

Remodeling hospital care - an account of experiences in the Federal District of Brazil

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Abstract *Since its creation in 1988, major changes have been made to Brazil's public health system in response to the epidemiological transition and the country's changing economic context and demographics. This article describes the recent healthcare reform implemented in the federal district's public hospital system. Guided by evidence-based management and a series of regulatory instruments, the reform organized hospital emergency services and secondary outpatient care, regulated health services, and remodeled the organizational structure of the Department of Health. These changes were aimed at promoting integration between health professionals across different levels of care and ensuring the provision of continuing comprehensive care. This approach guarantees efficiency gains in patient treatment, since multifocal and focal professionals work in an integrated manner. By reorganizing work processes and ensuring adequate planning, it was possible to redesign the care model to promote knowledge management and improve access to information and interactivity, thus helping to ensure the provision of quality, value-added care.*

Key words *Evidence-based management, Hospital care, Value based model, Multifocal medical specialization*

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Introduction

Brazil's public health system was inspired by Britain's National Health Service founded in 1948 to provide a comprehensive free service available to all. The NHS is divided into primary, secondary, and hospital care designed to ensure the provision of timely and effective services. The NHS adopts a doctor-centered approach to patient care, which aims to create a link between patients and doctors to absorb healthcare demands and track and navigate referrals to secondary and hospital services, thus ensuring equal access to all¹.

In Brazil, the 1960s saw the advent of a health system based on the British model. However, the evolution of Brazil's national health system (*Sistema Único de Saúde* – SUS) and the country's changing economic context and demographics has led to a shift in the use profile of the system from a state-funded and employer-sponsored model to universal health coverage².

It was under this aegis that the Federal District Hospital Foundation was created, triggering the fragmentation of primary healthcare centers and strengthening the hospital care system². In this healthcare model, centered on focal points of delivery with little or no integration with the rest of the system and primary care services, the fee-for-service approach to payment of services gained robustness and solidity.

Apart from failing to look at the patient as a whole, this disease-centered model poses the additional risk of performing unnecessary procedures and imposes an even greater cost burden on the system, given that payment to service providers is calculated based on the quantity of procedures performed^{3,4}.

At the end of the 20th century, new models began to emerge in other settings as an alternative to fee-for-service, such as the bundled service approach. These models allow for the standardization of services based on clinical protocols supported by evidence-based medicine and an integral view of the patient and disease, making it possible to rationalize costs and adopt an approach based on care coordination⁴.

In addition to the matter of health system payment models, the twentieth century saw rapid advances in medical technology and the emergence of the biopsychosocial model of health proposed by Engel. According to Engel, how physicians approach patients, and consequently whether or not they adopt a humanized approach, is influenced by the conceptual models around which their knowledge is organized and

the cultural background against which they learn to become physicians^{5,6}.

The discussion around the humanization of medicine culminated in the patient-centered approach to healthcare and value-based care, which focuses on patients' needs rather than just the disease^{7,8}.

From this perspective, healthcare requires horizontal relationships that harness the diverse skills, knowledge, and technologies within the system to develop ways of “producing” health aimed at creating coherent solutions⁹. This “production” occurs when systems develop work processes integrated across different types of knowledge from a range of specialties and professions through matrix working¹⁰.

Patient-centered care entails an entirely different approach to health service planning¹¹ which makes it possible to increase treatment adherence and patient satisfaction with doctor-patient relationships, making patients co-responsible for their treatment, improving treatment outcomes, and reducing referrals to subspecialists^{12,13}.

Within this new care model, the hospital-centric rationale loses prominence as the polyarchic model of networked organization drives a shift away from hierarchical and inflexible vertical relationships towards horizontal relationships and a systems view of health services^{14,15}.

In view of the above, this article describes the healthcare reform implemented in the federal district's public hospital system aimed at remodeling services to promote the provision of more person-centered and value-based care.

Method

The reform of the public hospital system was implemented by the Department of Health (SES-DF) through a series of regulatory instruments encompassing the 15 hospitals that make up the local services network: five department orders reshaping hospital work processes; and three government decrees introducing new governance arrangements and redesigning the structure, roles and responsibilities, and work processes of the Central Administration of the Department of Health.

The regulatory instruments were developed in stages, beginning with a preliminary draft elaborated by the relevant technical area and then passing through the Healthcare Collegiate and Management Collegiate before being approved by the Secretary of Health.

The first-draft versions of the orders and decrees were prepared by the sectors responsible for each specific topic after an extensive review of relevant literature and legislation to ensure that the regulations respected the principle of evidence-based management.

In the months following the publication of the regulatory instruments, a number of workshops and debates in collegiate meetings held across different levels of care were held to promote the effective implementation of the regulations.

Results

Hospitals are essential focal points of delivery in healthcare networks because they support birth to death care processes¹⁶. According to the National Hospital Care Policy (PNHOSP, acronym in Portuguese), hospitals are care facilities equipped with specific technology that provide in-patient continuing care with a strong multidisciplinary and interdisciplinary focus¹⁷.

The operational focus of hospitals is enhanced when organized into three components - emergency care, surgical care, and admission - with the provision of intensive therapy or general beds and ensuring effective care transition.

The instruments that introduce this new paradigm are shown in Chart 1.

The reform implementation process began with changes to the urgent and emergency care model. Emergency care in Brazil has been historically characterized by work processes direct-

ly linked to epidemiological profiles in a society where the demand for health services has been marked by one-off events such as infectious disease and strongly focused on outpatient services. Work processes were therefore developed to provide care in focal points of delivery with added value linked to the super-specialization of services.

In other words, under the old clinical model, emergency services resembled huge outpatient clinics with open agendas providing on-demand services and often solving problems that could be resolved in facilities with less sophisticated technology via programs and without the maintenance costs of uninterrupted services.

Department orders 386 and 408 (Chart 1) transform the old urgent care centers into emergency hospital services (EHS), as determined by the resolution published by the Federal Council of Medicine¹⁸.

We have therefore witnessed a transformation from specialized and fragmented convenient outpatient services, where changes in a patient's condition often led to referral to another specialist service, to a model focused on four major areas of care: emergency medicine, pediatric emergency medicine, obstetrics and gynecology, and trauma surgery.

Specialist areas begin to play a "inter-consulting" role where cases are referred by doctors from the four areas without fragmentation and focusing on patient management, including clinical decision making.

By separating the general medical and emergency medical services, patients admitted to EHS

Chart 1. Regulatory instruments remodeling hospital care work processes in the Federal District.

Instrument	Topic
Department Order 386 (July 27, 2017)	Organizes the Hospital Component of the Care Network within the SUS.
Department Order 408 (August 3, 2017)	Lays out the rules and regulations for the functioning and structure of the emergency management departments of the hospitals that make up the federal district's care network.
Department Order 773 (July 19, 2018)	Establishes guidelines and regulations for the organization of secondary outpatient care.
Department Order 1357 (December 6, 2018)	Establishes guidelines and regulations for the organization of hospital care.
Department Order 1388 (December 12, 2018)	Establishes district policy for the regulation of access to public health services in the Federal District.

are treated by a different team within 24 hours, ensuring that the emergency staff can dedicate themselves to incoming emergencies.

Similar changes were made to pediatric services and emergency pediatric services, obstetrics and gynecology and obstetric emergencies, and general surgery and trauma surgery.

Specialist orthopedics and trauma services and ophthalmology services were maintained as open demand, with the use of other specialist services requiring a request for “inter-consultation” from one of the four emergency care areas.

The same changes that were made to EHS were also made to specialist outpatient services. In addition to the changes to the primary care services, it was necessary to organize secondary services to ensure adequate matrix support for the new healthcare model focused on care coordination, the provision of cross-cutting services, and “resolvability”.

Specialist outpatient services, which in most health regions were provided in hospitals where clinical governance was directly linked to the hospital, were given the autonomy to build their own trajectory within the network-based health system. It is important to note that the project received significant support from the National Council of State Health Departments within the strategy of the health planning model.

The reforms made to the federal district’s secondary care services were guided by Department Order 773/2018 (Chart 1) and Decrees 38.982 and 39.546 (Chart 2) published in 2018.

Having restructured patient flows within two of the most heavily demanded hospital services to ensure coordination between specialist services and primary care and in emergency ser-

vices to promote the provision of comprehensive emergency care, the governance structure of the system was remodeled to create a network-based health system.

Decree 38.488 (September 13, 2017) created the health regulatory body *Complexo Regulador de Saúde do Distrito Federal* (Chart 2), while Department Order 1388/2018 established the regulatory process (Chart 1).

This regulatory framework provides a model for the Mobile Emergency Care Service (SAMU, acronym in Portuguese) located within the Emergency Regulation Center (CERU, acronym in Portuguese), responsible for patient flow within the Urgent and Emergency Care Network. It also passes the responsibility for organizing outpatient access to secondary services to primary care via the primary care regulation departments.

However, despite various advances brought by the PNHOSP, hospital care in Brazil continues to follow another model, due to the lack of integration of planning and actions with the rest of the service network. It was therefore necessary to clearly define the processes conducted within hospitals in the Federal District to promote a shift away from the fee-for-service approach towards a new paradigm based on transversal, value-based care.

Important points within this new approach to work process established by Department Order 1357 (December 6, 2018) (Chart 1) include objective definition and, for all units of the structure of the quality centers, care transition via follow-up clinics and the integration of outpatient centers in this area with mental health policy within a role that responds to hospital network within the health system.

Chart 2. Regulatory instruments reshaping the governance structure of the Central Administration of the Department of Health of the Federal District and hospital care work processes.

Norma	Topic
Decree 38.488 (September 13, 2017)	Creates the structure of the health regulatory body (Complexo Regulador em Saúde do Distrito Federal), responsible for the regulation of all health services provided by the SUS in the Federal District;
Decree 38.982 (April 10, 2018)	Changes the administrative structure of the Department of Health and creates the secondary level of healthcare
Decree 39.546 (December 19, 2018)	Approves the Byelaws of the Department of Health

Discussion

The management of high complexity care services should be integrated with the rest of the service network and underpinned by the premise of care coordination to ensure the provision of value-based care. This requires a shift away from the hospital-centric model towards the polyarchic model.

However, this shift is hampered by a number of cognitive, technological, and even economic barriers.

The shift in the cognitive paradigm is pitched against medical education and training, which finds it a challenge to understand the approach based on care coordination.

Despite changes to graduate courses in Brazil, including a focus on active learning and network-based care, postgraduate training in the area of health, particularly medicine, faces a number of barriers¹⁹.

The majority of professionals therefore have a limited understanding of this model, especially since medical schools faculties are generally made up of biomedically-trained professionals, thus promoting a focus on the fragmentation of care and super-specialization. This training is therefore insufficient to ensure that physicians gain the necessary competences, skills, attitudes, values, and emotional structure necessary to promote transversal care²⁰.

Another limiting factor is having the technology necessary for promoting health actions in the information era. In the present day, the flow of health information within care systems has undergone profound changes. What was once restricted is now available to everybody, including staff and patients. Therefore, matrix working cannot be understood in the same way as it was 30 years ago.

Access to information is wider and has permitted a change to the logical construction of health system structural capital gain. Social media and search engines have contributed to this change²¹.

Today, access to health information can both help and confuse patients and health professionals alike, making the curatorship of knowledge essential in the joint construction of the knowledge necessary for patient care²². This new reality requires professionals with the adequate skills, knowledge, and tools to tailor care to their patients' needs and therefore ensure the provision of quality care²³.

The concept of matrix working seen through the lens of referral and back referral assumes the

existence of a generalist with an immense variety of very shallow knowledge²⁴. However, in the present day this representation is rather outdated, given the complexity of problems, multiple patient demands, and the fact that patient access to health information is constantly improving²⁴.

The modern understanding of matrix working should be the provision of support by professionals and diverse specialist areas, enabling the dynamic use of structural capital by interdisciplinary teams to widen the scope of action and improve the quality of care provision^{13,25}.

The unidirectional flow of information for clinical decision-making therefore ceases to exist and the collaborative coordination of care emerges and each of point of delivery in the health system makes its own contribution to the process.

For this rupture to occur, it is necessary to create a single database base that can be used by all health professionals, such as that created by Department Order 1357 (December 6, 2018) (Chart 1), and envisages knowledge management and a change in the concept of specialist doctor.

The classical definition of specialist and generalist, where the former masters a specific area and the other has limited knowledge of a variety of areas, is outdated. In the current context, it is important to recognize what we call the "multifocal specialist".

The multifocal specialist masters more common areas with the necessary depth of knowledge to provide adequate treatment, which can, with the uses of information access mechanisms, be equal to or greater than that of the "focal specialist" in certain areas. The depth of knowledge is dictated by the care needs of each population group, and can be complemented as necessary by the matrix working through focal specialists in more unusual cases.

Multifocal medical specialties aim to promote the provision of comprehensive and transversal care. Examples of multifocal specialties include: acupuncture; clinical medicine; gynecology and obstetrics; emergency medicine; occupational medicine; traffic medicine; sports medicine; physical medicine and rehabilitation; intensive care medicine; forensic and legal medicine; preventive and social medicine; pediatrics; health administration; burn care; adolescent medicine; sleep medicine; fetal medicine; palliative medicine; and family and community medicine.

Situations such as emergencies, admissions to an intensive care unit, or surgery, where mul-

tifocal specialists need to have a wide range of information at hand for decision-making, and which often have interfaces with other areas of focal specialties, are common.

The conflict generated by this technological barrier, where knowledge or information is no longer a scarce resource in health settings, but rather available in abundance, leads to another dilemma between care model, which is economic.

Focal care provided in isolated points of delivery historically resulted in a gap between demand for health services and service delivery for the majority of focal specialties, because in high complexity situations access to information tools were not available, meaning that the flow of information in the system was slow and ineffective in the majority of cases.

This economic model strengthens fee-for-service since access to health information for clinical decision-making can only be obtained via consultation or report issued by a focal specialist. This not only results in extremely high-value costs in terms of labor, but also strangles demand by fragmenting care and demand an increasing number of professionals.

By prioritizing service provision by various multifocal professionals supported by one focal specialist under a new knowledge management paradigm, it is possible avoid fragmentation and

ensure the delivery of value-based, comprehensive care.

Conclusion

Brazil's national health service has historically been built around a hierarchical, hospital-centric health system. However, the epidemiological transition experienced by the country and major changes in SUS funding arrangements have demanded a more efficient and sustainable model.

Through improved access to information and increased interactivity, the knowledge age has unlocked new horizons of possibilities for developing new models of healthcare management that meet this challenge.

Care coordination has emerged as an alternative approach to hospital care, promoting the integration of various specialties and focusing on knowledge management²⁶ and the provision of cross-cutting services to provide more effective responses to the challenges of our time.

These challenges require active and dynamic coordination between the different points of delivery that make up the health system where technical knowledge plays a pivotal in promoting the transformation of structural capital and ensuring the provision of quality value-based care²⁷.

Collaborations

FHP Uzuelli worked on the design, methodology and final writing; ACD Costa worked in writing and research; B Guedes, CF Wise and SRR Batista worked in methodology.

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