

Normative evaluation of emergency obstetric care in the prevention of COVID-19

Avaliação normativa do atendimento obstétrico emergencial na prevenção da COVID-19
Evaluación normativa de la asistencia obstétrica de emergencia en la prevención de COVID-19

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Abstract

Objective: Evaluate the structure and care flow - risk classification and obstetric emergency in a public maternity hospital in the context of COVID-19.

Methods: Normative and observational evaluation study in the Care sectors (Risk Classification and Obstetric Emergency) of a public maternity hospital in Rio de Janeiro. Data collection was carried out from June to August 2020 for 480 hours of non-participant direct observation, with records systematized in a checklist containing variables related to the availability and compliance of structural resources, and the compliance of the care flow. Data were organized into spreadsheets (Microsoft Excel® 2010) and analyzed using descriptive statistics.

Results: The framework assessment scored 80.3% availability, resulting in a high availability rating, and 91.1% compliance, achieving adequate compliance. The care flow showed 72.7% of total compliance; 9.1% of partial compliance and 18.2% of non-compliance, configuring high compliance.

Conclusion: Normative evaluation indicated high availability and compliance in structure and care flow in the studied scenarios.

Resumo

Objetivo: Avaliar a estrutura e o fluxo assistencial do acolhimento - classificação de risco e emergência obstétrica em uma maternidade pública no contexto da COVID-19.

Métodos: Estudo do tipo avaliação normativa e observacional nos setores de Acolhimento (Classificação de Risco e Emergência Obstétrica) de uma maternidade pública no Rio de Janeiro. A coleta de dados foi realizada de junho a agosto de 2020 por 480 horas de observação direta não participante, com registros sistematizados em *checklist* contendo variáveis relacionadas à disponibilidade e conformidade dos recursos estruturais, e à conformidade do fluxo assistencial. Os dados foram organizados em planilhas (Microsoft Excel® 2010) e analisados usando a estatística descritiva.

Resultados: A avaliação da estrutura obteve 80,3% de disponibilidade, resultando em classificação de alta disponibilidade e 91,1% de conformidade, obtendo conformidade adequada. O fluxo assistencial mostrou 72,7% de conformidade total; 9,1% de conformidade parcial e 18,2% de não cumprimento, configurando-se como alta conformidade.

Conclusão: A avaliação normativa indicou altas disponibilidade e conformidade em estrutura e fluxo assistencial nos cenários estudados.

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Conflicts of interest: Nothing to declare.

Resumen

Objetivo: Evaluar la estructura y el flujo de asistencia de recepción, clasificación de riesgo y emergencia obstétrica, en una maternidad pública en el contexto del COVID-19.

Métodos: Estudio tipo evaluación normativa y observacional en los sectores de Recepción (clasificación de riesgo y emergencia obstétrica) de una maternidad pública en Rio de Janeiro. La recopilación de datos se realizó de junio a agosto de 2020 durante 480 de observación directa no participante, con registros sistematizados en una *checklist* con variables relacionadas con la disponibilidad y conformidad de los recursos estructurales y con la conformidad del flujo de asistencia. Los datos se organizaron en planillas (Microsoft Excel® 2010) y se analizaron usando la estadística descriptiva.

Resultados: La evaluación de la estructura obtuvo un 80,3 % de disponibilidad, que tuvo como resultado una clasificación de alta disponibilidad, y un 91,1 % de conformidad, con una conformidad adecuada. El flujo de asistencia mostró un 72,7 % de conformidad total, un 9,1 % de conformidad parcial y un 18,2 % de no cumplimiento, lo que se configura como alta conformidad.

Conclusión: La evaluación normativa indicó alta disponibilidad y alta conformidad en estructura y flujo de asistencia en los escenarios estudiados.

Introduction

In March 2020, the World Health Organization (WHO) declared the Coronavirus Disease 2019 (COVID-19) as a pandemic, triggering protective measures such as horizontal social isolation and the establishment of sanitary barriers. COVID-19 is caused by Coronavirus 2 (SARS-CoV-2) manifesting itself in the respiratory, cardiovascular, nervous and digestive systems.⁽¹⁻³⁾

Among the populations at risk for severe and lethal manifestations, pregnant and puerperal women stand out due to the greater risk of thromboembolism due to infection and physiological hypercoagulability associated with their reduced mobility in the face of isolation.^(4,5)

In 2020, records at the Brazilian Obstetric Observatory (OOBr) indicated a lethality rate of 12.7% in women with Severe Acute Respiratory Syndrome (SARS) due to COVID-19 during the pregnancy-puerperal cycle, with an association between deaths and obesity, diabetes and cardiovascular diseases. From March 2020 to November 2022, 2,049 pregnant and postpartum women died from COVID-19. Of this total, 462 maternal deaths were reported in 2020, 1,524 in 2021 and 63 in 2022.⁽⁶⁻⁷⁾

Studies have shown the high risk of requiring mechanical ventilation, with complications and admissions to the Intensive Care Unit (ICU). However, mortality predominated in developing countries due to weaknesses in the health system combined with the social determinants of the health-disease process.^(7,8)

In Brazil, maternal deaths resulted from the pathophysiology of the infection and precariousness in the health system (such as insufficient resources, low qual-

ity of prenatal care, difficulty in accessing services, racism and obstetric violence).^(8,9) Thus, the Ministry of Health (MS) published guidelines for health services to control the high maternal mortality.^(5,10)

Considering the high maternal mortality due to COVID-19, the relevance of effective actions in accessing timely care at the entrance of maternity hospitals through the technical quality of interventions in Care - Risk Classification (CRC) stands out as a problem of this research. Thus, providing safe interventions based on ministerial guidelines, ensuring the availability of resources, as well as the compliance of the structure and care process. The term structure refers to the physical and material components according to the Donabedian model.⁽¹¹⁾ Regarding the process, it will be called care flow, and corresponds to care actions directed at the clientele.⁽¹²⁾

Understanding the need for a quick response in the conduct of management to protect women and professionals against the Coronavirus in the face of the epidemiological scenario of COVID-19, the objective of the present study was to evaluate the structure and flow of care in the CRC and obstetric emergency sectors in a public maternity hospital.

Methods

Understanding the need for a quick response in the conduct of management to protect women and professionals against the Coronavirus in the face of the epidemiological scenario of COVID-19, the objective of the present study was to evaluate the structure and flow of care in the CRC and obstetric emergency sectors in a public maternity hospital

The scenario corresponds to the emergency care of a high-risk public maternity, located in the central region of the city of Rio de Janeiro. This maternity assists resident of this region and those women referenced by the Municipal Regulation Center.

The entrance door of the primary care center has two contiguous sectors, with complementary services, called Care - Risk Classification and Obstetric Emergency. These sectors are composed of a reception room, a waiting room, two service rooms and a “quick response” room. During the period studied, obstetrical nurses and nursing assistants performed an average of 490 monthly consultations using the Risk Classification methodology.⁽¹³⁾

A total of 480 hours of non-participant direct observation were carried out by a single researcher. The records were systematized using a checklist prepared by the authors with criteria organized into “Group 1 (Structure)” and “Group 2 (Care flow)”, shown in Box 1 and Box 2. The organization of the groups and the analysis of the results were based on the principles of descriptive statistics and the methodology used by Eduardo and Novaes.⁽¹⁴⁾

Each group was composed of criteria that allowed assigning scores. In “Group I (Structure)”, the dimensions availability and compliance of quality in health were evaluated. Availability corresponded to the supply of structural elements (inputs and environment) as provided in the regulations; the presence or absence of this resource in an adequate amount for the provision of care were evaluated; scores ranging from 0 to 2 were also established, allowing classification as being available (score 2) or not available (score 0).

Compliance referred to the degree to which resources met ministerial guidelines. Scores ranging from 0 to 2 were assigned to the items, indicating non-compliance (0), partial compliance (1) and total compliance (2). Partial compliance with compliance was considered when the structure or action did not fully comply with regulations (e.g.: personal protective equipment (PPE) that did not fully comply with technical specifications; respiratory label signs with outdated guidelines, etc.).⁽¹⁴⁾

In “Group II (Care Flow)”, the degree of compliance of assistance actions in compliance with ministerial regulations was evaluated,^(3,10) scores ranging

from 0 to 2 were assigned for non-compliance (0), partial compliance (1) and total compliance (2). Degrees of compliance were obtained by summing the criteria scores, converting them into percentages (in relation to the maximum possible number of raw points) with subsequent calculation of the arithmetic mean. Means were distributed into tertiles, thus classifying “Structure” and “Care flow” into adequate compliance (means distributed in the third tertile), borderline compliance (means distributed in the second tertile) and insufficient compliance (means distributed in the first tertile).⁽¹⁴⁾

The degrees of resource availability had their averages calculated and distributed into tertiles, being then classified as low (first tertile), medium (second tertile) and high (third tertile) availability.⁽¹⁴⁾

The study emerged in the face of changes in this scenario during the COVID-19 pandemic, as part of a more comprehensive research registered on the Plataforma Brasil (Certificate of Presentation of Ethics Appreciation: 26615719.7.3001.5279), with approval by the Research Ethics Committee of the (Municipal Health Secretariat of Rio de Janeiro; opinion 4,052,529; on 05/27/2020).

Results

The records were initiated by evaluating the structure in a single event. Data collection on the care flow took place in different shifts and teams, portraying the variety of situations in the scenario. The results are presented in Box 1 and 2, which show the variables, the scores achieved and the values obtained in the studied dimensions (compliance and availability). The evaluation reached 80.3% availability, indicating high availability. This value resulted from the average of the percentages of structural resources obtained in the different scenarios. The unavailable inputs were related to aspects of the physical plant: separate entrances for suspected or confirmed cases, washbasin for hand hygiene, and lack of space for dressing and undressing. The unavailability of exclusive teams to care for suspected or confirmed cases was observed (Chart 1). The average structural compliance percentages reached 70.5%, indicating adequate com-

pliance. The variables related to personal protective equipment inadequate to the regulations presented weaknesses; possible absence of material for hand hygiene, as well as inadequate trash and inadequate ventilation (Chart 1).

Chart 1. Description of variables, raw scores and percentages achieved in the dimensions availability and compliance of the emergency obstetric care structure in a high-risk maternity

Framework availability and compliance criteria (per scenario)	Availability	Compliance
	n(%)	n(%)
Care at the entrance		
Space at the entrance for initial care and identification of suspected cases	2(100)	2(100)
Exclusive entrance for suspected cases	0	0
Teams for exclusive care at the entrance door	0	0
Vials with alcoholic preparation	2(100)	2(100)
Resources for simple hand hygiene.	0	1(50)
Bin for disposing of tissues	2(100)	1(50)
PPE for customers	2(100)	1(50)
PPE for professionals	2(100)	1(50)
Compliance with the Brazilian Technical Standard for Accessibility (9050)	2(100)	2(100)
Mean	66.6	55.5
Waiting space		
Exclusive ports for suspected cases	0	0
Exclusive space to accommodate suspected or confirmed cases	2(100)	2(100)
Teams for exclusive care of suspected or confirmed cases	0	0
Vials with alcoholic preparation	2(100)	2(100)
Hand hygiene resources.	2(100)	2(100)
Bin for disposing of tissues	2(100)	1(50)
PPE for customers	2(100)	1(50)
PPE for professionals.	2(100)	1(50)
Signaling on the respiratory label	2(100)	1(50)
Ventilation	2(100)	1(50)
Drinking fountains and public telephones	2(100)	2(100)
Mean	2(100)	2(100)
Attendance room		
Exclusive entrance for suspected cases	0	0
Teams for exclusive care in suspected or confirmed cases	0	0
Vials with alcoholic preparation	2(100)	2(100)
Hand hygiene resources	2(100)	1(50)
Bin for disposing of tissues	2(100)	1(50)
PPE for customers	2(100)	1(50)
PPE for professionals	2(100)	1(50)
Signaling on the respiratory label	2(100)	1(50)
Number of chairs	2(100)	2(100)
Lighting and acoustics	2(100)	2(100)
Ventilation	2(100)	1(50)
Resources for checking vital signs	2(100)	2(100)
Physical examination resources	2(100)	2(100)
Resources for oxygen therapy	2(100)	2(100)
Resources for upper airway aspiration	2(100)	2(100)
Resources for Fetal Assessment	2(100)	2(100)
Resources for resuscitation	2(100)	2(100)
Resources for hygiene and disinfection of supplies and change of bed linen at each service	2(100)	2(100)
Space for dressing and undressing	0	0
Mean	84.2	68.4

Continue...

Continuation.

Framework availability and compliance criteria (per scenario)	Availability	Compliance
	n(%)	n(%)
Quick response room		
Teams for exclusive care in suspected or confirmed cases	0	0
Vials with alcoholic preparation	2(100)	2(100)
Hand hygiene resources	2(100)	2(100)
Bin for disposing of tissues	2(100)	1(50)
PPE for customers	2(100)	1(50)
PPE for professionals.	2(100)	1(50)
Signaling on the respiratory label	2(100)	1(50)
Bed layout	2(100)	2(100)
Lighting and acoustics	2(100)	2(100)
Ventilation	2(100)	2(100)
Resources for oxygen therapy	2(100)	2(100)
Resources for upper airway aspiration	2(100)	2(100)
Resources for multiparametric monitoring	2(100)	2(100)
Resources for resuscitation	2(100)	2(100)
Infusion pumps	2(100)	2(100)
Mechanical fan	2(100)	2(100)
Resources for hygiene and disinfection of supplies and change of bed linen at each service	2(100)	2(100)
Space for dressing and undressing	0	0
Mean	88.8	80.5
Mean of the total percentage	80.3	70.5

Caption: N-score % -Percentage

In assessing the care flow, the average percentage was 71.8%, resulting in adequate compliance. The weaknesses identified were related to: lack of assistance by exclusive teams, possible non-availability of adequate PPE for women and professionals, and inadequacies in clothing/undressing (Chart 2).

Discussion

High availability of inputs and adequate structural compliance were identified. The physical characteristics of the building (conceived in the 1950s) contributed to the vulnerabilities (such as the lack of hydraulic installation for a washbasin near the entrance and rooms with only one door, etc.), determining adjustments (such as the allocation of 70% alcohol gel bottles at the entrance of the building and the referral of women who were waiting for care in the outpatient rooms near the reception sector).

According to Donabedian,⁽¹¹⁾ we start from the assumption that an adequate infrastructure provides a work process favorable to the proposed results. In the face of pandemics, investments in reorganization in national health centers prior-

Chart 2. Description of variables, raw scores and percentages achieved according to the compliance dimension of care flow in emergency obstetric care at a high-risk maternity

Structural flow compliance criteria per scenario	n(%)
Care at the entrance	
Reception, evaluation and characterization of women as a suspected case or not	2(100)
Risk rating	2(100)
Guidance for women on hand hygiene and respiratory etiquette	2(100)
Provision of PPE for all women	1(50)
Availability of PPE for professionals	1(50)
Assistance by exclusive teams to suspected or confirmed cases of COVID-19.	0
Average percentage of compliance	66,6
Waiting space	
Keep suspected or confirmed cases in an exclusive area	2(100)
maintenance of distance	2(100)
Assistance by exclusive teams to suspected or confirmed cases of COVID-19.	0
Average percentage of compliance	66,6
Attendance room	
Priority care for suspected or confirmed cases.	2(100)
Assessment of suspected or confirmed cases, including fetal well-being	2(100)
Referral of women with SARS signs to the "Rapid Response Room"	2(100)
Hand hygiene at each visit	2(100)
Dressing and undressing in an exclusive and signposted area.	0
Assistance by exclusive teams to suspected or confirmed cases of COVID-19	0
Average percentage of compliance	66,6
Quick response room	
Installation of multiparametric monitoring	2(100)
Assessment of maternal vital signs	2(100)
Fetal assessment	2(100)
Care related to oxygen therapy	2(100)
Care related to upper airway aspiration	2(100)
Hand hygiene at each visit	2(100)
Dressing and undressing in signposted area	0
Cleaning and disinfection of resources and change of bed linen at each visit	2(100)
Mean percentage of compliance	87,5
Mean total percentage of compliance	71,8

Caption: N-score % -Percentage

itized expanding beds suitable for assistance in critical situations.⁽¹⁵⁾ The scenario studied underwent reorganizations in structure and care flow related to COVID-19 control measures. Considering the potential for complications for the users, the Rapid Response Room (SRR) was instituted to provide the highly complex care possible until transfer to the ICU in accordance with health guidelines. Thus, actions to restructure the scenario can be considered as potential contributions to the adequate structural compliance achieved in the assessment.

Most countries affected by the pandemic have experienced rapid growth in demand for health supplies. Brazil was unable to avoid the initial shortage, despite having registered the first cases in February 2020, thus enjoying a relative margin of time to in-

crease production or purchase of materials. In April 2020, a lack of PPE was reported in the 26 states and the Federal District. During the pandemic period, the difficulty for professionals to access the appropriate devices was related to dependence on imports and lack of logistical coordination.⁽¹⁵⁻¹⁷⁾

The availability of protective equipment favored the reduction in absenteeism of health professionals caused by infection, a weakening factor in the care process. We emphasize that it was necessary to consider the frequent and prolonged exposure of possibly infected women, as well as the intensification of the workday and greater complexity in the care provided (in addition to the use of adequate protective equipment), for safe and effective assistance. This reality could affect the level of alertness and attention in the event of a reduction in breaks in the work process, compromising care with one's own protection and favoring adverse events.^(17,18)

Despite the repercussions of structural weaknesses, adequate compliance was achieved regarding the care flow. With the inclusion of pregnant and puerperal women in the risk group for COVID-19 (following the determinations of local, national and international health bodies), the assistance flows in maternity hospitals were modified. The obstetric emergency is the gateway for clients where the routine is guided by good care practices through reception (classification of obstetric risk and subsequent medical care) with expectant or resolute conduct.^(19,20)

Nursing professionals, as components of the multidisciplinary team in the urgent and emergency sectors, act based on technical-scientific knowledge, aiming at comprehensive and humanized care for women who experience situations of high obstetric risk. The dimensioning of nursing in the scenario studied was revised (adding an obstetric nurse per CRC team) to streamline the service, thus avoiding crowding in the waiting room and better organization of the team in situations of absenteeism and clients in critical care.⁽²¹⁾

Professionals lived with the need to maintain care and sensitive attitude despite the fear of contamination and the strictness of preventive measures. In the obstetric units, the service flow was system-

atized to take care of confirmed or suspected cases of COVID-19, with adequate monitoring of early signs of complications, valuing humanized care.^(16,22)

Given the limitations of the protective measures, the care process was evaluated and adapted by the nurses to ensure individualized care, preventing women on breathing and contact precautions from experiencing civil isolation and possible negligence in care.^(19,20)

As a limitation of the study, we point out that possible weaknesses in the dimensioning of personnel and their repercussions on the care flow were not contemplated. In addition, any weaknesses in care related to the psychological distress of these professionals were not explored.

Conclusion

The components necessary for care were made available with adequate compliance resources despite the weaknesses related to the physical plant and difficulties in accessing protective equipment, thus meeting technical standards and favoring access to timely care. Care led by nurse midwives was systematized to ensure control of COVID-19 with an adequate care flow according to the specificities of the assisted public. Faced with the occupational risk and the frequent updates of health regulations, the professionals were responsible for maintaining quality care.

Collaborations

Silva SCSB and Acuan LV contributed to the conception and design or analysis and interpretation of data. Cardoso GCP, Paes GO, Trotte LAC, Mouta RJO and Stipp MAC carried out the writing of the article or relevant critical review of the intellectual content and final approval of the version to be published.

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