economy, how and for whom. The expansion of public spending is related to its role in producing public goods and controlling externalities in a market economy. Government tends to keep expanding given the inability of markets to organize themselves efficiently to produce public goods (REZENDE, 2000).

#### **4 CONCLUSION**

From the moment that health professionals, who work directly with the patient, occupy high positions such as directors and coordinations, as they ascend in the organization, they begin to perform more administrative tasks. As an example, it is possible to notice that a nurse or doctor who coordinates an inpatient unit, perform more administrative functions and almost no technique. They use their technical expertise to act in the leadership. These professionals, when occupying certain positions, do not always understand the administrative activities. With this, the hospital loses a good technician and may not gain a good boss. It should be a constant concern of a hospital director, to technically qualify his professionals for the practice of management.

Therefore, attention is paid to the need for the public manager to define the capacity to sustain the model of provision of hospital services, ensure regulatory capacity and integration with the private system. The notion of private care as supplementary implies not carrying out planning in an adequate way and improving management. Both the public and private sectors have to take a vow to seek



efficiency. A formal learning of hospital management provides a change of course, the desire to improve and better serve the hospital user.





## REFERENCES

- ABRABRANTES, A. A.; MARTINS, L. M. A produção do conhecimento científico: relação sujeito-objeto e desenvolvimento do pensamento. *Interface - Comunicação, Saúde, Educação*, v. 11, n. 22, 2007.
- BERNONVILLE, S. et al. A business process modeling experience in a complex information system re-engineering. *Studies in Health Technology and Informatics*, v. 192, p. 969, 2013.
- BEUREN, I. M.; ROEDEL, A. O uso do custeio baseado em atividades: ABC (Activity Based Costing) nas maiores empresas de Santa Catarina. *Revista Contabilidade & Finanças*, v. 13, n. 30, p. 7–18, dez. 2002.
- BOWIE, P.; SKINNER, J.; DE WET, C. Training health care professionals in root cause analysis: a cross-sectional study of post-training experiences, benefits and attitudes. *BMC Health Services Research*, v. 13, p. 50, 7 fev. 2013.
- BRAITHWAITE, J. et al. Experiences of health professionals who conducted root cause analyses after undergoing a safety improvement programme. *Quality & Safety in Health Care*, v. 15, n. 6, p. 393–399, dez. 2006.
- CACACE, M.; SCHMID, A. The role of diagnosis related groups (DRGs) in healthcare system convergence. *BMC Health Services Research*, v. 9, n. Suppl 1, p. A5, 5 nov. 2009.
- DIAS, R. C. et al. Impacto do Planejamento Estratégico Situacional em um Ambulatório de Atenção Especializada. *Revista de Gestão em Sistemas de Saúde*, v. 1, n. 1, p. 83–96, 1 jun. 2012.
- FEUERWERKER, L. Modelos tecnoassistenciais, gestão e organização do trabalho em saúde: nada é indiferente no processo de luta para a consolidação do SUS. *Interface-Comunicação, Saúde, Educação*, v. 9, n. 18, p. 489–506, 2005.
- FRANCO, M. A. DO R. S. A metodologia de pesquisa educacional como construtora da práxis investigativa. *Nuances: estudos sobre Educação*, v. 9, n. 9/10, 4 jul. 2011.
- FRIEDMAN, A. L. et al. Medication Errors in the Outpatient Setting: Classification and Root Cause Analysis. *Archives of Surgery*, v. 142, n. 3, p. 278–283, 1 mar. 2007.
- GIARDINA, T. D. et al. Root Cause Analysis Reports Help Identify Common Factors in Delayed Diagnosis and Treatment of Outpatients. *Health affairs (Project Hope)*, v. 32, n. 8, ago. 2013.
- GONÇALVES SERRA, C.; ALMEIDA RODRIGUES, P. H. DE. Avaliação da referência e contrarreferência no Programa Saúde da Família na Região Metropolitana do Rio de Janeiro (RJ, Brasil). *Ciência & Saúde Coletiva*, v. 15, n. 3, 2010.
- INFANTE, M.; BORGES DOS SANTOS, M. A. A organização do abastecimento do hospital público a partir da cadeia produtiva: uma abordagem logística para a área de saúde. *Ciência & Saúde Coletiva*, v. 12, n. 4, 2007.
- LAMBERT, D. M.; COOPER, M. C. Issues in Supply Chain Management. *Industrial Marketing Management*, v. 29, n. 1, p. 65–83, 1 jan. 2000.
- LOTUFO, M.; MIRANDA, A. S. DE. Sistemas de direção e práticas de gestão governamental em secretarias estaduais de Saúde. *Revista de Administração Pública - RAP*, v. 41, n. 6, 2007.



MATOS, E.; PIRES DE PIRES, D. E.; SOUSA CAMPOS, G. W. DE. Relações de trabalho em equipes interdisciplinares: contribuições para a constituição de novas formas de organização do trabalho em saúde. *Revista Brasileira de Enfermagem*, v. 62, n. 6, 2009.

NORONHA, M. F. et al. The development of “Diagnosis Related Groups” - DRGs, a methodology for classifying hospital patients. *Revista de Saúde Pública*, v. 25, n. 3, p. 198–208, jun. 1991.

PAIM, J. S. Planejamento em saúde para não especialistas. Campos GWS, Minayo MCS, Akerman M, Drumond Júnior M, Carvalho YM, organizadores. *Tratado de Saúde Coletiva*. São Paulo: Hucitec, p. 767–82, 2006.

PEERALLY, M. F. et al. The problem with root cause analysis. *BMJ Quality & Safety*, v. 26, n. 5, p. 417–422, maio 2017.

POMPERMAYER, C. B. Sistemas de gestão de custos: dificuldades na implantação. *Revista da FAE*, v. 2, n. 3, 2 fev. 2017.

REZENDE, F. DA C. Organizations and institutional answers to State reform policies. *Revista de Sociologia e Política*, n. 14, p. 119–138, jun. 2000.

SCARPIN, J. E.; SLOMSKI, V. Estudo dos fatores condicionantes do índice de desenvolvimento humano nos municípios do estado do Paraná: instrumento de controladoria para a tomada de decisões na gestão governamental. *Revista de Administração Pública - RAP*, v. 41, n. 5, 2007.

SORDI, J. O. D.; SPELTA, A. G. Análise de componentes da tecnologia de Business Process Management System (BPMS) sob a perspectiva de um caso prático. *JISTEM - Journal of Information Systems and Technology Management*, v. 4, n. 1, p. 71–94, 2007.

SOUZA, B. C. C. Gestão da Mudança e da Inovação: Árvore de problemas como ferramenta para avaliação do impacto da mudança. *Revista de Ciências Gerenciais*, v. 14, n. 19, p. 89–106, 16 jul. 2015.

SUZART, J. A. DA S.; MARCELINO, C. V.; ROCHA, J. S. DA. As instituições brasileiras de controladoria pública – teoria versus prática. *Contabilidade, Gestão e Governança*, v. 14, n. 1, p. 44–56, 2011.

TRINDADE DA SILVA BARRETO, L. M. et al. Temas emergentes em gestão de pessoas: Uma análise da produção acadêmica. *Revista de Administração da Universidade Federal de Santa Maria*, v. 4, n. 2, 2011.

VALENTE, R. P.; ESTEVES, M.; PADILHA, J. A metodologia Lean na área hospitalar - a gestão da qualidade enquanto factor de melhoria contínua e humanização do esforço de racionalização dos recursos. dez. 2012.

WU, A. W.; LIPSHUTZ, A. K. M.; PRONOVOST, P. J. Effectiveness and Efficiency of Root Cause Analysis in Medicine. *JAMA*, v. 299, n. 6, p. 685–687, 13 fev. 2008.

YOSHIMI TANAKA, O.; MAMORU TAMAKI, E. O papel da avaliação para a tomada de decisão na gestão de serviços de saúde. *Ciência & Saúde Coletiva*, v. 17, n. 4, 2012.

ANTES, A. A.; MARTINS, L. M. The production of scientific knowledge: subject-object relationship and development of thought. *Interface - Communication, Health, Education*, v. 11, n. 22, 2007.



BERNONVILLE, S. et al. A business process modeling experience in a complex information system re-engineering. *Studies in Health Technology and Informatics*, v. 192, p. 969, 2013.

BEUREN, I. M.; ROEDEL, A. The use of activity-based costing: ABC (Activity Based Costing) in the largest companies in Santa Catarina. *Journal of Accounting & Finance*, v. 13, n. 30, p. 7–18, dec. 2002.

BOWIE, P.; SKINNER, J.; DE WET, C. Training health care professionals in root cause analysis: a cross-sectional study of post-training experiences, benefits and attitudes. *BMC Health Services Research*, v. 13, p. 50, 7 fev. 2013.

BRAITHWAITE, J. et al. Experiences of health professionals who conducted root cause analyses after undergoing a safety improvement programme. *Quality & Safety in Health Care*, v. 15, n. 6, p. 393–399, dez. 2006.

CACACE, M.; SCHMID, A. The role of diagnosis related groups (DRGs) in healthcare system convergence. *BMC Health Services Research*, v. 9, n. Suppl 1, p. A5, 5 nov. 2009.

DIAS, R. C. et al. Impact of Situational Strategic Planning in a Specialized Care Outpatient Clinic. *Journal of Management in Health Systems*, v. 1, n. 1, p. 83–96, 1 jun. 2012.

FEUERWERKER, L. Techno-assistance models, management and organization of health work: nothing is indifferent in the process of struggle for the consolidation of the SUS. *Interface-Communication, Health, Education*, v. 9, n. 18, p. 489–506, 2005.

FRANCO, M. A. DO R. S. The methodology of educational research as a builder of investigative praxis. *Nuances: Studies on Education*, v. 9, n. 9/10, 4 jul. 2011.

FRIEDMAN, A. L. et al. Medication Errors in the Outpatient Setting: Classification and Root Cause Analysis. *Archives of Surgery*, v. 142, n. 3, p. 278–283, 1 mar. 2007.

GIARDINA, T. D. et al. Root Cause Analysis Reports Help Identify Common Factors in Delayed Diagnosis and Treatment of Outpatients. *Health affairs (Project Hope)*, v. 32, n. 8, ago. 2013.

GONCALVES SERRA, C.; ALMEIDA RODRIGUES, P. H. DE. Evaluation of the reference and counter-reference in the Family Health Program in the Metropolitan Region of Rio de Janeiro (RJ, Brazil). *Science & Collective Health*, v. 15, n. 3, 2010.

INFANTE, M.; BORGES DOS SANTOS, M. A. The organization of public hospital supply from the production chain: a logistic approach to the health area. *Science & Collective Health*, v. 12, n. 4, 2007.  
LAMBERT, D. M.; COOPER, M. C. Issues in Supply Chain Management. *Industrial Marketing Management*, v. 29, n. 1, p. 65–83, 1 jan. 2000.

LOTUFO, M.; MIRANDA, A. S. DE. Direction systems and government management practices in state health departments. *Journal of Public Administration - RAP*, v. 41, n. 6, 2007.

MATOS, E.; PIRES OF PIRES, D. E.; SOUSA CAMPOS, G. W. DE. Work relations in interdisciplinary teams: contributions to the constitution of new forms of health work organization. *Brazilian Journal of Nursing*, v. 62, n. 6, 2009.

NORONHA, M. F. et al. The development of “Diagnosis Related Groups” - DRGs, a methodology for classifying hospital patients. *Revista de Saúde Pública*, v. 25, n. 3, p. 198–208, jun. 1991.



PAIM, J. S. Health planning for non-specialists. Campos GWS, Minayo MCS, Akerman M, Drumond Júnior M, Carvalho YM, organizers. *Collective Health Treaty*. São Paulo: Hucitec, p. 767–82, 2006.

PEERALLY, M. F. et al. The problem with root cause analysis. *BMJ Quality & Safety*, v. 26, n. 5, p. 417–422, maio 2017.

POMPERMAYER, C. B. Cost management systems: difficulties in implementation. *Journal of FAE*, v. 2, n. 3, 2 fev. 2017.

REZENDE, F. DA C. Organizations and institutional answers to State reform policies. *Revista de Sociologia e Política*, n. 14, p. 119–138, jun. 2000.

SCARPIN, J. E.; SLOMSKI, V. Study of the conditioning factors of the human development index in the municipalities of the state of Paraná: a controlling instrument for decision-making in government management. *Journal of Public Administration - RAP*, v. 41, n. 5, 2007.

SORDI, J. O. D.; SPELTA, A. G. Analysis of components of the technology of Business Process Management System (BPMS) from the perspective of a practical case. *JISTEM - Journal of Information Systems and Technology Management*, v. 4, n. 1, p. 71–94, 2007.

SOUZA, B. C. C. Change and Innovation Management: Problem tree as a tool for assessing the impact of change. *Journal of Management Sciences*, v. 14, n. 19, p. 89–106, 16 jul. 2015.

SUZART, J. A. OF S.; MARCELLIN, C. V.; ROCK, J. S. DA. Brazilian institutions of public controllership – theory versus practice. *Accounting, Management and Governance*, v. 14, n. 1, p. 44–56, 2011.

TRINDADE DA SILVA BARRETO, L. M. et al. Emerging themes in people management: An analysis of academic production. *Journal of Administration of the Federal University of Santa Maria*, v. 4, n. 2, 2011.

VALENTE, R. P.; ESTEVES, M.; PADILHA, J. The Lean methodology in the hospital area - quality management as a factor of continuous improvement and humanization of the effort to rationalize resources. *ten*. 2012.

WU, A. W.; LIPSHUTZ, A. K. M.; PRONOVOST, P. J. Effectiveness and Efficiency of Root Cause Analysis in Medicine. *JAMA*, v. 299, n. 6, p. 685–687, 13 fev. 2008.

YOSHIMI TANAKA, O.; MAMORU TAMAKI, E. The role of evaluation for decision-making in the management of health services. *Science & Collective Health*, v. 17, n. 4, 2012.